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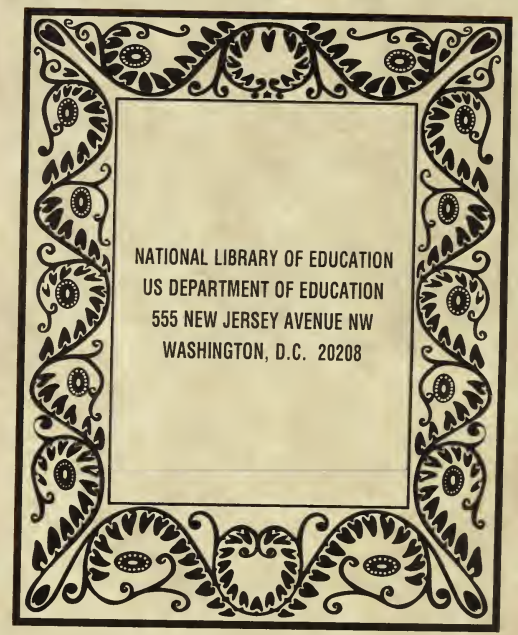
OF THE

SECRETARY OF THE INTERIOR

FOR THE FISCAL YEAR ENDED JUNE 30

1935

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OF THE

SECRETARY OF THE INTERIOR

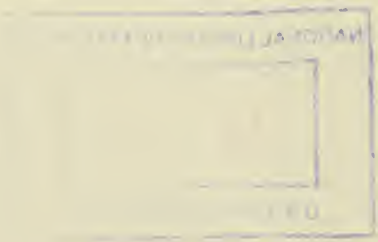
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Annual report of the Secretary of the Interior

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LETTER OF TRANSMITTAL

THE SECRETARY OF THE INTERIOR,
Washington, November 30, 1935.

SIR: I have the honor to transmit my annual report for the Department of the Interior for the fiscal year ended June 30, 1935.

Very respectfully,

HAROLD L. ICKES,
Secretary.

THE PRESIDENT,
The White House.

THE REPORT OF THE SECRETARY OF THE INTERIOR TO THE PRESIDENT FOR THE FISCAL YEAR ENDED JUNE 30, 1935

As in my two preceding reports, I shall not attempt here to interpret or give a résumé of the detailed reports of the various divisions, offices, and bureaus of the Department of the Interior which follow.

Since my last annual report there have been two important changes in the organization of this Department. The Soil Erosion Service, originally set up by this Department, was transferred by Executive order to the Department of Agriculture. Also, the Division of Subsistence Homesteads, likewise set up in this Department, was transferred by Executive order to the Rural Resettlement Administration.

Although the petroleum code no longer exists, certain legislation was enacted by Congress, designed to control petroleum production. The Petroleum Administrative Board has continued to function and, therefore, its annual report is included herein.

As heretofore, in the interests of economy, every effort has been made to cut down the volume in this report without sacrificing any initial information. Fuller particulars of the activities of any part of the Department are available in its files.

THE SOLICITOR

(Nathan R. Margold)

At the close of the fiscal year, as well as at its beginning, the legal staff of the Department consisted of 67 attorneys serving in Washington and in the field under the jurisdiction of the Solicitor. During the year three attorneys were added to the immediate staff in the central office of the Solicitor. However, the aggregate membership of the legal sections attached to various bureaus in the Department was decreased by the same number. Thus, the personnel remained nearly constant during the year. Yet, the business of the Solicitor increased greatly over the same period.

In the year 1933–34, 84 formal opinions were rendered by the Solicitor. During the year ended June 30, 1935, the number of opinions rendered was 237, an increase of almost 300 percent. About one-third of these opinions concerned accident claims, which have been very numerous in connection with emergency conservation work and other operations in areas under the jurisdiction of the National Park Service. Some 50 title opinions have been required, the majority of them in connection with the land-purchase program of the National Park Service. Less numerous, but individually more important, have been those opinions rendered in response to particular legal inquiries concerning the interpretation and administration of the Indian Reorganization Act, the Taylor grazing law and the general withdrawal of the public domain under the Executive orders of November 26, 1934, and February 5, 1935. Other matters involved in important opinions have been so miscellaneous as these:

Applicability of State sales and license taxes to operations of concessionaires within national parks;

Duration of power of the President to reorganize the Executive branch of the Government and application of that power to the government of the District of Columbia;

Right of certain Wisconsin Indians to enrollment with the Chippewas of Minnesota;

Resettlement of rural groups under subsistence homestead legislation;

Establishment of national monuments under the act for preservation of American antiquities;

Right of St. Elizabeths Hospital to hold soldiers and sailors in custody after their discharge from the service; and

Wages and hours of Park Service employees engaged in trades.

Appeals and related motions in public-land cases have increased about 100 percent. Land cases received this year numbered 1,018, as contrasted with 520 similar cases received during the preceding year. However, this increase has not been allowed to cause an accumulation of pending cases. A year ago 407 cases were pending after 549 had been disposed of during the preceding 12 months. But on June 30 of this year, despite the doubling of the number of appeals filed, only 315 land cases were pending. This result has been accomplished by the disposition of 1,110 land cases during a single year, a tremendous undertaking under any circumstances and particularly in view of the unusual amount of other legal work which the business of the Department has involved.

One of these appeals, *United States* v. *California et al.* (A–17366), is perhaps the most important single case considered by the legal officers of the Department in recent years. This decision, commonly called the " Section 36 Case ", asserts the validity of the title of the United States to lands within the Elk Hills oil field in California, one of the most valuable oil-producing areas in the United States. Preparation of the opinion required the examination of some 10,000 pages of testimony and hundreds of exhibits in order that findings might be made upon controverted issues of fact concerning the mineral character of the area as it appeared 30 years ago.

During the fiscal year consent decrees have been entered in 18 war minerals relief cases. Seventeen cases of this type were dismissed by the Supreme Court of the District of Columbia either after hearing upon petition and answer or upon motion of the Secretary of the Interior. The Secretary of the Interior has been defendant in several suits for mandamus or for injunction which have been in process of litigation in the courts of the District of Columbia during the year. In all of these cases the Solicitor has represented the Secretary.

The Solicitor has also assisted special counsel for the people of Puerto Rico in the representation of the interests of Puerto Rico in cases before the Circuit Court of Appeals for the First Circuit on appeal from the courts in Puerto Rico. In addition, attorneys attached to the several bureaus of the Department, particularly the Indian Office and the Reclamation Service, have assisted the Department of Justice in the conduct of litigation involving interests of this Department.

During the first session of the Seventy-fourth Congress the legislative section of the office of the Solicitor has prepared or assisted in the preparation of approximately 115 bills, has prepared or reviewed approximately 1,140 reports and letters dealing with legislation, and has represented the Department before congressional committees on

some 70 occasions. However, much of the basic work of preparing a departmental legislative program must be done when Congress is not in session. As a condition precedent to the preparation of any important legislative measure and to the exposition of such a bill to congressional committees a thorough exploration of all pertinent factual and legal aspects of the proposal must be conducted. This requires investigation and study in Washington and not infrequently in the field. In anticipation of questions which may be raised, potential constitutional issues must be examined in many cases and opinions must be written for reference as occasion may arise.

Among the bills sponsored by the Department and enacted during the first session of the Seventy-fourth Congress, two are mentioned particularly. Public, No. 292 is an act authorizing the Secretary of the Interior to acquire, restore, and preserve historic sites and properties. No longer will it be necessary to rely upon public-spirited and wealthy individuals to preserve and restore historical landmarks of the United States. Public, No. 297½ is an act abolishing the present unsatisfactory permit system of mining upon the public domain and substituting a more equitable system of leasing, under which the United States, the States, and the reclamation fund will receive the royalty benefits which have heretofore accrued in large measure to middlemen who contributed little or nothing toward the development of the oil resources of the Nation.

It is noteworthy that the legal business of the General Land Office has increased rather than decreased since the general public land withdrawals effected by the Executive orders of November 26, 1934, and February 5, 1935. In fact, the promulgation of those orders has had the effect of stimulation of recourse by claimants to every equity or alleged equity and to every legal right of appeal possible in order to make their claims relate back to some time prior to the withdrawals.

The Solicitor has supplied requisite legal services to aid Indian tribes in drafting constitutions, bylaws and charters authorized by the Indian Reorganization Act of June 18, 1934. At the same time members of the immediate staff of the Solicitor and attorneys in the Indian Office have devoted much time to a comprehensive revision of the complicated and uncoordinated departmental regulations governing the conduct of Indians. New rules of May 31, 1935, represent a thorough revision of the entire body of regulations concerning Indian probate matters. A similar revision of Indian law and order regulations has been completed. Work continues on grazing, leasing, and other regulations. In addition, Indian liquor laws and regulations are being accorded particular study with a view to recommending legislative and administrative action for the more effective control of liquor traffic upon Indian reservations.

In the initiation, organization, construction, and management of some 40 reclamation projects the condemnation and purchase of land and rights-of-way, the organization of irrigation districts and water users' associations, the negotiation, execution, and performance of repayment contracts and the prosecution of litigation for the adjudication of water rights continue to require extensive, varied, and important legal services. As was pointed out a year ago in the annual report of the Solicitor, the current program of the Bureau of Reclamation, financed principally by emergency public-works allotments, is almost as extensive as the aggregate of operations heretofore undertaken by the Bureau during the first 30 years of its existence. This increase in reclamation work has caused the legal business of the Bureau to increase 5 or 6 fold during the last 2 years. Yet, the legal staff attached to the Bureau has not been increased at all. The present staff is carrying a burden greatly in excess of reasonable assignment.

The following statistical summary of major features of the work of the Solicitor, exclusive of the business dispatched by legal sections attached to particular bureaus, has been compiled for convenient reference:

	Land decisions	Opinions of Solicitor [1]	Indian matters	Miscellaneous matters
Pending July 1, 1934	407	----------	170	1,077
Received during year	1,018	----------	5,699	10,535
Total	1,425	----------	5,869	11,612
Disposed of during year	1,110	237	5,663	11,373
Pending June 30, 1935	315	77	206	239

[1] Prior to this year opinions of the Solicitor have been included in "Miscellaneous matters."

Miscellaneous matters include the following:

Reports on legislation	1160
Contracts for the erection of buildings, road construction and repairs, supplies, etc	2833
Cases prepared for submission to the Board of Equitable Adjudication	937
Oil and gas matters:	
Leases	50
Prospecting permits:	
Granted	1523
Reinstated	8
Assignments	269
Extensions of time	2384
Canceled	271

Coal matters:	
Prospecting permits	73
Licenses	35
Leases	28
Potash matters:	
Prospecting permits extended	8
Permits canceled	4
Sodium matters:	
Prospecting permits	14
Leases	1
Sulphur matters: Prospecting permits	4

DIVISION OF INVESTIGATIONS

Louis R. Glavis, *Director*

The regular annual appropriation for this Division to conduct investigations for the Interior Department for the fiscal year 1935 was $362,560.

The average number of active field investigators, exclusive of special agents in charge, was 75; average number of clerks employed in divisional offices, 20; total force employed, including special agents in charge, and the Washington office, 100.

Due to the activities of field investigators, $30,638.65 was collected and turned into the Treasury and 224,214.59 acres were restored to the public domain, representing fraudulent entries, etc., canceled on proceedings based on their reports.

INVESTIGATIONS

On July 1, 1934, there were pending field investigation 8,476 cases. During the year 8,237 additional cases were received; 8,546 cases investigated, reported, and closed, leaving 8,167 cases pending investigation. Of the reports submitted, 2,512 were adverse and 6,034 favorable.

On the recommendation of this Department 27 civil suits were brought by the Department of Justice. Twenty-one cases were tried, of which 18 were won and 3 lost. As a result of the suits, $12,808.35 was recovered and 1,480 acres restored to the public domain. The criminal cases handled in the Division consisted of: Conspiracy, 21; criminal, 11; intimidation, 2; and unlawful enclosure, 18. Of the criminal cases tried 3 resulted in conviction and prison sentence was imposed in each case.

The cases investigated by the Division for the various bureaus of the Department, other than the General Land Office, were as follows: Office of Indian Affairs, 126; National Park Service, 25; Bureau of Reclamation, 7; miscellaneous, 7; Geological Survey, 4.

FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS

The Director of Investigations conducts all investigations for the Public Works Administration. His staff personnel on June 30, 1935.

including the national office at Washington, consisted of 10 special agents in charge, 185 special agents, and 125 other employees.

Cases investigated by the Division of Investigations relate to expenditure of Public Works' funds, collusion and fraudulent bidding where contractors and subcontractors are involved, wages and disputes arising from rates of pay, irregularities in the employment of labor and use of materials, code violations, underpayment of employees, repayment to contractors of wages of employees, contracts relating to housing projects, governmental personnel, and misconduct of officers and employees of the Public Works Administration, activities of the National Reemployment Service and other governmental agencies, to which Public Works' funds are allotted.

These investigations, having to do with the allotment and expenditure of large sums of money, enabled the administrative officers to uncover numerous frauds and irregularities and prevent substantial losses to the Government. It is notable that a saving of $64,449,927.74 was effected by the Public Works Administration through activities of the Division of Investigations since inception of the administration in 1933.

The administrative expense of the Division of Investigations from the beginning to June 30, 1935, amounted to $1,337,350.90, or a fraction slightly more than 2 percent of the total amount saved.

This saving was accomplished by and through investigations covering such items as cancelation or rescission of contract bids and awards where fraud or collusion was found to exist, rescission of allotments for loans and/or grants due to irregularities or fraudulent representation; lack of economic soundness in projects investigated, inadequate financial ability of the borrower or his inability to liquidate loans, and the use of insufficient or inferior material in construction work.

There also was included penalties imposed on contracts for violation of the 8-hour law on Federal projects, reduction in allotments where it was found that the borrower had included excessive amounts in estimates covering overhead and engineering fees, reduction of allotments due to fictitious estimates and excessive appraisals covering the purchase of lands for projects sites and savings effected by requiring a change in the method of construction from force account to a contract basis.

The Division of Investigations also effected other savings not shown in this total. One of the more important of these was reimbursement of wages to labor where such pay was wrongfully withheld by contractors through what has been designated as the "kickback racket." It is estimated that this saving to labor by such reimbursements amounted to $258,331.14.

Thirteen thousand seven hundred and twenty-two cases were investigated and reported by special agents of the Division of Investigations; 10,520 cases were reported favorably and 3,202 cases were reported adversely. Included in the foregoing were 85 criminal prosecutions, resulting in 14 cases receiving court action, 16 cases resulting in indictments, and prison sentences were imposed in six cases.

The Director of Investigations conducted 107 investigations for the National Reemployment Service, Department of Labor, and 400 investigations were made for the Director of the Contract Division of the National Industrial Recovery Administration, involving code violations on P. W. A. projects.

OIL ENFORCEMENT

The Director of Investigations performed all investigations, under the supervision of the Secretary of the Interior in his capacity of administrator for the petroleum industry, in the enforcement of the provisions under the regulations pursuant to section 9c of the National Industrial Recovery Act, relating to the transportation in interstate commerce of oil produced in violation of State regulations, until the United States Supreme Court in the case of the Panama Refining Co., et al., dated January 7, 1935, held these regulations to be unconstitutional, and in the enforcement of the provisions of the Code of Fair Competition for the Petroleum Industry, until the decision in the case of A. L. Schecter Poultry Corporation and others, dated May 27, 1935, declared the code unconstitutional.

OIL CODE

The personnel until June 15, 1935, the date the code work ceased, consisted of 13 special agents in charge, 2 acting special agents in charge, 78 special agents, and 85 employees, inclusive of the personnel in the Washington office.

The total number of cases investigated was 8,885, of which 3,065 were reported on and closed. Of the total number of cases investigated, 420 were recommended for prosecution and in 341 cases prosecution was begun.

INVESTIGATIONS UNDER SECTION 9C

The investigations were carried on by the Director of Investigations by a personnel of 1 agent in charge, 23 special agents, and 14 clerks. The total number of cases investigated was 1,223, resulting in 25 cases prosecuted. Under section 35 of the Criminal Code, as amended, 11 prosecutions. Civil cases, resulting in court action, 2.

CONNALLY OIL ACT

The Director of Investigations conducted investigations in all States other than Texas of violation of the Connally Act of February 22, 1935 (Public, No. 14), relating to interstate and foreign commerce in petroleum and its products by prohibiting the shipment in such commerce of petroleum and its products produced in violation of State law.

The existing personnel of the Division of Investigations engaged in this work comprises an office force in Washington and a field force of 74 employees. The total number of cases investigated was 18, resulting in 4 recommended for prosecution and a permanent injunction secured in 1 case.

MARINE UNIT

The investigations of cases arising under the regulations under section 9c and the Connally Oil Act were made in conjunction with a marine section of 1 special agent in charge, 2 special agents, and 15 employees, operating a number of patrol boats, to inspect tanker cargoes of petroleum and petroleum products. Reports are made by the masters of all vessels transporting petroleum or petroleum products thereof, in the loading and discharging of cargoes, amounting to a total of 284,054,468 barrels, moved in interstate commerce from the State of Texas. The reports, approximating 125 per day, constitute the first attempt in the history of coastwise commerce for a governmental agency to secure an accurate record of coastwise and intercoastal movements of these products. The information is valuable to the Federal Government in the collection of taxes due on petroleum products.

CIVIL WORKS ADMINISTRATION

Investigations of irregularities in expenditures of funds allotted to the Federal Relief Administrator for civil relief, by the Public Works Administration, were conducted by the Director of Investigations until February 14, 1934. While there were no investigations of new cases during the past fiscal year, there were 23 cases pending with the United States attorneys for prosecution; 6 indictments secured; 5 cases resulted in court action; 4 cases involved prison sentences; 8 dismissed; and 9 are till pending action of the United States attorneys and the Department of Justice.

DIVISION OF GRAZING

(F. R. Carpenter, Director)

The act of June 28, 1934 (48 Stat. 1269), commonly known as the "Taylor Grazing Act", is a new development in the national policy for conservation of natural resources in accord with the traditions of the Department of the Interior. The purposes of the new law as set forth in its title are "To stop injury to the public grazing lands by preventing overgrazing and soil deterioration; to provide for their orderly use, improvement, and development; to stabilize the livestock industry dependent upon the public range; and for other purposes."

The first step in the administration of this law was taken July 9, 1934, when Secretary Ickes designated representatives of the Department of the Interior to hold a series of preliminary conferences in the West. The delegation named was headed by Assistant Secretary Oscar L. Chapman and included Fred W. Johnson, Commissioner of the General Land Office; Rufus G. Poole, Assistant Solicitor; Hugh H. Bennett, Director Soil Studies; T. C. Havell, General Land Office; J. H. Favorite, Division of Investigations; John F. Deeds, Geological Survey; and Dr. Wendell Lund, acting in a secretarial capacity.

These representatives held public hearings as follows: July 23, Salt Lake City, Utah; July 26, Boise, Idaho; July 31, Billings, Mont.; August 2, Casper, Wyo.; August 6, Glenwood Springs, Colo.; September 14, Albuquerque, N. Mex.; September 19, Prescott, Ariz.; September 24, San Francisco, Calif.; September 26, Reno, Nev.; and September 28, Klamath Falls, Oreg.

In his report on these conferences Assistant Secretary Chapman states that ranchmen throughout the West realize that the vast public ranges which are being overgrazed and depleted must be protected and restored or they will soon be replaced by acres of desert land. They realize that it is to their own interest, as well as to the interests of their States and the Nation, that these lands be protected by a sane uniform policy.

Meanwhile, in order to handle the multitude of inquiries and other details incident to the administration of this law, the Secretary, on July 17, named Mr. N. F. Waddell, special agent, Division of Investigations, Acting Director in Charge of Grazing, pending the appointment of a director to handle the grazing program. The General Land Office and Geological Survey were directed to cooperate

with him. On September 7, 1934, the Secretary appointed Mr. F. R. Carpenter, of Hayden, Colo., Director of Grazing.

The new Director of Grazing was authorized, with the concurrence of the agencies concerned and the approval of the Secretary, to select such assistants as were required for the administration of the Taylor Grazing Act from the staffs of the Geological Survey, the General Land Office, and the Division of Investigations. At the close of the year a total personnel of 35 people were thus assigned to the Division—21 from the Geological Survey, 8 from the Division of Investigations, and 6 from the General Land Office. The salaries and expenses of the Director and detailed employees up to June 30, 1935, amounted to approximately $110,000. The salaries and expenses included in this figure cover only the period of detail, which for the most part was less than half of the fiscal year. It is estimated that an additional expense of not less than $100,000 was incurred by the cooperating agencies.

DENVER CONFERENCE

On December 13, 1934, the Secretary announced that a series of conferences would be held in Denver, Colo., February 11 to 16, to discuss questions of national policy in the exchange and use of public lands as they may be affected by the grazing regulations. Officials from the States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming were asked to attend these conferences. The first two days were devoted to State lands, the second two days to fish and game problems, and the last two days to grants in aid of railways and highways.

On February 12, 1935, Secretary Ickes spoke before a general assembly of all persons attending the conference. The Secretary discussed the abuses inherent in unrestricted grazing on the open public domain and the benefits to be obtained from prudent use of the land under the terms of the Taylor Grazing Act. He besought the intelligent and whole-hearted support of western stockmen to the end that depleted ranges might be restored to normalcy.

The State land representatives adopted a series of resolutions concerning the administration of the public domain with particular reference to grants in aid of the public schools and for other purposes. One of the primary requests from the State land agents concerned facilitation of exchanges. To accomplish this purpose the President signed the Executive order of May 20, 1935, modifying Executive order of November 26, 1934.

OBJECTIVES OF THE TAYLOR GRAZING ACT

The primary task in the administration of the public domain under the Taylor Grazing Act contemplates establishment of grazing districts where the area of public land is adequate to warrant such action for (1) conservation of natural resources, and (2) stabilization of the livestock industry dependent upon the range. Over a long period of years grazing use in excess of carrying capacity has caused a progressive deterioration of that land through displacement of the more palatable forage plants by species of low palatability or of no worth for grazing. In this transition natural erosion processes have been accelerated, causing loss of soil fertility, and in places even actual removal of soil cover, thus rendering the land incapable of producing a density of any vegetative growth equivalent to natural conditions. This deterioration has been in progress over a period of 35 to 40 years.

Conservation of natural resources under these conditions requires not only prevention of further waste but restoration of the land resources. By the halting of all land-use activities nature could accomplish this restoration unaided, but such drastic action would create an intolerable economic disturbance throughout the West. Accordingly the Department is planning to accomplish restoration of the land by other means to the utmost practicable limit.

A wide variety of range restoration projects will be undertaken as part of the Emergency Conservation Work Program of the Division now being performed by the Civilian Conservation Corps. These projects will include an extensive program of water development to permit a more even distribution of the livestock on the public range. Eradication of rodents will be undertaken to reduce their consumption of the feed resources. Drift fences will be constructed to permit more effective range management, and in some localities trails will be constructed to make present inaccessible feed supplies available for use. Small sample plots will be enclosed with rodent-proof fences to furnish definite indication of the rate of restoration obtainable by natural processes and the character of the natural vegetation. Erosion control will be included in the program where necessary, as well as the eradication of poison plants. Such activities, with a limitation of the livestock population to accord with the feed resources actually available, as well as to proper seasons of use will comprise the initial activities toward restoration of normal range conditions.

SPECIAL EXECUTIVE ORDERS

On November 26, 1934, the President signed an Executive order withdrawing for classification all public lands in the States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, and Wyoming. The

order was limited to these States because they contained the only areas which were then regarded as properly subject to inclusion in grazing districts. The withdrawal was made in furtherance of the organization of such districts, the exchange of State-owned and privately owned lands, the sale or lease of isolated disconnected tracts, as well as the other purposes of the Taylor Grazing Act. The order declares that classification of the lands involved is necessary for the effective accomplishment of its purposes and that the lands are being reserved pending completion of such classification work, unless sooner revoked by the President or the Congress.

By Executive order of February 5, 1935, the public lands in the States of Alabama, Arkansas, Florida, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Nebraska, Oklahoma, Washington, and Wisconsin were withdrawn for classification and pending determination of the most useful purpose to which said lands may be put in furtherance of the land program of the Federal Emergency Relief Administration and for the conservation and development of natural resources. Where that program is involved or can be aided by the organization of grazing districts it is anticipated that such districts will be organized under the Taylor Grazing Act.

By Executive order of May 20, 1935, the President so amended Executive order of November 26, 1934, as to make it applicable to all lands within the States involved therein "upon the cancelation or release of prior entries, selections, or claims, or upon the revocation of prior withdrawals, unless expressly otherwise provided in the order of revocation." In the same order the Secretary of the Interior is authorized in his discretion and in harmony with the purposes of the Taylor Grazing Act of June 28, 1934, to accept title to base lands in exchange for other lands subject to exchange under the terms of that act.

ORGANIZATION OF GRAZING DISTRICTS

Pursuant to the requirements in the Taylor Act for a public hearing prior to the organization of a grazing district public notices were issued for such hearings as follows:

Sept. 17	Grand Junction, Colo.
Oct. 1	Bakersfield, Calif.
Oct. 5	Alturas, Calif.
Oct. 11	Klamath Falls, Oreg.
Oct. 16	Burns, Oreg.
Oct. 22	Salt Lake City, Utah.
Oct. 31	Alamogordo, N. Mex.
Nov. 2	Vernal, Utah.
Dec. 4	Malta, Mont.
Dec. 11	Ekalaka, Mont.
Dec. 18	Milford, Utah.
Jan. 9	Mountain Home, Idaho.
Jan. 22	Monticello, Utah.
Jan. 25	Moab, Utah.
Jan. 29	Castle Dale, Utah.
Feb. 4	Roswell, N. Mex.
Feb. 8	Deming, N. Mex.
Feb. 11	Santa Fe. N. Mex.
Feb. 14	Durango, Colo.
Feb. 19	Montrose, Colo.
Feb. 26	Grand Junction, Colo.

The above-listed hearings involved relatively small grazing units sponsored by local interests with but little reference to broad regional plans. Conflicts in areas requested for inclusion in adjoining districts were inevitable as well as a multiplicity of hearings in which the problems, and often even the people involved, were substantially identical.

Accordingly, under date of December 1, a public notice was issued for a series of State-wide hearings to be held as follows:

Dec. 4	Malta, Mont.
Dec. 7	Billings, Mont.
Dec. 10	Casper, Wyo.
Dec. 15	Vale, Oreg.
Dec. 17	Boise, Idaho
Dec. 19	Salt Lake City, Utah
Dec. 29	Montrose, Colo.
Jan. 3	Bismarck, N. Dak.
Jan. 8	Rapid City, S. Dak.
Jan. 14	Albuquerque, N. Mex.
Jan. 17	Bakersfield, Calif.
Jan. 24	Reno, Nev.
Jan. 28	Phoenix, Ariz.

Notice of the December 4 hearing at Malta, Mont., included in the foregoing list, is a duplication of a notice previously published.

At the State-wide hearings, after an explanation of the terms of the Taylor Grazing Act as applicable to the conditions in each locality, the need for subdividing the State into grazing districts comprising public-domain areas convenient and proper for administration, was given special emphasis. At these meetings State committees, composed of representative stockmen, were elected to recommend boundaries for such grazing districts.

Following the series of State-wide hearings the committees elected at such hearings considered the range problems of their respective States and recommended the establishment of 50 districts involving an aggregate area of approximately 142,000,000 acres of vacant, unreserved, unappropriated public land. The action of these committees was taken without reference to the provision in the existing law limiting the creation of such districts to 80,000,000 acres of vacant, unappropriated, unreserved public land. Accordingly, in the absence of further authority from the Congress, only 32 of the districts proposed could be established. The districts selected for establishment included areas in which range administration was most urgently needed and the lands were conveniently located for administration.

REGULATIONS FOR GRAZING DISTRICTS

Division of Grazing, circular no. 1, entitled "Rules providing for special elections for district advisors to assist in the management of grazing districts", was approved by the Secretary, April 23, 1935. Circular no. 2, entitled "Rules for the guidance of district advisors in recommending the issuance of grazing licenses", was approved

by the Secretary, May 31, 1935. These circulars contain the general regulations issued during the year for the administration of grazing districts.

Under circular no. 1, the services of local persons familiar with the range problems will be secured by a special election of district advisors from among the local stockmen to serve until plans are completed which contemplate a regular annual election. By this means the practical local viewpoint will be available at all times in the administration of the law. These advisors will receive no regular salary but will be paid $5 a day for subsistence and necessary travel expenses. They will take the regular oath of office of a Federal official and will be the local governing agency as to all matters of a range regulatory nature concerning their particular district. The Interior Department will exercise necessary supervision and provide basic technical criteria for conservation of natural resources.

Circular no. 2 contains preliminary rules for allocating public range privileges and general rules governing the use of the land. This circular provides that until such time as land classification studies can be completed and the commensurate value of properties dependent upon the public range determined, only temporary revocable licenses will be issued. Furthermore, during this temporary period, established stockmen will be recognized upon the basis of their operations prior to the time the administration of the public range is inaugurated.

In the preparation of these regulations an effort has been made to take immediate steps for range regulation in a manner that would permit needed readjustments to be made gradually and on the basis of thorough investigations. Furthermore, some time must be allowed to permit all interested persons to file applications for grazing permits and for the examination and rating of such applications under the terms of the Taylor Act.

EMERGENCY CONSERVATION WORK

The enactment of the Taylor grazing law released the Interior Department from a ban on the use of Civilian Conservation Corps enrollees for range-improvement activities. This ban was placed by the Secretary because range improvement to facilitate grazing without regulation probably would increase the burden of overgrazing and the resultant waste of natural resources. In addition, therefore, to the organizing of grazing districts it has been necessary to inaugurate a program of range improvement.

The Division has been allotted the services of 60 camps with 12,000 enrollees for a comprehensive program of range work. The activities of these enrollees will be directed by persons competent to direct

such work projects as well drilling, construction of dams, trails, fences, etc., and other activities that may be needed in any locality. During the fiscal year these activities were largely limited to selecting camp sites, purchasing equipment, and developing work plans. A total of $905,392.43 was expended.

The 60 camp sites selected are distributed by States, as follows: Arizona, 8; California, 3; Colorado, 5; Idaho, 6; Nevada, 11; New Mexico, 8; Oregon, 6; Utah, 10; Wyoming, 3.

The plans for the foregoing camps contemplate some changes in locations where climatic conditions preclude work during winter months. In order to keep such changes at a minimum, especially because only 7 camps were available at the beginning of the present summer season, very little work is being performed in the northern public-domain areas. It is anticipated that during the 1936 season a large number of camps will be moved to these northern areas.

CLASSIFICATION OF LANDS

On March 21, 1935, Acting Secretary Walters approved an order to establish in the administration of the Taylor Grazing Act a technical organization qualified to determine the surface utility of areas subject to the provisions of this law by transferring to the new organization the former Agricultural Division of the Conservation Branch, Geological Survey. The functions and responsibility for the duties formerly vested in the Agricultural Division were also transferred to the Division of Grazing. The transferred functions are assigned to the agricultural section of the Division of Grazing. During the period April 1, 1935, to June 30, 1935, these functions were restricted largely to office phases necessary to appropriate action on applications for agricultural classification and for designations under the stock-raising and enlarged homestead laws. Action was completed on 469 cases; 282 new cases were received, resulting in a reduction of 105 pending cases during this period. Office activities not otherwise indicated comprised the designation of 160 acres in 1 State as subject to the enlarged homestead act, and to the inclusion of 1,640 acres in 7 States in public water reserves; the exclusion of 160 acres in 1 State from such reserves, and net increase of the gross public water-reserve areas in 7 States to 508,228 acres. Recommendations for designations of lands under the enlarged and stock-raising homestead acts and the Nevada groundwater act were substantially terminated by the Executive orders of November 26, 1934, and February 5, 1935, withdrawing public lands for classification. Such designations are now being made only where necessary for the purpose of permitting the adjudication of homestead entries having valid claims established prior to the withdrawal.

On June 30, 1935, the outstanding designated area under the enlarged homestead act included 268,467,745 acres; the stock-raising homestead act, 102,429,247 acres; and the Nevada ground-water act, 1,732,095 acres.

Status of grazing districts, July 30, 1935

State	No.	Established	Total acres	Public land acres [1]
Arizona	1	[2]	3,450,000	1,505,200
California	1	Apr. 8, 1935	3,472,000	1,294,846
	2	do	3,980,000	577,308
Colorado	1	[2]	3,818,000	2,099,331
	2	Apr. 8, 1935	2,668,000	438,673
	3	do	3,980,000	1,416,870
	4	do	3,060,000	1,096,194
	6	[2]	2,461,000	1,408,252
Idaho	1	Apr. 8, 1935	9,150,000	4,181,445
Montana	1	[2]	8,418,000	1,624,235
	2	[2]	13,570,000	1,436,536
	3	Apr. 8, 1935	7,590,000	686,523
	4	Apr. 9, 1935	667,000	144,887
Nevada	1	Apr. 8, 1935	10,672,000	7,984,977
	2	[2]	13,202,000	9,539,271
New Mexico	3	[2]	7,590,000	2,692,940
	4	Apr. 8, 1935	5,900,000	2,437,649
	5	do	1,890,000	1,110,926
	6	do	12,440,000	2,533,933
Oregon	1	do	171,000	96,814
	2	[2]	9,131,000	4,960,676
	3	Apr. 8, 1935	4,654,000	2,785,957
	4	Apr. 3, 1935	2,903,000	1,717,962
Utah	1	Apr. 8, 1935	4,714,000	1,186,806
	2	do	6,256,000	2,868,422
	3	do	6,532,000	3,424,472
	4	do	4,186,000	2,065,080
	5	May 7, 1935	4,255,000	3,774,186
	6	June 22, 1935	6,912,000	3,541,069
	7	May 7, 1935	4,600,000	2,584,360
	8	June 22, 1935	945,000	600,719
Wyoming	1	Mar. 23, 1935	4,370,000	1,246,181
Total			177,607,000	75,062,700

[1] Includes vacant, unreserved, unappropriated public land only; figures subject to revision.
[2] Establishment delayed pending adjustment of conflicts with other uses.

General summary of cases, record for fiscal year, 1934–35

Class of case	Pending July 1, 1934	Received July 1, 1934 to Apr. 1, 1935	Received Apr. 1, to June 30, 1935	Total[1]	Acted on July 1, 1934 to Apr. 1, 1935	Acted on Apr. 1, to June 30, 1935	Total acted on	Pending June 30,1935	Record since receipt of first case	
									Received [2]	Acted [3]
Agriculture classification	41	94	186	321	83	21	104	217	1,764	1,547
Miscellaneous classification			1	1				1	1	
Enlarged	67	56	7	130	53	4	57	73	58,003	57,930
Stock raising	1,809	1,442	88	3,339	1,374	444	1,818	1,521	144,005	142,484
Ground water	2	1		3	3		3		988	988
Taylor Grazing Act:										
Sec. 7			1	1				1	1	
Sec. 8										
Sec. 14			1	1				1	1	
Sec. 15										

[1] Includes cases transferred from Geological Survey.
[2] Includes all cases received in Geological Survey prior to Apr. 1, 1935.
[3] Includes all cases acted on in Geological Survey prior to Apr. 1, 1935.

Public-water reserves

(Includes areas withdrawn under the act of June 25, 1910 (41 Stat. 1063), as amended by the act of Aug. 24, 1912 (37 Stat. 497), and reserved for public use of springs or water holes in accordance with the provisions of sec. 10 of the act of Dec. 29, 1916 (39 Stat. 862), or for watershed protection, drainage reservoirs, or other similar miscellaneous public purposes involving water conservation)

State	Reserved prior to Apr. 1, 1935	Eliminated prior to Apr. 1, 1935	Reserves outstanding prior to Apr. 1, 1935	Reserved during fiscal year [1]	Eliminated during fiscal year [1]	Reserves outstanding June 30, 1935
	Acres	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Alaska	17		17			17
Arizona	27,807	3,502	24,305			24,305
California	233,452	11,030	222,422	120		222,542
Colorado	16,030	1,180	14,850			14,850
Idaho	19,312	490	18,822			18,822
Montana	15,129	1,792	13,337	480		13,817
Nevada	20,476	3,615	16,861	160		17,021
New Mexico	14,841	3,665	11,176	120		11,296
Oregon	40,189	1,568	38,621	120		38,741
South Dakota	240		240			240
Utah	52,076	7,756	44,320	40		44,360
Washington	1,240		1,240			1,240
Wyoming	115,997	15,460	100,537	600	160	100,977
Total	556,806	50,058	506,748	1,640	160	508,228

[1] April, May, and June, inclusive.

Summary of enlarged homestead designations

Areas classified as arid and nonirrigable, residence by entrymen required:

Act of Feb. 19, 1909 (35 Stat. 639), applicable to Arizona, Colorado, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
Act of June 17, 1910 (36 Stat. 531), applicable to Idaho.
Act of June 13, 1912 (37 Stat. 132), applicable to California, North Dakota.
Act of Mar. 3, 1915 (38 Stat. 953), applicable to Kansas.
Act of Mar. 4, 1915 (38 Stat. 1163), applicable to South Dakota.

Areas classified as arid, nonirrigable, and lacking domestic water supply, residence by entrymen not required:

Act of Feb. 19, 1909 (35 Stat. 639), applicable to Utah.
Act of June 17, 1910 (36 Stat. 531), applicable to Idaho.

State	Designations prior to Apr. 1, 1935	Cancelations prior to Apr. 1, 1935	Designations outstanding prior to Apr. 1, 1935	Designations during fiscal year [1]	Cancelations during fiscal year [1]	Designations outstanding June 30, 1935
	Acres	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Arizona	31,536,528	13,420,889	18,115,639	160		18,115,799
California	13,388,348	2,258,403	11,129,945			11,129,945
Colorado	33,985,695	4,773,180	29,212,515			29,212,515
Idaho:						
Total	13,764,286	7,807,295	5,956,991			5,956,991
Nonresidence	575,507	4,233	571,274			571,274
Kansas	653,960		653,960			653,960
Montana	53,524,401	246,088	53,278,313			53,278,313
Nevada	50,219,551	3,581,037	46,638,514			46,638,514
New Mexico	43,865,711	8,990,698	34,875,013			34,875,013
North Dakota	12,284,253	3,848	12,280,405			12,280,405
Oregon	21,288,362	11,542,577	9,745,785			9,745,785
South Dakota	16,344,433	348,170	15,996,263			15,996,263
Utah:						
Total	11,760,057	5,360,117	6,399,940			6,399,940
Nonresidence	1,659,458	510,463	1,148,995			1,148,995
Washington	6,661,972	251,842	6,410,130			6,410,130
Wyoming	29,799,169	12,024,997	17,774,172			17,774,172
Total	339,076,726	70,609,141	268,467,585	160		268,467,745

[1] April, May, and June, inclusive.

Summary of stock-raising homestead designations

Areas classified as nonirrigable, nontimbered, chiefly valuable for grazing and raising forage crops, and of such character that 640 acres are reasonably required for the support of a family. Act of Dec. 29, 1916 (39 Stat. 862)

State	Designations prior to Apr. 1, 1935	Cancelations prior to Apr. 1, 1935	Designations outstanding prior to Apr. 1, 1935	Designations during fiscal year [1]	Cancelations during fiscal year [1]	Designations outstanding June 30, 1935
	Acres	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Arizona	14,395,025	1,040,814	13,354,211			13,354,211
Arkansas	1,280		1,280			1,280
California	8,312,631	32,400	8,280,231			8,280,231
Colorado	9,692,518	2,822,507	6,870,011			6,870,011
Florida	480	480				
Idaho	5,853,059	2,824,498	3,028,561			3,028,561
Kansas	117,639		117,639			117,639
Michigan	3,571		3,571			3,571
Minnesota	80		80			80
Mississippi	200		200			200
Montana	16,252,916	52,321	16,200,595			16,200,595
Nebraska	219,476		219,476			219,476
Nevada	693,273	3,120	690,153			690,153
New Mexico	32,335,015	4,063,536	28,271,479			28,271,479
North Dakota	426,371		426,371			426,371
Oklahoma	93,608		93,608			93,608
Oregon	6,594,875	3,413,748	3,181,127			3,181,127
South Dakota	6,566,069	550	6,565,519			6,565,519
Utah	2,368,419	851,895	1,516,524			1,516,524
Washington	726,856	1,294	725,562			725,562
Wyoming	21,669,339	8,786,290	12,883,049			12,883,049
Total	126,322,700	23,893,453	102,429,247			102,429,247

[1] April, May, and June, inclusive.

DIVISION OF GEOGRAPHIC NAMES

(GEORGE C. MARTIN, *Executive Secretary*)

The Division of Geographic Names was in process of organization on July 1, 1934.

The Division was established by the Secretary of the Interior on June 16, 1934, in consequence of Executive Order 6680, April 17, 1934, whereby the United States Geographic Board was abolished and it was—

> further ordered that all of the functions of said Board, together with its chairman, secretary, and clerk-stenographer, records, supplies, equipment, and property of every kind, and unexpended balances of appropriations, be, and they are hereby, transferred to the Department of the Interior to be administered under the supervision of the Secretary of the Interior.

From August 1, 1934, following the retirement, on July 31, 1934, of Mr. Frank Bond, who had been chairman of the former board, until an advisory committee was appointed on September 30, 1934, the work of the Division was in charge of Mr. John J. Cameron, who had been secretary of the former board, and who was appointed assistant to the executive officer, Division of Geographic Names, on June 16, 1934.

On September 30, 1934, an advisory committee on geographic names was appointed by the Secretary of the Interior, who directed that the advisory committee "will function relatively in the same capacity as the old United States Geographic Board"; that an executive committee, appointed October 17, 1934, and consisting of three members of the advisory committee, "will be charged with the duty of keeping the machinery running in an efficient manner"; and that "Mr. John J. Cameron will serve as acting executive secretary."

Under the foregoing arrangement, the work of the Division, in its broader aspects, was directed by the executive committee, while Mr. Cameron was responsible for the administrative routine and investigative activities of the office of the Division. Decisions on geographic names, up to their final approval by the Secretary of the Interior, were made by the executive committee. The advisory committee, as a whole, delegated most of the matters involving decision on individual geographic names to the executive committee,

and reserved for its own activity chiefly the broader problems of procedure and nomenclature.

The organization outlined above continued until June 24, 1935, when George C. Martin was appointed as executive secretary of the Division of Geographic Names, and when Mr. Cameron resumed his former duties as assistant to the executive officer.

The advisory committee held three meetings during the year, in which there was formulation of organization and general policy, discussion and adoption of general rules and procedure in nomenclature, and approval of special rules concerning the spelling of foreign names, especially of Russian names in Alaska. The use of the possessive form in geographic names was also considered.

The executive committee held 21 meetings during the year at which 214 names were approved. In addition to the names that were automatically rejected by the approval of the above, 15 other new names were rejected as unsuitable for one reason or another, with a request that unobjectionable names be submitted as substitutes. Six of the rejected names were disapproved because they were proposed in honor of living persons. In the case of all new names, evidence was required as to the fact that the persons after whom the features were to be named were no longer living. In addition to the above, there was consideration, without final action, of 58 names, some of which were approved in subsequent meetings.

There was submitted for publication at the close of the fiscal year the manuscript of a report containing all decisions rendered between July 1, 1934, and June 30, 1935, and entitled "Decisions of the Advisory Committee on Geographic Names, No. 1." This report includes the 214 decisions noted above and also 53 decisions that were rendered but not published by the former board, and that were reaffirmed by the advisory committee, making 267 names in all that were approved.

The successful accomplishment of the work of the Division of Geographic Names is dependent on close and cordial cooperation with all the map-making and map-using departments of the Federal Government, with the State geographic boards and with other State and municipal officers and organizations, and with a large number of private investigators of local geography, local history, and other subjects that concern geographic names. Cordial cooperation has been maintained with all of these sources of help, and is gratefully acknowledged.

DIVISION OF TERRITORIES AND ISLAND POSSESSIONS

(Ernest Gruening, *Director*)

The Division of Territories and Island Possessions was created by Executive Order No. 6726, issued by the President on May 29, 1934, and effective 60 days thereafter. This order provided for the transfer of all functions pertaining to Puerto Rico previously vested in the Bureau of Insular Affairs, War Department, to the Division of Territories and Island Possessions to be administered under the supervision of the Secretary of the Interior. In accordance with the intention of the order to centralize and coordinate territorial affairs, the activities pertaining to Alaska, Hawaii, and the Virgin Islands, already under the jurisdiction of the Department of the Interior, were transferred to the new Division. These activities included not only the general supervision of the respective governors' offices, but also The Alaska Railroad, The Alaska Road Commission, Alaska reindeer, Alaska insane, the Virgin Islands Co., the Government-owned Bluebeard Castle Hotel at St. Thomas, Virgin Islands, Puerto Rico Hurricane Loan Relief Section, and the Hawaiian Homes Commission.

During the year the Division functioned effectively in cooperation with the Federal Emergency Relief Administration in establishing a farming community at Palmer, Alaska. This is generally referred to as the Matanuska Valley colonization project. Two hundred families on relief rolls, including approximately 1,000 people, were selected from the States of Michigan, Minnesota, and Wisconsin, and colonized in Alaska.

A fire in the early fall of 1934 practically wiped out the city of Nome, Alaska. Through the efforts of the Division of Territories and Island Possessions, the Federal Emergency Relief Administration made $50,000 available for emergency-relief purposes; funds and the services of the American Red Cross were also promptly secured; and a representative of the Public Works Administration was sent from Washington by airplane to Nome, Alaska, to work out a reconstruction program for the stricken city.

An interdepartmental committee on Alaska under the chairmanship of the director of the Division of Territories and Island Pos-

sessions was created by the President to work out a plan for the coordination of Federal activities in the Territory. This committee held several meetings dealing with the colonization project, road building, air-field construction, geological service, fisheries, etc., and it is believed that a constructive long-range program for colonization and development of Alaska's vast natural resources will result.

The Division has been active in supervising the administration of the Government of the Virgin Islands and in formulating a program for the economic and social rehabilitation of the people living in the islands. This program, which was well under way, embraces subsistence homesteads, restoration of the sugar and rum industries to the position of importance which they occupied in previous years; establishment of a number of small industries; road building, etc. The Government-owned Bluebeard Castle Hotel was completed during the year and opened to the public on January 1, 1935. The first 6 months of its operation were encouraging, and a comprehensive program for tourist development is planned for the future.

The economic and social problems of Puerto Rico are extremely formidable. The island is overpopulated and the masses of the people are prostrated. The Division is giving close attention to the situation, and it is believed that a long-range program, financed by the Federal Government, for the economic and social rehabilitation of the people is the only practical solution. Such a program is being formulated and it is hoped that it will be made effective in the near future.

Hawaii is a well-organized and comparatively prosperous Territory, and while it has many problems, the local government is functioning very effectively in their solution. During the year the Division's activities in relation to Hawaii have been generally routine in character.

THE ADVISER ON NEGRO AFFAIRS

(Robert C. Weaver, *Adviser*)

The activities of the office of the Adviser on Negro Affairs may be divided into two groups: Those matters which concern the Department of the Interior and the Public Works Administration; and those things which are outside the direct province of the Department of the Interior and the Public Works Administration.

Prior to the transfer of the Division of Subsistence Homesteads to the Rural Resettlement Administration, this office concerned itself with the participation of Negroes in the plans of the Subsistence Homesteads Division. Much time was spent by this office in keeping itself apprized of developments and directing to the attention of the Secretary the inactivity of the Subsistence Homesteads Division as it affected Negroes.

This office has called to the attention of the Administration of Public Works the discrimination against Negro labor which has occurred in the Public Works Administration. It has attempted to devise plans for the prevention of such discrimination and has succeeded in preparing a formula of *prima facie* evidence which has been accepted by the Administrator of Public Works.

The Adviser on Negro Affairs has consulted constantly with the Housing Division in the planning of housing projects in Negro slum areas. He has supplied the Housing Division with pertinent data from Census reports for the Negro population in some 30 cities, and has offered any other information which he has deemed useful. He also has made some suggestions as to policy insofar as it affected Negro participation in the program of the Housing Division.

The Adviser on Negro Affairs and his assistant have visited proposed sites for housing developments, have negotiated agreements for the employment of Negro workers on the projects, and have nurtured favorable opinion among colored people toward proposed housing developments. In order to facilitate the latter, this office not only has explained the program to the local residents, but it also has insisted upon integration of Negroes into the program. This has been accomplished through Negro representation on local sponsoring committees and the employment of colored architects on the projects.

The office of the Adviser on Negro Affairs has resubmitted the survey of Negro white-collar and skilled workers to the Works Progress Administration. The project has been revised several times and is now being reviewed by the statistical coordinator of the Works Progress Administration. The Adviser's office has been told that the proposed survey is receiving favorable consideration.

The office of the Adviser on Negro Affairs has concerned itself with relations between the Negro employees and the Department of the Interior and the Public Works Administration. This office has been particularly interested in the classification of Negro employees and the promotion of competent colored workers from the status of messengers to clerical positions.

The Adviser on Negro Affairs has published several articles and delivered speeches concerning the work of the Public Works Administration and the Department of the Interior as it affects Negroes. These articles and speeches have been intended to give colored citizens a true statement of what is being done in their behalf by the Public Works Administration and the Department of the Interior.

The Adviser on Negro Affairs has offered suggestions to other administrations concerning their relation with Negroes. Memoranda have been prepared and conferences have been held with the following agencies: (1) The Labor Department in relation to the proposed Security Act; (2) the Rural Resettlement Administration in relation to its general policy and its labor relation; (3) the Youth Administration in relation to its general policy and labor relations. This office also has furnished information to other agencies, including the N. R. A. and the F. E. R. A.

As a result of the precedent established by the Housing Division in the Public Works Administration, we believe that the Rural Resettlement Administration is going to take steps to set up standards which will do much to assure equitable distribution of employment between white and Negro workers.

WAR MINERALS RELIEF COMMISSION

(ROSCOE FERTICH, *Commissioner*)

Acting under the War Minerals Relief Act (40 Stat. 1272) as amended February 13, 1929 (40 Stat. 1166), the Secretary of the Interior made 13 awards and 3 disallowances during the fiscal year ending June 30, 1935.

Three awards, totaling $49,649.71, carried over from the previous fiscal year, and six awards, totaling $15,428.96, were paid through the Treasury deficiency appropriations bill (Public. No. 21, 74th Cong., 1st sess.) in the total amount of $65,078.67. Seven awards, totaling $10,455.88, were certified to the General Accounting Office to be paid through a future Treasury deficiency appropriation.

Record of cases filed under the act as amended Feb. 13, 1929

Total cases filed			348
Total cases dismissed by court (hearing, abatement, or failure to prosecute			33
Decisions by the Secretary of the Interior:	*Awards*	*Denials*	
To June 30, 1934	126	10	
July 1, 1934, to June 30, 1935	13	3	
	139	13	
			152
Cases pending:			
In Supreme Court of the District of Columbia			118
Decrees by Supreme Court of the District of Columbia pending in the War Minerals Relief Commission, June 30, 1935			45
			348

ACTION IN THE SUPREME COURT OF THE DISTRICT OF COLUMBIA

Eight cases were heard and dismissed by the court, which held: (1) Ore buying, independent milling operations, and manufacture of ferro-alloys were not admissible items of loss within the meaning of the War Minerals Relief Act; (2) claims were not assignable by operation of law, and death of claimant and dissolution of corporation relieved the Government of liability under the act.

Nine cases were abated through failure to substitute Ickes for Wilbur as Secretary of the Interior.

One case was dismissed by court for failure of plaintiff to prosecute the case.

During the fiscal year 19 decrees were certified to the Secretary of the Interior.

IN THE CONGRESS

Three bills to further amend the War Minerals Relief Act were filed in the Seventy-fourth Congress. One bill, to permit claimants who did not file petitions under the 1929 amendment to submit claims for reconsideration by the Secretary of the Interior without recourse to the courts, and to permit claims to pass by operation of law to a legal successor; and two bills, to direct reimbursement for interest paid or accrued on borrowed money from March 2, 1919, to date. These bills were not enacted within this fiscal year.

PETROLEUM ADMINISTRATIVE BOARD

(Charles Fahy, *Chairman*)

The Secretary of the Interior was appointed Administrator of the Petroleum Industry under the National Industrial Recovery Act by Executive order dated August 28, 1933. The Petroleum Administrative Board functions under an administrative order of the Administrator. During the life of the Code of Fair Competition for the Petroleum Industry (Aug. 19, 1933, to May 27, 1935, on which last-named date all codes approved under the National Industrial Recovery Act were invalidated by the Supreme Court of the United States) the Board assisted and advised the Administrator in the administration and enforcement of the code. The Board also assisted and advised the Secretary of the Interior in the administration and enforcement of section 9 (c) of the National Industrial Recovery Act, under which the President by Executive order of July 11, 1933, prohibited the shipment in interstate commerce of petroleum or the products thereof produced in excess of the amount permitted by State law. By Executive order of July 14, 1933, the President had delegated the administration and enforcement of this provision to the Secretary of the Interior. Said section 9 (c) was invalidated by the Supreme Court of the United States on January 7, 1935. On February 22, 1935, Congress reenacted the principles of section 9 (c) by prohibiting shipments in interstate or foreign commerce of petroleum produced in excess of the amount permitted by State law, and the products of such petroleum. Under authority granted by the act the President again by Executive order, dated February 28, 1935, delegated to the Secretary of the Interior the administration of this act with the exception of its provision permitting the suspension under certain conditions of the prohibition of shipments. The Board has assisted the Secretary in his duties under this act.

After the invalidation of the codes Congress on June 14, 1935, amended and extended the National Industrial Recovery Act, which now expires April 1, 1936. By Executive order of June 15, 1935, the President extended existing agencies under the act, including the Administrator for the Petroleum Industry; and the Board in addition to its functions under the Connally Act is engaged in advising and assisting the Administrator in those functions authorized by the amended act which relate to the petroleum industry.

At the end of the fiscal year the Board consisted of Charles Fahy, chairman; Norman L. Meyers, E. B. Swanson, and John W. Frey, members. Mr. Nathan R. Margold had retired as chairman November 22, 1934, to devote his full time to the duties of Solicitor of the Interior Department, and Mr. J. Howard Marshall had resigned as a member of the Board on June 21, 1935.

The labor provisions of the code were administered under the Administrator by the Petroleum Labor Policy Board with such assistance on the part of the Petroleum Administrative Board as the Administrator and the Labor Board desired.

In October 1934 a Federal Tender Board was created in east Texas to aid in the administration of section 9 (c) of the National Industrial Recovery Act, composed of Norman L. Meyers (chairman), J. Howard Marshall, and Ralph Horween, members. Mr. McCorquodale was the attorney for the Tender Board in east Texas. This Board ceased operations when the section was invalidated January 7, 1935. Under the terms of the act of February 22, 1935, above referred to, Federal Tender Board No. 1 was created in east Texas on March 1, 1935, to administer the act in that area. This Board was composed of Norman L. Meyers (chairman), M. S. McCorquodale, and John F. Davis, members. Mr. McCorquodale resigned at the close of the fiscal year. Under the same act Federal Petroleum Agency No. 1, with Mr. George W. Van Fleet as Director, was established on April 25, 1935, to perform the investigational work incident to the operations of Federal Tender Board No. 1.

The Petroleum Administrative Board, the Petroleum Labor Policy Board, the original Tender Board, Federal Tender Board No. 1, and Federal Petroleum Agency No. 1 expended during the fiscal year approximately $560,000 out of a total of $739,345 available for expenditure.

With the invalidation of the code as a result of the Supreme Court decision of May 27, 1935, the activities of the Petroleum Administrative Board and of the Petroleum Labor Policy Board under the National Industrial Recovery Act, though not of the Petroleum Administrative Board under the Connally Act, have been restricted to a series of studies and to research work hereinafter referred to.

The Code of Fair Competition for the Petroleum Industry was in effect during the entire fiscal year except the last 33 days thereof. Under the code, in conjunction with the success achieved beginning in October 1934 by the Federal Tender Board in sharply restricting movements in interstate commerce of illegal crude and gasoline, and particularly under the successful operations of the production and refinery provisions of the code, the petroleum industry as a whole achieved a balance between the production of crude oil and the manu-

facture of gasoline on the one hand and the requirements of the Nation for crude oil and gasoline on the other. This was the purpose of the production and refining provisions of the code. The theory of these provisions of the code, particularly the production provisions, and the amendments to the refinery provisions of April 24, 1934, was the balancing of supply with demand in the interest of conservation and of stability within the industry. As a necessary concomitant were the provisions of the code designed to regulate the development of new fields through the approval of plans designed to permit greatest ultimate recovery and economical and scientific development.

Under the production provisions of the code the estimates of required production were prepared currently by the Bureau of Mines and the Petroleum Administrative Board upon the basis of statistical data received and tabulated by the Bureau of Mines and were recommended to the Petroleum Administrator by the Petroleum Administrative Board. They were certified by the Petroleum Administrator to the regulatory commissions of States having such agencies, to industrial proration committees in States without regulatory commissions, and to the Governors of oil producing States which were without either regulatory commissions or industrial proration committees. The method employed in making the estimates was based primarily upon calculation of gasoline production necessary to meet the demand therefor, with additions to or subtractions from storage, and the quantity of crude oil necessary to manufacture the required gasoline, together with such crude oil as was required for export and use directly in the field for fuel purposes. Allowances also were made for crude-oil imports and withdrawals from or additions to crude oil storage.

During the fiscal year the production of crude petroleum in the United States exceeded by slightly less than 4 percent the amount determined by the Federal agency to be sufficient to provide for consumer demand for petroleum products after due account had been taken for probable withdrawals from storage and of anticipated imports. Production in excess of the allowables was less during the latter portion of the fiscal year than in the earlier months, as shown by the table accompanying the complete report of which this is a summary.

The balancing of crude-oil production with consumer demand for petroleum products as provided for in the code did not necessitate the restriction of output during the past fiscal year below that of the preceding year. One of the objectives of the industry in connection with crude-oil production has been to establish as nearly a uniform rate of production throughout the year as possible, as

such uniformity leads to efficiency in operation, stability of employment, and assists the State regulatory commissions and others in the control of production from the various wells and fields within a State. During the calendar year 1933 crude-oil production varied from 2,102,000 barrels in January to 2,813,000 in June, or a range of 711,000 barrels between the lowest and highest daily rates of production. During the calendar year 1934 crude-oil production ranged from a low of 2,323,000 barrels in January to a high of 2,655,000 barrels in June, or a difference of 332,000 barrels between the lowest and highest daily rates of production. This range was identical with that recorded during the 1935 fiscal year when crude-oil production ranged from a low of 2,413,000 barrels daily in November and December 1934 to a high of 2,745,000 barrels daily during June 1935. This comparison indicates a definite tendency toward the attainment of the industry's objective of as nearly a uniform monthly rate of production as possible.

During the period of operations under the Petroleum Code, the smaller oil producing States produced a larger share of the national crude-oil output than they did immediately prior to the period of the Petroleum Code. This change did not result through transfer by the Federal agency (Department of the Interior) of production allowables from one State to another, but undoubtedly came about through the coordination of Federal and State activity whereby there was eliminated the localized excess production which characterized the petroleum industry immediately prior to the period of the code.

According to section 1, article III, of the Petroleum Code, imports of crude petroleum and petroleum products for domestic consumption were to be limited to volumes bearing such ratio to the estimated volume of domestic production as would effectuate the purposes of the Petroleum Code and the National Industrial Recovery Act. In the Administrator's order of September 2, 1933, such imports were directed to be limited to an amount not exceeding the average daily imports of petroleum and petroleum products during the last 6 months of 1932. During that semester total imports of crude and refined products averaged 108,000 barrels daily, of which 10,000 barrels daily were bonded imports and 98,000 barrels were imports for domestic consumption. During the 1935 fiscal year total receipts of crude petroleum and refined products from foreign countries aggregated 52,354,000 barrels, or a daily average of 143,435 barrels. Receipts for domestic consumption totaled 34,578,000 barrels, a daily average of 94,734 barrels, or somewhat under the daily average of 98,000 barrels of imports for domestic consumption during the last 6 months of 1932. Imports in bond, consisted of

supplies for vessels and oil imported for refining and export, amounted to 17,776,000 barrels, or a daily average of 48,701 barrels.

Experience under the Petroleum Code demonstrated that the balancing of crude oil supply with the consumer demand for petroleum products necessitated the control of withdrawals of crude oil from storage as well as the regulation of current production and imports.

The general objective of the administration was to permit at all times such withdrawals of crude oil from storage as were necessary to prevent discrimination against refining plants which did not have an ample supply from sources of current production; to permit, during periods of high seasonal demand, such withdrawals as were consistent with the reduction of inventories toward economic levels without unreasonable limitation of current production; and, during periods of low seasonal demand, to avoid net withdrawals so that the crude oil required for refining and exporting would be supplied from current production. It was felt that such procedure aided the State authorities and industry committees in the enforcement of production orders, contributed to the prevention of physical waste by lowering the amount of oil held above ground in storage, and avoided discrimination between operators.

In line with this procedure, crude-oil inventories were reduced during the period of high seasonal demand from 357,239,000 barrels on June 30, 1934, to 337,085,000 barrels on December 31, 1934. The continuation of a high rate of demand during December 1934 and the demonstrated necessity to increase gasoline inventories brought about such a high level of refining operations, with concurrent large withdrawals from crude-oil storage, that production allowables were raised during the month to conform with the increased demand for crude oil.

Beginning with a revised inventory figure of 337,254,000 barrels on January 1, 1935, the amount of crude oil in storage was not reduced further during the period of low seasonal demand, but increased to 338,559,000 on May 31, 1935. During June 1935, with the beginning of the period of high seasonal demand and with the code invalidated, crude-oil inventories were reduced 3,802,000 barrels, to a level of 334,757,000 barrels on June 30, 1935.

The provision in the Petroleum Code whereby no petroleum produced from a newly discovered source of crude petroleum could be shipped in or affecting interstate commerce unless a plan for the development of the new pool had been approved by the Administrator is regarded quite generally as a particular accomplishment under the Petroleum Code leading to the conservation of petroleum resources and the prevention of waste. Regulations designed to provide for the submission of plans for the systematic and orderly development of new pools were approved by the Administrator on December 23,

1933. Each new plan as submitted by operators in the new pool was reviewed by the technical staff of the Petroleum Administrative Board and the United States Geological Survey before submission to the Administrator. Where divided views existed concerning the provisions contained in the plan as submitted, hearings either in Washington or in the field were held concerning the merits of respective development programs.

During the fiscal year ended June 30, 1935, the Petroleum Administrator approved 122 plans for the orderly development of new oil pools.

The refining article of the Petroleum Code provided for a joint governmental and industrial organization in which the Federal agency determined the total production of gasoline necessary to meet the current demand therefor and the proper total inventories of gasoline, and the planning and coordination committee divided the national total of production and inventory changes into district totals, and district allocators or allocating agencies divided the totals among plants within the district. Provision also was made for the hearing of appeals from plant and district allocations, with the result that the original determinations were in several instances amended as the needs for additional gasoline production became evident. Gasoline production in the United States exceeded the total determined as necessary by but approximately 1 percent, as shown by table accompanying the full report.

During the fiscal year ended June 30, 1935, the accounting division was engaged with various and sundry investigations ordered by the Administrator or requested by members of the Board, all of which had a direct bearing upon code enforcement. A résumé of its activities is as follows:

Preliminary figures on the study of the economic cost of recovery of crude petroleum ordered by the Administrator on December 20, 1933, were released September 19, 1934. The survey covered 3 calendar years, 1931, 1932, and 1933. One thousand and nine schedules covering cost data on 1,133 companies were included in the tabulations. A substantial percentage of the total production—75.72 for 1931, 76.71 for 1932, and 72.22 for 1933—uniformly spread over the various producing areas was covered.

The average per-barrel cost for the country as a whole, including interest on invested capital, was found to have been as follows: 1931, $0.894; 1932, $0.808; and 1933, $0.717. In order that the effect of the code upon costs might be ascertained, the year 1933 was segregated into two periods. The first was from January 1 to September 30, which included but 1 month (September) of code enforcement, and the second from October 1 to December 31, during which time the code was in full effect. For the former period costs

for the country as a whole declined to the lowest on record to $0.669 per barrel, rising during the latter period to $0.772 per barrel. Costs were also shown by States and for the more important pools and fields within the States. In addition to the financial and investment data, information was gathered also on wells, proven acreage, and potential reserves.

A continuation of this study to cover the year 1934 was ordered by the Administrator on December 14, 1934. At the close of the fiscal year considerable progress had been made in completing that study. In all 891 schedules covering the operation of 1,021 companies and 55.5 percent of the 1934 production had reported. These schedules have been carefully analyzed, audited, and tabulated. The issuance of the results of this study await the outcome of a recent request made upon the larger companies, furnishing information for the previous study who by reason of the invalidation of the code have not reported, to submit their schedules for the 1934 period.

Through the summer and fall of 1934 there was a gradual increase in the amount of overproduction of crude oil, particularly in east Texas, where the State enforcement proved unequal to the task of obtaining compliance with State allocations which were within the Federal allocations. The pressure of this overproduction on the market very nearly brought on the collapse of the price structure of crude and of the efforts to balance supply with demand.

The decision of the Circuit Court of Appeals for the Fifth District in the *Panama* and *Amazon* cases reversing the lower court and upholding the power of the Federal Government to require reports in the enforcement of section 9 (c) of the National Industrial Recovery Act, and upholding the validity of the section itself, permitted the reestablishment of Federal enforcement in east Texas. In July 1934 and again in August regulations requiring reports and affidavits were revised. However, by filing fraudulent affidavits of the legality of oil shipped and by failing to make reports, hot-oil producers continued to operate in violation of the law and a new means of enforcement of the section was sought resulting in October of 1934 in the creation of the Federal Tender Board under the authority of section 9 (c) and the authority to make rules and regulations to carry out the provisions of the section. In lieu of the affidavits of legality required with shipments, certificates of clearance, issued by the Federal Tender Board, were required as a condition precedent to the movement of petroleum and petroleum products in interstate commerce out of east Texas. Conditions had become so serious that prices had begun to break the day the Tender Board was created. The immediately successful operations of this Board stemmed the flow of hot oil into interstate commerce and averted a collapse.

The Federal Tender Board set up a staff of examiners to check applications for tenders, to examine the books and records of refiners and pipe lines, and to make physical checks of the petroleum and petroleum products leaving the field. It set up an accounting staff, which maintained an effective accounting check on all operations in the field. Certificates of clearance, or tenders, were approved by the Federal Tender Board when the petroleum or petroleum products were shown on the basis of the applicant's reports, the accounting record, and the specific examination of examiners to have been produced in accordance with the quotas established by the Railroad Commission of Texas.

The Federal Tender Board functioned effectively until January 7, 1935, when the Supreme Court overruled the Circuit Court of Appeals in the *Panama* and *Amazon* cases and declared section 9 (c) invalid on the grounds of improper delegation of legislative power. The Board ceased functioning, and the litigation pending against it was dismissed. Movements of hot oil increased immediately. Additional State legislation authorizing the State to require certificates of clearance for petroleum products as well as for crude petroleum moving in intrastate and interstate commerce, had been passed. However, State authority law alone still failed adequately to meet the situation and commerce in hot oil steadily increased. On February 22, 1935, the Connally law was passed by the Congress, eliminating the defects found by the Court in section 9 (c) by specifically prohibiting interstate or foreign commerce in hot oil. Federal Tender Board No. 1 was established under this law on March 1, 1935, and shortly thereafter Federal Petroleum Agency No. 1 was set up under the same law to perform the administrative and investigative functions in connection with the applications for approved tenders filed with Federal Tender Board No. 1. The Federal tender system has functioned effectively since that time and has prevented any substantial movement in interstate commerce of hot oil or gasoline out of east Texas. This activity not only tended to check overproduction of crude petroleum but assisted in stabilizing the interstate refinery markets at a time when the intrastate Texas markets were thoroughly demoralized. Several attempts to enjoin the activities of the Board have been attempted without success.

During the summer and fall of 1934 wholesale prices for petroleum products were below parity with the current prices for crude petroleum, which presented a particularly serious problem to the nonintegrated refiner. Several plans were projected by the industry to solve the difficulty, which was aggravated considerably by the excessive amount of hot oil and interstate movements of hot gasoline in interstate commerce. The planning and coordination committee pro-

posed a form of contract designed to remove distress stocks in east Texas from the market. The form of contract was approved on June 23, 1934, and during the months of July and August gasoline in east Texas was purchased under this form of contract, to which the Administrator was a party and which provided that the sellers would not process "hot oil." This program proved insufficient, and a new form of contract for the purchase of current output was approved. But the production of gasoline from "hot oil" continued, stocks of gasoline mounted, wholesale prices for gasoline remained below parity with crude-oil prices, and in the early fall of 1934 the industry approached a serious collapse of the wholesale market. The planning and coordination committee appointed a program committee, which proposed a broad plan for the purchase of surplus gasoline with the purpose of also preventing illegal production of crude oil and providing a method of orderly marketing. The excessive amount of overproduction in Texas made the initiation of this program futile, and it was never put into operation. In October the Federal Tender Board was created in east Texas to enforce section 9 (c). Conditions immediately improved as a result, and from then forward the improvement continued, except for the period between the invalidation of section 9 (c) on January 7, 1935, and the enactment into new legislation of the principle of the Tender Board in the Connally Act on February 22, 1935. The operations of the Tender Board, of the production provisions of the code and refinery amendment, and of the stabilization committee of the planning and coordination committee with the cooperation of the Petroleum Administrative Board, brought the desired parity between the wholesale price of gasoline and crude oil in the spring of 1935. The work of the stabilization committee contributed very largely to the elimination of excessive marketing abuses which tended to keep the retail markets in an unsettled and unstable condition.

One of the difficult marketing problems of the year revolved around the question of price differentials as between different types of marketers. The stabilization committee, authorized by the Administrator in July 1934, was successful in resolving many localized conflicts and in compromising issues which had brought on drastic price wars to the injury of many marketers caught in between the warring factions. Before the end of the winter markets generally throughout the midcontinent and eastern areas were fairly stable, and at the time of the invalidation of the code at the beginning of the high-consuming season, the industry as a whole had reached stability in markets, an even balance between production and demand in the case of both crude and gasoline, had achieved the best statistical position in many years, and entered upon a prosperous summer

which has, in fact, proved to be the highest-consuming season in the history of the oil industry. Production was under control throughout the Nation with some minor exceptions, the wholesale price of gasoline was in parity with the current price of crude, the refinery amendment had brought a balance between the manufacture of gasoline and the needs of the Nation therefor, the Connally Act had succeeded, as the original Tender Board had previously succeeded, in protecting interstate commerce from "hot oil" or gasoline, and markets were generally stable.

One of the important marketing decisions made by the Administrator under the code was that of March 4, 1935, under rule 19 of article V, known as the "lease and agency decision." The Administrator in this decision permitted the cancelation of all lease and agency agreements on 30 days' notice and prohibited exclusive conditions in the sale of lubricating oil. The question of whether or not exclusive dealing contracts violated the antitrust laws was referred to the Federal Trade Commission for determination.

To obtain compliance with the Petroleum Code and to guarantee the independent refiner a crude supply and market for his products and to prevent the dumping of gasoline and price cutting on the Pacific coast, the Pacific coast petroleum agency and refiners' agreements were executed and approved by the Administrator on June 23, 1934, and subsequently were filed with the Federal court under a consent decree in California with the consent of the Department of Justice. The agency agreement, to which all major companies and their subsidiaries and two smaller companies were parties, provided for a guaranteed supply of crude to independent refiners, parties to the refiners' agreement, and a market for such products as the refiners were unable to sell in the retail market. The refiners agreed to limit runs to stills to a definite proportion of the business of the area as determined by their past sales records. However, no limitation was placed upon sales. All refiners agreed to resale price maintenance to prevent price cutting by subsidiary or dealer accounts. There was no agreement as to prices, each refiner setting any price he desired. Every refiner agreed not to handle oil produced in excess of the allowables established under the Petroleum Code. In addition there were several provisions relating to marketing practices established at the request of independent refiners and provisions for general compliance with the terms of the Petroleum Code. The Administrator reserved the right to cancel the agreement at any time and appointed a representative on the board of governors of the agency established under the agency agreement to make definitive interpretations, to check the administration of the agreements, and to report to the Administrator on any monopolistic trends or inequities in the operation of the agreements.

As a direct result of these agreements one of the most disastrous and protracted price wars ever to occur on the Pacific coast was brought to an end. Furthermore, a simple and administratively effective device for securing compliance to production quotas was obtained; since signatory refiners were obligated not to deal with producers who violated the Petroleum Code, producers were compelled to comply with the code in order to find a market.

Illegal overproduction of crude oil was reduced to less than 2 percent, and even this amount was eliminated by temporary injunctions in effect at the time of the invalidation of the codes. Gasoline markets were stabilized and there were no serious price disturbances during the period of the agreement, with the exception of a price war in Arizona.

The benefits of these agreements were immediate. The independent refiners obtained a fair volume of business at a fair price either through direct outlets to consumers or to the agency created by the agency agreement. By the elimination of price wars the retail dealers obtained a fair margin and a fair volume. A group of dealers possessing a very large storage capacity lost gallonage; they were accustomed to fill up their storage during low-price periods and then to dump gasoline on the market during periods of comparative price stability, thereby causing price wars enabling them to refill at low prices. The average prices for the period of the agreements were lower than any 6-month period prior to the operation of the agreements.

Over the period of the operation of the agreements constant reports were made by representatives of the Administrator in California and the far Northwest on operations under these agreements and of the inequities resulting therefrom. Investigations disclosed that certain major companies were violating the letter and spirit of the agreements. The resale price maintenance prevented major companies from marketing through subsidiaries at a differential. This provision was specifically required by the Department of Justice as a condition of its consent to the modification of the consent decree. The major companies consented to the elimination of this differential but also insisted upon meeting all competition, thus eliminating the price differential of the independent refiners. Investigations of the operation of the agreements under these conditions resulted in a shifting of gallonage from the independent refiners to the major companies, necessitating the absorption through the agency of large quantities of gasoline processed by the independent refiners for which they had no other market. This resulted in an increased burden on parties to the agency agreement, bearing most heavily upon members who either suffered actual losses of gallonage or gained least in the absorption of the normal markets of the inde-

pendent refiners. Furthermore, it decreased the flow of independent distributors and retail dealers who previously provided a market outlet for the gasoline processed by the independent refiners. The Petroleum Administration furnished the oil industry in California a detailed analysis of the problem, and at the time of the cancelation of the agreements because of the Supreme Court's decision negotiations were under way for revision of the agreements to secure compliance with all provisions of the code by the major companies and to make provision against the shifts in gallonage which occurred largely as a result of the elimination of differentials. Immediately after the Schechter decision, and the consequent suspension of the Petroleum Code and the cancelation of the Pacific coast agreements, the retail markets of California collapsed and have so remained. Crude-oil production control ceased with the code. Voluntary curtailment efforts failed to balance production with demand; enforcement of the State gas-oil ratio statute likewise failed to achieve a balance; production mounted; and as this summary is concluded the price of crude oil in California has broken sharply, August 29, 1935, 5 days after the adjournment of Congress, which was until the last considering Federal regulatory legislation designed, among other things, to achieve a balance between production and demand.

The most important court decisions were the following:

On January 7, 1935, the Supreme Court held section 9 (c) of the National Industrial Recovery Act, commonly known as the "hot-oil section", invalid for the reason that it constituted an unlawful delegation of legislative power to the President. On February 22, 1935, the President approved the act of Congress known as the Connally Act, under which Congress itself prohibited the shipment in interstate and foreign commerce of hot oil or its products, framing the statute so as to meet the objections pointed out by the Supreme Court to section 9 (c). The decision of January 7, 1935, was in the cases known as the *Panama Refining Co.* and the *Amazon Petroleum Corporation* cases. Although it was hoped that these cases would also bring about a decision on the power of the Federal Government to control production as distinguished from interstate movements of illegal oil or its products, the Court found that the production-control question was not properly before it. When these cases were in the Circuit Court of Appeals for the Fifth Circuit that court held that the District Court of the United States for the Eastern District of Texas had erred in enjoining the enforcement of the production provisions of the code, that court assuming that the question was properly before it.

In the case of *United States* v. *Wilshire Oil Co. et al.* the District Court of the United States for the Southern District of Cali-

fornia upheld the Federal power to control production under the commerce clause of the Constitution; but while this case was on appeal the Supreme Court decided the *Schechter Poultry case*, holding that the code-making machinery of the National Industrial Recovery Act also constituted an unlawful delegation of legislative power to the President. As a result of this decision the Petroleum Code, along with all other codes, was invalidated.

In the case of *United States* v. *Eason Oil Co.* the United States District Court for the Western District of Oklahoma held that the provisions of the code relating to plans for the development of new fields were invalid as not within the power of the Federal Government under the commerce clause. It was not possible to raise either in production or new pool cases the question of the Federal power under the war powers to prevent waste due to the fact that the National Industrial Recovery Act was not based on this power.

There were a number of marketing cases pending at the time of the Schechter decision. The lower courts had divided on the question of the effect on interstate commerce of such marketing provisions as the prohibition against special inducements in connection with the sale of gasoline.

Since the invalidation of the codes by the Schechter decision, the Petroleum Administrative Board has worked on a curtailed program and with a reduced staff. It has continued its duties in connection with the administration of the Connally law and is engaged in research along the lines laid down by the President under the National Industrial Recovery Act, as amended.

The Board is making and completing a series of specific studies, including the following:

(1) Completion of the study of the cost of production of crude petroleum.

(2) A study of the marketing structure of the representative area of Allen County, Ind.

(3) A study of the effect of the abandonment of the code upon production, refining, and trade practices.

(4) A study of the benefits of the new pool section of the code and the results of the abandonment of the code on new pool plans.

(5) Appraisal of the operations of the Pacific coast petroleum agency agreement and the effects of its abandonment.

In addition to these specific studies, the Petroleum Administrative Board is preparing a complete final report on the operations of the code which will, in fact, be a history of the petroleum industry during the 2 years in which the code was operative, supplemented by studies subsequently made.

During the year and in cooperation with other divisions and bureaus of the Department of the Interior the Board furnished a considerable volume of statistical and technical data to the subcommittee of the Committee on Interstate and Foreign Commerce of the House of Representatives, which made a very thorough investigation of the petroleum industry with a view to recommending legislation. This data was published in volumes I and II of the Hearings Before a Subcommittee of the Committee on Interstate and Foreign Commerce, House of Representatives, Seventy-third Congress, House Resolution 441.

BUREAU OF RECLAMATION

(Elwood Mead, Commissioner)

The acute drought of 1934 in the West brought into bold relief the benefits that accrue from irrigation and especially from operation of the Federal reclamation policy. In a year when all through the arid region farmers and ranchers who were dependent upon the natural rainfall were suffering losses aggregating hundreds of millions of dollars, Federal reclamation projects were green and flourishing. On these projects no crops were lost, no stock died. Indeed, these projects mitigated the effects of the drought in their surrounding areas, supplying feed for range stock and provisions for the cities.

There never has been a clearer illustration of the stabilizing effect of stored water on the agriculture of the West. There has been no better demonstration of what Federal reclamation contributes to the economy and welfare of the arid States. The fact that normal crops were harvested on these fields, when in large areas no other green thing was left, enabled western communities in many instances to avoid what otherwise would have been complete disaster. Irrigated crops provided traffic for railroads, saved important industries, bolstered county and State finances, and buoyed the morale of the entire section.

An experience such as the drought, however, was bound to point out ways by which Federal reclamation might be strengthened. It served to emphasize the need for closer contact between the Bureau and the water users on Federal projects in order that maximum usefulness of the land and water might be obtained. To bring this about the projects were divided into five divisions for supervision so that the problems of water users might have more immediate and intimate attention. The direction of operation and maintenance projects was centered in Washington. Preliminary reports of division superintendents have sketched a rough outline of work to be done in this regard.

Some of the problems the supervisors encountered were the need for introduction of better and more economical irrigation methods in areas where wasteful methods are practiced; control of noxious weeds; prevention of soil erosion on steep lands of some projects; and the need for planning on the part of water users' organizations to meet maintenance and repair expenditures.

Problems individual to each district were found by the supervisors. Progress is being made toward their solution. This is a major step forward and will result in permanent improvement in the relationship between the Bureau and the water users. It will solidify the Federal program by providing a better means of presenting needs for their immediate consideration, and by improving the condition of the farmers under the canals.

Little definite information was available generally concerning the place of the Federal reclamation projects in the national economy, and concerning the condition of the projects. These subjects were in controversy, and widely differing assertions had been made. The Secretary selected John W. Haw, director of the agricultural development department of the Northern Pacific Railway Co., St. Paul, Minn., and F. E. Schmitt, editor of the Engineering News-Record, New York City, to make an independent study of typical Federal projects for the purpose of ascertaining the true conditions. After a careful investigation of many of the Bureau's projects, Mr. Haw and Mr. Schmitt made a detailed and valuable report from the summary, of which these paragraphs are quoted:

Reclamation by irrigation of lands in the arid and semiarid western half of the United States is shown by its results to be a sound and desirable national undertaking. It represents a constructive policy of social development.

Reclamation should be continued by the Federal Government as available means may permit. It has little relation to the problems of surplus agricultural production, while, on the other hand, by reason of its high degree of stability, it aids in making the country's food supply more regular, which in turn tends to reduce the fluctuations of the agricultural price level.

Except for the influence of the present depressed farming conditions throughout the United States, the operating projects are in the main excellently developed and represent strong, prosperous communities.

As a result of construction begun several years ago, about 100,000 acres of land on three projects will be available for irrigation for the first time this year. These projects are Riverton, in Wyoming, and Owyhee and Vale, in Oregon and Idaho. The proper settlement of these new areas assumes a grave importance to the communities that will be created, the States in which they are located, and the Federal Government.

Agriculture by irrigation is a skilled industry. Intelligence, resourcefulness, and technical skill are required of the successful pioneer under a canal. To protect the investment of the Federal Government in these projects the Bureau must select its settlers. Since the Bureau has no means of financing settlers and subjugation of new land requires some capital, the selection problem becomes even more important. There is no doubt that qualified settlers, anxious to relocate in more promising neighborhoods, can be found in number. The Bureau proposes to offer this national opportunity

in such a way as to attract them. This will be done through public announcements, through cooperation with the colonization agents of the railroads and Government agencies, and through State authorities. While these methods have been used in the past, a more intensive campaign seems to be indicated.

The Bureau now is engaged in the largest construction program in its history. The program makes up the greatest conservation campaign as yet undertaken by a single agency of the United States Government. Experience gained in the past places the Bureau in a good position, and although the Bureau will have to expand its technical staff it is well equipped otherwise to carry out the work.

A total of $175,000,000 is available for the Bureau's construction work during the year. Of this $100,000,000 was set aside by the Works Progress Administration and $75,000,000 remained from allocations made by the Public Works Administration.

As in the past, the majority of the projects now under construction are designed to supplement the water supplies of established irrigation communities. Eleven storage dams were under construction at the close of the fiscal year on projects that will bring in no new land. They will provide a stable supply to irrigators who had felt the pinch of drought. This protection was being supplied for some of the oldest settlements in the West, notably in Utah, where the Mormons initiated irrigation by whites on the continent.

These improvements will provide a balance wheel for the stabilization of whole communities and even whole States. On the other hand, some new projects have been undertaken. These have been planned carefully so as to give a well-integrated development in areas where the demand is present. The Casper-Alcova project in Wyoming, now under construction, is a case in point. Ultimately this development will provide water for about 35,000 acres of land now unirrigated. This area is intended to assist in the stabilization of the livestock industry of that section of Wyoming, and to provide hay for the herds and produce for the urban centers.

A revealing commentary on the work of the Bureau is to be found in the fact that despite the launching of a great construction program, only a small percentage of the requests for new projects received from States and communities could be considered.

During the year Boulder Dam, the principal structure authorized in the Boulder Canyon Project Act, was completed. The last bucket of concrete was poured in the dam May 29, 1935. On that date this great Colorado River barrier already had stored enough water to supply for a year the irrigation needs of the Yuma Federal reclamation project and the Palo Verde and Imperial Valley developments in California, which lie below it.

The fine agricultural area in Imperial Valley experienced its most severe drought last year. Damages approximating $10,000,000 resulted when the Colorado ran virtually dry. When the gates were closed at Boulder Dam in February of 1935 recurrence of this drought was made impossible, as was repetition of the floods that in the past have wrought equal havoc along the lower Colorado River.

During the spring a flood of 105,000 second-feet was recorded in the Colorado River above Boulder Dam. Had this flood passed the dam, there would have been grave danger to the Imperial Valley. The protective levees were cracked as a result of the extended drought, and the considerable cost of repairing them was saved.

Completion of Boulder Dam provided another example of the Bureau's contribution to types of conservation other than reclamation. The great reservoir, 115 miles long, was set aside immediately as a bird refuge. It is being stocked with game fish. In its first few months of existence it attracted many thousands of tourists. Hundreds found pleasure in bathing in and boating on its clear, cold waters. Boulder Dam Reservoir is destined to become one of the most important recreational centers of the Southwest, and the Bureau is making plans to develop it. Its importance in this respect exceeds that of others of the 68 reservoirs controlled by the Bureau only because of its great size and location.

The snowfall on the western watersheds during the winter was sufficient to provide an adequate water supply for all Federal projects. With most reservoirs completely filled and none critically low, the projects entered the cropping season with good prospects for a prosperous year.

CONSTRUCTION ACTIVITIES DURING FISCAL YEAR

The Bureau during the year continued construction work with funds allotted by the Public Works Administration and accomplished more than in any other year of its history. There were constructed 65.7 miles of roads, 34.4 miles of railroad, 44.5 miles of transmission lines, 313.1 miles of canals and drains, 16 tunnels with a total length of 18,645 feet, 2,671 canal structures, 69 bridges, and 474 culverts. There were excavated 29,247,403 cubic yards of earth and rock, making the total to date 356,209,687 cubic yards. The Bureau used 1,524,302 barrels of cement and placed 1,740,673 cubic yards of concrete. Work on five storage dams was begun. In the Denver office the increased activities gave employment to 700, and design and specification work for the Tennessee Valley Authority was continued.

At Boulder Dam the labor contracts with Six Companies Inc., and Babcock & Wilcox were in progress. Storage in the reservoir com-

menced in February, and in June of this year the last yard of concrete was placed in the dam. The power house was practically completed, and installation of electrical machinery and equipment was started.

On the Columbia Basin project, Washington, the Mason-Walsh-Atkinson-Kier organization, contractors for the Grand Coulee Dam, installed a belt-conveyor system to move excavated materials from the dam site, constructed a steel sheet-piling cofferdam on the west side of the river, and at the end of the year had excavated 8,120,000 cubic yards in the dam abutments. The town of Mason City, to house their 3,000 workmen, was completed. A connecting branch railroad from the dam site to Odair on the Northern Pacific was finished and placed in operation. The Secretary on June 5 approved a change order which calls for construction of a 177-foot dam with a foundation which will support the ultimate high dam, in place of the low dam originally planned. J. H. Pomeroy & Co., Inc., San Francisco, Calif., on November 5 was awarded a contract for furnishing materials and erecting the Columbia River highway bridge for $241,868. Other construction work in progress included construction of school building, residences, administration building, and dormitories in the Government camp site, officially designated Coulee Dam.

Additional contracts for earthwork on the all-American canal were awarded on May 22 to Lewis Chambers Co., New Orleans, La., for 16.6 miles of canal excavation at their bid of $505,506.10, and to Mittry Bros. Construction Co., Los Angeles, Calif., for 6.6 miles at a bid of $260,400. Near Calexico, Calif., 1,487,000 cubic yards of canal excavation were accomplished by force-account methods. Bids were opened on August 23 for construction of the Parker Dam and appurtenant works, a 340-foot concrete arch structure in the Colorado River 12 miles above Parker, Ariz., which will be the diversion dam for the aqueduct of the metropolitan water district. The low bid of $4,239,834 was submitted by Six Companies, Inc., San Francisco, Calif., to whom contract was awarded on September 10. The Bureau is constructing this dam for the district.

Work was in progress on the Agency Valley Dam and storage reservoir on the Vale project, Oregon, and the contract was 66 percent completed at the end of the year. On August 31 a contract for building 27 miles of the Vale Main Canal was awarded to Haas, Doughty & Jones, Marshall & Stacy, of San Francisco, Calif., for $65,204.20. On the Owyhee project the construction work included the North and South main canals, laterals, canal structures, and siphons. On December 27 the Consolidated Steel Corporation, Ltd., Los Angeles, Calif., at its bid of $536,057, was awarded a contract for furnishing

and erecting 80-inch diameter plate-steel pipes for the Malheur River siphon, 4.2 miles in length, and 70-inch diameter pipe for the Dead Ox siphon, 1,700 feet in length. Parker-Schram Co., Portland, Oreg., with a bid of $64,764.50, obtained a contract for the Malheur River siphon inlet and outlet structures. J. A. Terteling & Sons, Boise, Idaho, on December 21 was given the contract for 27 miles of earthwork and structures on the North Canal at their bid of $123,894. A contract for 14 miles of the South Canal was awarded on January 21 to Morrison-Knudsen Co., Boise, Idaho, for $232,991.50. This contractor on April 12 obtained a second contract for building structures on the South Canal, the price being $92,388; and on May 21 was awarded a third contract for an additional 11.5 miles of South Canal earthwork and structures, their bid being $127,485. Several small contracts for laterals and lateral structures were given to local contractors.

Work on the Ogden River project near Ogden, Utah, was started, and on September 12 the Utah Construction Co. and Morrison-Knudsen Co., with a low bid of $677,898.10, were awarded a contract to build the Pine View Dam in the Ogden River near Huntsville. Relocation of the Huntsville highway around the reservoir was necessary, and the same companies were given the contract on October 6 for $100,196.35. On April 18 the Union Construction Co. of Ogden was the successful bidder for constructing the Ogden-Brigham tunnel on the Ogden-Brigham Canal and was awarded a contract for $77,737.50 on May 25. The Barnard-Curtiss Co., Minneapolis, Minn., on May 25 was given a contract for building the Ogden Canyon conduit, comprising 4.7 miles of 75-inch diameter wood-stave pipe.

Another Utah project, on which construction was commenced, was the Moon Lake project near Duchesne, for which a P. W. A. allotment of $1,200,000 was available. Bids were opened on February 4 for building the Moon Lake storage dam. T. E. Connolly, San Francisco, Calif., was the successful bidder, and on April 2 was awarded the contract for $547,221. The Hyrum storage dam in Little Bear River, on the Hyrum project, was 96 percent completed at the end of the year. On October 31, J. A. Terteling & Sons, Boise, Idaho, was awarded a contract for $27,316 to build the Hyrum-Mendon, Hyrum Feeder, and Wellsville Canals.

A $2,000,000 allotment was available for the Humboldt project near Lovelock, Nev., and a contract for construction of the Rye Patch Dam in the Humboldt River was awarded on November 28 to J. A. Terteling & Sons, Boise, Idaho, at their bid of $256,322.50. Construction of the Taylor Park Dam and storage reservoir on Taylor River on the Uncompahgre project in Colorado was started. Bids were opened on February 18, the low bid of $798,078.50 being submitted by

the Utah Construction Co., Ogden, Utah; W. A. Bechtel Co., and Henry J. Kaiser Co., San Francisco, Calif., and Morrison-Knudsen Co., Salt Lake City, Utah. Contract was awarded on April 19. On the project distribution system repairs to canals and structures were in progress.

The diversion and outlet tunnel at the Alcova damsite on the Casper-Alcova project, Wyoming, was completed in October, Lawlor-Woodward Co.. of Seattle, Wash., having the contract for $269,905. Work on the first 3.6-mile section of the Casper Canal was in progress during the year. J. A. Terteling & Sons, Boise, Idaho, completed schedule 2 in January. The Utah Construction Co., Ogden, Utah, had schedule 1 approximately 89 percent completed at the end of the year, and schedule 3, being constructed by Edward Peterson, Omaha, Nebr., was 83 percent completed. The value of these three contracts is $609,310. Preliminary work prior to advertising for bids on the Seminoe and Alcova Dams was in progress.

Other work in progress during the year comprised the construction of canals and drains on the Sun River project, Montana: drains and laterals on the Rio Grande project, New Mexico; drains and drain structures on the Yuma project, Arizona; Milk River project, Montana; Boise project, Idaho; and Shoshone project, Wyoming; canals and structures on the Bitter Root project, Montana; and Stanfield project, Oregon; and drains and dike construction on the Klamath project, Oregon-California. At the end of the fiscal year work was in progress on 18 projects in 12 States, and 9 dams were under construction.

STATISTICAL DATA

The area irrigated in 1934 with water from Government works was 2,837,205 acres, an increase of 8,418 acres over that for 1933.

The area cropped was 2,756,698 acres, a decrease of 41,117 acres.

The total value of crops was $100,943,714, an increase of $16,751,981 compared with 1933, and of $50,751,981 compared with 1932. This increase in crop values was due largely to increased prices received for crops.

During the period 1906, when water was first available, to and including 1934, the cumulative value of crops grown on land irrigated from Government works amounted to $2,071,183,715.

Construction payments in cash and credits from power and other sources received during the fiscal year 1935 were $674,572.09, an increase of $193,379.83 compared with the previous year.

Payments for operation and maintenance were $1,078,896.04, a decrease from the previous year of $43,577.95.

Total payments amounted to $1,753,468.13 compared with $1,603,666.25 in 1934, an increase of $149,801.88. Income to the reclamation fund from all sources during the fiscal year was $4,516,011.35, or $91,148.66 more than for the previous year.

The operation and maintenance expense for the year was $1,132,047.66, an increase over the previous year of $23,097.59.

Excess of operation and maintenance cost over receipts for the year amounted to $53,151.62, compared with an excess of receipts over expense of $13,523.92 for the previous year.

Construction work was carried on with funds provided under the National Industrial Recovery Act. Operation and maintenance of the irrigation, drainage, and power systems was carried on with direct appropriations from the reclamation fund, money advanced by the water users' organizations, and revenues from power operations.

The act of March 27, 1934, extended the provisions of previous acts granting temporary relief to water users on irrigation projects and construction charges coming due for the year 1934 were not required to be paid. This explains the reason for the small payments as given under this heading.

SETTLEMENT ACTIVITIES

On the lower Yellowstone project, in Montana and North Dakota, a tract of 500 acres of public land was opened to entry on June 17. The customary 90-day prior right of entry was granted to ex-service men. There was a steady demand for irrigated land on the several projects. On the Riverton project, Wyoming, a total of 230 farms were actually occupied this spring. Water was available for 32,000 acres, of which 19,200 acres were irrigated. From January 1 to July 1, 1935, 59 homestead entries were made, 37 farm applications were received, 2,076 irrigable acres were taken up, and 12 privately owned farms, with a total area of 1,129 acres, were purchased by new settlers.

On the Shoshone project, Wyoming, there was a decided increase in settlement activities owing to the drought in the Middle West. Forty-eight homestead entries were made on the Willwood division, involving an irrigable area of more than 3,000 acres, and at the end of the fiscal year there were only 14 farm units available for homestead entry.

CONTRACTS

During the past fiscal year the Bureau entered into a total of 3,673 contracts, their nature and the amounts involved being summarized as follows:

Nature of contract	Number of contracts	Amount involved
Cooperative investigations	3	29,945.00
Supplies	1,065	748,610.98
Material	487	3,555,736.90
Equipment	242	2,904,766.31
Miscellaneous services	222	93,012.96
Construction work	82	45,780,354.07
Land purchases, including improvements	423	1,100,002.77
Land sales, including improvements	2	1,010.00
Leases to the United States	57	73,371.28
Leases from the United States	268	68,136.14
Compromise of damages	3	682.27
Rental of Government equipment	8	892.50
Rental of water	258	53,743.91
Sale of surplus electrical energy	49	1,081,060.51
Sale of water rights to towns		
Sale of water rights under the Warren Act	6	67,057.00
Sale of water rights within projects	3	21,259.14
Adjustment and relief	317	1,663,861.93
Transfer of project operations		
Miscellaneous	176	72,218.44
Repayment contracts	2	[1] 915,000.00
	3,673	[2] 58,230,722.11

[1] Contract with the Utah Power & Light Co. for the construction of 75-inch wood-stave pipe and repayment to the United States of 125/280 of the cost therefor ($690,000). Contract with Ogden City for construction of artesian wells water works at a cost of $225,000 and repayment to the United States of $350,000.
[2] Estimated in part.

SALT RIVER PROJECT, ARIZONA

Agricultural results showed better returns than last year, improving the economic situation materially. Gross crop values on the project increased from $9,660,000 in 1932 to $16,500,000 in 1934, and bank deposits from $18,212,000 to $36,091,350. There has been a small increase in building activity locally, almost entirely, however, being confined to projects under P. W. A. or other Federal relief agencies.

The water-supply situation was temporarily relieved by spring rains in 1935. Storage, which had been depleted to 100,000 acre-feet in November 1934, was brought up to 800,000 acre-feet in May 1935. Lands with inferior water rights (about two-thirds of the project) which in some dry years have had their allotment cut to 2½ acre-feet per acre, could get 4 acre-feet. Outlook for next season is fair, 740,000 acre-feet being in storage June 30. A change has been made in the project irrigation and fiscal year to correspond with the calendar year which is expected to effect a saving in water as the old

year ending September 30, resulted in a high-peak use in that month to get water paid for but not theretofore used. Redesign of spillways at Roosevelt, Horse Mesa, Mormon Flat, and Stewart Mountain Dams, of the diversion dam at the intake of the Roosevelt power canal and of a dam on the Verde River at the Bartlett site was in progress by the Denver office of the Reclamation Bureau and the construction, estimated at $6,800,000 will be done by the Bureau. The Indian Office is to have an $800,000 interest in the Bartlett Dam for the development of a water supply for 610 Indian allottees. This project is expected to make available a large percentage of Verde River flood water now wasted and greatly needed for project lands.

YUMA PROJECT, ARIZONA-CALIFORNIA

Crop values on the Yuma project during 1934 were nearly double those for 1933. On the Auxiliary project the returns also showed improvement. The total value of crops, amounting to $2,500,000, as compared with $1,335,000 for the previous year, showed a similar trend in improvement in economic conditions, responsible factors for which were better prices in general for farm commodities, favorable weather conditions, an ample water supply, and low operation and maintenance costs. An increase in bank deposits from $390,000 to $618,000 during 1934 also reflects a change for the better in local economic conditions. The rise in crop values was effected by the severe drought which prevailed during the summer of 1934 over the greater part of the arid West and the Mississippi Valley. The Yuma County Farm Bureau Marketing Association handled alfalfa hay and seed, and made individual loans to its constituent members for financing growing operations. The Yuma County Water Users' Association has complied with the terms of its contract of February 5, 1931, relative to advance payment of operation and maintenance charges, and at the close of June 30, 1935, its payments were about $30,000 in excess of the amount then due.

The excavation of 9½ miles of drainage canals in the valley division was finished in June and completes the division's drainage system to the extent of present requirements. Low flow in the Colorado River made extensive repair work unnecessary, either at Laguna Dam or on the levee system in California and Arizona.

BOULDER CANYON PROJECT, ARIZONA-NEVADA

Construction continued in progress for practically all the major features of the project, and on June 30, 1935, many of these were nearing completion. The forces of the Bureau of Reclamation and contractors were reduced gradually from 5,218 employees to 3,334 at the end of the current fiscal year.

Six Companies, Inc., contractor for construction of the dam, power plant, and appurtenant works, made steady progress toward completion of its contract. Practically all concrete was placed for the dam and superstructure, except in the galleries. The first block (K–3) reached crest elevation, 726 feet above bedrock, on February 6, all blocks on March 23, and the slot May 29. Concrete placed amounted to 3,249,773 cubic yards, of which 3,000,000 had been poured on December 5, 1934, only 18 months after the first bucket was dumped in the structure. Cooling was finished on May 20, 21 months after it was started, and grouting of contraction joints was completed on June 7, 13 months after this work was initiated. Drilling of grout holes grouting abutments progressed from the base upward to approximately 60 feet from the crest and drilling of alternate drainage holes to 280 feet from the crest.

With the exception of a small amount of miscellaneous work, both spillways were completed, the gates installed, and the bridge built across the Arizona Channel.

All concrete was placed for the intake towers up to the roof shingles, the four bridges were erected, all gates installed, and trash racks placed. Work was in progress at the end of the year for the installation of hoists and stems.

Lining was finished for all the tunnels of the penstock and outlet systems and their related shafts, passageways, and adits. The canyon wall valve houses were raised to the lower roof slab, excavations were completed for the downstram plugs in inner diversion tunnels, and the upstream plugs were poured, cooled, and grouted.

Remote-control equipment was installed for the 50-by-50-foot steel bulkhead gate at the inlet of no. 1 diversion tunnel, and the upstream section of the plug in this tunnel was poured, in which were installed four sets of 6-by-7½-foot slide gates.

The 50-by-50 foot steel bulkhead was lowered at the inlet of no. 4 diversion tunnel on February 1, turning the entire flow of the river through tunnel no. 1, under control of the slide gates, and commencing storage in the reservoir. At the end of the fiscal year the reservoir was approximately 78 miles long, contained 3,875,000 acre-feet of water, covered an area of approximately 37,700 acres, and its water surface elevation was at 910.0, 15 feet above the lower gate sills of the intake towers. The flow at Bright Angel gaging station (Grand Canyon) was 50,300 cubic feet per second on June 30, and the outflow through the plug gates 14,900 cubic feet per second.

Construction of the powerhouse building drew gradually toward its close. The walls had been raised nearly to their full heights and most of the structural steel for the roof had been placed. The

control circuit tunnel was lined, the cut and cover conduit was poured, and excavation commenced for the switchyard.

Installation of power plant machinery by Government forces was started in February 1935, and the draft tube liners for the first four of the 115,000 horsepower units were installed ready for the turbines.

The Babcock & Wilcox Co. continued its efficient fabrication of steel penstock and outlet pipe and at the end of the year had produced 30,957.7 tons of pipe sections. Erection of 30-foot penstock header sections was started in the upper Nevada tunnel on July 10, and of 13-foot diameter penstocks in the upper Nevada penstocks on September 5. At the end of the fiscal year, erection of pipe was approximately 69 percent completed for the upper Nevada system, 17 percent for the lower Nevada, 40 percent for the upper Arizona, and 15 percent for the lower Arizona.

Visitors to the project increased from 191,788 for the previous fiscal year to 328,429 for the period of this report. A monthly peak of 39,884 occurred in February and a week-end record of 9,296 on November 9 and 10.

The Bureau of Power and Light of the city of Los Angeles had erected all towers for its two 287,500 and 275,000 volt lines from the switchyard to Cajon Pass near San Bernardino, and was engaged in stringing the 1.4 inch diameter hollow copper conductors from the switchyard to Victorville.

ALL-AMERICAN CANAL, ARIZONA-CALIFORNIA

Actual construction work on the all-American canal began on August 8, 1934, when the Griffith Co. commenced excavation on rock cuts. At the end of the fiscal year this company had excavated approximately 497.000 cubic yards and their contract was nearly completed. The W. E. Callahan Construction Co. and Gunther & Shirley, whose contract covers the excavation of approximately 30 miles of the main canal involving about 39,400,000 cubic yards of excavation, began work on December 8, 1934. By the end of the fiscal year this company had completed 9 miles of the canal, involving the removal of about 9,200,000 cubic yards. As a relief measure for the farmers of Imperial Valley, who suffered severely from the unprecedented drought during 1934 when the Colorado River was at its lowest point in history, team excavation by Government forces was authorized for several miles of canal in the vicinity of Calexico. Farmers and farmer stock were employed insofar as possible. At its peak nearly 1,000 head of stock were engaged on this work. By the end of the fiscal year 9 miles of canal

excavation, involving the removal of approximately 1,487,000 cubic yards, had been completed by these methods.

Bids were opened on April 25, 1935, for the excavation of about 25 miles of the all-American canal across the East Mesa, involving the excavation of about 11,300,000 cubic yards, and contracts were awarded to Lewis-Chambers Construction Co., of New Orleans, La., and Mittry Bros., of Los Angeles. Although preparatory work was under way actual excavation had not commenced under either of these contracts by the end of the fiscal year. Designs and specifications for Imperial Dam and desilting works and other major structures along the canal were in course of preparation on June 30 and call for bids will be issued on these features as rapidly as they can be made ready.

ORLAND PROJECT, CALIFORNIA

Economic conditions showed an improvement over the previous year. A slight increase in prices afforded some relief. Butterfat, one of the project's major commodities, advanced in price to 37 cents a pound in the fall and winter months but declined again in the spring. Crop yields were fairly satisfactory and in one case quite surprising. The citrus-fruit yield was the greatest in the history of the project. For the first time in some years a market existed for low-grade figs and a large tonnage of fruit, which had formerly gone to waste, was marketed. The olive crop was very satisfactory both from the standpoint of yield and prices received.

Actual collections of reclamation charges showed a gain over those of the previous year, but were still rather light on account of the deferment of the payment of construction charges under the acts of April 1, 1932, and later acts. Relief under these acts has been of great aid to the water users. For the fiscal year 1935 the collections totaled $36,858.67 as against $32,330.77 for the previous year. Loans from the Federal land bank were of material assistance to the water users in enabling them to pay their operation and maintenance charges. The crop value per acre was $33.64. Values of project farm and motor equipment showed a slight increase over 1934, but there was no general replacement of obsolete equipment. Livestock values showed a small net increase, although the value for sheep and hogs declined slightly. Population on the farms remained practically the same and bank deposits increased $97,128. Oranges, almonds, olives, prunes, apricots, and turkeys were marketed largely through local cooperative marketing organizations.

Reduction in funds available prevented the carrying forward of the concrete lining program on laterals subject to excessive loss of water and high maintenance cost.

PARKER DAM PROJECT, ARIZONA-CALIFORNIA

Contract for construction of Parker Dam was let to Six Companies, Inc., September 4, 1934, on their bid of $4,239,834. The entire cost of this construction will be repaid by the Metropolitan Water District of Southern California under a contract with the Bureau. Work was started October 11, but was interrupted November 13 by the declaration of martial law by the Governor of Arizona in the area adjacent to the Arizona abutment of the dam. Work was resumed after the United States Supreme Court on February 11, 1935, issued a restraining order preventing interference by Arizona, but was again halted on April 29, when the Court rendered a decision holding that construction had not been authorized by Congress. No additional work was done on the dam itself to July 1, 1935. The contractor, however, completed his construction camp and the Bureau built a camp nearby for its employees.

GRAND VALLEY PROJECT, COLORADO

Crop values increased to $37.35 per acre during 1934 from the 1933 average of $21.75 on this project. Local showers prevented a water shortage that might have developed in the late summer owing to acute drought conditions on the watershed. There were 512 farms irrigated during the season, an increase of 42 over 1933 due principally to subdivision. The acreage planted to beans increased, and good prices for this crop were received. Water charges during the season were $1.40 for 4 acre-feet, a reduction in 2 years of $2.10 for this unit. The reduction resulted from economy in operation and lower labor and material costs on maintenance work. The Federal land bank made commissioner's loans on lands within the project for the first time in 1934. About 30 farms received such loans. All project banks were operating, except one at Fruita, Colo., which was merged with a Grand Junction, Colo., bank. They were operating in a more normal manner than during the previous year although a large part of the farm credit still was being provided by Government loan agencies. The beet-sugar factory at Grand Junction did not operate owing to reduced acreage. Cooperatives handled a large part of the project's potatoes and beans.

UNCOMPAHGRE PROJECT, COLORADO

During the 1934 irrigation season 1,578 farms were irrigated, 714 by owners, and the average crop value was $21.94 an acre. This comparatively low per-acre crop value resulted from a shortage of water, recurrence of which will be prevented with completion of Taylor Park Dam. The price paid to farmers for their produce was up sharply

over 1933, reaching a peak of 130 percent in some cases. Project sugar beets were handled by the sugar factory at Delta, while most of the potatoes and onions, poultry and dairy products were marketed through cooperatives. Three cooperative gasoline stations did a thriving business throughout the year. Construction of Taylor Park Dam, an earth-and-rock fill structure, which will supply supplemental water for the project, began on May 1, 1935, after the Uncompahgre Valley Water Users' Association entered a contract to repay its cost. The Water Users' Association also entered repayment contracts for rehabilitation of the South Canal and for drainage works.

BOISE PROJECT, IDAHO

The Arrowrock division is completely settled with a less percentage of uncultivated land than for many years. The proportion of tenantry is about stationary. The agricultural industries, such as creameries, condensaries, packing and canning plants, etc., continue as usual. Most of the agricultural industries are operated by cooperative organizations of water users. Associations of dairymen, poultry and egg producers, etc., operate widely and are prosperous with moderate competition by corporations. There is a gradual expansion of associations of users to deal in gas and oil, coal, groceries, etc.

No work has been under way on the Boise project except the enlargement of the Mora High Line culvert under the Oregon Short Line near Mora and certain small drain extensions, all of which has been done by the water users.

Supplemental storage, repairs on the Arrowrock dam and Deer Flat embankments and cleaning of drain ditches are needed.

A power plant and the Deadwood reservoir have been constructed but are being used for the Owyhee project. The Hillcrest division has contracted for Arrowrock storage and the diversion power plant.

MINIDOKA PROJECT, IDAHO

The total value of crops grown in 1934 was $1,649,000. Less than 85,000 acres were cropped as compared with nearly 99,000 acres in 1933. There were 1,533 farms irrigated on the Gravity division and 843 on the South Side pumping division. About 60 percent of the farms of the pumping division were operated by owners, and 40 percent by tenants. Operation and maintenance charges, on both Gravity and Pumping divisions were well paid up. There was a heavy snowfall over the Upper Snake River drainage area during the winter of 1934–35, and the run-off in the spring was well maintained. In Jackson Lake, the maximum storage in 1935 was 713,460

acre-feet, and some 95,000 acre-feet of stored normal flow, including a small amount of holdover, were impounded. The supply of normal flow water was sufficient for all project demands, practically to the end of the fiscal year. The season of 1934, however, was the driest ever known, and all crops suffered severely. The Civilian Conservation Corps cleared the timber around Jackson Lake.

There is need for a more adequate water supply for the project, especially in years of low stream-flow. One plan under consideration is to increase the height of the dam at American Falls to permit the storage of water in years of high run-off for use in years of shortage. Conservation in the use of winter water heretofore demanded for power and irrigation purposes is needed to increase the available supply for irrigation. A number of transfers of real estate were made. No new industries were established during the year, but a sugar factory, flour mills, and potato meal mill, two alfalfa meal mills, and a casein manufacturing plant were operated.

A contract completed with the Idaho Power Co. provided a means of conserving winter water for storage at American Falls reservoir.

A contract with the Minidoka Irrigation District provided that all power used in the district should be obtained from the Government plant at Black Canyon through exchange with the Idaho Power Co., the district agreeing to pay $40,000 to $50,000 yearly toward the construction cost of the plant, and in return to be credited with all receipts for power sold in the district.

UPPER SNAKE RIVER PROJECT, IDAHO

Island Park dam site was selected as the most feasible location to be found on Henrys Fork, and after extensive investigation of foundations plans were prepared and the work advertised for bids at the close of the fiscal year. In connection with this reservoir it is proposed to carry water through a crosscut canal from Henrys Fork to the Teton River to make stored water available to lands in that district, which canal will head at a low diversion dam about 6 miles above St. Anthony.

Investigations were continued at Ashton reservoir site on Henrys Fork near Ashton, but were abandoned in favor of cheaper storage at Island Park. A satisfactory reservoir site of about 50,000 acre-feet capacity was found on the Teton River, about 4 miles west of Driggs. Topographic surveys were completed and the dam site tested by diamond drilling and wash borings. Topographic surveys were made of Lake of the Woods and Grassy Lake reservoir sites just south of Yellowstone National Park, where it is hoped a combined storage capacity of 25,000 acre-feet may be obtained. Further diamond drilling is necessary to determine the feasibility of these

sites. The Spring Creek reservoir site is located on a small creek near Tetonia. Surveys and investigations of a foundation were made, but the probability of excessive leakage and excessive costs indicates further consideration of the site to be unwarranted.

The Fremont-Madison Irrigation District, embracing about 116,000 acres, was formed and an election held, at which a repayment contract with the United States was authorized. This contract covers the cost of Island Park dam, crosscut canal, and one or more small reservoirs on Falls River, and a reservoir on the Teton River.

BITTER ROOT PROJECT, MONTANA

The Bitter Root project has 18,240 acres irrigable, of which 16,000 is being farmed. There are 285 families, making a project population of 1,200 people. As a result of the Government loan, tax delinquent acreage has decreased from 6,000 acres in 1930 to 700 in 1935. Farmers are more hopeful.

The original Government construction appropriation did not fully complete rehabilitation of the project. The greatest needs at present include the replacement of one-half mile of wooden flumes and 5 wood stave siphons aggregating 1 mile in length, and a supplemental water supply by building 7 miles of ditch to adjoining watershed.

FRENCHTOWN PROJECT, MONTANA

The district lands are being dry farmed. Grain, the principal crop, is about 30 percent below normal. Some livestock is raised on the project and nearby range. Officials of the Amalgamated Sugar Co., which has a factory at Missoula, are convinced that sugar beets will quickly develop on the project lands as soon as irrigation water is available. Missoula has a population of 17,000 and 150 persons live in Frenchtown and Huson.

At the end of the fiscal year the final location of the main canal, 17 miles long, was completed and topographic surveys were made of more than 2,000 of the 7,500 acres of project lands. A complete topographic survey is being made, after which the laterals will be located. A small diversion dam will be constructed across a small side channel of the Missoula River.

HUNTLEY PROJECT, MONTANA

A total of 655 farms were in cultivation during the year, of which 338 were operated by owners and 317 by tenants. The value of crops was $4 per acre higher than for the previous year. Sugar beets only showed a decrease, amounting to $10.55 per acre. The

Wool Growers Association is active and markets practically all the lambs and wool grown on the project.

A permanent low-water dam, a reinforced concrete structure with rock and gravel core, was constructed across the main channel of the Yellowstone River below the project head gates. The dam has a crest length of 250 feet and a length over all of 324 feet, the height from foundation to crest is 10.5 feet, the width of the main structure 18 feet, and the width of the footings, 21 feet. A jetty, extending 101 feet into the river from the north bank, was completed. Its purpose is to divert the main current of the river toward the south bank and the dam, preventing any tendency to change the main channel of the river. Construction is of cribbing filled with rock.

MILK RIVER PROJECT, MONTANA

Excellent crops were produced on the project and the price level, especially for feed crops, exceeded that of many previous years. For the first time in the history of the project the gross crop revenue exceeded $1,000,000. The financial condition of water users generally was consequently improved and there was a considerable liquidation of indebtedness incurred during the previous 3 years.

Sugar-beet yields were good and provided a maximum-capacity campaign for the Chinook factory.

The acreage farmed and irrigated during 1935 will exceed that of any previous year. One tract of 600 acres was purchased by the rural rehabilitation section of the A. A. A. and the 6 families from adjacent submarginal lands established thereon will be provided with suitable farm buildings and otherwise assisted in the development of their farms. Plans are being formulated for the colonization of several hundred farms during the year.

Operation and maintenance advances for the calendar year 1935 have been paid in full by all but two of the irrigation districts. These delinquencies, however, are slight and will be met before there is requirement for the funds.

Work under the N. I. R. A. allotment of $65,000 for the continuation of project construction was carried on throughout the fiscal year. This work involved two principal features: (*a*) The repair and improvement of the St. Mary Canal, consisting in the widening and strengthening of about 4 miles of canal bank and the placing of about 500 cubic yards of riprap to prevent excessive erosion, (*b*) the replacement of timber canal and lateral structures in the Malta and Glasgow divisions with structures in kind of concrete. Two major and 157 minor structures were constructed, involving 441 cubic yards of reinforced concrete, and replacing 147 deteriorated timber structures.

SUN RIVER PROJECT, MONTANA

The program followed since 1929 of changing the large grain acreage to alfalfa, sweet clover, forage, and cultivated crops was continued during 1934 and early 1935. Good progress was made with 7,500 acres of seed peas and a general increase in soil-building crops. The water supply for 1935 continued excellent, although the season on the project was one of the driest of record. Prospects for crops in 1935 were good. The Utah-Idaho Sugar Co. was making a detail survey regarding possibilities for a sugar factory. Concerted action developed among farmers for control of noxious weeds. Planting of shelter belts continued and community pastures were operating successfully. The Fort Shaw and Greenfields irrigation districts continued to operate the completed works successfully. Good progress on extensions to lateral system and drainage works was made under N. I. R. A. funds. Twenty-six miles of drain and some 14 miles of laterals and canal extension were completed. Contract was awarded to Tomlinson-Arkwright Construction Co. for construction of about 26 miles of laterals and structures in vicinity of Ashuelot and to T. G. Rowland for some 18 miles of drains and structures. Plans and estimates were completed for improving some 25 miles of Pishkun and Sun River Slope canals. Gibson Reservoir should be enlarged and lateral system built on the Sun River Slope division.

LOWER YELLOWSTONE PROJECT, MONTANA-NORTH DAKOTA

There were 524 irrigated farms on the project. Where there was no irrigation there was no crop.

The irrigated area was 36,348 acres. During the year 57 percent of the irrigated farms were operated by owners or managers and 43 percent by tenants. The demand for irrigated land was greater in the past year than for any year of the project's history. A great number of sales were made during the past year and all lands taken for nonpayment of taxes were sold. One tract of about 1,200 acres was sold at a cash sale and brought a return of $17 an acre. Most of this was land that has not been farmed or developed for a number of years.

Both irrigation districts raised sufficient funds to keep the operation and maintenance work, as well as the purchase of new equipment, on a cash basis.

NORTH PLATTE PROJECT, NEBRASKA-WYOMING

The deficient water supply on the project, which was only one-third of normal, resulted in reduced yields of nearly all crops. The yield of sugar beets was reduced to 8.3 tons per acre, as compared with

12.5 tons per acre the previous year. The yield of alfalfa was 1.5 tons, as compared with 2 tons per acre under normal conditions. The autumn and winter months continued extremely dry. Early in May 1935 the drought was broken by extensive rains over project lands and the storage watershed. These rains put the land in good condition for spring planting and increased the storage water supply. Diversion of water for irrigation was not started until after June 15, and Pathfinder Reservoir was filled to 50 percent of its capacity. Guernsey Reservoir was filled, and Minatare Reservoir was about two-thirds filled. This is not a normal supply, but it was thought to be ample for the season's needs. The general economic condition of project farmers showed improvement during the past year in spite of the 1934 water shortage. Prices received for crops were good, and benefit payments for corn, hog, and sugar-beet farmers helped materially. The area reported cropped was 176,000 acres, as compared with 182,500 acres in 1933. Land sales showed increased activity, although good farms were at a premium.

A new contract was executed with the Northport district which provides for smaller construction payments during the next few years and also for payment from the district's share of power revenues of $6,000 annually to the farmers' irrigation district for the Northport district's water-carriage charges.

Construction was confined to completion of 10 miles of additional power-transmission line between Gering and Mitchell, Nebr., completing a loop circuit serving a total of nine project towns and making duplicate line service available to each town, thus reducing power-service interruption caused by line outages and resulting in improved service. The cost of the work was financed from power revenues. The irrigation districts were forced to expend unusually large sums in cleaning canals and laterals in the spring of 1935 as a result of sand storms during the winter of 1934–35.

HUMBOLDT PROJECT, NEVADA

Lovelock Valley received only 3,000 acre-feet of water to meet its requirement of approximately 84,000 acre-feet during the 1934 season, accentuating the economic difficulties of previous water shortages and universal depression. Returning confidence among the farmers of the district, inspired by the construction of Rye Patch Dam and the purchase of water rights in the Battle Mountain area for transfer to this project is evidenced by a marked improvement in business and banking conditions locally.

Award of contract was made on December 1, 1934, for the construction of Rye Patch Dam, J. A. Terteling & Sons being the lowest and successful bidder.

Subsequently plans were changed so as to provide for an additional 10 feet in height of the dam. Active construction work was commenced in February 1935, and was 16.9 percent complete on June 30, 1935. In the Battle Mountain area property was purchased aggregating approximately 60,000 acres. Surveys of this property and plans for river channel improvement, removal of old dams, and blocking of sloughs to prevent river overflow in these properties were in progress.

NEWLANDS PROJECT, NEVADA

The project water supply for the 1934 season was seriously short, necessitating a rigid plan for allotting all available water.

The water supply for lands under Lahontan reservoir was adequate during the winter 1934–35.

The First National Bank in Reno, Fallon branch, was opened on May 1, 1935.

The irrigated area totalled 41,070 acres, in addition to 7,600 acres in outside community pastures receiving some drainage waters. Farms operated by owners numbered 606 and by tenants 179. The total estimated value of all crops was $737,164. In 1934 crop values increased $116,674 above the 1933 totals.

Two E. C. W. camps were under construction near Fallon. The plan included such work as grubbing willows, cleaning ditches, building and repairing structures, riprapping around new structures, and replacing riprap around old structures where necessary.

During the winter of 1933–34 C. W. A. funds were made available for a limited amount of work on project drains, all of the work being done by hand labor. Improvement of roads now existing is proposed to facilitate operation of the distribution system, eliminate fence gates across such roads and substituting cattle guards therefor, providing bridges and culverts for ditch crossings and draining or grading operating roads upon the ditch rights-of-way.

Other maintenance work during the fiscal year included the installation of 21 concrete structures, 64 pipe or timber structures in the lateral system, and 13 pipe or timber structures in the drainage system.

TRUCKEE STORAGE PROJECT, NEVADA

Crop production, as a consequence of an inadequate water supply, was much below normal. Grass and fall alfalfa pasture, which were scarce and of poor quality, produced small revenue from feeder cattle. Hay in excess of farm demands was insufficient to provide the usual volume of cattle feeding during the winter. Investigations were made at one of the proposed dam sites on the Little Truckee

River. Topographic surveys of dam site and reservoir and diamond drill explorations of the Boca site at the junction of the Little Truckee River with the Truckee River were in progress at the close of the fiscal year. Form of agreement necessary to be executed by the Sierra Pacific Power Co., the Washoe County water-conservation district, and the Truckee-Carson irrigation district, and the United States was approved as to form.

CARLSBAD PROJECT, NEW MEXICO

There were 438 farms cultivated during the year, 290 by owners and managers and 148 by tenants. The total area cropped was 18,714 acres. Two farms were reported sold to local residents. Prices of farm land ranged from $75 to $250 per acre. No new farm loans were made by the Federal land bank. Payments on loans amounting to $650,000, made by the loan agency, were resumed. Crop returns for 1934 averaged $44 per acre, a decrease of $3.39 per acre. Financial conditions of the project continued to improve. The local bank deposits were $690,215 on June 30, 1934. Industrial developments were confined to the potash and oil industries. The U. S. Potash Co. mining and refinery operation was on a three-shift basis. Both reservoirs of the project were entirely empty on July 1, and there was insufficient water for crops during the remainder of the year. Sufficient water accumulated during the winter to permit a full supply for planting the 1935 crops, and there was sufficient water for all crops at the close of the fiscal year 1935.

Extension of the east embankment at Lake McMillan was started July 23 by F. E. R. A. forces and continued until September 22, when C. C. C. forces took over the work. On June 30 the job was 90 percent completed.

RIO GRANDE PROJECT, NEW MEXICO-TEXAS

There were 4,956 irrigated farms in 1934, of which 3,018 were operated by owners or managers and 1,938 by tenants. The total area cropped in 1934 was 123,800 acres, as compared with 137,400 acres in 1931. A number of cold-storage, wholesale, and commission produce establishments serve El Paso's trade territory.

Weather conditions in 1934 were favorable and exceptional yields were obtained. The average gross return was $76 per acre for the total area cropped of 124,000 acres, as compared with $27.50 per acre in 1932. Crop financing was easily obtained. The mortgage indebtedness of the water users decreased. The total bank deposits increased from $17,550,000 in 1931 to $23,000,000 in June 1935. Collections for 1934 were unusually good and the classified area contracted

for water service in 1935 is the largest during the history of the project.

The most urgent engineering work is the extension or improvement of the drainage facilities for the remainder of the irrigable area of about 4,500 acres scattered throughout the project.

STANFIELD PROJECT, OREGON

The project is located in Umatilla County, eastern Oregon. It was originally constructed in 1905 by the Furnish Ditch Co. for the irrigation of approximately 10,000 acres in the vicinity of Stanfield, Oreg. The main canal diverts water from the Umatilla River. The water supply in part is obtained from the McKay Reservoir under contract for 15,000 acre-feet with the Bureau of Reclamation. An allotment of $100,000 was made by the Public Works Administration for refinancing and rehabilitating the propect, and a repayment contract with the Stanfield irrigation district was executed February 12, 1934. Rehabilitation work was continued during the past fiscal year on the irrigation structures and canals.

UMATILLA PROJECT, OREGON

The operation of the east and west divisions of the Umatilla project were continued under the respective irrigation district organizations, the combined irrigated area of the two divisions being approximately 11,000 acres, which in 1934 produced crops having an average value of approximately $18 per acre. Stock, dairy, and poultry prices showed improvement over the previous year. An early watermelon crop was marketed to good advantage owing to the watermelon code and somewhat to the work-relief projects during the winter months. On the east division the cooperative creamery and cannery are proving advantageous to the farmers and townspeople.

VALE PROJECT, OREGON

There are 242 water users on the project and nearly all lands for which water is available have been settled. Twelve percent of the farms were operated by tenants. Crops were diversified, the largest acreage being planted to alfalfa and hay for winter forage. Alfalfa returned an average yield of approximately 4 tons per acre. From 450 acres of potatoes there was an average of 135 bushels per acre. Dairying is fast becoming an important industry. A creamery was recently established at Vale, receiving cream and poultry from the settlers. Cooperative organizations in the older agricultural sections, adjoining, offer facilities to settlers for cooperative marketing. Two highways and a market road furnish facilities for transportation.

Contract was awarded on January 26, 1934, for construction of the Agency Valley Reservoir and work was 66 percent completed at the close of the fiscal year. Awards were also made for the construction of 4.5 miles of road to replace the present county road around Agency Valley Reservoir and for the earthwork and structures on the Vale Main Canal.

KLAMATH PROJECT, OREGON-CALIFORNIA

During the calendar year 1934, 510 of 568 farms on the main division were farmed. The average value of crops was $37.53 per acre, or an increase of $5.28 per acre. On the Tule Lake division there were 334 farms, 333 of which were farmed. Crop values averaged $48.73 per acre, an increase of $18.73 over the previous year. Crops were excellent and prices fair, and with a continuation of these conditions all project farmers should be able to meet their contracted obligations. A supplemental contract providing for the extension of payments under the act of May 25, 1926, was executed by the Enterprise irrigation district. Supplemental contract with the Langell Valley irrigation district providing for the adjustment of the district's construction charges in accordance with the land classification made in 1934 is pending, awaiting the outcome of an election to be held this fall. The contract provides for the suspension of charges on 6,271 acres of the 14,353 acres in the district.

Construction work during the year was limited to enlarging and strengthening the dikes in the Tule Lake division and a small amount of work on the extension of the drainage system in the main division.

OWYHEE PROJECT, OREGON-IDAHO

With the aid of the Vale-Owyhee Land Settlement Association 6,400 acres of new lands on the project were sold, and united efforts will be made looking toward the sale of 35,000 acres of new lands for which water will be available in the spring of 1936. The Farmer's Cooperative Creamery at Payette, Idaho, continued to do a thriving business. Abundant crops selling at increased prices resulted in a decided economic improvement. All surplus marketable hay was sold and shipped to Middle Western States where drought conditions prevailed.

The construction of the project irrigation works was completed to permit the irrigation of approximately 10,000 acres of new lands in the spring of 1935. The North Canal was completed to the inlet of the Malheur River siphon. Work on the additional grouting of the foundation of the Owyhee Dam was about 30 percent completed at the end of the fiscal year.

BELLE FOURCHE PROJECT, SOUTH DAKOTA

Financial progress was in evidence for the year ending June 30, 1935, largely because of more favorable prices received for farm products and the sugar-beet payments under the A. A. A. Alfalfa was in demand at prices ranging from $12 to $18 per ton in the stack. The total crop value was $1,022,500, the highest for 5 years and an increase over the previous year of 41 percent. Closer settlement remains the principal need in the program for better farming and more production per acre. Federal rural rehabilitation, including transplanting of settlers, was seriously considered for the project. Twenty-five percent of the project farms are occupied by owners, 32 percent by tenants, and 43 percent are partially developed and would fit into the rehabilitation plans because of their productive soil.

Requests were made for P. W. A. allotments totaling $100,000 to cover the replacement of North Canal wood siphon and culverts under North Canal, Johnson lateral storage and drainage extensions. The replacement of North Canal wood siphon and culverts under North Canal was being taken care of under operation and maintenance assessments, and the Johnson lateral storage was being considered for E. C. W. construction.

HYRUM PROJECT, UTAH

The Hyrum project, when completed, will furnish supplemental water supply to approximately 10,000 acres of privately owned land in the southern part of Cache County, Utah, which are now inadequately supplied with water. Project lands with the better water rights produce fair yields of alfalfa, sugar beets, and small fruits. Land adjacent to the project having first-class water rights produces excellent yields of alfalfa, sugar beets, peas, beans, and small fruits. The principal industries of the project and the adjacent area include dairying, and the raising of sugar beets. The snow cover at the last of April was above the average as was its water content.

At the end of the fiscal year 1935 the construction of Hyrum Dam and appurtenant structures was 96.4 percent complete. On November 20, 1934, contract was awarded to J. A. Terteling & Sons, of Boise, Idaho, for the construction of earthwork on the canal system. At the end of the fiscal year this work was complete. Award of contract for the construction of structures below the dam, including pumping plant and pipe line, concrete siphon, bench flume, and other structures was made to Knowlton & Rupert, of Layton, Utah, on February 6, 1935. At the end of the fiscal year this work was 87.9 percent complete.

MOON LAKE PROJECT, UTAH

Actual construction of Moon Lake Dam was started May 7, 1935. Results to June 30, 1935, comprise the excavation of 32,260 cubic yards of material in the outlet tunnel, open cut for intake and outlet structures, and spillway intake. Completion within the present calendar year of the outlet tunnel is anticipated which will permit diversion through the completed tunnel of the run-off from melting snows early in 1936, when work on the earth-fill portion of the dam will be undertaken. The reservoir to be formed by the construction of Moon Lake Dam will have a storage capacity of 30,000 acre-feet, supplying water for 85,000 acres of homestead lands under cultivation now suffering from a water shortage because of rights secondary to Indian allotted lands.

OGDEN RIVER PROJECT, UTAH

The purpose of the Ogden River project is to furnish a supplemental water supply for lands that are already in a high state of cultivation. The land is all in private ownership. Marketing conditions, cooperative marketing associations, canneries, sugar-beet factories, and other facilities are now well established on the Ogden River project. Project lands which are to receive a complete new water supply comprise such a small proportion of area farmed that they will have little effect on the whole.

The construction of this project contemplates the building of Pine View Dam and Reservoir, a 75-inch wood-stave pipe line from the dam to the mouth of Ogden River Canyon, about 25 miles of canal north to Brigham City, and about 8 miles south to the Ogden Airport to distribute stored water to the lands that have had an inadequate water supply. On September 13, 1934, contract was awarded to the Utah Construction Co. and Morrison-Knudsen Co. for construction of the dam and appurtenant works. The contract was about 40 percent completed at the end of the fiscal year.

PROVO RIVER PROJECT, UTAH

This project involves the construction of a storage dam and reservoir on the Provo River 13 miles east of Provo. An earth-fill dam will raise the water surface about 195 feet, giving a reservoir capacity of 170,000 acre-feet, which water will serve as a supplemental supply for the irrigation of 36,000 acres in the Utah and Salt Lake Valleys. Water for the reservoir will be obtained principally by diverting a portion of the Weber River through the Weber River Diversion Canal which is to be enlarged, and by diverting surplus water from the headwaters of the Duchesne River through the con-

struction of a 5½-mile tunnel. A second division of the project involves the construction of a dike across Utah Lake for the purpose of decreasing evaporation by reducing the water surface area. A water users' association has been organized, the stockholders of which will consist of several irrigation companies and three metropolitan water districts. The irrigation companies are in the process of qualifying for participation in the project. The three districts have been formed preparatory to qualifying as subscribers for stock in the association. An allotment of $2,300,000 is available for beginning the construction of the project.

SANPETE PROJECT, UTAH

The work planned for the project covers the construction of two tunnels, one on the Ephraim division 7,200 feet long with a capacity of 100 second-feet, with short feeder canals; and on the Spring City division a similar tunnel 5,000 feet long with short feeder canals. Water diverted through the two tunnels will be used as a supplemental irrigation supply on about 8,000 acres of land near Ephraim and Spring City. Repayment contracts have been obtained from both project divisions, and a contract has recently been awarded to the Morrison-Knudsen Co. for the construction of the Ephraim Tunnel. An allotment of $375,000 is available for the construction of the two tunnels. The feeder canals are being constructed with the use of an E. C. W. camp.

STRAWBERRY VALLEY PROJECT, UTAH

Spring conditions were ideal and it was not necessary to withdraw water from storage until June 9. Early crops had matured. Because of the lack of uniformity of water supply the sugar-beet acreage planted in 1935 was small. However, exceptional yields from acreage planted to peas will tend to counterbalance the sugar-beet situation. Poultry operations again proved to be the most productive secondary industry of the farming population. Utah eggs have gained a quality reputation on the New York market and the season's prices were firm. The industry also is serving the important function of a home market for the grain crops produced. Last year the project failed to produce enough wheat to feed its chickens and supply the general cereal requirements.

During the past year investigation was made of the possibilities of diverting additional water into present storage facilities.

It is anticipated some additional water will be made available to the project in the spring of 1936 through a new diversion canal under construction by the Currant Creek C. C. C. Camp.

WEBER RIVER PROJECT, UTAH

The Echo Reservoir, on the Weber River, with a capacity of 74,000 acre-feet, was constructed in 1930 for the purpose of providing a supplemental water supply for the irrigation of 70,000 acres of land in the lower Ogden and Weber Valleys, and 15,000 acres in the Provo River Valley. The reservoir was used to nearly its full capacity in 1932 and 1933, and was filled to one-half its capacity in 1934, the year of lowest precipitation on record in the Salt Lake Basin. The 1934 storage supply saved the project from a total crop failure during the drought period, as indicated by an average crop value of $27 per acre.

COLUMBIA BASIN PROJECT, WASHINGTON

Work under the contract for construction of Grand Coulee Dam and power plant was started on September 25, 1934. Erection of contractor's buildings, general offices, houses for employees, hospital, and other buildings to accommodate 2,700 workmen was completed. Excavation operations for removing overburden for dam and powerhouse foundations were started on both sides of the river in October. The belt conveyor for the west-side excavation was placed in operation in December and pile driving in the west cofferdam commenced January 1, 1935. The cofferdam was completed in April and by June 30, 1935, approximately 8,000,000 cubic yards of excavated material had been moved out. Placing of concrete in the dam was expected to start about October 1, 1935. Thirty percent of the contract work had been completed by the end of the fiscal year.

On June 5, 1935, the Secretary issued an order for change to the contractor, directing the company to construct the foundation for the high dam and power house in lieu of the low dam and power house as indicated in the specifications on which the bid was made. The Government headquarters camp, including water and sewage systems, administration building, 60 residences, 2 dormitories, schoolhouse, warehouse, 4 temporary dormitories, and 24 cottages and other facilities was nearing completion. Paving of highway and streets was well advanced. The United States construction railroad from Odair was nearly completed, including tracks to the warehouse.

OKANOGAN PROJECT, WASHINGTON

The gravity system furnished 2 acre-feet per acre "new" water during 1934 and the set-up for the current year is on a basis of 2½ acre-feet "new" water per acre with prospect of a good carry-over. The irrigated acreage for 1934 decreased slightly. The year 1935 will probably show a small increase. A branch of the Production Credit

Association was placed in Okanogan and most of the project farmers obtained their finances for their 1935 operations through this source. The 1934 apple crop was the largest, considering the reduced acreage, ever harvested although returns were poor. The current crop will be about normal with prospects for a good return. The cherry market for 1935 was good and brought in considerable money at a time when it was badly needed. The pear market was expected to bring $25 to $40 per ton. The Okanogan Growers' Union is constructing a 110-car cold-storage plant at Okanogan which will make the combined cold-storage capacity of Okanogan and Omak about 410 cars.

During the spring of 1935 the district lined 3,485 feet of the Upper Main Canal at a cost of $5,501.14. The yardage placed was 437.5 cubic yards, or unit cost of $12.574 per cubic yard. The ditch lined was originally designed for a far larger carrying capacity and the reduction in size entailed the placing of some 3,000 cubic yards of backfill.

YAKIMA PROJECT, WASHINGTON

SUNNYSIDE AND TIETON DIVISIONS

The 1934 water supply was ample for all needs and the irrigated areas remained about the same. Because of an early spring and the resultant long growing season, the diversion and delivery duty for both divisions was the lowest of record. Better prices for some crops and increased yields of fruits resulted in average per-acre values of $39.15 and $122.87 for the Sunnyside and Tieton divisions, respectively. Financing of growers by various governmental loan agencies was especially helpful. Apples, hay, potatoes, and rutabagas remaining from the 1934 crop were cleaned up at attractive prices. Movement of farmers from the drought areas of the Middle West was evidenced. The cold-storage capacity of the Naches plant of the Yakima County Horticultural Union was increased 175 cars by an addition to its existing plant. The regular program of operation and maintenance on the two divisions included a heavier program of minor structure replacement.

KITTITAS DIVISION

A normal water supply was available in 1934 for the irrigation of 52,071 acres, an increase of 17 percent over 1933. The principal crops were alfalfa, hay, peas, oats, potatoes, and barley. There was a marked increase in the seed-pea acreage. The average per-acre value of crops was $18.98. Credit facilities were easier than in previous years and land sales were being held to conservative figures. There was much interest in settlement opportunities. Dur-

ing the year a cannery was established and handled a considerable acreage of peas and sweet corn. Late in 1934 the Milk Products Co. opened a new plant with modern equipment. The operation and maintenance of the division was carried on by the Kittitas reclamation district.

KENNEWICK DIVISION

The average per-acre value of crops amounted to $67.62 for a net cropped area of 2,158 acres. Apples, alfalfa, hay, potatoes, and asparagus were the principal crops. A new cannery at Kennewick costing $30,000 provided a market for asparagus growers.

STORAGE DIVISION

A heavy program of maintenance and betterment work was completed in the fall of 1934. At Tieton Dam extensive repairs were made to the basin at the lower end of the spillway chute. At Bumping Lake repairs and improvements were made. At Cle Elum Reservoir rather extensive repairs to the cylinder gates were made. Maximum storage on hand for the 1935 season was reached on June 16, with 938,962 acre-feet. Construction of temporary E. C. W. camps BR–49 and BR–50, to be located at Clear Creek and Kachess Reservoirs, were started in June 1935 by Army officers from Camp Lewis.

CASPER-ALCOVA PROJECT, WYOMING

Construction was continued with funds allotted by the Public Works Administration. One and one-half miles of road were constructed, completing the West Side Service Road and its extension to Seminoe Dam site. Three hundred sixty acres of land in the Seminoe Reservoir area were cleared. Construction of the Alcova diversion and outlet tunnel was completed. All tunnel and open canal excavation and the construction of two concrete siphons on the Casper Canal were completed. Concrete lining in tunnel no. 1 was completed and the lining of tunnel no. 2 was 50 percent complete. Thirty-one miles of power transmission line and 4½ miles of telephone line were constructed, completing these lines to Seminoe Dam. Invitations for bids were issued June 8 and 15 for the construction of Alcova Dam and Seminoe Dam and power plant, respectively, and work was expected to start the latter part of the summer. Construction of the Casper Canal under present contracts will be continued and carried to completion. Construction will also be commenced on the remainder of the Casper Canal and on the lateral system. Draft of revised repayment contract with the Casper-Alcova irrigation

district was approved by the Department April 23, 1935, and its execution by the district board of commissioners was authorized by the electors of the district at an election held May 25, 1935.

RIVERTON PROJECT, WYOMING

In 1934 the water supply was ample and crop values per acre showed a substantial increase owing to better prices. The 1935 season was marked by an increase of more than 80 percent in the number of settlers and in the area under cultivation. Twenty additional settlers either made homestead entry or purchased private land with a view to developing it in 1936. Crops were in good condition though rather late because of the cold spring. A substantial acreage of sugar beets was grown on the project for the first time and a rather large acreage was planted to beans. There was little money in circulation, but there was a general optimism among the settlers. All water users had paid the advance water-rental charge for 1935 and there were no delinquent charges on the project books. More good roads are needed. There is still room for additional settlers.

SHOSHONE PROJECT, WYOMING

The project water supply was ample. Crop production greatly exceeded that of the previous year on all three divisions of the project. The average per acre crop return on the Garland division was $24.38, compared with $20.22 for 1934; on the Frannie division $11.77, compared with $9.26; and on the Willwood division $15.76, compared with $8.97. The potato crop was poor. Shipments of agricultural products totaled 1,397 carloads, compared with 1,133 the previous year. Livestock shipments numbered 136 carloads, compared with 128 in 1934. Current crop conditions at the end of the fiscal year were excellent. Settlement activity showed a decided increase over the previous year, owing to the drought in the Middle West. Forty-eight homestead entries were made on the Willwood division, involving an irrigable area of 3,213.86 acres. Ten applicants for farm units on the Willwood division paid the 1935 water-rental charges on 766.95 irrigable acres of land. At the end of the fiscal year 14 vacant farm units remained on the Willwood division. The plant of the Associated Seed Growers was enlarged during the year to provide more storage space and accommodations for a larger number of employees. The area planted to seed peas and beans increased to approximately 4,200 acres. The Big Horn Marketing Association planned to enlarge its plant. A potato-marketing association is active. Construction on the Willwood division consisted of 7.55 miles of open drains and 3.13 miles of closed drains.

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SECONDARY INVESTIGATIONS

Investigations of proposed projects were carried out at a total cost of $202,000, mainly with funds allotted under the National Industrial Recovery Act of June 16, 1933. Principal among these were:

ARIZONA

An initial unit of the Gila Valley project to irrigate 150,000 acres at a cost of $19,475,000. Report dated December 10, 1934.

COLORADO

A start on the survey of the Grand Lake-Thompson River transmountain diversion.

IDAHO

Surveys, drilling, plans, and estimates for reservoirs on South Fork of Snake River, together with a study of water supply conditions generally in the Upper Snake River Valley, with a report thereon in June 1935.

MONTANA

Surveys were completed for the Buffalo Rapids project to irrigate about 50,000 acres near Miles City.

NEBRASKA

A general water supply study for utilization of Platte River waters was started, accompanied by drilling of dam sites along North Platte River near Keystone.

OREGON

A report was submitted in October 1934 for the irrigation of 47,000 acres in Baker Valley by means of a reservoir on Powder River and utilization of ground storage by pumping at a cost of $3,662,000. A report of October 1934 found the diversion of Burnt River to Willow Creek infeasible and suggested a reservoir of 25,000 acre-feet at a cost of $550,000 for the use of Burnt River areas. Irrigation use of Umatilla River flood waters was found too costly in a report of April 1935. On Deschutes River the newly found Wikiup reservoir site will enable conservation of most of the winter waters now escaping unused as to irrigation.

TABLES

RECLAMATION TABLE 1.—*Consolidated financial statement, June 30, 1935*

DEBIT SIDE

Construction account:			
Primary projects:			
Cost of irrigation works:			
Original construction	$223,206,147.16		
Supplemental construction	12,646,037.98		
Value of works taken over	2,056,939.90		
Total construction cost		$237,909,125.04	
Operation and maintenance prior to public notice, net	2,803,615.15		
Operation and maintenance deficits and arrearages funded with construction	5,321,099.99		
Penalties on water-right charges funded with construction	1,882,037.15		
		10,006,752.29	
Total		247,915,877.33	
Less income items:			
Construction revenues	6,729,587.10		
Contributed funds	1,781,257.31		
Nonreimbursable appropriation, Rio Grande Dam	1,000,000.00		
		9,510,844.41	
Total		238,405,032.92	
Less abandoned works, nonreimbursable cost, and charge-offs		17,112,430.10	
Balance payable			$221,292,602.82
Yuma auxiliary project:			
Cost of irrigation works	$899,837.00		
Impounded funds, economy acts	504.96		
		900,341.96	
Less construction revenues		1,085.47	
			899,256.49
Palo Verde flood protection cost of reconstruction and repairs			48,917.67
Tennessee Valley Authority:			
Cost of designs		371,443.80	
Less contributed funds		371,443.80	
Secondary projects and general investigations:			
Cost of surveys and investigations		3,336,711.44	
Less contributed funds		629,294.43	
			2,707,417.01
General officers' expenses undistributed			126,823.03
Plant and equipment			647,914.57
Materials and supplies			1,269,639.49
Accounts receivable:			
Current accounts		989,610.54	
Deferred accounts		162,147,750.72	
			163,137,361.26
Undistributed clearing cost accounts			119,427.90
Unadjusted debits disbursement vouchers in transit			67,755.41
Cash:			
Balance on hand:			
Reclamation funds	$7,683,224.41		
Yuma auxiliary fund	143,406.09		
Special funds	67,128.45		
National Industrial Recovery—Interior, reclamation, allotments	38,291,213.35		
Public Works Administration allotments	500,248.11		
Contributed funds	42,131.37		
		46,727,351.78	
In special deposit and in transit		43,923.86	
			46,771,275.64
Total debits			437,088,391.29

RECLAMATION TABLE 1.—*Consolidated financial statement, June 30, 1935*—Con.

CREDIT SIDE

Security for repayment of cost of irrigation works:			
Contracted construction repayments		$205,627,263.04	
Yuma auxiliary contracted repayments		604,052.99	
			$206,231,316.03
Current accounts payable			3,739,072.85
Deferred and contingent obligations			1,640,685.24
Reserves and undistributed profits			7,905,336.71
Operation and maintenance results, surplus			615,401.30
Unadjusted credits, collection vouchers in transit			5,071.08
Government aid for reclamation of arid lands:			
Reclamation fund		160,182,375.99	
Advances to reclamation fund:			
Treasury loan (act of June 25, 1910)	$20,000,000.00		
Less amount repaid	10,000,000.00		
Total	10,000,000.00		
Treasury loan (act of Mar. 4, 1931)	5,000,000.00		
		15,000,000.00	
National Industrial Recovery, Interior, reclamation		56,941,000.00	
Public Works Administration		510,000.00	
Special funds:			
Increase of compensation		2,797,960.33	
Rio Grande Dam		1,000,000.00	
Wind River Indian, Riverton		359,176.04	
Judgments, United States courts		602,814.38	
Drainage and cut-over lands		99,815.08	
General investigations, 1923 to Dec. 31, 1924		266,352.66	
Arid, semiarid, swamp, and cut-over timberlands		35,923.75	
Columbia Basin irrigation project		11,634.28	
Colorado River levee system		445,110.59	
Palo Verde flood protection		49,369.43	
Claims for damages, act of Dec. 28, 1922		239.23	
Total		238,301,771.76	
Less nonreimbursable appropriation, Rio Grande Dam		1,000,000.00	
Total		237,301,771.76	
Less impairment of funds:			
Abandoned works	$2,834,984.62		
Nonreimbursable construction cost	790,928.42		
Operation and maintenance cost uncollectible	453,272.39		
Charge-offs, act of May 25, 1926	14,652,339.58		
Washington office cost since Dec. 5, 1924	1,349,951.51		
Attendance at meetings	1,815.90		
Giving information to settlers cost	3,576.95		
Prepaid civil-service retirement fund	2,340.33		
Returned to Treasury, miscellaneous receipts	6.89		
		20,089,216.59	
Total		217,212,555.17	
Less impounded funds, economy acts, reclamation fund		261,047.09	
			216,951,508.08
Total credits			437,088,391.29

RECLAMATION TABLE 2.—*Available funds, expenditures, and balances, fiscal year 1935*

Items	Funds							
	Reclamation	Yuma auxiliary	Colorado River levee system	Palo Verde flood protection	National Industrial Recovery Act	Tennessee Valley Authority	Working funds, N. I. R. A.	Contributed funds
Balance on hand July 1, 1934	$4,737,153.39	$148,253.80	$56,963.29	$562.97	$56,425,099.69	$61,067.00		$562.99
Receipts:								
Proceeds from sale of public lands	204,856.67							
Proceeds from oil leasing act	1,838,257.77							
Proceeds from potassium royalties	31,302.76							
Proceeds from Federal power licenses	86,514.42							
From project collections	2,355,079.73	20,770.69	325.62		82,239.46			107.19
From general treasury					[1] 1,984,000.00	205,031.82	$25,000.90	
Contributed funds								50,000.00
Total	9,253,164.74	169,024.49	57,288.91	562.97	54,523,339.15	266,098.82	25,000.00	50,670.18
Expenditures:								
Disbursements	1,549,920.33	25,618.40	20,684.00		15,731,877.69	236,138.25	9,779.50	23,759.31
Impounded funds, act of June 30, 1932	20,020.00							
Total	1,569,940.33	25,618.40	20,684.00		15,731,877.69	236,138.25	9,779.50	23,759.31
Balance on hand, June 30, 1935	7,683,224.41	143,406.09	36,604.91	562.97	38,791,461.46	29,960.57	15,220.50	26,910.87

[1] Contra.

RECLAMATION TABLE 3.—*Accretions to reclamation fund, by States*

States	Sale of public lands		Proceeds from oil leasing act		Potassium royalties and rentals [1]	Total to June 30, 1935
	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935		
Alabama			$4,755.46	$174,849.63		$174,849.63
Arizona	$14,967.79	$2,659,577.35		159.86		2,659,737.21
California	22,541.34	8,151,934.44	927,881.36	11,285,177.30	$181,358.11	19,618,469.85
Colorado	18,673.00	10,250,897.85	39,980.39	497,192.71		10,748,090.56
Idaho	9,551.45	6,997,458.74	1,181.04	15,396.29		7,012,855.03
Kansas	136.27	1,033,058.76				1,033,058.76
Louisiana			4,464.39	39,058.31		39,058.31
Montana	22,342.24	15,306,591.60	37,374.34	1,096,055.67		16,402,647.27
Nebraska	[2] 896.39	2,094,196.82				2,094,196.82
Nevada	485.33	1,021,429.87	168.00	5,111.37		1,026,541.24
New Mexico	47,727.95	6,608,876.24	108,092.19	528,901.65		7,137,777.89
North Dakota	442.66	12,217,746.08	8,438.71	126,098.64		12,343,844.72
Oklahoma	849.14	5,929,061.55	(2)			5,929,061.55
Oregon	6,235.85	11,957,500.92	1.51	10.28		11,957,511.20
South Dakota	1,923.74	7,728,144.47	133.28	1,511.36		7,729,655.83
Utah	9,193.12	4,223,602.64	27,019.62	417,390.46		4,640,993.10
Washington	3,409.33	7,443,477.78	529.17	33,749.63		7,477,227.41
Wyoming	47,273.85	8,588,648.98	678,241.33	32,914,649.96		41,503,298.94
Total	204,856.67	112,212,204.09	1,838,257.77	47,135,313.12	181,358.11	159,528,875.32
Proceeds, Federal water power licenses						[3] 653,500.67
Grand total						160,182,375.99

[1] Proceeds for fiscal year, $31,302.76.
[2] Contra.
[3] Proceeds for fiscal year, $86,514.42.

RECLAMATION TABLE 4.—*Consolidated statement by projects of construction cost of irrigation works, other items reimbursable with construction, and amounts repayable*

State and project	Construction cost		Operation and maintenance before public notice, net		Operation and maintenance deficits and arrearages and penalties		Construction revenues, contributed funds, and nonreimbursable appropriation, contra		Abandoned works, nonreimbursable cost, and authorized charge-offs [1]	Total repayable	
	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935		Fiscal year 1935	To June 30, 1935
Arizona:											
Salt River		$12,744,222.59		$115,993.50		$43,428.40		$2,312,096.81	$382,097.31		$10,209,450.37
Verde	[2] $59,765.47									[2] $59,765.47	

[1] Abandoned works:

King Hill	$1,490,389.98
Garden City	334,474.96
Hondo	371,787.66
Buford-Trenton	221,423.69
Williston	416,908.33
	2,834,984.62
Nonreimbursable cost: Salt River	382,097.31
Authorized charge-offs, act of May 25, 1926, and amendments:	
Grand Valley	812,374.64
Uncompahgre	1,260,791.93
Boise	82,393.84
King Hill	497,464.06
Minidoka	2,288.15
Huntley	62,049.83
Milk River	1,735,969.31
Sun River	89,214.47
Lower Yellowstone	382,254.00
Newlands	4,437,820.00
Carlsbad	374,883.58
Rio Grande	334,900.97
Umatilla	888,340.82
Klamath	7,499.72
Belle Fourche	379,031.58
Okanogan	998,727.20
Yakima	4,214.60
Shoshone	1,545,129.47
	13,895,348.17

[2] Contra.

RECLAMATION TABLE 4.—*Consolidated statement by projects of construction cost of irrigation works, other items reimbursable with construction, and amounts repayable*—Continued

State and project	Construction cost		Operation and maintenance before public notice, net		Operation and maintenance deficits and arrearages and penalties		Construction revenues, contributed funds, and nonreimbursable appropriation, contra		Abandoned works, nonreimbursable cost, and authorized charge-offs	Total repayable	
	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935		Fiscal year 1935	To June 30, 1935
Arizona-California: Yuma	[2] $24,774.35	$9,373,126.08	[2] $45.00	$378,038.73	$70,040.09	$174,798.49	[2] $25,096.35	$202,032.09		$70,317.09	$9,723,931.21
California: Orland		2,400,288.08		[2] 11,432.99	3,821.65	8,952.13		28,414.77		3,821.65	2,369,392.45
Colorado:											
Grand Valley		5,017,465.36		138,621.28	4,066.17	8,315.61		269,692.83	$812,374.64	4,066.17	4,082,334.78
Uncompahgre	115,325.01	6,537,952.89		311,103.02	18,096.30	204,293.83	20.00	24,261.62	1,260,791.93	133,401.31	5,768,296.19
Idaho:											
Boise	8,898.80	16,019,248.83		422,283.48	2,297.17	929,594.39	53,415.12	548,540.11	82,393.84	[2] 42,219.15	16,740,192.75
King Hill		1,905,918.80				110,122.51		28,187.27	1,987,854.04	[2] 1,490,389.98	
Minidoka [3]	[2] 18,403.10	19,232,538.66	[2] 345.34	319,463.64	14,576.16	606,384.42	[2] 417.87	2,024,881.59	2,288.15	[2] 3,754.41	18,131,216.98
Upper Snake River	177,561.53	177,561.53								177,561.53	177,561.53
Kansas: Garden City		342,963.68		52,868.10				61,356.82	334,474.96		
Montana:											
Bitter Root	30,000.00	747,641.05								30,000.00	747,641.05
Chain Lakes	33,754.26	33,754.26								33,754.26	33,754.26
Frenchtown	3,172.77	3,172.77								3,172.77	3,172.77
Huntley		1,562,302.99		[2] 1,000.16	2,729.79	390,723.74		18,371.91	62,049.83	2,729.79	1,871,604.83
Milk River	33,301.70	6,902,046.59	[2] 46.97	437,139.77	1,333.18	102,395.21	112.00	74,305.81	1,735,969.31	34,475.91	5,631,306.45
Sun River	169,125.58	7,640,990.44	[2] 8.28	133,069.82	[2] 259.17	103,594.28	15.20	47,550.89	89,214.47	168,842.93	7,740,889.18
Montana-North Dakota:											
Lower Yellowstone		3,685,433.14	[2] 575.82	[2] 4,756.72	8,975.20	924,718.10		53,532.47	382,254.00	8,399.38	4,169,608.05
Nebraska-Wyoming: North Platte	17,967.08	19,285,601.61		743,294.42	3,284.24	1,520,715.3	518,331.90	572,993.24		2,919.42	20,976,618.14
Nevada:											
Humboldt	595,798.46	595,798.46					4.00	4.00		595,794.46	595,794.46
Newlands		7,956,907.07		[2] 2,155.44	6,039.11	49,131.72		52,347.5	34,437,820.00	6,039.11	3,513,715.82
Truckee Storage	28,293.13	28,293.13								28,293.13	28,293.13
New Mexico:											
Carlsbad		1,464,649.87		[2] 17,751.77	[2] 2.56	64,766.35	30.87	29,108.08	374,883.58	[2] 33.43	1,107,672.79
Hondo		339,491.68		32,952.01				656.03	371,787.66		
New Mexico-Texas: Rio Grande	65,053.57	15,196,188.00		[2] 297,857.81	42,329.32	80,822.92	8,000.00	1,416,881.64	334,900.97	91,382.89	13,227,370.50
North Dakota:											
Buford-Trenton		223,423.06		[2] 31.75				1,967.62	221,423.69		
Williston		517,630.09		[2] 165.00			1,650.00	100,556.76	416,908.33		

Oregon:											
Baker		281,591.64				173.09		5,003.00			276,761.73
Deschutes	[2] 5,361.52									[2] 5,361.52	
Stanfield	51,718.87	83,412.64								51,718.87	83,412.64
Umatilla		5,137,937.20			337.68	230,874.46	849.84	86,496.22	888,340.82	[2] 512.16	4,393,974.62
Vale	544,489.74	4,205,592.29	108.16	39,156.86			908.85	9,053.32		543,689.05	4,235,695.83
Oregon-California: Klamath	26,259.13	6,292,904.60	1,931.46	85,175.83	2,730.77	87,817.33	6,159.65	228,103.50	7,499.72	24,761.71	6,230,294.54
Oregon-Idaho: Owyhee	1,983,455.48	14,231,829.63	[2] 3,457.37	[2] 3,121.37			1,295.25	5,688.18		1,978,702.86	14,223,020.08
South Dakota: Belle Fourche	906.63	4,522,531.74		[2] 1,989.03		680,198.89	564.00	25,651.26	379,031.58	342.63	4,796,058.76
Utah:											
Hyrum	594,709.77	767,457.79					9,994.13	9,994.13		584,715.64	757,463.66
Moon Lake	96,003.95	96,003.95					14.00	14.00		95,989.95	95,989.95
Ogden	962,064.00	962,064.00					849.20	849.20		961,214.80	961,214.80
Salt Lake Basin	1,358.42	2,915,885.40			9,100.33	13,971.15	25.00	45,935.77		10,433.75	2,883,920.78
Provo River	27,149.72	27,149.72								27,149.72	27,149.72
Sanpete	14,382.18	14,382.18					5.50	5.50		14,376.68	14,376.68
Strawberry Valley		3,507,423.49		10,744.06		89,046.89		258,379.12			3,348,835.32
Washington:											
Grand Coulee	10,607,927.74	11,419,069.96					3,966.79	54,809.59		10,603,960.95	11,364,260.37
Okanogan		1,452,129.45		[2] 47,766.87	2,799.41	27,993.78		6,630.78	998,727.20	2,799.41	426,998.38
Yakima	1,167.51	26,077,256.88		[2] 64,357.08	41,738.38	177,528.74	15,028.69	444,567.25	4,214.60	27,877.20	25,741,646.69
Wyoming:											
Casper-Alcova	1,159,971.58	1,772,370.08					18.00	21.00		1,159,953.58	1,772,349.08
Riverton	267,809.09	4,161,465.59			12,042.96	101,808.70	810.22	20,172.65		279,041.83	4,243,101.64
Shoshone	31,208.97	10,046,056.10	1,309.31	36,096.62	60.43	470,838.55	31,200.59	432,398.47	1,545,129.47	1,019.70	8,575,463.33
Total	17,540,530.23	237,909,125.04	[2] 1,129.85	2,803,615.15	246,136.61	7,203,009.03	127,754.58	9,501,512.83	17,112,430.10	16,160,684.01	221,301,806.29

[2] Contra.
[3] Minidoka-Gooding combined with Minidoka in this report.

RECLAMATION TABLE 5.—*Accounts receivable, construction water-right charges*[1]

State and project	Due		Collected			Uncollected June 30, 1935
			Cash		Other credits to June 30, 1935	
	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935		
Arizona:						
Salt River	$152,490.32	$6,658,744.41	$152,490.32	$6,658,744.41		
Yuma auxiliary	1,274.57	595,220.08	2,148.78	590,523.01	$1,625.26	$3,071.81
Arizona-California: Yuma	[2] 88,679.02	3,814,253.74	[2] 104,483.80	3,275,001.98	535,780.18	3,471.58
California: Orland	15,668.84	819,243.96	491.82	773,815.10		45,428.86
Colorado:						
Grand Valley	[2] 201,710.21	159,183.29	[2] 210,500.00	80,729.94	78,453.35	
Uncompahgre	[2] 180,568.43	490,112.77		427,247.72	62,865.05	
Idaho:						
Boise	15,139.17	4,016,041.72	15,139.17	3,988,848.43	27,193.29	
King Hill	[2] 90,825.66		[2] 8,025.66			
Minidoka [3]	[2] 710,865.35	8,004,607.86	[2] 835,145.32	7,221,209.15	761,472.64	21,926.07
Montana:						
Huntley	436.43	559,136.18	[2] 567.40	467,422.90	91,713.28	
Milk River	18,440.00	76,762.76		3,002.76		73,760.00
Sun River	9,631.32	218,910.46	[2] 9.95	206,223.64	12,590.81	96.01
Montana-North Dakota: Lower Yellowstone	1,660.82	292,157.95	1,305.80	291,490.50	667.45	
Nebraska-Wyoming: North Platte	99,908.37	3,977,258.65	[2] 28,408.13	2,780,919.81	1,139,200.84	57,138.00
Nevada: Newlands	29,258.74	1,185,020.66	22,916.94	1,115,983.44	67,745.94	1,291.28
New Mexico: Carlsbad	[2] 7,256.78	885,694.99	[2] 7,183.52	885,613.74	81.25	
New Mexico-Texas: Rio Grande	[2] 370,925.00	3,092,524.45	[2] 370,178.36	2,781,599.45	310,925.00	
Oregon:						
Baker	[2] 5,000.00		[2] 5,000.00			
Umatilla	1,432.50	540,573.88	1,208.50	399,670.19	5,190.89	135,712.80
Vale	[2] 5,000.00		[2] 5,000.00			
Oregon-California: Klamath	29,421.52	1,144,452.14	20,563.65	1,133,133.34	2,696.67	8,622.13
Oregon-Idaho: Owyhee	[2] 4,354.61		[2] 4,354.61			
South Dakota: Belle Fourche	[2] 5,180.82	624,129.09	[2] 5,180.82	545,855.04	78,274.05	
Utah:						
Salt Lake Basin	[2] 43,742.77	1,222.50	[2] 43,742.77	1,222.50		
Strawberry Valley	86,315.20	1,373,745.50	60,619.54	1,338,297.09	9,752.75	25,695.66
Washington:						
Okanogan	[2] 37,845.29	134,649.92	425.94	134,649.92		
Yakima	77,906.88	6,734,512.96	[2] 14,529.42	6,590,023.59	36,363.75	108,125.62
Wyoming: Shoshone	154,475.91	982,310.42	[2] 1,471.35	819,896.47	162,219.54	194.41
Total	[2] 1,058,493.35	46,380,470.34	[2] 1,366,470.65	42,511,124.12	[4] 3,384,811.99	484,534.23
Paid in advance of due dates			[2] 166,350.59	978,261.12	[5] 230,857.04	
Refunds			335.40	98,926.60	3,212.84	
Total collections			[2] 1,532,485.84	43,588,311.84		
Contributed funds applying to construction cost, not included in above table				1,781,257.31		

[1] Contributed funds amounting to $1,733,013.08 excluded from this table in this report.
[2] Contra.
[3] Minidoka-Gooding combined with Minidoka in this report.
[4] Other credits for fiscal year, $450,292.07.
[5] Increase for fiscal year, $24,088.18.

RECLAMATION TABLE 6.—*Accounts receivable, operation, and maintenance charges (after public notice)*

State and project	Due		Collected			Uncollected June 30, 1935
			Cash		Other credits to June 30, 1935	
	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935		
Arizona: Yuma auxiliary	$15,138.93	$468,392.93	$20,954.93	$445,415.57	$12,441.81	$10,535.55
Arizona-California: Yuma	105,880.87	3,772,443.71	113,717.25	3,568,208.29	177,292.01	26,943.41
California: Orland	34,036.06	635,143.38	31,280.84	576,002.43	24,065.84	35,075.11
Colorado:						
Grand Valley	49,843.39	358,516.24	40,958.69	337,516.24	21,000.00	
Uncompahgre		1,008,683.69		977,809.79	30,873.90	
Idaho:						
Boise	11,346.14	2,171,237.74	8,346.14	2,115,588.02	52,649.72	3,000.00
King Hill		60,711.27		59,192.22	1,519.05	
Minidoka [1]	48,542.59	2,071,253.71	40,903.33	1,948,404.33	122,753.31	96.07
Montana:						
Huntley		554,787.34		543,594.31	11,193.03	
Milk River	33,997.49	331,461.07	38,301.28	309,784.64	1,662.25	20,014.18
Sun River	2,400.00	168,718.50	2,400.00	164,366.28	4,352.22	
Montana-North Dakota: Lower Yellowstone	.02	340,484.01	.02	340,479.38	4.63	
Nebraska-Wyoming: North Platte	18,737.60	1,911,130.22	16,594.25	1,838,806.93	64,587.83	7,735.46
Nevada: Newlands		1,174,581.57		1,135,901.55	38,680.02	
New Mexico: Carlsbad	35,918.93	933,405.25	35,966.93	916,532.54	16,872.71	
New Mexico-Texas: Rio Grande	263,981.06	4,049,570.40	280,212.58	3,804,797.41	227,923.61	16,849.38
North Dakota:						
Buford-Trenton		2,317.41		2,317.41		
Williston		34,042.75		34,042.75		
Oregon:						
Umatilla	3,106.33	385,601.65	3,106.33	378,347.69	7,253.96	
Vale	2,286.59	10,786.59	6,536.59	10,786.59		
Oregon-California: Klamath	50,769.47	1,290,526.59	50,377.11	1,255,686.56	30,536.22	4,303.81
Oregon-Idaho: Owyhee	250.00	250.00	250.00	250.00		
South Dakota: Belle Fourche	67,500.00	1,132,309.36	67,500.00	1,122,933.37	9,375.99	
Utah: Strawberry Valley		376,880.88		365,022.21	11,858.67	
Washington:						
Okanogan		371,441.72		368,788.67	2,653.05	
Yakima	216,965.32	5,379,384.34	219,298.41	5,196,637.53	64,148.75	118,598.06
Wyoming: Shoshone	2,428.45	554,072.96	2,371.17	529,328.73	23,705.43	1,038.80
Total	963,129.24	29,548,135.28	979,075.85	28,346,541.44	[2] 957,404.01	244,189.83
Paid in advance of due dates			69,285.43	138,907.32	[3] 22.26	
Penalties and interest			7,343.84	512,858.94	[4] 20,480.00	
Refunds				38,228.87	156.09	
Total collections			1,055,705.12	29,036,536.57		

[1] Minidoka-Gooding combined with Minidoka in this report.
[2] Other credits for fiscal year, $23,585.19.
[3] Increase for fiscal year, $5.73.
[4] Decrease for fiscal year, $400.

RECLAMATION TABLE 7.—*Accounts receivable, rental of irrigation water*

State and project	Due		Collected			Uncollected, June 30, 1935
			Cash		Other credits to June 30, 1935	
	Fiscal year 1935	To June 30, 1935	Fiscal year 1935	To June 30, 1935		
Arizona:						
Salt River		$2,246,726.01		$2,246,726.01		
Yuma auxiliary	$980.06	12,428.45	$1,225.06	12,428.45		
Arizona-California: Yuma	9,482.21	547,644.09	9,727.32	534,418.02	$12,654.19	$571.88
California: Orland		121,450.85		121,450.85		
Colorado:						
Grand Valley	10,913.88	511,930.56	15,362.68	503,195.86	6,500.67	2,234.03
Uncompahgre	1,636.21	1,224,769.76	668.32	1,219,042.88		5,726.88
Idaho:						
Boise	8,050.00	797,988.57	8,050.00	793,268.07	4,720.50	
Minidoka [1]	61,369.49	682,941.93	61,419.49	679,553.92	3,383.01	5.00
Montana:						
Huntley	608.58	11,851.42	608.58	11,851.42		
Milk River	[2] 287.85	237,735.72	[2] 287.85	227,388.94	1,208.14	9,138.64
Sun River	8.28	132,251.49	113.81	129,649.48	1,366.62	1,235.39
Montana-North Dakota: Lower Yellowstone	575.82	136,049.00	318.60	135,663.98		385.02
Nebraska-Wyoming: North Platte	838.60	344,943.64	838.60	344,908.39	10.00	25.25
Nevada: Newlands		28,291.16		22,114.31	6,176.85	
New Mexico:						
Carlsbad	291.76	40,116.59	291.76	40,099.34		17.25
Hondo		9,129.70		9,129.70		
New Mexico-Texas: Rio Grande	19,215.30	1,478,840.78	13,900.24	1,463,793.72		15,047.06
North Dakota:						
Buford Trenton		31.75		31.75		
Williston		2,117.28		2,117.28		
Oregon:						
Umatilla	121.00	96,277.52	121.00	69,500.72		26,776.80
Vale	[2] 108.16	22,125.85	1,577.98	21,073.95		1,051.90
Oregon-California: Klamath	45,369.28	354,845.22	47,758.13	350,616.01	25.00	4,204.21
Oregon-Idaho: Owyhee	4,649.40	4,649.40	4,614.40	4,614.40		35.00
South Dakota: Belle Fourche	494.02	9,917.40	265.72	9,671.30	17.80	228.30
Utah: Strawberry Valley		17,596.13		17,596.13		
Washington:						
Okanogan		110,645.28		108,061.09	2,584.19	
Yakima	2,856.74	183,928.12	2,882.54	174,374.42		9,553.70
Wyoming:						
Riverton	16,843.42	40,796.33	15,736.33	36,837.02	3,959.31	
Shoshone	8,695.67	85,217.57	8,705.31	83,863.49	386.76	967.32
Total	192,603.71	9,493,237.57	193,898.02	9,373,040.90	[3] 42,993.04	77,203.63

[1] Minidoka-Gooding combined with Minidoka in this report.
[2] Contra.
[3] Other credits for fiscal year, $1,221.60.

RECLAMATION TABLE 8.—*Financial statement, Boulder Canyon project, June 30, 1935*

ASSETS AND OTHER DEBITS

I. INVESTMENTS

102. Fixed capital under construction	$83,086,076.55
103. Other physical properties	1,276,027.14
104. Investigations—Colorado River Basin	217,659.14
104. Investigations—Parker-Gila project	52,191.18
105. Other capital expenditures: Interest during construction	6,434,504.93
Total investments (schedule 2)	$91,066,458.94

RECLAMATION TABLE 8.—*Financial statement, Boulder Canyon project, June 30, 1935*—Continued

ASSETS AND OTHER DEBITS—Continued

II. CURRENT AND ACCRUED ASSETS

121.	Treasury cash:		
	For advances to Colorado River Dam fund	$14,301,916.60	
	Colorado River Dam fund	83,487.94	
	N. I. R. A.—Parker-Gila project	40,000.00	
	Collections in transit	12,913.40	
	Total Treasury cash (schedule 1)	14,438,317.94	
122.	Special fiscal agents' cash (schedule 1)	277,033.26	
123.	Special deposits	8,450.78	
124.	Accounts receivable	67,455.37	
	Total current and accrued assets		$14,791,257.35

VI. DEFERRED AND UNADJUSTED DEBITS

141.	Clearing and apportionment accounts	* 60,217.27	
143.	Field cost adjustments	100,217.66	
145.	Jobbing accounts	1,824.53	
146.	Prepayments	6,996.31	
171.	Unadjusted debits	44,009.43	
	Total deferred and unadjusted debits		92,830.66
	Total assets and other debits		105,950,546.95

LIABILITIES AND OTHER CREDITS

X. CAPITAL AND LONG-TERM LIABILITY

205.	Long-term liability: U. S. Treasury authorized appropriation	126,500,000.00	
161.	Less: Authorized but not appropriated	31,840,000.00	
	Total long-term liability:		
205.2	Appropriated but not advanced	14,301,916.60	
205.3	Appropriated and advanced	80,358,083.40	
205.4	Less: Impounded, Legislative Economy Act	* 137,653.66	
206.	N. I. R. A. allotment—Parker-Gila project	100,000.00	
			$94,622,346.34

XI. CURRENT AND ACCRUED LIABILITIES

211.	Audited accounts payable:		
211.1.	Contractors' earnings—current	971,795.81	
211.11	Contractors' earnings—holdback	2,998,083.81	
211.2.	Labor	34,307.43	
211.3.	Purchases	36,774.08	
211.4.	Freight and express	366,911.10	
211.5.	Passenger fares	1,185.90	
211.6.	Rights-of-way	3,949.00	
211.9.	Miscellaneous	36,159.62	
	Total audited accounts payable	4,449,166.75	
214.	Matured interest	6,408,873.35	
	Total current and accrued liabilities		10,858,040.10

XII. OTHER CREDITS

220.	Consumers' meter deposits	15.00	
223.	Special deposits	8,450.78	
	Total other credits		8,465.78

XIII. DEFERRED AND UNADJUSTED CREDITS

231.	Unadjusted credits		5,690.89

XV. APPROPRIATED SURPLUS

251.	Appropriated surplus not specifically invested		456,003.84
	Total liabilities and other credits		105,950,546.95

* Contra.

RECLAMATION TABLE 9.—*Appropriations and cash statement, Boulder Canyon project, June 30, 1935*

TREASURY CASH

	Appropriations	N. I. R. A. allotment	Total	N. I. R. A. Parker-Gila project
Appropriations and allotments	$56,660,000.00	$38,000,000.00	$94,660,000.00	$100,000.00
Advances to Colorado River Dam fund	46,728,358.70	33,629,724.70	80,358,083.40	
Balance not advanced	9,931,641.30	4,370,275.30	14,301,916.60	
Colorado River Dam fund:				
Advanced from appropriation to fund	46,728,358.70	33,629,724.70	80,358,083.40	
Collections deposited in fund	278,515.64	11,358.83	289,874.47	
Total advances and collections	47,006,874.34	33,641,083.53	80,647,957.87	
Disbursements by General Accounting Office	4,974,053.33	25,571.82	4,999,625.15	
Advances to fiscal agents	41,949,786.68	33,615,058.10	75,564,844.78	60,000.00
Total withdrawals	46,923,840.01	33,640,629.92	80,564,469.93	
Balance	83,034.33	453.61	83,487.94	40,000.00
Repay collections in transit		52.44	52.44	
Miscellaneous collections in transit	12,860.96		12,860.96	
Total treasury cash (G. L. 121)	10,027,536.59	4,370,781.35	14,398,317.94	40,000.00

SPECIAL FISCAL AGENTS' CASH

Advanced to special fiscal agents	$41,949,786.68	$33,615,058.10	$75,564,844.78	$60,000.00
Appropriation transfer adjustments (credit)	10,431.32	2,481.65	12,912.97	
Disbursements by special fiscal agents	41,960,218.00	33,353,572.24	75,313,790.24	50,721.02
Fiscal agents' checking balance		263,967.51	263,967.51	9,278.98
Collections by fiscal agents	295,794.65	16,054.05	311,848.70	
Collections deposited by fiscal agents	283,737.69	11,411.27	295,148.96	
Collections (appropriation transfer adjustments)	10,431.32	2,481.65	12,912.97	
Collections not deposited	1,625.64	2,161.13	3,786.77	
Special fiscal agents' cash balance (G. L. 122)	1,625.64	266,128.64	267,754.28	9,278.98

RECLAMATION TABLE 10.—*Financial statement, all-American Canal, June 30, 1935*

ASSETS AND OTHER DEBITS

I. INVESTMENTS

102.	Fixed capital under construction		$2,105,904.31

II. CURRENT AND ACCRUED ASSETS

121.	Treasury cash	$6,578,681.27	
	Collections in transit	11.45	
	Contributions: Imperial Irrigation District	10,000.00	
122.	Special fiscal agents' cash	657,139.35	
123.	Special deposits	12.44	
124.	Accounts receivable	476.91	
	Total current and accrued assets		7,246,321.42

IV. DEFERRED AND UNADJUSTED DEBITS

141.	Clearing and apportionment accounts	* 6,228.55	
146.	Prepayments	1,231.49	
171.	Unadjusted debits	876.28	
	Total deferred and unadjusted debits		* 4,120.78
	Total assets and other debits		9,348,104.95

* Contra.

LIABILITIES AND OTHER CREDITS

X. CAPITAL AND LONG-TERM LIABILITY

205.	Long-term liability: U. S. Treasury authorized appropriation	$38,500,000.00	
161.	Less: Authorized but not appropriated	29,500,000.00	
	Total long-term liability		$9,000,000.00

XI. CURRENT AND ACCRUED LIABILITIES

211.	Audited accounts payable:		
211.1.	Contractors' earnings—current	172,459.60	
211.11.	Contractors' earnings—holdback	136,703.53	
211.2.	Labor	17,730.75	
211.3.	Purchases	4,016.05	
211.4.	Freight and express	1,779.77	
211.5.	Passenger fares	152.93	
211.6.	Rights-of-way	2,263.13	
211.9.	Miscellaneous	2,466.17	
	Total current and accrued liabilities		337,571.93

XII. OTHER CREDITS

223.	Special deposits	12.44	
226.	Contributed funds: Imperial Irrigation District	10,000.00	
	Total other credits		10,012.44

XIII. DEFERRED AND UNADJUSTED CREDITS

231.	Unadjusted credits	66.89	
231.3.	Unadjusted credits: Yuma project	*1.00	
	Total deferred and unadjusted credits		65.89

XV. APPROPRIATED SURPLUS

251.	Appropriated surplus not specifically invested		454.69
	Total liabilities and other credits		9,348,104.95

*Contra.

RECLAMATION TABLE 11.—*Appropriations and cash statement, All-American Canal, June 30, 1935*

TREASURY CASH

	Symbol 4-03/5640.21	Symbol 4-05678.21	Total
N. I. R. A. allotments	$6,000,000.00	$3,000,000.00	$9,000,000.00
Collections deposited	4,320.37		4,320.37
Total allotments and collections	6,004,320.37	3,000,000.00	9,004,320.37
Disbursements by General Accounting Office	60,639.10		60,639.19
Advances to fiscal agents	1,940,000.00	425,000.00	2,365,000.00
Total withdrawals	2,000,639.10	425,000.00	2,425,639.10
Balance	4,003,681.27	2,575,000.00	6,578,681.27
Repay collections in transit	11.45		11.45
Total treasury cash (G. L. 121)	4,003,692.72	2,575,000.00	6,578,692.72

SPECIAL FISCAL AGENTS' CASH

Advanced to fiscal agents	$1,940,000.00	$425,000.00	$2,365,000.00
Disbursements by fiscal agents	1,397,475.18	310,662.57	1,708,137.75
Fiscal agents' checking balance	542,524.82	114,337.43	656,862.25
Collections by fiscal agents	4,505.44	103.48	4,608.92
Collections deposited	4,331.82		4,331.82
Collections not deposited	173.62	103.48	277.10
Fiscal agents' cash balance (G. L. 122)	542,698.44	114,440.91	657,139.35

RECLAMATION TABLE 22.—*Irrigation and crop results on Government projects, 1934* [1]

State and project	Lands on projects covered by crop census					Other lands served by Government works, usually by a partial water supply through private canals under Warren Act or other water-service contracts				
	Irrigable acreage [2]	Irrigated acreage	Cropped acreage	Crop value		Irrigable acreage	Irrigated acreage	Cropped acreage	Crop value	
				Total	Per acre				Total	Per acre
Arizona: Salt River	245,748	222,092	218,544	$16,514,901	$75.60	93,967	52,317	52,317	$2,407,493	$46.01
Arizona-California:										
Yuma	65,141	50,094	47,632	2,714,282	57.00	200	168	148	19,107	122.35
Valley division	49,285	41,652	39,651	2,226,598	56.19					
Reservation division	7,876	2,834	2,818	141,000	50.04					
Bard division	6,004	4,398	4,022	137,429	34.75					
Yuma auxiliary (Mesa)	1,976	1,210	1,141	209,255	183.43					
California: Orland	20,634	14,028	13,265	446,197	33.64					
Colorado:										
Grand Valley	23,230	16,213	15,188	567,216	37.35	18,400	14,448	14,448	778,779	54.00
Uncompahgre	75,654	57,829	57,739	1,266,756	22.00	1,650	1,550	1,490	37,250	25.00
Idaho:										
Boise	166,409	152,120	144,582	3,305,180	22.82	144,068	136,877	132,254	3,035,865	22.95
New York Irrigation District	16,995	15,559	14,974	216,006	14.43					
Nampa-Meridian Irrigation District	37,598	35,965	35,147	741,516	21.10					
Boise-Kuna Irrigation District	47,644	43,799	42,221	827,130	19.60					
Wilder Irrigation District	55,584	49,207	44,844	1,292,390	28.80					
Big Bend Irrigation District	1,714	1,414	1,220	28,816	23.60					
Black Canyon Irrigation District	6,874	6,176	6,176	199,322	32.27					
Minidoka	115,477	93,121	84,654	1,648,814	19.48	719,557	659,581	615,067	19,000,744	28.30
Minidoka Irrigation District	67,540	52,448	49,941	856,233	17.14					
Burley Irrigation District	47,937	40,673	34,713	792,581	22.83					
Montana:										
Bitter Root Irrigation District	17,375	15,527	15,313	375,486	24.52					
Huntley	28,952	23,936	23,936	816,670	34.11					
Milk River	134,557	49,777	49,777	1,176,290	23.81					
Malta division	56,652	19,991	19,991	389,811	19.46					
Glasgow division	22,133	5,804	5,804	80,823	13.93					
Chinook division	55,772	23,982	23,982	704,656	29.39					
Sun River	61,366	36,775	39,675	682,233	17.13					
Fort Shaw division	13,902	7,392	7,445	128,152	17.21					
Greenfields and Big Coulee division	47,464	29,383	32,230	554,081	17.19					
Montana-North Dakota:										
Lower Yellowstone	42,480	36,348	36,348	1,191,102	32.77					
District No. 1	29,081	24,702	24,702	806,435	32.69					
District No. 2	13,399	11,646	11,646	384,636	33.03					

Nebraska-Wyoming:										
North Platte	234,419	212,415	175,985	4,651,432	26.43	127,630	106,630	101,717	2,353,313	23.14
Pathfinder Irrigation District	112,132	98,994	78,360	1,814,842	23.16					
Gering and Fort Laramie Irrigation District	54,793	53,730	49,715	1,639,812	32.98					
Goshen Irrigation District	51,324	46,594	36,721	1,020,635	27.79					
Northport Irrigation District	16,170	13,097	11,189	176,143	15.74					
Nevada: Newlands	69,123	41,149	40,056	696,256	17.40					
New Mexico: Carlsbad	25,055	24,714	18,714	823,271	44.00					
New Mexico-Texas:										
Rio Grande	155,000	129,092	123,822	9,954,272	80.20	77,000	44,173	44,154	1,808,271	40.95
Elephant Butte Irrigation District	88,000	72,385	68,792	5,400,707	78.60					
El Paso County Water Improvement District No. 1	67,000	56,707	55,030	4,553,565	82.80					
Oregon:										
Umatilla	13,392	11,077	10,730	192,684	17.95	784	654	654	16,935	25.90
East Division	7,837	6,841	6,523	119,667	18.35					
West Division	5,555	4,236	4,207	73,017	17.35					
Vale	15,854	6,413	5,581	140,778	25.22					
Oregon-California:										
Klamath	60,545	49,903	49,554	1,898,953	38.30	62,862	35,571	35,498	991,959	27.85
Main division	40,405	30,440	30,440	1,037,754	34.10					
Tule Lake division	20,140	19,463	19,114	861,199	45.00					
South Dakota: Belle Fourche	60,480	42,625	43,405	1,022,446	23.56					
Utah:										
Salt Lake Basin						89,000	86,500	85,460	2,337,525	27.35
Strawberry Valley	42,056	38,654	34,003	524,003	15.40	6,273	5,762	5,537	103,184	18.63
High line division	18,888	17,333	13,998	141,369	10.10					
Spanish Fork division	14,148	13,065	12,089	218,816	18.10					
Springville-Mapleton division	9,020	8,256	7,916	163,818	20.70					
Washington:										
Okanogan	5,750	3,585	3,334	565,330	169.55					
Yakima	208,483	167,529	156,470	7,355,319	47.10	166,717	140,581	140,581	7,119,946	50.65
Sunnyside division	102,585	86,578	79,954	3,334,685	41.71					
Tieton division	29,898	26,100	23,710	2,913,150	122.87					
Kittitas division	72,000	52,071	50,648	961,553	18.98					
Kennewick	4,000	2,780	2,158	145,931	67.62					
Wyoming:										
Riverton	32,000	7,532	6,968	110,196	15.81	269	269	269	4,374	16.26
Shoshone	67,088	49,576	49,130	988,260	20.10					
Garland division	41,649	31,019	30,993	756,420	24.38					
Frannie division	13,599	13,406	13,406	157,791	11.77					
Willwood division	11,840	5,151	4,731	74,049	15.76					
Total with irrigation	1,986,268	1,552,124	1,464,405	59,628,327	40.75	1,508,377	1,285,081	1,229,594	40,014,745	32.55

[1] Data are for calendar year (irrigation season) except on Salt River project, where data are for corresponding "agriculture year" October 1933 to September 1934.
[2] Area for which service was prepared to supply water in 1934.

RECLAMATION TABLE 22.—*Irrigation and crop results on Government projects, 1934*—Continued

State and project	Lands on projects covered by crop census					Other lands served by Government works, usually by a partial water supply through private canals under Warren Act or other water-service contracts				
	Irrigable acreage	Irrigated acreage	Cropped acreage	Crop value		Irrigable acreage	Irrigated acreage	Cropped acreage	Crop value	
				Total	Per acre				Total	Per acre
Cropped without irrigation										
Milk River project			4,239	$12,750	$3.02					
Malta division			2,282	8,482	3.72					
Glasgow division			1,948	4,268	2.19					
Sun River project: Greenfields and Big Coulee division			2,116	24,108	11.39					
Lower Yellowstone project [3]										
Klamath project: Tule Lake leased lands [4]			56,353	1,263,784	22.42					
Total cropped without irrigation			62,699	1,300,642	20.70					
Grand totals, projects	1,986,268	1,552,124	1,527,104	60,928,969	39.90					
Warren Act lands	1,508,377	1,285,081	1,229,594	40,014,745	32.55					
Grand totals of projects proper and Warren Act	3,494,645	2,837,205	2,756,698	100,943,714	36.65					
Grand totals, 1933	3,539,709	2,828,787	2,797,815	84,191,733	30.10					

[3] Lower Yellowstone: There are no reports for dry-farmed area as the area which was dry farmed during the season of 1934 was a total failure.
[4] Klamath project: Part of area is irrigated from project canals and Tule Lake sump.

RECLAMATION TABLE 23.—*Summary of crop results on reclamation projects in 1934*

[NOTE.—These detailed figures are limited to crops covered by census on Government projects proper, excluding all crops in areas served with water under the Warren Act, but including nonirrigated crops grown on the projects]

Crop	Acreage cropped		Yields		Crop value		
	Total	Percent of cropped	Total	Average per acre	Average per acre	Total	Percent of total value of all crops
Cereals:			*Bushels*				
Barley	75,592	5.0	2,818,087	37.3	$23.40	$1,768,706	2.9
Corn	54,078	3.5	1,195,375	22.1	17.07	924,410	1.5
Oats	72,386	4.7	2,911,064	40.0	16.50	1,337,652	2.2
Rye	3,352	.2	58,863	17.6	12.52	41,940	.1
Wheat	144,787	9.6	3,820,945	26.4	19.70	2,849,729	4.7
Total	350,195	23.0	10,804,334	30.9	19.85	6,922,437	11.4
Seeds:							
Alfalfa	19,300	1.3	73,607	3.8	31.85	615,627	1.0
Clover	6,529	.4	28,389	4.3	38.40	250,775	.4
Other	2,245	.1	45,661	20.3	62.40	139,919	.2
Total	28,074	1.8	147,657	5.3	35.70	1,006,321	1.6
Hay and forage:			*Tons*				
Alfalfa hay	442,086	29.0	1,258,280	2.8	28.50	12,582,874	20.6
Clover hay	10,638	.7	14,991	1.4	9.94	100,227	.2
Other hay	100,660	6.4	125,308	1.2	16.90	1,695,798	2.8
Corn forage	24,298	1.6	68,376	2.8	16.45	399,257	.7
Other forage	119,537	7.8	36,856	.3	4.04	481,805	.8
Pasture	458,414	30.1			7.17	3,288,967	5.4
Total	1,155,633	75.6	1,503,811	1.3	16.05	18,548,928	30.5
Vegetables and truck:			*Bushels*				
Beans	43,828	3.9	637,884	14.6	27.00	1,182,347	1.9
Onions	2,282	.1	404,801	177.5	122.70	280,149	.5
Potatoes, white	72,103	4.7	11,220,194	155.7	50.70	3,654,135	6.0
Potatoes, sweet	1,648	.1	200,634	121.0	99.00	163,215	.3
Truck	47,368	3.1			105.20	4,980,046	8.2
Total	167,229	10.9	12,463,513	74.6	61.40	10,259,892	16.9
Fruits and nuts:			*Pounds*				
Apples	24,994	1.7	330,486,988	13,240	124.40	3,109,276	5.1
Peaches	3,710	.3	22,367,965	6,030	91.50	339,612	.6
Pears	8,064	.5	68,914,266	8,560	102.00	821,948	1.3
Prunes	2,258	.1	15,797,840	7,000	69.60	156,914	.2
Citrus fruit	11,323	.7	68,778,394	6,070	138.20	1,565,007	2.6
Small fruit	5,111	.3	22,278,949	4,360	132.70	678,465	1.1
Miscellaneous	5,211	.3	11,928,978	2,290	81.20	423,312	.7
Total	60,671	3.9	540,553,380	8,920	116.80	7,094,534	11.6
Miscellaneous:			*Tons*				
Sugar beets	87,350	5.8	761,378	8.7	52.40	4,582,366	7.5
Cotton	125,521	8.2	[1] 138,075	1.1	71.10	8,904,024	14.6
Cottonseed	125,521	8.2	61,924	.49	16.78	2,108,421	3.4
Other crops	72,667	4.8			20.65	1,502,046	2.5
Total	411,059	27.0			41.60	17,096,857	28.0
Grand total, projects	2,172,861						
Duplication	645,757	42.2					
Total all crops for which detailed census was taken	1,527,104	100.0			39.90	60,928,969	100.0
Total Warren Act crops	1,229,594				32.55	40,014,745	
Grand total	2,756,698				36.65	100,943,714	

[1] Bales of 500 pounds each.

RECLAMATION TABLE 24.—*Irrigated and cropped acreage and crop values by years, 1906–34*

	Federal irrigation projects				Warren Act land				Entire area			
	Irrigated acreage	Cropped acreage	Crop value		Irrigated acreage	Cropped acreage	Crop value		Irrigated acreage	Cropped acreage	Crop value	
			For year	Cumulative total			For year	Cumulative total			For year	Cumulative total
1906	22,300	[1] 20,100	$244,900						22,300	[1] 20,100	$244,900	
1907	187,600	[1] 169,000	4,760,400	$5,005,300					187,600	[1] 169,000	4,760,400	$5,005,300
1908	289,500	[1] 260,500	7,575,800	12,581,100					289,500	[1] 260,500	7,575,800	12,581,100
1909	410,600	[1] 369,500	11,920,700	24,501,800					410,600	[1] 369,500	11,920,700	24,501,800
1910	465,100	413,000	12,974,600	37,476,400					465,100	413,000	12,974,600	37,476,400
1911	541,400	470,100	12,708,600	50,185,000					541,400	470,100	12,708,600	50,185,000
1912	588,400	540,000	13,825,400	64,010,400					588,400	540,000	13,825,400	64,010,400
1913	699,200	642,200	15,732,200	79,742,600					699,200	642,200	15,732,200	79,742,600
1914	761,300	703,400	16,475,500	96,218,100					761,300	703,400	16,475,500	96,218,100
1915	814,900	760,000	18,200,000	114,418,100					814,900	760,000	18,200,000	114,418,100
1916	923,000	858,300	32,816,000	147,234,100					923,000	858,300	32,816,000	147,234,100
1917	1,057,500	966,800	56,462,300	203,696,400					1,057,500	966,800	56,462,300	203,696,400
1918	1,141,500	1,051,200	66,821,400	270,517,800	[1] 501,100	[1] 481,600	$35,000,000		[1] 1,642,600	[1] 1,532,800	101,821,400	305,517,800
1919	1,187,300	1,113,500	88,974,100	359,491,900	916,300	880,600	64,000,000	$99,000,000	2,103,600	1,994,100	152,974,100	458,491,900
1920	1,223,500	1,153,800	66,171,700	425,663,600	981,900	950,900	47,505,800	146,505,800	2,205,400	2,104,700	113,677,500	572,169,400
1921	1,227,500	1,157,900	49,620,300	475,283,900	1,001,300	969,600	44,906,100	191,411,900	2,228,800	2,127,500	94,526,400	666,695,800
1922	1,202,130	1,169,100	50,360,900	525,644,800	983,300	951,300	33,240,800	224,652,700	2,185,430	2,120,400	83,601,700	750,297,500
1923	1,213,700	1,179,870	65,046,300	590,691,100	1,051,400	993,000	37,557,900	262,210,600	2,265,100	2,172,870	102,604,200	852,901,700
1924	1,290,900	1,216,600	66,488,600	657,179,700	930,700	889,500	43,237,500	305,448,100	2,221,600	2,106,100	109,726,100	962,627,800
1925	1,320,300	1,242,800	77,608,900	734,788,600	1,019,200	951,300	53,655,900	359,104,000	2,339,500	2,194,100	131,264,800	1,093,892,600
1926	1,411,000	1,361,500	60,664,900	795,453,500	1,097,200	949,600	49,750,000	408,854,000	2,508,200	2,311,100	110,414,900	1,204,307,500
1927	1,379,000	1,431,600	72,047,200	867,500,700	1,148,100	1,072,500	61,160,000	470,014,000	2,527,100	2,504,100	133,207,200	1,337,514,700
1928	1,442,100	1,489,200	81,077,800	948,578,500	1,235,000	1,192,000	62,495,300	532,509,300	2,677,100	2,681,200	143,573,100	1,481,087,800
1929	1,483,900	1,512,250	88,459,390	1,037,037,890	1,234,230	1,192,990	72,720,490	605,229,790	2,718,130	2,705,240	161,179,880	1,642,267,680
1930	1,504,810	1,550,967	65,007,270	1,102,045,160	1,286,046	1,254,493	54,654,550	659,884,340	2,790,856	2,805,460	119,661,820	1,761,929,500
1931	1,552,718	1,520,354	40,554,037	1,142,599,197	1,293,889	1,251,830	33,406,340	693,290,680	2,846,607	2,772,184	73,960,377	1,835,889,877
1932	1,555,144	1,578,880	31,531,162	1,174,130,359	1,214,461	1,196,400	18,627,219	711,917,899	2,769,605	2,775,280	50,158,381	1,886,048,258
1933	1,589,770	1,598,770	48,765,863	1,222,896,222	1,239,017	1,199,113	35,425,870	747,343,769	2,828,787	2,797,815	84,191,733	1,970,239,991
1934	1,552,124	1,527,104	60,928,969	1,283,825,191	1,285,081	1,229,594	40,014,745	787,358,514	2,837,205	2,756,698	100,943,714	2,071,183,715

[1] Estimated.

GENERAL LAND OFFICE

(Fred W. Johnson, *Commissioner*)

The area of public land included in original selections, entries, and filings made during the year was 1,759,078 acres, or 1,825,805 acres less than the area included in such entries and filings during the preceding year. The decrease, no doubt, was due to the temporary withdrawals of the public lands from entry and selection made by Executive orders of November 26, 1934, and February 5, 1935.

The area included in final entries, selections, and filings made during the year was 1,771,703 acres, or 546,671 acres more than were included in such entries during the preceding year.

The area which on July 1, 1935, was included in unperfected entries upon which final proof of compliance with the law was not due or had not been presented, in which cases appropriate actions must hereafter be taken was 19,666,693 acres. The area which on said date was included in outstanding licenses, leases, and permits issued under the mineral leasing act was 11,307,677 acres.

The number of letters and reports received for consideration or answer from all sources during the year was 155,505, an increase of 5,784 over such receipts for the preceding year, and 80,771 letters and decisions were written. The latter figure does not include letters prepared for signature in the Department.

There were furnished during the year 47,125 certified and uncertified copies of entry papers, plats, field notes, patents, etc., for which there were received the sum of $15,050.30. In addition there were furnished for official use by this and other Departments and agencies 43,321 copies of said items.

Proposed reports were submitted on 129 Senate and House bills, and necessary orders and instructions have been prepared or are in course of preparation in connection with 15 bills, public and private, affecting the public lands which were enacted into law.

In cases involving possible suits in courts, 75 reports of field investigation were considered. Suits were recommended in 27 cases, as a result of which $12,808.35 were recovered, and 1,480 acres restored to the public domain. Forty-eight of the cases were closed without recommendation for suit. Approximately 200 other actions were taken in this class of cases.

The number of attorneys and agents newly admitted to practice before the Department was 11.

There were decided on principles of equity and referred to the board of equitable adjudication and confirmed approximately 920 cases.

GENERAL WITHDRAWAL OF PUBLIC LANDS FROM ENTRY

The vacant, unreserved, and unappropriated public lands in the United States are not now subject to disposition under the nonmineral public land laws, having been temporarily withdrawn from settlement, location, sale, or entry, and reserved for classification. The lands in the States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, and Wyoming were withdrawn by Executive order of November 26, 1934, pending determination of the most useful purpose to which such lands may be put in consideration of the provisions of the Taylor Grazing Act of June 28, 1934, and for conservation and development of natural resources, and the lands in the States of Alabama, Arkansas, Florida, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Nebraska, Oklahoma, Washington, and Wisconsin were withdrawn by Executive order of February 5, 1935, pending determination of the most useful purpose to which said lands may be put in furtherance of the land program. Executive order of May 20, 1935, amended the said order of November 26, 1934, so as to permit the completion of exchanges authorized by section 8 of the Taylor Grazing Act.

Both of the orders first above mentioned were made subject to valid existing rights.

TAYLOR GRAZING ACT

This office in cooperation with the Division of Grazing has prepared various orders and regulations required in connection with the administration of the Taylor Grazing Act, approved June 28, 1934 (48 Stat. 1269). It has also prepared diagrams of the approved grazing districts. Thousands of inquiries relative to the operation of the law have been received and answered, and approximately 200 applications for exchange, 462 applications for isolated tract sales, and 2,850 applications for leases filed under sections 8, 14, and 15, respectively, of the act have been received and posted on the tract books. There were 668 actions taken on public sale applications, and 26 such applications were approved for patenting.

Orders were prepared involving grazing districts as follows: 1 in Arizona, 5 in Colorado, 1 in Idaho, 4 in Montana, 1 in Nevada,

4 in New Mexico, 4 in Oregon, 8 in Utah, and 1 in Wyoming. In addition there were prepared orders and diagrams for 19 proposed grazing districts, and maps showing the exterior boundaries and appropriate designations of both established and proposed grazing districts.

The estimated areas of the vacant, unappropriated, and unreserved public land in established grazing districts, as of June 30, 1935, are as follows:

State	District totals	State totals
Arizona: No. 1	1,505,200	1,505,200
California:		
No. 1	1,293,595	
No. 2	577,308	
		1,870,903
Colorado:		
No. 1	2,099,331	
No. 2	438,673	
No. 3	1,416,870	
No. 4	1,096,194	
No. 6	1,408,252	
		6,459,320
Idaho: No. 1	4,181,445	4,181,445
Montana:		
No. 1	1,624,235	
No. 2	1,436,536	
No. 3	686,523	
No. 4	144,887	
		3,892,181
Nevada: No. 1	7,984,977	7,984,977
New Mexico:		
No. 3	2,692,940	
No. 4	2,437,649	
No. 5	1,110,926	
No. 6	2,533,933	
		8,775,448
Oregon:		
No. 1	90,000	
No. 2	4,960,676	
No. 3	2,785,957	
No. 4	1,717,962	
		9,554,595
Utah:		
No. 1	1,186,806	
No. 2	2,868,422	
No. 3	3,424,472	
No. 4	2,065,080	
No. 5	3,774,186	
No. 6	3,749,431	
No. 7	2,584,360	
No. 8	149,982	
		19,802,739
Wyoming: No. 1	1,246,181	1,246,181
Total		65,272,989

WORK UNDER EMERGENCY FUNDS

The work of translating and transcribing the Spanish records in the public survey office at Santa Fe, N. Mex., of land claims in the territory ceded in 1848 to the United States by Mexico, commenced last year as a Federal Civil Works project, was continued through the fiscal year ending June 30, 1935, as a Federal Emergency Relief project. From 6 to 15 translators and transcribers were furnished with employment on this project.

The Civilian Conservation Camp established at Gillette, Wyo., for the purpose of controlling the coal fires in the public lands and privately owned lands in which the coal has been reserved to the Federal Government was continued through the third enrollment period until October 15, 1934, and was reestablished June 5, 1935, for the fifth enrollment period.

The work of surveying the public lands and office work in connection therewith under the Public Works allotments for that purpose continued throughout the fiscal year. The field parties of the General Land Office were also engaged on a large project of cooperative work for the Agricultural Adjustment Administration involving the survey of submarginal lands being purchased by that organization in the Eastern States.

AREAS TO WHICH ACTIVITIES OF THE GENERAL LAND OFFICE EXTEND

Unappropriated and unreserved public lands.—The area of the unappropriated and unreserved public lands as of June 30, 1934, was approximately 165,695,497 acres, not including Alaska, and not including small areas remaining undisposed of in the States of Alabama, Arkansas, Florida, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Nebraska, Oklahoma, and Wisconsin. Of such area, 119,341,782 acres were surveyed and 46,353,697 acres were unsurveyed. The area of the unappropriated and unreserved public lands in Alaska was approximately 346,174,242 acres, of which 2,044,421 acres were surveyed.

In computing the areas which were vacant and unreserved on June 30, 1934, lands in pending, unallowed applications were considered as appropriated; but lands in applications for oil and gas prospecting permits, or in permits granted, or in applications for coal, phosphate, sodium, and/or sulphur, oil shale, or potash permits or leases, or in permits or leases granted, were considered as unappropriated. In view of the fact that the lands affected by the oil-shale order of withdrawal of April 15, 1930, or in designated geological structures of producing oil or gas fields, or in approved oil and gas leases, were then subject to disposition under the stock-raising homestead act, such lands were treated as unappropriated.

Because of the withdrawals made by the Executive orders of November 26, 1934, and February 5, 1935, there were no unreserved public lands at the close of business on June 30, 1935. The area which would have been vacant and unreserved had such withdrawals not been made has not been computed. The areas which were included in entries, selections, filings, etc., during the fiscal year were 1,752,010 acres in the public-land States and 7,068 acres in Alaska, a total of 1,759,078 acres. However, the net area of the public land

was not decreased to that extent as considerable areas were restored to the public domain through the rejection of applications and the cancelation of entries.

Patented with mineral reservations.—There also remained subject to lease or disposal 38,915,684.62 acres of patented lands in which the Government had reserved some or all of the mineral deposits, as shown by the following table:

	Fiscal year	Total reserved
	Acres	*Acres*
Stock-raising act, all minerals reserved	1,049,606.64	26,102,815.51
Other acts:		
All mineral reserved	2,075.18	349,836.20
Coal only reserved	10,544.10	10,762,649.02
Some named mineral reserved	25,228.37	1,700,383.89
Total	1,087,454.29	38,915,684.62

Other areas to which activities of the General Land Office extend.—The activities of the General Land Office also extend in various ways to 116,128,603 acres of land included in withdrawals and grazing districts, as shown under the heading "Withdrawals and restorations" and to more than 180,000,000 acres in national forests in the public-land States and in Alaska, which are subject to all mining laws and to possible homestead entry under the act of June 11, 1906 (34 Stat. 233).

The areas under the control of the General Land Office, which on June 30, 1935, were included in mineral leases and permits, or entries, are shown by the following tables:

Mineral leases and permits outstanding on June 30, 1935

	Licenses		Permits		Leases	
	Number	Acres	Number	Acres	Number	Acres
Oil and gas			6,441	10,143,163	898	312,536
Coal	141	5,617	348	251,947	378	72,749
Potash			192	409,407	12	29,465
Sodium			44	63,372	1	120
Phosphate					8	4,233
Sulphur			26	15,068		
Total	141	5,617	7,051	10,882,957	1,297	419,103

Areas in pending entries as of June 30, 1935, Alaska not included

State	Acres	State	Acres
Arizona	2,143,382	Oregon	910,269
California	1,516,562	South Dakota	417,214
Colorado	1,564,964	Utah	690,937
Idaho	1,130,948	Washington	181,137
Montana	1,942,300	Wyoming	4,119,820
Nevada	620,361	General Land Office	142,880
New Mexico	4,200,315		
North Dakota	85,604	Total	19,666,693

CADASTRAL ENGINEERING SERVICE

The Cadastral Engineering Service of the General Land Office is the congressionally constituted agency having jurisdiction over the survey and resurvey of the public lands of the United States proper and Alaska, mineral location surveys, and the preparation of the technical and legal records thereof. In addition, as stated under the heading "Work under emergency fund", the General Land Office participated in a program of land surveys for the Agricultural Adjustment Administration of the Department of Agriculture under an allotment of funds by the Federal Emergency Relief Administration, under its land-use program, so that the surveying activities have been more diversified than usual.

During the 2⅓ months of field activities under the balance of the original Public Works allotment 358,092 man-hours of work were provided and during the 8½ months of preparation of survey returns under the Public Works office allotment, 167,883 man-hours of work were performed on essential projects of permanent value in all parts of the country. The results were satisfactory beyond expectations, both as to the type and value of the work performed and the class and number of people benefited.

Cadastral surveying projects were located in 31 States and the Territory of Alaska, under 149 separate groups, of which total 36 groups in 9 States were resurveys. That part of the work which can be measured on a quantity basis, which excludes investigations and many miscellaneous surveys, embraces 8,274 linear miles, or 1,644,980 acres, comprising 1,040,670 acres of original surveys and 604,310 acres of resurveys. In addition, over 1,000,000 acres of irregular tracts of submarginal lands were surveyed for the Agricultural Adjustment Administration in 10 Eastern States along and adjacent to the Atlantic coast.

Due in part to the expended program under Public Works allotments the technical work of the offices of the Service was the largest in volume for many years. Plats and field notes of surveys and resurveys in 594 townships were prepared and approved, and in addition 239 supplemental plats were constructed and 92 mineral surveys embracing 276 locations were examined and platted at an average cost of $21.51 per location. In addition to the foregoing, 137 plats of miscellaneous surveys in several States and Alaska were prepared.

There were accepted and placed on file during the year plats representing 4,436,937 acres of original surveys of public lands and 2,903,349 acres of resurveys, comprising an aggregate area of 7,340,286 acres.

The 1934 edition of the large wall map of the United States has been printed and distributed. A new map of the State of Colorado has been issued, and the map of Alaska is in the hands of the contractor for printing. Preliminary work incident to the revision of the map of New Mexico has been commenced.

There were sold to the public 5,107 photolithographic copies of township plats and 15,592 copies were furnished, without cost, to other bureaus and agencies for official use.

RECEIPTS AND EXPENDITURES

Cash receipts.—The total cash receipts from sales, leases, and other disposals of public lands (including receipts from copies of records, sales of Government property, etc.) were $4,700,135.47, and from sales of Indian lands $100,026.77, an aggregate of $4,800,162.24, all of which was deposited in the Treasury; whereas the total expenditure from operations was $1,142,393, as hereinafter shown, making a net return of $3,657,769.24.

Receipts under the mineral leasing acts.—Receipts from bonuses, royalties, and rentals under laws providing for the leasing of mineral rights on the public domain (including royalties and rentals from potash deposits and royalties on coal leases in Alaska) aggregated $4,004,054.54, of which $3,924,652.44 was received under the act of February 25, 1920 (41 Stat. 437). The largest receipts under this act were from lands in California, the amount being $1,984,603.95. Wyoming was second, with receipts amounting to $1,391,220.92. Receipts from other States follow: New Mexico, $245,545.15; Colorado, $98,567.63; Montana, $83,458.73; Utah, $69,974.08; North Dakota, $25,188.29; Alabama, $11,837.95; Louisiana, $8,898.47; Idaho, $3,749.33; Nevada, $640; Washington, $542.20; and South Dakota, $425.74. Under the provision of the mineral leasing act cited, each State receives 37½ percent of the receipts thereunder from the public lands within its borders, the reclamation fund receives 52½ percent, and the other 10 percent remains in the Treasury of the United States as miscellaneous receipts.

Distribution of receipts.—Receipts from all sources, aggregating $4,800,162.24 as above shown, are distributed under the law approximately as follows: Reclamation fund, $2,304,493.24; to public-land States and certain counties within such States, $1,802,027.58; general fund, $593,614.65; and to various Indian tribes, $100,026.77.

Five percent of the net proceeds from cash sales of public land is paid to the public-land States within which such sales were made and the balance of such receipts from States named in the Reclamation Act are credited to the reclamation fund; the reclamation fund and the States involved receive (on the percentages shown above) 90 percent

of the receipts under the Mineral Leasing Act; receipts from sales of reclamation town sites and camp sites and from royalties and rentals from potash deposits are credited to the reclamation fund; all of the receipts from proceeds of land and timber in the forfeited Oregon and California railroad grant will be paid to certain counties in Oregon in lieu of taxes; 25 percent of the proceeds of land and timber in the forfeited Coos Bay wagon-road grant will be paid to Coos County; the receipts from Indian lands (except 37½ percent of royalties from Red River oil lands, payable to the State of Oklahoma in lieu of taxes) are deposited in the Treasury to the credit of the various Indian tribes. All other moneys are deposited in the Treasury to the credit of the general fund.

The following table shows the distribution of these moneys insofar as is possible before final settlement of all accounts by the General Accounting Office:

Source of receipt	Distribution in the Treasury			
	General fund	Reclamation fund	State fund	Total
Sale of public lands	$27,300.12	$56,659.04	$3,498.30	$87,457.46
Fees and commissions	61,762.62	136,635.00		198,397.62
Bonuses, rentals, and royalties from mineral leases	427,328.40	2,056,782.03	1,469,194.31	[1] 3,953,394.74
Proceeds of land and timber in Oregon and California railroad lands			323,534.07	323,534.07
Proceeds of land and timber in Coos Bay wagon-road grant	17,839.61		5,800.90	[2] 23,640.51
Royalties on rentals from potash deposits, act of Oct. 2, 1917		45,210.64		45,210.64
Copies of records	18,865.38			18,865.38
Power permits	15,435.00			15,435.00
Reclamation townsites and camp sites		9,116.53		9,116.53
Royalties on coal leases in Alaska	5,449.16			5,449.16
Sale of standing timber, Alaska	8,611.16			8,611.16
Miscellaneous (rent of land, surveying fees, proceeds of Government property, etc.)	11,023.20			11,023.20
Total	593,614.65	2,304,493.24	1,802,027.58	4,700,135.47
Sale and leases of Indian lands				[3] 100,026.77
Aggregate				4,800,162.24

[1] First and fourth columns contain $28,742.30 royalties received in Wyoming under act of June 26, 1926.
[2] Amount payable to Coos County, 25 percent of proceeds of land and timber.
[3] Of the amount received as royalties from oil lands in the bed of Red River, Okla., 37½ percent, $10,464.21, is paid to Oklahoma, and the balance, amounting to $17,440.30, is credited to the Kiowa, Apache, and Comanche Indians.

Expenditures.—Total expenditures for the conduct of the business of the General Land Office, including expenses of the district land offices ($221,253), amounted to $1,142,393. Disbursements from emergency funds or contributed funds for the survey or resurvey of granted lands, public lands, or Indian lands are not included above.

REPAYMENTS

Under the repayment laws, there were stated 102 accounts, allowing repayment of $16,171.95, and 50 claims were denied. The num-

ber of claims allowed includes six accounts granting repayment of $3,931.35 received in connection with sales of Indian reservation lands and repaid from Indian trust funds.

HOMESTEADS

In homestead cases, 5,057 entries were approved for patenting. The number of other actions required were as follows: For original homestead entries, 7,084; second homestead entries, 1,286; leaves of absence and extensions of time, 2,320; amendments, 514; appeals, 13,538.

Special agents investigated and reported on 1,850 homestead cases, of which 932 reports were adverse and 918 favorable. Sixty-three hearings were held in Government contests.

Homestead contests, including Government contests, were considered in approximately 1,500 cases, and altogether hearings were had in about 125 cases.

TIMBER AND STONE ENTRIES

Actions were taken on timber and stone sworn statements in 126 cases, and 20 timber and stone entries were approved for patenting.

MINERAL LEASES AND MINING CLAIMS

Oil and gas leases.—During the year 1,104 cases were acted upon. For the same period there were delivered to the lessees 49 leases embracing 25,895.22 acres, granted under section 14 of the Leasing Act; and 1 lease under section 17 of the said act, embracing 38.60 acres.

One lease of 120 acres was sold under section 17 of the act, bringing $50 per acre, or a total bonus of $6,000.

The offering of lands comprising the Fort Morgan Military Reservation, Ala., under the provisions of the act of May 23, 1934 (48 Stat. 796), brought a bonus of $1,234.75, and an oil and gas lease was issued November 1, 1934, comprising 493.9 acres.

Two leases were canceled in entirety and eight leases were canceled in part.

Oil and gas prospcting permits.—April 23, 1935, the Secretary granted a general extension of time on oil and gas permits to August 1, 1935, and on May 4, 1935, instructions were issued to suspend action on all applications for oil and gas prospecting permits then pending, or thereafter filed, pending legislation to amend the Leasing Act.

During the year ended June 30, 1935, 1,523 oil and gas permits were granted. Eight permits were reinstated. There were 269 assignments acted upon, and 2,384 actions were taken on applications for extension of time. Over the same period 271 permits were held for

cancelation and 307 were canceled; 385 applications were rejected in entirety and 516 in part. There were 11,595 other actions taken.

Coal.—During the year there were issued 73 coal-prospecting permits covering 46,397.39 acres, 35 licenses involving 1,372.64 acres, and 28 leases for 3,416.52 acres. The total number of cases disposed of was 2,376.

Potash, sodium, sulphur, and phosphate.—There were no potash permits or leases issued during the year under the act of February 7, 1927 (44 Stat. 1057), action on applications therefor having been withheld pursuant to departmental orders nos. 799, 817, 854, and 914. Eight potash permits were extended, 4 expired by limitation, and 4 were canceled. There were issued 1 sodium lease for 120 acres and 14 sodium prospecting permits involving 23,964.31 acres. Seven sodium permits expired by limitation, 1 sodium lease and 1 sodium permit were canceled. There were four sulphur permits issued during the year, involving 2,211.26 acres. There were 430 cases disposed of during the year involving the above minerals.

There was a total of 155 leases, licenses, and permits for coal, sodium, etc., issued during the year, involving 77,482.12 acres.

Royalties and rentals.—Receipts for the year under the Mineral Leasing Act of February 25, 1920, were from oil and gas, $3,596,598.95; from coal, $273,723.23; from potash, $48,981.90; from phosphate, $4,391.88; and from sodium, $956.48, making the total receipts $3,924,652.44.

Mineral entries.—There were approved for patent 102 entries.

Mineral applications.—There were 226 mineral applications disposed of during the year.

Mineral contests.—Exclusive of oil-shale, Boulder Dam and Reservoir project, and the San Gabriel Canyon claims, there were 249 mineral contests disposed of during the year.

Miscellaneous mineral cases.—There were 569 miscellaneous mineral cases disposed of during the year.

Oil-shale claims under patent proceedings.—Five mineral entries for 28 claims were approved for patent during the year.

Proceedings against mining locations.—Final action has been taken on all the reports, except two, submitted on mining claims in conflict with the right-of-way for reservoir purposes in the San Gabriel Canyon, and all cases except one contest have been disposed of in the Boulder Dam and Reservoir project. In the Metropolitan Water District appropriate action was taken on 560 field reports.

RIGHTS-OF-WAY

Six railroad right-of-way applications were approved during the year and 53 stock-watering reservoir applications were disposed of.

In addition, in other cases, 395 right-of-way applications were approved and 48 canceled. One thousand seven hundred and forty-two other actions were taken.

FEDERAL RECLAMATION PROJECTS

There are 35 Federal reclamation projects in 14 Western States, 21 of which are operated in whole or in part by irrigation districts and water users' associations. There are, in addition, five Indian reclamation projects, the irrigation features of which are under the supervision of the Bureau of Indian Affairs.

During the year 280 original reclamation homestead entries and 227 assignments of such entries were received, and 288 reclamation entries were approved for patenting.

PRIVATE IRRIGATION PROJECTS

Five private irrigation companies were approved during the year as dependable sources of water supply for desert-land entries.

DESERT LAND ACT

During the year 90 entries were approved for patenting under the desert land act.

CAREY ACT

Carey Act withdrawals and segregations amounting to 35,040.09 acres were considered on which either final or interlocutory action was taken.

PITTMAN ACT

During the year 69 applications were received under the Pittman Acts of October 22, 1919 (41 Stat. 293), and September 22, 1922 (42 Stat. 1012). Action has been taken in all but 23 cases.

SWAMP AND OVERFLOWED LANDS

During the year, under the swamp-land acts, there were approved and patented to the States 2,564.39 acres, and claims for 151,128.87 acres were finally rejected. New claims were asserted during the year to 244,198.45 acres.

STATE GRANTS AND SELECTIONS

New indemnity selections embracing 715,356.23 acres were received during the year, and selections amounting to 219,526.67 acres were approved and title conveyed to the States. Selections involv-

ing 13,903.84 acres were canceled. New quantity grant selections embracing 3,774.41 acres were approved and certified to the States and there were canceled selections involving 49,894.45 acres.

Exchange selections embracing 14,036.88 acres in lieu of Arizona State lands were approved and certified under the act of May 23, 1930 (46 Stat. 378), as amended by the act of February 21, 1931 (46 Stat. 1204).

RAILROAD GRANTS AND SELECTIONS

Railroad and wagon-road listings and selections received, together with those on hand, amounted to 124,562.38 acres; 11,723.38 acres were certified or patented in lieu of such grants; and 50,000 acres of selections were rejected.

REVESTED OREGON AND CALIFORNIA RAILROAD AND RECONVEYED COOS BAY WAGON ROAD GRANT LANDS

Transactions concerning revested Oregon & California Railroad and Coos Bay Wagon Road grant lands for the fiscal year follow:

Restored to entry, etc.—Revested Oregon & California Railroad grant lands comprising 6,549.75 acres were restored to homestead entry, and 689.65 acres were reclassified as timber land.

Forty acres of the reconveyed Coos Bay Wagon Road grant lands were reclassified as timber land.

Timber sales.—Fifty-seven sales of timber on the revested Oregon & California Railroad grant lands were made during the past year, involving 4,591.20 acres of land, containing 174,539,000 feet board measure of timber, for which the sum of $276,161.56 was received. Total sales to June 30, 1935, 971, involving 120,437.60 acres, containing 2,808,963,980 feet board measure of timber for which a total of $6,623,207.08 have been received.

Two sales of timber on the reconveyed Coos Bay Wagon Road grant lands were made during the past year, involving 80 acres of land, containing 2,355,000 feet board measure of timber, for which the sum of $4,142.50 was received. Total sales to June 30, 1935, 103, involving 17,620.78 acres, containing 701,532,000 feet board measure of timber, for which a total of $1,623,164.84 has been received.

Extension of time.—Under the provisions of the act of May 19, 1930 (46 Stat. 369), authorizing the Secretary to extend the time for cutting and removing timber from said revested and reconveyed lands in Oregon, 16 extensions have been granted, involving 3,780.55 acres. Two applications were finally denied.

COLOR OF TITLE CLAIMS

There are a number of acts under which applications were filed during the year for color of title claims. Most applications received were filed under the act of December 22, 1928 (45 Stat. 1069), under which 30 patents were issued for a total of 857.27 acres, for which the sum of $4,913.77 was received. Two hundred and eighty-five other actions were taken in color of title cases under other acts.

EXCHANGES

Various acts of Congress provide for exchanges of lands in private ownership for public lands of the United States. During the year title was accepted to 165,452.30 acres, under the act of March 20, 1922 (42 Stat. 465), in aid of consolidation of national forests, and title to 18,419.32 acres was accepted under the act of May 14, 1930 (46 Stat. 278), in connection with the Petrified Forest National Monument in Arizona. Title was accepted to 440 acres under the act of April 21, 1904 (23 Stat. 211), and to 2,159.2 acres under the act of May 23, 1930 (46 Stat. 378). Forest lieu selections under the act of June 4, 1897 (30 Stat. 36), were considered in 99 cases, with 5 patents issuing. An application involving privately owned lands in the Chaco Canyon National Monument was also considered.

CHANGE OF ENTRY

Twenty-four actions were taken and one patent issued on applications for change of entry under the act of January 27, 1922 (42 Stat. 359).

CHIPPEWA LOGGING

Extensions of time were granted on 2 contracts involving timber on the former Nett Lake Indian Reservation, Minn., and 1 contract involving timber on the former Red Lake Reservation was canceled in aid of a plan by the Office of Indian Affairs for a land program for certain Indians in Minnesota.

INDIAN ALLOTMENTS

There were 553 cases of fee and trust allotment applications considered under the act of February 8, 1887 (24 Stat. 388), and 180 trust patents and 257 patents in fee were issued.

INDIAN PUEBLO LANDS

Consideration was given during the year to 1,621 non-Indian claims filed under the act of June 7, 1924 (43 Stat. 636), 893 of which were patented.

HOMESTEADS OF CEDED INDIAN LANDS

The number of actions taken involving homestead entries of ceded Indian lands was 3,486, with 140 patents issuing. Many of the actions related to payments.

LEASES OTHER THAN MINERAL LEASES

During the year 4 leases for aviation purposes, containing a total of 2,127.03 acres, were issued and 2 such leases, containing 1,280 acres, were canceled. One hundred and sixteen actions were taken in other cases. One lease for grazing purposes, involving 9,000 acres in Alaska, was canceled.

TEXAS-NEW MEXICO BOUNDARY

After years of uncertainty as to the exact location of a portion of the boundary between Texas and New Mexico, resulting from the shifting of the course of the Rio Grande River, the boundary in dispute was fixed by decree of the Supreme Court of the United States (276 U. S. 558). The act of June 16, 1934 (48 Stat. 975), provides a means by which the Texas title claimants to lands in New Mexico may obtain title from the United States. A great deal of correspondence relative to these claims has been received and answered during the year.

TRESPASS CASES

The amount received during the year in settlement for coal trespass was $6,042.48; for timber trespass, $11,985.70; and for grazing trespass, $152.10. Altogether there were 929 actions taken in trespass cases.

RECREATIONAL AREAS

Nine applications by States, counties, or towns were considered for park projects under the Recreational Act of June 14, 1924 (44 Stat. 741).

MISCELLANEOUS CASES CONSIDERED

The following statement shows the number of actions taken, and patents issued, in each of the cases indicated: Entries and sales of abandoned military reservation lands, 82 action, 10 patents; cash and credit entries, 70 actions, 21 patents; applications and entries subject to Arkansas drainage laws, 246 actions, 4 patents; sales of ceded Indian lands, 53 actions, 14 patents; homestead entries by Indians, 13 actions, 1 patent; military bounty-land warrants, 42 actions, 3

patents; cemetery applications, 4 actions; park applications, 5 actions, 4 patents; preemption claims, 44 actions, 2 patents; private land claims, 131 actions, 10 patents; scrip, 41 actions, 9 patents; soldiers' additional entries, 285 actions, 44 patents; town-lot entries, 364 actions, 168 patents; town-site entries, 15 actions, 2 patents; trade and manufacturing site applications, Alaska, 15 actions, 1 patent; 5-acre tracts, Alaska, 6 actions.

WITHDRAWALS AND RESTORATIONS

One new stock driveway was established and 10 existing driveways modified; additions to wildlife refuges amounted to nearly 5,000 acres; and 2 withdrawals aggregating 23,350 acres were made for national-forest classification. A total of approximately 658 orders of withdrawal, or restoration of lands from withdrawal were prepared or received and noted on the tract books.

The tables which follow give the estimated total areas in outstanding withdrawals and classifications as of June 30, 1935, other than the general withdrawals made by Executive orders of November 26, 1934, and February 5, 1935:

Withdrawals other than mineral withdrawals and classifications

	Total area withdrawn June 30, 1935
Stock driveways	9,761,196
Recreational area withdrawals	284,604
Air-navigation sites	33,007
Carey Act withdrawals	35,824
Carey Act segregations	219,511
Reclamation withdrawals	21,919,957
San Carlos irrigation project (Indian)	136,860
Fort Hall irrigation project (Indian)	114,720
Fort Peck irrigation project, Montana	204,720
Booneville Dam, Oregon-Washington	79,080
Water-power reserves (non-Indian)	5,223,178
Reservoir and well sites	254,130
Public water reserves	492,848
Los Angeles water supply [1]	866,365
Mizpah-Pumpkin Creek grazing district	25,124
Grazing withdrawals (not including withdrawals under Taylor Grazing Act	3,425,840
Grazing districts under Taylor Grazing Act	65,272,989
Oregon-California and Coos Bay unrestored timber land	1,245,832
For forest exchange with New Mexico	681,000
For game and bird refuges	162,705
For national-forest purposes	157,903
For national parks and monuments	3,943,413
For New Mexico-Arizona Indian consolidation	1,134,972
For agricultural experiment stations	309,734
For flood and erosion control	10,750
For State game refuge classification	44,000
For recreational classification	43,793
For irrigation-power classification	30,880
For archeological classification	11,297
Cooperative lookout stations	727
For miscellaneous purposes	1,644
Total	116,128,603

[1] Includes Owens River-Mono Basin grazing district.

MINERAL WITHDRAWALS AND CLASSIFICATIONS

A summary of the outstanding mineral withdrawals and classifications as of June 30, 1935, is as follows:

	Withdrawn	Classified
	Acres	*Acres*
Coal	26,976,775	33,276,103
Oil	5,168,593	71,884
Oil shale	5,989,949	4,081,208
Phosphate	1,889,601	302,219
Potash	9,414,466	
Total	49,439,384	37,731,414

The area of the withdrawn oil land, shown above, includes 13,578 acres withdrawn as a helium reserve. The figures given include much land which has been patented with or without a reservation of minerals. The areas so patented have not been computed. However, some or all minerals have been reserved in patents aggregating 38,915,684.62 acres issued under the stockraising and other laws, for lands not withdrawn or classified as valuable for minerals, as well as for lands so withdrawn or classified.

TABLES

The following tables show the facts as to entries made, patents issued, etc., during the fiscal year:

Original entries, fiscal year of 1935

	Public land		Indian land	
	Number	Acres	Number	Acres
Homesteads:				
Stock-raising	2,098	1,036,847	35	15,023
Enlarged	142	32,613	1	240
Reclamation	83	8,993	75	8,258
Forest	16	1,329	1	60
Sec. 2289, et al	958	86,169	49	3,780
Total homesteads	3,297	1,165,951	161	27,361
Deserts	47	5,032	1	50
State selections	160	228,898		
Railroad selections	4	758		
Applications and filings	147		7	
Miscellaneous	86	331,028	1	
Total	3,741	1,731,667	170	27,411
Indian land as above	170	27,411		
Grand total	3,911	1,759,078		

Final entries, fiscal year of 1935

	Public land		Indian land	
	Number	Acres	Number	Acres
Homesteads:				
Stock raising	3,326	1,416,623	135	61,263
Enlarged	398	101,132	82	17,300
Reclamation	191	18,715	30	2,789
Forest	46	4,087	1	160
Commuted	23	1,738	31	2,700
Sec. 2289 et al	941	99,839	48	5,343
Total homesteads	4,925	1,642,134	327	89,555
Deserts	75	9,205	2	360
Public auction	21	1,895	1	120
Timber and stone	20	1,822		
Mineral	94	7,413	1	16
Miscellaneous	1,660	17,253	86	1,930
Total	6,795	1,679,722	417	91,981
Indian land as above	417	91,981		
Grand total	7,212	1,771,703		

Patents and certificates, fiscal year of 1935

	Number	Acres
Homesteads:		
Stock raising	2,179	1,049,131
Enlarged	433	109,207
Reclamation	293	27,463
Forest	56	5,314
Sec. 2289 et al	912	97,889
Total homesteads	3,873	1,289,004
Deserts	344	33,116
Public auction	56	5,253
Timber and stone	20	1,539
Mineral	102	10,523
Railroad	21	12,762
Miscellaneous	1,686	41,933
Total patents	6,102	1,394,130
Certified to States		223,301
Grand total		1,617,431

Homestead entries, fiscal year of 1935, includes Indian lands

State	Original		Final		State	Original		Final	
	Number	Acres	Number	Acres		Number	Acres	Number	Acres
Alaska	61	7,068	32	2,510	Oregon	261	53,752	222	46,510
Arizona	157	48,746	521	177,121	South Dakota	116	42,592	157	41,169
California	249	54,484	461	97,185	Utah	71	30,178	104	44,143
Colorado	256	88,991	530	185,657	Washington	70	9,400	32	5,792
Idaho	132	54,036	158	57,908	Wyoming	769	346,389	944	381,865
Montana	267	109,821	648	172,364	General Land Office [1]	294	20,434	244	22,368
Nevada	11	2,043	28	7,417					
New Mexico	691	313,068	1,137	484,200					
North Dakota	53	12,310	34	5,480	Total	3,458	1,193,312	5,252	1,731,689

[1] Entries made in General Land Office for land in States without district land offices. The original entries were 35 in Alabama, 1,856 acres; 135 in Arkansas, 9,666 acres; 12 in Florida, 762 acres; 1 in Indiana, 2 acres; 1 in Kansas, 389 acres; 9 in Louisiana, 537 acres; 6 in Michigan, 331 acres; 43 in Minnesota, 2,391 acres; 9 in Mississippi, 453 acres; 13 in Nebraska, 1,816 acres; 29 in Oklahoma, 2,191 acres; and 1 in Wisconsin, 40 acres.

The above 3,458 original entries include in addition to the three main homestead acts, 17 forest, 1,389 acres; 158 reclamation, 17,251 acres, and 5 Kinkaid homesteads, 599 acres. The final entries likewise include 47 forest, 4,247 acres; 221 reclamation, 21,504 acres; 8 Kinkaid, 1,528 acres, and 16 soldiers' additional homesteads, 449 acres. The finals include 55 commuted entries, 4,438 acres.

Desert-land entries, fiscal year of 1935, includes Indian lands

State	Original		Final		State	Original		Final	
	Number	Acres	Number	Acres		Number	Acres	Number	Acres
Arizona	9	636	8	1,153	Oregon	8	1,012	5	335
California	7	967	8	680	South Dakota			1	80
Colorado	1	50	2	360	Utah	1	162	3	282
Idaho	10	761	15	1,361	Washington	1	37		
Montana	1	320	27	3,613	Wyoming	5	569	7	1,540
Nevada	3	328							
New Mexico	2	240	1	160	Total	48	5,082	77	9,564

The above final entries include under relief act of Feb. 14, 1934, 5 entries, 880 acres.

Other entries, fiscal year of 1935, Indian land included

State	Public auction		Timber and stone		Mineral		Miscellaneous			
							Original		Final	
	Number	Acres	Number	Acres	Number	Acres	Number	Acres	Number	Acres
Alaska					16	819	12		14	14
Arizona	1	160			6	1,071	18	[1] 330,768	15	1,759
California	1	40			19	1,319	32	120	97	1,140
Colorado	2	80	2	139	9	647	4			
Idaho	2	87			10	783	2		10	35
Montana	2	320	1	160	9	833	4	48	36	409
Nevada	1	80			4	136			1	
New Mexico	1	184			7	252			[2] 1,411	10,986
Oregon	3	82	1	160					60	1,187
South Dakota									25	1,630
Utah	1	160	1	40	13	1,033	1		1	80
Washington	2	177	3	360	1	216	3		24	
Wyoming	3	400	5	560	1	320	17	10	16	10
General Land Office	2	125	8	462			2	79	34	1,940
Total	21	1,895	21	1,881	95	7,429	95	331,025	1,744	19,190

[1] Includes 2 exchange selections, 324,303 acres, act June 14, 1934.
[2] Includes 1,403 private claims, 10,826 acres.

Class, number, and area of patents issued during fiscal year ended June 30, 1935

Class	Number	Acres	Class	Number	Acres
Choctaw scrip	3	477	Railroad lieu	2	40
Commuted homestead	29	2,411	Reclamation homestead	293	27,463
Desert land	51	5,653	Reclamation desert land	20	2,480
Forest exchange	21	3,158	Reissue	323	[3]
Forest homestead	56	5,314	Sioux half-breed scrip	4	397
Forest lieu	6	400	Small holding claim	4	239
Homestead, final	[1] 848	94,256	Soldiers' additional	34	746
Homestead, enlarged	433	109,207	Special acts	966	49,567
Homestead, stock-raising	2,179	1,049,131	Supplemental, act Apr. 14, 1914	3	440
Indian fee	257	[2]	Swamp	13	2,564
Indian homestead, act July 4, 1884.	1	476	Timber and stone	20	1,539
			Timber sales	62	[4]
Indian trust	8	256	To complete records	67	[5]
Military bounty-land warrants	5	452	Town lots	167	78
Mineral	102	10,523	Townsite	1	83
Miscellaneous	32	2,434	Valentine scrip	2	4
Public sale	56	5,253			
Private land claim	15	6,367	Total	6,102	1,394,130
Railroad	19	12,722			

[1] Includes 3 Kinkaid Act patents, 502 acres.
[2] 41,003 acres.
[3] 42,583 acres.
[4] 4,810 acres.
[5] No area to be reported.

Area patented with coal reserved, 10,544 acres; with oil, gas, phosphate, etc., reserved, 25,228 acres; with all minerals reserved, all of stock-raising homesteads and 2,075 acres under other acts.

The "special acts" above include 3,021 acres of exchanges to consolidate Indian reservations and allotments, and 10,081 acres for quieting titles in Indian pueblos, all in New Mexico; and 27,611 acres of exchanges for consolidating a national monument in Arizona.

Applications filed under Mineral Leasing Act of Feb. 25, 1920, fiscal year of 1935, with totals to June 30, 1935

	Filed in 1935	Total to June 30, 1935		Filed in 1935	Total to June 30, 1935
Alabama		16	Nebraska		36
Alaska	24	1,753	Nevada	17	1,762
Arizona	16	1,914	New Mexico	486	11,595
Arkansas		24	North Dakota	12	486
California	388	22,033	Oklahoma		557
Colorado	189	9,155	Oregon	30	430
Florida		1	South Dakota	8	379
Idaho	23	1,076	Utah	419	13,441
Kansas		5	Washington	17	288
Louisiana		262	Wyoming	389	17,769
Michigan		3	General Land Office	87	196
Mississippi		15			
Montana	169	13,194	Total	2,274	96,390

State grants—Areas patented or certified in fiscal year 1935

State	Swamp land patents	School section indemnity certifications	Quantity grant certifications	State	Swamp land patents	School section indemnity certifications	Quantity grant certifications
Arizona		208,199	3,774	Montana		3,097	
California	313	342		New Mexico		7,810	
Florida	186			Oregon	454	79	
Louisiana	64			Wisconsin	1,453		
Minnesota	54						
Missouri	40			Total	2,564	219,527	3,774

Railroad grants—Land approved in fiscal year 1935 for patent or certification

	State	Acres
TO CORPORATIONS		
Atlantic & Pacific (now Santa Fe Pacific)	Arizona	40
Do	New Mexico	1,520
Central Pacific (California and Oregon)	California	201
Central Pacific	do	2,609
Southern Pacific (branch line)	do	6,134
Total		10,504
TO STATES		
Choctaw, Oklahoma and Gulf	Arkansas	414
Missouri Pacific	do	696
St. Paul, Minneapolis & Manitoba (Great Northern)	Minnesota	29
Wisconsin Central	Wisconsin	80
Total		1,219

OFFICE OF INDIAN AFFAIRS

(John Collier, Commissioner)

FOREWORD

This annual report is burdened with overcondensed statements of things done and more things yet to do; with urgencies, programs, and life-and-death necessities, all under the compulsion of speed.

It is all true. But the foundations of Indian life rest in a quiet earth. Indian life is not tense, is not haunted with urgencies, and does not fully accept the view that programs must be achieved, lest otherwise ruin shall swiftly befall.

Indian life is happy. Even the most poverty-stricken and seemingly futureless Indians still are happy. Indians have known how to be happy amid hardships and dangers through many thousand years. They do not expect much, often they expect nothing at all; yet they are able to be happy. Possibly this is the most interesting and important fact about Indians.

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THE ACCELERATED TASK

The Indians and the Indian Service have had a difficult and challenging year, due to drought and depression; on the other hand, many Indians, and Indian property, have benefited from the gen-

erous relief appropriations. The effort to spend these relief funds wisely has meant extra work for the Service staff, which already had assumed the additional burden of launching the Indian reorganization program without benefit of new funds or personnel.

REORGANIZING INDIAN LIFE

The Indian Reorganization (modified Wheeler-Howard) Act was approved June 18, 1934. Its passage made mandatory a complete change in the traditional Federal Indian policy of individual allotment of land—which resulted in the break-up of Indian reservations—and of destroying Indian organization, institutions, and racial heritage to the end that the Indian as an Indian might disappear from the American scene with the utmost speed.

The net result of this policy has been the loss of two-thirds of the 139,000,000 acres owned by Indian tribes in 1887, the year when the General Allotment Act was adopted; and the individualization policy has broken up the land remaining on allotted reservations, has disrupted tribal bonds, has destroyed old incentives to action, and has created a race of petty landlords who in the generous Indian manner have shared their constantly shrinking income with the ever-increasing number of their landless relatives and friends.

The Indian Reorganization Act prohibits future allotments, and the sale of Indian lands except to the tribes; it restores to the tribes the unentered remnants of the so-called surplus lands of the allotted reservations thrown open to white settlement; it authorizes annual appropriations for the purchase of land for landless Indians, provides for the consolidation of Indian lands, and sets up a process which enables Indians voluntarily to return their individual landholdings to the protection of tribal status, thus reversing the disintegration policy.

The act also authorizes a ten-million-dollar revolving loan fund, the use of which is restricted to those tribes which organize and incorporate so as to create community responsibility. It is expected that the organization of Indians in well-knit, functional groups and communities will help materially in the creation of new incentives for individual and collective action. The Indian is not a "rugged individualist"; he functions best as an integrated member of a group, clan, or tribe. Identification of his individuality with clan or tribe is with him a spiritual necessity. If the satisfaction of this compelling sentiment is denied him—as it was for half a century or more—the Indian does not, it has been clearly shown, merge into white group life. Through a modernized form of Indian organization, adapted to the needs of the various tribes (a

form of organization now authorized by law), it is possible to make use of this powerful latent civic force.

The Indian Reorganization Act was passed a few days before the end of the Seventy-third Congress. None of the authorized appropriations, however, became available until May 1935. For land purchases the authorized appropriation was reduced to one-half, or $1,000,000; the revolving credit fund was limited to a quarter of the authorization, or $2,500,000; for organizing expenses the amount was reduced from $250,000 to $175,000.

THE INDIANS HOLD THEIR FIRST ELECTIONS

Congress had ordained in section 18 that each tribe must be given the unusual privilege of deciding at a special election whether it wanted to accept these benefits or reject them. Beginning with August 1934 and ending June 17, 1935, a series of 263 elections resulted in the decision by 73 tribes, with a population of 63,467 persons, to exclude themselves from the benefits and protection of the act, and by 172 tribes, with the population of 132,426 persons, to accept the act.

The participation of the Indians in these referendum elections was astonishingly heavy. In national elections, when a President is chosen and the interest of the voters is aroused through a long, intensive campaign, the average number of ballots cast does not exceed 52 percent of the total number of eligible voters; in referendum elections deciding on such matters as constitutional ratifications, bond issues, etc., when no personalities are injected into the campaign, less than 35 percent of the eligible voters participate. The referendum election on the Indian Reorganization Act did not concern itself with candidates and personalities, yet 62 percent of all adult Indians came to the polls and cast their ballots.

This heavy participation becomes even more significant when it is remembered that at least half the Indian voters could not speak the English language, that reading and writing were unknown to many of them, and that most of them had never voted before. Yet so great was their interest that grandmothers and grandfathers past the allotted span of three score and ten walked many miles to the polling places, there to mark and cast their ballots with celerity and dispatch even though some of them had to be instructed which end of the pencil to use.

Except in a single tribe (Isleta Pueblo), not an Indian voice was raised against the participation of women; everywhere the right of the feminine element to take part in the referendums was conceded without question.

The rejection of the Reorganization Act on 73 reservations, most of them very small (but including the largest reservation, that of the Navajos), was due in the main to energetic campaigns of misrepresentation carried on by special interests which feared that they would lose positions of advantage through the applications of the act. Joining hands in this campaign of misrepresentation were stockmen who feared that the Indians would run their own stock on land hitherto leased to white interests; traders who were afraid of losing their business through the competition of Indian consumers' cooperatives; merchants and politicians in white communities on the edge of reservations; a few missionaries who resented the extension of the constitutional guarantee of religious liberty and freedom of conscience to Indians (not an element in the Reorganization Act, but enforced as a policy by the present administration); lumber interests which did not want to see Indian tribes exploit their own forest resources. These interests, working frequently by the historic method of defrauding Indian tribes with the connivance of certain of their own leaders, spread extreme and bizarre falsehoods concerning the effects of the act.

Among the myths spread by adverse interests on various reservations were such as these: Acceptance of the act would cause Indian owners of allotments to lose their land, which would then be distributed among those Indians who had disposed of their allotments; all farm crops would be impounded in warehouses and thereafter would be equally distributed among the population; the Indians would be segregated behind wire fences charged with electricity; all the livestock would be taken from certain tribes; unallotted reservations would be thrown open to white entry; Indian dances and other religious ceremonies would be suppressed; Indians would not be allowed to go to Christian churches; certain Southwestern reservations would be turned over to Mexico, etc.

THE NAVAJO VOTE

On the Navajo Reservation, certain interests disseminated the most fantastic fictions in their effort to induce the 43,500 Navajos to reject the help the Federal Government was offering them. With the aid of these fictions, and by falsely connecting the referendum on the Reorganization Act with the unpopular but necessary stock reduction program, the propagandists succeeded in bringing about the exclusion of the Navajo Reservation by a very narrow margin of votes: 7,608 for acceptance; 7,992 against acceptance. Immediately after the result became known, Navajo leaders started a movement to reverse it through a renewed referendum, which will be possible only through a new enabling act of Congress.

THE INDIAN RENAISSANCE

Considering the long history of broken treaties, pledges, and promises, the fact that 172 tribes with an Indian population of 132,000 accepted the word of the Government that the fundamental reorganization of their lives would not harm them is evidence of a new, more satisfactory relationship between the Indians and the Indian Service. The referendum elections served a most valuable purpose. They were palpable proof to the Indians that the Government really was ready to give them a voice in the management of their own affairs, and that the period of arbitrary autocratic rule over the tribes by the Indian Service had come to an end.

This evidence of good faith was reinforced by the request that the tribes begin immediately to formulate the constitutions and charters authorized by the act. Reservation committees and groups set to work at the unaccustomed task of drafting constitutions and of making plans and programs for the economic rehabilitation of the tribes. Charters and constitutions under the Reorganization Act, when once adopted, cannot be revoked or changed by administrative action. Personal government of the tribes by the Secretary of the Interior and the Indian Commissioner is brought to an end.

INDIAN EMERGENCY WORK

In the revivifying of the Indian spirit, the wide-opened benefits of Indian emergency conservation and of other relief work played an important part. It must be remembered that on many reservations the kind of depression which struck the Nation in 1929 had been a chronic condition for a long time, becoming acute when land sales dropped off and the revenue from farm and grazing lands leased to whites dropped almost to the vanishing point. Opportunities for wage work had been all but nonexistent on most reservations, and the psychology of the chronically unemployed had prevailed for so long that it was feared that most of the Indians had become unemployable.

This fear proved to be groundless. Indians young and old not merely accepted emergency relief work, but almost fought for the chance to labor. And they labored effectively. Through their effort the physical plant, the land, the water, the forests, have had many millions of dollars added to their use value in the last 2 years. Incalculable benefits have been derived from the improvement of 20 million acres of range, through the development of springs and wells and the construction of thousands of stock-water dams, through roads and truck trails, through the construction of thousands of miles of fences and telephone lines. There is not one reservation which, as a result of the emergency and relief work, is not a better place to live on, an easier place in which to gain a living from the soil.

A clear gain to the Indians—and to many white communities in the Indian country—accrued out of the grants from Public Works funds for new Indian community-school buildings, hospitals, and sanatoria, many of them built entirely by Indian labor. Yet the pressing need for structures of this kind has not been half filled. Nor is the Indian irrigation program, financed from emergency grants, more than one-third completed.

AFTER THE DEPRESSION—WHAT?

The benefit derived by the Indians from the emergency and relief work has many aspects. Thousands of the Indian workers have, for perhaps the first time in their lives, learned what it means to have sufficient nourishment of the right kind regularly. Other thousands have been able to acquire minimal household goods, clothing, livestock, and farm implements. Thousands of savings accounts have been started at the various agencies out of earnings of $2.10 per day for 20 days in the month during part of the year.

There have been entries on the debit side also. The number of bootleggers on the fringe of many reservations has multiplied; law enforcement has become more and more difficult. Automobile dealers with second-hand wrecks for sale have encouraged the younger Indians to obligate their potential earnings for years ahead; some traders have encouraged credit buying on far too lavish a scale.

But more important than these shortcomings due to the innate generosity of a race unfamiliar with wise consumption habits is the problem that arises from the introduction of a wage economy on reservations which will supply almost no permanent opportunity for wage work. After the depression is over and the emergency grants cease, what will happen to the now-working Indians?

REHABILITATION EMPHASIZED

To prepare for this inevitable crisis additional funds must be obtained for rehabilitation projects, such as land purchase, housing, the construction of barns and root cellars, the development of domestic water and sanitary facilities, the subjugation of land, the financing of purchases of seeds, implements, and livestock, the stimulation and development of Indian arts and crafts, and the organization and financing of sawmills, fisheries, and other industrial enterprises. This amended program would mean a playing down of the wage motive, a playing up of production for use.

If the necessary grants for this program be made, the Indians on many reservations should be able to pass gradually from relief work to subsistence farming, craft, and other supplemental industrial work of their own.

THE ISOLATION OF THE INDIAN SERVICE BROUGHT TO AN END

Through many administrations the Office of Indian Affairs monopolized the Indians. What services it could not render them were not rendered at all. The result was an insufficiency of substandard services. Since 1929 the Indian Service has worked increasingly toward the sharing of responsibility with other agencies. The Johnson-O'Malley Act, enacted at the beginning of the present administration, makes possible the varied use for Indians of the health, educational, agricultural, and welfare services of States.

Many nonofficial agencies have been brought into play in the Indian task, as mentioned in other pages of the present report.

Within the Federal system the outstanding unifications are those between the Indian Service and the C. C. C. (Indian Emergency Conservation Work, and the Indian Service and the Department of Agri-Agriculture (Soil Conservation Service). Continued or extended cooperation with the United States Public Health Service and with the Bureau of Animal Industry has gone forward. An entirely new collaboration with the Bureau of American Ethnology (Smithsonian Institution) has been achieved. Important help to Indians has been given through the past 2 years by the Federal Emergency Relief Administration, the Agricultural Adjustment Administration, and the Land Program (now brought within the Resettlement Administration).

Not merely have these many cooperative and sharing arrangements increased the services given to Indians; they have, in addition, reacted in a stimulating and challenging fashion upon the Indian Office. Not a sequestration of Indians within one Federal bureau, but the largest use of all the agencies of helpfulness, is the guiding principle in present Indian affairs.

PERSONNEL ADMINISTRATION

Superintendents' authority affirmed.—On July 14, 1934, a statement of new policies by the Commissioner, approved by the Secretary of the Interior, set forth principles of local self-management for unit groups of Indian Service employees. It gave to jurisdiction superintendents and their staffs the rights and responsibilities for local program-planning and for local administration. The end result of this policy, and the Indian Reorganization Act principles, taken together, will be the transfer of initiative and of much authority from the Washington office to the reservations. These measures mark, therefore, the beginning of a change in the whole trend of Indian Service administration.

Group planning sought.—Restoration to superintendents of the administrative authority they enjoyed up to a decade ago has been in no sense a return to the one-man control operation of former days; superintendents can function effectively, under the new scheme of operation, only with the assistance of an organized staff and with the cooperation of organized Indian representation. Only through bringing about group thinking and group action can they help the Indians into an intelligible relationship with the various specialized Government services within reservation areas, and only by group action can they achieve the integration of these services into a rational and functional reservation program.

Thus partially released from administrative responsibility for jurisdiction programs and for jurisdiction employees, the technical and professional specialists of the Service, namely, the Washington office division directors and supervisors, have been freed to devote their energies to matters of policy, to consultant and supervisory services for field administrators and employees, and in the Washington office to the task of advice to the Commissioner and the Assistant Commissioner on the whole range of activities in their several fields of specialization.

By establishing, as a definite policy, visits to the Washington office by superintendents, individually and in groups, provision has been made for a continuous interchange of field and office viewpoints, and a means has been provided for the more efficient transaction of major jurisdiction business.

The year 1934–35 has seen these new policies of operation inaugurated and pursued in imperfect—as yet very imperfect—but persevering practice. The process has tried to be the slow but sure one of education, rather than the quicker but the more superficial and bureaucratic one of promulgation by regulation. Fifty-one of the 87 jurisdiction superintendents have visited the Washington office during the year. In the Washington office, weekly staff meetings of division directors, with visiting superintendents taking an active part, have become an established practice. With the responsibility theirs for total jurisdiction administration, there has come about a changed attitude on the part of superintendents toward technical and professional supervision. Superintendents during this year have welcomed and have learned to seek the advice of division directors and supervisors. Altogether too much correspondence as yet continues to pass between the field and the office on matters that ought to be settled locally, but the foundation has this year been laid for a kind of field organization and field administration wherein superintendents assume their places as leaders, and whereby jurisdiction employees look to their local groups and not the Washington office for inspiration, guidance, and direction.

Decentralization begun.—The new Navajo and Pueblo agencies afford the extreme example of local administrative autonomy and likewise of the regionalization of planning and administration into large areas where homogeneous conditions or common imperatives exist. Each has a staff organization that duplicates, in effect, the division director and supervisory set-up of the Washington office. The superintendent of each of these regions is charged with the responsibility for program making, for controlling the shift of personnel, and, aside from budgetary limitations and within broadly defined policies, for operating with the utmost possible freedom from Washington office intervention.

In the Navajo case there are involved some 46,000 Indians (including the Hopis) and a 20,000-square-mile area, and the social-economic program is complex as well as urgent. In the Pueblo case 17 tribes, cultures, and more or less distinct civilizations are involved. Regionalization in this area is the means not merely, nor principally, to a more autonomous and better manned regional service, but rather, and principally, to a localization of program and of community action tribe by tribe, village by village.

In California and in the Lake States of Minnesota, Wisconsin, and Michigan regional coordinators have been designated during the past year. These men act as advisers to the superintendents in their respective territories, assist them on problems of planning and administration, and serve as liaison officers between the office and the superintendents.

While attention this year might seem to have been centered unduly on problems of organization and administration, it must be recognized that these matters are fundamental to the building of an improved personnel and service. No organization can amount to anything worthwhile without the right kind of personnel, especially in the subordinate positions of a wide-spread service; it cannot do itself justice in the absence of a right organization that operates on sound principles of human relationships and is conducted on a clearly defined business basis. At best, any Government service confronts a new employee with a bewildering maze of restrictive hurdles; at worst, it stifles initiative, breeds inertia, and serves as a refuge for the mediocre. In the past, and up to the present even, the Indian Office has tried to improve its personnel service by creating new activities and adding new personnel with little regard to the fundamentals of organization and administration. The recognition of superintendents as responsible administrators and the partly realized functioning of jurisdiction staffs with defined lines of delegated administrative responsibilities and authorities assume, therefore, a spe-

cial significance in relation to Indian Service personnel policies of the future.

Employees.—On July 1, 1935, there were 5,463 "regular" positions in the Indian Field Service carrying gross salaries in the amount of $8,600,088. This does not include the 293 positions set up for Alaska, organization chart positions in our irrigation service, nor any of the emergency activities.

INDIAN EMPLOYMENT OPPORTUNITIES

PLACEMENTS OF INDIANS

Through local personnel committees on each jurisdiction, an inventory of Indians qualified for employment in the Indian Service has been set under way this year. Two hundred and eighty-six Indians have been appointed to regular permanent positions in the field, and the number of Indian employees in the Washington office has been increased to 32. Of a total of 5,463 regular classified positions in the field service, 2,037 are filled by Indians (Jan. 24, 1935). One man of Indian blood is serving as supervising coordinator of all Indian activities in three States. More than a dozen are serving as reservation superintendents, school superintendents, and principals. All of the field agents of the new Indian reorganization unit are Indians.

Exact data are not available as to the number of Indians employed on various Public Works and Emergency Conservation Work projects, but approximately 90 percent of the total personnel employed are Indians.

In-service opportunities through Indian assistantships now include positions in clerical work, education, extension, and forestry branches of the Service. The Health Division set up the new position of junior nurse to give employment as nurses to Indian women immediately upon completion of hospital training. At selected hospitals in the Service, 1-year employment in attendant positions is designed to give Indian girls, who expect to enter training, advance experience in hospital routine and the opportunity of earning money to meet their expenses during the period of their hospital training.

This showing is perhaps a modest and an insufficient one; but it is believed that the procedure set up, when reinforced by the changes in the educational system later reported on, will shift upward, with yearly acceleration, the curve of Indian employment, while convincingly lifting the level of the personnel without regard to Indian and white distinctions.

Placement of Indians.—The total number of Indians for whom employment was obtained through the Employment Division during the fiscal year 1935 was 11,568, or 21.7 percent more than in

the previous year. Of this number, 7,750 were employed within the Indian Service and 3,818 were placed outside the Service, 2,016 with private employers and 1,802 on Government projects. Of the latter, 1,517 placements were effected directly through the offices of the National Reemployment Service to which employment officials of the Indian Service referred applicants.

Indian Service placements increase.—Comparison of these figures with those for the previous year shows a decrease of 14.3 percent in placements outside the Indian Service and an increase of 116.3 percent, or 4,116, in the number placed by the Employment Division within the Service. This shift in relative volume of "outside" and "inside" placements was due principally to the greater opportunities for employment of Indians on reservations and at agencies, but was influenced by diminished opportunities for Indians elsewhere, due partly to preference shown non-Indians in some sections because of a popular belief that the Government was providing adequately for all Indians. In certain other areas, in contradistinction, it is probable that several hundred Indians were placed by offices of the National Reemployment Service without the fact being reported to the Indian Service. During the previous year employment agents familiarized Indians in many communities with the facilities of the Reemployment Service and of State and municipal employment services accustoming many Indians to utilize such agencies.

Household work placements decrease.—In some of the urban districts, where placements have been mainly those of women and girls in household occupations, the demand for Indians at times during the year 1934–35, has exceeded the available supply, and placements have fallen off in consequence. This situation may be attributed largely to the increased opportunity for employment on reservations, which has given jobs to many Indian women and girls at agencies, schools, and hospitals, and has made it unnecessary for others to earn their own living away from home. A further important reason for a decline in the number of household placements is that definite efforts have been made by social workers attached to the Employment Division to raise the standards of such employment and to stabilize it; this has meant fewer placements but more continuous employment.

Individualized placement work sought.—The various conditions described have required of employment officials more of selective individualized placements and less of mass recruiting of labor than heretofore. The employment of large numbers of Indians within the Service is making possible the compiling of individual records which will be valuable when employment opportunities on the reservations diminish or when labor demands of private business increase.

Employment officials are assisting recently established local employment committees at each agency and nonreservation boarding school, in building from such data accurate lists of available Indians and their qualifications.

EXTENSION AND INDUSTRY

This division seeks to raise living standards among Indians by helping them to make wise use of their resources—which are often meager. Programs are based on physical inventories of reservation resources, and they are worked out locally in cooperation with the Indians.

Indians lost ground in the extension-work field in 1934–35 because of the drought; on the other hand, some Indians gained, unexpectedly, through receiving drought cattle, bought by the Government in drought-stricken areas, and redistributed on 48 reservations where there was still feed.

Of general benefit, as yet unrealized, will be the revolving loan fund under the Indian Reorganization Act, authorized but unappropriated for in 1934, and finally included in the appropriation act of 1935. Studies regarding the use of the fund were initiated, and rules and regulations under which loans are to be made are already being drawn up.

FARMING

The majority of the Indian reservations lay within the emergency drought areas during 1934. The acreage cultivated showed a decrease of approximately 15 percent since 1933, and the number of farms operated decreased from 30,278 in 1933 to 29,025 in 1934. The acreage planted in cereal crops showed a decrease of 7.92 percent, while yields decreased 38.7 percent. Other field crops showed a decrease of 18.8 percent. Cotton production showed a decline from 1933 of 56 percent, and sugar beets, 60 percent. The acreage in forage crops decreased 3,405 acres, and yields, 37.9 percent. A total of 25,840 acres was planted to gardens by 26,854 Indian families.

Horticultural projects were the only farming activities showing an increase in spite of the drought, due to the fact that reservations on which such projects play a large role are either under irrigation or in areas outside the drought section.

LIVESTOCK

Cattle.—The Indian cattle industry has been given a real impetus through the allocation of $800,000 to the Indian Service by the Agricultural Adjustment Administration for the purchase of purebred cattle from distressed breeders in the designated drought areas.

Arrangements were also made with the Federal Surplus Relief Corporation whereby cattle were turned over to the Indians for the purpose of establishing foundation herds. The income from cattle enterprises increased, some of which was due to sales made to the A. A. A. under its drought-relief program.

The number of Indians owning dairy cattle increased during the year by 44 percent. The number of animals owned increased 57 percent. It is estimated that 28,538,622 pounds of milk were produced by Indian-owned animals and that 443,620 pounds of butter and 21,925 pounds of cheese were made. In the beef-cattle project an increase of 60 percent in the number of Indians owning cattle was shown. Their holdings increased 62,030 head, or 37 percent.

	Dairy cattle		Beef cattle	
	1933	1934	1933	1934
Number of Indians owning	6,336	9,133	8,627	13,787
Total number owned	16,406	25,711	167,313	229,343
Average value per head		$23.07		$18.95
Total value		$593,127		$4,346,307
Number of live animals sold	252	2,171	12,284	36,046
Amount received	$3,603	$36,008	$210,609	$578,070
Pounds dressed meat sold		3,500	793,063	547,179
Amount received		$245	$52,486	$44,820

Total income received from cattle: 1933, $266,698; 1934, $659,143.

Sheep and goats.—Sheep and goats are important in the economy of large numbers of Indian people, especially in the Southwest. In the Navajo country the desperately overgrazed condition of the range was accentuated by drought, and as a relief measure $250,000 was secured from the Federal Surplus Relief Corporation, with which 49,052 sheep and 147,787 goats were purchased. The drought also forced Indians on other reservations to sell sheep. In the following table a decrease will be noted from 1933, largely due to efforts of extension workers to bring the number of stock owned by the Indians more nearly within the carrying capacity of their ranges.

	Sheep		Goats	
	1933	1934	1933	1934
Number of Indians owning	7,527	9,213	5,842	7,681
Number owned	1,051,079	901,765	353,190	215,566
Number live animals sold	94,226	156,571	2,654	150,884
Pounds dressed meat sold	202,530	101,450	43,625	31,450
Received live animal, sales	$306,652	$366,946	$3,872	$156,478
Received dressed meat, sales	$18,240	$9,686	$5,672	$2,786

Amount received from wool and mohair sales: 1933, $460,635; 1934, $505,919.
Total income from sheep and goats: 1933, $795,071; 1934, $1,041,815.

Swine.—Of 31,553 swine owned, 19,600, or 62 percent, are found in Oklahoma. This project was affected by drought in some sections. The increase in the number of Indians owning swine was 886, or 16.71 percent, and the average number owned per Indian owning was 5.51 in 1934.

Horses and mules.—These animals are relatively more important to the average Indian than to the average white farmer. In the service as a whole there is need of better-bred horses of the various types. Owing to the drought, Indians in some sections were obliged to sell large numbers of animals. This will severely affect their future farming operations unless some means can be found whereby additional horses can be purchased. The number sold increased from 7,946 in 1933 to 17,416 in 1934. At the close of 1934, 34,009 Indians owned 134,863 horses.

Poultry.—Efforts in most sections were devoted to encouraging poultry raisers to supply fresh eggs for family use and some birds for consumption rather than for commercial activities. Birds slaughtered totaled 90,291, and the amount received from sales was $38,058 for live birds and $16,745 for dressed meat. At the close of the year Indians owned 363,384 birds. It is estimated that 1,357,774 dozens of eggs were produced during the year.

NAVAJO SHEEP-BREEDING LABORATORY

An appropriation of $75,000 was included in the general appropriation for the Indian Service for the coming fiscal year to establish and operate a sheep-breeding laboratory on the Navajo Reservation. The problem is to build up a breed of sheep adapted to Navajo climatic conditions, whose wool will be suited to the making of Navajo rugs and at the same time will be salable on the open market. Plans were being made at the close of the fiscal year for the opening of the laboratory. The Department of Agriculture has rendered and will render important cooperation in this enterprise.

4-H CLUB WORK

A total of 294 organized clubs carried projects with a membership of 4,290. Of these 3,128 completed their projects, or an average of 72.91 percent. This figure is outstanding when it is considered that many were unable to complete due to the drought.

HOME EXTENSION WORK

In spite of the drought, home-extension projects continued to make substantial progress. Results showed conclusively that the Indian women respond to this type of activity, and that the practices

which they have learned since this work was first inaugurated are not easily forgotten. Canning projects showed the following results in quarts: Fruits, 383,865; meats, 108,586; vegetables, 241,338; fish, 42,552. Drying projects showed the following results in pounds: Fruits, 192,258; meats, 2,254,078; vegetables, 224,670; fish, 153,626. The huge increase in meats is due, of course, to the cattle which were turned over to the Service from drought-relief purchases. It is estimated that 12,536 Indian homes were helped in adopting improved practices in canning and drying; 2,501 in bettering their clothing; and 5,605 homes with various projects carried cooperatively with the General Federation of Women's Clubs.

FARM AND HOME BUILDING

The construction and remodeling of farm and home buildings continued to be pushed. A total of 1,217 new dwellings was constructed at an estimated cost of $440,695, and 1,668 dwellings were remodeled, the estimated increased value of which was $173,444. Sanitation of home surroundings was stressed and 638 toilets constructed.

GENERAL EXTENSION WORK

The following figures summarize general extension work:

Extension workers made 160,194 farm and home visits during the year. A total of 338,977 office and 76,214 telephone calls were received. Workers wrote 75,372 individual letters, prepared 1,296 different circulars, of which 85,075 copies were sent out, and distributed 35,667 bulletins. Exhibits were shown at 511 events; 346 training meetings were held for local leaders, at which 4,736 were in attendance; 5,857 demonstration meetings were held, with an attendance of 94,977; 161 tours conducted with an attendance of 1,942; 92 achievement-days held with an attendance of 16,615; and 3,415 other extension meetings held with an attendance of 200,912. There were 1,597 meetings held by local leaders, with an attendance of 32,153. All meetings held during the year totaled 12,634, compared with 11,128 last year; and attendance totaled 380,739, compared with 309,510 in 1933.

REIMBURSABLE FUNDS

The entire appropriation of $325,000 for industrial purposes was allotted the various reservations during the fiscal year 1935. This fund was supplemented by allotments aggregating $106,998.33 from tribal revolving funds belonging to the Indians of 22 reservations. The greater proportion of the funds from these two sources was used for industrial loans. According to reports which have been submitted, only $16,935.24 was used for subsistence loans as compared with $29,787.09 in the fiscal year 1934, while the amount expended for educational loans to young Indian boys and girls was $18,806.61, or $400.16 more than last year.

COMING DEMANDS

The successful attainment of the objectives of the Indian Reorganization Act, namely, opening to Indians the opportunity and techniques for self-support, is to a large extent dependent upon the extension staff. If the standard of living of Indians is to be raised through their own efforts, it is imperative that extension work have both an enlarged personnel and increased funds for demonstration and other purposes. Results which have been achieved in the past show that the value of the work is recognized by the Indians. The limited personnel of the Extension Division makes it impossible to extend the benefits of this work to many Indians who should receive assistance. As an example, the benefits of 4–H club work are available to only 1 out of 8 boys and girls. The new credit system will also increase demands made upon extension workers in planning farm programs and in insuring sound economic use of these funds.

EDUCATION

New educational objectives.—Far-reaching changes in the methods and objectives of Indian education were carried forward during the year. The process of shifting the emphasis from the Indian boarding schools, reservation and nonreservation, continued, but at diminished speed so far as enrollment was concerned. The opposition of Indians who wanted to hold to the extraordinary but dubious privilege of having their children not only schooled but fed, housed, and clothed at Government expense, plus the pressure of communities enjoying the business arising out of the presence of Indian boarding schools, was sufficiently powerful to force enlarged enrollment at several nonreservation boarding schools and to compel the continued operation of one school scheduled for closing.

Nevertheless steps were taken during the year to transform nonreservation boarding schools into specialized institutions serving more distinctively than in the past as vocational training centers and preparing adolescent Indians for more effective work, either for themselves or for the Indian Service on their reservations. At the same time efforts were made to set more realistic objectives for the day schools operated by the Service. For many years the Indian day schools have been content with educational methods and goals that have become obsolete in the better white American schools. During the preceding administration the academic and technical standards of the teaching personnel had been greatly improved, but the objectives of Indian education had remained relatively unrealistic, relatively disconnected from the environment in which the graduates of Indian schools must make their lives. Now a new orientation of Indian day-school methods and purposes has been initiated.

Gradually these schools are becoming community centers, focal points of community activities and organization. Gradually they are beginning to train the young in better methods of play and work in the Indian environment, to bring to the children—and their parents—the skills necessary to gain a better living and a fuller life through the effective development and use of Indian resources by the Indians.

The Indian educational policy of the past adopted the solidified methods and aims of the kind of rural white education which has since become obsolete in the more fortunate areas of white life, and it clung to them practically without change until the preceding administration began to raise the level of the teaching personnel, teaching methods, and supervision. But the aims and objectives were not changed materially, except to adapt them to the prevailing style in which the college-entrance examination is the alpha and omega.

For many years to come most of the tribes will continue to live as several million white rural families are living, depending on the land that is theirs to produce subsistence-plus. Therefore, it should be the aim of Indian education, at least for the next generation, to deliver Indian adolescents fully and practically prepared to make the most of their available resources, adolescents in whom the tie that binds them to their homeland has been strengthened rather than broken, Indian youths with wide horizons, bilingual, literate, yet proud of their racial heritage, to become completely self-supporting, even though going without some of the mechanical accessories of the present day.

At the same time, Indian education must reckon with the fact that there will be Indian children for types of employment removed from the Indian reservations; also that there will be Indian children of more than ordinary ability and talents who must be given an opportunity to develop this ability and these talents to the highest possible point for use either in the white competitive world, in Indian life on the reservation, or in the Federal Indian Service. For the last group, the Indian Reorganization Act opened the door wide by removing the civil-service bar of high academic requirements as a prerequisite of employment. As a result of this reform, there has been a steady influx of new Indian employees into the Indian Service during the fiscal year.

Nonreservation secondary schools.—In the effort to make Indian schools more serviceable to Indian community and reservation life, a general statement of policy relating to Indian secondary schools was prepared, together with a definition of their aims, admission requirements, and general training courses. Definite steps have been

taken by the superintendents and staffs of their schools to modify and develop their programs in conformity with this policy. Emphasis is being placed on training in specific skills which will be of use to Indian boys and girls in making a living in their own communities.

During the present year the nonreservation vocational schools have established intensive short courses for selected Indians. Four highly successful 5-week courses for Indian tractor operators and mechanics were conducted during the spring months. The men enrolled were carefully selected from emergency conservation, irrigation, road, and agency personnel. They received practical training from instructors furnished by manufacturers and distributors of tractors, graders, and air compressors. These courses are forerunners of a variety of intensive short courses planned for Indian vocational schools.

Attendance in boarding schools.—The Indian boarding schools, including reservation and nonreservation institutions, have enrolled in the past a considerable number of pupils who properly were not boarding-school cases. In keeping with the new policy of caring for the education of the Indians through local facilities wherever possible, instructions have been issued defining the types of boys and girls to be admitted. The responsibility for selection is placed jointly on the jurisdiction superintendents and their staffs and on the heads of the schools. The regulations state:

> These boarding schools are primarily for (a) children who cannot be furnished with suitable education near their homes either in Indian or public schools; and for (b) homeless children or children from unfit homes who live in districts where there are no social agencies equipped to make the necessary adjustments for them. . . .
>
> Poverty in the home will not be considered sufficient reason for admission unless there are no resources from which the distressed home may obtain relief. The problem of economic security is not solved by removing children from their homes. A more basic approach to the problem must be made in an effort to build up means of family support supplemented, if necessary, by work relief or by direct relief.
>
> Children who have been adjudged by competent authority to be feebleminded or delinquent will not be admitted to boarding schools, as such children require specialized care not available in schools which are set up for normal children. Problem children and those who appear to be mentally subnormal should not be recommended for enrollment without diagnosis by competent persons, nor should problem children in boarding schools be dismissed without such diagnosis. . . .

As an experiment in determining how the work in some of the reservation boarding schools, which usually include students of the first nine grades, may be redirected in order to serve more closely the needs of the Indians, two agricultural apprenticeship courses were started in April and are now in successful operation. Both are in

Oklahoma, one at the Fort Sill and the other at the Riverside school. Twenty students, boys and girls who were finishing the ninth grade, have been held in school for a 20-months' continuous course in practical agriculture. To each boy has been assigned some 5 acres of farm land. He is cultivating his plot wholly by himself, and growing those crops he would raise for his family on his own farm. To each has been assigned 1 cow in the dairy herd and 1 sow. In addition to the practical fieldwork, requiring 6 or 8 hours a day, the boys are studying in the library and conference room practical materials needed for their work. Each girl is undertaking similar work, cultivating a small kitchen garden, taking care of an individual pen of poultry, making butter and cheese, and learning to clean and bunch vegetables and to cure meats and make sausage.

Trachoma school.—Because of the large number of trachomatous children among the Apaches, all seriously affected children of school age were placed (October 1934), with their parents' consent, in one center, the Theodore Roosevelt Boarding School at Fort Apache.

Here intensive treatment was provided. Preventive as well as therapeutic measures were stressed with the view that the boys and girls would carry back into their homes practical means of avoidance of the spread of the disease among adults as well as among babies and children. Play, scholastic activities, and treatment have been happily combined in the school, and while it is too soon to judge fully the results of the demonstration, there is sufficient evidence of the success of the effort to warrant continuing the trachoma school at Fort Apache and to plan for the development of other trachoma schools.

Health institutes.—To prepare Indian girls of the Southwest to assist trained nurses in the prevention of disease and the care of the sick, two 5-week health institutes have been offered at the Santa Fe Indian School during the summers of 1934 and 1935. Two hundred and ten young women have availed themselves of this opportunity, 15 of whom are now engaged as health aides in Navajo community schools. It is proposed to place others in suitable positions as soon as funds permit.

As all of the girls admitted to the courses were of marriageable age—and some of them mothers—thorough, practical courses were planned with the view of preparing them—as wives, mothers, and neighbors—to promote health and to prevent disease.

Eager, intelligent interest was displayed by the students, and the project has met with the hearty approval of the adult Indians.

It is proposed to continue these institutes in the Southwest and to establish training courses in health for other Indian girls, as circumstances permit.

Library survey.—Miss Florence Bradley, whose services were lent by the Metropolitan Life Insurance Co., made a 1-month study of Indian Service libraries. Her report will be an important aid toward the better use of our limited school and agency library facilities.

Special summer schools.—For the double purpose of giving boarding-school teachers an opportunity to become thoroughly acquainted with Indian life and for the help of Indian children attending public schools, over 100 teachers were assigned to conduct some 40 summer schools on reservations or in Indian communities. Public-school buildings, churches, or other available quarters were used. The schools were open for 6 to 8 weeks. The teachers assigned were largely those teaching academic grades. Pupils of all ages were enrolled. The teachers broke away from standardized and formal education, adopted certain activities as a basis for their work, with reading, writing, and arithmetic as supplementary work based on the project activity. In all of these schools vigorous attention was given to teaching practical cleanliness and health.

Government day schools.—Indian Service day-school attendance has risen from 5,063 in 1932 to about 9,000; but to an outstanding degree it is the qualitative, not the quantitative, change in day schools that calls for notice. In the past they were largely replicas of public schools. They now, by and large, serve as pioneering agents, going far beyond the public schools in the flexibility of their curriculums and in the many-sidedness of their uses. Efforts are being continued to develop these institutions to concern themselves not only with the practical education of the children enrolled but with educational and welfare activities for the adults in the territories served by them. Increased effort has been made and will continue to be made to relate their work to the Indian homes and communities. Emphasis is placed on good health and on good living habits. Shopwork for boys, for the making of things useful in the homes of the Indians or in connection with their labors, is emphasized; likewise, home-making activities for girls is a prominent part of the schoolwork.

The possibilities of a day school as a community leaven are shown in a report of an observer outside of the Indian Service, Mr. S. L. Smith, director of the southern office of the Julius Rosenwald Fund. He visited a group of special Indian schools in the State of Oklahoma. The following is paraphrased from his report:

Kallihoma school, Pontotoc County.—This is a community far back in the country, where the Indians, mainly Choctaws, are poor in wealth and, until recently, in spirit. They had no school. They determined to have one. They raised among themselves $1,300 for the project. An able Indian carpenter assumed the leadership. An expert from the State schoolhouse building division laid off the site and made plans for the school, the teachers' home, the community house, the blacksmith shop, and garage.

An old frame hotel in the nearest city was bought for a very small amount, carefully torn down by the Indians of the community, and hauled to the school site. From this salvaged material the new buildings were erected. The Indians themselves did the work. It was done in 1933.

A Klamath Indian is the principal. He not only instructs in the classroom but directs community activities, practical shopwork with the men and boys, and his wife (a Cherokee Indian) directs, in the rustic community house, work with the women. It is equipped with sewing machines and kitchen utensils, including two steam-pressure cookers for canning meats, vegetables, and fruits for the school and the community. There is a demonstration garden at the teacher's home, a cow, good hogs, and purebred chickens. There is a radio and a victrola for the use of the community and in the school a piano.

A stone reservoir is built on the hillside above the home, which is supplied with water from a deep well and a force pump.

In connection with this school project the Federal Government contributed only $300 to help buy furniture and equipment and expended $125 under the civil-works program on the community house. The plant so excels the white school in the neighborhood that the whites are now asking to attend the Indian school. The white school has since employed the Indian carpenter to build a teacher's home, using the same type of material in construction as that used in the Kallihoma community house. The efforts of the Indians toward self-improvement and self-expression have commanded greater respect from the whites in the community and therefore a more cordial relationship. The influence of the school activity is spreading to the Indian homes; several new houses similar to the attractive log community house have already been erected. The social force created in this building project is increasing in momentum and is reconstructing the life of the community and integrating these people into useful citizenship. If the Government had planned and built this plant, putting into it $6,000 to $7,000, it would have been completed sooner, but it would have robbed the Indian community of the rich opportunity of self-development and culture which cannot be handed down but must be built up.

Navajo community day-school Indian personnel.—In planning for the 46 new community day schools in the Navajo jurisdiction, young, intelligent Navajo men and women have been selected as assistants, housekeepers, health aides, etc.

This is a departure from the usual Indian Service procedure but is a distinct step toward the desired goal whereby Indian schools will be manned by Indians. Though still in the experimental stage, the Indian personnel of about 100, selected and placed from 375 applying (before June 1, 1935), gives promise of most satisfactory service.

The success of the venture will lie in our ability to provide sufficient intelligent, sympathetic, trained supervision to assure the development of these untrained but eager Indian workers.

Scholarship loans.—During the year Congress appropriated under the provisions of the Indian Reorganization Act $175,000 for scholarship loans. This is not available to the members of any of the tribes which have voted not to accept the provisions of the act. Of this amount, $35,000 is available for loans for education in high schools and colleges and $140,000 for training in recognized vocational schools. In order to carry out effectively the provisions of this act

a scholarship loan and employment committee has been organized in each jurisdiction. This committee is actively searching out able and needy Indians who should receive further education than can be obtained near their homes or in the Indian nonreservation vocational schools. Loans for the coming year are made on the basis of the recommendations of these committees.

During the year 1934–35, with money made available previously by Congress, scholarship aids were granted Indian students as follows: $14,887.87, nonreimbursable, for tuition and fees in nonsectarian institutions; $13,310, reimbursable loans from Federal funds; $5,496, reimbursable loans from tribal funds; and 93 working scholarships covering board and room for nonreservation boarding schools while attending nearby colleges and other institutions. With these aids 204 Indian students were enrolled in colleges and vocational schools throughout the United States, in most instances attending the institutions nearest their homes. They were pursuing a wide variety of courses, as is indicated by the following distribution: Teaching, 64; engineering, 15; commercial studies, 14; nursing, 13; forestry, 12; home economics, 12; agriculture, 8; art, 8; business administration, 8; physical education, 7; mechanics, 6; social work, 6; music, 5; law, 4; medicine, 4; carpentry, 3; electricity, 3; journalism, 3; architecture, 2; aviation, 2; ministry, 2; baking, 1; beauty culture, 1; and dramatics, 1.

Federal-State relations.—Under the Johnson-O'Malley Act, passed in April 1934, contracts have been made with two States—California and Washington—under which the States assume, in consideration of funds provided by the Federal Government, the obligation to educate all the Indian children within their boundaries. Negotiations are under way at the present time with several other States, and it is expected that within the next year similar contracts may be made by at least two of them to assume all, or at least part, of the burden of the education of Indian children.

Education of natives of Alaska.—The Office of Indian Affairs conducts 99 day schools and 2 boarding schools for Indians and Eskimos in Alaska. These have a total enrollment of about 4,300 pupils. Due to numerous delays in securing teachers, 4 schools were closed during the year and 7 others were in operation for a few months only.

A second supervisor of elementary education and a supervisor of social welfare were added to the Alaska school staff.

All the day schools are of the community type, serving adults as well as children. Most of them are in isolated villages where the school is the center of all community activity. The teacher must, of necessity, serve as physician and nurse, and supervisor of gardens, of cooperative stores, of reindeer activities, of marketing of

furs and purchasing supplies, of recreation, of economic enterprises and village government. He must take a real interest in the people he serves and be able to win and hold their confidence.

There is immediate need for replacement of worn-out shacks which, in many instances, are now serving as schoolhouses and teachers' quarters. Unless new buildings are provided within the next year or two, some schools will have to be abandoned altogether.

There are at least 25 villages, with 25 or more children of school age in each, which have never been provided with schools. The Federal Government has a duty to these Indian children which it has long ignored. They are entitled to an education.

We are trying to make the actual teaching in the schoolroom seem interesting and vivid to the native children. Text material is constantly being revised so that it will deal with objects familiar to the Alaskan natives, and the subjects taught are those which will fit the child for better living in his own environment.

APPLIED ANTHROPOLOGICAL RESEARCH

During the current year considerable success was obtained in the utilization of the results of anthropological and other social-science research in relation to practical problems of Indian administration. Through Dr. Duncan Strong, loaned by the Bureau of American Ethnology, Smithsonian Institution, certain studies essential to the organization and functioning of the new tribal constitutions were instituted. A number of ethnological collaborators were employed in this work. Efforts were concentrated on the various Sioux Reservations, among certain of the Pueblo groups, and elsewhere. One of the purposes of these studies concerned the determination of natural Indian communities within the reservations which could be fitted into the new constitutions as drawn up by the Indians.

Several projects in connection with the practical utilization of Indian languages were also prosecuted. These included courses for interpreters, Indian Office personnel and interested Indians on the Navajo Reservation under the direction of Father Berard Haile, Dr. Edward Sapir, and Dr. Gladys Reichard, respectively. In order to enlist the cooperation of the field personnel in certain aspects of anthropology valuable in their professional duties, recommendations were sent out concerning anthropological literature and in regard to summer courses in the social sciences which it might be possible for them to attend. For the Southwest, Miss Ruth Underhill was engaged to give a series of courses involving Indian background, and a large group of Indian Service employees took the 6 weeks' course at Santa Fe. The course was repeated in the summer of 1935 under the auspices of Sherman Institute.

HEALTH

Staff and equipment.—Health work among Indians is carried out by a field personnel of 141 full-time physicians, 85 contract physicians, 13 full-time dentists (including 1 detailed to Alaska), 13 part-time dentists, 100 field nurses, 362 hospital nurses, and 645 other employees. The appropriation for health work in 1935 totaled approximately $3,486,085.

During the fiscal year 92 hospitals, with 3,665 beds, and 14 sanitoria, with 1,197 beds, were in operation. The tuberculosis sanitorium at Onigum, Minn., burned. All patients were transferred safely to the State sanitorium at Ah-Gwah-Ching, and there were no casualties as a result of the fire. Fortunately, the new Government wing at the State sanatorium at Ah-Gwah-Ching is completed, accommodating 117 Indians patients, treated on a contractual basis with the State board of control.

The only new hospital under construction at the present time is that on the Colville (Wash.) Reservation.

These figures show the need.—During the fiscal year the Indian birth rate was 21.2 per thousand; the death rate, 14.7; infant death rate under 1 year of age, 120.2 per thousand infants born, exclusive of stillbirths. These figures might be compared to the census of 1932 of the registration area of the United States, in which total births were 17.4 per thousand; deaths, 10.9; infant mortality, 57.6. This is indicative of a larger birth rate among Indians than among the general population, but with a much higher death rate.

Of the total number of Indians examined in hospitals and outpatient clinics, 28.1 percent were found to have tuberculosis, all forms, active and inactive; 32.3, trachoma; 17.8, venereal diseases. These figures are sad evidence of our three major health problems.

Health surveys and institutes.—During the year the Phipps Institute conducted a tuberculosis survey at Tucson, Ariz., in which 508 Indians were examined, of whom 402, or 79 percent, were found positive to tuberculin. Sixteen had open pulmonary tuberculosis.

The American Social Hygiene Association conducted a series of institutes in venereal disease control for nurses and physicians in the Navajo area and at Carson School, Nevada. These institutes were so marked a success that they will be continued during the next year. Dr. Walter Clarke, of the American Social Hygiene Association, has been appointed special consultant to the Indian Office in venereal disease at a dollar a year, and Dr. Esmond R. Long, of the Phipps Institute, has been appointed special consultant in tuberculosis at a dollar a year.

In cooperation with the Cattaraugus County Health Unit, New York, a tuberculosis survey was conducted among Indians on the

Alleghany reservation. This survey is not yet completed; over 500 have so far been examined, with 78 reported as positive for tuberculosis but inactive. This incidence among the group so far studied is much lower than was thought to exist.

A clinical survey of disease conditions among Indians was made in Adair County, Okla. The Indians cooperated willingly and complete physical examinations were given to 1,083, 52 percent of whom were full-blood Cherokees. Eighty percent of those examined were in need of dental treatment; 35.6 percent had diseased tonsils; and 10.2 percent enlarged thyroids. On the other hand, active trachoma was found in only 1.2 percent of the cases examined, and venereal disease as shown by a positive Kline test was found in 2.6 percent of the 638 cases so examined. The tuberculosis survey is not yet finished as X-ray examinations are being used to follow up the diagnoses among the 75.3 percent positive reactors of the 743 who were given the Mantoux test. It is of interest to note that the positive reactors increase from 40.9 percent in the first 5-year-age group to 94.9 percent in those over 50 years of age.

During the period from March 20 to April 5, 1935, inclusive, a general health survey was undertaken for the Seminoles of Florida. The purpose of the survey was to ascertain the physical condition and health status of this group of Indians with a view of determining their health needs. For comparative purposes the examination of a like number of Indians, whites, and Negroes was made. The survey was a combined effort of State and Indian Service health organizations. Owing to the reluctance of most of the Indians to come for examination to the clinics, it was impossible to examine more than a very small group, altogether only 46 Indians. This group is too small to be of any considerable value in determining the health status of these people, but the survey has been of value in that much of the health information corroborates the conclusions of medical observers and agency records of the past. It certainly does not indicate any alarming health condition. It bears out the observation that there is no trachoma, and a very low morbidity for tuberculosis, both of which are major health problems among other Indian tribes. Venereal disease was shown to present no alarming problem, but under existing circumstances may be expected to increase. The prevalence of disease among the Indians, whites, and Negroes, as shown by examinations, is indicated in the table below.

	Indian	White	Negro
Total number:			
Examined	46	41	17
Positive Mantoux test	4	4	1
Positive syphilis	1	2	0
Malaria	0	0	0
Trachoma	0	0	0

The outstanding conclusion reached as a result of the survey was that the prevalence of disease among the Seminoles of Florida is no greater than that among either the whites or the Negroes in a like economic status in the same neighborhood, except that the Indians were shown to have more dental defects than either of the other two groups.

Cooperation with other organizations.—Beside the American Social Hygiene Association and the Phipps Institute, the Indian Office is cooperating with the Carnegie Institution of Washington in a nutritional survey among the Pueblo Indians at Albuquerque, and is continuing in its activities in connection with the State boards of health in Florida, North Carolina, Wisconsin, Minnesota, Montana, and California.

Cooperation from Public Health Service.—Continued cooperation is maintained by the Public Health Service in the detail of personnel to the Indian Service. This includes medical officers of the Public Health Service as well as sanitary engineers, who are rendering valuable service in inspection of water supplies and sewage disposal systems.

Nursing service.—A much needed increase of nurses in the hospital service has been made during the past fiscal year. But we are still understaffed in many of our institutions, and the use of the hospitals increases. As more serious cases come to the hospital, the variety of nursing care has grown more complicated.

The most interesting development in the nursing work has been the plan to give instruction to Indian girls to prepare them for hospital work as aids to nurses. From this type of employment they may go on into professional training or they may continue in the Indian Service hospitals, giving the simpler types of nursing care under supervision of the graduate nurses.

The following interesting figures denote the increase of employment of Indian girls who are graduate registered nurses. Late in the fiscal year 1934 we had 22 Indians on the nursing staff. There are now 42 employed. It has been our policy to encourage training in white hospitals by arranging for nursing scholarships, by selecting suitable high-school graduates as trainees who have ability and interest in helping in the boarding-school infirmaries. Employment after graduation can be assured and we are finding these young women well qualified not only to serve but also to educate their people in accepted health practices.

The field nursing program in control of communicable disease, maternity and infancy hygiene, and health supervision has been continued More of this type of service is in demand. The Indians are aware of their need for guidance and instruction. There is much yet to accomplish in order that all may be served.

A survey of the quality of nursing care was made by the consultant nurse of the United States Public Health Service, and some of our needs were pointed out.

To improve the type of care in our hospitals, and to develop better service in the field, are objectives that can be accomplished only by constant checking of existing work and by numerical increase in staff where the patient-nurse ratio indicates the need.

Dental service.—The isolation and distribution of the Indian population make it impossible to furnish adequate dental service with the small number of personnel employed. Many jurisdictions are visited by the dentist only once in 2 years.

A number of the full-time dentists who serve several reservations and Indian schools have been supplied with light delivery cars to facilitate transportation of their equipment and to expedite their travel. One mobile dental clinic was purchased during the year for use in the Pueblo country.

Alaska medical service.—Early in the fiscal year Dr. Vance B. Murray was detailed by the United States Public Health Service as director of the Alaska medical service, with headquarters at Juneau, Alaska.

Dr. Murray proceeded at once to Alaska, taking with him his personally owned airplane for use in traveling throughout Alaska on trips of investigation and inspection. By this means, Dr. Murray was enabled to visit all of the six hospitals and every village nurse in Alaska within a period of 6 months. During his travels he personally rendered needed medical treatment to the natives in each village on his itinerary, and secured much valuable data with reference to health conditions among the natives and the medical work conducted by the Indian Office in Alaska.

On March 31, 1935, Dr. Murray was transferred from Alaska by the United States Public Health Service and severed his connection with the Office of Indian Affairs. His successor had not been selected at the close of the fiscal year.

The outstanding event of the year was the influenza epidemic, extending from Ketchikan, in southern Alaska, to Point Barrow, the northern tip of the continent. While this epidemic was not as virulent in character as that of 1918–19, the total number of deaths was probably more than 200, one village in southeastern Alaska having 40 deaths. Our public-health nurses, stationed in some 25 villages, rendered splendid service in treating cases, and the Territorial Public Health Service rendered fine cooperation and assistance in controlling the epidemic. The University of Pennsylvania Medical School sent two physicians to Alaska to collect specimens of sputum and virus for examination in connection with a scientific study of the disease.

The only expansion of the service was the appointment of two additional traveling nurses—one serving the Eskimo villages on the banks of the lower Kuskokwim River and the other serving villages on the Lower Yukon River.

No progress was made in securing new hospitals so badly needed, especially for the treatment of tuberculosis among the Indians and Eskimos. No further time should be lost in the construction of hospitals at Bethel on the Kuskokwim River and at Ketchikan, in southeastern Alaska. In addition, the need for hospital construction at Seward, Kanakanak, and Kotzebue continues urgent.

More dentists and nurses are sorely needed and should be authorized as soon as possible. Also we need additional funds for the hospitalization of Indians in private institutions.

With proceeds from the sale of Christmas seal stamps enough money was raised by the National Tuberculosis Association to initiate public-health measures against this disease in Alaska. Plans are under consideration now.

INDIAN LAND AND MINERALS—TRIBAL CLAIMS

New land as the first essential in rebuilding.—The task of consolidating lands checkerboarded through allotment, of salvaging the allotted heirship land, and of restoring to many tribes enough of balanced landholdings to make a permanent subsistence economy possible has been discussed in the two preceding annual reports. Perhaps nothing else in Indian need is so fundamental or so difficult. Land acquisitions are now going forward through submarginal grants, later mentioned in this report; through the land-purchase fund under the Indian Reorganization Act, elsewhere reported on; and through the use of tribal funds belonging to the Pueblo Indians, paid them in compensation for lands previously lost through Government dereliction. Some additional land purchases, it is hoped, will become possible through the hoped-for new rehabilitation project earlier mentioned.

Indian land acquisition differs in a significant way from the acquisition of land for such other uses as national forests, national parks, game refuges, and wilderness areas. The procurement of land for Indians is but an incident in the reconstruction of the individual and tribal economy of groups with the most varying backgrounds, situated among the most varying present conditions. Land acquisition, if unconnected with a feasible scheme of economic operation, is of little value to Indians, or of none at all. Indian initiative, and some amount of definite sacrifice by Indians, is quite essential if the land-acquisition program is to be humanly successful. Therefore the land program of the Indian Service interrelates itself with every other

service function and with the whole range of Indian life, and many other functions of the Indian Service are intimately linked with the land-acquisition program.

New Indian lands.—Under the act of June 14, 1934 (48 Stat. L. 960), 265,446 acres in Arizona have been added to the Navajo Reservation by purchase or exchange at a total cost of $358,312. Seventeen tracts, totaling 52 acres, within the Pueblos of Picuris and Nambe have been acquired for $6,355. Home sites for two members of the Capitan Grande Band of Mission Indians, and the Baron Long Ranch of about 1,600 acres to be occupied by about 80 members of the band, have been purchased for a total of $129,600. A tract of 155 acres near Burns, Oreg., costing $11,592, was acquired for the benefit of the Paiute or Snake Band living there. Under acts of Congress, 557 acres have been added to the Rocky Boy Reservation, Mont.; 8,300 to the Zuni Reservation, N. Mex.; and 75 acres of the former Whipple Barracks Military Reserve, Ariz., and 80 acres in Utah were withdrawn for the use of Indians.

Under the provisions of the National Industrial Recovery Act, approved June 16, 1933 (48 Stat. L. 195), the Indian Office has cooperated with the Federal Emergency Relief Administration in the purchase of land for the relief and benefit of the Indian population. During the year options were obtained on 1,655,384 acres, the asked price being $6,585,219. Of this total, options on 1,070,169 acres have been accepted, at a cost of $2,928,241. It is hoped that these purchases will be consummated under the direction and supervision of the Resettlement Administration, which has taken over the duties of the F. E. R. A. as to land purchases.

These lands are situated in the following States: Michigan, Wisconsin, Minnesota, North Dakota, South Dakota, Montana, Idaho, Oregon, and New Mexico. Options have also been secured on lands in Washington, California, Nevada, Utah, and Oklahoma.

Extension of trust periods.—The period of trust was extended for 10 years by order of the President on allotments made to Indians of the following tribes and bands: Torres Martinez, California; Crow, Montana; various tribes, Oklahoma; Klamath, Oregon; Crow Creek, South Dakota; Colville, Spokane, and Yakima, Washington.

Fee patents; sales.—Only 12 applications of Indians for patents in fee, covering 1,764 acres, were approved during the year. No new sales of restricted Indian lands have been made except a few in Oklahoma and on some reservations which voted not to accept the Indian Reorganization Act. The work of completing sales of allotted Indian lands made on the deferred-payment plan some years ago is progressing, final payments having been made on 67,520 acres.

Thirty-nine forced patents in fee previously issued without application were canceled under the acts of February 26, 1927 (44 Stat.

1247), and February 21, 1931 (46 Stat. 1205), bringing the number of such cancellations to 440. Suits have been instituted involving 75 allotments on which fee patents were canceled under the above-mentioned acts to cancel tax assessments, tax deeds, and sales, and to refund taxes paid by the Indians. In two recent cases of this kind judgments were recovered by the United States and all tax assessments, tax sales, and deeds were invalidated and taxes paid by Indians were recovered.

Five Civilized Tribes titles.—Forty-one suits were instituted to clear title to restricted lands belonging to allottees of the Five Civilized Tribes and 25 favorable judgments were obtained during the fiscal year. There are now pending about 50 suits involving the title to these lands belonging to restricted allottees.

Minerals.—There was considerable increase in the activity of leasing for oil and gas mining purposes in Oklahoma during the year. The income of the Osage Indians from their oil and gas leases was almost $5,000,000, bringing the total received by them from that source to slightly more than $252,700,000. Oil is being produced and marketed on the Navajo Reservation in New Mexico and on the Blackfeet Reservation, Mont.

There is little change in activities relative to lead and zinc mining at the Quapaw Agency, Okla., the Department having granted permission for suspension of mining operations on several of the leases.

Litigation.—Approximately 98 cases are now pending in the United States Court of Claims involving Indian tribal claims. Reports were made during the year to the Department of Justice on 19 of them. The court rendered decisions adverse to the Indian tribes in 7 cases. In one suit—*Blackfeet, Blood, etc., Tribes* v. *United States*, No. E–427—the Indians recovered a judgment for $622,465.57. One case reached the Supreme Court of the United States—*United States* v. *Creek Nation*, No. F–205—in which the judgment of the Court of Claims in favor of the Creek Nation was reversed with directions for such further proceedings as might be necessary to bring the award of compensation into conformity with the Supreme Court's decision.

Litigation involving the Jackson Barnett estate is still being carried on, and in accordance with one decision the Riggs National Bank has turned over to the Secretary of the Interior in trust for the estate the sum of $7,938.37 and securities of the aggregate face value of $268,550. There are about 200 persons claiming to be Jackson Barnett's heirs.

Sixty-two reports were prepared on various bills introduced in the Seventy-fourth Congress, first session, relating to Indian tribal and individual claims, and 12 involving membership rights with various tribes.

Congress authorized an appropriation of $79,002.19 to compensate individual Sioux Indians in connection with their claims for lost allotments adjudicated under the act of May 3, 1928 (45 Stat. L. 484).

INDIAN UNIT OF THE NATIONAL RESOURCES BOARD

As a part of the activities of the National Resources Board, a special Indian unit was formed, consisting in part of regular Indian Office personnel, and in part of employees hired especially for this work by the National Resources Board. An extensive survey was made of the present total Indian resources, and the attempt made to establish a standard by which the inadequacy of these resources might be measured. An estimate of the probable land and equipment needed in each reservation to enable the Indians to maintain a decent standard of living was set up.

An Indian land research unit was placed in the northern Pueblos jurisdiction to make an intensive study of the economic situation of the region in connection with the Soil Conservation Service. Maps were prepared of the Tewa Basin area showing the extent and type of erosion, type of vegetative cover, amounts of alienated agricultural land within present Pueblo grants, proposed improvements in land management, areas to be purchased for Indian use, and present Indian agricultural holdings in detail. Studies were made of the present economic status of the Tewa Indians, the present condition of Indian arts and crafts, health conditions, the effect of relief work on the economic and social balance, political organization, and the effect of community houses in improving Indian relationships with the outside world. In order to orient these studies properly in their setting, studies were also made of the surrounding Spanish-American villages, the sheep industry of New Mexico, and the effect upon the tax structure of the purchase of new lands for Indians. Recommendations were made as to more intelligent economic planning.

SOIL CONSERVATION

Soil conservation work, first instituted on the Navajo Reservation, has been extended to many reservations in cooperation with the Soil Conservation Service of the Department of Agriculture. In the Navajo and Pueblo areas, the perfect functional unification of the Indian Service and the Soil Conservation Service has been accomplished. The soil conservation work of the Indian emergency conservation work has been continued in Oklahoma, the Dakotas, Montana, and southern Arizona, as well as in the Pueblo and Navajo region.

Soil conservation operations are only in part engineering works. They include revegetation, range control, stock reduction, and, in the Navajo area, genetic work with a view toward the production of a Navajo type of sheep. The soil conservation interest has penetrated deeply into the curricula and project activities of many of the day schools, and of the Fort Wingate boarding school.

EMERGENCY CONSERVATION WORK

Emergency conservation work continued throughout the fiscal year 1935. The liberalized regulations which gave the Indian Service the supervision of this work on Indian reservations, including the disbursement of funds and employment of personnel, were also continued. Wholehearted cooperation has been given by the Department to all of our efforts, and Director Fechner has given sympathetic consideration to all requests made and has cordially cooperated in advancing the work.

A total of $10,000,000 was allotted—$7,500,000 under the appropriation in the act of March 31, 1933, and $2,500,000 under the new act.

Enrollment and employment.—It is estimated that approximately 26,000 to 27,000 Indian enrollees have been employed since work began in 1933 through June 30, 1935.

The total average daily number of men on the pay roll during the past 2 years has been 9,763, a total of 2,751,964 calendar days. Some of the agencies staggered employment.

The number of supervisory jobs was kept under strict control. Indians were given preference and enrollees were taken over into them as rapidly as they could be trained. It was difficult to find Indians technically trained as foresters, engineers, etc., but a large number of group foremen, mechanics, machine operators, camp assistants, and assistant foremen have been Indians. The following table shows the number of Indians and non-Indians in supervisory and "facilitating" positions:

	Indians	Whites		Indians	Whites
July 1934	666	515	December	675	490
August	753	573	January 1935	649	483
September	771	593	February	598	472
October	709	513	March	581	406
November	752	516			

All work stopped after March 31, due to uncertainty as to the continuance of funds. Only skeleton crews were kept at work until definite instructions were given after the passage of the act of April 8.

Indians were permitted to work from camps or from their own homes. The cash allowance was $30 per month, with quarters and

food in camp. If Indians lived at home and subsisted themselves, they were allowed commutation for quarters and rations in the sum of $12 per month. Effective April 1, 1935, this allowance was increased to $15 per month by Director Fechner, due to the increased cost of food supplies.

The family camp was encouraged wherever possible. This arrangement was advantageous to the Government and beneficial to the Indians. The concentration of the Indians in these camps permitted the regular employees of the Service to visit them frequently and to help them in sanitation and health problems, recreation, and other activities.

Health and accidents.—A few accidents were reported, some illness, and very few deaths. Special stress was placed upon safety. First-aid classes were held and a number of the Indians received certificates for completion of the course. As a general rule, the health of the Indians was tremendously benefited.

Production accomplishments.—A variety of work projects was undertaken on 78 reservations in 23 States. Soil erosion has long been recognized as one of the most destructive results of uncontrolled grazing, and plans were made for the development of water so as to distribute the use of forage more widely, and in the building of check dams and other structures to prevent the washing away of rich soil. While improvements of this nature are particularly necessary in Arizona, Colorado, Oklahoma, New Mexico, and Utah, there is urgent need for water development in all States lying between the Mississippi River and the Rocky Mountains.

A statement of the major activities undertaken during the period, July 1933 to March 31, 1935, follows:

Telephone lines	miles	3,489
Firebreaks	do	1,042
Truck trails	do	3,631
Horse trails	do	999
Fences:		
Range	do	3,469
Other than range	do	745
Springs and well development	units	2,444
Reservoirs	do	1,987
Insect-pest control:		
Tree	acres	163,013
Other	do	342,915
Rodent control	square miles	9,224
Check dams, erosion control	units	52,398
Bridges:		
Vehicle	do	458
Stock	do	175
Corrals	do	107
Elimination of useless range stock	head	242,537

Indians have benefited in morale as well as in health. Reservation values have increased. Another important aspect: The production was definitely integrated with the developmental program for each reservation. Tribal authorities have planned with E. C. W. authorities, and passed upon projects wherever tribal organization existed.

Disbursements.—Of the sums disbursed by the Indian Emergency Conservation Work during the past 2-year period ending March 31, 1935, the pay roll (including shelter and subsistence, commutation thereof, or team hire and services) accounted for 71.8 percent. Purchases of heavy equipment accounted for 5.5 percent; while purchases of supplies for field work accounted for 13.2 percent. Of the total pay roll 87.3 percent went to Indian enrolled men or to Indian supervisors and skilled laborers. All but 18.7 percent of the total pay roll went to enrolled men. Purchases of equipment were kept to a minimum consistent with efficient work; however, the equipment definitely increased the amount of work that was accomplished.

Education.—While no formal educational program in the academic sense was offered, learning by doing was emphasized, and night classes were held on most of the reservations. The instructors were usually selected from among the supervisory personnel. Teachers from the regular Indian Service donated their time, as did State and county teachers in many instances. Technical employees at the various agencies willingly volunteered their services for instructional work.

During the next 2 years we plan to undertake a more extensive educational program, stressing particularly vocational activities. This will be similar to the training offered to C. C. C. enrollees in white camps, modified to meet the needs of each reservation.

Opportunities for leadership.—Training of Indians for leadership has been a major objective from the first, commensurate with competent performance and adequate work.

Our personnel set-up is so arranged that an Indian commencing as an enrollee at the minimum salary may, by application and industry, progress through various minor positions until he reaches the higher brackets, such as group foreman, and even project manager.

Savings accumulated.—The wages of Indians have been saved by withholding, in most instances, part of the earnings. Approximately $1,180,000 has been deposited during the past 2 years as individual Indian money. Some of this, of course, has been withdrawn by Indians to meet their needs, but a substantial balance remains available for use by the Indians later on.

"*Indians at Work.*"—This mimeographed semimonthly magazine has been in increasing demand, not only by Indians and Indian Service

personnel but also by schools, organizations, and individual friends of the Indians. We have been forced to increase the number issued to 12,000 to meet the demand.

FORESTRY

The activities of the Forestry Division were directed chiefly along three major lines. In each of these one of the most heart-warming features of the work was the steadily mounting interest which the Indians on almost all of the reservations have taken in range management and forestry.

In range management the Forestry Division has stressed three features during the past year: First it has tried to reduce the amount of livestock grazed on all ranges to their carrying capacities, conservatively estimated. Except on a few southwestern reservations where the livestock is almost entirely Indian owned, this goal has been well achieved. Second, it has helped the Extension Division in gradually replacing with Indian-owned livestock the white-owned livestock to which the bulk of most of the Indian reservations is now being leased. Third, it has tried to get the Indians to take an increased part in the decisions concerning the management of their range, while at the same time making sure that the technical phases of range management remain under technical supervision. The most serious obstacle to efficient range administration has been the lack of personnel both in the field and in the office, a lack which has made it impossible effectively to prevent trespass, and on many reservations has caused the granting of permits and payment to the Indians to lag months behind the actual use of the range.

The past year has seen the recommencement of activity on several large timber sales which had been dormant for a number of years. At present there are 28 active timber sales on Indian reservations on which the volume of timber cut during the past year amounted to approximately 223,000,000 board feet. There were also 12 timber sales on which no activity took place during 1935, but which have not been canceled.

We have definitely taken the position that no matter how good the excuses may seem, we will permit no more timber sales unless the buyer will practice the best silviculture we know. As a result of this policy we inaugurated a group selective logging system in a redwood sale on the Hoopa Valley Reservation, which perhaps represents the first real forestry in the redwood type since the ox-team days. On the Quinaielt Reservation, with its huge hemlock stands, we have refused to permit a modification of one contract unless both the Indians and the contractor agree to a group selection sys-

tem in this beautiful timber type. With the resumption of timber cutting on the Nett Lake Reservation we are demanding varying kinds of selective cutting for the different timber types on that area. In addition to these timber sales we have also the Menominee operation, as well as a number of small timber-cutting operations for tribal sawmills.

The third important Forestry Division activity was fire protection. In spite of the very dry summer of 1934 we had only one serious fire on any Indian reservation, and that was on a reservation where there was no forestry force.

ROADS

The policy as to road construction and road improvements on Indian reservations, inaugurated with the obtaining of P. W. A. funds, has been continued during the fiscal year with the $2,000,000 provided in the Emergency Appropriation Act of June 19, 1934. This amount was entirely inadequate for the road program and the widespread unemployment among the Indians. Road work is a very popular form of employment among the Indians and it is believed that an appropriation of $4,000,000 along the lines of the Hayden-Cartwright Act should be provided annually to continue this activity on Indian reservations. It would serve two purposes: namely, (1) provide employment among the Indians; and (2) provide improved graveled roads so sorely needed on most of the reservations, more so now that the success of the day-school program is largely dependent on all-weather school-bus roads. The sum of $4,000,000 annually is little enough for road improvements on approximately 200 reservations of some 50,000,000 acres of land in 22 States, particularly in view of the fact that road development on many of the reservations is just emerging from the horse-and-buggy stage.

More of the Indians are taking over the better positions formerly held by whites in road work. This includes those as instrumentmen and other engineering assistants. A number of young Indian men were given special courses at several Indian schools during the year in the repair and operation of tractors, graders, road builders, and the like. This is supplemented with actual experience on the construction job.

A summary of the road work accomplished during the year with the $2,000,000 appropriation follows:

Number of miles of road constructed or reconstructed	1,120
Number of miles of road surfaced	348
Number of miles of road maintained	3,755
Number of school roads constructed or otherwise improved	227
Number of bridges constructed	196
Number of bridges repaired	173

Number of culverts constructed or installed	1,655
Total number of persons, whites and Indians, employed at one time	10,367
Total number of different individual Indians employed	15,116
Total number of Indians employed in skilled positions	799
Total number of whites employed in skilled positions	509

IRRIGATION

Irrigation activities during the year included routine maintenance and operation work on 122 projects in the 11 Western States, together with domestic- and stock-water development in Arizona and New Mexico; also certain construction work in rehabilitation and improvement of existing irrigation projects with funds allotted by the Public Works Administration.

Surveys and studies show that the ultimate irrigation development on the various reservations is approximately 1,160,000 acres, of which some 730,000 acres are now provided with irrigation facilities. The construction of supplemental storage, however, is necessary in many instances to provide an adequate water supply for the 730,000 acres already under constructed works. The total of irrigation construction cost (as distinct from operation and maintenance cost) to date, including expenditures made as far back as 1867 on projects some of which have since been abandoned or completely rebuilt, amounts to approximately $40,000,000, and the estimated cost of completing the various projects, involving rehabilitation, supplemental storage, development of additional water, and extension of irrigation and drainage works to serve the entire 1,160,000 acres adequately, would be $60,000,000. This would make the total average irrigation construction cost on Indian reservations, including expenditures on work of no present value and the complete rehabilitation of all projects, slightly less than $100 per acre. Plans have been formulated for the completion of this work over a 10-year period.

Regular maintenance and operation activities.—Funds available for maintenance and operation of the various projects during the year amounted to $912,426.

Of this, $52,810 was appropriated Treasury funds for water development; $396,055 appropriated Treasury funds for irrigation; $6,720 tribal funds for irrigation; and $456,841 collections from irrigation projects. The irrigation maintenance and operation collections for the year amounted to approximately 53 percent of the total expenditures, which is an especially good showing considering the comparatively low-market value of agricultural products. Of the total irrigation expenditures of approximately $859,000 during the year, $39,000 was expended in connection with the power systems on the San Carlos, Ariz., and Flathead, Mont., projects, leaving a net

irrigation expenditure of $820,000. This averages approximately $1.12 per acre for the entire area of 730,000 acres under constructed works, or $1.82 per acre for the approximately 450,000 acres actually in cultivation.

Gila River adjudication suit.—The consent decree in the so-called "Gila River adjudication suit" was entered in the Federal court for the district of Arizona on June 29, 1935. This decree defines the various rights in the waters of the Gila River from its source in New Mexico to its junction with the Salt River near Phoenix, Ariz. The entering of this decree is the culmination of some 10 years of litigation and negotiations in regard to the water rights along the Gila River. It provides a first priority for 35,000 acres of Indian lands in the Gila River Reservation, a second priority for 1,000 acres of Indian land in the San Carlos Reservation, and varying priorities from 1868 to 1924 for the privately owned lands in Arizona and New Mexico. It also provides a right for the United States to store in the San Carlos Reservoir 1,285,000 acre-feet with a date of priority of June 7, 1924.

Middle Rio Grande conservancy district.—The construction operations of the middle Rio Grande conservancy district of New Mexico have been practically completed, and an audit of the district's accounts is being made by the General Accounting Office preparatory to making final payment. Final surveys, while not entirely completed, indicate that the total area of pueblo lands that will be benefited by the works of the district will be 11,620 acres.

Public Works projects.—Funds allotted by the Public Works Administration during the fiscal 1934 totaled $6,953,050, of which $2,488,862 had been expended to June 30, 1934, leaving $4,464,188 available for expenditure during the fiscal year 1935. Subsequent allotments amounting to $116,855 were made, bringing the total available for the fiscal year 1935 to $4,581,043 and the total of all allotments to $7,069,905. The total expenditures from these funds during the year amounted to approximately $3,600,000, leaving a balance of about $1,000,000 available for expenditure during the fiscal year 1936.

The work being carried on with these funds is principally the rehabilitation of existing projects, supplemental storage development, extension of irrigation and drainage canals and subjugation or preparation of Indian lands for irrigation.

The major projects under way during the year were as follows:

San Carlos project, Arizona, extension of canals, laterals, electrical transmission lines, and installation of standby Diesel generating plant of 2,300 kilovolt-amperes capacity; Gila River Reservation, Ariz., subjugation of approximately 6,000 acres of Indian lands; Colorado River Reservation, Ariz., construction of drainage canals and installation of drainage pumping plant; Flathead project, Montana, construction of storage dam on Mission Creek and

extension of canals, laterals, and electrical distribution system; Wind River project, Wyoming, construction of storage dam on Little Wind River and extension and enlargement of canals and laterals; Pine River project, Southern Ute Reservation, Colo., rehabilitation and extension of canals and laterals; Wapato project, Yakima Reservation, Wash., repair of storm damage to diversion dam in the Yakima River and installation of drainage pumping plant; Lummi project, Washington, repair of flood damage; Walker River Reservation, Nev., construction of storage dam on Walker River; Fruitland project, Navajo Reservation, N. Mex., enlargement and extension of irrigation system; Hogback project, Navajo Reservation, N. Mex., betterment and extension of irrigation system; and miscellaneous work on some 20 other reservations and pueblos in Arizona, California, Idaho, Nevada, Montana, and New Mexico.

CONSTRUCTION

Funds available for the fiscal year 1935 for construction purposes have been expended in the construction of day schools, hospitals, heating, water, sewer, and power systems, and miscellaneous buildings. A number of projects were completed or nearing completion by June 30, 1935, and our reports indicate that our entire authorized building program will be completed by June 30, 1936.

The design of practically all structures except hospitals has been prepared by an architectural firm in New York, and that of most of our hospital buildings by a firm of Chicago architects, leaving the design of a number of smaller building projects and the majority of our heating, water-supply, sewage-disposal, and power plants, together with the quantity surveys and estimates, for preparation by the technical staff in the Washington office.

The field construction office established at Albuquerque, N. Mex., has not undergone any material change in the past year; but, due to the large number of projects and time limitations set up in the Northwest by climatic conditions, we have found it necessary to augment considerably both the technical and the clerical personnel at the office in Billings, Mont. This increase includes an additional mechanical engineer, responsible for supervision over operating personnel and maintenance and care of mechanical equipment. Construction work supervised by our central office located at Muskogee, Okla., has been more limited in scope and a number of the projects completed, and only a small addition to the technical force has been necessary.

PROBATE WORK

The office now maintains a master docket of probate cases, in which is recorded each case and application for rehearing, the date of receipt, status, and final decision. Inquiries regarding estates are now disposed of the same day as received without the necessity of consulting the files. The saving in time and expense is tremendous. Ability to serve better is practically doubled.

On May 31, 1935, the Secretary of the Interior promulgated the new regulations as drafted by the Probate Division. Many of the provisions had been put into practical use before that date. The results already more than compensate the effort. Examiners of inheritance are handling more cases, more efficiently. Many matters whose doubtfulness previously caused confusion are now controlled by fixed rules based on experience. Indian estates are receiving better and more prompt attention.

General instruction is being given to all Government employees who are required to prepare Indian wills. All wills must be submitted to this office for examination as to form. Critical study is made to prevent errors of description and the making of devises that cannot in law be given effect. Affidavits by the testator are required, giving the reasons for unusual devises or bequests. This procedure insures the approval of the will, insures the testator that his wishes will be carried out, prevents disputes, and eliminates applications for rehearing.

Evidencing this is the fact that while 2,092 cases were handled during the 1934 fiscal year, 2,516 were disposed of in the fiscal year 1935, with a strong possibility that an increased number will be handled during the coming year.

In all controverted cases the parties are now notified immediately upon decision, and aggrieved parties are required to move for rehearing within 60 days. This brings all possible errors to immediate attention, and prevents applications for rehearing after long lapses of time when a major part of the estate may have been disposed of. The initial work is considerable, but the ultimate saving in labor and expense brings a satisfaction that fully justifies it.

Cooperation between the field and the Washington office is complete. Improvements in practice developed by each examiner of inheritance are interchanged with all, to the end that the best accepted procedure be made available to the Indian, and that, insofar as possible it be made uniform.

We are trying to establish a closer and speedier contact with the probate attorneys of Oklahoma, who are now under the Solicitor and a part of the Probate Division. This effort, and the added work made necessary by the promulgation of the new rules, calls for the designation of an additional attorney. A few years ago there were 4 attorneys assigned to this division; there are now but 2.

REVIEW OF MAJOR LEGISLATION SINCE 1933

A brief review of important legislation passed since March 1933 includes the following:

Old gag laws repealed.—On May 21, 1934, twelve ancient sedition and gag statutes affecting Indians and Indian country were repealed upon the initiative

of the Department of the Interior. These were sections 2111, 2112, 2113, 2120, 2134, 2147, 2148, 2149, 2150, 2151, 2152, and 2153 of the United States Revised Statutes.

The Johnson-O'Malley Act, which passed April 1934 authorizes the making of contracts with the States for services in education, health work, and social work.

The Wheeler-Howard (Indian Reorganization) Act, passed June 1934 was fully discussed in the 1934 report, and is here summarized briefly again on page 114. This act was amended in June 1935 (Public, No. 147) so as to provide that in referendums on the adoption of the act, a majority of the votes actually cast, instead of a majority of all eligible voters, should be decisive on condition that not fewer than 30 percent of the residents of the voting area go to the polls. Elections already held are also governed by the majority-vote rule. The same amendment affects all referendums or constitutions and charters under the act.

Land acts passed during the last 2 years include the following:

Act of May 31, 1933 (48 Stat. L., 108).—This is an act to authorize appropriations to pay in part the liability of the United States to Indian pueblos under the act of June 7, 1924 (43 Stat. L. 636), to non-Indian claimants on Indian pueblo grants whose claims were found by the Pueblo Lands Board to have been for property occupied in good faith.

Act of April 30, 1934 (48 Stats. 647).—This provides for the amendment of section 1 of the act of June 25, 1910 (36 Stats. L. 855), to the effect that no refund should be paid to defaulting purchasers of Indian lands. Heretofore a refund of all sums paid on the principal in excess of 25 percent was made to the purchaser.

The act of June 14, 1934 (48 Stat. 960), created a new boundary for the Navajo Indian Reservation in Arizona. The act also authorized exchanges of lands for consolidation purposes and authorized an appropriation to purchase other private holdings for the benefit of the Navajo Indians.

Act of June 15, 1934 (48 Stat. L., 965).—This is an act to provide for the enrollment of the members of the Menominee Tribe of Indians of Wisconsin. It authorized the preparation of a roll with the existing roll as a basis. The act further provided for certain procedure in enrollment matters before the Interior Department and in the courts where complaint was made as to errors in enrollment proceedings.

Act of June 18, 1934 (48 Stat. L., 979).—This act amends the Chippewa Jurisdictional Act of May 14, 1926 (44 Stat. L., 555), to designate the plaintiffs in the different suits filed in the Court of Claims to include all who are entitled to share in the final distribution of the permanent fund. This act contains certain safeguards to prevent enrollment of persons claiming to be Chippewa Indians of Minnesota but who are not entitled to rights with the tribe.

The act of June 26, 1934 (48 Stat. L., 1240), amends the act of June 19, 1930 (46 Stat. L., 788), providing for the sale of the remainder of the coal and asphalt deposit in the segregated mineral land of the Choctaw and Chickasaw Nations. This act provided for the sale of tracts of less than 960 acres where the smaller tract adjoined a developed tract on which active mining operations are being conducted and which is needed by the operator in further developing the existing mine.

The act of May 29, 1935 (Public, No. 83, 74th Cong.), transferred 168.44 acres from the Minnesota National Forest Reserve for an Indian village for the benefit of the Chippewa Indians.

The act of June 4, 1935 (Public, No. 89, 74th Cong.), authorized an appropriation of $223,162.62 to pay the Chippewa Indians of Minnesota for swamplands in the White Earth Reservation awarded to the State of Minnesota by the Supreme Court of the United States.

The act of June 14, 1935 (*Public, No. 135, 74th Cong.*), authorizes an exchange of Seminole lands in Florida with the State of Florida.

The act of June 20, 1935 (*Public, No. 156, 74th Cong.*), transfer approximately 8,320 acres from the Cibola National Forest to the Zuni Indian Reservation.

The act of July 24, 1935 (*Public, No. 217, 74th Cong.*), amends the act of June 27, 1926 (44 Stat. L., 763) authorizing the creation of wild rice reserves for the benefit of the Indians of Minnesota.

Three important measures passed after the close of the fiscal year:

The Chippewa Cooperative Marketing Act provides for a loan of $100,000 from Chippewa tribal funds to finance the cooperative handling of Chippewa Indian products, including processing, packing, and marketing. The principal product to benefit this year will be the wild rice, of which hundreds of pounds are harvested by the Chippewa Indians each year. The cooperative marketing of wild rice will enable the Chippewas to retain for themselves a greater share of the very large spread between the growers' price and the price to the consumer.

Government offsets in Indian claims suits.—Section 2 of title 1 of the second deficiency act directed that all gratuitous expenditures for benefit of tribes or bands of Indians should be treated as offsets, and deducted from the gross total of Indian judgments in the Court of Claims. Gratuities expended prior to the date of the treaties or agreement are not to be treated as offsets, nor are the emergency expenditures subsequent to March 4, 1933; but expenditures for land purchased under the Indian Reorganization Act unfortunately are made into offsets. Various suits now pending or authorized are exempted from the language of section 2 of the deficiency bill.

The Arts and Crafts Act passed after the close of the fiscal year, on August 21. An arts and crafts board, to serve without compensation, will be charged with the task of developing and improving the products of Indian handicraft and art, to organize the producers, and to find wider markets for the improved product. The board will also have the power to design Government marks certifying that the article bearing this mark is a genuine Indian product, and to prosecute those who affix such a mark or use imitation labels on products that are not genuine Indian ware.

APPROPRIATIONS

A total of $19,157,064 was appropriated by Congress from the Federal Treasury, which included $2,000,000 for the construction of roads on Indian reservations under the Emergency Construction Act of June 18, 1934. The appropriation from trust funds of Indian tribes was reduced to $1,426,915, a decrease of $852,786 under the appropriation for 1934. For the fiscal year 1936 a total of $29,038,065 has been provided, of which $1,499,933 represents the appropriation from trust funds. This amount includes full restoration of the 15-percent pay cut applied to Federal employees. Also included in the 1936 appropriation are the amounts of $2,500,000 for the establishment of a revolving fund for the purpose of making loans to Indian chartered corporations and $1,000,000 for the acquisition of land, in accordance with the provisions of the Indian Reorganization Act of June 18, 1934. There follows a comparative statement showing appropriations for the Service for the last 4 years:

	1933	1934	1935	1936
General purposes	$1,840,054.35	$1,593,500.00	$1,806,894	$2,780,880
Industrial assistance	1,301,000.00	1,233,881.67	1,060,510	3,740,490
Irrigation and water development	457,324.00	599,614.00	450,665	1,321,652
Education	9,771,000.00	9,103,230.00	7,990,565	8,795,120
Conservation of health	3,508,800.00	3,281,800.00	3,264,595	3,849,620
Support of Indians	2,156,300.00	2,141,900.00	2,141,815	2,279,350
Miscellaneous (roads, annuities, etc.)	31,020.00	31,020.00	42,020	771,020
Subtotals	19,065,998.35	17,984,945.67	16,757,064	23,538,132
Construction	1,654,100.00	711,600.00	400,000	
Roads	1,420,600.00	270,000.00	2,000,000	4,000,000
Total	22,140,098.35	18,966,545.67	19,157,064	27,538,132

Specific appropriations from tribal funds were made to supplement the foregoing Treasury appropriations as noted in the following tabulation:

	1933	1934	1935	1936
General purposes	$126,300	$390,501	$100,000	$9,153
Industrial assistance	45,000	188,000	35,000	151,000
Irrigation and water development	59,000	46,950	6,720	6,500
Education	803,000	708,600	599,550	389,580
Conservation of health	125,000	131,550	121,490	162,000
Support of Indians	1,032,380	789,100	564,155	781,700
Miscellaneous (roads, annuities, etc.)	25,000	25,000		
Total	2,215,680	2,279,701	1,426,915	1,499,933

The appropriation for 1935 from all funds aggregated $20,583,979. For 1936 this amount is increased by $8,454,086, making the sum available for expenditure $29,038,065. This amount does not include allotments from special funds for Indian emergency conservation work, public works, and other activities in the Indian Service associated with the National Industrial Recovery program.

APPENDIX

INDIAN POPULATION

An Indian, as defined by the Indian Service, includes any person of Indian blood who through wardship, treaty, or inheritance has acquired certain rights. The Census Bureau defines an Indian as a person having Indian blood to such a degree as to be recognized in his community as an Indian. Furthermore, the population enumerated at the Federal agencies is not necessarily domiciled on or near the reservations. It is the population on the agency rolls and includes both reservation and nonreservation Indians. Thus an Indian may be carried on the rolls because of tribal inheritance rights, etc., and may reside anywhere in the United States or in a foreign country. Reports of births and deaths among the absentees are often not received. In many instances certification is made to the State registrars of vital statistics and thus to the Census Bureau, but not to the Indian Service. In a considerable number of cases the addresses of the nonreservation Indians are unknown. For the above reasons the statistics of Indian population as shown in the decennial reports of the Bureau of the Census do not agree with the statistics of the Indian Service.

Full census rolls were not submitted this year. Only rolls of the births and the deaths and all other additions and deductions were returned together with a roll giving the names that would have been added to the 1934 census roll if a new roll for 1935 had been compiled, thereby saving much time in the typing of the census rolls. The tabulation for each reservation was made in the field by the various agencies and assembled as a whole in the Indian Office. This year the census rolls cover the period from April 1, 1934, to January 1, 1935. The change in date was made in order that the work might be more evenly distributed throughout the year; hence, all population statistics are for 9 months.

The total estimated and enumerated number of Indians thus reported on January 1, 1935, was 330,861. This number consists of 235,270 Indians actually enumerated and 95,591 Indians taken from the earlier or special censuses and estimates based on records. The latter number will be considered hereafter as an estimate. (See tabular statement below.)

The aggregate estimate and enumerated number of Indians reported by Federal agencies on January 1, 1935, increased by 2,903 over the corresponding figure from April 1, 1934. This increase, however, includes 690 Indians at Quapaw Agency which were added, thereby making the actual increase 2,213 or 0.7 percent for the 9 months.

It is significant that 87.5 percent of the 235,270 enumerated Indians resided at Federal jurisdictions, while only 29,350 or 12.5 percent resided off the reservations.

Oklahoma has far more Indians than any other State. If the Five Civilized Tribes, Miami and Peoria Indians are included, the Indian population of Oklahoma is 95,942, or 29 percent of the aggregate Indian population. Arizona ranks second with 44,524, or 13.5 percent; followed by New Mexico with 35,157, or 10.6 percent; South Dakota with 26,996, or 8.2 percent; and California with 23,814, or 7.2 percent of the total. The other five States with over 10,000 Indian population are in the order named: Montana, Minnesota, Washington, Wisconsin, and North Dakota. The first 5 States represent 68.4 percent of the entire Indian population, while the 10 States with an Indian population of over 10,000 form 88.7 percent of the aggregate Indian population.

Of the enumerated population on January 1, 1935, the most important tribes numerically are the Navajo, Sioux, including the Assiniboin, and Chippewa, numbering 43,555, 34,917, and 25,702, respectively; while in 1930 the same tribes were 40,863, 33,168, and 23,647. The increase from April 1, 1930, to January 1, 1935, for the Navajo tribe being 2,692, or 6.6 percent; for the Chippewa tribe, 2,055, or 8.7 percent; and the Sioux, including the Assiniboin, 1,749, or 5.3 percent.

Formerly the Navajo Indians were under five separate jurisdictions. During the past year all Navajo jurisdictions were consolidated under one Navajo Agency.

This new set-up includes the following former agencies: The part of Hopi Agency occupied by the Navajo Indians and Leupp Agency, in Arizona; Southern Navajo Agency, in Arizona and New Mexico; Western Navajo Agency, in Arizona and Utah; Eastern Navajo and Northern Navajo Agencies, in New Mexico.

Effective July 22, 1935, the Pueblos were all combined under a central agency known as the United Pueblos Agency and will be so shown next year in table 2.

The Indian population not actually enumerated (termed an estimate) is 95,591, which is as follows:

California:		
Tulare County Indians, and Indians on Rancheria and public domain allotments, on Apr. 1, 1930, Sacramento Agency		1,735
Other Indians under Sacramento Agency but not enumerated on census rolls, 1930 estimate, Sacramento Agency		8,761
California, Indian census May 16, 1933, not otherwise reported		4,483
Michigan, 1927 census		1,192
New York, 1932 estimate		4,523
Oklahoma (Five Civilized Tribes, Bureau of the Census, 1930):		
Cherokee	40,904	
Chickasaw	4,685	
Choctaw	16,641	
Creek	8,607	
Seminole	1,789	
		72,626
Quapaw Agency:		
Miami Reservation, 1935 estimate		290
Peoria Reservation, 1935 estimate		400
Texas, 1931 special report		250
Washington (Taholah Agency), scattered bands, 1932 estimate		511
Wisconsin:		
Rice Lake Band of Chippewas, special census, July 1930		221
Stockbridge Reservation, Keshena Agency, 1910 census		599

The Indian population in the 24 States and the District of Columbia in which there were no Federal agencies in 1930 was 10,456. Doubtless many of these Indians are duplicated in the columns "Residing elsewhere" in table 2. See the 1933 annual report of the Secretary of the Interior, page 112, table 1.

TABLE 1.—*Indian Population by Age, 1930*

Age	Total	Male	Female	Age	Total	Male	Female
All ages	**332,397**	**170,350**	**162,047**	25 to 29 years	23,491	12,127	11,364
				30 to 34 years	19,309	10,032	9,277
Under 5 years	46,680	23,447	23,233	35 to 44 years	33,031	17,285	15,746
Under 1 year	9,296	4,681	4,615	45 to 54 years	25,039	13,403	11,636
5 to 9 years	46,736	23,434	23,302	55 to 64 years	16,787	9,178	7,609
10 to 14 years	39,456	20,028	19,428	65 to 74 years	10,030	5,257	4,773
15 to 19 years	36,219	18,154	18,065	75 and over	6,327	3,079	3,248
20 to 24 years	28,843	14,697	14,146	Unknown	449	229	220

Source: Bureau of the Census, Department of Commerce.

TABLE 2.—*Indian population in continental United States enumerated at Federal agencies, according to tribe, sex, and residence, Jan. 1, 1935*

NOTE.—Tulare County, Rancheria, and Public Domain Allotments under Sacramento Agency, Calif., formerly included in this table shown this year under estimates

State, jurisdiction, reservation, and tribe	Indian population			Residing at jurisdiction where enrolled			Residing at another jurisdiction			Residing elsewhere		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total enumerated Indian population [1] [2]	**235,270**	**120,049**	**115,221**	**200,767**	**103,182**	**97,585**	**5,153**	**2,519**	**2,634**	**29,350**	**14,348**	**15,002**
Arizona	**44,524**	**23,003**	**21,521**	**43,120**	**22,286**	**20,834**	**242**	**106**	**136**	**1,162**	**611**	**551**
Colorado River Agency	**1,159**	**636**	**523**	**641**	**353**	**288**	**29**	**20**	**9**	**489**	**263**	**226**
Colorado River Reservation	727	394	333	576	311	265	23	17	6	128	66	62
Chemehuevi	293	145	148	187	92	95	1		1	105	53	52
Mojave	427	245	182	388	218	170	20	16	4	19	11	8
Other tribes	7	4	3	1	1		2	1	1	4	2	2
Fort Mojave Reservation	432	242	190	65	42	23	6	3	3	361	197	164
Mojave	428	241	187	65	42	23	6	3	3	357	196	161
Other tribes	4	1	3							4	1	3
Fort Apache Agency and Reservation (Apache)	**2,751**	**1,440**	**1,311**	**2,704**	**1,418**	**1,286**	**9**	**5**	**4**	**38**	**17**	**21**
Fort Yuma Agency, in California, and Cocopah Reservation (Cocopah)	**30**	**19**	**11**	**30**	**19**	**11**						
Hopi Agency and Reservation (Hopi) [3] [4]	**2,634**	**1,367**	**1,267**	**2,532**	**1,316**	**1,216**	**15**	**7**	**8**	**87**	**44**	**43**
Navajo Agency [4]	**21,890**	**11,276**	**10,614**	**21,835**	**11,252**	**10,583**	**42**	**20**	**22**	**13**	**4**	**9**
Hopi Reservation (part of) (Navajo) [3]	3,458	1,801	1,657	3,447	1,795	1,652	11	6	5			
Leupp Reservation	1,981	1,017	964	1,978	1,015	963	3	2	1			
Navajo	1,971	1,013	958	1,968	1,011	957	3	2	1			
Other tribes	10	4	6	10	4	6						
Southern Navajo Reservation, see New Mexico (Navajo)	**11,703**	**6,045**	**5,658**	**11,692**	**6,042**	**5,650**	**7**	**3**	**4**	**4**		**4**
Western Navajo Reservation, see Utah [4]	4,748	2,413	2,335	4,718	2,400	2,318	21	9	12	9	4	5
Navajo	4,292	2,169	2,123	4,288	2,167	2,121				4	2	2
Other tribes	456	244	212	430	233	197	21	9	12	5	2	3
Paiute Agency, in Utah, and Kaibab Reservation (Paiute)	**91**	**52**	**39**	**84**	**48**	**36**	**2**	**2**		**5**	**2**	**3**
Phoenix School Jurisdiction and Camp Verde Reservation (Apache)	**442**	**244**	**198**	**317**	**182**	**135**	**1**		**1**	**124**	**62**	**62**

[1] See estimated statement of other Indians not enumerated, numbering 95,591.

[2] The population of Tulare County Indians, Rancheria, and Public Domain Allotments under Sacramento Agency, California, has been transferred to the estimated population statement; hence, the decrease in Sacramento Agency.

[3] Part of Hopi Reservation occupied by the Navajo Tribe, transferred to the Navajo Agency, hence, the decrease in Hopi Agency.

[4] Part of Hopi Agency, Arizona; Leupp Agency, Arizona; Southern Navajo Agency, Arizona and New Mexico; Western Navajo Agency, Arizona and Utah; Eastern Navajo Agency and Northern Navajo Agency, New Mexico; were formerly separate jurisdictions but now all under the Navajo Agency.

TABLE 2.—*Indian population in continental United States enumerated at Federal agencies, according to tribe, sex, and residence, Jan. 1, 1935*—Continued

State, jurisdiction, reservation, and tribe	Indian population			Residing at jurisdiction where enrolled			Residing at another jurisdiction			Residing elsewhere		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Arizona—Continued.												
Pima Agency	**6,121**	**3,140**	**2,981**	**5,866**	**3,024**	**2,842**	**119**	**36**	**83**	**136**	**80**	**56**
Fort McDowell Reservation (Mojave-Apache)	201	112	89	177	99	78	7	2	5	17	11	6
Gila River Reservation	4,696	2,394	2,302	4,563	2,334	2,229	53	14	39	80	46	34
Pima	4,129	2,118	2,011	4,003	2,061	1,942	49	14	35	77	43	34
Other tribes	567	276	291	560	273	287	4		4	3	3	
Maricopa Reservation (Papago)[6]	175	95	80	175	95	80						
Salt River Reservation	1,049	539	510	951	496	455	59	20	39	39	23	16
Pima	1,043	537	506	945	494	451	59	20	39	39	23	16
Other tribes	6	2	4	6	2	4						
San Carlos Agency, and Reservation (Apache)	**2,858**	**1,473**	**1,385**	**2,846**	**1,465**	**1,381**	**3**	**2**	**1**	**9**	**6**	**3**
Sells Agency	**5,900**	**3,014**	**2,886**	**5,885**	**3,006**	**2,879**	**13**	**8**	**5**	**2**		**2**
Gila Bend Reservation (Papago)[6]	228	125	103	228	125	103						
Papago Reservation	5,147	2,614	2,533	5,132	2,606	2,526	13	8	5	2		2
Papago	5,137	2,608	2,529	5,132	2,606	2,526	3	2	1	2		2
Pima	10	6	4				10	6	4			
San Xavier Reservation (Papago)[6]	525	275	250	525	275	250						
Truxton Canon Agency	**648**	**342**	**306**	**380**	**203**	**177**	**9**	**6**	**3**	**259**	**133**	**126**
Havasupai Reservation (Havasupai)	201	111	90	199	109	90	1	1		1	1	
Hualapai Reservation (Walapai)	447	231	216	181	94	87	8	5	3	258	132	126
California[2]	**8,835**	**4,525**	**4,310**	**7,202**	**3,741**	**3,461**	**36**	**19**	**17**	**1,597**	**765**	**832**
Fort Yuma Agency, see Arizona and Fort Yuma Reservation (Yuma)	**820**	**425**	**395**	**749**	**388**	**361**	**4**	**2**	**2**	**67**	**35**	**32**
Hoopa Valley Agency	**1,955**	**966**	**989**	**1,510**	**758**	**752**	**9**	**4**	**5**	**436**	**204**	**232**
Hoopa Valley Reservation	1,545	757	788	1,279	634	645	9	4	5	257	119	138
Hoopa	562	297	265	502	268	234	9	4	5	51	25	26
Klamath	983	460	523	777	366	411				206	94	112
Rancheria	410	209	201	231	124	107				179	85	94
Bear River (Bear River)	23	13	10	19	11	8				4	2	2
Blue Lake (Blue Lake)	69	36	33	44	19	25				25	17	8
Crescent City (Smith River)	48	19	29							48	19	29
Eel River (Miami)	152	78	74	84	47	37				68	31	37
Smith River (Smith River)	118	63	55	84	47	37				34	16	18
Mission Agency	**2,901**	**1,541**	**1,360**	**2,062**	**1,143**	**919**	**4**	**2**	**2**	**835**	**396**	**439**
Augustine Reservation (Mission)	14	8	6	13	7	6				1	1	
Cabezon Reservation (Mission)	28	17	11	22	13	9				6	4	2
Cahuilla Reservation (Mission)	107	55	52	53	28	25				54	27	27
Campo Reservation (Mission)	133	69	64	115	58	57	1	1		17	10	7
Capitan Grande Reservation (Mission)	160	82	78	141	78	63				19	4	15
Cuyapaipe Reservation (Mission)	5	1	4	3		3				2	1	1

Inaja Reservation (Mission)	33	16	17	30	13	17				3	3	
Laguna Reservation (Mission)	3	2	1							3	2	1
La Jolla Reservation (Mission)	219	122	97	138	82	56				81	40	41
La Posta Reservation (Mission)	3	1	2	2	1	1				1		1
Los Coyotes Reservation (Mission)	86	50	36	71	45	26				15	5	10
Manzanita Reservation (Mission)	67	30	37	60	29	31				7	1	6
Mesa Grande Reservation (Mission)	219	122	97	147	86	61	2	1	1	70	35	35
Mission Creek Reservation (Mission)	21	10	11	13	7	6				8	3	5
Morongo Reservation (Mission)	297	160	137	197	118	79				100	42	58
Pala Reservation (Mission)	208	110	98	153	85	68				55	25	30
Palm Springs Reservation (Mission)	49	25	24	48	25	23				1		1
Pauma Reservation (Mission)	69	36	33	47	26	21				22	10	12
Pechanga Reservation (Mission)	217	108	109	103	56	47				114	52	62
Rincon Reservation (Mission)	183	98	85	113	60	53				70	38	32
San Manuel Reservation (Mission)	41	22	19	26	15	11				15	7	8
San Pascual Reservation (Mission)	9	4	5	9	4	5						
Santa Rosa Reservation (Mission)	50	31	19	24	14	10				26	17	9
Santa Ynez Reservation (Mission)	86	41	45	20	12	8				66	29	37
Santa Ysabel Reservation (Mission)	238	127	111	195	107	88	1		1	42	20	22
Soboba Reservation (Mission)	122	61	61	105	52	53				17	9	8
Sycuan Reservation (Mission)	35	16	19	35	16	19						
Torres-Martenez Reservation (Mission)	199	117	82	179	106	73				20	11	9
Sacramento Agency [2]	1,582	804	778	1,392	699	693	13	7	6	177	98	79
Fort Bidwell Reservation	137	81	56	88	49	39	11	6	5	38	26	12
Paiute	135	81	54	88	49	39	11	6	5	36	26	10
Other tribes	2		2							2		2
Fort Bidwell reserve and Public Domain Allotments	428	208	220	333	162	171				95	46	49
Pit River	319	155	164	313	153	160				6	2	4
Other tribes	109	53	56	20	9	11				89	44	45
Round Valley Reservation	832	419	413	801	400	401	2	1	1	29	18	11
Maidu	191	103	88	190	102	88				1	1	
Pomo	151	71	80	143	65	78	2	1	1	6	5	1
Wailaki	213	97	116	200	90	110				13	7	6
Wintoon	120	63	57	116	62	54				4	1	3
Yuki	92	45	47	91	44	47				1	1	
Other tribes	65	40	25	61	37	24				4	3	1
Tule River Reservation	185	96	89	170	88	82				15	8	7
Pankahlachi	41	22	19	34	20	14				7	2	5
Yawilmani	83	42	41	75	36	39				8	6	2
Other tribes	61	32	29	61	32	29						
Walker River Agency, in Nevada, and Fort Independence and Indian Ranch Reservations, homesite tracts, and Bishop scattered bands	1,577	789	788	1,489	753	736	6	4	2	82	32	50
Paiute	1,351	678	673	1,268	644	624	6	4	2	77	30	47
Other tribes	226	111	115	221	109	112				5	2	3

[3] The population of Tulare County Indians, Rancheria, and Public Domain Allotments under Sacramento Agency, California, has been transferred to the estimated population statement; hence, the decrease in Sacramento Agency.

[4] Maricopa Reservation formerly erroneously returned as Chui-Chuischu Reservation.

[6] Apr. 1, 1934, population.

TABLE 2.—*Indian population in continental United States enumerated at Federal agencies, according to tribe, sex, and residence, Jan. 1, 1935*—Continued

State, jurisdiction, reservation, and tribe	Indian population			Residing at jurisdiction where enrolled			Residing at another jurisdiction			Residing elsewhere		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Colorado	835	425	410	823	419	404	8	3	5	4	3	1
Consolidated Ute Agency, see Utah	835	425	410	823	419	404	8	3	5	4	3	1
Southern Ute Reservation (Ute)	384	193	191	376	189	187	6	3	3	2	1	1
Ute Mountain Reservation (Ute)	451	232	219	447	230	217	2		2	2	2	
Florida: Seminole Agency and Reservation (Seminole)	574	285	289	574	285	289						
Idaho	4,195	2,087	2,108	3,557	1,761	1,796	171	99	72	467	227	240
Coeur d'Alene Agency, see Washington	2,154	1,026	1,128	1,751	825	926	115	67	48	288	134	154
Coeur d'Alene Reservation	627	303	324	440	213	227	14	9	5	173	81	92
Coeur d'Alene	625	301	324	438	211	227	14	9	5	173	81	92
Cree	2	2		2	2							
Kootenai Reservation (Kootenai)	120	61	59	106	55	51				14	6	8
Nez Perce Reservation (Nez Perce)	1,407	662	745	1,205	557	648	101	58	43	101	47	54
Fort Hall Agency and Reservation, see Utah	1,841	953	888	1,625	837	788	40	24	16	176	92	84
Bannock	350	176	174	278	138	140	12	6	6	60	32	28
Shoshone	1,488	777	711	1,344	699	645	28	18	10	116	60	56
Other tribes	3		3	3		3						
Western Shoshone Agency and Reservation, in Nevada	200	108	92	181	99	82	16	8	8	3	1	2
Paiute	122	68	54	106	61	45	15	7	8	1		1
Shoshone	77	39	38	74	37	37	1	1		2	1	1
Washo-Paiute	1	1		1	1							
Iowa: Sac and Fox Sanatorium Jurisdiction and Reservation (Sac and Fox of the Mississippi)	427	215	212	386	196	190	25	9	16	16	10	6
Kansas	1,912	983	929	1,511	796	715	202	98	104	199	89	110
Potawatomi Agency [7]	1,912	983	929	1,511	796	715	202	98	104	199	89	110
Iowa Reservation (Iowa)	505	271	234	477	258	219	3	1	2	25	12	13
Kickapoo Reservation (Kickapoo)	316	161	155	260	138	122	23	13	10	33	10	23
Potawatomi Reservation (Potawatomi)	990	506	484	703	367	336	154	75	79	133	64	69
Sac and Fox Reservation (Sac and Fox of the Missouri)	101	45	56	71	33	38	22	9	13	8	3	5
Minnesota	15,382	7,737	7,645	10,950	5,654	5,296	430	204	226	4,002	1,879	2,123
Consolidated Chippewa Agency	12,837	6,428	6,409	8,970	4,628	4,342	394	188	206	3,473	1,612	1,861
Bois Forte Reservation (Chippewa)	636	304	332	428	208	220				208	96	112
Cass Lake and Winnibigoshish Reservations (Chippewa)	520	266	254	472	248	224	14	8	6	34	10	24
Fond du Lac Reservation (Chippewa)	1,303	689	614	706	381	325	11	4	7	586	304	282
Grand Portage Reservation (Chippewa)	384	165	219	274	126	148				110	39	71
Leech Lake Reservation (Chippewa)	897	454	443	803	410	393	44	19	25	50	25	25
White Earth Reservation (Chippewa)	8,171	4,061	4,110	5,464	2,816	2,648	324	156	168	2,383	1,089	1,294

White Oak Point Reservation (Chippewa)	567	306	261	504	276	228	1	1		62	29	33
Purchased Lands (Chippewa)	359	183	176	319	163	156				40	20	20
Pipestone School Jurisdiction and Purchased Lands (Sioux)	553	279	274	148	76	72	1		1	404	203	201
Red Lake Agency and Reservation (Chippewa)	1,992	1,030	962	1,832	950	882	35	16	19	125	64	61
Mississippi: Choctaw Agency and Purchased Lands (Choctaw)	1,799	913	886	1,791	908	883	8	5	3			
Montana	15,418	7,871	7,547	13,162	6,792	6,370	455	247	208	1,801	832	969
Blackfeet Agency and Reservation [6]	3,962	2,031	1,931	3,401	1,765	1,636	36	19	17	525	247	278
Blackfeet	3,946	2,028	1,918	3,396	1,763	1,633	36	19	17	514	246	268
Other tribes	16	3	13	5	2	3				11	1	10
Crow Agency and Reservation (Crow)	2,112	1,062	1,050	1,874	951	923	27	8	19	211	103	108
Flathead Agency and Reservation (Flathead)	2,999	1,527	1,472	2,305	1,206	1,099	112	66	46	582	255	327
Fort Belknap Agency and Reservation	1,400	729	671	1,273	661	612	34	25	9	93	43	50
Assiniboin	658	343	315	610	315	295	14	9	5	34	19	15
Gros Ventre	738	383	355	659	343	316	20	16	4	59	24	35
Other tribes	4	3	1	4	3	1						
Fort Peck Agency and Reservation	2,707	1,356	1,351	2,295	1,164	1,131	141	70	71	271	122	149
Assiniboin	1,490	759	731	1,260	653	607	67	35	32	163	71	92
Sioux	1,217	597	620	1,035	511	524	74	35	39	108	51	57
Rocky Boy's Agency and Reservation	697	367	330	550	288	262	49	28	21	98	51	47
Chippewa	467	240	227	355	181	174	38	20	18	74	39	35
Cree	186	95	91	160	80	80	10	7	3	16	8	8
Other tribes	44	32	12	35	27	8	1	1		8	4	4
Tongue River Agency and Reservation	1,541	799	742	1,464	757	707	56	31	25	21	11	10
Cheyenne	1,538	796	742	1,461	754	707	56	31	25	21	11	10
Other tribes	3	3		3	3							
Nebraska	4,501	2,338	2,163	3,165	1,632	1,533	330	173	157	1,006	533	473
Winnebago Agency	4,501	2,338	2,163	3,165	1,632	1,533	330	173	157	1,006	533	473
Omaha Reservation (Omaha)	1,639	866	773	1,361	715	646	34	19	15	244	132	112
Ponca Reservation (Ponca)	391	189	202	196	96	100	9	3	6	186	90	96
Santee Reservation (Santee)	1,272	662	610	737	374	363	206	106	100	329	182	147
Winnebago Reservation (Winnebago)	1,199	621	578	871	447	424	81	45	36	247	129	118
Nevada	5,084	2,535	2,549	4,874	2,439	2,435	181	82	99	29	14	15
Carson School Jurisdiction	2,642	1,282	1,360	2,575	1,255	1,320	64	24	40	3	3	
Fort McDermitt Reservation (Paiute)	269	124	145	249	119	130	20	5	15			
Pyramid Lake Reservation	548	270	278	548	270	278						
Paiute	545	270	275	545	270	275						
Other tribes	3		3	3		3						
Summit Lake Reservation (Paiute)	64	34	30	64	34	30						
Public Domain	1,761	854	907	1,714	832	882	44	19	25	3	3	
Eel River	1		1	1		1						
Paiute	264	113	151	261	111	150	2	1	1	1	1	
Shoshone	926	445	481	924	445	479	2		2			
Washo	570	296	274	528	276	252	40	18	22	2	2	
Paiute Agency, in Utah	194	97	97	182	92	90				12	5	7
Moapa River Reservation (Paiute)	155	80	75	146	76	70				9	4	5
Las Vegas Tract (Paiute)	39	17	22	36	16	20				3	1	2

[6] Apr. 1, 1934, population.

[7] Formerly Potawatomi Agency returned under Haskell Institute as a subagency.

TABLE 2.—*Indian population in continental United States enumerated at Federal agencies, according to tribe, sex, and residence, Jan. 1, 1935*—Continued

State, jurisdiction, reservation, and tribe	Indian population			Residing at jurisdiction where enrolled			Residing at another jurisdiction			Residing elsewhere		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Nevada—Continued.												
Walker River Agency, see California	1,714	874	840	1,664	851	813	43	20	23	7	3	4
Fallon Reservation	423	216	207	409	209	200	12	6	6	2	1	1
Paiute	419	215	204	405	208	197	12	6	6	2	1	1
Shoshone	4	1	3	4	1	3						
Mason and Smith Valleys	437	227	210	419	219	200	18	8	10			
Paiute	428	221	207	410	213	197	18	8	10			
Other tribes	9	6	3	9	6	3						
Nye County Scattered Indians	363	183	180	363	183	180						
Paiute	29	16	13	29	16	13						
Shoshone	334	167	167	334	167	167						
Walker River Reservation	491	248	243	473	240	233	13	6	7	5	2	3
Paiute	444	224	220	426	216	210	13	6	7	5	2	3
Shoshone	47	24	23	47	24	23						
Western Shoshone Agency and Reservation, see Idaho	534	282	252	453	241	212	74	38	36	7	3	4
Shoshone	440	228	212	371	194	177	67	33	34	2	1	1
Other tribes	94	54	40	82	47	35	7	5	2	5	2	3
New Mexico	35,157	18,225	16,932	34,569	17,899	16,670	117	52	65	471	274	197
Jicarilla Agency and Reservation (Apache)	687	352	335	678	345	333	7	6	1	2	1	1
Mescalero Agency and Reservation (Apache)	729	361	368	714	348	366	6	5	1	9	8	1
Navajo Agency [4]	21,830	11,086	10,744	21,823	11,080	10,743	5	5		2	1	1
Eastern Navajo Reservation (Navajo)	8,394	4,188	4,206	8,394	4,188	4,206						
Northern Navajo Reservation (Navajo)	8,528	4,452	4,076	8,525	4,449	4,076	3	3				
Southern Navajo Reservation, in Arizona (Navajo)	4,908	2,446	2,462	4,904	2,443	2,461	2	2		2	1	1
Santa Fe School Jurisdiction	2,258	1,152	1,106	2,143	1,096	1,047	60	21	39	55	35	20
Nambe Pueblo (Pueblo)	127	60	67	119	56	63	4	2	2	4	2	2
Picuris Pueblo (Pueblo)	115	54	61	109	52	57	2		2	4	2	2
Pojoaque Pueblo (Pueblo)	7	5	2	5	3	2				2	2	
San Ildefonso Pueblo (Pueblo)	127	69	58	113	64	49	9	2	7	5	3	2
San Juan Pueblo (Pueblo)	578	291	287	539	269	270	24	9	15	15	13	2
Santa Clara Pueblo (Pueblo)	417	212	205	392	196	196	13	6	7	12	10	2
Taos Pueblo (Pueblo)	763	397	366	742	392	350	8	2	6	13	3	10
Tesuque Pueblo (Pueblo)	124	64	60	124	64	60						
Southern Pueblos Agency	7,590	4,104	3,486	7,179	3,885	3,294	28	6	22	383	213	170
Acoma Pueblo (Pueblo)	1,150	592	558	1,092	559	533				58	33	25
Cochiti Pueblo (Pueblo)	309	169	140	305	167	138				4	2	2

Isleta Pueblo	1,104	604	500	1,079	586	493				25	18	7
Navajo-Pueblo	3	3								3	3	
Pueblo	1,101	601	500	1,079	586	493				22	15	7
Jemez Pueblo (Pueblo)	654	353	301	646	348	298				8	5	3
Laguna Pueblo (Pueblo)	2,288	1,195	1,093	2,000	1,052	948	27	6	21	261	137	124
Sandia Pueblo (Pueblo)	121	65	56	110	58	52				11	7	4
San Felipe Pueblo (Pueblo)	603	335	268	596	331	265	1		1	6	4	2
Santa Ana Pueblo (Pueblo)	242	146	96	242	146	96						
Santo Domingo Pueblo (Pueblo)	923	537	386	916	532	384				7	5	2
Sia Pueblo (Pueblo)	196	108	88	193	106	87				3	2	1
Zuni Agency and Pueblo	2,063	1,170	893	2,032	1,145	887	11	9	2	20	16	4
Pueblo	2,055	1,170	885	2,026	1,145	881	10	9	1	19	16	3
Other tribes	8		8	6		6	1		1	1		1
North Carolina: Cherokee Agency and Reservation (Eastern Cherokee)	3,220	1,708	1,512	2,250	1,212	1,038				970	496	474
North Dakota	10,465	5,314	5,151	6,805	3,479	3,326	159	82	77	3,501	1,753	1,748
Fort Berthold Agency and Reservation	1,595	788	807	1,531	754	777	15	10	5	49	24	25
Arikara	567	273	294	533	258	275	5	1	4	29	14	15
Gros Ventre	702	348	354	682	337	345	4	3	1	16	8	8
Mandan	326	167	159	316	159	157	6	6		4	2	2
Fort Totten Agency and Devils Lake Reservation (Sioux)	986	504	482	904	466	438	38	18	20	44	20	24
Sisseton Agency and Lake Traverse or Sisseton Reservation, in South Dakota (Sioux) [6]	47	29	18	47	29	18						
Standing Rock Agency and Reservation, see South Dakota (Sioux)	1,695	844	851	1,539	770	769	52	26	26	104	48	56
Turtle Mountain Agency and Reservation (Chippewa)	6,142	3,149	2,993	2,784	1,460	1,324	54	28	26	3,304	1,661	1,643
Oklahoma	22,626	11,366	11,260	16,831	8,502	8,329	714	354	360	5,081	2,519	2,571
Cheyenne and Arapaho Agency and Reservation (Cheyenne-Arapaho)	2,786	1,439	1,347	2,465	1,260	1,205	137	74	63	184	105	79
Kiowa Agency	6,061	2,958	3,103	5,924	2,888	3,036	28	18	10	109	52	57
Kiowa Reservation	4,624	2,264	2,360	4,566	2,236	2,330	13	6	7	45	22	23
Apache	324	171	153	322	169	153	1	1		1	1	
Comanche	2,130	1,043	1,087	2,103	1,032	1,071	3		3	24	11	13
Kiowa	2,170	1,050	1,120	2,141	1,035	1,106	9	5	4	20	10	10
Wichita Reservation	1,437	694	743	1,358	652	706	15	12	3	64	30	34
Caddo	928	456	472	865	423	442	10	8	2	53	25	28
Delaware	143	67	76	143	67	76						
Wichita	366	171	195	350	162	188	5	4	1	11	5	6
Osage Agency and Reservation (Osage)	3,585	1,829	1,756	1,988	1,047	941	5	2	3	1,592	780	812
Pawnee Agency	3,017	1,527	1,490	2,390	1,223	1,167	195	97	98	432	207	225
Kaw Reservation (Kaw)	510	266	244	292	155	137	44	21	23	174	90	84
Oakland Reservation (Tonkawa)	47	26	21	36	20	16	4	3	1	7	3	4
Otoe Reservation (Otoe)	727	374	353	555	286	269	68	34	34	104	54	50
Pawnee Reservation (Pawnee)	921	459	462	746	385	361	43	18	25	132	56	76
Ponca Reservation (Ponca)	812	402	410	761	377	384	36	21	15	15	4	11

[4] Part of Hopi Agency, Arizona; Leupp Agency, Arizona; Southern Navajo Agency, Arizona and New Mexico; Western Navajo Agency, Arizona and Utah; Eastern Navajo Agency and Northern Navajo Agency, New Mexico; were formerly separate jurisdictions but now all under the Navajo Agency.

[6] Apr. 1, 1934, population.

TABLE 2.—*Indian population in continental United States enumerated at Federal agencies, according to tribe, sex, and residence, Jan. 1, 1935*—Continued

State, jurisdiction, reservation, and tribe	Indian population			Residing at jurisdiction where enrolled			Residing at another jurisdiction			Residing elsewhere		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Oklahoma—Continued.												
Quapaw Agency	2,607	1,276	1,331	1,416	708	708	261	124	137	930	444	486
Eastern Shawnee Reservation (Shawnee)	265	122	143	167	81	86	26	15	11	72	26	46
Ottawa Reservation (Ottawa)	395	209	186	216	112	104	21	11	10	158	86	72
Quapaw Reservation (Quapaw)	528	253	275	329	160	169	16	9	7	183	84	99
Seneca Reservation (Seneca)	704	345	359	395	191	204	131	60	71	178	94	84
Wyandotte Reservation (Wyandotte)	715	347	368	309	164	145	67	29	38	339	154	185
Shawnee Agency	4,570	2,337	2,233	2,648	1,376	1,272	88	39	49	1,834	922	912
Iowa Reservation (Iowa)	109	53	56	108	53	55				1		1
Kickapoo Reservation (Kickapoo)	259	140	119	251	135	116				8	5	3
Potawatomi Reservation (Potawatomi)	2,727	1,389	1,338	966	495	471	59	26	33	1,702	868	834
Sac and Fox Reservation (Sac and Fox)	849	425	424	733	383	350	14	5	9	102	37	65
Shawnee Reservation (Shawnee)	626	330	296	590	310	280	15	8	7	21	12	9
Oregon	4,674	2,290	2,384	3,537	1,782	1,755	313	166	147	824	342	482
Klamath Agency and Reservation	1,370	670	700	1,063	538	525	51	28	23	256	104	152
Klamath	802	387	415	640	324	316	7	4	3	155	59	96
Modoc	313	153	160	231	112	119	27	14	13	55	27	28
Paiute	142	73	69	113	59	54	17	10	7	12	4	8
Pit River	106	53	53	79	43	36				27	10	17
Shasta	7	4	3							7	4	3
Salem School Jurisdiction	1,152	598	554	873	469	404	47	30	17	232	99	133
Grande Ronde Reservation	351	187	164	216	124	92	29	18	11	106	45	61
Clackamas	84	40	44	48	25	23	10	6	4	26	9	17
Rogue River	56	33	23	35	20	15	7	5	2	14	8	6
Umpqua	60	27	33	37	18	19				23	9	14
Other tribes	151	87	64	96	61	35	12	7	5	43	19	24
Siletz Reservation	474	239	235	365	187	178	10	5	5	99	47	52
Chastacosta	32	12	20	27	11	16				5	1	4
Galice Creek	42	22	20	38	19	19	1	1		3	2	16
Joshua	43	22	21	14	9	5	1	1		28	12	1
Klamath	55	34	21	42	27	15				13	7	9
Meguenodon	53	26	27	39	18	21				14	8	6
Rogue River	49	28	21	42	23	19	1	1		6	4	2
Tututni	44	16	28	41	15	26				3	1	2
Other tribes	156	79	77	122	65	57	7	2	5	27	12	15
Fourth Section Allotees (Public Domain) [6]	327	172	155	292	158	134	8	7	1	27	7	20
Cherokee	18	12	6	18	12	6						
Klamath	51	25	26	39	20	19	3	3		9	2	7

Kusa	57	26	31	55	24	31	1	1		1	1	
Rogue River	71	38	33	68	38	30				3		3
Tututni	18	7	11	8	4	4				10	3	7
Umpqua	43	25	18	37	21	16	3	3		3	1	2
Other tribes	69	39	30	67	39	28	1		1	1		1
Umatilla Agency and Reservation	1,152	538	614	734	359	375	136	67	69	282	112	170
Cayuse	373	168	205	308	145	163	48	20	28	17	3	14
Umatilla	124	47	77	97	37	60	13	7	6	14	3	11
Walla Walla	636	317	319	313	171	142	72	40	32	251	106	145
Other tribes	19	6	13	16	6	10	3		3			
Warm Springs Agency and Reservation	1,000	484	516	867	416	451	79	41	38	54	27	27
Paiute	223	121	102	177	93	84	40	23	17	6	5	1
Tenino (Warm Springs)	479	212	267	447	199	248	16	8	8	16	5	11
Wasco	220	113	107	182	94	88	11	5	6	27	14	13
Other tribes	78	38	40	61	30	31	12	5	7	5	3	2
South Dakota	26,996	13,846	13,150	23,314	12,055	11,259	1,046	495	551	2,636	1,296	1,340
Cheyenne River Agency and Reservation (Sioux)	3,326	1,734	1,592	2,702	1,427	1,275	292	152	140	332	155	177
Crow Creek Agency	1,555	781	774	1,245	627	618	126	47	79	184	107	77
Crow Creek Reservation (Sioux)	956	465	491	818	399	419	53	14	39	85	52	33
Lower Brule Reservation (Sioux)	599	316	283	427	228	199	73	33	40	99	55	44
Flandreau School Jurisdiction and Purchased Lands (Sioux)	346	188	158	169	98	71	41	22	19	136	68	68
Pine Ridge Agency and Reservation (Sioux)	8,468	4,344	4,124	7,933	4,099	3,834	95	43	52	440	202	238
Rosebud Agency	8,479	4,342	4,137	7,583	3,913	3,670	253	115	138	643	314	329
Rosebud Reservation (Sioux)	6,464	3,330	3,134	6,127	3,151	2,976	81	39	42	256	140	116
Yankton Reservation (Sioux)	2,015	1,012	1,003	1,456	762	694	172	76	96	387	174	213
Sisseton Agency and Lake Traverse or Sisseton Reservation, see North Dakota (Sioux)	2,691	1,383	1,308	1,865	979	886	141	68	73	685	336	349
Standing Rock Agency and Reservation, in North Dakota (Sioux)	2,131	1,074	1,057	1,817	912	905	98	48	50	216	114	102
Utah	2,121	1,098	1,023	1,960	1,015	945	49	29	20	112	54	58
Consolidated Ute Agency, in Colorado, and Public Domain Allotments (Ute)	42	25	17	42	25	17						
Fort Hall Agency, in Idaho, and Washakie Subagency (Shoshone)	137	63	74	112	51	61	21	12	9	4		4
Navajo Agency, in Arizona, and Western Navajo Reservation [4]	305	159	146	305	159	146						
Navajo	301	156	145	301	156	145						
Paiute	4	3	1	4	3	1						
Paiute Agency, see Arizona and Nevada	381	189	192	316	154	162	3	1	2	62	34	28
Goshute Reservation (Goshute)	153	79	74	138	69	69	2	1	1	13	9	4
Kanosh Reservation	24	9	15	22	7	15				2	2	
Paiute	1		1	1		1						
Ute	23	9	14	21	7	14				2	2	
Koosharem Reservation (Ute)	29	14	15	28	14	14				1		1
Paiute Reservation (Paiute)	19	11	8	13	8	5				6	3	3

[4] Part of Hopi Agency, Arizona; Leupp Agency, Arizona; Southern Navajo Agency, Arizona and New Mexico; Western Navajo Agency, Arizona and Utah; Eastern Navajo Agency and Northern Navajo Agency, New Mexico; were formerly separate jurisdictions but now all under the Navajo Agency.

[6] Apr. 1, 1934, population.

TABLE 2.—*Indian population in continental United States enumerated at Federal agencies, according to tribe, sex, and residence, Jan. 1, 1935*—Continued

State, jurisdiction, reservation, and tribe	Indian population			Residing at jurisdiction where enrolled			Residing at another jurisdiction			Residing elsewhere		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Utah—Continued.												
Paiute Agency—Continued.												
Shivwits Reservation (Paiute)	81	38	43	77	38	39				4		4
Skull Valley Reservation (Goshute)	40	19	21	38	18	20	1		1	1	1	
Gandy (Homestead) (Paiute)	6	4	2							6	4	2
Cedar City (church property) (Paiute)	29	15	14							29	15	14
Uintah and Ouray Agency and Reservation (Ute)	1,256	662	594	1,185	626	559	25	16	9	46	20	26
Washington	12,919	6,422	6,497	9,156	4,613	4,543	215	86	129	3,548	1,723	1,825
Coeur d'Alene Agency, in Idaho, and Kalispel Reservation (Kalispel)	87	47	49	85	47	38	2		2			
Colville Agency	3,949	1,973	1,976	3,169	1,634	1,535	136	54	82	644	285	359
Colville Reservation (Colville)	3,131	1,584	1,547	2,564	1,330	1,234	84	34	50	483	220	263
Spokane Reservation (Spokane)	818	389	429	605	304	301	52	20	32	161	65	96
Taholah Agency	2,478	1,263	1,215	1,449	763	686	22	12	10	1,007	488	519
Chehalis Reservation (Chehalis)	28	21	7	18	15	3				10	6	4
Makah Reservation (Makah)	411	221	190	351	193	158	2		2	58	28	30
Nisqually Reservation (Nisqually)	63	38	25	53	34	19				10	4	6
Ozette Reservation (Makah)	2	2		2	2							
Quinaielt Reservation	1,742	864	878	839	419	420	14	9	5	889	436	453
Chehalis	105	50	55	58	21	37				47	29	18
Quileute	273	138	135	256	127	129	1	1		16	10	6
Quinaielt	1,213	611	602	509	260	249	12	7	5	692	344	348
Upper Chinook	125	52	73	5	5		1	1		119	46	73
Other tribes	26	13	13	11	6	5				15	7	8
Skokomish Reservation	195	98	97	160	86	74	5	2	3	30	10	20
Clallam	1	1					1	1				
Skokomish	194	97	97	160	86	74	4	1	3	30	10	20
Squaxin Island Reservation (Squaxin)	37	19	18	26	14	12	1	1		10	4	6
Tulalip Agency	3,510	1,767	1,743	2,084	1,044	1,040	12	3	9	1,414	720	694
Lummi Reservation	667	340	327	547	277	270				120	63	57
Lummi	666	340	326	546	277	269				120	63	57
Snohomish	1		1	1		1						
Muckleshoot Reservation (Muckleshoot)	199	89	110	190	85	105	3	1	2	6	3	3
Port Madison Reservation (Suquamish)	171	85	86	155	80	75	3		3	13	5	8
Puyallup Reservation (Puyallup)	327	162	165	30	15	15				297	147	150
Swinomish Reservation	278	131	147	273	128	145				5	3	2
Swinomish	276	131	145	271	128	143				5	3	2
Other tribes	2		2	2		2						

Tulalip Reservation and Tulalip unattached Indians	664	321	343	459	222	237	2	-------	2	203	99	104
Snohomish	655	316	339	450	217	233	2	-------	2	203	99	104
Other tribes	9	5	4	9	5	4	-------	-------	-------	-------	-------	-------
Public Domain (Clallam)	763	399	364	9	6	3	-------	-------	-------	754	393	361
Public Domain (Nooksak)	234	124	110	221	118	103	-------	-------	-------	13	6	7
Public Domain (Skagit)	207	116	91	200	113	87	4	2	2	3	1	2
Yakima Agency and Reservation (Yakima)	**2,895**	**1,372**	**1,523**	**2,369**	**1,125**	**1,244**	**43**	**17**	**26**	**483**	**230**	**253**
Wisconsin [8]	**11,403**	**5,744**	**5,659**	**9,251**	**4,698**	**4,553**	**395**	**181**	**214**	**1,757**	**865**	**892**
Keshena Agency and Menominee Reservation (Menominee) [8] [9]	**2,112**	**1,070**	**1,042**	**1,998**	**1,025**	**973**	**14**	**5**	**9**	**100**	**40**	**60**
Lac du Flambeau Agency	**4,687**	**2,372**	**2,315**	**3,786**	**1,906**	**1,880**	**74**	**45**	**29**	**827**	**421**	**406**
Bad River Reservation (Chippewa)	1,217	633	584	738	388	350	25	16	9	454	229	225
Lac Courte Oreille Reservation (Chippewa)	1,570	778	792	1,437	707	730	28	14	14	105	57	48
Lac du Flambeau Reservation (Chippewa)	869	412	457	757	358	399	-------	-------	-------	112	54	58
Red Cliff Reservation (Chippewa)	608	320	288	454	239	215	6	4	2	148	77	71
Scattered bands (Potawatomi)	423	229	194	400	214	186	15	11	4	8	4	4
Tomah School Jurisdiction [9]	**4,604**	**2,302**	**2,302**	**3,467**	**1,767**	**1,700**	**307**	**131**	**176**	**830**	**404**	**426**
Oneida Reservation (Oneida) [9]	3,172	1,597	1,575	2,254	1,167	1,087	173	72	101	745	358	387
Public Domain Allotments (Winnebago)	1,432	705	727	1,213	600	613	134	59	75	85	46	39
Wyoming	**2,203**	**1,119**	**1,084**	**1,979**	**1,018**	**961**	**57**	**29**	**28**	**167**	**72**	**95**
Shoshone Agency and Wind River or Shoshone Reservation	**2,203**	**1,119**	**1,084**	**1,979**	**1,018**	**961**	**57**	**29**	**28**	**167**	**72**	**95**
Arapaho	1,091	557	534	1,051	538	513	15	9	6	25	10	15
Shoshone	1,112	562	550	928	480	448	42	20	22	142	62	80

[8] Exclusive of Stockbridge Reservation, Keshena Agency, and Rice Lake Band of Chippewas, Lac du Flambeau Agency. (See estimated statement.)
[9] Oneida Reservation, formerly under Keshena Agency, but now under Tomah School Jurisdiction; hence, the marked change in population.

TABLE 3.—*Indian school population and school enrollment during fiscal year ended June 30, 1935*

State and jurisdiction	Indian children, 6 to 18	Enrollment								Definite information not available	Not enrolled in any school	Not eligible for enrollment	Under 6 years and over 18 years in all schools
		Total number	Public	Federal day	Federal reservation boarding	Federal nonreservation boarding	Mission private and State day	Mission private and State boarding	Sanatoria				
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total	**101,638**	**80,434**	**48,522**	**9,505**	**8,631**	**5,125**	**2,162**	**5,998**	**491**	**4,974**	**14,540**	**1,452**	**2,180**
Arizona	**12,994**	**8,039**	**686**	**2,792**	**1,882**	**1,054**	**802**	**742**	**81**	**680**	**4,587**	**121**	**373**
Colorado River:													
Chemehuevi	59	66	43		14	9							7
Mohave	193	195	125	16	13	37		4		7	4		13
Fort Apache	916	759	5	189	431	12	95	26	1		167	41	10
Hopi: Hopi	661	659	27	506	7	95		24			36	11	34
Kaibab (under Paiute)	24	24	1	19		4					5	2	5
Navajo:													
Leupp	385	430	14	23	336	46		3	8				45
Navajo (formerly under Hopi)	199	217			161	56							18
Southern Navajo	4,422	1,792	231	315	418	382		446			2,735		105
Western Navajo	1,771	459	27	44	344	41			3		1,312		34
Phoenix: Camp Verde	114	76	47		5	24				30	12	10	4
Pima	1,298	1,218	58	740		130	149	72	69	115	37	8	72
Salt River [1]	412	329	37	190		88		14			83		
San Carlos	770	579	14	295	62	25	141	42		22	192	46	23
Sells	1,593	1,063	57	389		90	416	111		506			2
Truxton Canon:													
Havasupai [1]	53	52		37		15					1		1
Hualapai	124	121		29	91		1				3	3	
California	**4,758**	**4,481**	**3,680**	**12**	**46**	**550**	**117**	**61**	**15**	**142**	**361**	**79**	**138**
Bishop (under Walker River, Nev.)	449	327	271	12	43			1		77	122	28	
Fort Yuma	189	196	28		3	50	114		1		11	8	18
Hoopa Valley	1,192	1,152	1,034			118				3	29	8	
Mission	738	692	553			96	3	40		19	79	6	33
Sacramento	2,190	2,114	1,794			286		20	14	43	120	29	87
Colorado: Consolidated Ute	**231**	**159**	**74**		**64**	**19**		**2**		**2**	**72**	**26**	
Florida: Seminole	**181**	**48**		**48**							**165**		**32**
Idaho	**1,086**	**866**	**564**		**87**	**42**	**1**	**107**	**65**	**127**	**106**	**31**	**13**
Coeur d'Alene	185	159	84			3		70	2	25	2		1
Nez Perce	412	312	217			6		26	63	86	14		
Fort Hall	489	395	263		87	33	1	11		16	90	31	12
Iowa: Sac and Fox	**126**	**78**	**21**	**46**		**9**			**2**	**17**	**36**	**1**	**5**

Kansas	**603**	**436**	**403**			**30**		**1**	**2**	**149**	**32**	**7**	**26**
Sac and Fox	23	13	10			3				9	1	1	
Potawatomi	275	225	205			18		1	1	42	12	5	16
Iowa	175	92	87			5				71	16	1	4
Kickapoo	130	106	101			4			1	27	3		6
Minnesota	**4,512**	**4,150**	**3,094**	**72**	**119**	**463**		**383**	**19**	**180**	**242**	**68**	**60**
Consolidated Chippewa	3,811	3,537	2,776	72		399		275	15	180	130	44	36
Pipestone	72	70	55			14			1		2		
Red Lake	629	543	263		119	50		108	3		110	24	24
Mississippi: Choctaw	**579**	**427**		**423**		**4**					**164**		**12**
Montana	**5,016**	**4,733**	**3,279**	**628**	**176**	**208**	**73**	**359**	**10**	**99**	**410**	**135**	**144**
Blackfeet	1,343	1,200	669	371		66		94			143		
Crow	633	589	552			19	11	7			62	38	18
Flathead	982	874	647			32	37	158		8	124	40	24
Fort Belknap	466	446	405		12		25	4		26	10	8	6
Fort Peck	785	906	746		72	67		12	9		32	25	81
Rocky Boys'	360	358	140	186	26	4		2			2	2	
Tongue River	447	360	120	71	66	20		82	1	65	37	22	15
Nebraska	**1,437**	**1,415**	**1,190**	**2**		**41**		**165**	**17**	**19**	**5**	**3**	
Winnebago:													
Winnebago	385	385	322			8		47	8				
Omaha	526	521	450			24		40	7	2	5	3	
Santee	396	379	317	2		2		57	1	17			
Ponca	130	130	101			7		21	1				
Nevada	**1,594**	**1,225**	**614**	**287**	**42**	**268**		**2**	**12**	**151**	**303**	**40**	**40**
Carson	789	601	333	127		141				74	137	13	23
Pyramid Lake	150	124	19	79		26				12	20	1	6
Moapa River (under Paiute, Utah)	37	37	26			11					8	1	
Walker River:													
Fallon	106	78	33	22		23				16	13	2	1
Walker River	109	80	5	52	23					12	17	5	
Mason-Smith Valleys	111	59	19	4		35		1		17	52	6	
Scattered Indians	96	63	56		7					18	33	2	
Western Shoshone	196	183	123	3	12	32		1	12	2	23	10	10
New Mexico	**9,271**	**5,115**	**146**	**1,966**	**1,204**	**880**	**365**	**503**	**51**	**13**	**4,581**	**92**	**232**
Jicarilla	172	165	9			15		90	51	3	14	9	7
Mescalero	206	189	18	148	13	9		1			30	6	13
Navajo:													
Eastern Navajo	2,775	888	50	23	571	123		121			2,108		21
Northern Navajo	3,172	1,118		278	620	160		60			2,086		32
Northern Pueblos	631	645	8	427		147		63			40		54
Southern Pueblos	1,764	1,598	54	889		373	116	166		10	232	51	73
Zuni	551	512	7	201		53	249	2			71	26	32
North Carolina: Cherokee	**1,230**	**865**	**272**	**322**	**260**	**10**			**1**	**377**	**29**	**17**	**41**
North Dakota	**3,983**	**3,207**	**1,559**	**682**	**221**	**182**	**53**	**497**	**13**	**393**	**511**	**139**	**117**
Fort Berthold	442	415	222	105		11		74	3	23	21	12	8
Fort Totten	231	215	78	22	25			90		2	40	38	24
Standing Rock	1,088	813	619		1	93	53	39	8	110	203	69	38
Turtle Mountain	2,222	1,764	640	555	195	78		294	2	258	247	20	47

1934 data.

TABLE 3.—*Indian school population and school enrollment during fiscal year ended June 30, 1935*—Continued

State and jurisdiction	Indian children, 6 to 18	Enrollment								Definite information not available	Not enrolled in any school	Not eligible for enrollment	Under 6 years and over 18 years in all schools
		Total number	Local public	Federal day	Federal reservation boarding	Federal nonreservation boarding	Mission private and State day	Mission private and State boarding	Sanatoria				
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Oklahoma	37,369	30,718	25,828	256	2,778	447	219	1,174	16	1,156	734	137	350
Cheyenne and Arapaho	546	416	175		204	34		3		69	118	26	55
Kiowa	1,930	1,594	994		424	94	61	14	7	321	107	18	92
Osage	1,334	1,020	761				129	130		294	79	59	59
Pawnee:													
Kaw	176	119	107		7	5				56	6		5
Pawnee	276	238	163		53	21			1	49	14	3	25
Ponca	260	234	147		69	13	2	3		22	20	2	16
Otoe	248	184	126		48	10				53	18	6	7
Tonkawa	18	14	9		1	4				4	1		1
Quapaw	868	677	601		52	20	4			202	206	8	27
Shawnee	1,123	1,021	863		3	43	23	81	8	86	165	15	63
Five Civilized Tribes	30,590	25,201	21,882	256	1,917	203		943					
Cherokee Nation	12,992	10,616	9,369	153	790	71		233					
Chickasaw	3,546	2,678	2,421	40	182	21		14					
Choctaw	5,522	5,847	4,714	54	553	63		463					
Creek	7,641	5,199	4,627	9	364	44		155					
Seminole	889	861	751		28	4		78					
Oregon	1,224	1,077	616	83	177	30	12	119	40	32	161	39	25
Klamath	408	393	294	5	3	12		76	3		31	9	16
Salem:													
Siletz	150	137	129	1		4	1	1	1	3	10		
Grande Ronde	100	85	77			3			5	5	10	1	
Public Domain	20	1				1				19	19		
Umatilla	238	203	116			10	9	42	26	5	41	14	9
Warm Springs	308	258		77	174		2		5		50	15	
South Dakota	7,929	6,903	2,642	1,208	1,127	604	117	1,177	28	389	1,140	320	381
Cheyenne River	897	845	353	108	197	110	3	74		30	82	28	60
Crow Creek:													
Crow Creek	225	227	128		4	24		71		8	3	3	13
Lower Brule	210	177	93		9	31	44			8	31		6
Flandreau	92	85	54	2	2	22	4	1		7	2	1	
Pine Ridge	2,543	2,260	541	743	535	25	25	390	1	48	346	132	111
Rosebud	1,928	1,725	602	352	225	93	10	441	2	16	448	104	120
Yankton	709	468	287	3	20	70	31	50	7	191	65	33	15

Sisseton	718	664	350	----------	----------	199	----------	104	11	17	72	19	35
Standing Rock [1]	607	452	234	----------	135	30	----------	46	7	64	91	----------	21
Utah	452	371	152	130	54	32	----------	3	----------	10	87	29	7
Uintah and Ouray	337	294	130	91	53	17	----------	3	----------	1	49	19	7
Paiute:													
Goshute	39	33	----------	31	----------	2	----------	----------	----------	----------	6	3	----------
Shivwits	26	23	10	1	----------	12	----------	----------	----------	----------	3	1	----------
Skull Valley	11	8	----------	7	----------	1	----------	----------	----------	2	3	1	----------
Scattered Bands	26	10	10	----------	----------	----------	----------	----------	----------	----------	16	3	----------
Allen Canyon (under Consolidated Ute)	13	3	2	----------	1	----------	----------	----------	----------	7	10	2	----------
Washington	3,496	3,080	2,565	117	14	78	3	195	108	207	366	89	48
Colville:													
Colville	850	764	646	----------	----------	16	----------	102	----------	53	41	13	8
Spokane	270	240	227	----------	----------	----------	----------	9	4	----------	30	9	----------
Taholah	529	464	427	----------	----------	13	3	11	10	11	67	19	13
Tulalip	903	903	710	117	11	14	----------	5	46	11	98	34	----------
Yakima	944	709	555	----------	3	35	----------	68	48	132	130	14	27
Wisconsin	2,838	2,416	981	262	380	153	400	235	5	761	370	62	86
Keshena	572	574	50	151	348	8	9	5	3	6	13	5	34
Lac du Flambeau:													
Lac du Flambeau	218	205	47	110	18	15	4	11	----------	17	14	13	18
Red Cliff	187	170	41	----------	----------	10	106	13	----------	6	11	----------	----------
Crandon	165	89	77	----------	----------	12	----------	----------	----------	50	28	----------	2
Bad River	396	341	103	----------	----------	20	160	58	----------	28	38	8	11
Lac Courte Oreilles	441	397	240	----------	----------	28	90	39	----------	9	47	15	12
St. Croix	94	76	71	----------	----------	3	----------	2	----------	9	9	1	----------
Tomah:													
Oneida	333	313	235	1	14	25	31	6	1	461	20	5	----------
Winnebago	432	251	117	----------	----------	32	----------	101	1	175	190	15	9
Wyoming	729	625	156	169	----------	21	----------	273	6	70	78	17	50
Shoshoni:													
Shoshoni	360	313	117	150	----------	13	----------	30	3	40	40	6	40
Arapaho	369	312	39	19	----------	8	----------	243	3	30	38	11	10

[1] 1934 data

TABLE 4.—*Indian schools, classification and statistics for fiscal year ended June 30, 1935*

State, agency, and school	Enrollment	Average attendance	Grades taught	Class of school
Total	24,192	19,651		
Arizona:				
Colorado River Agency:				
Mohave Indian	15	12	B-4	Day.
Fort Apache Agency:				
Fort Apache	370	220	B-9	Reservation boarding.
Fort Apache day pupils	168	83	B-9	
Canyon	32	20	B-3	Day.
Cibicue	50	46	B-4	Do.
Theodore Roosevelt	265	207	B-9	Reservation boarding.
Hopi Agency:				
Chimopovy	73	64	B-7	Day.
Hotevilla-Bacabi	132	113	B-9	Do.
Oraibi	93	88	B-8	Do.
Polacca	139	116	B-9	Do.
Second Mesa	79	73	B-8	Do.
Navajo Agency:				
Hopi Reservation (part of):				
Keams Canyon (formerly Hopi).	159	154	B-9	Reservation boarding.
Leupp Reservation:				
Leupp	336	301	B-10	Do.
Leupp day pupils	23	18	B-6	
Southern Navajo Reservation:				
Chin Lee	135	135	B-6	Reservation boarding.
Chin Lee day pupils	3	3	B-6	
Southern Navajo (Fort Defiance).	298	287	B-6	
Southern Navajo day pupils.	1	1	B-6	
Tohatchi	190	101	B-7	Day.
Cornfields	30	26	B-5	Do.
Crystal	31	24	B-3	Do.
Kinlichee	31	29	B-3	Do.
Klagetoh	34	29	B-2	Do.
Western Navajo Reservation:				
Tuba City (formerly Western Navajo).	354	348	B-8	Reservation boarding.
Tuba City day pupils	44	29	B-8	
Moencopi	83	76	B-6	Day.
Phoenix School:				
Phoenix	569	468	7-12	Nonreservation boarding.
Pima Agency:				
Pima (Central)	307	189	B-9	Day.
Blackwater	63	44	B-5	Do.
Casa Blanca	126	84	B-5	Do.
Gila Crossing	66	57	B-6	Do.
Maricopa	34	24	B-6	Do.
Salt River	183	158	B-7	Do.
Santan	110	90	B-5	Do.
San Carlos Agency:				
San Carlos	138	85	B-9	Reservation boarding.
San Carlos day pupils	325	261	B-9	
Sells Agency:				
Chui Chiuschu	17	9	B-3	Day.
Kerwo	35	24	B-3	Do.
Poso Redondo	39	20	B-7	Do.
Santa Rosa	127	70	B-6	Do.
Sells-Vamori	120	84	B-7	Do.
Ventana	52	36	B-3	Do.
Truxton Canon:				
Truxton Canon	217	198	B-8	Reservation boarding.
Havasupai	36	34	B-5	Day.
Peach Springs	28	24	B-8	Do.
California:				
Sherman Institute	865	650	8-12	Nonreservation boarding.
Colorado:				
Consolidated Ute Agency:				
Ignacio	200	192	B-9	Reservation boarding.
Ute Mountain	88	84	B-7	Do.
Florida:				
Seminole Agency:				
Seminole	48	11	B-4	Day.
Idaho:				
Fort Hall Agency:				
Fort Hall	171	119	B-9	Reservation boarding.

TABLE 4.—*Indian schools, classification and statistics for fiscal year ended June 30, 1935*—Continued

State, agency, and school	Enrollment	Average attendance	Grades taught	Class of school
Iowa:				
Sac and Fox Agency:				
Mesquakie	48	37	B-3	Day.
Kansas:				
Haskell Institute	778	649	10-12	Nonreservation boarding.
Minnesota:				
Consolidated Chippewa Agency:				
Pine Point	71	48	B-8	Day.
Pipestone School	279	271	B-9	Nonreservation boarding.
Red Lake Agency:				
Cross Lake	120	111	B-6	Reservation boarding.
Mississippi:				
Choctaw Agency:				
Bogue Chitto	42	19	B-5	Day.
Bogue Homo	19	12	B-6	Do.
Conehatta	60	35	B-6	Do.
Pearl River	91	68	B-8	Do.
Red Water	60	52	B-6	Do.
Standing Pine	41	21	B-6	Do.
Tucker	76	52	B-7	Do.
Montana:				
Blackfeet Agency:				
Heart Butte	10	4	B	Do.
Rocky Boy's Agency:				
Forest Camp (or Beaver Creek Camp.)	39	19	B-4	Camp Day.
Haystack Butte	45	31	B-9	Day.
Parker Canyon	32	19	B-5	Do.
Rocky Boy's	19	15	B-3	Do.
Sangrey	43	28	B-6	Do.
Tongue River Agency:				
Tongue River	69	64	B-8	Reservation boarding.
Tongue River day pupils	27	19	B-7	
Birney	43	36	B-6	Day.
Muddy Creek	9	7	B-1-2-4-7-8	Do.
Nevada:				
Carson Agency:				
Carson	461	413	B-11	Nonreservation boarding.
Fort McDermitt	36	26	B-6	Day.
Lovelock	41	24	B-7	Do.
Nevada	80	67	B-8	Do.
Walker River Agency:				
Fallon	30	18	B-5	Do.
Walker River	83	57	1-8	Do.
New Mexico:				
Albuquerque School	739	679	7-12 and vocational	Nonreservation boarding.
Jicarilla Agency:				
Jicarilla Apache	93	84	B-6	Reservation boarding.
Mescalero Agency:				
Mescalero	114	97	B-6	Do.
Whitetail Apache	35	25	B-6	Day.
Navajo Agency:				
Charles H. Burke School	434	383	7-12	Nonreservation boarding.
Eastern Navajo Reservation:				
Eastern Navajo (Pueblo Bonito).	397	358	B-6	Reservation boarding.
Pinedale	23	21	B-3	Day.
Northern Navajo Reservation:				
Burnhams	12	8	B	Do.
Biclabito	24	20	B	Do.
San Juan 1 and 2	312	298	B-8	Reservation boarding.
San Juan 1 and 2 day pupils.	76	70	B-8	
Toadlena	221	217	B-6	Do.
Nava	58	47	B-6	Day.
Redrock	34	25	B-4	Do.
Saynostee	75	52	B-3	Do.
Teecnospos	21	14	B-1	Do.
Santa Fe Agency:				
Santa Fe	521	506	6-12	Nonreservation boarding.
Nambe	25	23	B-6	Day.
Picuris	30	27	B-5	Do.
San Ildefonso	30	25	B-6	Do.
San Juan	85	77	B-6	Do.
Santa Clara	66	62	B-6	Do.
Taos	187	178	B-9	Do.
Tesuque	22	15	B-6	Do.

TABLE 4.—*Indian schools, classification and statistics for fiscal year ended June 30, 1935*—Continued

State, agency, and school	Enrollment	Average attendance	Grades taught	Class of school
New Mexico—Continued.				
Southern Pueblos Agency:				
Acomita	99	86	B-6	Day.
Chicale	24	19	B-6	Do.
Cochiti	50	46	B-6	Do.
Encinal	15	13	B-4	Do.
Isleta	120	100	B-6	Do.
Jemez Mission	31	27	B-3	Do.
Jemez	50	44	B-6	Do.
Laguna	53	53	B-6	Do.
McCartys	65	55	B-6	Do.
Mesita	25	18	B-6	Do.
Paguate	78	67	B-6	Do.
Paraje	32	28	B-6	Do.
Sandia	20	19	B-6	Do.
San Felipe	60	50	B-6	Do.
Santa Ana	25	25	B-7	Do.
San Domingo	111	95	B-6	Do.
Seama	22	19	B-6	Do.
Sia	21	20	B-6	Do.
Zuni Agency:				
Nutria	24	22	B-6	Do.
Zuni	194	169	1-10	Do.
North Carolina:				
Cherokee Agency:				
Cherokee	208	166	11	Reservation boarding.
Cherokee day pupils	145	119	7-11	
Big Cove	[1] 41	[1] 32	B-5	Day.
Birdtown	61	41	B-7	Do.
Soco	100	71	B-6	Do.
North Dakota:				
Bismarck School	113	107	5-10	Nonreservation boarding.
Fort Berthold Agency:				
Independence	29	17	B-8	Day.
Nishu	24	18	B-7	Do.
Shell Creek	62	40	B-7	Do.
Fort Totten Agency:				
Fort Totten School	121	92	B-10	Reservation boarding.
Fort Totten day pupils	36	27	B-10	
Turtle Mountain Agency:				
Turtle Mountain	651	386	B-10	Day.
Indian Day No. 5	87	52	B-6	Do.
Roussin	84	53	B-3	Do.
Wahpeton School	327	307	1-10	Nonreservation boarding.
Oklahoma:				
Cheyenne and Arapaho Agency:				
Cheyenne and Arapaho	239	185	1-9	Reservation boarding.
Chilocco School	754	652	6-12	Nonreservation boarding.
Kiowa Agency:				
Fort Sill	190	148	2-9	Reservation boarding.
Riverside	234	210	B-9	Do.
Pawnee Agency:				
Pawnee	[2] 195	166	B-9	Do.
Quapaw Agency:				
Seneca	254	247	B-9	Do.
Five Civilized Tribes Agency:				
Sequoyah Orphan Training School	371	349	1-12	Nonreservation boarding.
Creek Nation:				
Euchee	143	110	B-9	Do.
Eufaula	161	150	B-10	Do.
Chickasaw Nation:				
Carter Seminary	197	177	B-9	
Choctaw Nation:				
Jones Male Academy	208	179	B-9	Do.
Wheelock Academy	139	128	B-9	Do.
Oregon:				
Salem School	374	293	8-12	Nonreservation boarding.
Warm Springs Agency:				
Warm Springs	161	146	B-8	Reservation boarding.
Burns	44	41	B-8	Day.
South Dakota:				
Cheyenne River Agency:				
Cheyenne River	205	172	3-9	Reservation boarding.
Cherry Creek	44	25	B-6	Day.
Green Grass	32	21	B-6	Do.
Thunder Butte	25	19	B-6	Do.

[1] Data from report of 12-31-34.
[2] 81 of these children attend public school, but live at boarding school.

TABLE 4.—*Indian schools, classification and statistics for fiscal year ended June 30, 1935*—Continued

State, agency, and school	Enrollment	Average attendance	Grades taught	Class of school
South Dakota—Continued.				
Flandreau School	477	429	10–12	Nonreservation boarding.
Pierre School	266	240	1–10	Do.
Pine Ridge Agency:				
Pine Ridge (Oglala)	434	355	B–12	Reservation boarding.
Pine Ridge (Oglala) day pupils.	175	104	B–12	
No. 4	22	20	B–6	Day.
No. 5	48	33	B–6	Do.
No. 6	36	21	B–6	Do.
No. 7	34	21	B–6	Do.
No. 9	42	25	B–6	Do.
No. 10	19	11	B–6	Do.
No. 12	22	44	B–6	Do.
No. 13	16	8	B–5	Do.
No. 15	25	18	B–4	Do.
No. 16	42	17	B–6	Do.
Grass Creek	13	9	B–3	Do.
No. 22	30	17	B–6	Do.
No. 23	26	21	B–6	Do.
No. 24	56	30	B–6	Do.
No. 25	17	23	B–6	Do.
No. 26	24	11	B–6	Do.
Red Shirt Table	22	12	B–6	Do.
American Horse or Allen Day School.	127	80	B–8	Do.
Kyle	174	134	B–9	Do.
Wakpamni Lake	17	12	B–6	Do.
Rosebud Agency:				
Rosebud	235	193	B–10	Do.
Blackpipe	32	20	B–6	Do.
He Dog's Camp	172	105	B–9	Do.
Little Crow	28	23	B–6	Do.
Milk's Camp	31	23	B–5	Do.
Ring Thunder	39	31	B–6	Do.
Soldier Creek	20	14	B–6	Do.
Spring Creek	36	24	B–6	Do.
Utah:				
Paiute Agency:				
Goshute	42	35	B–6	Do.
Kaibab	18	15	B–6	Do.
Uintah and Ouray Agency:				
Uintah	70	46	B–8	Reservation boarding.
Uintah day pupils	104	62	B–8	
Wisconsin:				
Keshena Agency:				
Neopit	38	26	B–8	Day.
Lac du Flambeau Agency:				
Lac du Flambeau	155	119	B–9	Do.
Tomah School	156	64	1–10	Nonreservation boarding.
Wyoming:				
Shoshone Agency:				
Shoshone	163	114	B–9	Do.
St. Lawrence E. C. C. Day	10	9		Do.

SCHOOL SUMMARY

Class	Number of schools	Enrollment	Average attendance
Total	197	24,192	19,651
Nonreservation boarding	21	8,322	7,195
Reservation boarding	30	6,368	5,492
Day	146	9,502	6,964

THE NATIONAL PARK SERVICE

(Arno B. Cammerer, Director)

An expanded National Park Service during the 1935 fiscal year established an outstanding record of achievement. The great Public Works and Emergency Conservation programs, initiated or approved during the preceding year, were in full swing on July 1, 1934, and during the ensuing year were carried on at high speed.

Supervision of work under the emergency programs resulted in a heavy strain on all park supervisory personnel, both in the Washington Office and the field, and entailed an unusual amount of overtime work on a staff long inured to overtime. To insure protection of the natural features of the parks and prevent any operations not in conformity with park policies and ideals, the supervisory forces were greatly augmented under the emergency programs. Technicians skilled in engineering, landscaping, architecture, forestry, wildlife problems, geology, and other natural sciences carefully watched details of field work to enforce compliance with approved plans on all projects.

The sympathetic support of the Secretary of the Interior and other officials of the Department of the Interior and the cooperation of specialists in various other Federal bureaus were invaluable during this period of high-peak activity.

In keeping with its record of achievement the Service reports the most interesting travel figures in the history of the national parks and monuments. Public use of these areas for the travel year which ended September 30, 1934, was the greatest ever experienced. The total number of visitors to the national parks, monuments, military parks, and other areas of the system amounted to 6,337,206. Travel to those national parks for which statistics were published last year showed an increase of 22 percent over the preceding year. No comparative statistics for the total travel are available, since the transfer of numerous areas from the jurisdiction of the War Department and Department of Agriculture was made toward the end of the previous travel year, and complete travel figures for them could not be obtained.

During the summer of 1934 President Roosevelt, with his sons, Franklin, Jr., and John, visited the Hawaii National Park. On August 5, with Mrs. Roosevelt, the President visited Glacier National

Park where over a Nation-wide hook-up he emphasized the recreational and spiritual advantages to be gained from visits to the national parks. Of interest was his suggestion at that time that the slogan "1934—A National Park Year" be changed to "Every Year a National Park Year." Mrs. Roosevelt also visited several other national parks and in a radio talk last spring spoke enthusiastically of her experiences in these areas.

In line with the President's suggestion that every year be a national park year, the preseason travel of 1935 showed a gain over that for the same months of the previous year. Present indications are that last year's record will be well surpassed when the travel season closes on September 30. On June 30 an increase of 2 percent in visitors to the wilderness parks was recorded, with the weekly gain constantly mounting.

Through an allotment from emergency funds the National Park Service was enabled to participate in the California Pacific International Exposition at San Diego. In the exhibits special emphasis was laid upon the activties of the Civilian Conservation Corps in the national parks and monuments. The operation of a model laboratory by enrollees in a booth of the Natural History Museum Building is attracting much attention, as is the model Civilian Conservation Corps camp adjacent to the Federal Building. In the camp a detachment of 50 enrollees demonstrates typical conservation activities on park lands, such as tree planting and trail building. Dioramas, motion pictures, and colored enlargements depict scenes in the national parks.

Field officers of the National Park Service met in conference in Washington last November with officials of the headquarters office and specialists of cooperating bureaus to discuss questions of park policy and administration. This conference was productive of far-reaching results, occurring, as it did, at a time when the Service was expanding its activities in all lines. It was particularly effective in orienting a number of administrative officers newly appointed in the field and Washington.

EMERGENCY CONSERVATION WORK

Continuation of the President's Emergency Conservation Work program permitted the National Park Service to benefit to a still greater degree in the conservation activities for the protection of the national parks and monuments, and provided material expansion in the program for State, county, and metropolitan parks.

The interest which has been stimulated in conservation work in the United States through the Emergency Conservation Work program has, to a large degree, been responsible for a new interest

and appreciation of recreational facilities and has made the citizens of the Nation conscious of the desirability of extending national park and monument boundaries and of the establishment and enlargement of State, county, and metropolitan park areas. As a result, further acquisition of land for State parks came through donations by private individuals or corporations, and, in a number of States, through continued or resumed park-land purchases. In some instances county or city funds were expended in the purchase of desirable park lands.

While no States newly entered the park field during the past 12 months, the addition of new parks and enlargement of older holdings proceeded steadily. The National Park Service records an increase in State parks of 67,300 acres of land during the 7 months from September 1, 1934, to April 1, 1935, and additional acreage has been acquired since then. These additions have been in the States of Alabama, Arkansas, California, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, New Hampshire, New York, North Dakota, Ohio, Rhode Island, South Carolina, Tennessee, Texas, Virginia, Washington, and West Virginia.

In order to assist in formulating park policies and programs dealing with the States, the following advisory committee on State parks was appointed to serve without compensation:

Col. Richard Lieber, president of the national conference on State parks, and past director of the Conservation Commission of Indiana, as chairman; Horace M. Albright, past director of the National Park Service; Harland Bartholomew, city planner of St. Louis; Tom Wallace, newspaper editor and park enthusiast, Louisville; and Miss Harlean James, secretary of the American Planning and Civic Association. William E. Carson, past chairman of the Virginia Conservation and Development Commission, also was appointed as collaborator to assist in State park work.

The Director continued to serve as the Interior Department representative on the Advisory Council to Hon. Robert Fechner, Director of Emergency Conservation Work, with the Associate Director as alternate. Chief Forester J. D. Coffman acted as liaison officer for the various bureaus of the Department of the Interior and supervised the program for the national parks and monuments. Assistant Director Conrad L. Wirth, Chief of the Branch of Planning, directed the Emergency Conservation Work in the State parks and related areas.

All Civilian Conservation Corps work within areas under the jurisdiction of the National Park Service continued to be carefully planned by experienced landscape architects, engineers, foresters, wildlife

experts, geologists, and archeologists so as to preserve the distinct natural features. In addition, in the historical and military parks historical technicians were utilized to insure the careful preservation and interpretation of the historical values.

During the third enrollment period, April 1 to September 30, 1934, which came partly within the fiscal year 1935, 102 camps were operated in national parks and monuments and 208 in State parks and related areas, the camps being located in 40 different States. During the fourth enrollment period, October 1, 1934, to March 31, 1935, 79 camps were operated in national parks and monuments and 293 in State parks and associated areas, the camps being in 41 States. When the drought relief Emergency Conservation Work program was established, six drought relief Emergency Conservation Work camps were assigned to national parks and monuments and 52 such camps to the State parks and other areas subject to the administration of the State Park Division.

The legislation extending the Emergency Conservation Work for another 2-year period enabled the President to authorize an increase in the scope of the program; and a total of 600 camps was allotted to the National Park Service for the fifth enrollment period, April 1 to September 30, 1935, with 118 camps in national parks and monuments and 482 in State-park areas. Plans are under way to continue the camps for the sixth enrollment period, October 1, 1935, to March 31, 1936. When, in January 1934, the Emergency Conservation Work program was extended to the Hawaiian Islands, with 577 enrollees on four islands working from camps and from their homes, general supervision was assigned to the National Park Service. Subsequently, the program for the participation of the Territory of Hawaii has been increased so that 1,212 enrollees now are allotted to that work. In the second enrollment period one 200-man camp was established at Hawaii National Park, and it has continued in operation to date. Also in December 1934, two camps, one composed of 60 enrollees on the Island of St. Thomas and another of 100 enrollees on the Island of St. Croix, were assigned to the Virgin Islands.

Approximately 150,000 young men in all have been engaged in the work subject to the National Park Service, with the employment of about 6,000 professionally and technically trained individuals to direct the work.

A statement of material accomplishments under the Emergency Conservation Work program in National, State, and allied areas under National Park Service supervision is given in table 9.

RECREATIONAL LAND-USE REPORT TO NATIONAL RESOURCES BOARD

The Recreation Division of the National Resources Board, set up within the National Park Service for the purpose of preparing that section of the Board's report entitled "Recreational Use of Land in the United States", submitted a preliminary report on October 1 and the final report on November 1.

With the limited time allotted to its preparation, a detailed study of the underlying basic facts concerning recreational needs and existing facilities throughout the Nation could not be undertaken. It was possible, however, to accumulate much valuable information on the subject in the brief time available.

The report strongly showed the need for a broad and exhaustive Nation-wide survey on this subject and contained an urgent recommendation therefor. As a result, plans for such a survey have been approved by the Secretary of the Interior and hopes are entertained that an allotment for the purpose may be made available from emergency funds.

The recreation division of the report was prepared by a committee consisting of George M. Wright, Chief of the Wildlife Division, chairman; Assistant Director Conrad L. Wirth; and Chief Forester John D. Coffman. Herbert Evison, Supervisor of State Park Emergency Conservation Work, served as principal assistant to the chairman, and the services of L. H. Weir, recreational specialist of the National Recreational Association, were obtained on a full-time basis during the preparation of the report.

In view of projected plans for a further study of the broad field of recreation, continuation of the committee was deemed desirable. Mr. Wright continues as chairman, Mr. Wirth is vice chairman, and Mr. Evison executive secretary.

LEGISLATION PENDING TO PROVIDE FEDERAL COOPERATION IN STATE PARK DEVELOPMENT

Bills to provide Federal cooperation in the development of State parks were reintroduced in the Seventy-fourth Congress and received favorable committee reports in both the Senate and House of Representatives.

The proposed legislation would give the Secretary of the Interior power to authorize the National Park Service, cooperating with other Federal and State agencies, to make a comprehensive study of the public parks, parkways, and recreational-area programs of the United States, and to aid the States in planning, establishing, improving, and

maintaining those areas. This is in accordance with the recommendations of the Recreation Division of the National Resources Board.

An important proviso of the pending bills is the authority granted the President, upon recommendation of the Secretary of the Interior and concurrence of the Department having jurisdiction, to transfer such Federal lands to the State as are not required for Federal purposes and are chiefly valuable for recreation.

The National Conference on State Parks, made up of State park authorities, has uniformly endorsed this proposed legislation, as has the American Planning and Civic Association, the Association of State Foresters, and other organizations interested in conservation. The benefit that would accrue from it has been amply demonstrated during the past 2 years by the results of the temporary cooperation brought about by supervision of State Park Emergency Conservation Work activities of the National Park Service.

SPORT AND OTHER WINTER USE OF PARK AREAS GROWING

Once considered as purely seasonal in their public appeal, the national parks and monuments are becoming of increasing interest for winter use each year. This growing use during the late fall, winter, and early spring months is bringing up problems in connection with all-year personnel, accommodations for visitors, and particularly winter-sport development to which a great deal of study is being given.

The most striking winter-use development is that in connection with winter sports. This development has not come about through the efforts of the National Park Service to stress or publicize this type of use. Rather the public demand for cold-weather recreational areas has impelled the Service to take cognizance of the possibilities for cold-weather sport use of many areas under its supervision, and to make them available for such use where practicable with limited funds and personnel.

The action of the National Ski Association, at its annual meeting in Chicago last December, in selecting Mount Rainier National Park as the scene of its national championship downhill and slalom ski races focused attention definitely upon the outstanding opportunities for winter-sport developments available in those mountainous national parks enjoying comparatively mild climates and easy accessibility. The championship meet, which took place at Paradise Valley, was one of outstanding interest and attracted 7,000 visitors. Parking space for 2,000 cars was provided. Mount Rainier was also the scene of tryouts of contestants in certain ski events to represent the United States in the next Olympic games.

Yosemite National Park continued to be one of the important centers in winter sports. The second annual invitation ski meet was held February 2 and 3 on the ski slopes about 15 miles above the floor of the valley. Skiing has become the principal winter attraction in Yosemite, and the all-year maintenance of the Wawona Road and a portion of the Glacier Point Road resulted in the use of contiguous areas by thousands. From December 22 to March 31, 11,914 people used the ski fields, the total in 1 day being as high as 500.

The Giant Forest-Lodgepole winter area in Sequoia National Park attracts thousands of visitors from the valley cities of California, about 2 hours' drive from the park over excellent paved roads. The annual Sierra-San Joaquin Winter Carnival, heretofore held in Yosemite, took place at Lodgepole on January 12 and 13, with an attendance of over 4,000 people on the latter day.

Informal use of toboggan slides and skating rinks in the General Grant National Park has shown a considerable increase and the demand for these facilities continues to grow. The tenth annual ceremony at the base of the General Grant Tree, dedicated as the Nation's Christmas Tree, was held at high noon on Christmas Day.

Although weather conditions in Rocky Mountain National Park were exceptionally mild, public interest in winter-sports activities in this area, which was one of the pioneers in the national park field, showed a marked increase. Tournaments sponsored by the Estes Park Snow Club and the Ski Club of Grand Lake were well attended, and the fifth midsummer ski carnival held in Estes Park on June 22 and 23 by the local club was an outstanding success.

The Crater Lake Ski Club held a carnival at Fort Klamath in March. One of the features of this annual meet was a 16-mile downhill race from Crater Lake Lodge to the ski grounds, and another 32-mile race comprising a round trip between these two points.

The third annual ski tournament, sponsored and conducted by the Mount Lassen Ski Club, was held in Lassen Volcanic National Park. In this the National Park Service has taken no active part, but with the constantly increasing demand for winter sports in the park, officials are striving to make available facilities for such activities on a safe and satisfactory basis. So far inadequacy of funds and equipment has prevented much progress.

Hot Springs, Hawaii, and Grand Canyon National Parks also are popular during the winter, Hot Springs in particular being famous for many years as a winter resort. Hawaii Park, from the climatic standpoint, is equally favorable to travel throughout the year. Carlsbad Caverns has a goodly share of visitors in the winter. Al-

though encountering changing weather conditions on the surface, visitors find in the caverns a practically stable temperature of 56° Fahrenheit throughout the year. No official count was made of winter travel to the Great Smoky Mountains National Park, but park officers reported that the number of visitors to that area continued to mount. Wind Cave and Platt also showed decided gains. Other national parks to remain open all year were Acadia, Zion, Fort McHenry, and Lincoln's Birthplace. Of the 24 national parks, but 6 now are closed to winter travel.

The ideal season for visits to Death Valley and many of the other southwestern national monuments is during the winter months. Travel to Death Valley National Monument for the winter season showed a phenomenal increase, a number of the visitors utilizing the airplane facilities at Furnace Creek.

The historic areas of the East and South entertain visitors throughout the year, and this use is expected to grow as developments now under way are completed.

INFORMATION SERVICE TO THE PUBLIC

All possible effort was made to furnish to the public full information on the national parks. In the field of printed material, however, adequate service was impossible because of the limited funds available. So small were the editions of information circulars which could be issued for the scenic parks that the supplies retained for distribution from the Washington office were in most cases exhausted by the end of June, shortly after the regular park travel season opened. It is predicted that the supplies of practically all of these booklets will be completely exhausted, both in Washington and in the field, by the first of September.

If the National Park Service is to continue to function fully for the benefit of the traveling public, it is imperative that adequate printing funds be made available. Plans now are being made to go to press within the next 4 months on all the park information circulars for 1936, in order that printed information may be available as early in the coming calendar year as possible for the use of those planning park trips, for clubs and other organizations undertaking national park study courses, for students making parks the theme of their dissertations, and for the great body of school children, the future travelers of the Nation, who now are intensively studying the subject of parks.

Available printing funds now permit the publication of exceedingly limited editions of information circulars on the older scenic parks only. No provision is made in the printing allotment for guides to the points of interest in the military and other historic

and prehistoric parks and monuments which, since President Roosevelt's reorganization of August 1933, make up more than half the number of parks and monuments under the administration of the National Park Service. If these areas are to be of maximum usefulness and enjoyment to visitors, they must be interpreted in the light of the events which made them of national interest. To do this printed material is essential, since it is obvious that the two million people visiting these areas cannot all obtain information through first-hand contact with the limited ranger-historian staff. During the past 2 years the Service has endeavored to meet this situation through the issuance of small leaflets prepared by the multilith process through the courtesy of the miscellaneous service division of the Department of the Interior. Because of limitations of equipment and personnel in that division, the leaflets necessarily are held to a small size and to extremely small editions inadequate to meet the demand.

One of the greatest needs of the interpretation program in the Service today is to have made available the results of studies conducted by the various scientific and technical staffs of the Service for distribution in printed form. Otherwise in many cases the benefits of the projects undertaken are largely nullified. This condition prevails particularly in the field of wildlife, where studies are made for the purpose of obtaining data to serve as the basis for the formulation of broad programs looking toward the preservation in unmodified condition of the native fauna in our national parks. Only one such report could be issued during the year.

Through the cooperation of the director of emergency conservation work, a revised edition of 50,000 copies of the publication entitled "Glimpses of our National Parks" was issued. The revised booklet, outlining the general objectives of the National Park Service and the activities of the Civilian Conservation Corps in the national parks, in addition to descriptive material on these areas, made an interesting addition to the libraries of the Civilian Conservation Corps camps.

POSTERS

The first colored posters depicting national-park activities to be printed by the Department of the Interior were issued shortly after the close of the 1934 fiscal year. These were followed by 2 others stressing winter sport activities, and later by another series of 3 representing historic, prehistoric, and wildlife phases of national-park work. Only small editions of these various posters, financed from emergency funds, were possible. The demand for them, and their display in places prominent throughout the country,

proved the desirability of the extension of this type of printing. Educational institutions showed a marked interest in the posters, using them in connection with art and geography classes, and for general display.

RADIO BROADCASTS

Probably the widest publicity given to the national parks and monuments during the past year resulted from the expanded radio programs. Through the courtesy of the National Broadcasting Company, a series of 14 Nation-wide broadcasts was given in the late spring and early summer, with half-hour programs. The Secretary of the Interior opened the series; Mrs. Roosevelt gave an interesting talk on practical phases of park trips, such as the safety of horseback riding and desirable costuming; and officials of cooperating Federal bureaus joined National Park Service officials in the discussion of many phases of park work. The Marine Band cooperated by playing on 6 of the programs, the Navy Band on 1, and the Army Band on 1. Vocal selections on several of the programs were given by Civilian Conservation Corps enrollees.

Under the auspices of the State chamber of commerce and the Federal Business Association of California, several radio talks were given by officials of the National Park Service in the West during the months of April, May, and June.

In addition to the Nation-wide and other special broadcasts, a series of 20 mimeographed talks on specialized park subjects was prepared in the Washington office of the National Park Service and sent to more than 200 radio stations requesting such material.

VISUAL EDUCATION SERVICE

Under the emergency program it was possible to push the motion picture production program, with the principal objective of recording the accomplishments of the Civilian Conservation Corps in the areas under the jurisdiction of the National Park Service. During the year 6 silent and 9 sound reels were produced depicting Civilian Conservation Corps activities in national and State parks. One, a two-reel sound picture, is attracting much attention at the California Pacific International Exposition.

In connection with the extensive educational program of the Civilian Conservation Corps camps, a cooperative agreement between the University of Chicago, Electrical Research Products, and the National Park Service resulted in the production and circulation among the camps of six reels of sound pictures in the field of elementary physical geology.

Besides this emergency phase of the visual educational service, the National Park Service continued to produce photographs, glass

slides, film slides, and other related visual aids in connection with national parks and monuments for the use of the general public. Such material is furnished on loan for reproduction or showing. Of outstanding interest was the furnishing of pictorial material to the rotogravure sections of various newspapers and news services, and its wide-spread reproduction throughout the press of the country.

An enlarging laboratory was established as part of the Public Works project to provide colored photographic enlargements of national-park scenes for Government buildings. More than 2,000 enlargements were produced and distributed.

RESEARCH AND EDUCATIONAL ACTIVITIES

Work in the fields of research and education has shown advances along all lines. Public interest in guided field trips and the museum and lecture services, coupled with the availability of emergency relief funds, has resulted in considerable expansion. It is interesting to note that the demand exceeded the increase in personnel, so that the educational staffs in the national parks and monuments were hard pushed to handle the crowds desiring to study nature and history at first hand.

A notable contribution of the emergency conservation work to the national park educational service was the employment of several geologists to assist in planning work projects for the 600 Civilian Conservation Corps camps in national and State parks, with a view to so locating trails and other construction activities as to protect all important geological exhibits from possible scar or destruction. Most of the national parks contain noteworthy geologic features or phenomena, not only of inspirational value but also illustrating such great geologic concepts as geologic time, crustal movement, earth sculpturing, stratigraphic sequence, and evolution—in short, the history of the earth.

Under the Emergency Conservation Work program it also was possible to employ wildlife technicians to protect the park animals and their habitats from depredations that might have otherwise resulted from emergency activities.

Field trips, short and long, under the guidance of ranger-naturalists, continued to be one of the most popular of the educational services rendered to the public. Experiments in specialized trips devoted to the study of flowers, trees, animals, and birds have proved that they are desirable in the larger parks where interested groups may be formed for such study.

The lecture service was made more attractive in several of the national parks through the construction of numerous amphitheaters

with Civilian Conservation Corps labor, and the providing of log circles in the public camp grounds. This made possible the transfer of lectures from hotel and lodge lobbies to informal locations more in keeping with the spirit of the outdoors and entirely under Government auspices.

DEVELOPMENTS IN THE HISTORICAL FIELD

The historical and archeological program of the National Park Service continued to broaden and to demonstrate its scientific value. This fact, coupled with the desirability of extending and expanding the system to include the majority of the historic sites of national importance and of integrating the various prehistoric, colonial, socially historic, and military areas into one unified system telling the story of our country from its earliest beginnings, led to the establishment on July 1, 1935, of a branch of historic sites and buildings.

Further expansion in the historic field is proposed in a bill introduced in Congress at the request of the Secretary of the Interior. This pending legislation embodies the proposal to empower the Secretary of the Interior, through the National Park Service, to conduct a Nation-wide survey of historic buildings and sites, and to make it possible for the Federal Government to acquire those which are determined to be of sufficient importance to warrant national recognition. The program provides for cooperation with State and local governments and private individuals in preserving and restoring historic sites and buildings and the means for effectuating major policies.

Formulation of this broad program by the Secretary of the Interior followed a study made at his instructions by J. Thomas Schneider of the preservation of historic buildings and sites in this and neighboring countries and in Europe for the purpose of obtaining data concerning the policies, administration, and activities in this field of various organizations and of foreign Governments. Later Mr. Schneider assisted in drafting the legislation referred to above.

Another bill to establish a National Park Trust Fund Board to invest gifts of funds and property has passed both the House and Senate and awaits the President's signature. Through this legislation acceptable bequests made by State and local governments and private individuals will be held in a trust fund for use in acquiring historic sites and other areas or objects relating to the activities of the Service.

Throughout the past year operation of the military areas transferred to the Service by the President's reorganization of August

1933 was made possible primarily through the application of emergency funds to work therein, and the availability of Civilian Conservation Corps personnel. Not only could protection, improvement, and maintenance be carried on through this emergency organization, but also informative and guide service to the visiting public. This latter activity was the subject of much favorable comment. In a lesser degree emergency funds advanced the work and personal service in other historic areas.

In the Southwest the beginning of an exhaustive study of old Spanish missions has been made, and the San Diego Exposition has brought into highlight the Cabrillo area, where the first Spanish contacts with the West took place. The historical work of the Service has received increasing attention and cooperation from learned and academic organizations, an example of which was the Nation-wide inventory of local historical materials undertaken during the winter under the Federal Emergency Relief Administration. The Historical Division acted as national coordinator for this work which was sponsored by the American Council of Learned Societies and the Social Science Research Council.

MUSEUM EXPANSION

The development of museums in national parks plays a fundamental part in the educational program, and its progress under emergency measures has advanced it to a place of prominence. West of the Mississippi, 21 national parks and monuments include museums as a part of their educational equipment, and 9 of the eastern parks and monuments now have museums.

Exhibits for the eastern museums are in the course of preparation, the work being directed from the headquarters of the Eastern Museum Division in Washington, established in February. With funds made available from public works allotments, museum curators were assigned to eight eastern parks and monuments, and studies made upon which to base the new museum program. At Morristown National Historical Park a field laboratory was established in which a beginning has been made in preparing the variety of exhibits required by the museums in the eastern park areas. The program of the Eastern Museum Division also included plans for a museum in the New Interior Department Building. Its purpose will be to depict the story of the work of the bureaus, show the significance of the organization, and explain the objectives of the Department.

After careful study the museums of many of the western parks and monuments were improved and enlarged. Several new museum buildings have been constructed, equipment purchased, and installations made.

At field educational headquarters in Berkeley and at the Fort Hunt Model Laboratory notable progress was made in the preparation of relief models and miniature exhibits.

LIBRARY DEVELOPMENTS

Practical work in the preparation of bibliographies for parks and monuments was pursued at field educational headquarters with research workers and trained librarians, employed under the Civil Works Administration and the State Emergency Relief Administration. Some 30,000 entries constitute the present systematized card files of the general parks bibliography maintained at the Berkeley office. Papers on the geology, biology, ethnology, archeology, and history of certain western park areas were prepared by research workers to facilitate planning of museum exhibits, and were mimeographed and distributed to park personnel, libraries, and other institutions desiring them. The University of California has continued its cooperation in this library work by making available the facilities of the School of Librarianship, as well as extending unusual privileges in permitting the park staff to use laboratory space and desk equipment.

EDUCATIONAL ADVISORY BOARD

The Educational Advisory Board, appointed by the Secretary of the Interior in an informal capacity as educational advisers to the National Park Service, continued to give valuable assistance in the fields of natural science and history. Two meetings of the Board were held during the year, one on November 9 and 10, 1934, and the other on March 18 and 19, 1935.

At the November meeting the discussions dealt principally with pressing wildlife problems. Special consideration was given to the deplorable condition of the winter elk range in the northern portion of Yellowstone National Park, and it was recommended that an elk reduction program be conducted as an emergency measure. The Board emphasized the fact, however, that the only permanent protective measure for the northern Yellowstone elk herds would be adequate winter range lands.

The Service laid before the Board the proposal that had been made to it for the creation of a lake in the Cades Cove section of the Great Smoky Mountains National Park, that proposal being based upon the premise that at some time in the modern geologic age there might have been a lake in the cove. Upon the findings of the Board that there was no evidence of such a lake ever having been in existence, and its recommendation that none be created, the proposal to introduce an artificial body of water into Cades Cove was acted upon adversely by the Service as being inconsistent with the fundamental principles involved in national-park standards.

The Advisory Board passed a resolution deploring the lack of funds for printing information circulars and expressing the conviction that a full educational and informational program is impossible of achievement without adequate provision for printed material.

At the March meeting the main subject of discussion was new projects in which the National Park Service is vitally interested. Recognizing the importance to conservation of park boundaries sufficiently extensive to include important breeding grounds and winter feeding grounds for wildlife, the Board endorsed the action of the committee on boundary lines in recommending the maximum areas planned for the Everglades National Park. The Board approved in principle the Mount Olympus, Big Bend, and Kings Canyon National Park projects.

Among other problems discussed was that of saving cultural values in national parks, particularly the Great Smoky Mountains, by recording and preserving folk arts.

YOSEMITE SCHOOL OF FIELD NATURAL HISTORY

The tenth annual session of the Yosemite School of Field Natural History, conducted during 1934, was eminently successful. The eleventh session, now in progress, convened the last week in June. The course, which includes a 2 weeks' pack trip into the High Sierra, will last 7 weeks. Special emphasis is given to fieldwork in geology, botany, forestry, mammalogy, ornithology, entomology, and nature guiding. The school is supplemental to college work in these fields, and students must have had 3 years of college work or its equivalent.

It is increasingly apparent that the Yosemite field school, with its training in methods of interpreting living nature, is a needed institution looking toward the improvement of the naturalist service. Five of its graduates were employed during the 1934 summer season as ranger-naturalists in the parks and several others assisted in the wildlife program instituted under emergency funds, making a total of 30 graduates employed by the National Park Service as temporary or permanent naturalists or rangers prior to the current year.

As the 1935 fiscal year drew to a close, plans were being made for the employment of a greater number of graduates during the 1935 season than were used a year ago.

POSSIBILITIES FOR SCIENTIFIC RESEARCH ATTRACT STUDENT AND SCIENTIST ALIKE

The unexcelled opportunities afforded in the national parks and monuments as outdoor laboratories for the study of the natural sciences has led to the use of these areas by numerous educational institutions and individual scientists.

Oglethorpe University sent 44 teachers on a tour of the country, including several of the parks. The University of Colorado held a geology field class in Rocky Mountain National Park. The Winold Reiss Art School, under the auspices of the College of Fine Arts of New York University, held a 3 months' session in Glacier National Park. A historical project in visual education was undertaken in Glacier Park by the College of Education of Drake University for which college credit was given. The field course trip of the School of Education, Western Reserve University, Cleveland, Ohio, included in its itinerary Mount Rainier National Park. The University of Hawaii held its fifth summer sessions in Hawaii National Park.

Work in the field of pure research was interesting. Glacial measurements again were made in Yosemite National Park in cooperation with the International Geophysical Union. Seismological experiments also were undertaken in Yosemite by Dr. John Buwalda, of the California Institute of Technology, to determine the depth of glacial debris and the shape of the valley trough. In the Grand Canyon National Park studies were made by Dr. N. E. A. Hinds, of the University of California, of the Algonkian rocks of the eastern portion of the canyon; by Messrs. John H. Maxson and I. N. Campbell, of the California Institute of Technology, of the Archean rocks of the inner gorge; and by the naturalists of the National Park Service of the Permian rocks of the upper walls of the canyon.

Research work was continued by graduate students under the direction of representatives of the faculties of Columbia, Princeton, and Chicago Universities on the geology and physiography of the Yellowstone-Big Horn region. Dr. H. E. Gregory continued geological studies in Zion National Park for the United States Geological Survey. The naturalist staff in Hawaii National Park compiled data on the Silversword plant preparatory to carrying on experiments to determine the best methods for preserving this rare plant in the Haleakala section of the park. The Museum of Northern Arizona again sponsored archeological research in Wupatki National Monument. The Board of Scientific Governors of the Chicago Academy of Sciences passed a resolution approving the establishment of a research station in the Great Smoky Mountains National Park.

Various governmental, semipublic, and private agencies have continued to aid materially in the solution of scientific and technical problems. Dr. E. P. Meinecke, of the Bureau of Plant Industry; Dr. O. G. Murie, of the Bureau of Biological Survey; Dr. T. S. Palmer, formerly of that Bureau; H. B. Hommon, of the Public Health Service; Dr. A. S. Hazard, of the Bureau of Fisheries; Dr.

Alexander Wetmore, of the Smithsonian Institution; and Dr. Waldo G. Leland, of the Council of Learned Societies, have each personally and through the organizations they represent assisted the work of the national-park program. Dr. Charles Moore, of the Fine Arts Commission, has given generously of his time to the careful investigation of many problems relating to the work, as has Mr. H. P. Caemmerer, the secretary of the Commission. The work of Jesse L. Nusbaum, of the Laboratory of Anthropology at Santa Fe; Dr. A. V. Kidder and Earl Morris, of the Carnegie Institution; Dr. Harold S. Colton, of the Museum of Northern Arizona; H. S. Gladwin, of Gila Pueblo; and Neil Judd and F. H. Roberts, of the Smithsonian Institution, have been outstanding on numerous archeological matters referred to them.

Dr. John C. Merriam, president of the Carnegie Institution of Washington, has been particularly helpful in his continued studies of the scientific features of various parks and methods of presenting the findings of scientists to the general public. Numerous other distinguished scientists visited the national parks pursuing independent investigations.

SCIENTIFIC PAPERS

Outstanding among scientific papers, prepared as a result of research in the national parks, were The Glacial History of an Extinct Volcano, Crater Lake National Park, by Wallace W. Atwood, Jr., formerly Chief of the Naturalist Division of the National Park Service, published in the Journal of Geology, February-March 1935; and a paper on the mule deer of California, by Joseph S. Dixon, of the Wildlife Division of the Service, published by the California Fish and Game Commission. Others were Geophysics—Earthquakes associated with the 1933 eruption of Mauna Loa, Hawaii, by Austin E. Jones, Geological Survey (communicated by T. A. Jaggar), published by the United States Geological Survey, and Hawaiian Travel Times, by Austin E. Jones, published by the Seismological Society of America, January 1935. Glaciers of the Grand Teton National Park of Wyoming, by Fritiof Fryxell, was published in the Journal of Geology. The Missouri Botanical Garden in April published in its bulletin Field and Herbarium Studies, III, by Ranger-Naturalist Louis Williams. This is one of a series of short papers dealing with the plants of the Rocky Mountains, and names several plants in Grand Teton National Park not previously found there. Butterflies of Yosemite National Park, by Ranger-Naturalist John S. Garth, was published in the Bulletin of the Southern California Academy of Sciences, January-April 1935. The Botanical Gazette, December 1934, published Schilderia Adamanica: A New Fossil Wood from the Petrified Forests of Arizona, by L. H. Daugherty.

SCIENTIFIC DISCOVERIES

Probably the discovery most important to science made in a national-park area during the past year was the finding on June 7 of the desiccated body of a prehistoric Indian miner who had been trapped by a falling rock in the proposed Mammoth Cave National Park. This specimen is undoubtedly of great importance from a scientific point of view, and every possible effort is being made to obtain the maximum amount of data possible. The individual apparently met his death by accident while engaged in mining operations. The stone under which he was working became loosened and tilted over, trapping him beneath it, pinning him down but not crushing him. Although the air in the cave is moist, the body is in an excellent state of preservation, and experts believe that the air may hold chemicals in suspension which would account for the condition and preservation of the body. Engineers of the National Park Service are studying the best means of moving the rock so as not to destroy the mummy, and a geologist and archeologist are on the ground making a complete investigation.

Although it had been considered by noted scientists that no fossil finds would be made in Death Valley, a park employee discovered near the boundary of the monument practically the entire skull of a titanothere, a prehistoric animal resembling the rhinoceros, but with different horns. A little later, working with a party from the California Institute of Technology, another skull of the same type of mammal was discovered. This was the second discovery of fossil bones from this family west of the Rocky Mountains, and the first discovery of a skull.

Dinosaur tracks were discovered by Civilian Conservation Corps workers in Zion National Park and a 50-foot dinosaur skeleton was found about 1 mile north of the Colorado National Monument boundary.

PROTECTING OUR WILDLIFE

The program to integrate wildlife administration under competent technical supervision, which began with a wildlife survey in 1929, made two significant advances. Wildlife Division headquarters were established in Washington, and a fish section set up in this Division under the Supervisor of Fish Resources.

These steps, together with the addition to the staff of a small corps of wildlife technicians who have initiated and supervised wildlife restoration projects undertaken by the Civilian Conservation Corps, have combined to accelerate the long-time conservation program of the Service.

Among projects completed are the construction of small reservoirs and the conservation of spring waters in the arid Southwest areas,

boundary fencing to protect game ranges, construction of fenced quadrates to facilitate range studies, installation of bear-proof devices, and the erection of storm and feed shelters for birds in eastern historical areas.

A number of study projects, involving species whose status is unsatisfactory, were under way. Outstanding among these is the bighorn study, prosecuted in Glacier, Yellowstone, Rocky Mountain, and Zion National Parks, and Death Valley National Monument. Little is known of bighorn habits and almost nothing concerning its continued decline.

A notable contribution to game management literature is Wildlife Management in the National Parks, no. 2 in the series, Fauna of the National Parks of the United States. The Recreational Land Use report of the National Resources Board, prepared in the National Park Service, places great emphasis upon the major place of a wildlife-restoration program in national recreational planning.

The present happy outlook for saving the trumpeter swan from extinction is the result of national planning. A few pairs, perhaps 10, nested in Yellowstone Park and on the nearby Red Rock Lakes, Mont. With all that could be done for these, the largest of American waterfowl, within the boundaries of the parks, the future remained precarious because of the losses through illegal shooting and lack of protection during the nesting season at Red Rock Lakes. The Interior Department publicized the trumpeter swan story and the Bureau of Biological Survey responded by setting aside the Red Rock Lakes Migratory Bird Refuge. This year there are more trumpeter swans nesting than before and with the elimination of wanton kills at Red Rock a total of more than 80 birds will probably survive the winter.

For a number of years Yellowstone has faced a critical situation due to overutilization of its limited winter range. The program to purchase additional lands to provide winter feed has progressed slowly. It was determined that the elk herd would have to be reduced by 3,000 animals before the winter of 1934–35. The Montana Fish and Game Commission was induced to extend the hunting season and most of the reduction was accomplished by hunters. Nevertheless it was necessary to slaughter a few hundred within the park. This was accomplished in an orderly manner, the meat going to Indian and relief agencies.

Glacier Park faces a similar situation in lack of winter range with consequent overutilization of the available feed. Last winter some deer were lost. A survey of this problem has been under way. Whereas the parks in past years have compensated lack of sufficient winter range by artificial feeding, experience has shown this to be an unsatisfactory method. Game herds artificially fed come through the winter in poorer condition than those left to forage for them-

selves, hence the service has adopted the policy that artificial feeding of native wild game shall be limited to conditions of extreme emergency.

In the interests of economy and administration, jurisdiction over the Wind Cave National Game Preserve was transferred to the National Park Service. Removal of the interior fences and other steps necessary to convert this operation into an exhibit of large game species in a natural environment are under way.

Addition to the national park system of the Dry Tortugas Islands, the area to be known as "Fort Jefferson National Monument", will contribute to the conservation of bird life, especially the sooty and noddy terns not known to nest elsewhere in the United States.

Fish culture hardly has been able to keep pace with the increase in parks fishing. Although no general improvement in this situation can be reported, a comprehensive study of the problems has been made and a constructive fish program evolved which should bring early results. Stream and lake surveys have been made and fish hatchery locations selected and emphasis placed upon the restoration of native game fish. An allotment has been secured for the construction of a fish hatchery at Glacier National Park. Throughout there has been the closest cooperation from the Bureau of Fisheries.

FOREST PROTECTION AND FIRE PREVENTION

The forest-protection and fire-prevention allotment under the regular appropriation act for the fiscal year 1935 permitted only very limited allotments to the parks to meet the barest needs for fire-protection personnel and equipment. As in the preceding fiscal year, all forest-protection improvements, insect and tree-disease control, and type mapping accomplished during the fiscal year were financed from the emergency appropriation, either under Emergency Conservation Work or Public Works. The forest protection accomplishments of the past year are, therefore, largely represented in the reports of the Emergency Conservation Work and Public Works programs. These programs made possible a continuance of the forest-protection development of the national parks and monuments far in advance of that which would have been possible under normal appropriations.

General administration of the Emergency Conservation Work program was handled through the Branch of Forestry by reason of the intimate relationship of that program with the protection of the national parks.

Forest-fire protection.—Despite the very severe fire season of 1934, resulting from a marked deficiency in precipitation during the pre-

vious winter, a very creditable fire record was established for the national parks and monuments. The presence of the Emergency Conservation Work camps was of immense assistance as a fire protection measure through the availability and use of the Civilian Conservation Corps enrollees for fire-patrol and fire-suppression service. In addition to the fires suppressed within the national parks, material assistance was rendered by the National Park Service Emergency Conservation Work camps to cooperating State and Federal fire protection agencies in suppression of fires on adjacent lands under their jurisdiction. In all, a total of 44,339 man-days' labor in fire suppression was furnished by Civilian Conservation Corps enrollees from National Park Service camps.

Mesa Verda National Park, in southwestern Colorado, which is normally free from severe fires, suffered the greatest fire damage of the season when a fire spread from the adjoining Ute Reservation during a period of exceptionally low humidity and strong, hot winds. A total of 2,229 acres was burned within park boundaries, with complete destruction of the pinyon and juniper stands through which the fire traveled. This is especially regrettable because of the slow recovery of the forest in that region of very light rainfall, and also because of the serious erosion following the removal of the vegetative cover.

Insect control.—Follow-up and maintenance insect-control activities were continued during the past year in several of the western national parks, the most important being the work undertaken in Yosemite and Sequoia National Parks.

The mountain pine-beetle infestation, which continues to spread throughout Yellowstone and Grand Teton National Parks and the surrounding national forest areas, became so serious that it was called to the attention of President Roosevelt during the spring of 1935, who expressed deep concern over the situation. It was agreed that the magnitude of the infestation precluded reasonable hope of successful control measures, but at the President's suggestion Public Works funds were provided for reforestation of scenic areas in the vicinity of tourist centers within Yellowstone National Park that have been and will be devastated by this wide-spread epidemic. As an initial step, funds were allotted for continuance of a type-mapping survey and for the establishment of a forest nursery in Yellowstone National Park, both of which will be highly essential in the reforestation program.

Blister rust control.—No new blister rust-control projects were initiated during the past year, but control operations were continued in Acadia and Mount Rainier National Parks and in the proposed Shenandoah National Park. The work in all three areas was accomplished by Civilian Conservation Corps enrollees.

Tree preservation and repair.—During the year the trees in three national cemeteries were given complete care from the standpoint of pruning, feeding, cabling, and girdling root removal, and the trees of greatest importance were given special cavity treatment where needed. This work was made possible by an allotment of Public Works Administration funds. Likewise work of a similar nature, except cavity work, was done in all military and historical parks and monuments, and in the National Capital Parks, with the use of Civilian Conservation Corps personnel. Eight high-powered sprayers were purchased and located at strategically placed Emergency Conservation Work camps to protect from insects and diseases trees in areas of historical importance or of intensive use.

Type mapping.—During the past year type-mapping projects in the East were completed in Colonial National Monument and in the proposed Shenandoah and Mammoth Cave National Parks, and similar projects were initiated in Acadia and Great Smoky Mountains National Parks. In the West the type-mapping field work was completed in Sequoia, General Grant, Zion, Bryce Canyon, and Mesa Verde National Parks and in Bandelier National Monument, and was initiated or resumed this spring in Yosemite, Yellowstone, Grand Canyon, and Glacier National Parks. Special effort is being made to complete as much of the type-mapping program as possible this season.

Fire protection for buildings.—The fire-protection engineer visited several of the eastern parks and monuments, recommended improvements, and instructed park employees in matters pertaining to fire hazards and fire equipment. The objective in this work is the safeguarding of life and property, including irreplaceable records, against fire. There was considerable activity during the year in the review of plans of buildings and water systems with respect to fire-protection standards.

LAND CHANGES IN PARK AND MONUMENT SYSTEM

Changes in the status of national park and monument lands during the past year were mainly in the direction of acquisition of acreage for addition to existing members of the system. No new national parks were created and but one national monument. The total number of areas now supervised by the National Park Service, exclusive of the National Capital parks, is 129, with a total area of 15,249,333.729 acres. There are 24 national parks, 1 national historical park, 68 national monuments, 11 national military parks, 10 battlefield sites, 4 miscellaneous memorials, and 11 national cemeteries.

The 683 reservations comprising the National Capital parks, with an area of 6,775.11 acres, are administered as a separate unit.

FORT JEFFERSON NATIONAL MONUMENT

On January 4, 1935, the Fort Jefferson National Monument, in the Tortugas Keys off the southwestern coast of Florida, was established by Presidential proclamation. Its historic significance is the chief interest in the new monument.

LANDS ADDED TO EXISTING MEMBERS OF SYSTEM

Lands were added as follows to several members of the national park system to include areas of scenic, historic, and scientific importance:

Acadia National Park.—Total area increased to 13,956.49 acres by the donation of 124.25 acres to the Government.

Colonial National Monument.—The acquisition of 5.729 acres brought the total area to 4,250.029 acres.

Fort Matanzas National Monument.—Donation of 17.34 acres increased the total area to 18.34 acres.

Fredericksburg and Spotsylvania County Battlefields Memorial.—A total of 25.78 acres acquired. The total area within the Fredericksburg, Spotsylvania Courthouse, Chancellorsville, Salem Church, and Wilderness area now is 2,439.15 acres.

Hot Springs National Park.—Donation of 63.20 acres brought the total area to 1,008.99 acres.

Morristown National Historical Park.—Total area increased to 953.38 acres by the donation of 0.99 of an acre to the Government.

Muir Woods National Monument.—Donation of 1.36 acres increased total area to 427.79 acres.

Petersburg National Military Park.—Transfer of 1,461.72 acres from the War Department increased total area to 1,971.71 acres.

White Sands National Monument.—Addition of 158.91 acres by Presidential proclamation dated November 28, 1934, made total area 143,145.01 acres.

Private holdings.—In addition to the above acquisitions which served to increase total areas of parks and monuments, several private holdings within the exterior boundaries of park areas were eliminated, primarily through exchange of lands.

PROPOSED ADDITIONS TO THE NATIONAL PARKS SYSTEM

The broad program of planned use of our natural resources, including as it did the study of recreational land resources, has put a new emphasis on the investigation of areas having possible qualifications for addition to the park and monument system and the rounding out of areas already acquired. Two hundred and twenty-four areas which the Service has either investigated or plans to investigate are on the active list at present, and there are 17 major park and monument enlargement projects as well as a number of adjustments under consideration. Though Superintendent Toll, of

Yellowstone National Park, who is in charge of these investigations, has been active as usual, this year it has been necessary to supplement these studies. Preliminary investigation of many areas has been made by inspectors from the regional offices of the State Park E. C. W. As a result many areas unquestionably undesirable will be eliminated from the list and attention concentrated on others that indicate greater possibilities.

Mr. Toll's inspections covered 16 proposed areas, 4 of them being reported favorably.

Field work on a special project, the study of six large areas in and near the Colorado River Basin, conducted by Mr. Toll with the assistance of superintendents and technical men of the field branches in the Southwest, has been completed. The proposed creation of grazing districts under the provisions of the Taylor Grazing Act necessitated concentrating on these studies with a view to designating areas that should be excluded from the grazing act provisions. The Yampa Canyon, the Wayne Wonderland, the Organ Pipe Cactus, the Kofa Mountains, the Kolob Canyons, and the Colorado and Green Rivers were so designated. Recommendations for the establishment of specific areas either as parks or monuments will be forthcoming shortly.

The need for the conserving for the public benefit, of the finer beaches along the Atlantic, Pacific, and Gulf coasts, and the Great Lakes, was thrown into sharp relief by the studies of the National Resources Board. Sixteen proposed seashore recreation areas were studied, and it is recommended that early action be taken to establish the system of national beaches before all of these have passed into private hands or have been subdivided to a degree that would make their acquisition impracticable.

Proposed new parks and monuments and important proposed additions to those already established are discussed briefly below.

NATIONAL PARKS

Crater Lake.—Here is a park so small that it does not extend to the base of the mountain in whose crater the lake lies. In the protection of wildlife and primitive conditions, Crater Lake National Park is almost useless at present. It is proposed to add an area to the north now under the administration of the Forest Service, which contains Diamond Lake. If this additional land could be acquired, it would be possible to develop its rich recreational advantages to the end that overutilization to the consequent detriment of the rim of the crater itself would be prevented.

General Grant.—To secure administrative efficiency and integrity of the park from the topographic standpoint, small but important

additions to the east and south will be needed. The eastern addition would permit visitors to secure scenic outlooks both pleasing and valuable in orienting the General Grant Grove as to location along the Sierra.

Grand Canyon.—As at present constituted, north and south boundaries are too close to the canyon rim to provide for the perpetuation of timbered highlands, wildlife, and the complete range of life zones so intimately connected with the canyon story.

Grand Teton.—This important project to add lands of Jackson Hole needed for the protection of our country's largest elk herd and for the completion of this park as a scenic area has been long considered but always fails of accomplishment because of the complexities of the situation both as to public and private interests. Senate bill 2972 introduced in the Seventy-fourth Congress is not satisfactory to the Service because it omits Jackson Lake, the very heart of the picture. The Public Lands Committee will study the area, and it is hoped that the bill, satisfactorily amended, will soon be passed.

Hawaii.—Extensions to the southeast of the Kilauea-Mauna Loa section of the park would provide for the inclusion of a shore-line section. Such additions might even insure the perpetuation of one of the few unspoiled native villages that remain on the islands.

Hot Springs.—A proposed readjustment of boundary line to include all of West Mountain and Sugar Loaf Mountain, the northeast extremity of Sugar Loaf Mountain now being a segregated unit of the park, would permit the protection of an adequate biotic unit and the development of bridle and foot-path system for the recreational benefit of visitors to the springs.

Kings Canyon.—John Muir was the first to recognize the necessity of setting aside this region as a national park in the public interest. The Sierra Club for 30 years has worked energetically to this end. Never in all this time has the preeminent fitness of the area for inclusion in the National Park Service been questioned. The Forest Service, which has jurisdiction over the area, long has endorsed the park project. If established, this park would include the General Grant Park area.

Senate bill 2289 introduced in the Seventy-fourth Congress at the request of the Secretary of the Interior has met with the strong opposition of local interests, even though boundaries were carefully drawn to exclude any resources which might in the future be needed for the economic benefit of people living in that portion of the San Joaquin Valley watered by the Kings River. A conscientious effort is being made to demonstrate to the local people that a Kings

Canyon National Park would be beneficial to them as well as to the whole of the Nation.

Mesa Verde.—Lands now in an Indian reservation to the south and west of Mesa Verde are needed for the fulfillment of this park. The Service is cooperating with the Bureau of Indian Affairs and the Indians, in an effort to determine whether lands acceptable to the Indians can be found to exchange for the desired area.

Mount Olympus.—Mount Olympus National Monument until recently was under the administration of the Forest Service. Owing to its inaccessibility and the wealth of more accessible timber on the Olympic Peninsula, the monument was not developed and was practically unknown for many years. Twice its area was reduced, until now it is but half its original size. The timber resources of the remainder of the peninsula, however, have been steadily mined and devastated until today there is a strong demand to exploit the last remnant of the finest virgin forest of the Pacific Northwest immediately surrounding the Olympic Peaks.

House bill 7086 introduced in the Seventy-fourth Congress would establish Mount Olympus National Park to include lands now in Mount Olympus National Monument and a representative example of the forested lands in the Olympic National Forest adjacent.

Here again unsound logic is used to build the platform of a small but determined opposition. The last tree, like the last bison, so it is claimed, must be sacrificed to insure economic salvation.

Rocky Mountain.—A number of boundary changes, all of them involving either national forest or private lands and all important from an administrative standpoint, are needed. Grand Lake, the largest lake in Colorado and the west terminus of the recently constructed transmountain highway, should be included in the park. Extension to the south to include the Arapaho Glacier and Arapaho Peak, land of outstanding scenic quality, is also desired. Another proposal would connect the park with the segregated piece of land now containing the park administrative headquarters.

Sequoia.—Redwood Canyon and Redwood Mountain, just to the north of the present park, contain the largest remaining stand of giant redwoods. Incidentally, this is the largest pure stand to be found anywhere. On the south there is the Mineral King region, the upper watershed of the Kaweah River, which by all means should be added to the park.

Yosemite.—The Minaret region, originally within the boundaries of Yosemite, should be restored to the park. If done, this would consolidate the Devil Postpile National Monument with the present park.

Zion.—Kolob Canyons, already mentioned above as being included in the public domain survey in connection with the Taylor Grazing

Act, have had prior study by the Service. It is felt that this region is of outstanding quality and that it should be added to Zion National Park.

NATIONAL MONUMENTS

Many of the national monuments, notably those established some years ago, were created without due consideration of the area necessary for adequate approach and administration; consequently, the Service is greatly handicapped in their development. Plans now maturing call for careful investigation of this subject next winter. Meanwhile recommendations can be made regarding some of them, as follows:

Black Canyon of the Gunnison.—The provision of a proper approach to this area and the development of its full use require considerable additions to the south and north.

Death Valley.—Though only recently established, Death Valley National Monument at once has become one of the most popular areas under the administration of the Service. In this extremely arid country, spring water is more important than anything else. Saratoga Springs to the south and a number of other springs should be included within the monument boundaries, as they are being rapidly preempted, with consequent damage to wildlife, especially the desert bighorn.

A petition to have the monument extended to the westward to include all of Panamint Valley has been presented to the Secretary and referred by him to the Service for study.

Dinosaur.—Consideration is being given to the addition of land for an approach to the monument and also the possibility of establishing a connection between this monument and the proposed Yampa Canyon National Monument, a short distance up the Colorado River in the State of Colorado.

Glacier Bay.—It is proposed to extend Glacier Bay National Monument on the west to the Pacific Ocean and on the south to Cross Sound and Icy Straits. These lands include coastal-stream habitats of the Alaska brown bear and an excellent stand of virgin timber, as well. The scenic quality is high.

Other monuments.—Among the national monuments that would benefit administratively from minor boundary revisions are Wupatki, Arches, Chiricahua, Devils Tower, El Morro, Fossil Cycad, Fort Pulaski, George Washington Birthplace, Scotts Bluff, Tonto, White Sands, Fort Jefferson, and Montezuma Castle. The desirability of other adjustments probably will be brought out in the survey to be undertaken next year.

NATIONAL MILITARY PARKS

The entire field of military parks, turned over to the Service in 1933, now is being carefully studied by the historians of the Service, and it is expected that several extensions will be recommended during the coming year.

STATUS OF NATIONAL PARK AND MONUMENT PROJECTS AUTHORIZED BY CONGRESS

Shenandoah.—Deeds covering the minimum required area have been tendered. Acceptance of the lands by the Federal Government is contingent upon the clearance of title by the Department of Justice and the outcome of a suit pending in the Supreme Court of the United States on an appeal instituted by a landowner to test the constitutionality of the Virginia State condemnation law.

Isle Royale.—No active steps were taken during the year by the Isle Royale Park Commission, appointed by the Governor of Michigan, toward the acquisition of lands for the proposed Isle Royale National Park.

Mammoth Cave.—Deeds covering aproximately 32,000 acres have been tendered by the State of Kentucky and are pending before the Department of Justice for examination as to the sufficiency of title to the lands involved. Also progress is being made toward the purchase of additional lands for the park with funds provided through the Work Relief Act of the Seventy-fourth Congress.

Everglades.—After an investigation of the area last winter the Service recommended that the park should include all the lands within the maximum boundary line specified in the act authorizing its establishment. The Governor of Florida has appointed a commission which is preparing a program to acquire the necessary lands for conveyance to the Government.

Big Bend.—The President signed the act authorizing the establishment of the Big Bend National Park in Brewster and Presidio Counties, Tex., within an area of approximately 1½ million acres, contingent upon acquisition by donation of the private lands involved. It is expected that the boundary lines of this project will be defined in the near future, and a program of acquisition undertaken by the State.

Badlands.—The establishment of this monument under the terms of the authorization of Congress, approved March 4, 1929, is contingent upon acquisition by donation of the private lands, and upon the construction by the State of an approach highway. The State of South Dakota recently completed this highway, and has purchased all lands within the authorized boundary. Inasmuch as the boundary lines of the Badlands National Monument were specifically de-

fined by Congress, it was felt further authorization would be necessary to add these desirable lands. This authority is being sought in the Seventy-fourth Congress.

Ocmulgee.—This national monument was authorized by Congress in 1934 to preserve Indian mounds of great historical importance, contingent upon the donation of the lands involved to the United States. Local citizens of Macon, Ga., have been active in acquiring these lands. Four deeds have already been tendered to the Federal Government, and are in the hands of the Attorney General awaiting clearance of title.

Pioneer.—This project, authorized by Congress, would include four segregated areas which are of historical importance in connection with the movements of Daniel Boone, famous Kentucky pioneer. Establishment of the monument is dependent upon the donation to the Government of the necessary lands. No progress was made on the land acquisition.

Monocacy.—Establishment of the Monocacy National Military Park, in Maryland, was authorized by Congress, contingent upon the donation of the necessary lands to the Federal Government. The purpose of the establishment of this park is to preserve the site of the battle that resulted in saving the city of Washington from capture by the Confederate Army. As yet no progress has been made toward the acquisition of this land.

Kenesaw Mountain.—On June 26, 1935, the President signed the act changing the status of the Kenesaw Mountain battlefield site to the Kenesaw Mountain National Military Park and authorizing funds for its enlargement.

AREAS PROPOSED FOR TRANSFER FROM THE NATIONAL PARK SERVICE TO STATE OR OTHER AGENCIES

It has been recommended that the following areas be transferred to their respective States for administration as State reservations:

Lewis and Clark Cavern National Monument.—This monument was established by Presidential proclamation May 11, 1908. Funds have never been available for adequate maintenance of the cavern, and it has been necessary to keep the entrance locked to prevent vandalism. The Governor of Montana was approached regarding possible transfer of title to the State as a State park. He has informally signified his desire to assume the administration of the monument and with an ultimate transfer in mind a State park camp of the Civilian Conservation Corps has been assigned to develop it. Congressional legislation will be necessary to authorize this transfer.

Shoshone Cavern National Monument.—This monument, which was established by Presidential proclamation in 1909, has never been considered of outstanding national importance. The Cody Club of the nearby town of Cody, Wyo., has signified its desire to take over this cavern but wished to postpone such action until the present arrangements for the construction of an approach road by the bureau of public roads have been completed under agreement with the National Park Service, as the local government would find it impossible to construct this road at its own expense. Congressional action will also be necessary to transfer this monument.

ACQUISITION OF SUBMARGINAL LANDS FOR RECREATIONAL USE

The National Park Service continued its studies of submarginal lands with a view to recommending reallocation of certain areas as demonstration projects to provide low-cost recreational facilities for concentrated urban populations, especially the underprivileged group. Studies were made in each of the 48 States in cooperation with State planning boards and State park authorities. In general the projects, when completed, will be turned over to State agencies for administration. Several, however, needed to extend the present national-park and monument system, are being considered for retention in Federal control.

During the past year 58 recreational demonstration projects, located in 88 counties and involving 827,120 acres, were established or given preliminary approval for investigation. A total of 578,650 acres was appraised and 397,878 acres optioned. Twenty-two projects, which when developed will furnish recreational facilities to more than 20,000,000 people within a radius of 50 miles, were approved for acquisition and development, involving 339,650 acres at a cost of $2,810,366. Of the more than 1,200 families living on the tracts proposed for purchase, about 250 will require financial assistance in rehabilitation or resettlement.

Thirteen Civilian Conservation Corps camps were established during the year to develop these demonstration projects, and plans call for the use in part of 31 camps in this connection during the 1936 fiscal year.

By Executive order of April 27, 1935, the general submarginal-land acquisition program, of which the recreational demonstration projects are an integral part, was transferred from the Federal Emergency Relief Administration to the Resettlement Administration of the Department of Agriculture.

PLANNING AND CONSTRUCTION ACTIVITIES

The fiscal year 1935 was characterized by an unusually extensive planning and construction program, due to the continuation of the Public Works and other emergency programs. Many projects entered the construction stage during the year, and the engineering and landscape personnel reached the point of stabilization where it is possible to produce the best work in the most efficient manner. Because of unemployment outside of the Government service, it has been possible to assemble a group of men of specialized training and wide experience, such as would not be available under normal circumstances in professional practice.

The availability of park master plans to guide new work has been of great assistance in this period of unusual construction activity. Never before has the Service been so completely supplied with plans for the future. Funds now are availale for the drawing up of a master plan for the National Capital parks.

Federal projects, in addition to highway and parkway work handled for the National Park Service by the Bureau of Public Roads and reported elsewhere, consisted of directing, planning, constructing, or improving buildings, minor roads, trails, hydroelectric installations, Diesel-electric plants, electric elevators, dam and intake structures, reservoirs, pumping plants, water supply and distribution lines, drainage systems, sewers and sewage-disposal plants, telephone and power lines, cribbing, bridges and tunnels, retaining walls, and many other types of work.

The development of the eastern historic areas involved the preparation of general layout plans for the construction of administration and utility buildings. Important also in the physical improvements program were the restoration and reproduction of old landmarks and cherished shrines in the East, South, and Southwest.

Augmenting Federal construction activities, the western park operators started more new developments than at any time during recent years. All such projects required review and approval by Service architects.

Outstanding projects completed in the National Capital were the repair of the Washington Monument and the reconstruction of the Executive Offices of the White House. National Capital parks developments included restoration of Pierce Mill in Rock Creek Park and plans for the Rock Creek and Potomac and the George Washington Parkways and the completion of the Mall and Union Square; also the terminal developments for East Capitol Street involving a large stadium and armory.

PARK ROAD DEVELOPMENT

With the large grants of funds under the Public Works program, as well as under the Emergency Act appropriations of funds for park and monument roads and trails, reconstruction and relocation of park roads were continued to bring them to the standards necessary to bear the concentrated travel reaching them from transcontinental and other approach highways.

As in past years, the Bureau of Public Roads of the Department of Agriculture continued its excellent cooperation in major road construction in all areas administered by the National Park Service, with the exception of Mount McKinley National Park, Alaska, where road work has continued to be performed satisfactorily by the Alaska Road Commission.

The cooperative arrangement with the Bureau of Public Roads, as in former years, has been productive of noteworthy accomplishment under the direction of Thomas H. MacDonald, Chief of that Bureau.

PARKWAY PROJECTS

The development of parkways to connect widely separated scenic areas has shown marked progress. Three large-scale projects were studied during the year—the Green Mountain, the Shenandoah-Great Smoky Mountains, and the Natchez Trace Parkways. Field parties flagged a line from the Massachusetts-Vermont boundary to Jay Peak near the Canadian border to complete the Green Mountain survey, started in 1934. The Shenandoah-Great Smoky Mountains Parkway was 90 percent located and flagged, and bids were received for the construction of the first section of 12.5 miles south from the Virginia-North Carolina State line to Roaring Gap. An interesting feature in the planning of this parkway is the development of a group of areas along the route for scenic preservation and recreational use. The Natchez Trace Parkway survey, for which Congress authorized an appropriation of $50,000, was well under way at the end of the fiscal year. This survey is being made to determine the feasibility of building a parkway to follow the old Indian trail known as the "Natchez Trace", running from Nashville, Tenn., to Natchez, Miss., a distance of 500 miles.

PROGRESS OF HISTORIC AMERICAN BUILDINGS SURVEY

Started as a Civil Works project and organized to gather physical data on antique structures in the form of drawings and photographs, this architectural program was continued in the various States under Federal Emergency Relief Administration funds.

The survey has been carried on in close cooperation with the American Institute of Architects, and the material filed by special arrangement with the Library of Congress among its pictorical American archives. It has achieved a conspicuous success, as witnessed by the 4,960 drawings and 3,957 photographs added to the collection during the year. The material is of high quality, having been prepared according to exact specifications. In quantity the product probably exceeds all of the record material of this type previously gathered in this country.

EFFECTIVE USE OF RADIO IN PARK ADMINISTRATION

Radio communication is being used with outstanding success in many of the national parks, especially in connection with fire protection and general administration. During the past year this communication service was extended by the installation of new systems in Mesa Verde and General Grant National Parks and Mount Olympus National Monument. A few additional radio sets also were added in parks already equipped, as the need for additional facilities was demonstrated. Radio is now being used in most of the national parks where this method of communication has been found to be particularly adapted.

Experiments were made with small gas-engine generating units and storage batteries for remotely located stations to eliminate the use of dry batteries which require frequent replacement. Some experimentation has been made with short-wave sets to determine their advantages and limitations. A few sending and receiving sets have been installed in patrol cars.

The radio does not replace telephone service. Rather, it supplements that more widely-used type of communication in areas to which it is particularly suited. It is extremely effective as a means of communication at isolated winter stations at high elevations when overhead lines have been torn down by heavy snows or fallen trees.

SANITATION IN THE PARKS

In the handling of more than 6,000,000 visitors to the national parks and monuments in the course of a year, the National Park Service is faced with a serious responsibility to protect the public health through the provision of adequate sanitary safeguards.

Expansion of the park system in the East brought many added problems of sanitation. These were studied by sanitary engineers detailed from the Washington office of the Public Health Service. Their work consisted of the preparation of designs for sewage treatment facilities in Government buildings in the historic areas; survey

of mosquito-control work in the Colonial and George Washington Birthplace National Monuments; investigation of water supply and sewage disposal facilities in the Great Smoky Mountains and proposed Shenandoah National Parks; inspection of numerous projects under the jurisdiction of the National Capital parks; and examination of a number of bacteriological samples.

The Public Health Service continued its cooperation in supervising matters of sanitation in the western national parks and monuments, as it has for many years past, through its engineers stationed at San Francisco. General inspections of sanitary conditions were made in 17 national parks and 13 national monuments in the West, and plans were submitted for 16 sewage disposal plants, 4 water treatment plants, and 2 garbage incinerators. Bacteriological analyses were made of 389 samples of water from domestic water supplies in various parks and monuments. A general survey also was made of 7 State parks under development in Texas.

NEW INTERIOR BUILDING

A new building for the Department of the Interior has become a necessity because of crowded conditions in the present quarters. The Administrator of Public Works, with the approval of the President, allotted $12,740,000 for the new building, which is to be located on Squares 144 and 145, northwest, bounded on the south by C Street, on the west by Ninteenth Street, on the north by E Street, and on the east by Eighteenth Street, and will be connected with the present building by a tunnel under Rawlins Square. The National Park Service handled the analysis of Department requirements and the preliminary plans. Waddy B. Wood, of Washington, D. C., is the architect. Plans and specifications for the building are under the jurisdiction of the Procurement Division of the Treasury Department, and the National Park Service acts as liaison bureau between the Treasury Department and the Interior Department. Demolition of buildings on the site is now under way and excavation is proceeding rapidly. The contract provides for the completion of the new building on December 17, 1936.

FEDERAL BUILDINGS MAINTAINED

The branch of buildings of the National Park Service at the close of the fiscal year operated and maintained 109 buildings, covering 16,000,000 square feet of floor space, and 7 memorials in the District of Columbia; and 9 buildings, amounting to over 500,000 square feet, outside of the District.

Because of the tremendous increase of work in connection with the installation of mechanical equipment in the new triangle build-

ings, the new central heating plant, and other Government buildings, a technical engineering division was created. The staff of five, including a chief engineer, and air-conditioning, structural, mechanical, and electrical engineers, renders expert advice and assistance in maintaining and operating the highly specialized equipment installed in these buildings.

Among the 40 Public Works improvement projects undertaken through an allotment of approximately $3,000,000 were the following:

Additional repairs to the White House; completion of repairs to the Washington Monument and the Lincoln Memorial; continuance of restoration work at the Lee Mansion at Arlington; completion of the erection of the seventh story to the Interior Building; replacement of 10 obsolete elevators in the Interior Building; air conditioning the Interior Building; and installation of air-cooling systems in various Government-owned buildings in the District.

SPACE CONTROL PROGRAM

Continued creation and expansion of Federal emergency agencies added to the problems of the Division of Government Space Control, charged with the allotment of space to the various units in both Government-owned and leased buildings. During the fiscal year 137 leases were authorized, and 228 moves made. The rental bill of the Government in the District was at the rate of $2,031,000 per annum.

In an effort to create additional office space a survey was made by the Division of Government Space Control of the quantity and character of files and storage of the various departments and agencies of the Government. As a result of this survey, it is expected that large units now occupied by files and storage may be transferred to less desirable space in storage buildings. Study and analysis of the space problem from an architectural standpoint are also being undertaken with a view to creating more space through suggested alterations or improvements. Everything possible is being done to remedy the congested conditions in Government offices, but there appears little relief in sight.

APPROPRIATIONS, DONATIONS, AND REVENUES

APPROPRIATIONS

Appropriations for the National Park Service during the fiscal year 1935 amounted to $13,333,492. Of that amount, $6,328,720 authorized in the Interior Department Appropriation Act, 1935, was supplemented by $382,999 for completing salary restoration to em-

ployees on a 100-percent basis as provided by Public Resolution No. 3, Seventy-fourth Congress; $816,873 was provided in the District of Columbia Appropriation Act, 1935; $5,000,000 for road and trail construction and $325,000 for an addition to the Executive Mansion were included in the Emergency Appropriation Act, fiscal year 1935; and a supplementary appropriation of $479,900 for 1935 was made available in the Interior Department Appropriation Act, fiscal year 1936.

In addition, financing of construction activities was continued during the fiscal year under Public Works and Emergency Conservation Work allotments, as follows:

Public works, 1933–37

Construction of roads and trails	[1] $25,558,303.95
Construction of physical improvements	[2] 10,899,611.32
Total	36,457,915.27

Emergency conservation work, procurements from Apr. 22, 1933, to June 30, 1935

National parks	$9,560,148
State parks	26,639,866
General Land Office	106,430
Territory of Hawaii	751,103
Reclamation Service	1,064,442
Soil erosion	2,522,303
Grazing control	1,151,000
Virgin Islands	91,038
Drought relief, national parks	297,700
Drought relief, State parks	2,517,400
California-Pacific National Exposition exhibit	9,300
Total	44,710,730

CASH DONATIONS

Cash donations to the National Park Service for the fiscal year ended June 30, 1935, amounted to $589,200.69. The donations were deposited in the United States Treasury and were expended under the same fiscal regulations that govern in the expenditure of Federal appropriations. In the 1934 fiscal year cash donations amounted to $285,979.77.

REVENUES

The revenues received during the fiscal year 1935 amounted to $907,189.96 as compared with revenues receipts of $731,331.80 in the 1934 fiscal year.

[1] $4,968,500 impounded by the Budget Bureau.
[2] $31,500 impounded by the Budget Bureau.

APPROPRIATIONS, 1936 FISCAL YEAR

For the fiscal year 1936 there has been appropriated $17,123,322. Of that amount, $15,788,090 (including $7,500,000 for road and trail construction) was authorized in the Interior Department Appropriation Act, 1936; $898,000 in the District of Columbia Appropriation Act, 1936; and $437,232 was made available in the Independent Offices Appropriation Act, 1936, for the Executive Mansion and grounds.

PUBLIC WORKS

The allocation of Public Works funds under title II of the National Industrial Recovery Act permitted continuation during the fiscal year 1935 of greatly needed road and trail construction work, as well as the various other types of physical improvements required in the administration, protection, and improvement of the areas under the jurisdiction of the National Park Service. By exercising care in the selection of projects and their geographical distribution, there resulted the greatest possible financial spread and maximum of relief to the unemployed in the vicinity of the far-flung areas administered by the Service in the United States, Hawaii, and Alaska.

The total allocation of Public Works funds for (1) road and trail projects and (2) physical-improvement projects to the end of the 1934 fiscal year, as compared with allocations for the same purposes for the fiscal year 1935, was as follows:

	Fiscal year 1934	Fiscal year 1935
Roads and trails	$26,884,144.00	[1] $25,558,303.95
Physical improvements	7,232,456.27	10,899,611.32
Total	34,116,600.27	36,457,915.27

[1] Excludes $1,000,000 canceled from previously authorized funds for parkway between the Shenandoah and Great Smoky Mountains National Parks.

The reflected increase of public works allotments in the fiscal year 1935 over the fiscal year 1934 is $2,341,315. However, of the $36,457,915.27 total indicated for 1935, $5,000,000 of funds previously authorized has been impounded, and, unless this amount is released, the available public works allotments will total $31,457,915.27. The impounded funds included $3,990,000 previously authorized for the parkway between the Shenandoah and Great Smoky Mountains National Parks.

In addition to the public works allotments for construction of roads and trails, $2,435,700 was authorized in the Interior Department Appropriation Act for the fiscal year 1934, and $5,000,000 in the emergency appropriation act, fiscal year 1935.

ACCOMMODATIONS FOR THE PUBLIC FURNISHED BY PRIVATE CAPITAL

The Federal Government continued its policy of empowering private capital to operate, under franchise or permit, necessary accommodations in the national park and monument system for the visiting public, including lodging, meals, transportation, stores, and similar commercial enterprises.

The improvement in operators' revenues noted in last year's report continued during the 1935 fiscal year, with average gains approximating 25 percent above 1934. This is particularly encouraging in view of the fact that since 1930 the park operations in general have shown a loss. Even with the increase in revenues for the 1935 fiscal year, the total amount will be but about one-half of the 1929 revenues.

The very noticeable increase in rail travel, due to the use of air-conditioned equipment and the establishment of reduced rates to the West, resulted in an increased demand for bus transportation in and through the parks. It also resulted in an increase in the per-capita expenditure per visitor and in a demand for the better class of accommodations.

Continued careful supervision has been given to the business affairs of the park operators. Specific instructions were issued that only genuine hand-made Indian silverware could be sold in the parks, and the sale of imitations was prohibited. A decision was reached that the installation of nickel- or dime-catching devices add nothing to the interest or instruction of park visitors. Accordingly, no further permits for the installation of additional devices of this character are being granted, and those which have been installed will not be repaired or replaced but will be gradually eliminated. Instructions were issued forbidding the sale of souvenirs or curios of a type similar to or manufactured from materials of a character found in the national parks and monuments but which under the regulations visitors are not permitted to remove from such areas. Many of the reductions in rates which have been tried out experimentally during the past 2 years were made permanent.

The park operators met in conference in Washington on November 22, 1934, in conjunction with the meeting of the field officers of the Service. Many matters of common interest were taken up and discussed, the principal accomplishment being a clarification of the regulations governing the admittance of buses into the parks.

Because of the limited personnel available and the great increase in the volume of work, the following functions were transferred,

effective February 19, 1935, to the Division of Investigations, of the Secretary's Office:

1. Field examination of park operators' accounts to verify the correctness of annual reports submitted.
2. Detailed audit of the franchise fees paid or payable and of the priorities allowable and accumulated to the credit of national-park operators under the terms of their contracts with the Department.
3. Balance-sheet audit of the park operators' business and the certification to the Director as to the sufficiency of the system of internal audit or the acceptability of statements of certified public accountants in cases where complete and detailed audits are not made.
4. Investigation of irregularities in connection with the relations between the park operators and the Department.
5. Submission of appropriate recommendations relative to any matters within the purview of the field examinations and investigations.

CONCLUSION

The National Park Service faces the new year with a keen sense of satisfaction. It has missed no opportunity during the past 12 months to further the cause of national parks by taking advantage of the opportunities afforded by the emergency-work programs; it has sponsored legislation helpful in maintaining the national park and monument system for the benefit of the public; and has maintained with vigilance the integrity of park ideals and the policies of the Department of the Interior.

Perhaps the greatest problems facing it as the 1936 fiscal year commences are the rounding out of the scenic park system through the addition of a few new areas such as the proposed Kings Canyon National Park and the extension of existing areas such as the Mount Olympus National Monument and the Grand Teton National Park. It is hoped that pending investigations by a senatorial committee will serve to focus attention upon the true perspective of these problems and assist in bringing about a satisfactory solution.

Integration and expansion of the prehistoric and historic system under the enlarged historic-development program is another important activity facing the Service during the coming year, and one that will be prosecuted with vigor as funds and personnel are available.

As these enlarged programs are contemplated, assurances are given the American public that each step in the development of the national park and monument system will be planned with the utmost care and good faith, to the end that the great national heritage contained therein may be safeguarded for perpetual preservation.

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NATIONAL PARKS TABLE 1.—*Holdings acquired by purchase, donation, and exchange for national park and monument purposes*

Parks and monuments	Holdings acquired from July 1, 1934, through June 30, 1935						Holdings acquired prior to July 1, 1934, in acres	Total holdings acquired through June 30, 1935, in acres
	Holdings acquired by purchase			Holdings acquired otherwise than by purchase		Total area acquired in acres		
	Government funds	Donated funds	Area in acres	How acquired	Area in acres			
Acadia National Park				[1]	124.25	124.25	13,832.24	13,956.49
Aztec Ruins National Monument							25.88	25.88
Black Canyon of the Gunnison National Monument							105.00	105.00
Carlsbad Caverns National Park							441.00	441.00
Chaco Canyon National Monument							3,832.86	3,832.86
Colonial National Monument	$18,500.00		3.529	[1]	2.20	5.729	4,244.30	4,250.029
Colorado National Monument	496.25	$496.25	222.50	[1]	426.70	649.20		649.20
Crater Lake National Park							1.00	1.00
Craters of the Moon National Monument							320.00	320.00
Fort Matanzas National Monument				[1]	17.34	17.34		17.34
Fredericksburg and Spotsylvania National Military Park	744.20		25.78			25.78	2,413.37	2,439.15
General Grant National Park							20.00	20.00
George Washington Birthplace National Monument							483.70	483.70
Glacier National Park	1,813.60	1,813.60	113.35			113.35	3,836.86	3,950.21
Grand Canyon National Park				[2]	11,614.91	11,614.91	19,228.94	30,843.85
Grand Canyon National Monument				[2]	506.83	506.83		506.83
Great Smoky Mountains National Park							394,088.35	394,088.35
Hawaii National Park							156,800.00	156,800.00
Hot Springs National Park				[1]	63.20	63.20	16.00	79.20
Lassen Volcanic National Park							40.00	40.00
Mesa Verde National Park							350.20	350.20
Morristown National Historical Park				[1]	.99	.99	952.39	953.38
Muir Woods National Monument				[1]	1.36	1.36	426.43	427.79
Petrified Forest National Monument				[2]	19,699.32	19,699.32	3,830.00	23,529.32
Pinnacles National Monument							1,926.27	1,926.27
Rocky Mountain National Park	50.00		.415			.415	5,096.14	5,096.555
Scotts Bluff National Monument							162.08	162.08
Sequoia National Park							3,294.25	3,294.25
Wind Cave National Park							100.77	100.77
Yellowstone National Park							3,266.07	3,266.07
Yosemite National Park							30,547.48	30,547.48
Zion National Park							1,561.39	1,561.39
Yucca House National Monument							9.60	9.60
Total	21,604.05	2,309.85	365.574		32,457.10	32,822.674	651,252.57	684,075.244

[1] Donation. [2] Exchange.

NATIONAL PARKS TABLE 2.—*Automobile and motorcycle licenses issued during seasons 1931–35*

Name of park [1]	1931		1932		1933		1934		1935	
	Automobiles	Motorcycles	Automobiles	Motorcycles	Automobiles	Motorcycles	Automobiles	Motorcycles	Automobiles	Motorcycles
Crater Lake	35,716	51	29,637		19,924		18,521		24,297	
General Grant [2]	7,397		5,900		6,199		7,992		4,199	
Glacier	11,362		10,712	11	8,955	10	12,146	18	17,718	40
Grand Canyon	36,797		32,651		30,104		28,721		35,890	
Lassen Volcanic [3]			4,803	3	4,924	9	6,859	7	6,437	8
Mesa Verde	4,863		4,382		4,262		3,947		4,177	
Mount Ranier	41,217	16	44,719		31,903		32,095		37,801	
Sequoia [2]	21,802		18,304		17,045		17,401		25,304	
Yellowstone	56,401	176	52,597	155	38,580	46	44,886	170	54,421	186
Yosemite	76,678	175	67,482	129	61,742	118	64,055	124	67,731	122
Zion	15,754		12,967		12,194		14,352		21,271	
Total	307,987	418	284,154	298	235,832	183	250,975	319	299,246	356

[1] No licenses required for Wind Cave, Hot Springs, Platt, Hawaii, Rocky Mountain, Carlsbad Caverns, Mount McKinley, and Acadia National Parks, because of small road mileage or unimproved condition of roads.
[2] Permits entrance to General Grant and Sequoia.
[3] No license required prior to 1932 fiscal year.

NATIONAL PARKS TABLE 3.—*Receipts collected from automobile and motorcycles during seasons 1931–35*

Name of park [1]	1931	1932	1933	1934	1935
Crater Lake	$35,803.00	$29,687.00	$19,924.00	$18,521.00	$24,297
General Grant [2]	3,698.50	2,950.00	3,099.50	3,996.00	4,199
Glacier	11,362.00	11,092.00	8,965.00	12,164.00	17,758
Grand Canyon	36,950.00	32,764.00	30,104.00	28,721.00	35,890
Lassen Volcanic [3]		5,778.50	4,928.50	6,862.50	6,441
Mesa Verde	4,917.00	4,396.00	4,262.00	3,947.00	4,177
Mount Ranier	41,233.00	44,719.00	31,903.00	32,095.00	37,801
Sequoia [2]	21,802.00	18,304.00	17,045.00	17,401.00	25,304
Yellowstone	169,379.00	156,537.00	115,786.00	134,828.00	163,449
Yosemite	153,531.00	135,831.00	123,602.00	128,234.00	135,584
Zion	15,400.00	12,976.00	12,194.00	14,352.00	21,271
Total	494,075.50	455,034.50	371,813.00	401,121.50	476,171

[1] No licenses required for Wind Cave, Hot Springs, Platt, Hawaii, Rocky Mountain, Carlsbad Caverns, Mount McKinley, and Acadia National Parks.
[2] Permits entrance to General Grant and Sequoia.
[3] No license required prior to 1932 fiscal year.

NATIONAL PARKS TABLE 4.—*Statement of appropriations made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during recent fiscal years* [1]

Name of the national park	Appropriations		Revenue received
	Appropriated	Expended	
Acadia (formerly Lafayette):			
1928	$37,940.00	$37,376.99	
1929	39,000.00	40,014.00	
1929 (deficiency)	1,355.00		
1930	52,600.00	48,701.52	
1931	59,900.00	56,984.42	
1932	61,600.00	[2] 59,892.14	
1933	59,400.00	57,602.08	$10.00
1934	55,000.00	37,644.00	220.06
1935	41,470.00	41,627.57	265.00
1936	46,000.00		

See footnotes at end of table.

NATIONAL PARKS TABLE 4.—*Statement of appropriations made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during recent fiscal years*—Continued

Name of the national park	Appropriations		Revenue received
	Appropriated	Expended	
Bryce Canyon:			
1930	$26,100.00	$21,580.01	
1931	13,700.00	13,700.00	
1932	20,000.00	[2] 19,257.50	
1933	14,800.00	12,455.43	
1934	13,790.00	7,211.00	
1935	10,490.00	10,402.28	
1936	12,000.00		
Carlsbad Caverns National Park:			
1928	30,000.00	28,492.84	$55,682.00
1929	70,000.00	63,490.00	84,983.45
1929 (deficiency)	260.00		
1930	100,000.00	[3] 103,271.01	136,241.78
1931	165,600.00	124,220.75	143,779.55
1932	150,100.00	[2] 130,162.62	113,677.43
1933	128,800.00	[3] 135,687.63	77,236.57
1934	68,330.00	49,356.00	89,730.54
1935	52,330.00	51,410.96	132,703.96
1936	64,000.00		
Crater Lake:			
1928	63,590.00	62,382.53	22,927.69
1929	47,100.00	[4] 61,464.00	24,318.22
1929 (deficiency)	850.00		
1930	59,800.00	67,938.75	38,023.70
1930 (deficiency)	12,000.00		
1931	[4] 73,300.00	73,551.96	35,843.15
1932	106,900.00	106,753.64	29,687.00
1933	90,000.00	86,554.37	19,924.00
1934	63,479.00	53,838.00	18,937.35
1935	49,965.00	50,463.70	25,059.57
1935–36	5,000.00		
1936	57,600.00		
General Grant:			
1928	13,650.00	13,529.26	3,488.90
1929	15,650.00	15,802.00	3,305.70
1929 (deficiency)	500.00		
1930	15,650.00	15,448.14	3,868.28
1931	15,860.00	15,841.07	3,989.95
1932	21,900.00	21,881.86	3,973.22
1933	21,900.00	20,913.85	3,437.16
1934	15,000.00	10,771.00	4,459.92
1935	11,750.00	11,504.01	4,229.00
1936	15,000.00		
Glacier:			
1928	163,300.00	162,525.28	14,652.59
1929	188,200.00	191,061.00	18,436.18
1929 (deficiency)	5,065.00		
1930	219,400.00	215,726.91	22,146.16
1931	227,000.00	223,956.32	17,866.46
1931 (deficiency)	9,550.00		
1932	256,500.00	[2] 246,002.11	17,495.56
1933	226,200.00	224,744.51	12,006.64
1934	201,803.00	143,724.00	16,235.36
1935	153,435.00	152,851.19	24,348.51
1936	175,000.00		
Grand Canyon:			
1928	128,760.00	128,268.33	46,097.43
1929	169,000.00	151,813.00	49,078.33
1929 (deficiency)	3,540.00		
1930	145,000.00	141,389.56	55,684.46
1931	153,600.00	[4] 171,670.11	51,497.05
1932	172,200.00	[2] 168,106.43	40,221.18
1933	150,000.00	142,656.15	32,933.93
1934	135,890.00	91,520.00	31,139.42
1935	102,400.00	101,064.44	43,544.90
1936	113,500.00		
Grand Teton:			
1929			25.00
1930			70.00
1931	30,700.00	29,048.47	20.00
1932	76,750.00	[2] 73,180.80	73.80
1933	29,900.00	26,243.06	45.00
1934	20,000.00	12,650.00	68.22
1935	15,620.00	14,716.34	77.71
1936	19,900.00		

See footnotes at end of table.

NATIONAL PARKS TABLE 4.—*Statement of appropriations made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during recent fiscal years*—Continued

Name of the national park	Appropriations		Revenue received
	Appropriated	Expended	
Great Smoky Mountains:			
1930–31 (deficiency)	$30,000.00	$25,193.31	$76.00
1932	30,000.00	[2] 29,682.77	5,220.55
1933	30,000.00	27,959.52	5,140.69
1934	28,430.00	17,024.00	4,795.00
1935	22,270.00	22,362.22	2,621.50
1936	59,900.00		
Hawaii:			
1928	18,250.00	18,119.10	1,450.00
1929	21,500.00	21,070.00	1,477.00
1929 (deficiency)	785.00		
1930	27,400.00	25,700.05	1,532.52
1931	35,800.00	35,439.55	1,500.00
1932	54,600.00	54,594.06	1,493.41
1933	51,100.00	50,095.20	482.46
1934	48,079.00	32,658.00	475.00
1935	37,125.00	35,486.46	475.00
1936	45,600.00		
Hot Springs:			
1928	69,800.00	67,433.19	47,695.50
1929	68,000.00	71,970.00	47,930.90
1929 (deficiency)	6,320.00		
1930	70,900.00	69,173.28	47,931.33
1931	218,500.00	194,760.18	50,467.80
1932	89,300.00	[2] 86,110.72	43,243.22
1933	87,700.00	82,359.03	38,263.90
1934	82,680.00	58,979.00	30,456.00
1935	64,330.00	63,343.65	30,350.00
1936	71,200.00		
Lassen Volcanic:			
1928	15,625.00	15,448.52	167.84
1929	22,400.00	22,688.00	34.36
1929 (deficiency)	460.00		
1930	25,300.00	25,061.16	3,089.55
1931	30,500.00	29,007.20	51.59
1932	50,300.00	[2] 49,774.20	5,778.50
1933	45,100.00	43,310.99	4,980.96
1934	28,334.00	20,003.00	6,953.94
1935	22,635.00	[4] 26,809.33	6,537.00
1936	28,400.00		
Mesa Verde:			
1928	50,750.00	48,343.59	3,342.80
1929	83,000.00	[4] 78,134.00	4,719.00
1929 (deficiency)	1,115.00		
1930	57,000.00	53,910.66	4,870.62
1931	96,800.00	[3] 95,799.70	5,411.27
1932	57,300.00	[2] 55,724.49	5,011.75
1932 (deficiency)	22,000.00	[3] 91,693.26	4,750.50
1933	72,900.00		
1934	52,509.00	39,654.00	4,224.50
1935	41,535.00	42,433.99	4,539.88
1936	47,250.00		
Mount McKinley:			
1928	22,000.00	21,314.12	63.04
1929	35,900.00	[4] 36,165.00	1.00
1929 (deficiency)	740.00		
1930	40,000.00	37,680.26	213.18
1931	46,700.00	42,686.45	292.00
1932	31,100.00	28,157.21	129.66
1933	35,600.00	32,165.49	25.00
1934	28,480.00	20,642.00	25.00
1935	22,270.00	22,394.40	83.70
1936	25,000.00		
Mount Rainier:			
1928	108,000.00	105,447.74	32,495.50
1929	141,000.00	[4] 141,285.00	39,233.17
1929 (deficiency)	3,370.00		
1929–30 (deficiency)	2,500.00	125,214.00	41,530.31
1930	122,600.00		
1931	180,900.00	174,823.33	46,034.89
1932	195,000.00	[2] 263,233.48	48,793.27
1931–32 (deficiency)	71,000.00		
1933	227,100.00	214,501.02	33,506.96
1934	143,884.00	103,795.00	34,158.65
1935	109,505.00	110,056.21	40,940.98
1936	121,800.00		

See footnotes at end of table.

NATIONAL PARKS TABLE 4.—*Statement of appropriations made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during recent fiscal years*—Continued

Name of the national park	Appropriations		Revenue received
	Appropriated	Expended	
National Capital Parks:			
1934	$787,000.00	$778,839.00	[4] $24,086.97
1935	816,873.00	857,136.97	28,992.02
1936	898,000.00		
Platt:			
1928	13,050.00	12,991.87	77.16
1929	18,000.00	19,053.00	33.05
1929 (deficiency)	1,080.00		
1930	16,200.00	16,178.70	
1931	18,500.00	18,269.14	
1932	35,900.00	[2] 35,506.83	
1933	31,600.00	30,333.10	
1934	28,520.00	16,382.00	
1935	19,150.00	19,068.66	
1936	20,600.00		
Rocky Mountain:			
1928	97,620.00	95,612.07	924.12
1929	95,500.00	[4] 95,230.00	1,537.07
1929 (deficiency)	2,380.00		
1930	96,000.00	94,871.34	4,471.24
1931	105,950.00	104,880.57	448.45
1932	118,800.00	[3] 117,909.55	749.58
1933	114,300.00	111,361.48	1,046.41
1934	98,007.00	75,305.00	409.29
1935	75,145.00	73,083.36	5,196.72
1936	82,000.00		
Sequoia:			
1928	109,000.00	108,863.10	35,105.83
1929	113,000.00	[4] 114,626.00	30,753.00
1929 (deficiency)	3,440.00		
1930	130,000.00	130,056.49	33,934.54
1931	113,100.00	111,513.95	35,694.49
1932	156,900.00	156,713.93	33,010.38
1933	131,800.00	129,146.15	30,189.77
1934	113,317.00	86,483.00	34,164.96
1935	88,475.00	85,734.11	37,296.51
1936	99,500.00		
Shenandoah (proposed):			
1934	[6] 80,000.00		
1935	27,680.00		
1936	39,800.00		
Wind Cave:			
1928	10,850.00	11,500.00	12,725.50
1929	11,000.00	11,744.00	13,178.17
1929 (deficiency)	760.00		
1930	13,500.00	13,442.51	16,715.01
1931	54,900.00	46,271.94	11,968.43
1932	25,200.00	[2] 68,074.68	7,258.68
1931-32 (deficiency)	50,000.00		
1933	20,600.00	20,345.64	5,056.19
1934	18,160.00	13,386.00	4,239.97
1935	14,020.00	14,180.98	5,733.74
1936	15,900.00		
Yellowstone:			
1928	400,000.00	[4] 399,150.00	251,663.11
1929	434,000.00	[5] 443,230.00	289,388.95
1929 (deficiency)	12,230.00		
1930	453,000.00	463,306.47	317,238.17
1930 (deficiency)	17,000.00		
1931	501,275.00	500,026.39	259,723.33
1932	560,800.00	[2] 536,739.83	228,644.39
1933	530,800.00	497,681.85	149,853.87
1934	466,309.00	323,592.00	164,699.05
1935	350,265.00	354,961.51	217,854.49
1936	394,100.00		
Yosemite:			
1928	301,000.00	[3] 257,363.73	276,438.20
1928 (deficiency)	15,000.00		
1929	387,250.00	[4] 449,159.00	237,166.90
1929 (deficiency)	14,385.00		
1930	412,360.00	[3] 390,204.38	280,355.45
1930 (deficiency)	5,381.00		
1931	510,100.00	574,302.64	260,805.28
1931 (deficiency)	32,500.00		
1932	558,600.00	[3] 535,376.25	222,629.17

See footnotes at end of table.

NATIONAL PARKS TABLE 4.—*Statement of appropriations made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during recent fiscal years*—Continued

Name of the national park	Appropriations		Revenue received
	Appropriated	Expended	
Yosemite—Continued.			
1933	$401,200.00	$389,523.19	$196,319.94
1934	335,309.00	205,227.00	221,960.83
1935	251,845.00	252,106.82	225,549.34
1936	286,100.00	----------	----------
Zion:			
1928	30,900.00	30,937.69	3,106.50
1929	38,000.00	40,569.00	3,576.50
1929 (deficiency)	3,295.00		
1930	38,300.00	[4] 42,290.11	7,724.01
1931	33,200.00	[4] 32,589.60	15,500.50
1932	54,100.00	[3] 53,145.65	13,067.30
1933	46,600.00	45,451.53	12,194.00
1934	47,440.00	32,646.00	14,539.35
1935	35,940.00	35,825.58	21,596.00
1936	39,800.00	----------	----------
Colonial National Monument:			
1931–32 (deficiency)	135,000.00	[3] 132,648.99	299.95
1933	72,000.00	53,615.41	504.92
1934	52,030.00	38,711.00	483.34
George Washington B. P. National Monument:			
1930 (deficiency)	996.18	987.71	----------
1930–31 (deficiency)	80,000.00	78,782.34	----------
1931	2,500.00		
1932	26,500.00	[2]26,050.83	1.00
1933	25,800.00	22,661.61	20.00
1934	21,250.00	11,468.00	----------
National Historical Parks and Monuments:			
1935	77,350.00	73,710.11	743.04
1936	92,300.00	----------	----------
National Monuments:			
1928	25,000.00	24,042.56	132.00
1929	35,000.00	35,951.00	97.00
1929 (deficiency)	1,225.00		
1930	46,000.00	[3] 42,634.76	100.00
1931	83,900.00	71,598.75	269.60
1931 (deficiency)	3,000.00		
1932	165,400.00	[3] 147,585.89	195.19
1933	93,800.00	[3] 86,978.64	252.05
1934	89,060.00	57,457.00	185.03
1935	82,760.00	79,115.63	355.39
1936	111,660.00	----------	----------
National Military Parks, Battlefields, and Cemeteries:			
1934	229,883.00	135,464.00	306.67
1935	160,030.00	141,971.43	1,635.00
1936	239,600.00	----------	----------
National Military Monuments:			
1934	36,223.00	25,658.00	575.00
1935	33,770.00	31,052.05	717.30
National Park Service:			
1928	57,100.00	57,047.56	20.10
1929	70,200.00	[4] 75,714.00	----------
1929 (deficiency)	4,660.00		
1930	80,830.00	81,864.36	.25
1931	117,000.00	115,859.20	----------
1932	167,400.00	165,299.20	----------
1933	174,620.00	174,547.94	1.14
1934	160,000.00	143,069.00	10.00
1935	148,390.00	148,369.76	30.00
1936	175,380.00	----------	----------
Public Buildings and Grounds:			
1934	3,479,193.00	3,396,605.00	23,774.23
1935	4,078,590.00	4,835,163.99	45,913.70
1935 (appropriated in 1936)	479,900.00	----------	----------
1936	5,615,000.00	----------	----------
Arlington Memorial Bridge:			
1934	198,000.00	57,025.00	----------
Addition to Executive Office building:			
1935 (deficiency)	325,000.00	----------	----------
Fighting forest fires:			
1922	25,000.00	9,618.30	----------
1923	25,000.00	17,764.16	----------
1924	25,000.00	6,526.02	----------
1925	20,000.00	20,000.00	----------

See footnotes at end of table.

NATIONAL PARKS TABLE 4.—*Statement of appropriations made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during recent fiscal years*—Continued

Name of the national park	Appropriations		Revenue received
	Appropriated	Expended	
General expenses, National Park Service:			
1931	$25,000.00	$24,993.02	
1932	35,100.00	31,904.58	
1933	37,000.00	33,914.87	
1934	25,000.00	24,585.00	
1935	24,500.00	13,681.96	
1936	25,000.00		
Forest protection and fire prevention:			
1931	96,850.00	95,856.95	
1932	170,000.00	[4] 167,247.75	
1933	140,000.00	132,491.82	
1934	147,000.00	108,580.00	
1935	69,600.00	59,675.46	
1935–36	75,000.00		
Emergency reconstruction: 1925	20,000.00	17,009.15	
Emergency reconstruction and fighting forest fires:			
1926	$40,000.00	$80,000.00	
1926 (deficiency)	40,000.00		
1927	40,000.00	40,000.00	
1927 (deficiency)	235,000.00	228,647.83	
1928	40,000.00	26,865.46	
1929 (deficiency)	29,000.00	[3] 40,138.26	
1930	20,000.00	180,300.17	
1930 (deficiency)	180,000.00		
1931	50,000.00	40,481.49	
1932	50,000.00	[3] 169,950.35	
1932 (deficiency)	55,000.00		
1933	50,000.00	[3] 57,228.83	
1934	50,000.00	35,407.00	
1934 (deficiency)	100,000.00		
1935 (deficiency)	25,000.00		
Construction of roads and trails:			
1925 (deficiency)	1,000,000.00	1,000,000.00	
1926	1,500,000.00	1,500,000.00	
1927	2,000,000.00	2,000,000.00	
1928	2,000,000.00	2,000,000.00	
1928 (deficiency)	1,000,000.00	1,000,000.00	
1929	2,500,000.00	2,500,000.00	
1930	5,000,000.00	5,000,000.00	
1931	5,000,000.00	7,500,000.00	
1931 (deficiency)	2,500,000.00		
1932	5,000,000.00	5,000,000.00	
1933	4,500,000.00	4,500,000.00	
1934	2,435,700.00	1,477,200.00	
1936	7,500,000.00		
Emergency construction, roads and trails:			
1931 (deficiency)	2,078,800.00	2,078,800.00	
1933	3,000,000.00	3,000,000.00	
1935 (deficiency)	5,000,000.00	2,367,413.00	
Insect control:			
1925–26 (deficiency)	25,000.00	24,945.24	
1927	20,000.00	19,828.96	
1928	7,500.00	7,379.35	
Southern Appalachian:			
1925–26 (deficiency)	20,000.00	12,453.27	
1927	[3]	7,252.21	
1928	5,000.00	[3] 3,887.13	
1929	4,500.00	[3] 3,945.07	
1930	3,000.00	[3] 3,415.75	
1931	3,000.00	[3] 4,172.45	
Purchase of lands:			
1928	50,000.00	13,925.00	
1929	50,000.00	1,383.00	
1930	250,000.00	17,233.93	
1931	1,750,000.00	[7] 1,983,718.06	
1932	1,000,000.00	[3] 711,688.33	
1933		[7] 238,396.19	
Extension of winter-feed facilities:			
1930	75,000.00	7,612.50	
1931	75,000.00	10,265.00	
1932		[7] 12,022.50	
1933		[7] 477.50	
Purchase of lands Colonial National Monument:			
1931–32 (deficiency)	500,000.00	500,000.00	

See footnotes at end of table.

NATIONAL PARKS TABLE 4.—*Statement of appropriations made for, and revenues received from, the various national parks and national monuments, and expenditures made therefrom during recent fiscal years*—Continued

Name of the national park	Appropriations		Revenue received
	Appropriated	Expended	
Public works projects, roads and trails: 1933–37	$25,544,003.95	$18,503,983.95	
Public-works projects, physical improvements: 1933–37	10,911,411.32	9,593,490.32	
Federal Emergency Relief, 1935	396,819.72	396,819.72	
Emergency conservation work: 1933–37 (allotments program)	48,654,313.00	36,916,746.93	
Civil works, 1933–35	2,490,678.00	2,490,678.00	
Commission of Fine Arts: 1935	9,390.00	9,042.03	
1936	9,700.00		
Big Dry Wash Battlefield: 1936	500.00		
Perry's Victory Memorial: 1936	4,000.00		
Mount Rushmore National Memorial Commission: 1936	55,000.00		

[1] For statement of appropriations and revenues prior to 1917 see 1920 Annual Report, pp. 354–358, and for 1918–27 see 1930 Annual Report, pp. 66–72.
[2] Appropriation decreased by transfers to emergency reconstruction and fighting forest fires under authority contained in the appropriation act.
[3] Reappropriated items. (See table 5.)
[4] Appropriation augmented by transfers from other appropriations under 10-percent clause.
[5] Credited to the miscellaneous receipts in the District of Columbia.
[6] Funds lapsed. Park not established in specified time.
[7] Available until expended.

NATIONAL PARKS TABLE 5.—*Statement of accounts reappropriated and made available for expenditure in subsequent fiscal years*

Appropriated for fiscal year	Reappropriated for fiscal year	Park	Amount	Purpose
1928	1929	Yosemite	$35,000.00	Hospital building.
1928	1929	Southern Appalachian	1,112.87	To remain available; general.
1928	1929	Emergency reconstruction and fighting forest fires.	13,134.54	Do.
1929	1930	Yosemite	8,661.78	Construction of water-supply and campground facilities.
1929	1930	Carlsbad Caverns	4,950.00	Superintendent's residence.
1929	1930	Southern Appalachian	1,662.55	To remain available; general.
1929	1931	Grand Canyon	20,000.00	Hospital building.
1930	1931	Acadia	2,850.00	Equipment storage building.
1930	1931	Crater Lake	1,091.06	Ranger station.
1930	1931	Mesa Verde	1,652.18	2 ranger stations.
1930	1931	Yosemite	32,662.70	Physical improvements.
1930	1931	National monuments	2,500.00	Employees' quarters (2) at Petrified Forest.
1930	1931	Southern Appalachian	1,246.80	To remain available; general.
1930	1931	Glacier	9,550.00	One-third of cost of constructing a telephone line.
1931	1932	National monuments	1,759.23	Water-supply system at Craters of the Moon.
1931	1932	Emergency reconstruction and fighting forest fires.	7,434.15	To remain available; general.
1931	1933	National monuments	3,204.50	Water supply at Chaco Canyon.
1932	1933	Carlsbad Caverns	13,000.00	Electric system, extension and improvement.
1932	1933	Emergency reconstruction and fighting forest fires.	16,587.00	To remain available; general.
1933	1934	do	9,143.93	Do.
1934	1935	do	75,000.00	Do.

NATIONAL PARKS TABLE 6.—*Summary of appropriations for the administration, protection, and improvement of the national parks and national monuments, together with the revenues received, for the fiscal years 1917 [1] to 1935, inclusive*

Year	Department	Appropriation		Revenues
1917	Interior Department	$537,366.67		
	War Department	247,200.00		
			$784,566.67	$180,652.30
1918	Interior Department	530,680.00		
	War Department	217,500.00		
			748,180.00	[2] 217,330.55
1919	Interior Department	963,105.00		
	War Department	50,000.00		
		50,000.00		
			1,013,105.00	196,678.03
1920			907,070.76	316,877.96
1921			1,058,969.16	396,928.27
1922			1,433,220.00	432,964.89
1923			1,446,520.00	513,706.36
1924			1,892,601.00	663,886.32
1925			3,027,657.00	670,920.98
1926			3,258,409.00	826,454.17
1927			3,698,920.00	703,849.60
1928			4,889,685.00	809,255.81
1929			4,754,015.00	849,272.95
1930			7,813,817.18	1,015,740.56
1931			12,113,435.00	940,364.79
1932			12,831,250.00	820,654.19
1933			10,640,620.00	628,182.06
1933–35			53,402,249.00	
1934			10,983,089.00	731,331.80
1935			12,461,513.00	907,189.96
1936			16,686,090.00	

[1] For summary of appropriations and revenues prior to 1917 see 1920 Annual Report, p. 359.
[2] The revenues from the various national parks were expendable during the years 1904 to 1918, inclusive, with the exception of those received from Crater Lake, Mesa Verde, and Rocky Mountain National Parks, the revenues from which were turned into the Treasury to the credit of miscellaneous receipts.

NATIONAL PARKS TABLE 7.—*Statement of appropriations and authorizations for road and trail work in the national parks and national monuments*

Appropriation acts	Fiscal year	Cash appropriation	Authority to enter into contractural obligations	Total program by fiscal year
Act. Dec. 5, 1924; 43 Stat. 686	1925	[1] $1,000,000		$1,000,000
Act Mar. 3, 1925; 43 Stat. 1179	1926	1,500,000	[2] $1,000,000	2,500,000
Act May. 10, 1926; 44 Stat. 491	1927	2,000,000	[2] 1,500,000	2,500,000
Act Jan. 12, 1927; 44 Stat. 966	1928	2,000,000	[2] 2,500,000	
First Deficiency Act, Dec. 22, 1927; 45 Stat. 19		1,000,000		3,000,000
Act Mar. 7, 1928; 45 Stat. 237	1929	2,500,000	[2] 4,000,000	5,000,000
Act Mar. 4, 1929; 45 Stat. 1601	1930		[2] 2,500,000	3,500,000
Act May 14, 1930; 46 Stat. 319	1931	5,500,000		
Act Dec. 20, 1930; emergency construction		1,500,000	[2] 2,500,000	
Emergency construction funds transferred by the President		578,800		7,078,800
Act Feb. 14, 1931; 46 Stat. 1115	1932	5,000,000	[2] 2,850,000	
Second Deficiency Act 1931; Mar. 4, 1931		2,500,000		7,850,000
Act Apr. 22, 1932; 47 Stat. 126, 127	1933	4,500,000	[3] 2,500,000	7,150,000
Emergency construction and relief		3,000,000		
Act Feb. 17, 1933; 47 Stat. 852, 853	1934	2,435,700		64,300
Emergency construction	1935	5,000,000		5,000,000
Act May 9, 1935; Public, No. 53, 74th Cong	1936	7,500,000		7,500,000
Total appropriated		52,014,500		
Total program to date				52,014,500

[1] Of this amount $4,290.39 was reappropriated Dec. 22, 1927 (45 Stat. 46), and $510 on May 29, 1928 (45 Stat. 933).
[2] Funds appropriated in next year.
[3] $64,300 of this amount was not appropriated in 1934.

NATIONAL PARKS TABLE 8.—*Forest-fire statistics, calendar year 1934*

Park	Classification				Point of origin				Burned area inside parks (nearest whole acre)				Timber destroyed inside parks			Cost of fire suppression (to nearest whole dollar)								
	A	B	C	Total	Inside parks		Outside parks																	
	¼ acre or less	Between ¼ and 10 acres	10 acres or over	All classes, A, B, and C	On Government land	On private land	Entered park	Confined to outside areas	Timber	Brush	Grass	Total	Government	Private	Total	Personal services	Supplies, transportation, etc.	Equipment	Indirect costs prorated	Total	Salaries of park employees not paid from F. F.	Grand total	C. C. C. man-days contributed [1]
	No.	*No.*	*No.*	*No.*	*No.*	*No.*	*No.*	*No.*	*Acres*	*Acres*	*Acres*	*Acres*	*Mbf.*	*Mbf.*	*Mbf.*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*No.*
Acadia		5	1	6	2			4	4			4	10		10	1				1	1	2	564
Bryce Canyon				0								0			0							0	
Carlsbad				0								0			0							0	
Crater Lake	8	2		10	9			1	3			3			0		1			1		1	54
General Grant				0								0			0							0	
Glacier	25	7	5	37	31	3	1	2	202		30	232	32		32	1,121	4,583	1,065	786	7,555	381	7,936	4,323
Grand Canyon	16	13	1	30	26			4	27	2	1	30	20		20	29	81	9	64	183	112	295	241
Grand Teton	7	1	2	10	6			4	1			1	2		2	23	15		6	44	29	73	[2]4,286
Great Smoky		8	10	18	11	2	5		280	60	39	379	4	2	6	55				55	41	96	1,855
Hawaii				0								0			0							0	
Hot Springs	1			1	1							0			0							0	
Lassen	16	2	2	20	16			4	2	2		4			0						95	95	272
Mesa Verde	2	1	2	5	4		1		1,363	866		2,229	13		13	1,673	2,614	924	5,890	11,101	613	11,714	2,467
Mt. Rainier	5		1	6	6				633			633			0	192	1,382	3,625		5,199	132	5,331	3,045
Mt. McKinley				0								0			0							0	
Platt	3			3	3							0			0							0	
Rocky Mountain	6	2	1	9	7	1		1	8	20	20	48	2		2	16	33		16	65	84	149	123
Sequoia	30	4	7	41	33			8	71	240		311	5		5	18	193	1,341		1,552	479	2,031	[2]10,184
Wind Cave				0								0			0							0	
Yellowstone	28	7	4	39	38		1		499	13	31	543	1,247		1,247	332	1,637	1,661	254	3,884	745	4,629	1,895
Yosemite	28	13	2	43	41	1	1		76	415		491	73		73	30		88	20	138	310	448	[2]12,540
Zion			1	1	1				18	14		32	10		10		15			15	41	56	43

[1] Includes time of C. C. C. enrollees spent in suppression of forest fires both inside and outside of parks.
[2] Fighting forest fires outside parks: Grand Teton, 4,200 man-days; Yosemite, 10,703; and Sequoia 8,370.

NATIONAL PARKS TABLE 8.—*Forest-fire statistics, calendar year 1934*—Continued

Park	Classification				Point of origin				Burned area inside parks (nearest whole acre)				Timber destroyed inside parks			Cost of fire suppression (to nearest whole dollar)								
	A	B	C	Total	Inside parks		Outside parks																	
	¼ acre or less	Between ¼ and 10 acres	10 acres or over	All classes, A, B, and C	On Government land	On private land	Entered park	Confined to outside areas	Timber	Brush	Grass	Total	Government	Private	Total	Personal services	Supplies, transportation, etc.	Equipment	Indirect costs prorated	Total	Salaries of park employees not paid from F. F. F.	Grand total	C. C. C. man-days contributed [1]
	No.	*No.*	*No.*	*No.*	*No.*	*No.*	*No.*	*No.*	*Acres*	*Acres*	*Acres*	*Acres*	*Mbf.*	*Mbf.*	*Mbf.*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*No.*
Shenandoah	----	12	10	22	21	----	1	----	741	269	----	1,010	2,250	----	2,250	----	----	----	----	----	250	250	1,401
Mammoth Cave	9	19	9	37	13	13	----	11	290	----	115	405	----	----	0	----	----	----	----	----	----	0	420
Morristown	----	1	----	1	1	----	----	----	4	----	----	4	4	----	4	----	----	----	----	----	11	11	5
Chickamauga-Chattanooga	----	1	1	2	2	----	----	----	66	----	----	66	----	----	0	----	----	----	5	5	----	5	45
Gettysburg	4	----	----	4	4	----	----	----	1	----	----	1	----	----	0	----	----	----	----	----	----	0	----
Petersburg	----	1	2	3	----	1	----	2	200	100	300	600	----	----	0	----	----	----	----	----	----	0	----
Shiloh	2	4	2	8	5	----	----	3	52	----	4	56	----	----	0	----	----	----	----	----	----	0	106
Vicksburg	3	2	----	5	3	1	1	----	----	----	3	3	----	----	0	----	----	----	----	----	1	1	5
Bandelier	7	2	----	9	6	----	----	3	1	----	1	2	6	----	6	----	----	----	9	9	----	9	82
Colonial	1	----	1	2	----	2	----	----	----	----	20	20	----	----	0	----	44	10	----	54	59	113	379
Death Valley	----	1	----	1	1	----	----	----	----	----	2	2	----	----	0	----	----	----	----	----	1	1	----
Devils Tower	1	----	1	2	2	----	----	----	2	----	1	3	1	----	1	40	----	----	----	40	9	49	----
Lava Beds	1	----	1	2	2	----	----	----	----	100	----	100	----	----	0	104	3	----	----	107	13	120	----
Muir Woods	1	----	----	1	1	----	----	----	1	----	----	1	----	----	0	----	----	----	----	----	4	4	1
Pinnacles	1	----	----	1	1	----	----	----	----	----	----	0	----	----	0	----	----	----	----	----	1	1	3
Total	205	108	66	379	297	24	11	47	4,545	2,101	567	7,213	3,679	2	3,681	3,634	10,601	8,723	7,050	30,008	3,412	33,420	44,339

Park	Causes of fires										Classification of fires according to cost of suppression (Includes only those fires which burned inside park boundaries)									
	Lightning	Camp fires	Smokers	Debris burning	Incendiary	Lumbering	Railroads	Miscellaneous	Total man-caused	Grand total	$25 and under	$26 to $50	$51 to $100	$101 to $200	$201 to $500	$501 to $1,000	$1,001 to $2,000	$2,001 to $5,000	Over $5,000	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Acadia			6						6	6			2							2
Bryce Canyon										0										0
Carlsbad										0										0
Crater Lake	7			1				2	3	10	9									9
General Grant										0										0
Glacier	5	4	21	4	2			1	32	37	27		3	1	1	1	1	1		35
Grand Canyon	24		5	1					6	30	22	4								26
Grand Teton	3	1	5			1			7	10	6									6
Great Smoky		1	3	5	7			2	18	18	13	3		2						18
Hawaii										0										0
Hot Springs			1						1	1	1									1
Lassen Volcanic	12	1	5		2				8	20	16									16
Mesa Verde	3				1			1	2	5	3					1			1	5
Mt. Rainier	1		5						5	6	5								1	6
Mt. McKinley										0										0
Platt			2					1	3	3	3									3
Rocky Mountain	3	2	2	1				1	6	9	5	1	1		1					8
Sequoia	18	4	12	2	1			4	23	41	23	3	1	3	2		1			33
Wind Cave										0										0
Yellowstone	18	8	10	3					21	39	27	4	1	2	2		3			39
Yosemite	22		19	1				1	21	43	39	1	2			1				43
Zion	1									1	1									1
Shenandoah	1	1	1	1	15			3	21	22	11	3	2	3	2	1				22
Mammoth Cave			4	5	21			7	37	37	26									26
Morristown			1						1	1	1									1
Chickamauga-Chattanooga			1		1				2	2	2									2
Gettysburg			2	2					4	4	4									4
Petersburg			1		1	1			3	3					1					1
Shiloh			1	6				1	8	8	5									5
Vicksburg			2	1	1		1		5	5	5									5
Bandelier	7		2						2	9	6									6
Colonial			1	1					2	2	1	1								2
Death Valley			1						1	1	1									1
Devils Tower			1	1					2	2	1	1								2
Lava Beds	2									2	1			1						2
Muir Woods		1							1	1	1									1
Pinnacles			1						1	1	1									1
Total	127	23	115	35	52	2	1	24	252	379	266	21	12	12	9	4	5	1	2	332

NATIONAL PARKS TABLE 9.—*Statement showing work accomplished at Civilian Conservation Corps camps under the jurisdiction of the National Park Service, July 1, 1934, to June 30, 1935*

Item	Unit	Total work accomplished from July 1, 1934, to June 30, 1935			
		New construction			Maintenance
		National parks and monuments	State parks	Combined total national parks and State parks	National parks and monuments
Foot bridges	Number	77	512	589	
Horse bridges	do	16	94	110	9
Vehicle bridges	do	44	365	409	58
Buildings:					
Barns	do	13		13	1
Bathhouses	do		5	5	
Cabins, overnight	do		73	73	
Combination	do		7	7	
Contact station	do	2	5	7	1
Dwellings	do	75	9	84	351
Equipment and supply storage houses	do	12	51	63	2
Garages	do	6	9	15	6
Latrines and toilets	do	53	644	697	5
Lodges	do		6	6	2
Lookout:					
Houses	do	7	78	85	
Towers	do	7	29	36	
Museums	do	1	2	3	
Shelters:					
Trail-side	do		35	35	
Other	do		50	50	
Other buildings	do	178	5,021	5,199	11
Cribbing, including filling	Cubic yards	335	652	987	
Dams:					
Impounding and large diversion	Number	1	89	90	
Concrete	Cubic yards		5,998	5,998	
Fill:					
Earth	do	675	160,221	160,896	
Rock	do		8,303	8,303	
Excavation:					
Earth	do		37,470	37,470	
Rock	do		27,765	27,765	
Masonry	do	2	3,541	3,543	
Riprap	Square yards	130	29,817	2,9,947	
Steel	Pounds		567,726	567,726	
Fences	Rods	45,561	22,238	67,799	13,641
Guard rails	do	2,451	33,610	36,061	949
Levees, dikes, and jetties	Cubic yards		2,085	2,085	
Power lines	Miles	.6	13	13.6	.5
Disposal:					
Beds	Square yards		7,686	7,686	
Tanks and cesspools	Number	5	349	354	5
Incinerators	do	1	121	122	
Sewer lines	Linear feet	11,195	192,033	203,228	2,100
Other sewage and waste disposal	Man-days	349	1,992	2,341	
Telephone lines	Miles	340.2	384.6	724.8	2,019
Drinking fountains	Number		30	30	
Open ditches	Linear feet	300	16,250	16,550	
Water pipe or tile lines	do	132,692	825,741	958,433	50,248
Springs, water holes, small reservoirs	Number	87	37	124	13
Water storage facilities (omit last 000)	Gallons	84	8,415	8,499	5
Wells, including pumps and pump houses.	Number	9	154	163	2
Water supply systems, other	Man-days	49	2,956	3,005	
Camp stoves or fireplaces	Number	40	611	651	
Cattle guards	do	17	2	19	
Corrals	do	11	4	15	8
Portals	do	1	17	18	
Seats	do	51	171	222	
Signs, markers, and monuments	do	598	980	1,578	346
Stone walls	Rods	658	968	1,626	
Table and bench combinations	Number	112	865	977	
Tool boxes	do	75	469	544	6
Miscellaneous structural improvements.	do	1,090	11,464	12,554	6

NATIONAL PARKS TABLE 9.—*Statement showing work accomplished at Civilian Conservation Corps camps under the jurisdiction of the National Park Service, July 1, 1934, to June 30, 1935*—Continued

Item	Unit	Total work accomplished from July 1, 1934, to June 30, 1935			
		New construction			Maintenance
		National parks and monuments	State parks	Combined total national parks and State parks	National parks and monuments
Truck trails	Miles	458.3	979.4	1,437.7	592.4
Minor roads	do	113.4		113.4	375.2
Highways	do				2,461.1
Park roads	do		334.4	334.4	
Foot trails	do	150.4	603.2	753.6	234.4
Horse trails	do	493.5	347.2	840.7	1,041.1
Stream and lake bank protection	Square yards	845,585	1,612,681	2,458,266	4,588
Treatment of gullies—Area treated	Acres	3,767.6	20,016	23,783.6	34.2
Bank sloping	Square yards	131,452	455,603	587,055	5,202
Check dams:					
Permanent	Number	3,450	283	3,733	18
Temporary	do	935	990	1,925	4
Seeding and sodding	Square yards	113,080	798,137	911,217	77,864
Tree planting, gully	do	9,761	87,785	97,546	33,880
Ditches, diversion	Linear feet	2,355	13,631	15,986	6,000
Terracing	Miles	.1	2.4	2.5	
Channel excavation or construction	Linear feet		107,531	107,531	
Sheet erosion planting	Acres		235	235	
Limestone quarrying	Tons		4,765	4,765	
Miscellaneous erosion control work	Man-days		34,512	34,512	
Clearing and cleaning, channels	Square yards		421,197	421,197	
Clearing and cleaning, reservoir sites	Acres		1,693.6	1,693.6	
Excavation:					
Earth	Cubic yards	17,457	259,438	276,895	
Rock	do	505	7,118	7,623	
Pipe lines and conduits	Linear feet	2,100		2,100	
Riprap or paving:					
Rock or concrete	Square yards	2,910	22,087	24,997	
Brush or willows	do		3,330	3,330	
Water control structures:					
Concrete or masonry	Cubic yards	32	1,092	1,124	
Wooden	Feet board measure.	207,439	1,116	208,555	
	Number	16	40	56	
Field planting or seeding (trees)	Acres	4,420.7	12,517.8	16,938.5	1,571.2
Forest stand improvement	do	992	25,332.3	26,324.3	8
Nurseries	Man-days	14,387	40,658	55,045	164
Tree seed collection:					
Conifers (cones)	Bushels	15	805	820	
Hardwoods	Pounds	1,426	42,879	44,305	
Fighting forest fires	Man-days	47,463	71,674	119,137	
Firebreaks	Miles	199.6	801.5	1,001.1	5.7
Fire hazard reduction:					
Roadside	do	375.2	730.5	1,105.7	
Trailside	do	240.5	884.8	1,125.3	1
Other	Acres	40,555.6	42,179.6	82,735.2	11.7
Fire presuppression	Man-days	31,364	7,353	38,717	
Fire prevention	do	3,881	135	4,016	
Tree and plant disease control	Acres	21,077.5	36,687.8	57,765.3	
Tree insect pest control	do	101,180.6	79,080	180,260.6	11,920
Beach improvement	do	4.4	263	267.4	1
Fine grading, road slopes, etc	Square yards	1,459,760	2,044,946	3,504,706	
General clean up	Acres	16,629.6	39,645	56,274.6	3,204
Lake or pond site clearing	do	64	3,675.1	3,739.1	
Landscaping, undifferentiated	do	3,999.2	9,105.3	13,104.5	137
Moving and planting trees and shrubs	Number	533,287	859,282	1,392,569	231,207
Obliteration:					
Roads	Miles	6.6	26.3	32.9	
Trails	do	8.7	13.8	22.5	
Borrow pits	Man-days	7,399	27,779	35,178	
Parking areas and parking overlooks	Square yards	13,462	380,522	393,984	
Public camp ground development	Acres	537.1	3,444.7	3,981.8	86
Public picnic ground development	do	60.1	549.8	609.9	86
Razing undesirable structures	Number	128	156	284	
Seed collection, flowers, grasses, etc	Pounds	63	152	215	

NATIONAL PARKS TABLE 9.—*Statement showing work accomplished at Civilian Conservation Corps camps under the jurisdiction of the National Park Service, July 1, 1934, to June 30, 1935*—Continued

Item	Unit	Total work accomplished from July 1, 1934, to June 30, 1935			
		New construction			Maintenance
		National parks and monuments	State parks	Combined total national parks and State parks	National parks and monuments
Seeding and sodding	Acres	1,572.1	893.8	2,465.9	2,042
Soil preparation (fertilizing, etc.)	do	473,955.5	676.2	474,631.7	
Vista or other selective cutting for effect.	do	214.7	861	1,075.7	
Walks; concrete, gravel, cinder, etc	Linear feet	4,349	13,832	18,181	450
Fish-rearing ponds	Number	8	10	18	25
Food and cover planting and seeding	Acres		194.5	194.5	
Lake and pond development	Man-days	596	6,613	7,209	
Stocking fish	Number	391,720	316,300	708,020	
Stream development	Miles	42.6	167.2	209.8	
Other wildlife development	Man-days	753	1,312	2,065	
Education, guide, and contact station work.	do	9,743	1,052	10,795	
Emergency work—Searching for or rescuing persons.	do	30	822	852	
Emergency work—Other	do	1,743	25,057	26,800	
Eradication of poisonous weeds or exotic plants.	Acres	1,818	8,661.6	10,479.6	
Experimental plots	Number	26		26	5
Insect pest control	Acres	2,388	8,576.5	10,964.5	
Maps—Type, topographic, etc	Man-days	457	1,544	2,001	
Relief maps and models	do		630	630	
Marking boundaries	Miles	5	39.5	44.5	
Mosquito control	Acres		1,013	1,013	
Preparation and transportation of materials.	Man-days	10,997	41,279	52,276	
Reconnaissance and investigation—Archaeological.	do	7,268	2,993	10,261	
Reconnaissance and investigation—Other.	do	408	320	728	
Restoration of historic structures	Number	64	6	70	
Rodent control	Acres		8,601.3	8,601.3	
Surveys:					
Grade lines	Miles	30,252.6	149.5	30,402.1	
Ground water	Acres	4,735.4	17.2	4,752.6	
Lineal	Miles	147.2	2,670.3	2,817.5	
Topographic	Acres	10,382.4	162,918.4	173,300.8	
Type	do	179,442	120	179,562	
Other	Man-days	822	759	1,581	
Tree surgery	do	19,081	9,397	28,478	104

GEOLOGICAL SURVEY

(WALTER C. MENDENHALL, Director)

During the fiscal year 1934–35, although directly appropriated funds for the support of the Survey's regular activities have been at a low ebb (see details in later pages), these have been augmented by substantial allocations for closely related work made by the Public Works Administration.

As a consequence the year has been a busy and productive one. More than 46,000 square miles of mapping has been done, including a beginning in Puerto Rico; 1,900 linear miles of streams with potential power values have been surveyed; about 700,000 individual maps have been distributed, many of them to cooperating States and new Government agencies; approximately $40,000 has been received directly from sales of Survey publications; studies of a number of the long-neglected mineral deposits of the Eastern and Southern States have been made; it has been possible to repair and put in good condition approximately 500 of the nearly 3,000 river-measurement stations distributed over the United States; special drought studies have been carried out; Alaskan mapping and mineral-resources investigations have continued at a nearly normal rate; many abandoned wells and mines on public and Indian lands that were actual or potential menaces to safety or to mineral or water supplies were repaired; substantial progress was made in the preparation of numerous unit plans of development of oil and gas fields under the mineral leasing acts—a valuable conservation measure; and supervision, although inadequate, was maintained over nearly 15,000 oil and gas and other mineral properties on public and Indian lands and naval reserves.

Effective cooperative relations have been maintained with a large number of States in geologic work, study of water supplies, and topographic mapping. Similar relations have existed with a number of the older and newer agencies of Government, the special capacities of the technical staffs of the Survey being thus made available in numerous governmental activities, including those of the Petroleum Administrative Board, the National Resources Board, the Bureau of Public Roads, the Tennessee Valley Authority, the Office of Indian Affairs, and many others.

There is an insistent Nation-wide and thoroughly logical demand for greatly increased activity in topographic mapping because of the

now publicly recognized need for maps as bases for so many public and private activities. Urban and rural development, road locations, land, census, and soil problems, crop-control programs, irrigation, park and forest administration—all need these maps acutely. This national need should be met by provision for speeding up the mapping program.

A growing Survey problem, now very inadequately financed, is that of the administration of the mineral leasing laws. The Government's effective management as lessor of its mineral estate is jeopardized by inadequate skilled staff and the resulting inadequate inspection and control of leased properties. This situation needs prompt correction. Losses far in excess of the cost of adequate inspection and management are threatened by insufficient provision for this work.

The mineral industry depends upon and demands many more, and prompter issue, of the scientifically sound and impartial reports of the Geological Survey upon the active and potentially active mining districts of the Nation. Wherever available, these reports are guides in the development of ore bodies and in the search for extensions and for new deposits. More adequate provision is needed for this work and for the publication of results.

Finally, several of the administrative services of the Survey, necessary to its technical activities, have been reduced to the point of near inadequacy as a result of the reductions of recent years in the financial support for the regular services, especially the scientific and technical services of Government. Correction of this situation is one of the present acute needs.

Dr. David White, a member of the staff of the Geological Survey since 1886 and its chief geologist from 1912 to 1922, died February 7, 1935, at the age of 73. In his death geologic science lost one who had been a recognized leader on this continent for more than a generation. Though he was primarily a paleobotanist and the American authority in this field, his activities embraced many branches of geology as well as administration. Dr. White's career is a striking example of the type of leadership at the service of the American people in the scientific establishments at Washington. Recognized and honored the world over as a scientist of the highest standing, whose research and administrative work had direct practical applications of great value; repeatedly offered by commercial organizations salaries several times greater than the Government paid him—he nevertheless remained in the service throughout his career and devoted his rare abilities and his limitless industry to the Government and the people of the United States.

GENERAL SUMMARY OF THE YEAR'S ACTIVITIES

Geologic work.—Field parties of the geologic branch were actively at work in the beginning of the fiscal year on mineral-resources and land-classification surveys in 19 States east of the Rocky Mountains for which funds had been allocated by the Public Works Administration. One of the more important projects thus carried on was a report on the mineral resources of the region tributary to Boulder Dam, prepared as an aid in the study of possible markets for Boulder Dam power. Other projects included studies of the quicksilver deposits in Texas and Arkansas, the gold deposits of the southern Appalachian region, the clays of several Southern States, and the iron ores of northeastern Texas. Work was continued throughout the year on the metal-mining districts of Colorado, Idaho, and New Mexico in cooperation with the States, and some assistance was given to the Arizona Bureau of Mines in a survey of the Tombstone district. A resurvey of the Comstock lode in Nevada was begun near the end of the year. Stratigraphic and structural surveys of the San Andreas rift and Death Valley, Calif., were resumed, and field projects were carried on in Illinois and Kentucky, in the Coastal Plain area of Louisiana, Mississippi, and North Carolina, in eastern Pennsylvania, and in the Wasatch Plateau, Utah. Temperatures in deep wells were measured in several oil fields. Areas of forest lands, mostly in the Appalachian region, were geologically examined for the Forest Service. A comprehensive review of the geology and occurrence of petroleum in the United States was prepared for a subcommittee of the House Committee on Interstate and Foreign Commerce.

Explorations in Alaska.—In the field season of 1934, 7 field projects were carried on in Alaska, 2 of which were primarily topographic and 5 primarily geologic. This work was financed in part by grants from the Public Works Administration. The usual general survey of recent mining developments and the collection of mineral statistics were continued. Six field projects for the season of 1935 had been started at the end of the fiscal year and will be continued throughout the open season. Compilation of base maps from aerial photographs taken in 1926 and 1929 by the Navy Department was continued throughout the year, the work being done in Juneau, Alaska, with an enlarged staff.

Topographic mapping.—A notable increase was made in the area covered by new topographic surveys, resurveys, and revision, the total being 30,924 square miles representing over 200 topographic maps with contours. The topographic mapping included all States. There was also a considerable increase in the area covered by planimetric maps without contours resulting from aerial photography, which covered 15,721 square miles in 9 States. In addition, aerial photographs were used as bases for topographic mapping in 42 quadrangles. Successful experiments were undertaken with single-lens aerial photographs with a wide-angle lens at high altitudes. The sectional transportation map of the United States being made for the Bureau of Public Roads was continued with increased output. The map of Iowa, the first State issued, consists of eight sections. These transportation maps on a scale of about 4 miles to 1 inch show all kinds of transportation routes in a variety of colors.

Investigations of water resources.—The water-resources branch collected and made available for publication stream-flow records at more than 3,000 river-measurement stations on rivers large and small, obtaining thus authentic information on the behavior of streams in drought, in flood, and in normal conditions—information which is invaluable for intelligent planning of projects

for use or control of the water supply. This work included the construction of many new stations on the larger rivers of the country and the complete rehabilitation of more than 500 existing stations. It investigated underground water supplies in 32 States and in the Territory of Hawaii and obtained basic information on the occurrence, quantity, and quality of underground water supplies which is essential for the development, conservation, and use of ground water upon which a large part of the population of the country must depend. In collaboration with the Mississippi Valley Committee of the Public Works Administration the branch made a comprehensive study of floods in the United States with reference to magnitude and frequency and an investigation of the relation of rainfall and run-off in the United States. A report on the flood study was sent to the printer near the end of the year, and a report on the rainfall and run-off study was nearly completed. A broad study was made of the great droughts of 1930–34, with an extensive compilation of information about the drought and a comparison with notable droughts of earlier years. An investigation had been made of the stream flow and silt movement of streams in eight projects of the Soil Conservation Service, and similar studies on the Colorado River. The completion of a program of well drilling at Salt Lake City, Utah, based upon the recommendations of the Geological Survey, provided a large additional supply of water for the city and averted a serious shortage. A report on the geology and ground-water resources of the Island of Oahu disclosed large supplies of underground water that are available to the city of Honolulu. Investigations conducted in the hydrologic laboratory demonstrated the law of flow of ground water for pressure gradients as low as 1 inch to the mile, which is of practical importance because natural gradients are very low.

Classifying and leasing public land.—The conservation branch made 11,434 formal findings of technical fact involving the mineral resources, water power or storage possibilities, and agricultural or grazing utility of public lands; classified 885,535 acres of withdrawn land as to coal and 267,684 acres of withdrawn land as to oil shale; added 72,793 acres to outstanding water-power reserves and eliminated 408,157 acres therefrom; added 12,480 acres to public water reserves and eliminated 460 acres therefrom; designated 35,450 acres as enterable under the stock-raising homestead law and canceled prior designations of 16,945,535 acres thereunder; designated 1,894 acres as enterable under the Enlarged Homestead Act and canceled prior designations of 25,947,994 acres thereunder; defined the "known geologic structure" of three producing oil and gas fields; completed 1,900 miles of stream-utilization surveys in public-land States; supervised operations or activities under 152 power projects licensed by the Federal Power Commission; supervised on public land 8,394 oil and gas holdings involving 3,699 productive wells, 758 coal properties, 204 potash properties, 45 sodium properties, 26 sulphur properties, 8 phosphate properties, and 1 oil-shale property; on naval petroleum reserves 24 leaseholds involving 529 productive oil and gas wells; and on Indian lands 4,812 leaseholds involving 4,477 oil and gas wells, 36 lead and zinc properties, 39 coal properties, 1 asphalt property, and 1 lime phosphate property; assisted hundreds of oil and gas permittees and operators in the preparation of unit plans of development; participated extensively in the organization and preliminary work of the departmental Division of Grazing; and initiated and fostered legislation looking to material change in the oil and gas provisions of the Federal mineral-leasing law.

Publications.—The publications of the year comprised 35 pamphlets in the regular series, covering a total of 3,509 pages; 86 new or revised topographic

and other maps; and 139 reprinted topographic and other maps. Among the notable book publications were professional papers on the Breckenridge mining district, Colorado, and copper deposits of the Ducktown type in the Appalachian States; bulletins on the quicksilver deposits of southwestern Oregon, the Book Cliffs coal field in Colorado, the geology of Big Horn County and the Crow Reservation, Mont., and the coal in a part of the San Juan Basin, N. Mex.; a paper on the industrial utility of public water supplies in the United States; and a review of the petroleum industry in the United States, 1934. Besides these publications, 36 brief papers, some of them containing simple maps, were issued in mimeographed form as memoranda for the press.

The engraving division printed more than 581,000 copies of maps and folios and, in addition, did repay work amounting to about $190,000 for over 60 other Government units and State Governments.

NOTE.—Detailed tabular statements are given at the end of the report.

GEOLOGIC BRANCH

SUMMARY

Field parties of the geologic branch were actively at work in the beginning of the fiscal year on mineral-resources and land-classification surveys in 19 States east of the Rocky Mountains for which funds had been allocated by the Public Works Administration. Summary reports giving the results of work on most of these projects have been prepared, and several of them have already been published. Among the more important of these is a report on the mineral resources of the region tributary to Boulder Dam, prepared as an aid in the study of possible markets for Boulder Dam power. Public Works funds were made available through the Bureau of Reclamation, and the preliminary report was published by that Bureau.

Other valuable results made possible through Public Works aid include studies of the quicksilver deposits of the Terlingua district of southern Texas, the recently discovered quicksilver area of southern Arkansas, the gold deposits of the southern Appalachian region, the clays of several of the Southern States, and the iron ores of northeastern Texas.

Work was continued throughout the year on the metal-mining districts of Colorado, Idaho, and New Mexico in cooperation with the States, and some assistance was given to the Arizona Bureau of Mines in a survey of the Tombstone district. A resurvey of the Comstock lode, in Nevada, was begun near the end of the year.

Stratigraphic and structural surveys of the San Andreas rift and Death Valley, Calif., were resumed, and minor field projects were carried on in Illinois and Kentucky, in the Coastal Plain area of Louisiana, Mississippi, and North Carolina, in eastern Pennsylvania, and in the Wasatch Plateau, Utah. Temperatures in deep wells

were measured in several oil fields, and certain areas of forest lands, mostly in the Appalachian region, were geologically examined for the Forest Service.

A comprehensive review and summary of the geology and occurrence of petroleum in the United States was prepared during the year by members of the Survey staff for a subcommittee of the House Committee on Interstate and Foreign Commerce, acting under the chairmanship of Representative William P. Cole, Jr., of Maryland. This summary and review, covering more than 200 pages, with 130 illustrations, chiefly maps, constitutes the greater part of part 2 of the hearings held under House Resolution 441, Seventy-third Congress. The situation in each of the petroleum-producing States is summarized in this volume, and an estimate of the reserves in the known fields is assembled. Important among the papers included are those on the early history of the use and development of petroleum and on its origin. They were written by Dr. David White, principal geologist of the Survey and world authority in this field.

WORK OF THE YEAR, BY STATES

Alabama.—Funds from the Public Works Administration were available through Federal projects 157, 158, and 161 for the continuation in 1935 of several projects on the mineral resources of Alabama begun in the fiscal year 1934, and further funds were made available through Federal projects 183 and 189. The work was done under the supervision of Survey geologists and consisted of the mapping and examination of mines in the Woodstock iron-ore area; geologic mapping and prospecting in the Russellville brown iron ore district; further studies of some of the gold areas of the State, with detailed mapping in some of the most representative and accessible gold-mining districts; investigation of bleaching and other high-grade clays in Clarke and Choctaw Counties as a continuation of studies in Mississippi, in the Cretaceous and Tertiary areas, and in northwestern Alabama; and investigations of manganiferous iron ore in Cleburne and Cherokee Counties and adjoining portions of Georgia. A paper on the geology of the Hog Mountain gold district was published by the American Institute of Mining and Metallurgical Engineers. A report on tin deposits of Alabama was issued as a press memorandum. A preliminary report on the gold deposits of the State has been prepared for publication by the Alabama Geological Survey. Reports on the clay investigations are nearing completion and will be issued by the Geological Survey.

Arizona.—Progress was made on reports on the geology and ore deposits of the Ajo copper district, the geology of the Tucson quadrangle, and manganese deposits near Artillery Peak. A paper on strontium deposits of southeastern California and western Arizona was published by the American Institute of Mining and Metallurgical Engineers. A geologic survey of the Tombstone mining district is being made in cooperation with the Arizona Bureau of Mines. Work near Boulder Dam is mentioned under California.

Arkansas.—The field studies of the coal and gas resources of the western portion of the Arkansas coal field of Sebastian, Franklin, Crawford, Logan, and Scott Counties (Federal project 163) were completed, and a report on the geology and mineral resources of the area was prepared for publication as a

Survey bulletin. A map showing geologic structure, gas fields, and coal outcrops of the same area will be issued as a preliminary report. Geologic mapping of the quicksilver district of Pike, Clark, and adjoining counties, as a part of Federal projects 163 and 184, was completed. Publications resulting from this investigation are "Mine developments in the Arkansas quicksilver district to June 1, 1934," and "Investigation of the Arkansas quicksilver district by the United States Geological Survey", which were transmitted to the Arkansas Geological Survey; "Quicksilver deposits near Little Missouri River, southwest Arkansas", published by the American Institute of Mining and Metallurgical Engineers; "Quicksilver deposits near Little Missouri River and near Antoine Creek", issued as a press memorandum. Exploratory drilling and geologic mapping in Saline, Pulaski, and Garland Counties were done to determine the extent of bauxite deposits (Federal projects 163 and 185).

Papers on the fossil flora of the Wedington sandstone member of the Fayetteville shale and the carbon ratio in a part of the Arkansas-Oklahoma coal field were transmitted to the American Association of Petroleum Geologists for publication, and a report on cyclical sedimentation and the stratigraphy of the Bloyd shale, Morrow group, near Fayetteville, was submitted to the Journal of the Washington Academy of Sciences.

California.—Reports on the Kettleman Hills oil and gas field, the geology and mineral resources of the San Pedro Hills, the geomorphology of the San Joaquin Basin, the Grass Valley mining district, chrome in northern California, and the origin of the borate deposits of Kramer were in preparation during the year. Geologic investigations in the southern part of the Death Valley region and of the San Andreas rift and Cajon Pass region were continued. Grants from the Geological Society of America financed a study of the calcium carbonate content of fine-grained clastic sediments in California, a survey of the Nevada City mining district, and a study of Miocene diatomaceous deposits. A paper on the relation of salinity to the calcium carbonate content of marine sediments will be published by the Geological Survey, and one on the organic content of sediments from several American oil-producing areas has been issued by the American Petroleum Institute.

A preliminary report on mineral resources in the region tributary to Boulder Dam, the work for which was done by geologists of the Survey by funds allotted by the Public Works Administration to the Bureau of Reclamation, was published by that Bureau in November 1934; a more complete report has been prepared for publication as a Survey bulletin. Under a Public Works allotment (Federal project 153), the drafting of the geologic map of California was continued in cooperation with the State. Routine seismologic and meteorologic observations were continued at the volcanologic station at Mineral, though the volcanologist in charge was furloughed part of the time on account of reduction of funds. On June 30, 1935, this station was closed, and the building, which is in a national forest, was transferred to the Forest Service.

Colorado.—Cooperation was continued with the Geological Survey Board of Colorado and the Colorado Metal Mining Fund in investigations of the mining regions of the State. Further field studies were made in the Ouray and Red Mountain districts of the San Juan region, the Nederland tungsten district, the Alma district, and the Gold Hill and Ward mining districts of the Front Range, and a study of the geology and mineral resources of the La Plata Mountain region of southwestern Colorado, with special reference to mining geology, was begun. Reports are in preparation on the ore deposits of the Front Range, the Snowmass area, the Jamestown, Alma, and Ouray districts, the Nederland tungsten district, and the Paleozoic stratigraphy. A paper

on the Cripple Creek district was published by the Colorado Scientific Society, and one on the Tincup mining district, in Gunnison County, will be published by the same society. Preliminary papers resulting from these investigations on geology and ore deposits of the Cripple Creek district, ore deposits of the Mosquito and Sawatch Ranges, geologic guidance to the development of the San Juan ore deposits, and the ore deposits of Clear Creek, Gilpin, and Boulder Counties were offered for publication in the Colorado number of the Engineering and Mining Journal. A paper on reconnaissance observations of the Upper Cretaceous rocks north of the Arkansas River in eastern Colorado was submitted to the American Association of Petroleum Geologists.

Florida.—Prospecting for phosphate on reserved public lands in Polk, Marion, and Citrus Counties for the purpose of classifying the land was continued by a party under the supervision of a Survey geologist, financed through Federal projects 164 and 188. Field work in connection with the project was completed at the end of the fiscal year. Explorations for bleaching and other high-grade clays (as a part of Federal project 164) were made in Jackson, Alachua, Gadsden, Jefferson, Marion, Holmes, Leon, Madison, and Washington Counties. A preliminary report on the clay studies will be issued by the Geological Survey as a press memorandum. A paper on the Tampa limestone is in preparation, and one on the Choctawhatchee gastropods and scaphopods from the Alaqua Creek Valley, a cooperative project, was transmitted to the Florida Geological Survey.

Georgia.—Detailed mapping of various operating mines in the Dahlonega and other gold-bearing areas in Georgia, begun during the fiscal year 1934 under allotment of funds from Public Works Administration (Federal projects 158 and 165), was completed, and five short articles on gold deposits of Georgia were published in the monthly bulletin of the State Department of Forestry and Geological Development and later combined and issued by the Division of Geology as Information Circular 4. By additional funds (Federal project 183) a study of gold districts in Cherokee, Dawson, Lumpkin, and White Counties was made. A short paper on the Battle Branch mine, near Auraria, will probably be published in Economic Geology. As a part of Federal project 165 a study was made of the kyanite and vermiculite deposits of northern Georgia, and a report of the investigation was transmitted to the State geologist for publication. Explorations for bleaching clays were conducted in various parts of the State (Federal projects 165 and 189), and reports have been prepared for publication by the State and the United States Geological Survey. Manganese ore deposits at Cartersville and near Taccoa, Iron City, and Union Point were examined, the results to be incorporated in a paper on manganese deposits of the crystalline belt from Georgia to Maine. At the request of the Forest Service, lands were examined and reports made on proposed additions to the Broad River National Forest.

Hawaii.—Because of greatly reduced funds the work of the section of volcanology, with headquarters at Hawaii National Park, was curtailed, and the two employees were furloughed for half a year each. With the cooperation of the Volcano Research Association the routine of the observatory was maintained, the Volcano Letter issued, and seismologic studies of Kilauea continued.

Idaho.—Cooperation with the Idaho Bureau of Mines was continued in the Boise Basin, Thunder Mountain, Edwardsburg, and Yellow Pine districts and in a study of the gold-bearing gravel in the vicinity of Grangeville, along the Salmon River, and in the Florence district. Reports were also in preparation on the general geology of south-central Idaho and on the Idaho mining dis-

tricts. A press memorandum on the Elk City mining district was issued, and a bulletin on the geology and ore deposits of the Bayhorse quadrangle was completed for Survey publication. Papers resulting from cooperative work published by the Idaho Bureau of Mines include a preliminary report on the geology and ore deposits in the eastern part of the Yellow Pine district (Pamphlet 43) and a report on the Pearl-Horseshoe Bend gold belt (Pamphlet 41). A report on the geology and mineral resources of the Ammon and Paradise Valley quadrangles was in preparation.

Illinois.—The fluorspar deposits of the Cave-in-Rock and Rosiclare districts, southeastern Illinois, were investigated by geologic mapping and geophysical studies, and a preliminary paper dealing with the geology of southern Illinois and the fluorspar deposits was transmitted to the Illinois Geological Survey. This work was done under Federal project 166 and was continued until the funds allotted were exhausted. Further studies in the region were resumed near the end of the fiscal year in cooperation with the Illinois Geological Survey. Work was continued on the monograph of the Pottsville flora of the Eastern Interior Basin, mainly in Illinois but including adjoining portions of Indiana, western Kentucky, and southeastern Iowa, which is being prepared in cooperation with the Illinois Geological Survey.

Kansas.—Field examinations of the stratigraphy, structure, and coal resources of southeastern Kansas in Cherokee County and parts of Labette and Crawford Counties, under Federal project 167, were completed, and a report on the geology and mineral resources of the southeastern Kansas coal field was prepared for publication as a Survey bulletin. A contour map with text, of the base of the Cherokee shale in the zinc-lead district of southeastern Kansas will be issued by the Geological Survey as a press memorandum, and a map showing structure of the southeastern coal fields of the Kansas zinc-lead districts will be published by the Kansas Geological Survey. Stratigraphic mapping and studies of lead and zinc mines were made in the Kansas part of the Tri-State lead and zinc area.

Kentucky.—A report on the coal deposits of Pike County, giving the results of investigations in 1934 and the early part of 1935 by a party under the supervision of a Survey geologist working under Federal project 168, was completed for publication as a Survey bulletin. The studies of the fluorspar area in Kentucky under Federal project 168 consisted of geologic and geophysical mapping in the vicinity of Marion. Papers on the New Providence shale in the vicinity of Junction City and on a new crinoid genus from the Mississippian of Ohio and Kentucky are in preparation. A report was made to the Forest Service on proposed additions to the Cumberland Purchase unit in the southeastern part of the State. Work on the Pottsville flora is mentioned under Illinois.

Maryland.—Studies of the structural materials of Maryland, chiefly sand and gravel, continued by Public Works funds (Federal project 169), covered areas in Prince Georges, Montgomery, Anne Arundel, Charles, Howard, Cecil, Harford, and Baltimore Counties.

Mississippi.—A report giving the results of an investigation of the bleaching clays of Mississippi made in 1934 from Public Works funds (Federal project 171) has been prepared.

Missouri.—In connection with the investigation of the Tri-State lead and zinc district (Federal project 172) stratigraphic sections were studied in the lead and zinc areas of Jasper and Newton Counties, and detailed mapping of mines was done in the Waco and Joplin areas. Reports on these districts were prepared for the Missouri Geological Survey.

Montana.—Work was done on papers on the physiography and glacial geology of western Montana, the glacial geology and physiography of Glacier National Park, the geology and ore deposits of the Libby quadrangle, the geology and mineral resources of north-central Chouteau, western Hill, and eastern Liberty Counties, and fossil plants from the Fort Union and associated formations. Reports on the coal resources of McCone County and on phosphate near Maxville were completed for Survey publication.

Nevada.—Further field studies were made in the Tonopah and Hawthorne quadrangles, partly through a grant from the Geological Society of America, and a study of recent faults in the western part of the Great Basin was made through a grant from the same society. A resurvey of the Comstock lode was begun in June 1935. A detailed report on the geology and mineral resources of the Tonopah and Hawthorne quadrangles and reports on the Tonopah, Tuscarora, Gold Range, Searchlight, and Delamar mining districts were in progress. A set of mine maps of the Tonopah district was placed in open files in the San Francisco, Salt Lake City, Reno, and Washington offices of the Geological Survey. A report on the underground geology of the Tonopah mining district will be published by the Nevada Bureau of Mines; and a paper on a pregranodiorite dike in granodiorite, Paradise Range, by the American Geophysical Union. Work near Boulder Dam is mentioned under California.

New Mexico.—Cooperation with the New Mexico Bureau of Mines was continued in an investigation of the Eureka and Sylvanite mining districts and geologic mapping of the Little Hatchet Range, in Hidalgo and Grant Counties. A report on the Bayard area of the Central district was completed for Survey publication, and one on the Virginia mining district was sent to the New Mexico Bureau of Mines for publication. Both these reports were products of cooperative investigations. Office work was continued on the manuscript on the geology and ore deposits of the Magdalena mining district. A paper on igneous assimilation and associated metamorphism in the Virginia mining district was transmitted to the American Mineralogist, and one on hydrothermal leaching in the Virginia mining district to Economic Geology. A report on the structure and igneous geology of the Mount Taylor volcanic field was completed for Survey publication. A paper on logs of the Government core tests for potash in New Mexico and Texas was sent to the Texas Bureau of Economic Geology, and one on the Permian formations of the Pecos Valley of New Mexico and Texas was submitted to the American Association of Petroleum Geologists.

New York.—Field studies of the stratigraphy, structure, and gas resources of south-central New York, including portions of Seneca, Livingston, Ontario, Schuyler, Chemung, Steuben, Yates, Allegany, and Cattaraugus Counties, were continued under Federal projects 173 and 187. A preliminary report on the structure and gas possibilities of the Watkins quadrangle will be issued as a press memorandum. A study of the talc deposit of St. Lawrence County was made as a part of Federal project 173.

North Carolina.—Investigations of gold-bearing regions in the slate and granite areas of the western part of North Carolina, extending from the South Carolina border to Guilford County, were completed under funds from the Public Works Administration (Federal project 174). A preliminary report covering these investigations was issued as a press memorandum. Additional funds were received through Federal project 183 for the completion of detailed examinations of mines and prospects and mapping the geology of the gold-bearing regions of the State. Detailed work was done in Union and Stanly

Counties. Reports on the Uharie and Sauratown purchase units were made for the Forest Service.

North Dakota.—The mapping of the coal resources of the Minot district, in McHenry, Ward, McLean, Mercer, and Sheridan Counties, under a Public Works Works allotment (Federal project 159), was completed, and a preliminary map of the area was issued. A detailed report on the geology and coal resources of the area will be published later as a Survey bulletin.

Oklahoma.—With Public Works funds field mapping was continued on the coal and gas resources in Pittsburg, Haskell, and Latimer Counties (Federal project 175) and a survey of wells in the Quinton gas pool was made (Federal project 186). A report on the Quinton-Scipio district, covering the gas field of Pittsburg County, has been completed, and a preliminary map of the geology and structure of the area has been prepared for publication. Federal project 160 provided for a study of the Lehigh district, in Coal and Atoka Counties, field work on which was completed. This area has also been covered by a report intended for publication as a Survey bulletin, and a geologic map of the region has been prepared for advance publication. Under Federal project 63–M the mapping of the Osage and adjoining Indian lands, with special attention to the subsurface structure, was continued, and a report on the subsurface geology of Osage County was prepared. The Tri-State lead and zinc project, in Kansas, Missouri, and Oklahoma, provided for by Public Works funds (Federal projects 167, 172, and 175) begun in 1934, was continued during the entire year. The work in Oklahoma included stratigraphic and areal mapping, with detailed study of the principal mines in the Picher and Miami districts, northeastern Oklahoma. Geologic studies were continued in the Ouachita Mountains, and reports are in preparation on the Moorefield fauna, the fauna of the Sycamore limestone, and the geology and mineral resources of the Howe-Wilburton district. Work on the origin and environment of source sediments is mentioned under California.

Oregon.—Preparation of a report on the metalliferous deposits of the Cascade Range was continued, and a paper was prepared on Miocene plants from Idaho, Oregon, and Washington for publication in the Journal of Paleontology.

Pennsylvania.—Some additional field data were collected in the Hanover and York quadrangles in connection with a report on the geology of these quadrangles prepared in cooperation with the Pennsylvania Geological Survey. A brief paper on Appalachian structure in the York-Hanover area will be published by the Geological Society of America. A manuscript describing the Paleozoic and Quaternary sedimentary rocks and the geologic structure of the New Cumberland quadrangle was transmitted to the Pennsylvania Geological Survey for inclusion in a State bulletin. A field study of the structure of the Reading-Boyertown Hills area was made, and a paper was prepared on "The highlands near Reading, Pa., an erosion remnant of a great overthrust sheet", for publication by the Geological Society of America. Revision of the geologic report on the Honeybrook and Phoenixville quadrangles was under way, and the study of the progressive regional metamorphism of the Lower Kittanning coal bed of western Pennsylvania was continued.

South Carolina.—The survey of the geology and gold deposits of South Carolina, begun in 1934 with Public Works funds (Federal Projects 158 and 176), covered areas in Lancaster, Chesterfield, York, Union, and McCormick Counties, and later funds through Federal Project 183 were devoted to detailed mapping in the Haile and Brewer mine areas, in Chesterfield and Lancaster Counties. The results of the earlier examination have been given in a press memorandum entitled "Preliminary report on gold deposits in North Carolina

and South Carolina." Public Works funds (Federal projects 176 and 189) provided for a preliminary survey of bleaching-clay deposits of South Carolina, on which a report has been completed. A report on the geologic aspects of the Santee-Cooper hydroelectric project was prepared for the Public Works Administration. Examinations of manganese near McCormick and from Columbia to Gaffney were made in connection with the general study of manganese of the crystalline rocks of the Piedmont area. Areas in the Long Cane and Enoree purchase units were examined and a report made to the Forest Service.

Tennessee.—A report on clay deposits of Tennessee, as a result of recent field studies made with Public Works funds (Federal project 177), was completed, and a report on zinc, lead, and barite materials is in preparation.

Texas.—The Public Works Administration financed several studies of the mineral resources of Texas (Federal project 178). Surveys of the Shafter silver district and the Terlingua quicksilver district were completed, and preliminary reports on both districts were sent to the Texas Bureau of Economic Geology. More detailed reports on these areas will be published by the United States Geological Survey. A study of the iron ores of northeastern Texas, lying largely in Cass, Marion, and Morris Counties, was completed and a progress report on the investigation was issued by the Texas Bureau of Economic Geology; a final report is in preparation for publication by the Survey. A study of the stratigraphy and structure, with special attention to oil, gas, and coal, in parts of north-central Texas, including areas in Young, Stevens, Throckmorton, Coleman, and Brown Counties, has been completed, and a report will be transmitted to the Texas Bureau of Economic Geology. A report on the clay resources of the San Antonio area was prepared.

The geology of the Guadalupe Peak quadrangle and the Cambro-Ordovician of the Central Mineral Region were studied through grants from the Geological Society of America. A report on the geology of the Monument and Marathon quadrangles was submitted for Survey publication. Papers on potash in Texas and an unconformity in the late Paleozoic of trans-Pecos Texas were sent to the State Bureau of Economic Geology. Further studies were in progress on the fossils of the Navarro formation of Texas (in cooperation with the Texas Bureau), the geology of the Guadalupe Mountains, and the Eocene faunas of the Gulf region. A paper on upper Mississippian rocks of trans-Pecos Texas was sent to American Association of Petroleum Geologists for publication. Work on source rocks of petroleum is mentioned under California.

Utah.—Office work was continued on reports on the geology and structure of southeastern Utah; the geology of the area between Green and Colorado Rivers in Grand and San Juan Counties; the structure, stratigraphy, and coal resources of the western part of the Wasatch Plateau; and stratigraphic relations of the Wasatch formation in central Utah. A manuscript on the San Juan country, a geographic and geologic reconnaissance of southeastern Utah, was submitted for publication as a professional paper.

Vermont.—A report on the addition to the Green Mountain National Forest was made for the Forest Service.

Virginia.—Studies of the lead, zinc, gold, and other minerals of Smyth, Wythe, and Carroll Counties, southwestern Virginia, made through Public Works Administration funds, beginning in 1934, were continued. Preliminary reports on these investigations published by the Virginia Geological Survey include papers on the zinc belt, the copper and iron deposits, and the gold deposits. Examinations of the gold regions of the Piedmont area (Federal

projects 158 and 183) will be covered by a paper also to be published by the Virginia Geological Survey. Manganese deposits were examined near Lynchburg and Galax. Examinations were made of the Clinch River purchase area and of the Mountain Lake forest-reserve tract for the Forest Service. A paper on the titanium deposits of the State is in preparation.

Washington.—Fossil plants were collected from the Latah formation in the vicinity of Spokane, and a paper entitled "Leaves and fruits from Miocene strata in Idaho, Oregon, and Washington", was submitted for publication in the Journal of Paleontology.

West Virginia.—The results of investigation of the manganese deposits of eastern West Virginia (Federal project 169) have been included in a report submitted to the West Virginia Geological and Economic Survey.

Wyoming.—A detailed report with geologic map on the mineral resources and structure of the Afton quadrangle is in preparation, and a paper on anticlines between the Hiawatha gas field and Baggs was sent to the American Association of Petroleum Geologists.

WORK IN CHEMISTRY AND PHYSICS

The chemical work consists largely of routine analyses and tests of ores, rocks, and minerals collected on account of their bearing on geologic problems, such as the mapping and valuation of mineral deposits and the origin and method of deposition of ores. Many tests are also made of mineral specimens submitted by correspondents of the Survey. Individual minerals are analyzed and technically described, the age of minerals and rocks is determined by special chemical analyses, and new methods of analysis are devised and tested for the purpose of obtaining more accurate results.

Among materials analyzed in the laboratory during the year were a geode of hematite containing gas, liquid, and solid inclusions; samarskite from Connecticut, which checked in age with two other minerals previously analyzed from the same locality; jarosite from Texas; chromite from California; alunite from Utah; pollucite from South Dakota; pyroxene from Virginia; cerite from Colorado; rutile from Virginia; over 56 igneous rocks, a great variety of clays, ores, sediments, and several new minerals. A new deposit of natural alkali in Ward County, Tex., identified and described in the Survey laboratory, was put into production during the year. The production of natural alkali has steadily increased during recent years.

During the year 4,236 examinations or tests of minerals and rock samples were made. These included 926 specimens tested or identified for persons not officially connected with the Survey. There were 1,682 chemical analyses made for geologists or in aid of general geologic projects, and 685 similar analyses were made in connection with studies of methods of analysis and geochemical investigations relating to the formation and alteration of minerals under natural conditions. The remaining 943 tests related to potash cores, well cuttings, and similar samples.

Among the more important items of work in physics were the testing of more than 1,500 samples of clay with reference to their effectiveness in bleaching oil and the best methods of treating them for that purpose; and the observations of temperature in deep wells in Pennsylvania, West Virginia, Alabama, Mississippi, Louisiana, Utah, and California. Several classes of geologic data were subjected to mathematical discussion.

ALASKAN BRANCH

The Geological Survey's work in Alaska is concerned primarily with the investigation of the mineral resources of the Territory and comprises field examination of the various factors that pertain to the character, distribution, and development of these resources, and laboratory and office studies by which these field observations are analyzed and the results made available to the public through reports, maps, and other media. In addition to the funds regularly appropriated by Congress for this work, funds from the Public Works Administration were granted to supplement those for a general project (Federal project 162) and to enable the Geological Survey to carry on special mapping work (Federal project 69). Cooperation was also continued with the Alaska Railroad, the expense of which was borne mainly by the railroad. The work of the branch, in addition to serving the prime purpose of assisting the mining industry, is utilized extensively by Government organizations having to do with other special fields of investigation within the Territory, such as the Forest Service, the Alaska Road Commission, and the Biological Survey. The Geological Survey's maps of Alaska are indispensable in any enterprises concerned with the development of the Territory.

Manuscripts and publications.—During the year 4 reports and 2 maps have been published. In addition, 11 manuscript reports (including maps) and 4 separate manuscript maps have been completed by their authors and are in various stages of critical review, proof, or preparation for publication. A reprint of one map previously published is in press. At the end of the year 8 manuscript reports and 4 manuscript maps were partly completed.

Work of the year.—In addition to the routine duties, 9 principal projects, 7 of which involved new field work, were carried on during the season of 1934. The field projects included 5 that were principally geologic and 2 that were primarily topographic. The projects involving new geologic field work were located in the area adjacent to Ketchikan, southeastern Alaska; in part of the Alaska Range, including the headwater region of the Copper River Valley and parts of the Tanana Valley; in the Kaiyuh Mountains, which lie south and east of the Yukon River in the region west of Ruby and southeast of Kaltag; in the northern and eastern part of Kodiak Island, southwestern Alaska; and in the coal fields adjacent to Eska, in the Matanuska district of the Cook Inlet-Susitna region. The Eska work was financed by and carried on at the request of the Alaska Railroad and mainly in its interest. The topographic projects include the mapping of an extensive tract of Admiralty Island and

adjacent parts of the Juneau district, in southeastern Alaska, and mapping of parts of the Alaska Range at the head of the Copper River, especially in the vicinity of Mentasta Pass and Suslota Lake. The two projects not directly involving new field work were the continuation of the compilation of drainage maps of southeastern Alaska from the airplane photographs taken by the Navy Department and the annual canvass of mineral production.

In order to utilize effectively the all too short open season, the Geological Survey field parties begin work in the spring as early as climate and other conditions permit. The field projects for the season of 1935 were begun a month or more before the end of the fiscal year, but as most of the field parties were out of touch by ordinary means of communication, it is not practicable to give here more than a summary of the work that it is expected will be accomplished.

Six field projects have been authorized for the season of 1935, and their completion, with the essential office work, will occupy all the time until well into the spring of 1936. These projects include 4 geologic investigations and 2 topographic mapping projects, in addition to the usual canvass of mineral production, further compilation of planimetric base maps, and other miscellaneous general work.

The four geologic projects include studies of that part of the Alaska Range region east of the Richardson Highway and north of Slana; of the central and southern part of Kodiak Island; of the Tikchik Lake district of southwestern Alaska; and a general study of the permanently frozen ground as affecting mining development in central and western Alaska, especially in the Fairbanks and Nome districts.

The two topographic field projects include the continuation of surveying and mapping in the Admiralty Island area of southeastern Alaska west of Juneau and in the Alaska Range region, especially in the Tok Valley and adjacent parts of the Tanana region south of Tanana Crossing.

TOPOGRAPHIC BRANCH

GENERAL OFFICE WORK

Necessary office work incidental to the field work of the topographic branch consisted in the inking, inspection, and editing of the completed topographic field sheets prior to their submission for reproduction and the computation and adjustment of the results of control field work.

The status of topographic surveys shows that the country as a whole is now 46.7 percent mapped, the year's increment amounting to 0.7 percent. The area covered by topographic base maps without contours and prepared from aerial photographs after field examinations continued large.

FIELD SURVEYS

Abbreviations for projects used below: Federal Emergency Administration of Public Works, "P. W."; Tennessee Valley Authority, "T. V. A."; Federal Emergency Relief Administration, State projects, "F. E. R. A." Cooperation with States was continued on a smaller scale than in recent years.

Alabama.—Palos and Basham 15′ quadrangles (P. W.) completed, and Mount Hope 15′ quadrangle (P. W.) continued. Mapping without contours from aerial photographs begun for 7½′ quadrangles within Iuka 15′ quadrangle (T. V. A.).

Arizona.—Payson No. 1, Payson No. 2, and Castle Dome Peak No. 3 15′ quadrangles (P. W.) completed; Grand Encampment National Monument (P. W.) continued; Payson No. 3 15′ quadrangle (P. W.) begun.

Arkansas.—In cooperation with the United States Army district engineer at Vicksburg, Felsenthal, Moro Bay, Stuttgart, and S½ Ingalls 15′ quadrangles completed. Watalula and Alexander 15′ quadrangles (P. W.) and Scott No. 2, Cabot No. 3, and Alexander No. 1 7½′ quadrangles (P. W.) completed; Caddo Gap No. 1 and Caddo Gap No. 2 15′ quadrangles (P. W.) and North Little Rock No. 4 7½ quadrangle (P. W.) begun.

California.—In cooperation with the county surveyor of Los Angeles County, Acton, Mount Wilson, Chileno Canyon, Camp Rincon, Camp Bonita, Pallett Creek, Boneyard Canyon, Mescal Creek, and Valyermo 6′ quadrangles completed; Mount Emma, Alder Creek, Trail Canyon, and Mount Gleason 6′ quadrangles begun. Paynes Creek 30′ quadrangle (P. W.) continued; Burney 30′ quadrangle (P. W.) begun.

Colorado.—Como No. 2 and Taylor Park 15′ quadrangles (P. W.), Grand Encampment 30′ quadrangle (P. W.), Colorado National Monument and Black Canyon National Monument (P. W.) completed; Castle Rock Nos. 1 and 2, Castle Rock Nos. 3 and 4, East Denver Nos. 3 and 4, Leadville No. 1, and Leadville No. 4 15′ quadrangles (P. W.) begun.

Connecticut.—7½′ New London and Niantic 7½ quadrangles (P. W.) completed; New London No. 2 7½′ quadrangle (P. W.) begun.

Delaware.—Wilmington special map (P. W.) begun.

Florida.—De Funiak Springs, Oscar, Mary Esther, and Y Y 15′ quadrangles (P. W.) completed; Point Washington 15′ quadrangle (P. W.) begun.

Georgia.—Warm Springs 15′ quadrangle (P. W.) completed; Thomaston 15′ quadrangle (P. W.) continued. Mapping without contours from aerial photographs completed for 7½′ quadrangles within Hemp, Porter Springs, Blue Ridge, Randa, Blairsville, Cartecay, and Cohutta 15′ quadrangles (T. V. A.).

Idaho.—American Falls No. 1, American Falls No. 2, and American Falls No. 3 15′ quadrangles (P. W.) and Metaline 30′ quadrangle (P. W.) completed; Yellow Pine No. 2 and Washington Creek No. 2 15′ quadrangles (P. W.) and Mackay and Dickey 30′ quadrangles (P. W.) begun.

Illinois.—Burlington, Oquawka, Iuka, Wenona, Morrison, and Lamotte 15′ quadrangles completed; Keithburg, Arcola, Shelbyville, Lovington, and Delavan 15′ quadrangles continued; Minonk, Stewardson, and Miles 15′ quadrangles begun in cooperation with the Department of Registration and Education of Illinois, Geological Survey. Sycamore, De Kalb, and Mattoon 15′ quadrangles (P. W.) completed; Watseka and Pontiac 15′ quadrangles begun.

Indiana.—Heltonville, Watseka, and Porter 15′ quadrangles (P. W.) completed; Oolitic 15′ quadrangle (P. W.) continued.

Iowa.—Melrose, McPaul, Iowa City, and Humeston 15′ quadrangles (P. W.) completed.

Kansas.—W½ of Waldron 15′ quadrangle (P. W.) and Armourdale No. 1, Olathe 1b, and Olathe 2a 7½′ quadrangles (P. W.) completed.

Kentucky.—Munfordville and Cecilia 15′ quadrangles (P. W.) completed. Mapping without contours from aerial photographs completed for Sneedville No. 2 quadrangle (T. V. A.).

Louisiana.—The Louisiana Board of State Engineers cooperating, mapping without contours from aerial photographs completed for 7½′ quadrangles within Creole, Dulac, Pointe a la Hache, Crowley, Welsh, Jennings, Lafayette,

Sulphur, Donaldsonville, Bayou de Large, Dime, Chandeleur, Bodreau, Shell Beach, St. Bernard, Bonnet Carre, Spanish Fort, Chef Menteur, Toulme, Timbalier, Cheniere Caminada, Lake Felicity, East Delta, West Delta, Breton Island, Forts, Quarantine, Fort Livingston, La Fortuna, Cat Island, Rigolets, Mount Airy, Raccoon Point, Caillou Island, and Marsh Island 15′ quadrangles. Contours for 7½′ quadrangles within Chef Menteur, Spanish Fort, Bonnet Carre, New Orleans N½, and Hahnville N½ 15′ quadrangles (P. W.) completed; contours for St. Bernard NW. quadrangle (P. W.) begun.

Maine.—In cooperation with the Public Utilities Commission of Maine, Mars Hill 15′ quadrangle continued. Houlton, Burleigh, and Bridgewater Center 15′ quadrangles (P. W.) completed; St. Croix 15′ quadrangle (P. W.) and Acadia National Park (P. W.) begun.

Maryland.—Patuxent No. 2 E½ and Prince Frederick 15′ quadrangles (P. W.) completed; Leonardtown 15′ quadrangle (P. W.) begun.

Massachusetts.—In cooperation with the Department of Public Works, Division of Waterways, Wareham, Mount Tom, 7½′ Plymouth, Easthampton, and Northampton No. 4 7½′ quadrangles completed; Falmouth No. 1 and Northampton No. 1 7½′ quadrangles begun. Worcester No. 4 7½′ quadrangle (P. W.) completed; Webster No. 1 7½′ quadrangle (P. W.) begun.

Michigan.—Merrill and Sanford 15′ quadrangles (P. W.) and Toledo Nos. 1 and 2 7½′ quadrangles (P. W.) completed; Cement City 15′ quadrangle (P. W.) continued; Ithaca 15′ quadrangle (P. W.) begun.

Minnesota.—Cochrane, Fountain City, Plainview, and Grand Forks 15′ quadrangles (P. W.) and Grand Forks No. 1 7½′ quadrangle (P. W.) completed; Rochester 15′ quadrangle (P. W.) begun.

Mississippi.—Vicksburg National Military Park (P. W.) completed; Edwards 15′ quadrangle (P. W.) continued. Mapping without contours from aerial photographs begun for 7½′ quadrangles within Iuka 15′ quadrangle (T. V. A.).

Missouri.—In cooperation with the Geological Survey and Water Resources of Missouri, Nebo, Berryman, Upalika, Hardin, Greenville, Elsberry, Zanoni, and Linn 15′ quadrangles and Versailles 3a, Versailles 3c, Versailles 3d, Versailles 4a, Versailles 4b, Versailles 4c, Versailles 4d, Butler 4c, Butler 4d, Meramec State Park, Jefferson City 2a, Harrisonville 1b, Harrisonville 2a, Springfield 3a, Independence 3c, and Eldon No. 4 7½′ quadrangles completed; Stone Hill and Kearney 15′ quadrangles continued; Boss, Nevada No. 1, and Knobnoster 15′ quadrangles and Stockton 2b, Independence 4d, Butler 3d, Clinton 3c, Warsaw 4d, Harrisonville 1a, Harrisonville 1c, Harrisonville 2c, Harrisonville 2d, Glasgow 4b, and Olathe 1d 7½′ quadrangles begun. Armourdale No. 1, Armourdale No. 4, Independence 3a, Independence 4b, and Gravois Mills No. 4 7½′ quadrangles (P. W.) completed; Eldon No. 3, Gravois Mills No. 3, Warsaw 1d, Warsaw 3a, Warsaw 4a, Warsaw 4b, Independence 3b, and Versailles 3b 7½′ quadrangles (P. W.) and Morrison and Sullivan No. 2 15′ quadrangle (F. E. R. A.) begun.

Montana.—Dupuyer No. 1 and Dupuyer No. 2 15′ quadrangles (P. W.) and Thompson 30′ quadrangle (P. W.) completed; Jennings and Silver Tip 30′ quadrangles (P. W.) begun.

Nebraska.—Utica, Seward No. 1, and McPaul 15′ quadrangles (P. W.) completed; Seward No. 4 15′ quadrangle (P. W.) begun.

Nevada.—Skelton 30′ quadrangle (P. W.) completed; Gold Creek No. 4 15′ quadrangle (P. W.) continued; and Washoe district (P. W.) begun.

New Hampshire.—Mount Washington 15′ quadrangle (P. W.) completed; Whitefield 15′ quadrangle (P. W.) continued.

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New Jersey.—Ramapo No. 4 and Paterson No. 1 7½′ quadrangles (P. W.) completed; Paterson No. 4 7½′ quadrangle (P. W.) begun.

New Mexico.—Arabela No. 3 15′ quadrangle (P. W.), Potash special (P. W.), Albuquerque 4a, Albuquerque 4b, Albuquerque 4c, and Albuquerque 4d 7½′ quadrangles (F. E. R. A.) completed; Los Lunas 1a 7½′ qadrangle (F. E. R. A.) and Arabela No. 4 and Hillsboro Peak No. 1 15′ quadrangles (P. W.) begun.

New York.—Rhinebeck 15′ quadrangle completed and Poughkeepsie Nos. 2 and 3 7½′ quadrangles begun, in cooperation with the Department of Public Works of New York. Saratoga No. 3, Saratoga No. 4, Quaker Springs, Castle Creek, and 7½′ New London 7½′ quadrangles (P. W.) completed; Schuylerville No. 4, Binghamton No. 1, and Binghamton No. 7½′ quadrangles (P. W.) begun.

North Carolina.—Corundum, Banner Elk, and Ranger 15′ quadrangles (P. W.) completed; Blowing Rock and Farner 15′ quadrangles (P. W.) continued. Mapping without contours from aerial photographs completed for 7½′ quadrangles within Hayesville, Hemp, Ranger, Blue Ridge, Blairsville, Erwin, Montreat, Meat Camp, Mountain City, Highlands, Addie, Lake Toxaway, Mount Rogers, and Pattonsville 15′ quadrangles (T. V. A.) and begun for 7½′ quadrangles within Tigersville, Edneyville, Arden, Democrat, and Brevard 15′ quadrangles (T. V. A.).

North Dakota.—Grand Forks No. 1 7½′ quadrangle (P. W.) and Grand Forks, Emerado, and Larimore No. 1 15′ quadrangles (P. W.) completed; Larimore No. 2 and McVille 15′ quadrangles (P. W.) begun.

Ohio.—Toledo No. 1, Toledo No. 2, Toledo No. 3, Toledo No. 4, and Maumee Bay No. 2 7½′ quadrangles (P. W.) completed; McClure No. 1 and Swanton No. 4 7½′ quadrangles (P. W.) begun.

Oklahoma.—Edmond 15′ quadrangle (P. W.) and Edmond No. 3 7½′ quadrangle (P. W.) completed.

Oregon.—McKenzie Bridge 30′ quadrangle (P. W.) completed; Disston 30′ quadrangle (P. W.) and extension of Crater Lake National Park (P. W.) continued.

Pennsylvania.—In cooperation with the Department of Internal Affairs of Pennsylvania, Topographic and Geologic Survey, Allentown and Kane 15′ quadrangles completed and Mount Jewett and Sheffield 15′ quadrangles begun. Mifflintown 15′ quadrangle (P. W.) completed; Needmore and Menno 15′ quadrangles (P. W.) begun. Cultural revision completed for Cameron and Wheeling 15′ quadrangles (P. W.).

Rhode Island.—Providence No. 3 7½′ quadrangle (P. W.) completed.

South Carolina.—Greenville, Killian, Camden, and Wellford 15′ quadrangles (P. W.) completed. Mapping without contours from aerial photographs completed for 7½′ quadrangles within Timmonsville, Marion, and Florence 15′ quadrangles (F. E. R. A.) and begun within Irmo and Fort Motte 15′ quadrangles (F. E. R. A.).

South Dakota.—Fort Pierre No. 1 and Van Metre No. 1 15′ quadrangles (P. W.) and Wind Cave National Park (P. W.) completed; Oacoma No. 2 15′ quadrangle (P. W.) begun.

Tennessee.—Tellico 15′ quadrangle (P. W.) completed; Farner 15′ quadrangle continued. Mapping without contours from aerial photographs completed for 7½′ quadrangles within Damascus, Gate City, Elizabeth, Blountville, Robbinsville, Surgoinsville, Small, Sneedville, Johnson City, Grady, Erwin, Meat Camp, Mountain City, Tellico, Wallace, Dandridge, Pattonsville, Mount Rogers, and Hagan 15′ quadrangles (T. V. A.) and begun for 7½′ quadrangles within Gillises Mills, Adamsville, Tate Springs, English Mountain, Straw Plains, Cohutta, Midway, Conasauga, Ooltewah, Rogersville, Newport, and Sevierville 15′ quadrangles (T. V. A.).

Texas.—Longview No. 3 15′ quadrangle (P. W.) completed; Longview No. 2 and Dumas No. 4 15′ quadrangles (P. W.) begun.

Utah.—A portion of Salt Lake County (P. W.) completed; Theodore 30′ quadrangle (P. W.) continued; Elk Ridge 30′ quadrangle (P. W.) begun.

Vermont.—In cooperation with the State geologist of Vermont, Woodsville 15′ quadrangle continued. Wolcott 15′ quadrangle (P. W.) completed; Wheelock 15′ quadrangle (P. W.) begun.

Virginia.—Mount Rogers and Mouth of Wilson 15′ quadrangles and Studley 7½′ quadrangle completed and Charlottesville and Burkes Garden 15′ quadrangles, Midlothian No. 1 and Midlothian No. 4 7½′ quadrangles, and Charlottesville special begun in cooperation with the Conservation and Development Commission of Virginia, Geological Survey. Balcony Falls 15′ quadrangle (P. W.) and Fredericksburg-Spotsylvania Battlefield National Monument (P. W.) completed; Vesuvius and Amherst 15′ quadrangles (P. W.) begun. Mapping without contours from aerial photographs completed for 7½′ quadrangles within Carterton, Damascus, Burkes Garden, Marion, Glade Spring, Gate City, Blountville, Rural Retreat, Wise, Robbinsville, Sneedville, Wallace, Mount Rogers, Hagan, Mouth of Wilson, Pound, Coeburn, Whitesburg, Pounding Mill, Big Stone Gap, Richlands, Nolensburg, Bucu, and Pattonsville 15′ quadrangles (T. V. A.).

Washington.—Mount Constance, Fort Simcoe, Eatonville, and Metaline 30′ quadrangles (P. W.) and Troutdale 15′ quadrangle (F. E. R. A.) completed; Marcus 30′ quadrangle (P. W.) begun.

West Virginia.—Cultural revision completed for Richwood, White Sulphur Springs, Lobelia, Clintonville, Cameron, Wheeling, and Clarington 15′ quadrangles (P. W.); Steubenville 15′ quadrangle (P. W.) begun.

Wisconsin.—Chippewa Falls and Elk Mound 15′ quadrangles (P. W.) completed; Osseo and Arkansas 15′ quadrangles (P. W.) continued.

Wyoming.—Grand Encampment 30′ quadrangle (P. W.) completed; Grand Teton National Park (P. W.) continued; Viola No. 2 15′ quadrangle, Daniel W¼ 7½′ by 30′ quadrangle and Cokeville N½ 30′ quadrangle (P. W.) begun.

Puerto Rico.—Parguera, Point Cabo Rojo, and Guanica 7½′ quadrangles (P. W.) completed; Puerto Real, Sabana Grande, and San German 7½′ quadrangles (P. W.) begun.

WATER-RESOURCES BRANCH

The importance of water and of records related to the quality, chemical character, and availability of both surface and ground waters becomes increasingly apparent each year. The growth of the country in population and industry, with consequent increases in demands for water, and especially the continued series of dry years that culminated in the disastrous and widespread drought in 1934 and the recent dust storms throughout the Central West, have served to impress on all the people the controlling importance of water in our surface streams and in underground basins in relation to many of man's activities. The Public Works Administration and related activities have found the information with respect to water to be invaluable in studies of projects of all classes and in all sections of the country and have relied on the records of the Geological Survey as a basis for action on many projects.

Reliable information with respect to these supplies of water and to their fluctuations with variations in rainfall is essential to orderly, stable, and economic development along many lines and, therefore, to the national welfare. The work of the water-resources branch thus assumes a position of great importance in the economic affairs of the Nation.

The investigations by the branch are conducted largely in cooperation with Federal bureaus; State, county, municipal, and other governmental agencies; and permittees and licensees of the Federal Power Commission. A major part of this cooperation is set forth below.

Federal bureaus.—Investigations were conducted for the following Federal bureaus through advance, transfer, or repay of funds:

Department of Agriculture:
- Bureau of Agricultural Engineering.
- Weather Bureau.
- Bureau of Biological Survey.
- Soil Conservation Service.

Department of Commerce: Bureau of Air Commerce.
Department of the Interior:
- Subsistence Homesteads.
- Bureau of Indian Affairs.
- Bureau of Reclamation.
- National Park Service.

Department of the Navy: Bureau of Yards and Docks.
Department of State.
Department of War: Office of the Chief of Engineers.
Federal Power Commission.
Tennessee Valley Authority.
Federal Emergency Administration of Public Works.

States.—Amounts aggregating $496,909.46 were made available by States and municipalities for cooperative surface- and ground-water investigations. In addition to the results obtained directly from cooperation, it is estimated that data valued at over $115,000 were furnished by cooperating officials.

Permittees and licensees of the Federal Power Commission.—At the request of the Federal Power Commission, 30 engineers of the branch have been designated as representatives of the Commission to perform such field work as may be assigned to them by the Commission. The operation of about 310 gaging stations was conducted by the branch or was performed by permittees and licensees under the supervision of the branch in connection with 129 projects of the Federal Power Commission. Engineers of the branch have had general supervision of operations under permits and licenses of the Federal Power Commission in connection with 132 projects. Examinations and reports on applications for projects have been made for the Commission as requested.

WORK OF THE YEAR, BY DIVISIONS

The division of surface water conducts investigations of surface water, which consist of the measurement of the flow of rivers, conducted in the 48 States, the District of Columbia and Hawaii at selected gaging stations where the volume of water is measured and

records of stage and other data are collected, from which the daily discharge of the rivers is computed. In this work 41 States, the Territory of Hawaii, and several Federal bureaus and individuals cooperated in the maintenance of the 3,022 regular gaging stations that were in service at the end of the year. Records for about 113 additional gaging stations were received, ready for publication, from Federal bureaus and from individuals. There were 37,770 discharge measurements made during the year.

The division of ground water investigates the waters that lie below the surface in the zone of saturation (from which the wells and springs are supplied); the surface, occurrence, quantity, and head of these waters; their conservation; their availability and adequacy for domestic, industrial, irrigation, and public supplies and as watering places for livestock and desert travelers; and the methods of constructing wells and recovering water from them and of improving springs. Each year surveys are made of selected areas where problems of water supply are urgent, and the results are generally published in water-supply papers that include maps showing the ground-water conditions. The investigations relating to the chemical composition of the water are made in cooperation with the division of quality of water. Projects involving large expenditures for drilling wells to develop water supplies are considered each year by the several departments of the United States Government, and the ground-water division is called upon to furnish information and advice on many of these projects. During the fiscal year about 80 investigations relating to ground water and reservoir sites were in progress, and work was done in 32 States and in the Territory of Hawaii, in cooperation with State or local governmental agencies, or on Public Works Administration projects. In the hydrologic laboratory 126 samples of water-bearing material were analyzed.

The division of quality of water analyzes water from surface and underground sources with reference to the suitability of the waters for industrial and agricultural uses and for domestic use (not related to questions of health), so far as such use is affected by the dissolved mineral matter. The analysis (partial or complete) of 1,387 samples of water, including some for nearly all the studies of ground water in the different States, was completed during the year.

The work of the division of power resources comprised the preparation of monthly and annual reports on the production of electricity for public use and the consumption of fuel in generating the electricity reported. The monthly reports also include, through cooperation with the Bureau of Mines, comparative figures of the stocks of bituminous and anthracite coal on hand at electric public

utilities, the monthly consumption of coal, and the number of days' supply of bituminous and anthracite coal on hand at the current rate of consumption. The annual report contains revised figures of the monthly production of electricity and consumption of fuel in 1934 previously published in the monthly reports, a summary of the annual reports from 1919 to 1934, the average annual rate of consumption of coal and the coal equivalent of oil and gas in generating 1 kilowatt-hour of electricity from 1919 to 1934, and the annual exports and imports of electricity between the United States and Canada and Mexico for certain years. A report of the capacity of water wheels in the United States on January 1 was also prepared. The final report of the monthly and annual production of electricity for public use in 1934 was released April 20, 1935. The annual report of the capacity of water wheels in water-power plants in the United States was released January 24, 1935.

The division of water utilization investigates problems affecting the utilization and control of the waters of streams and performs administrative work relating to supervision and investigation of these problems by the field organization of the water-resources branch and of power projects of the Federal Power Commission and of the Interior Department. The field work is generally conducted by personnel otherwise assigned to the division of surface water. In collaboration with the Mississippi Valley Committee of the Public Works Administration studies were made of floods in the United States, with especial reference to their magnitude and frequency, and of the relations of rainfall and run-off in the United States. A report on the flood study was completed and sent to the printer, and a report on the rainfall and run-off study was practically completed by the end of the year.

CONSERVATION BRANCH

The regular work of the conservation branch was retarded during the fiscal year 1935 by insufficient funds and personnel. Office phases of the work were maintained reasonably current until March, when congestion developed in consequence of the receipt for technical consideration of a large number of proposed unit plans of development and operation, submitted by Federal oil and gas permittees in compliance with departmental requirements. This congestion increased steadily thereafter and attained serious proportions before the end of the year. Field phases of branch work were necessarily neglected in all lines except power classification and agricultural classification, where funds from extra-branch sources made possible the conduct of several needed surveys. Geologic

work was possible in only two small areas, and field inspection of mines and of oil and gas operations, already far in arrears, was further attenuated by the necessary detail of supervisory personnel to Public Works projects and by an abnormal increase in new properties and new operations to be supervised.

By departmental order 884, effective March 21, 1935, the work of agricultural and grazing classification was transferred to the departmental Division of Grazing, and the office and field personnel of the branch engaged in that work was detailed to that division for the remainder of the year.

MINERAL-CLASSIFICATION DIVISION

The work of the mineral-classification division was restricted rather closely to office phases and was materially impeded by the negligible inflow of basic data from the field. The trend of division activity from strict classification to phases concerned with administration of the mineral leasing law was accentuated by the assignment to the division of the responsibility for determining the areas subject to logical unitization under plans for unit or cooperative development submitted by the holders of Federal oil and gas prospecting permits. Appreciable progress was made, nevertheless, in classifying the vast areas of public land withdrawn early in the century for examination and classification as to mineral. Classifications effected include 224,444 acres as coal land, 661,091 acres as noncoal land, 19,211 acres as oil-shale land, and 248,473 acres as non-oil-shale land.

In addition to the technical adjudication of 2,003 applications for mineral prospecting permit, 118 applications for mineral lease, and 859 conflicts or anticipated conflicts between mineral applicants and surface-right applicants; the technical review and endorsement of 732 assignments, coal-permit extensions, lease and license authorizations; the preparation of 1,648 decisions for the departmental committee affecting the extension of oil and gas prospecting permits and potash permits; and the consideration of some 30 plans of unit operation and development for oil and gas fields or areas, definitions of the "known geologic structure" of two producing oil and gas fields were prepared and promulgated, as follows: Last Chance, Utah, February 23, 1935, 26,480 acres; Rex Dome (addition), Wyo., November 21, 1934, 80 acres. The outstanding definitions of the "known geologic structure" of producing oil and gas fields on June 30, 1935, amounted to 986,906 acres in California, Colorado, Montana, New Mexico, Oklahoma, Utah, and Wyoming.

WATER AND POWER DIVISION

The work of obtaining basic information as to the water-power resources and storage possibilities of public lands was directed chiefly to field phases. The continued availability of Public Works funds made possible the completion of river-utilization surveys involving some 1,900 linear miles of streams in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming, with supplemental geologic and geophysical studies of foundation materials and conditions at 14 dam sites in Montana.

Office activities, expanded during the year to include duties involving Carey Act projects, irrigation projects, and reservoir-site reserves, formerly performed by the agricultural division but not transferred to the division of grazing, were necessarily reduced to the minimum. In addition to their showing in the general summary of cases they included action resulting in additions of 72,793 acres to outstanding water-power reserves in 11 public-land States and eliminations of 408,157 acres from such reserves in 8 States, with net decrease of the total reserved area in 22 States to 6,465,007 acres at the end of the year. Field supervision of power projects for the Federal Power Commission involved investigations and report on 15 projects, supervision of construction and operations under 132 projects, and studies of cost accounting on 5 projects.

Statistics compiled by the division show that the holders and users of rights of way for power purposes granted by the Secretary of the Interior had for the calendar year 1934 aggregate installed horsepower of 3,139,010, including 2,094,964 at hydraulic plants and 1,044,046 at fuel plants, and aggregate energy generation of 6,930,000,000 kilowatt-hours, which is less by 25 percent than the production in 1933 because of the elimination of one large producer from the roster of departmental grantees during 1933. Revenues accrued to the Government from these grants aggregate $205,680 from 1912 to 1934, and $15,663 additional has been assessed for the calendar year 1935. Accrued charges for unauthorized occupancy of public lands by power projects prior to the issuance of license therefor by the Federal Power Commission amount to $112,230 additional, about $12,000 of which is in litigation.

AGRICULTURAL DIVISION

Until its functions of agricultural and grazing classification were transferred to the departmental Division of Grazing, March 21, 1935, the work of the agricultural division was restricted chiefly to office phases and to cooperation with departmental officials in preparing and promulgating regulations for effectuating the purposes of the

Taylor Grazing Act of June 28, 1934 (48 Stat. 1269), in organizing the departmental Division of Grazing, in conducting public hearings throughout the West to explain the purposes of the grazing act and the procedure of grazing-district organization, and in the conduct of reconnaissance surveys of grazing resources and conditions in several districts established under said act.

Although the filing of applications for agricultural classification and for designations under the stock-raising and enlarged homestead laws and the Nevada ground-water law was essentially terminated by the withdrawals approved by Executive order of November 26, 1934, the number of unadjudicated applications for rights under these laws transferred to the Division of Grazing on March 31, 1935, aggregated 1,999, an increase of 6.5 percent over the number pending at the beginning of the fiscal year.

Accomplishments prior to the transfer of function, not indicated in the general summary of cases, included the designation of 35,450 acres in 15 States as subject to entry under the Stock Raising Homestead Act and the cancelation of prior designations of 16,945,535 acres under that act, with net reduction of the outstanding designated area in 20 States to 102,429,247 acres; the designation of 1,894 acres in 7 States as enterable under the Enlarged Homestead Act and the cancelation of prior designations of 25,947,994 acres in 5 States, with net reduction of the outstanding designated area in 14 States to 268,467,585 acres; the inclusion of 12,480 acres in 11 States in public water reserves and the exclusion of 460 acres in 3 States from such reserves, with net increase of the gross area reserved in 13 States to 506,748 acres; and the designation of 2,600 acres under the Nevada Ground Water Act, with increase of the aggregate area so designated to 1,732,095 acres. Liaison service was maintained for the Interior Department with the Committee for Acquisition of Submarginal Land, of the Federal Emergency Relief Administration, and cooperative studies of the grazing and farm resources of Arizona, with the University of Arizona and the United States Forest Service, were continued.

MINING AND OIL- AND GAS-LEASING DIVISION

The work of the mining and oil- and gas-leasing divisions, consisting of inspectional and regulatory supervision of mineral prospecting and development on public lands, Indian lands, and naval petroleum reserves, increased notably in volume and in difficulty of effective performance in the fiscal year 1935.

Public lands.—The number of public-land properties under supervision increased 17 percent, to a total of 8,394, involving 10,866,120 acres in 20 States and Alaska, and in the absence of sufficient funds for the most effective use of available personnel or for needed re-

placements and increase in supervisory forces the essential work of property inspection, already far in arrears, was perilously meager. With the aid of funds allotted in 1933 by the Public Works Administration the supervisory force was maintained essentially intact, though available only in part for regular inspectional and regulatory work, and was enabled to accomplish important conservational and remedial results outlined more fully under the heading "Public Works projects."

The work of the oil- and gas-leasing division was vastly increased in 1935, both in Washington and in the field, by the necessity of assisting oil and gas permittees in fulfilling departmental requirements for the submission of unit or cooperative plans of operation and development involving permit acreage, and of reviewing and revising the engineering and royalty features of such plans after their submission.

Three unit plans were completed and approved during the year—for the Round Mountain field, California, the Fourbear field, Wyoming, and for unit 5 of the Cedar Creek field, Montana—and at the end of the year about 400 other plans were awaiting technical consideration in the Washington office alone, with little prospect of timely consideration by the small and fully preoccupied personnel available. The work of this division was further increased by departmental regulations approved October 23, 1934, under the O'Mahoney Water Act, of June 16, 1934 (48 Stat. 977), to include remedial work necessary to preserve and make accessible water supplies found in wells drilled for oil and gas on public land and determined to be valuable for agricultural, domestic, or other purposes.

Drilling activity on public lands during the year included the spudding of 203 new wells and the completion of 268 others, 120 of which were productive of oil or gas and 148 barren. The total number of wells under supervision at the end of the year was 7,200 in 15 States and Alaska, including 3,699 capable of oil or gas production. The production of petroleum, natural gas, and natural gasoline from public land in 1935 was substantially greater than in other recent years, and the revenues accrued therefrom were materially increased.

The regular work of the mining division, involving Federal properties under development or exploration for coal, potash, sodium, phosphate rock, sulphur, and oil shale, increased moderately in the fiscal year 1935, but its performance was subordinated, by necessity, to remedial activities financed by Public Works funds. Coal properties under supervision in 14 States and Alaska increased 28, to a total of 758; potash properties in 8 States decreased 8, to a total of 204; sodium properties in 9 States increased 6, to a total of 45; and sulphur properties in 1 State increased 4, to a total of 26.

The number of phosphate properties (8 in 3 States) and of oil-shale properties (1) remained unchanged. Mineral prospecting during the year included 30 holes with aggregate of 14,957 feet, drilled for coal in Wyoming; 3 holes, 2,546 feet, drilled for sodium in California; and 5 holes, 5,331 feet, drilled for potash in New Mexico, as well as innumerable shallow holes and surface excavations in all public-land States. Safety and welfare conditions on mining properties under supervision remained generally satisfactory throughout the year, five coal properties receiving awards and one coal operator a trophy from the Joseph A. Holmes Safety Association, for outstanding accident-free accomplishment.

Indian lands.—On behalf of the Office of Indian Affairs technical supervision of mineral development was continued in 1935 on tribal and restricted allotted lands within the limits of numerous Indian reservations. Oil and gas supervision involved 4,812 leaseholds, 4,477 wells, and aggregate royalty and rental accruals of $338,164.63 for Indian beneficiaries in 7 States and in 27 different tribes and included royalty accounting for certain agencies, appraisals of bonus and royalty offers and of pollution damages, assistance to lessees of Indian land on operating problems and in the preparation of unit plans of development, and assistance to agency officials and tribal councils on technical phases of leasehold development and administration. Mining supervision involved 36 lead and zinc leaseholds in the Quapaw Reservation, Okla., with aggregate royalty accruals of $216,557.04 during the year; 39 coal leaseholds involving Choctaw, Chickasaw, and Five Tribes land in Oklahoma, with aggregate production of 860,033 tons of coal and revenue accruals of $103,505.05; 1 asphalt lease involving segregated Choctaw and Chickasaw land, Oklahoma; 1 lime phosphate lease involving restricted allotted Five Tribes land, Oklahoma; and several scattered agency coal mines in the Western States. It included also special investigations of mining and marketing procedure under an asbestos leasehold in the San Carlos Reservation, Ariz., and of feasible methods of controlling coal-mine fires affecting lands in the Crow and Fort Peck Reservations, Mont.

Naval petroleum reserves.—On behalf of the Navy Department supervision was continued during the year over operations for the production of oil and gas within Naval Petroleum Reserves Nos. 1 and 2, in California, and for the conservation of shut-in production within Naval Petroleum Reserve No. 3, in Wyoming. Production from the California reserves aggregated 3,415,743.46 barrels of petroleum, 3,633,889,000 cubic feet of natural gas, and 12,841,346.20 gallons of natural gasoline, and had an aggregate royalty value of $561,541.31.

PUBLIC WORKS PROJECTS

Under the supervision of conservation branch personnel aggregate expenditures of $535,872.05 were made during the fiscal year 1935 from funds allotted by the Public Works Administration in 1933, for field investigations and conservational work pertinent to branch functions. On four Federal projects $1,875.75 was expended for repairs and improvements at field camps maintained for branch employees at Taft, Calif., and Midwest, Wyo. On 11 projects $179,058.86 was expended for utilization surveys of power and storage resources of important streams in 11 public-land States. On 13 projects $354,934.44 was expended in 11 States in the plugging and abandonment or conditioning for use as a source of water of numerous wells drilled for oil and gas on public lands and thereafter improperly abandoned or merely deserted; in extinguishing or controlling coal-outcrop fires, and in filling, bulkheading, or otherwise safeguarding abandoned mine or prospect openings on public and Indian lands; and in surface studies of coal occurrence and subsurface studies of oil and gas occurrence in Indian lands in Oklahoma. Work was terminated under practically all these projects on or before June 30, 1935, by reason of the exhaustion of funds originally allotted. On a few projects unexpended balances were available and work was continued beyond the end of the fiscal year under authority of the President.

SUMMARY OF FIELD ACTIVITIES, BY STATES

Alabama.—Visited oil and gas prospecting operations throughout the State in aid of mineral classification. Examined one tract in Fayette County for adjudication of conflicting mineral and nonmineral filings. Supervised 1 lease for coal and 1 lease and 1 prospecting permit for oil and gas.

Alaska.—Supervised 1 power project; 2 leases, 1 license, and 9 prospecting permits for coal; and 100 prospecting permits for oil and gas.

Arizona.—Supervised 25 power projects, completed 111 miles of stream-utilization surveys on Little Colorado, Verde, Williams, Gila, and San Francisco Rivers and examined the Williams reservoir site. Conducted range-classification studies and participated in grazing-law hearings at Prescott and Phoenix. Supervised on public land 2 prospecting permits for coal, 6 for potash, 4 for sodium, and 62 for oil and gas; and on Indian land, 2 leases for oil and gas.

Arkansas.—Visited oil and gas prospecting operations in the western part of the Arkansas Valley in aid of mineral classification and examined for minerals lands in Logan and Yell Counties sought for recreational purposes by the State. Supervised 1 power project and 7 oil and gas prospecting permits.

California.—Supervised 90 power projects, completed 237 miles of stream-utilization surveys on Kern, Sacramento, and Yuba Rivers and Putah and Clear Creeks, and mapped in detail the Kennett, Kiswick, Whiskeytown, Anthony House, Upper Nanous, Copoy, and Monticello reservoir sites. Con-

ducted range-classification studies in Grazing Districts Nos. 1 and 2 and participated in grazing-law hearings at San Francisco, Bakersfield, and Alturas. Supervised on public land 4 prospecting permits for coal, 2 for potash, 18 for sodium, and 980 for oil and gas, also 3 leases for potash and 214 for oil and gas; and on naval petroleum reserves 24 leases for oil and gas.

Colorado.—Examined land on the Garmesa anticline to determine the source of seepage gas. Supervised 13 power projects, completed 176 miles of stream-utilization surveys on Gunnison, Lake Fork of Gunnison, Crystal, and Yampa Rivers and Roaring Fork, Cattle, and Frying Pan Creeks, and mapped in detail the Trujillo and Arboles reservoir sites, also 15 minor reservoir sites and 5 dam sites. Participated in grazing-law hearings at Glenwood Springs and Grand Junction. Supervised on public land 83 leases for coal, 1 for sodium, and 26 for oil and gas, 17 licenses for coal, 52 prospecting permits for coal, 1 for potash, and 541 for oil and gas; and on Indian land 7 leases for oil and gas.

Florida.—Visited oil and gas prospecting operations throughout the State and examined 1 tract each in Glades, Levy, Marion, and Suwannee Counties and 2 each in Dixie and Lafayette Counties for purposes of mineral classification.

Idaho.—Supervised 34 power projects, completed 132 miles of stream-utilization surveys on Snake, Kootenai, North Fork of Coeur d'Alene, and Priest Rivers and mapped in detail the Rush Beds and Black Canyon reservoir sites and 6 dam sites. Conducted range-classification studies in the southern part of the State, including investigations to determine well-drilling sites for the development of stock water, and participated in grazing-law hearings at Boise. Supervised 1 lease and 17 prospecting permits for coal, 2 leases for phosphate rock, and 76 prospecting permits for oil and gas.

Kansas.—Supervised 17 prospecting permits for oil and gas.

Louisiana.—Visited oil- and gas-prospecting operations throughout the State in aid of mineral classification. Supervised 11 leases for oil and gas.

Mississippi.—Visited oil- and gas-prospecting operations throughout the State and examined one tract in George County for purposes of mineral classification. Supervised 1 prospecting permit for oil and gas.

Montana.—Supervised 35 power projects, completed 260 miles of stream-utilization surveys on Blackfoot, Flathead, Kootenai, and Ruby Rivers, mapped in detail the Hungry Horse and Ruby reservoir sites, and made geologic and geophysical surveys of 14 dam sites. Conducted range-classification studies in Grazing District No. 1 and participated in grazing-law hearings at Billings and Malta. Supervised on public land 94 leases, 49 licenses, and 41 prospecting permits for coal, 5 leases for phosphate rock, 1 prospecting permit for potash, and 88 leases and 775 prospecting permits for oil and gas and on Indian land 68 leases for oil and gas.

Nebraska.—Supervised one prospecting permit for potash.

Nevada.—Supervised 17 power projects, completed 77 miles of stream-utilization surveys on Muddy, Little Humboldt, and Carson Rivers, and mapped in detail the Narrows reservoir site, 7 minor reservoir sites, and 3 dam sites. Participated in grazing-law hearings at Reno. Supervised 5 prospecting permits for coal, 1 for sodium, 7 for potassium, and 70 for oil and gas, and 1 lease for phosphatic material.

New Mexico.—Supervised 6 power projects, completed 268 miles of stream-utilization surveys on Chama, Grande, Gila, and Pecos Rivers and Willow Creek, and mapped in detail the Elvado reservoir site. Participated in grazing-law hearings at Albuquerque. Supervised on public land 25 leases and 26 prospecting permits for coal, 9 leases and 158 prospecting permits for potash, 12 prospecting

permits for sodium, 26 prospecting permits for sulphur, and 117 leases, 1,502 prospecting permits, and 8 suspended preference-right leases for oil and gas and on Indian land 9 leases for oil and gas.

North Dakota.—Participated in grazing-law hearings at Bismarck. Supervised 72 leases, 20 licenses, and 1 prospecting permit for coal and 21 prospecting permit for oil and gas.

Oklahoma.—Supervised 3 power projects. Supervised on public land 26 prospecting permits and 16 leases for oil and gas and on Indian land 4,704 leases for oil and gas, 39 leases for lead and zinc, and 31 leases, 3 awarded leases, 9 prospecting permits, and 5 awarded permits for coal.

Oregon.—Supervised 40 power projects, completed 129 miles of stream-utilization surveys on Hood and Umatilla Rivers and Gales and Willamina Creeks, and mapped in detail the Umatilla and Catherine Creek reservoir sites and 5 minor reservoir sites. Participated in grazing-law hearings at Klamath Falls, Burns, and Vale. Supervised 1 lease and 4 prospecting permits for coal, 2 prospecting permits for sodium, 107 prospecting permits for oil and gas, and 1 lease for oil shale.

South Dakota.—Participated in grazing-law hearings at Rapid City. Supervised 4 leases, 3 licenses, and 2 prospecting permits for coal and 38 prospecting permits for oil and gas.

Utah.—Supervised 18 power projects and completed the mapping of the Huntington Creek reservoir site. Participated in grazing-law hearings at Salt Lake City. Supervised on public land 41 leases, 3 licenses, and 81 prospecting permits for coal, 10 prospecting permits for sodium, 23 prospecting permits for potassium, and 11 leases and 597 prospecting permits for oil and gas and on Indian land 2 leases for oil and gas.

Washington.—Supervised 20 power projects, completed 260 miles of stream-utilization surveys on Clark Fork, Nooksack, Similkameen, Quinault, Humptulips, and Satsop Rivers and Sheep and Chewack Creeks, and mapped in detail 11 dam sites and numerous minor reservoir sites. Supervised 1 lease and 18 prospecting permits for coal, 1 prospecting permit for sodium, and 10 prospecting permits for oil and gas.

Wisconsin.—Supervised 1 power project.

Wyoming.—Made detailed geologic surveys of the Garland anticline, Big Horn and Park Counties, and the Osage oil and gas field, Weston County, for purposes of mineral leasing-law administration. Supervised 10 power projects, completed 296 miles of stream-utilization surveys on Laramie, Bear, and Green Rivers, and mapped in detail 2 dam sites and several minor reservoir sites. Participated in grazing-law hearings at Casper. Supervised on public land 48 leases, 28 licenses, and 60 prospecting permits for coal, 1 prospecting permit for sodium, and 414 leases, 1,510 prospecting permits, and 4 suspended preference-right leases for oil and gas and on Indian land 69 leases for oil and gas.

WORK ON PUBLICATIONS

Texts.—The book publications of the year in the regular series numbered 35, covering 3,509 pages. Besides these publications, 36 brief papers in mimeographed form were issued as memoranda for the press. During the year 16,213 pages of manuscript were edited and prepared for printing, and 3,085 galley proofs and 10,414 page proofs were read and corrected. Indexes were prepared for 36 publications, covering 6,050 pages. Copy and proof or

stencils for 1,336 pages of multigraph and mimeographed matter were read. In addition to the Survey work, the proof of the volume on copper resources of the world, to be published by the International Geological Congress, was read as time was available.

Illustrations.—The section of illustrations prepared 2,088 drawings and photographs, transmitted 468 illustrations to accompany 26 reports, received and examined 539 proofs, and examined 32 editions. The work included considerable drafting for the Public Works Administration and the Office of Education.

Geologic editing and drafting of maps and illustrations.—The color proof of the geologic map of Colorado, scale 1:500,000, was read, and corrections of color stones were made for the eastern half and begun for the western half. The geologic map of Texas, scale 1:500,000, was drawn, and one section of the map was sent for engraving. The Somerset-Windber, Pa., folio (no. 224) was completed. Illustrations for 21 papers were edited. The section made 120 drawings for papers to be published by State geological surveys or other outside organizations and 134 drawings for the Public Works Administration.

Engraving and printing.—During the year 83 newly engraved topographic maps were printed, including 4 revised maps (of this number 47 were completed under the Public Works allotment), and 3 special maps were printed, making a total of 86 new maps printed and delivered. Corrections were engraved on the plates of 125 maps. Reprint editions of 128 engraved topographic maps and 11 photolithographed State and other maps were printed and delivered. In addition, 50 new topographic maps had been engraved and were in press June 30, including 17 under Public Works allotment, and the engraving of 41 other new topographic maps was nearly completed, including 16 under Public Works allotment. One new geologic folio was printed, the edition amounting to 600 copies. Of new and reprinted maps, 226 different editions, amounting to 580,689 copies, were delivered.

A large amount of work was done for more than 60 other units of the Government and State governments, and the charges for it amounted to about $190,000, for which the appropriation for engraving and printing geologic and topographic maps was reimbursed. Of topographic maps, geologic maps, and contract and miscellaneous work of all kinds, a grand total of 4,688,839 copies were printed and delivered.

The output of the photographic laboratory consisted of 15,902 negatives (including 6,152 wet plates for photolithographs, 990 wet plates for photographic prints, 23 paper negatives, 1,994 dry plates, 1,066 lantern slides, and 5,677 field negatives developed), 29,888

prints (including 2,946 maps and diagrams, 25,876 photographs for illustrations and records, and 1,066 bromide enlargements), 5,278 zinc plates, 206 intaglio etchings, 13 celluloid prints, and 3,108 prints mounted.

Distribution.—A total of 260 publications, comprising 35 new books and pamphlets, 86 new or revised topographic and other maps, and 139 reprinted topographic and other maps were received during the year. Several special pamphlets and forms for administrative use were also delivered and distributed. The total units of all publications received numbered 70,462 books and pamphlets and 580,089 topographic and other maps, a grand total of 650,051. The division distributed 61,665 books and pamphlets, 2,887 geologic folios, and 693,861 maps, a grand total of 758,413, of which 2,315 folios and 543,877 maps were sold. The net proceeds (gross collections less copying fees and amounts refunded) from the sales of publications were $32,957.12, including $32,318.31 for topographic and geologic maps and $638.81 for geologic folios. In addition $6,940.24 was repaid by other establishments of the Federal Government at whose request maps or folios were furnished. The total receipts, therefore, were $39,897.36.

LIBRARY

The resources of the library have been increasingly utilized by the newer agencies of the Government. The total number of readers using the library during the year was 14,089, of whom 7,822 were not members of the Geological Survey. These figures may be compared with those of 1932, when the total number of readers was 7,614, of whom 2,111 were not members of the Survey. Loans outside of the library for the year were 9,038, an increase over 1932 of 40 percent.

The bibliography of North American geology for 1933–34 was completed. Two cooperating staffs have continued the use of the library facilities in the compilation of the bibliography of foreign geology and the annotated bibliography of economic geology.

The Emergency Relief Administration project was discontinued in September. The personnel employed on the project, numbering over 100, was utilized in mending and labeling books, sorting duplicate material, and classifying and cataloging most of the remainder of books and pamphlets of the Kunz collection.

Several lists of references were prepared by the library staff. The subjects covered were the Geological Survey, the Public Works Administration, Federal regulation of the petroleum industry, and the Soil Erosion Service.

The accessions during the year comprised 15,264 books, pamphlets, periodicals, and serial parts and 1,202 maps.

APPROPRIATIONS AND EXPENDITURES

The appropriations made directly for the work of the Geological Survey for the fiscal year 1935 included 11 items, amounting to $1,313,500. In addition, $237,602.54 of the balances for 1934 was continued available for use in 1935, and $80,036 was transferred to the Geological Survey from the indefinite appropriations for salary restorations. A total of $1,631,138.54 was thus made directly available to the Geological Survey by Congress, of which $46,780.70 remained unobligated on June 30, 1935. In addition, $5,632 was allotted from appropriations for the Interior Department for miscellaneous supplies.

20481—35——18

Topographic survey of the United States, July 1, 1934 to June 30, 1935, and total area surveyed in each State

State	Publication contour interval (feet)	Mapped in fiscal year (square miles) (for engraved publication unless otherwise stated) on scale of 1 to—						Total area mapped in fiscal year (square miles)				Total area mapped to June 30, 1935 (square miles)	Percentage of total area of State mapped to June 30, 1935	Spirit levels (miles)	Transit traverse (miles)	Triangulation stations occupied
		9,600	24,000	31,680	48,000	62,500	125,000	Planimetric mapping	Standard mapping with contours							
									Revision [1]	Resurvey [2]	New survey [3]					
Alabama	20		[4] 70			370		70		99	271	21,834	42.0		54	
Arizona	25, 50				258	548				384	422	60,169	52.8	26		
Arkansas	5, 10, 20			168		804				480	492	23,631	44.3	223	242	6
California	5, 25, 100		247				636			429	454	133,047	84.0	48		40
Colorado	10,20,50,100			47		712	5			392	372	56,980	54.8	20		
Connecticut	10			84						84		4,965	100.0	8		
Delaware	10											2,370	100.0			
District of Columbia												70	100.0			
Florida	10					446					446	5,949	10.1			
Georgia	20		[4] 729			165		729		17	148	25,100	42.4			84
Idaho	10, 50, 100					617	874		112		1,379	34,283	40.9	769		27
Illinois	10, 20					1,346			1	73	1,272	38,968	68.8	136		
Indiana	10, 20					407					407	4,092	11.3			
Iowa	20					721			1	177	543	13,710	24.4	68	78	
Kansas	10			119		22				141		64,446	78.4	201	53	
Kentucky	20		[4] 7			204		7			204	27,120	66.8		442	3
Louisiana	5			[5] 5,887				5,363		524		11,330	23.4	140	10	
Maine	10, 20			102		710				102	710	21,694	65.7	174		
Maryland	20					226				226		12,327	100.0			
Massachusetts	10			378						378		8,266	100.0	329		
Michigan	5, 10			19		625				19	625	14,694	25.3	10	194	
Minnesota	5, 20			14		553					567	8,781	10.4	108		
Mississippi	10, 20	8	[4] 52			234		52		8	234	7,244	15.5			
Missouri	5, 10, 20			1,348		1,135			9	1,541	933	49,708	71.6	210	4	
Montana	25, 100					342	561				903	44,431	30.2	458	8	
Nebraska	10, 20					515					515	27,867	35.9	132	66	
Nevada	25, 50, 100			[6] 28		88	550			28	638	54,356	49.1	124		22
New Hampshire	20					248				248		9,302	100.0	100		
New Jersey	10			122						122		8,224	100.0			
New Mexico	10, 20			270		998				270	998	44,675	36.4	27		
New York	10, 20			258		13				271		49,204	100.0	576	222	
North Carolina	50		[4] 1,743			406		1,743		406		19,040	36.3	36	26	215
North Dakota	5, 10			16		821					837	14,005	19.8	187	292	

Ohio	5, 20			230		[1]			1	230		41,040	100.0	122	86	
Oklahoma	10			35		94				129		41,927	59.8			
Oregon	50, 100					300	952		128	172	952	37,884	39.2	270		26
Pennsylvania	20					1,178			36	746	396	39,156	86.8	232	135	8
Rhode Island	10			56						56		1,248	100.0		85	
South Carolina	20		[4] 1,015			394		1,015			394	14,967	48.3			
South Dakota	20			18		457				18	457	19,812	25.5	79		
Tennessee	50		[4] 3,506			189		3,506		189		23,633	56.2		7,100	111
Texas	20					559					559	89,890	33.8	43		
Utah	5, 20, 100		[6] 10		[7] 23		595			36	569	20,550	24.2	87		10
Vermont	20					318					318	8,564	89.5	126		
Virginia	10, 20, 50		[8] 3,239	71		583		3,236		657		37,897	88.9	690	107	28
Washington	25, 50, 100					154	1,907				2,061	39,662	57.4	411		
West Virginia	20, 50					1,390			1,382	8		24,170	100.0			
Wisconsin	20					372					372	19,609	35.0	67		139
Wyoming	5, 20, 50, 100				[7] 78	122	1,024		225	122	799	32,622	33.3	364		18
Total in continental United States (exclusive of Alaska)		8	10,618	9,270	258	19,387	7,104	15,721	1,895	8,782	20,247	1,414,513	46.7	6,601	9,204	737
Hawaii												6,435	100.0			
Puerto Rico	[9] 1.5			[10] 154							154			141		27

[1] Revision mostly of culture only.
[2] Resurveys in large part cover areas previously surveyed on a smaller scale.
[3] New surveys cover areas not heretofore mapped.
[4] Prepared from aerial photographs with field examination and showing culture, drainage, and woodland but no contours. Reproduction by 3-color photolithography (planimetric mapping).
[5] Includes 5,363 square miles planimetric mapping (see footnote 4) and 524 square miles with contours, publication by 4-color photolithography.
[6] Reproduction by 1-color photolithography.
[7] Linear miles of river surveys.
[8] Includes 3,236 square miles planimetric mapping (see footnote 4) and 3 square miles with contours, reproduction by 1-color photolithography.
[9] Meters.
[10] Publication scale 1:30,000.

Cooperative State and municipal funds available for work on water-resources investigations, fiscal year 1935

State	State funds available		Municipal funds available		Total
	Surface water	Ground water	Surface water	Ground water	
Alabama	$2,000.00				$2,000.00
Arizona	13,835.89				13,835.89
California	26,825.65	$17,571.93		$5,000.00	49,397.58
Colorado	25,177.09		$500.00		25,677.09
Connecticut	6,000.00	100.00			6,100.00
Florida	4,007.30	2,200.00			6,207.30
Hawaii	12,812.22		7,706.59		20,518.81
Idaho	22,076.92				22,076.92
Illinois	5,428.13				5,428.13
Indiana	4,000.00	300.00			4,300.00
Iowa	5,008.00				5,008.00
Kansas	5,798.33				5,798.33
Louisiana	410.01				410.01
Maine	6,500.00				6,500.00
Maryland	7,509.14	1,750.00			9,259.14
Massachusetts	4,298.00	1,450.00			5,748.00
Michigan	3,700.00		2,500.00		6,200.00
Minnesota	7,704.47				7,704.47
Mississippi	953.63				953.63
Missouri	8,675.69	188.98			8,864.67
Montana	9,515.40				9,515.40
Nebraska	12,000.00		4,000.00		16,000.00
Nevada	700.00				700.00
New Hampshire	5,435.19				5,435.19
New Jersey	7,800.00	3,500.00	5,625.00		16,925.00
New Mexico	17,152.61		3,592.40		20,745.01
New York	17,615.00	7,012.00	2,000.00	6,363.35	32,990.35
North Carolina	6,710.05				6,710.05
North Dakota	165.20				165.20
Ohio	16,935.42	2,000.00			18,935.42
Oregon	24,477.44	770.00			25,247.44
Pennsylvania	18,588.29		1,826.21		20,414.50
South Carolina	3,000.00	353.22			3,353.22
Tennessee	9,459.69		1,000.00		10,459.69
Texas	17,767.50		9,744.77		27,512.27
Utah	5,500.00	69.82		3,864.41	9,434.23
Vermont	2,284.00				2,284.00
Virginia	19,000.00		156.00		19,156.00
Washington	12,414.17	5,057.85			17,472.02
West Virginia	3,000.00				3,000.00
Wisconsin	7,000.00				7,000.00
Wyoming	11,466.50				11,466.50
Total	400,706.93	42,323.80	38,650.97	15,227.76	496,909.46

General summary of cases involving land classification

Class of cases	Record for fiscal year 1935						Record since receipt of first case	
	Pending prior to July 1, 1934	Received during fiscal year	Total	Acted on during fiscal year	Pending June 30, 1935	Gain or loss [1] during fiscal year	Received	Acted on
General Land Office requests:								
General	123	1,849	1,972	1,891	81	+42		
Time extensions							2,313	2,313
Oil developments	11	95	106	92	14	−3	17,339	17,375
Concurrence	54	736	790	732	58	−4		
Committee cases—Oil and potash	130	1,519	1,649	1,648	1	+129	12,751	12,750
Applications for classification as to mineral:								
Oil	144	1,264	1,408	1,232	176	−32	27,420	27,244
Miscellaneous	1	16	17	16	1		933	932
Applications for mineral permits	269	1,767	2,036	2,003	33	+236	61,327	61,294
Applications for mineral leases	11	127	138	118	20	−9	2,145	2,125
Applications for patent, potassium							124	124
Federal Power Commission cases:								
Preliminary permits	2	33	35	23	12	−10	348	336
Licenses							28	28
Determinations under sec. 24	7	47	54	52	2	+5	538	536
Applications for classification as to power resources	3	11	14	13	1	+2	542	541
Applications for agricultural classification	41	94	135	[2] 135			1,578	[3] 1,526
Applications for rights-of-way	8	102	110	101	9	+1	7,092	7,083
Irrigation project reports		3	3	1	2	−2	941	939
Applications under enlarged homestead acts	67	56	123	[2] 123			57,996	[3] 57,926
Applications under stock-raising homestead acts	1,809	1,442	3,251	[2] 3,251			143,917	[4] 142,040
Applications under ground-water reclamation act	2	1	3	3		+2	988	[3] 988
Indian Office requests for information							9,548	9,548
Unit or cooperative agreements		1,454	1,454		1,454	−1,454	1,454	
Total	2,682	10,616	13,298	[4] 11,434	1,864	−1,099		

[1] The terms "gain" and "loss" signify, respectively, decrease and increase in the number of cases pending.
[2] See footnote 4.
[3] These figures as of Mar. 11, 1935.
[4] Includes 1,999 cases transferred to Grazing Division Mar. 31, 1935, as follows: Agricultural classification, 52; enlarged homestead, 70; stock-raising homestead, 1,877.

Summary of outstanding mineral withdrawals and classifications, June 30, 1935, in acres

State	Coal		Oil		Oil shale		Phosphate		Potash
	Withdrawn	Classified as coal land	Withdrawn	Classified as oil land	Withdrawn	Classified as oil-shale land	Withdrawn	Classified as phosphate land	Withdrawn
Alaska		56,993							
Arizona	139,415								
Arkansas		61,160							
California	17,603	8,720	1,178,392						90,324
Colorado	4,142,233	3,032,272	215,370		1,172,778	952,239			
Florida							66,796	120	
Idaho	11,520	4,603					276,239	270,036	
Louisiana			466,990	4,233					
Montana	6,259,193	[1] 9,373,884	1,336,697	67,651			280,089	3,833	
Nevada	83,673								39,422
New Mexico	4,124,578	984,829							9,282,160
North Dakota	5,954,364	11,178,286	84,894						
Oregon	4,361	18,887							
South Dakota		250,093							
Utah	3,404,043	1,267,697	[2] 1,344,473		2,737,274	2,703,755	277,344	2,937	
Washington	691,801	141,444							
Wyoming	2,143,991	[3] 6,847,235	541,777		2,079,897	425,214	989,133	25,293	
Total	26,976,775	33,276,103	5,168,593	71,884	5,989,949	4,081,208	1,889,601	302,219	9,411,906

[1] Includes 3,151 acres of coal land reserved for use of the United States (coal reserve no. 1).
[2] Includes 13,578 acres withdrawn as helium reserve.
[3] Includes 2,078 acres of coal land reserved for use of the United States (coal reserve no. 2).

Mineral production from public lands and revenues accrued therefrom, fiscal year 1935

State	Petroleum (barrels)	Natural gas (thousand cubic feet)	Natural-gas gasoline (gallons)	Coal (short tons)	Potassium (short tons)	Sodium (short tons)	Phosphate (short tons)	Accrued revenue
Alaska								
Alabama				97,107.00				$11,192.40
California	14,239,308	44,717,415	69,136,666	26.00		52,288.38		2,267,439.94
Colorado	939,102	1,908,204	39,885	361,530.90				124,938.64
Idaho				1,847.84			38,184.03	4,235.32
Louisiana	2,543	1,431,639	27,955					6,027.38
Montana	341,071	2,704,612		304,992.67				83,450.38
Nevada								480.00
New Mexico	3,460,294	9,933,463	766,640	39,020.55	334,367.41	3,018.67		297,108.96
North Dakota				396,226.07				24,172.53
Oklahoma	227,434		480,165					29,520.19
Oregon				77.00				219.25
South Dakota				2,245.12				451.04
Utah	918	37,673	2,668	1,054,165.31				125,123.03
Washington				25,964.97				2,599.50
Wyoming	9,059,044	12,300,319	27,410,277	1,040,817.45				1,405,240.12
Total	28,269,714	73,033,325	97,864,356		334,367.41	55,307.05	38,184.03	
1934	25,055,175	57,866,857	87,728,595	2,691,686.54	204,155.89	46,047.27	43,066.91	3,975,506.91

	Funds available				Obligations			
	Amounts appropriated or transferred	Repayments on account of work performed		Total	Disbursements	Outstanding liabilities	Total	Balance
		Made	To be made					
APPROPRIATIONS								
Salaries	$115,324.00	$483.11		$115,807.11	$115,137.33		$115,137.33	$669.78
Topographic surveys	[1] 164,908.00	214,212.22	$62,483.24	441,603.46	400,797.52	$38,319.18	439,116.70	2,486.76
Geologic surveys	307,220.00	25,113.86	6,060.46	338,394.32	318,429.81	6,099.83	324,529.64	13,864.68
Volcanologic surveys	6,391.00	133.43	.37	6,524.80	6,523.80	1.00	6,524.80	
Alaskan mineral resources	29,092.00	1,599.18	34.52	30,725.70	16,801.33	10,358.79	27,160.12	3,565.58
Gaging streams	[2] 516,233.54	323,094.34	119,699.35	959,027.23	910,707.24	26,604.54	937,311.78	21,715.45
Classification of lands	108,112.00	10,381.12	1,474.34	119,967.46	110,315.81	7,616.63	117,932.44	2,035.02
Printing and binding	[3] 104,800.00	3.74		104,803.74	8,840.73	95,963.01	104,803.74	
Preparation of illustrations	16,035.00	1,657.01		17,692.01	17,587.93	44.06	17,631.99	60.02
Geologic and topographic maps	79,113.00	154,498.51	33,979.85	267,591.36	256,564.78	10,061.84	266,626.62	964.74
Mineral leasing	183,910.00	32,633.26	2,285.99	218,829.25	206,982.29	10,428.29	217,410.58	1,418.67
	[4] [5] 1,631,138.54	763,809.78	226,018.12	2,620,966.44	2,368,688.57	205,497.17	2,574,185.74	46,780.70
TRANSFERS								
Construction, irrigation system, Wapato project, Wash., act Feb. 14, 1920 (special fund) (act Mar. 2, 1934)	550.00			550.00	277.75	237.25	515.00	35.00
Irrigation, Indian reservations (reimbursable) (act Mar. 2, 1934), 1935	250.00			250.00	150.29	35.00	185.29	64.71
Maintenance and improvement of existing river and harbor works (War Department, act Feb. 17, 1933)	[6] 1,467.97	40.49		1,508.46	1,022.19	486.27	1,508.46	
Maintenance and operation, San Carlos project, Gila River Reservation, Ariz. (reimbursable) (act Mar. 2, 1934), 1935	2,750.00			2,750.00	2,443.03	281.19	2,724.22	25.78
National industrial recovery, Interior, Geological Survey, 1933-37	[7] 2,961,974.36	32,764.38	48,888.23	3,043,626.97	2,684,463.20	101,311.01	2,785,774.21	257,852.76
Operating and care of canals and other works of navigation (War Department, act Feb. 17, 1933)	[6] 386.77			386.77	335.75	49.20	384.95	1.82

[1] Includes $50,000 of 1934 balance continued available for expenditure during the fiscal year 1935.
[2] Includes $152,602.54 of 1934 balance continued available for expenditure during the fiscal year 1935.
[3] Includes $35,000 of 1934 balance continued available for expenditure during the fiscal year 1935.
[4] In addition to these appropriations, there was an allotment of $5,632 for miscellaneous supplies from the appropriation for contingent expenses of the Interior Department.
[5] Includes $80,036 from indefinite appropriations for salary restorations under acts of Mar. 28, 1934, and Feb. 13, 1935.
[6] Balance unobligated on June 30, 1934, and continued available for expenditure during the fiscal year 1935.
[7] Includes $2,296,974.36 balance unobligated on June 30, 1934, and continued available for expenditure during the fiscal year 1935.

Financial statement of United States Geological Survey for the fiscal year ended June 30, 1935—Continued

	Funds available				Obligations			
	Amounts appropriated or transferred	Repayments on account of work performed		Total	Disbursements	Outstanding liabilities	Total	Balance
		Made	To be made					
TRANSFERS—continued								
Supervising mining operations on leased Indian lands (act Mar. 2, 1934), 1935	$60,000.00	$2,949.87	$1,889.84	$64,839.71	$62,684.23	$2,051.30	$64,735.53	$104.18
Waterways treaty, United States and Great Britain (State Department, act Apr. 7, 1934), 1935	49,600.00			49,600.00	37,867.55	9,890.95	47,758.50	1,841.50
Working fund, Department of the Interior (Army Engineers, for stream gaging)	24,180.00	540.35	196.26	24,916.61	21,361.41	1,442.05	22,803.46	2,113.15
Working fund, Department of the Interior (Army Engineers, for topographic mapping)	32,000.00	68.60		32,068.60	19,799.32	138.61	19,937.93	12,130.67
Working fund, Department of the Interior (Federal Power Commission)	600.00			600.00	182.92		182.92	417.08
Working fund, Department of the Interior (General Land Office)	[6] 4,225.00			4,225.00	3,362.10	862.90	4,225.00	
Working fund, Department of the Interior (Navy Department, operation and conservation of naval petroleum reserves)	37,921.00	5,475.21	2,129.85	45,526.06	44,775.22	750.84	45,526.06	
Working fund, Department of the Interior, Public Works (Agriculture, Public Roads)	[6] 42,877.24	205.99		43,083.23	35,528.10		35,528.10	7,555.13
Working fund, Department of the Interior, Public Works (Agriculture, Weather Bureau)	[8] 72,686.47	5,449.21	475.62	78,611.30	77,460.60	411.93	77,872.53	738.77
Working fund, Department of the Interior, Public Works (Army Engineers)	[9] 35,020.23	864.74	43.07	35,928.04	14,631.34	825.90	15,457.24	20,470.80
Working fund, Department of the Interior, Public Works (Mississippi Valley Committee)	[10] 17,913.62	1,285.30		19,198.92	19,197.71	.71	19,198.42	.50
Working fund, Department of the Interior, Public Works (Bureau of Reclamation)	[6] 893.87	710.44	46.52	1,650.83	1,650.83		1,650.83	
Working fund, Department of the Interior, (Tennessee Valley Authority)	[11] 103,547.22	12,373.14	86.76	116,007.12	114,602.99	1,126.98	115,729.97	277.15
Working fund, Department of the Interior, Public Works (advance for water-resources branch supplies and materials)	[6] 1,590.00	106.55		1,696.55	1,696.55		1,696.55	
Working fund, Interior, Geological Survey (Agriculture, Soil Erosion, P. W. A.)	4,100.00			4,100.00	1,403.72	1,652.30	3,056.02	1,043.98
Working fund, Interior, Geological Survey (Agriculture, Weather Bureau, N. I. R.)	12,815.00		181.03	12,996.03	12,814.35	105.54	12,919.89	76.14
Working fund, Interior, Geological Survey (Indians)	600.00			600.00	600.00		600.00	
Working fund, Interior, Geological Survey (Navy, naval petroleum reserves)	1,435.00			1,435.00		1,435.00	1,435.00	
Working fund, Interior, Geological Survey (Public Works Administration, N. I. R.) (National Resources Board, water resources)	17,000.00			17,000.00	14,086.49	8.75	14,095.24	2,904.76

Working fund, Interior, Geological Survey (Reclamation, N. I. R.)	5,000.00			5,000.00	1,702.23		1,702.23	3,297.77
Working fund, Interior, Geological Survey (Tennessee Valley Authority, N. I. R.)	19,585.51	.70	17.50	19,603.71	15,555.85	3,611.12	19,166.97	436.74
Working fund, Interior, Geological Survey, Topographic mapping (Tennessee Valley Authority, N. I. R.)	175,000.00		136.60	175,136.60	167,426.66	7,709.94	175,136.60	
Working fund, Interior, Geological Survey (War, Rivers and Harbors)	8,980.00	4.85	7.45	8,992.30	3,715.69	2,652.63	6,368.32	2,623.98
Working fund, Interior, Geological Survey (War, Rivers and Harbors, N. I. R.)	1,900.00		16.20	1,916.20	1,730.49	.88	1,731.37	184.83
Transfer total	3,696,849.26	62,839.82	54,114.93	3,813,804.01	3,362,528.56	137,078.25	3,499,606.81	314,197.20
Grand total	5,327,987.80	826,649.60	280,133.05	6,434,770.45	5,731,217.13	342,575.42	6,073,792.55	360,977.90

[6] Balance unobligated on June 30, 1934, and continued available for expenditure during the fiscal year 1935.
[8] Includes $22,536.47 balance unobligated on June 30, 1934, and continued available for expenditure during the fiscal year 1935.
[9] Includes $2,620.23 balance unobligated on June 30, 1934, and continued available for expenditure during the fiscal year 1935.
[10] Includes $1,913.62 balance unobligated on June 30, 1934, and continued available for expenditure during the fiscal year 1935.
[11] Includes $3,547.22 balance unobligated on June 30, 1934, and continued available for expenditure during the fiscal year 1935.

Classification of obligations incurred by the United States Geological Survey during the fiscal year ended June 30, 1935

	Salaries	Topographic surveys	Geologic surveys	Volcanologic surveys	Alaskan mineral resources	Gaging streams
Salaries of permanent employees	$115,137.33	$596,402.99	$289,421.68	$6,403.03	$26,359.68	$928,144.64
Wages of temporary employees		1,062,025.83	161,792.81	11.00	16,443.35	294,643.99
Supplies and materials		29,421.18	7,214.68	7.36	2,258.39	35,218.18
Dead storage of passenger-carrying vehicles		16.23				8.00
Other storage and pasturage of animals		2,921.55	264.65		199.86	641.34
Communication services		1,841.13	325.63	3.63	44.44	4,822.95
Travel expenses		230,776.31	38,691.31	22.12	13,611.54	113,097.34
Hire, maintenance, repair, and operation of passenger-carrying vehicles		240.09	1,715.43	75.22		15,274.38
Transportation of things		9,856.35	1,232.15		3,945.78	12,054.55
Hire, maintenance, repair, and operation of freight-carrying vehicles		98,902.72	7,724.27		20.00	25,456.61
Printing and binding		136,479.01	3,373.51	1.44	237.58	5,265.15
Furnishing of heat, light, power, water, and electricity			35.00		31.48	174.80
Rents		470.23	614.09	1.00		4,744.71
Repairs and alterations		9,525.29	2,731.79		216.69	81,151.44
Special and miscellaneous current expenses		235.32	228.90		48.70	130.71
Purchase of passenger-carrying vehicles		545.75	1,071.00			10,261.30
Purchase of freight-carrying vehicles		34,143.68				15,137.74
Purchase of scientific instruments and parts		31,420.66	2,733.26		579.79	70,952.81
Other equipment		22,087.03	2,806.33		1,478.17	8,057.96
Structures and parts						76,001.97
Miscellaneous refunds, adjustments, and transfers		135,544.50	11,009.67		1,633.70	11,831.67
Total	115,137.33	2,402,855.85	532,986.16	6,524.80	67,109.15	1,713,072.24

	Classification of lands	Printing and binding	Preparation of illustrations	Geologic and topographic maps	Mineral leasing	Total
Salaries of permanent employees	$82,195.95		$16,839.90	$200,670.08	$223,006.45	$2,484,581.71
Wages of temporary employees	2,746.93			348.53	346,082.92	1,884,095.68
Supplies and materials	660.19		195.35	54,809.81	6,741.02	136,526.16
Dead storage of passenger-carrying vehicles	2.15				35.25	61.63
Other storage and pasturage of animals					13.00	4,040.40
Communication services	309.23			3.62	2,913.31	10,263.94
Travel expenses	10,859.04		4.50	397.13	32,475.98	439,935.27
Hire, maintenance, repair, and operation of passenger-carrying vehicles	3,148.52				8,757.49	29,211.13
Transportation of things	1,518.45			81.00	3,863.76	32,552.04
Hire, maintenance, repair, and operation of freight-carrying vehicles	26.90				2,464.24	134,594.74
Printing and binding	2,528.15	$104,803.74	586.92	4,599.01	4,676.19	262,550.70
Furnishing of heat, light, power, water, and electricity					4,223.95	4,465.23
Rents	67.77				7,238.68	13,136.48
Repairs and alterations	58.92		5.32	5,509.99	23,768.45	122,967.89
Special and miscellaneous current expenses	2.50			75.40	290.78	1,012.31
Purchase of passenger-carrying vehicles	8,430.37				9,756.23	30,064.65
Purchase of freight-carrying vehicles	1,350.00					50,631.42
Purchase of scientific instruments and parts	546.30			29.40	742.36	107,004.58
Other equipment	3,341.07			29.25	4,538.50	42,338.31
Structures and parts					1,463.20	77,465.17
Miscellaneous refunds, adjustments, and transfers	140.00			4,298.10	41,835.47	206,293.11
Total	117,932.44	104,803.74	17,631.99	270,851.62	724,887.23	6,073,792.55

In addition to the above amounts, there was expended directly by cooperating agencies $49,242.42 for topogaphic surveys and $292,058.32 for stream gaging.

OFFICE OF EDUCATION

(Dr. J. W. Studebaker, Commissioner)

I. GENERAL OUTLOOK IN EDUCATION

1. EDUCATIONAL ADJUSTMENTS

ADMINISTRATIVE CHANGES AND ADAPTATIONS GROWING OUT OF PRESENT CONDITIONS

Conditions resulting from the industrial depression have greatly influenced provisions for public-school finance during the last few years. In spite of the fact that public education has for years been regarded as a function and responsibility of the State government, public-school support has been left largely to local school districts. As a result, even before the present financial difficulties had developed, many school districts were having difficulty to raise sufficient revenue by local taxation to support schools; with assessed valuations greatly reduced and taxes made delinquent by the economic situation the burden could no longer be met.

State legislatures were obliged to give relief. The first step naturally was to reduce general property taxes. This was accomplished in a number of States by lowering the maximum rates which authorities might levy. Of course, without other revenue sources, such restrictions only made conditions for the schools worse. Greater State participation in school support was necessary.

During the past fiscal year legislative action affecting the administration and support of education occurred in many States. Complete reports of 1935 legislative action have not yet been received from all the States, and a few State legislatures were still in session on July 1.

It may be said that beginning with 1933 there has been a marked change in legislative policy with respect to the maintenance of public education. This policy consists in increasing the responsibility of the State for the financial support of public schools. Prior to 1933 and since the founding of statehood in practically all the States both legal and educational theory have regarded education as a State function. However, the idea that the State should assume a sizable or major amount of financial responsibility for the support

of education has been of slow legislative development. It was reserved for the economic depression to give profound impetus and effect to this movement.

Reports at hand indicate that the most outstanding legislative changes in education during the past fiscal year consisted in the extension and development of the policy of placing increased responsibility upon the State for the financial support of education. Recent legislative action for increased responsibility of the State is characterized in a number of States by measures which increased or extended the minimum State-financed educational program. During the past fiscal year legislation was enacted in approximately one-third of the States which in some way resulted in the assumption on the part of the State of increased financial responsibility for education. For example, in 1935 the South Carolina legislature extended its 6-month State-supported school system to 7 months. West Virginia extended its 8-month State-supported system to 9 months. The legislature of Wyoming provided through the distribution of a school equalization fund the necessary financial assistance to enable all school districts to maintain a $1,000 minimum program. Other States in which legislative action provided for increasing the responsibility of the State for the financial support of public schools are: Arizona, Arkansas, Idaho, Kentucky, Michigan, Minnesota, Montana, New Mexico, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, and Washington.

The marked tendency of recent years to utilize nonproperty-tax systems for the support of education continued unabated during the fiscal year. For example, during the past year legislation occurred which provides school revenue from income-tax sources in the following States: Idaho, Michigan, Ohio, Pennsylvania, South Dakota, Utah, and Washington. Legislative action in Arkansas, Georgia, Idaho, North Dakota, South Dakota, Utah, Washington, and Wyoming made provisions whereby revenue from sales taxes may be utilized for school purposes; and in Idaho, Michigan, Maryland, New Mexico, Nevada, and Wisconsin certain receipts from licenses or sales taxes on alcoholic drinks were allocated for school purposes.

Increased State responsibility for the financial support of education has often been accompanied by increased State control over State and local school moneys. During the past fiscal year legislation of this character occurred in a number of States. Outstanding examples of this type of legislation occurred in Louisiana and New Mexico. The legislature of Louisiana created a State bond and tax board which stipulated that thereafter no parish or municipality or school district shall have authority to borrow money, incur debt, or issue bonds or to levy taxes without the consent and approval of

the State bond and tax board, and declared that all debts contracted or bonds issued by parishes, municipalities, and school boards without the consent of the said State board shall be null and void. Louisiana also prohibited the expenditure of public money or credit by cities and school districts without the regulation, supervision, and approval of the State advisory board. In New Mexico by legislative action the State board of finance was vested with supervision and control of the budget of all State offices, departments, and institutions, including the department of education and institutions of higher learning, subject to review by the Governor. The State board of finance was empowered to adopt standard office supplies and equipment and to regulate purchases. Among other States enacting legislation which effected increased State control over school expenditures are: Colorado, Idaho, Indiana, Minnesota, Louisiana, New Mexico, Ohio, Oklahoma, Pennsylvania, and Washington.

During the year a number of legislative changes occurred designed to promote efficiency and economy with respect to the administrative and supervisory functions of public education. For example, the legislature of Vermont "in the interest of convenience and efficiency" directed the State board of education through the commissioner of education, acting as the executive officer of the board, to combine as soon as possible the several school districts of the State into supervisory unions each approximating 50 teachers, subject to the following exceptions:

I. Towns or cities employing 40 or more teachers shall be allowed to remain as districts.

II. High-school principals shall be relieved of all supervisory responsibility for class work outside of the high school.

The Oregon Legislature prohibited the establishment of a school district with fewer than 20 pupils of school age. In Oklahoma the legislature stipulated that State aid may be withdrawn from any school where the average daily attendance falls below 18, or where the school district fails to meet standards established by the State board of education. Other measures designed to restrict the maintenance of small school districts were enacted in a few other States, among which are: Iowa, Montana, and Nevada.

YOUTH PROBLEMS

The Office of Education has continued its earlier interest in the problems of unemployed out-of-school youth which have continued acute throughout the year. A special committee of staff members was organized in August 1934 to systematize as far as possible the efforts of the Office in this field. The General Education Board has made grants to assist the work of the committee. With these funds

the committee has employed a staff to carry on two studies under the general jurisdiction of the committee. One is a survey of conditions, needs and desires of youth in 60 representative communities, rural and urban. In this survey the committee has the active cooperation of a committee of the American Sociological Society as well as the cooperation of the statistical divisions of the F. E. R. A. and the central statistical board. Voluntary services must be depended upon for leadership in the several communities while relief workers are assigned to carry out the detailed labor.

The other study deals with the activities being carried on throughout the country in the interest of unemployed out-of-school young people. About 13,000 inquiries were sent out to lists of persons most likely to know about these activities. The names of persons actually in charge of the activities were thus secured. These persons were then sent a special inquiry, asking that they describe briefly each activity, how it is sponsored, how many young people participate, and with what success the activity seems to be meeting. These reports are then abstracted and the materials classified as a basis for bulletins in process of preparation, 1 on guidance, 1 on education for out-of-school youth, 1 on leisure-time activities of out-of-school youth, and 1 on the problem of employment among youth. These bulletins will be completed about November 1935.

One other activity of the committee has been a compilation of a handbook for community leaders. The materials for the handbook have been culled out of survey materials and accounts of community activities. The purpose of the handbook is to stimulate and guide communities which desire to improve and better coordinate their services for out-of-school unemployed youth. This bulletin will be ready for publication in August 1935.

A casual examination of the functions of the several Government departments made during the winter of 1933–34 revealed that no Government agency was giving particular attention to the problems peculiar to the generation which was just then coming into the age of employability. About two and one-quarter million young people reach the age of 18 each year. Of these probably a half million continue in some full-time school or college. The remainder are on the labor market.

The point of view which dominated the codes of fair competition with respect to the reemployment of former workers as well as the adoption of minimum wages made industry slow to employ youth. It appeared, therefore, that this rapid accumulation of young people by the addition of millions each year constituted a major problem worthy of governmental consideration.

While the problem was basically one of employment, it was quite clear that a large element in the situation was the need of these young

people to continue in forms of education which better prepared them for the changed social and economic conditions which they were to confront. Many had no adequate vocational training and many others were rapidly losing their employability through disuse of their vocational skill and information. The lack of comprehension of the causes of the depression was a strong factor in their loss of morale. The Office of Education, therefore, took the initiative in calling together, in April 1934, representatives of the various Government agencies which were conducting programs for or gathering information concerning youth. These included the Extension Division of the Department of Agriculture, the Forestry Service, the N. R. A., the F. E. R. A., the Census Bureau, the Children's Bureau, and the Employment Service of the Department of Labor. These representatives agreed unanimously upon two matters: First, that the problem was sufficiently acute to warrant governmental interest; second, that the Office of Education might properly assume the initiative in seeking solutions insofar as those solutions came within the sphere of the Federal Government.

Therefore, in addition to the activities of the Committee on Youth Problems the Office has advocated two programs in the interest of unemployed out-of-school youth. These may be characterized as the long-time program and the emergency program.

(*a*) *The long-time program.*—It is recognized that the problem of unemployment among youth is not likely to disappear with the disappearance of the acute phases of the depression. Therefore, some fundamental changes are likely to be required in the opportunities for guidance, education, and recreation available to young people. Therefore, the Office of Education decided to seek support for the creation within the Office of a permanent Division of Youth. In this effort they have been assisted by many youth groups but notably by the National Student Federation.

The service contemplated by the Division of Youth falls into two categories:

First, an office and field staff in guidance, in recreation, and in education, to assemble information concerning activities for out-of-school youth and to assist communities in setting up the best programs to meet the needs of young people.

Second, the organization in a few representative communities of experimental programs to test out various types of activities. These, of course, would be financed largely by the communities served but would be under the general supervision of the Office of Education.

Budget support for the Division of Youth was not secured for the fiscal year, 1935–36. Pending the decisions as to how to meet the emergency situation confronted by youth it was impossible to secure

favorable action on the request for financial support for the permanent set-up.

(*b*) *Emergency program.*—During the fall of 1934 efforts were made to secure approval of more comprehensive F. E. R. A. projects designed to serve the needs of unemployed youth. The Federal student-aid program was making it possible for approximately 100,000 young people to attend college. C. C. C. camps were caring for approximately 250,000 young men. The apprenticeship committee, under the Secretary of Labor, was making headway with its program of apprenticeship, but its plans were designed to assist only a few thousand young people. Emergency junior colleges, under the F. E. R. A., were being opened in many States. The adult-education program, under the F. E. R. A., was enrolling many young people in adult-education classes. In spite of all these efforts, however, the problem was not being met adequately. Therefore, the Office of Education sought to devise a fairly comprehensive program which might be supported from the large work-relief appropriation which was assuredly to be made during the winter months by the Congress.

After much deliberation a proposal was drafted and submitted for criticism on February 11, 1935, to a small group of national leaders in the various aspects of youth activities. After a full day's conference the proposal was endorsed in all of its essentials and became the program actively advocated by the Office of Education. The Commissioner of Education conferred with many Government representatives concerning the proposal, and finally, on April 26, released to the press its outlines in order to obtain the reactions and criticisms of interested persons throughout the country. The proposed program was discussed in radio addresses and on the platform. The response appeared to be not only generous but enthusiastically favorable to the type of program advocated.

The essentials of the proposal were:

1. *Number reached.*—To provide for 2,000,000 young men and women while living at home; about 10 percent of those 16 to 25 years of age.

2. *How administered.*—To be administered by the educational system—Federal, State, and local—just as other educational programs now are.

3. *With what cooperation.*—To be planned and carried out with the cooperation of those agencies and individuals most vitally concerned in National, State, and local community.

4. *Nature of program.*—The community program to consist of—

A. A guidance and adjustment service.

B. As varied educational opportunities as possible.

C. Recreation utilizing all the agencies and facilities available.

D. Part-time employment at socially desirable jobs for those who cannot participate in the program without some financial aid.

5. *Wages.*—To vary according to need, up to maximum of $20 a month with an average not exceeding $12 per month per youth.

6. *Basis of allotments.*—Allotment of funds to a community to be based upon numbers of youth living there.

7. *Cost.*—Total Federal funds required if and when all communities have been given their maximum allotments, $40,000,000 a month.

National Youth Administration.—On June 26 the President promulgated an Executive order setting up the National Youth Administration as the Government's solution of the emergency youth problems. While the National Youth Administration differs in essential respects from the proposal advocated by the Office of Education, it is still in process of development and it is too early as yet to state with certainty what its program will ultimately be.

EDUCATIONAL OPPORTUNITIES AT SCHOOL AND COLLEGE AGE

In the report of this Office for last year we were able to say that in communities of 5,000 and fewer inhabitants (those in which there had been most curtailment of educational opportunities) attendance in elementary schools returned, in the second semester, to near normal. This was made possible through financial aid to States from Federal funds. While most children were thus enabled to attend school, the length of term was shortened in a large number of districts. Few, if any, city schools were closed 2 years ago, but here also the number of school days was sometimes reduced. From 1930 to 1932 some districts in 19 States lengthened their school year by from 1 to 10 days, but in 29 States it was shortened by other districts from 1 to 11 days, and for the country as a whole, the average school term was shortened by 1½ days.

In 1931–32, 6 States reported a term in some districts of less than 91 days, with an enrollment of 192,591 children in the schools having this brief term. Six States also reported a year in some schools of 91 to 110 days, with 209,647 children enrolled. In reports received for the year 1933–34, the enrollment in schools with a year of less than 91 days was 107,516, a fall of 44.2 percent, and in those with a term of 91 to 110 days, it was 147,370, or a decrease of nearly 30 percent. These reductions were more than made up for by increase in attendance in schools with a lengthened year. This means that most children of school age were privileged to attend school in 1933–34 and a considerable percentage of them for a longer time than in 1931–32.

By grades the statistics collected for 1933–34 show a decided increase in enrollment in the third and fourth high-school years, while the enrollment in post-graduate classes increased 70.4 percent.

Statistics from 567 colleges and universities on the approved lists of the regional associations, show a total enrollment in November 1934 of 975,218 full-time students, as compared with 907,200 in November 1933, an increase of 7.5 percent. A total of 94,331 students in 1,466 institutions were aided by F. E. R. A. funds, and the increase in enrollment in the selected colleges and universities mentioned above was no doubt due in a large part to this assistance. It has been pointed out, however, by Dr. Raymond Walters in his review of these statistics in the December 15 issue of School and Society that there has been an increase in enrollment of 11.3 percent in groups which were not eligible for Federal aid.

EDUCATION FOR UNEMPLOYED ADULTS

Invention and the introduction of new processes, of automatic and semiautomatic machinery, of new materials, and of new products are continuously imposing new requirements upon workers which render their job tenures insecure. The acquired trade skill and experience of the worker may at any time be made of little or no value by the introduction of some new process, or mechanism, or technic.

It is recognized as a factor in the increasing insecurity of workers in their jobs, that applications of science in developing new processes, new materials, new products, new industries, and new technics are being made at an accelerating rate. In the mass such changes are creating a growing demand for occupational-adjustment training as a service organized for adult workers whose acquired trade skills and technics are being continuously and in unpredictable ways devalued by technological advance.

Under these conditions the economic security of workers of all ages depends upon maintenance of occupational adjustment in a work environment which is continuously shifting, and in every field of employment vocational education has been confronted with the problem of helping the adult worker to hold the job he has, or secure a new job.

While maintenance of economic security for employed workers in their shifting work environments has presented problems of increasing difficulty over the past decade, the problems developing immediately in the unemployment situation of the past few years have become even more urgent.

Early in the year requests were sent out from the Office of Education to school superintendents in a selected number of communities, and to State directors of vocational education for reports on services for relief of unemployment being rendered under the cooperative Federal, State, and local programs of vocational education.

A review of activities reported in response to these requests shows that vocational education as organized in our public-school systems

has been functioning extensively for the relief of unemployment in every section of the country.

It has done this by providing special courses for training unemployed workers back into employment, by providing occupational-adjustment training needed to keep employed workers employed, by administering apprenticeship training for unemployed youth, by opening regular vocational courses for enrollment of unemployed adult workers, by finding jobs for unemployed workers and training them for these jobs, by training and employing unemployed workers as teachers of vocational courses for the unemployed, by safeguarding the health, morale, and welfare of the unemployed worker's family during unemployment of the breadwinner of the family, by organizing live-at-home programs for rural families, by vocationally rehabilitating physically disabled unemployed men and women, by cooperating with agencies of public and private relief, rural rehabilitation, and agricultural adjustment.

2. RELATIONS WITH EMERGENCY GOVERNMENTAL AGENCIES

THE CIVILIAN CONSERVATION CORPS

The Handbook for Educational Advisers, prepared by the Office of Education and approved by the Secretary of War January 1934, states the basic philosophy underlying the C. C. C. educational program, and describes the administrative set-up. The Office of Education, acting in an advisory capacity to the War Department, is responsible for the selection and appointment of corps-area and camp educational advisers, and recommends to the Secretary of War the outlines of instruction, teaching procedures, and types of teaching material for use in the camps.

Interest in the camp schools is evidenced by the fact that at the end of June 1935 more than 175,000 enrollees, actually 60 percent of the total enrollment strength, were voluntarily participating in the educational program. Attendance at classes and other activities is entirely voluntary on the part of the men in the camps.

The average number of courses taught per camp is 17. More than half the courses are vocational in nature; 16 percent are on the elementary level; 27 percent are on the high-school level; and 5 percent are college courses. At the end of the public-school term in June, a large number of C. C. C. men were granted eighth-grade and high-school certificates, and diplomas on the basis of credits they had accumulated while attending school in the camps. During the school year about 25,000 enrollees attended nearby night schools.

Among the educational activities in the camps are handicraft groups and hobby clubs. According to the June report over 85,000

members were engaged in some form of hobby activity, especially in leather, metal, and wood crafts, dramatics, music, and photography.

The libraries in the camps, consisting originally of 125 books per camp, have been augmented considerably by the efforts of the camp advisers. The circulation of books in the camps now approximates 300,000.

Visual education by means of motion pictures is a widely used educational device. More than 5,000 films are shown in the camps each month.

The broad scope of the educational program is accounted for by the varied training and needs of the enrollees. Although the average years of schooling of C. C. C. students throughout the country is 8.7 years, the educational level differs widely in individual camps. For example, 25 percent of C. C. C. men in the Seventh Corps Area, the region just west of the Mississippi, from Minnesota south through Arkansas, are high-school graduates, whereas only 8 percent of the enrollees in the Fourth Corps Area (the Southern States) have completed high school.

Lesson outlines and materials have been prepared to meet more effectively the needs of the enrollees. With the help of the National Park Service, the Forestry Service, and the Soil Erosion Service, a special committee of the Vocational Division of the Office of Education recently prepared a series of new instruction outlines on agriculture, auto repair, carpentry, concrete construction, conservation of natural resources, cooking, masonry, forestry, house wiring, mechanical drawing, photography, radio servicing, soil erosion, and surveying.

In May 1935 Dr. Marsh resigned as educational director, to become associate director of the Americal Council on Education. Mr. Howard W. Oxley, who had been civilian adviser for education in the Second Corps Area since September 1934, was appointed to succeeed Dr. Marsh.

With the issuing of an Executive order by the President, increasing the number of camps to 2,916 and extending the C. C. C. enrollment to 600,000, the educational budget was increased to $6,000,000. The quota of camp advisers was increased to 2,200, and an assistant camp adviser is to be appointed in each camp.

An assistant director of education in the Washington office and assistant corps-area advisers in the nine regional headquarters have been authorized to assist in the administration of the program. Mr. S. M. Ransopher, formerly the Seventh Corps Area educational adviser, was appointed on June 25, 1935, as assistant director.

Seventy-six district advisers, to be assigned to C. C. C. district offices, will bring the supervisory personnel up to the necessary requirement.

FEDERAL EMERGENCY RELIEF ADMINISTRATION

The request for Federal funds for the purpose of maintaining schools in smaller communities were not so large as last year. This year about 10 million dollars were allotted to 22 States, and in the previous year 32 States were aided to the extent of $15,123,125. In distributing funds for this purpose the Office of Education was consulted, and members of the staff made visits to Florida, Georgia, New Mexico, North Dakota, and South Dakota to study their programs of school relief.

In the emergency situation education has been recognized as a field within which special relief projects can be extensively organized under the policies of the Relief Administration. Expenditures for such projects are largely for salaries of men and women, eligible for relief or already on relief rolls, who can qualify as teachers of emergency education classes or as agents in school-health service. Such projects in education have included the organization of nursery schools for young children, classes to fit the educational needs of adults, vocational-training classes for unemployed adults in need of such training to make them employable, and the vocational rehabilitation of unemployed physically disabled adults.

The fundamental problem in organizing emergency education programs has been to find, among the unemployed eligible for relief or already on relief rolls, men and women qualified by experience to teach emergency classes, and to provide intensive teacher-training for such men and women in the professional technic of teaching. The Office of Education has cooperated in an advisory capacity and through making available the services of experts on its staff, in the organization of these emergency education programs.

SUBSISTENCE HOMESTEADS

There have been many problems relating to public education in connection with the Government's effort to solve a part of the economic maladjustment through the establishment of subsistence homesteads. The organization in charge of these developments has from time to time come to the Office of Education for information and guidance concerning these problems. The information needed has been both general and specific in type. In selecting the sites for such developments it has been found necessary to take careful account of the types and levels of schools available within

the proposed areas themselves, those available in communities adjacent to the proposed developments, and the accessibility of these various types of educational services. It has been one of the tasks of this office to provide information concerning the schools available and the conditions under which they operate.

PUBLIC WORKS ADMINISTRATION

The Office of Education has cooperated during the year with officials of the Public Works Administration in regard to school-building problems throughout the country. Estimates were prepared for the administration of immediate school-building needs and data on the financial condition of school districts were supplied. All State and urban records of school-building equipment and financial status assembled in the Office of Education have been placed at the disposal of the Public Works Administration as a check on the applications the Administration receives for school-building projects.

At the request of the Housing Division the Office has served as a clearing house for the recommendation of local members of national organizations active in the fields of nursery school and day-nursery work to serve local housing-advisory committees. The service has also been desired in determining local needs and permanency for the operation of such educational or supervisory programs for children below school age as might be organized.

CENTRAL STATISTICAL BOARD

In connection with the work of the central statistical board the Chief of the Statistical Division of the Office was assigned to serve on the committee on financial statistics of State and local governments. Members of the staff are consulted from time to time in reference to studies related to education.

II. OFFICE OF EDUCATION

1. RESEARCH AND INVESTIGATION

EDUCATION DURING THE DEPRESSION

Since about 1932 there has been a large demand from various sources for information concerning the effects of the depression on the schools and much time has been spent by the Office in collecting and compiling data to meet these requests.

In order to be certain as to the location and extent of the financial emergency in the public schools we sent, early in the autumn of 1934, inquiry forms to the several State departments of education to ascer-

tain the number of schools, pupils, and teachers that would be affected because of insufficient funds to operate a normal or customary school term.

The replies, which were summarized and published as Circular No. 138, indicated that the emergency in 1934–35 would be as extensive as it was in 1933–34, although in many cases the same schools were not involved. The replies showed that there were 32,139 school districts in 25 States that did not have sufficient funds to operate schools for the number of months in 1934–35 to which they were accustomed and that without additional funds school terms would be shortened by an average of about 3 months in the schools involved. It is too early to show to what extent the emergency was actually met. In some States legislation was enacted to provide more funds for school purposes, but in general the legislation will not be in effect until 1935–36.

Data were also collected regarding the outlook on higher education and published in Pamphlet No. 58, the Economic Outlook in Higher Education. It appears from this report that for institutions of higher education as a whole the decrease in income which had prevailed is about at an end. Comparative reports from more than 500 institutions indicated a change from 1933–34 to 1934–35 amounting to less than 1 percent in expected current and capital receipts, in budgeted expenditures for educational and general purposes, in number of staff members, or in their compensation.

SCHOOL ADMINISTRATION PROBLEMS

An outstanding problem which commands the attention of State and local school officials and of lawmakers more persistently today than usual is that of providing economical and satisfactory local school administration and revenue units. Present financial conditions make it imperative to economize in government wherever possible. Obviously one way to economize is to reorganize many of the school districts of the country so that the unit of administration and support may be larger. Larger units would tend to equalize the burden of school support and also to provide better educational opportunities. As it now is thousands of school districts maintain small one-room schools that cannot provide a modern educational program such as is offered in the larger schools of the country. That many of the school districts should be enlarged has been pointed out for years in official State and county school-survey reports. In several of the States educational commissions are studying the problem of local school administration and support, and State legislatures are giving the matter serious consideration.

There is no general agreement as to the best size of local units for administration and support. A type of unit suited to one State

might not be suited to conditions in another State. Each State in which there is apparent need for the reorganization of school districts should make a careful study of the problem. The reorganization of school districts involves several other problems, as the transportation of pupils and the location of school buildings. In order to help State departments of education, and county, city, or district superintendents of schools attack the problem of the reorganization of local school districts the Office has prepared a Handbook of Suggested Procedures for the Reorganization of Local School Units and the Projection of School Building Programs.

The procedures set forth are chiefly applicable to the schools of rural districts, towns, villages, and small cities. The Handbook points out that before school-building programs can be projected plans must be made for the centralization of schools and the reorganization of school districts, and the projection of new school programs. With this principle in view the Handbook shows what data are needed in the planning of school reorganization, how to organize the data, how to project a school-building program in terms of the number of pupils to be accommodated, the educational program to be offered, and the adequacy of the present school buildings, and how to estimate the cost of the projected building program.

A problem in school administration that has received the attention of school administrators for years is that of the enforcement of the compulsory school-attendance laws. In some school districts these laws are loosely enforced owing to the fact that their enforcement is left entirely in the hands of local school officials. In order to answer questions frequently asked regarding certain features of the compulsory-attendance laws in the several States, as to compulsory school age, qualifications of attendance officers, State supervision of attendance enforcement, and other provisions for administering the attendance laws, the Office has prepared Bulletin, 1935, No. 4, Compulsory School Attendance Laws and Their Administration.

Within the past year many requests have come to the Office for information on the extent of expenditures by the Federal Government for education. A study was made primarily to supply such information and was published as Pamphlet No. 45. This pamphlet shows not only the amount of funds the Federal Government usually authorizes for educational purposes but also the amount it expended for emergency educational programs.

Studies in progress relating to the administration and support of education (nearing completion) are State Provisions for Equalizing Educational Costs, and Educational Facilities on Federal Government Reservations.

SCHOOL LEGISLATION

The Office completed and published its biennial review of educational legislation which was enacted by the various State legislatures in 1933–34. This review is designed to show the major legislative changes which affect the administration and maintenance of public education. It includes reviews of legislation affecting new sources of school revenue and many other important phases of education, such as higher educational institutions, curriculum, textbooks, teachers, school attendance, etc.

The Office continued its policy, established in 1933, of issuing circulars on current legislation in the various States affecting education, and two such circulars have already been issued dealing with 1935 legislative activity; a third one is now being completed. These circulars contain summaries of legislation affecting the principal phases of public education.

Other studies completed which pertain to educational legislation are:

(*a*) Legislation concerning free textbooks (Pamphlet No. 59), which reviews the principal provisions of legislation in the various States relating especially to two major textbook problems, namely, that of providing free textbooks, and the problems of textbook selection and uniformity.

(*b*) Legislation concerning early childhood education (Pamphlet No. 62)—this is in the nature of a legislative handbook for use of legislators, educational committees on legislation, and other interested citizens.

School legislation studies now in progress include the completion of reviews of outstanding 1935 educational legislation and two legislative handbooks—one on problems of school administration and one relating to school finance.

STATISTICS OF EDUCATION

For many years one of the major functions of the Office has been the collection and dissemination of educational statistics on a national basis for many types of education. A small field force obtains delinquent reports and assists in establishing uniformity in recording and reporting statistical data.

The emergency organizations of the Government have used our data and our services in advisory capacities and in setting up the administrative machinery for giving aid to rural schools. We have shown the effect of the economic situation on the schools in several publications.

In the following tabular statement of the statistical work of the year the capital letter "C" stands for collected and "T" for tabulated; "C–T" means both collected and tabulated in the year.

Subject of study 1934–35	Biennial	Type of study	
		Periodic	Special
State school systems:			
Personnel and finances	C		
Preliminary statistics			T
Effect of economic situation			C–T
County school systems:			
Personnel and finances			C
City school systems:			
Personnel and finances	C–T		
Per capita costs		T	
Higher education:			
Personnel and finances	C–T		
Land-grant colleges		C–T	
Effect of economic situation			C–T
Secondary schools:			
Public:			
Personnel		C–T	
Subject enrollment		C	
Private:			
Subject enrollment		C	
Elementary schools:			
Public:			
Administration, city, county			T
Private:			
Personnel		T	
Teaching staff, rural salaries		C	
Negro education, personnel and finances		T	
Guidance, case studies			T

ELEMENTARY EDUCATION

Material from the extensive observation and study made last spring of education and welfare work for young children in European countries has been compiled for publication. It will show the national and local responsibilities assumed and methods applied, by those countries for safe-guarding mental and physical health.

For older elementary school pupils emphasis throughout the country has been upon individual guidance of pupils and upon supplementing the school curriculum to meet the varying needs of boys and girls. In this work the Office has assisted teachers or superintendents in several ways. An annotated and classified bibliography of State and city courses of study issued since 1930 has been assembled. A descriptive directory has been made of noncommercial organizations in the fields of science, hygiene, and art which issue bulletins, pictures, and other materials of help to teachers in supplementing the curricula. Individual record and report forms of pupil progress designed for parents in several hundred school systems have been assembled, analyzed, and loaned to supervisors, teachers, and the faculties of teachers colleges in 26 States.

SECONDARY EDUCATION

A publication on research needed in secondary education is in preparation. This takes up the major field developed in the national survey of secondary education, and lists the principal further investigations needed in each of these fields. When completed the work will present for investigation a suggestive list of problems which are both timely and susceptible of solution with data available at the present time or obtainable by established techniques.

COLLEGIATE AND PROFESSIONAL EDUCATION

The division of higher education during the past year continued its study of the question of relationship of the State to higher education. An important contribution to this field was a bulletin published by the office on the supervision exercised by States over privately controlled institutions. This bulletin contained a comprehensive analysis of the laws of the various States and showed the widely different policies adopted by them toward colleges and universities under private control. Another bulletin dealt with the problem of duplication among State-controlled institutions of higher education. In this study were presented the duplications found by certain surveys in five States together with criteria for eliminating duplication and plans for reorganizing State systems of higher education. A third bulletin discussed the relation of the State to privately controlled higher education.

The division has given considerable attention to the question of graduate instruction during the past year. In June the bulletin on Graduate Study in Universities and Colleges came off the press and has had wide distribution.

TEACHER PREPARATION AND PERSONNEL

Old-age security of college staffs became a matter for further investigation, after a survey study by the Office showed that nearly four-fifths of the college staff members in this country were teaching in situations in which they were individually responsible for any retirement provisions made. A study of insurance and annuity plans was therefore initiated during the year, with the purpose of assisting college administrators and others in planning their programs for the benefit of their staffs.

The difficulties involved in raising the levels of teacher education during recent depression years and the dangers of back-sets to former State programs of teacher personnel advancement, resulted in the conduct of a study of teacher certification practices and principles

which is planned to be of assistance to State officers engaged in the formulation and administration of certification requirements.

Selection and preparation for publication of a bibliography on the professional education of teachers, selected from more than 1,800 references published since June 1932, was undertaken as a further extension of a service begun in 1932. At that time, a volume of 1,297 references selected from more than 3,500 on file was published. The new study will bring this volume up to date.

ADULT AND PARENT EDUCATION

The activities of the specialist in the field of adult education have been conducted primarily in connection with the Federal Emergency Relief Administration.

Studies of aspects of parent education and of the movement for the cooperation of the home and school have been made by the specialist in parent education. One of these is with reference to parent education opportunities in the United States. This study covers some of the outstanding programs and many of the current practices in parent education carried on in universities, colleges, State departments of education, public-school parent-teacher organizations, churches, and other institutions and agencies.

The efforts at cooperation between high schools and the home have not been so generally successful as have those of the elementary school and the home. A study of a limited number of high-school parent-teacher associations has been made in order to find out what goes into the making of a good high-school association. The study deals with the objectives, programs, projects, and activities of a selected number of associations for which 118 high-school principals and 123 presidents furnished data. It will be published under the title, "Significant Programs of High-School Parent-Teacher Associations."

In order to furnish leaders in the comparatively new field of parent education and parents with suggestions for use in study groups or for individual reading or study, a series of circulars containing annotated lists of books which would further parent education was prepared and issued during the past year.

EDUCATION OF NATIVE MINORITY GROUPS

Education of native and minority groups on the continent and in our outlying parts is of increasing interest and importance. This is due in part to new developments in civil and social conditions affecting these peoples, such as the establishment of a new division of Territories and island possessions in the Department of the Interior; the establishment of the new Commonwealth in the Philippine Islands,

and the extensive plans of the Federal Government toward economic adjustment in the Virgin Islands. The Office has continued during the year to carry out its purposes of keeping in as close touch as possible with educational conditions and progress among these groups; of maintaining established contacts and services and initiating additional ones as opportunity offers and new demands arise, and of disseminating information concerning prevailing conditions, thereby promoting understandings and appreciations among educators on the continent and in our outlying parts.

Two new studies, in the series which have been under way during the past 2 years on education in each of our outlying parts, were completed and are now being printed. One describes educational conditions and progress since American occupation in the Philippines; the other in Hawaii. Similar studies on education in Alaska, Guam, and the Canal Zone now under way will complete the series.

A supplement to the comprehensive bibliography on education of native and minority groups, published as Bulletin, 1933, No. 12, was completed during the year and is in process of publication.

Assistance to educators concerned with minority groups in continental United States, especially in teaching English to children from foreign-speaking homes and bilingual children in outlying parts, was continued. Bibliographies on different phases of this and allied problems have been prepared during the year, contributing to the informational service maintained.

EDUCATION OF NEGROES

Two studies on the education of Negroes were completed. One is a study of the availability of education to Negroes in rural communities. The purpose of this study is to indicate to what extent educational facilities exist for Negroes in rural communities; to show how accessible the facilities are; and to reveal the amount and quality of the education offered. The data were furnished by 57,530 children from 28 counties of 6 States.

The other work was a statistical report on the education of Negroes. It consists of data on pupils, teachers, and graduates in public and private schools and colleges. The receipts and expenditures of public and private institutions of higher learning are given. Most of the information is for 1932; however, trends are shown in certain data from 1917 to 1932.

The abstract of the proceedings of the National Conference on Fundamental Problems in the Education of Negroes has been prepared and is now in press. This report consists of a digest of committee reports made to the conference, together with abstracts of some of the more important addresses. The complete report of the

conference proceedings is in process of preparation and will be issued soon in a single volume.

We have under way the preparation of a 5-year bibliography (1930–35) on the education of Negroes and related subjects. It will bring together a selected list of annotated references for the purpose of assisting educators, research workers, and students in a study of the subject.

EDUCATION OF EXCEPTIONAL CHILDREN

Work was continued on the Federal Civil Works project, the purpose of which was to determine the types of occupations for which deaf and hard-of-hearing young people can most successfully be trained. Six graduate students of the normal training course at Gallaudet College assisted with the analysis of the data. Partial findings have been published in the Annals of the Deaf. The complete report is now in process of preparation. Other activities in this field will be found under the headings Conferences and Cooperative studies.

GUIDANCE AND INDUSTRIAL EDUCATION

As a result of the period of depression competition for employment opportunities has greatly increased, with the consequence that many persons seeking employment in skilled and technical lines of work have been made extremely conscious of the need for specialized training for a specific job. The Office of Education as a result of this situation is constantly receiving requests for information as to schools giving various kinds of trade and technical courses. In order to make available data on private schools that would be useful to persons asking for advice on training opportunities, the Office undertook the collection of information from a comparatively large number of such schools. The assistance of State departments of education was secured in locating and obtaining information concerning many schools.

The report of this study lists, by States, private and endowed institutions and gives a descriptive account of each school, including information on courses offered, tuition fees, length of term, amount of endowment, if any, and faculty. There is a short list of industrial companies giving apprenticeship courses included in this report. As a few States require the licensing of private schools, a list of such schools by States is also included. The manuscript of this bulletin, private and proprietary and endowed schools giving trade and industrial courses with an appended list of collegiate schools of technology, is now in progress.

The office is receiving many requests for information concerning occupational trends in general, prospective opportunities in specific lines of work, and qualifications demanded of workers in various occupations. To meet these demands a continuous effort is made to collect information, both from primary and secondary sources, that bears upon these questions. At the present time a considerable amount of material has been brought together that is valuable for answering correspondence. Some information on these questions has also been compiled in a form that can be made available for general distribution to guidance departments in school systems and to individuals teaching classes in occupational information or rendering vocational counseling services.

EDUCATIONAL MEASUREMENT

In line with current changes in interest in tests and measurement, the work in this field definitely includes the encouragement of other methods of appraising school programs than that circumscribed by the new-type test. Samples of other means of measurement are being collected and studied. In line with the growing interest in cumulative records and new-type report cards samples were obtained from a large number of cities. These samples have been bound into sample or exhibit books for use by school systems. These record and report cards were also used in making a study of recent methods used in pupil advancement in the elementary school. This study covering a wide field, is progressing satisfactorily.

A study of the leaving examinations in rural elementary schools has been made. The use of these examinations, begun many decades ago, continues throughout the country. This study brings together data on the existing practices found and makes suggestions for changes.

The study—Prediction of Success in College, a handbook for administrators and investigators concerned with the problems of college admittance or guidance of college students—was issued during the year.

A study of methods of appraisal in home economics, in cooperation with the home economics division of the Vocational Division of the Office of Education, has been authorized and begun.

SCHOOL HYGIENE AND PHYSICAL EDUCATION

The study concerning the carriage of the child, as influenced by school life and other conditions, which has been in progress for some 5 years, was completed.

A list of institutions which prepare teachers of physical education and health education was prepared and published and information

as to the present output of teachers in these fields was collected for the first time. In this connection, the present State requirements of such teachers were collected and published.

The importance of preparing elementary teachers for the various phases of health work in schools cannot be overestimated. A few, but only a few, of our training schools are doing adequate work along this line. By inquiry and visitation we have collected material concerning means and methods found most effective in such training. This project is nearing completion.

Next to the teacher the janitor is the most important agent in school work but he usually receives scant preparation for his work and inadequate direction after employment. The employment, training, and supervision of janitors have not been investigated for some time and such a study was begun this year.

The establishment of a medical and sanitary service in colleges and universities dates back three-quarters of a century, but like most provisions for the health of the student, it exists largely in embryo in many institutions. Its actual state of development has not been investigated for some time and this has just been undertaken. Along with this fundamental feature of welfare work we are also examining the status of instruction in hygiene offered the average student in our colleges and universities.

COMPARATIVE EDUCATION

The associate specialist in foreign education returned from Czechoslovakia and wrote the manuscript for a bulletin on education in that country. The specialist in western European school systems visited the Netherlands and went on to Germany to study education there. Visits were made to five eastern provinces of Canada for the study of administration of schools, secondary education, and the universities.

Throughout the year data on special topics were gathered through the Department of State, the embassies and legations in Washington, Library of Congress, Pan American Union, and by direct and continuous correspondence with education offices abroad.

RADIO AND VISUAL EDUCATION

The Office collaborated in a study of the use of radio by national voluntary organizations which was issued under the title of "Some Public Service Broadcasting by the National Advisory Council on Radio in Education."

At the request of the International Institute of Intellectual Cooperation, the Office collected the opinions of a select group of national leaders on the influence of radio programs. The material thus ob-

tained was analyzed and sent to the institute, which published it in an international report entitled "The Educational Role of Broadcasting." In addition to the studies mentioned, considerable progress was made on the study of the school use of radio, and the leaflet, Good References on Education by Radio, was revised.

SCHOOL LIBRARIES

During the year Aids in Book Selection for Secondary School Libraries was completed and published as Pamphlet No. 57. Aids in Book Selection for Elementary Schools, previously issued as Circular 69, is now being revised and brought up to date. The study of Promising Library Practices in Elementary Schools is nearing completion. This consists of descriptive accounts of the best library practices collected from 69 cities of 10,000 population or over. The topics discussed include administration, finance, supervision, organization, housing, book selection, persons in charge of libraries, the library and the curriculum, library instruction, and cultivation of reading.

2. SURVEYS

Public schools of Cincinnati.—One of the major pieces of work of the year was the survey of the public schools of Cincinnati. This survey was made at the request of the Cincinnati Bureau of Governmental Research and the board of education and was done in cooperation with agencies which were studying other forms of public service. The survey was planned and conducted by the assistant commissioner. Many visits had to be made to Cincinnati in connection with the organization and conduct of this work. Ten members of the staff were engaged in the study and since it involved a detailed investigation of all phases of school equipment, personnel, and activity, a large proportion of their time was spent in fieldwork (an aggregate of 265 days) and in conferences. As a consequence much of the usual research of the Office was considerably curtailed.

The report of the survey, which was condensed to some 400 printed pages is in the hands of the publisher at this writing. It contains major recommendations on the subjects of elementary and secondary education, vocational and industrial arts, improvement of instruction, pupil achievement and adjustment, counseling and guidance, health and physical education, pupil accounting, teacher personnel problems, the board of education, organization of the superintendent's office, administration of business affairs, financing the school system, the school plant, and community relations.

Educational survey of 10 counties of the upper Monongahela Valley of West Virginia.—A committee appointed by the President to cooperate with the Upper Monongahela Valley Planning Council under-

took a survey of the social and economic conditions of 10 counties in West Virginia. The committee found it necessary to take into account the educational conditions of the area in question and invited the Office of Education to survey the available facts and to prepare a report. The study concerned itself with two major aspects of the problem. First, it ascertained the type and the amount of education available in each of the 10 counties by an examination of data to show what proportion of the children of various age groups attend school, how long they attend, and to what grade levels they are retained. Second, it undertook to evaluate the quality of education provided through an examination of the annual and permanent expenditures for the various types of educational services and facilities obtaining in these counties.

Oklahoma City.—The work begun last year looking toward the revision of the educational program of the colored high school in Oklahoma City was continued during the current year. The study of the community and school population has practically been completed, and the report, representing the first step in the curriculum revision program, is being prepared. On the basis of the present findings, several tentative courses have been added, and the administration of the school has been reorganized.

Rockland County.—A survey of the schools and the educational activities of Rockland County, N. Y., was undertaken in the spring of 1934. Data have been gathered to show the costs and the type of education purchased under the present school organization of this county and what it would cost to provide an improved program if the present system were reorganized into a smaller number of centralized and enlarged units of school administration. Efforts are at present being made to assist the local school authorities in a program looking toward putting the reorganized system into effect.

National Survey of the Education of Teachers.—The last 4 of the total of 6 volumes constituting the final report of the National Survey of the Education of Teachers were published in June 1935.

3. CONFERENCES

Curriculum construction for retarded children.—A group of 13 specialists from various parts of the country were brought together for the purpose of developing a handbook or guide for the construction of a curriculum for mentally retarded children. It is expected that the publication resulting from this cooperative project will prove of value to teachers, supervisors, and administrators. The manuscript is now being prepared for press.

Coordination of effort for exceptional children.—Following out one of the major recommendations of the White House Conference

of 1930, the Office of Education called together a group of 15 representatives of State and national agencies to consider the possibilities of effecting closer coordination of services for all types of exceptional children on the part of governmental and nongovernmental bodies devoted to their educational welfare. The proceedings of this conference are now in press.

Reorganization of administrative units.—In recognition of the critical situation which prevails in the majority of States in the administration and financing of schools under depression conditions and of the apparent impossibility of a satisfactory solution except through fundamental reorganization of administrative units, a meeting was called to consider the most critical of the problems involved and to report ways and means which seemed to offer a solution. The conference was made up of practical administrators from State departments of education, including State chief school officers and their assistants; members of staffs of research organizations in higher institutions of learning and departments of education, representing as far as possible different geographic sections and different prevailing conditions in population and administrative organizations.

The conference prepared reports which will be published by the Office for the guidance of legislative committees, school administrators, and others most concerned.

Industrial arts.—The growing interest in industrial arts work as a fundamental in a public-school program, together with the manifested need for studying and evaluating the kind of curriculum that should be included in that subject, led the Office to call a 3-day conference on the industrial arts. The personnel of the conference, which was selected with a view to having national representation, included members of State departments of education, city school systems, and teacher-training institutions.

The conference was divided into six groups, each assigned to prepare an outline on a particular phase of industrial arts education. Outlines for the different sections were approved by the conference and assignments were made to the members for further development and later report. These reports are now in preparation and will result in a unit study of this phase of education.

State school systems statistics.—In February 1934 a committee of directors of research in State departments of education was asked to prepare a check list of items to be included in statistics furnished by State school systems and another committee on definitions of these items. The resulting list and definitions prepared by these committees were then referred to each State department of education for consideration. In July a group of State directors of re-

search was brought together for a study of all the reports from State departments on these check lists. This conference recommended a set of items and their definitions for purposes of reporting the statistics of State school systems to this Office. A report of the recommendations of this conference will be issued as a guide to improvement of State and Federal educational statistics.

Comparative education.—A conference of a small group of professors of comparative education was held to discuss the advisability of forming an organization of teachers of comparative education and the place which courses in the subject of education in other countries should have in teacher-training programs. Bases for the discussions were formed in part from the replies to a questionnaire sent to colleges and universities.

4. COOPERATIVE STUDIES

Besides the cooperative undertakings mentioned under the heading of "Conferences", a project on the education of mentally retarded children is being carried on with the public-school system of Minneapolis; with the Society for the Promotion of Engineering Education we have been conducting a survey of graduate work in that field; with the National Association for Nursery Education we prepared a bibliography of nursery-school education; with the National Committee on Music in Education we conducted an investigation of the preparation of music teachers.

5. COLLECTION OF UNPUBLISHED RECENT RESEARCH

Work in the collection of unpublished research material has progressed satisfactorily during the year. The collection of theses now numbers 1,796 received from 64 institutions. These are in constant demand either in the library where they are used by specialists in the Office of Education and students of the local universities, or in libraries of the various universities over the country where they are sent on interlibrary loan.

During the year a pamphlet listing the doctors' dissertations in our collection and available for loan was issued. Demands for loans have increased markedly since the publication of this pamphlet.

Another service which the library renders in connection with this collection is the preparation of appropriate typewritten lists of the most recent theses on various subjects for reply to requests from students and research workers.

There is also on file the research completed by city school systems, State departments of education, and State educational associations, and listed in the annual bibliographies. These studies are available for interlibrary loan.

6. OTHER EDUCATIONAL SERVICE

COOPERATION WITH PROFESSIONAL AND PUBLIC SERVICE GROUPS

In addition to work with governmental agencies and professional organizations mentioned under other headings, we have cooperated more or less in the work of other groups. Among these were:

Division of Territories and Island Possessions, Department of the Interior.
Bureau of Economic Research, Department of Commerce.
Committee on Juvenile Delinquency, Department of Justice.
National Education Association.
National Congress of Parents and Teachers.
Progressive Education Association.
National Council of Parent Education.
Committee of Twenty-one on Secondary School Standards and Accrediting Procedures.
Committee on Research in Secondary Schools.
Junior College Association.
Association of Deans of Men.
Association of Land-Grant Colleges and Universities.
American Vocational Association.
National Vocational Guidance Association.
Vocational Research Bureau.
Child Study Association of America.
Cooperative Studies, Inc.
American Association of University Women.
National Association for Nursery Education.
National Federation of Day Nurseries.
National Association of Teachers in Colored Schools.
Health Section of the League of Nations.
Gorgas Memorial Institute.
American Child Health Association.
National Safety Council.
American Association of School Physicians.
Boy Scouts of America.
National Committee on Inter-American Intellectual Cooperation.
National Library Association.
National Advisory Council on Radio in Education.
Board of Public Welfare of the Division of Emergency Relief of the District of Columbia.

Translations of some 17,000 words in 10 languages were made for the Alien Property Custodian, the Departments of Justice and of State, the Veterans' Administration, and the National Industrial Recovery Administration.

CONSULTATIVE AND ADVISORY SERVICE

No line can be drawn between cooperative work and that which may be called advisory or consultative. Under the present heading, however, we may record the advisory and informational service

rendered to national and State organizations, including many not previously named; to legislators, school administrators, teachers, students, parents, and others. Many persons seek this service in person and there is a host of requests by mail for specific data not covered in our publications and for assistance in studies in every field of educational interest. The advisory and informational correspondence of the Office consumes roughly one-fourth of the time of the professional and clerical staff.

ARTICLES AND ADDRESSES

Over a hundred articles were prepared for periodicals and yearbooks, and 183 addresses were made before National, State, regional, and local groups.

EVALUATION OF FOREIGN CREDENTIALS AND ASSISTANCE RENDERED ABROAD

At the request of college and university registrars and committees of admission, the Office handled 578 requests for credential evaluation, with 1,354 separate documents in 26 different languages. There was an increase of 74 cases or 14.7 percent over the previous year. The credentials came from 63 different countries. For one or another reason, 118 cases were reviewed. In connection with credential evaluation, studies were made of technical education and nautical institutes in Italy, and in regard to the evaluation of records from Canada.

The Office aided in arranging for official representation at the following listed international meetings: Second Inter-American Conference on Education, Santiago, Chile; International Folk Dance Festival, London; Fourth International Conference on Public Instruction, Geneva, Switzerland; Fifth International Congress on Family Education, Brussels, Belgium; Seventh International Congress of Design and Applied Arts, Brussels, Belgium; and the World Federation of Education Associations, Oxford, England.

We assisted educationists from Australia, British West Indies, England, Brazil, China, and Chile who came to the United States, and wrote many letters of introduction to education officials abroad for school men and women of this country who went to study education in other countries.

LIBRARY SERVICE

The library, which now numbers over 200,000 volumes, was moved in September from its very unsatisfactory quarters. While the present location gives very little room for growth, we have been

able to give better service than we have ever done, and the reading room is crowded much of the time. The books are more readily available, and many problems of administration have been simplified.

The books of the Federal Board have been transferred, and plans for the reorganization of the combined libraries are under way. The librarian of the Federal Board, who has joined the staff of the main library, devotes a large part of her time to research service for vocational specialists.

As usual, a large part of the correspondence has had to do with requests for bibliographies or publications on special subjects. Whenever the subject in question was educational, a list of books has been prepared if no bibliography was available. Fifteen "good reference" bibliographies were prepared during the year.

At the time of the removal of the library from the Interior Building, a considerable number of duplicates were sent to the Alaskan schools, and some also to Howard University and Wilson Teachers College. Duplicates sent to other institutions not only serve the users of those institutions but relieve the pressure on this library.

FIELD WORK

Beside the work away from the Office entailed by the surveys and for the periodic collection of statistics from school systems, which was made this year, a member of the staff assisted the State of Alabama in setting up a new system of records and reports.

PUBLICATION SERVICE

Publications.—Thirty-five bulletins, 7 pamphlets, 1 leaflet, 12 bibliographies, 6 miscellaneous publications, and 10 issues of School Life made up the 71 printed publications issued by the Office during the fiscal year. Details of this work are furnished in the following table:

I. PREPARATION

Manuscripts read and edited for—	Number	Number of pages
1. Printing	49	[1] 4,279
2. School Life (10 issues)	[2] 280	1,400
3. Mimeographing and multigraphing	672	
4. Rotaprint	4	32
Indexes prepared	5	1,479
Charts and graphs	264	
Galleys of proof read	----	2,948
Pages of proof read	----	6,306
News releases	46	92
Radio transcripts for broadcasting	57	828

[1] In addition, 6,042 bibliographical entries were read and edited.
[2] Estimated number of articles.

II. DISSEMINATION [3]

	Number of copies
Bulletins, pamphlets, leaflets, bibliographies	349,000
Circulars (mimeographed)	28,050
School Life (10 issues)	121,510
Free	16,670
Subscriptions	104,840
Reprints from School Life, extra editions and index	26,550
Circular letters, general information, notices, and advertisements	264,291
Good reference series (mimeographed)	3,500
Reading courses	10,000
Price lists (mimeographed and printed)	89,000

Directories.—The Educational Directory for 1935 comprised of the following parts: (*a*) State and county school officers; (*b*) city school officers; (*c*) colleges and universities; and (*d*) educational associations and directories, was prepared by members of the Editorial Division, as was also a handbook of the Office of Education—Its duties, work, history, and publications. Two widely used directories, "Accredited Secondary Schools", prepared by the Statistical Division, and "Accredited Higher Institutions", by the Division of Higher Education, were made available.

Biennial Survey of Education.—Upon completion of the summary and chapters on State school systems and higher institutions, the Biennial Survey of Education 1930–32 was indexed and bound. The survey for 1932–34 is well on its way. One chapter, that on commercial schools, has already been printed, and two others, statistics of private elementary and secondary schools and review of educational legislation, 1933 and 1934, are now in the hands of the printer.

News releases.—Forty-six news releases on educational developments were prepared and sent to newspapers and educational journals.

Exhibits.—Samples of Office of Education publications were sent in answer to numerous requests by various educational organizations for exhibits at their annual meetings. A special exhibit showing the work of the Office was prepared for the California Pacific International Exposition.

School Life.—The official monthly journal of the Office of Education still holds first place for the largest sale of any Government subscription periodical. It has, throughout the year, presented in addition to its regular features new developments in the emergency program of interest to the educational field in general.

Special arrangements were made with 10 leading art schools to supply covers for School Life during the year.

[3] Figures for distribution by sale through the Superintendent of Documents are not available at this time.

The United States Press Intelligence Service has supplied clippings on education. Information on school developments thus collected was used on the air, in School Life, and for other purposes.

Radio services.—Each week throughout the year a program of important educational information has been prepared and presented over the facilities of the National Broadcasting Co. Interest was manifested in numerous requests for copies and for further information on the subjects of each broadcast.

Motion pictures.—During American education week the Office cooperated with a newsreel company in the preparation of a film suitable for showing in many theaters. The Office of Education's exhibit at Atlantic City received wide-spread notice through picturization in newsreels.

PUBLICATIONS ISSUED OR PREPARED FOR PRINTING DURING THE YEAR

BULLETIN, 1933

No. 15.[1] Federal cooperation in agricultural extension work, vocational education, and vocational rehabilitation.

BULLETINS, 1934

No. 15. Prediction of success in college.
No. 16.[2] Accredited higher institutions in the United States.
No. 17.[2] Accredited secondary schools in the United States.
No. 18. High school clubs.
No. 19. Problems of duplication as attacked in certain state surveys.
No. 20. Graduate study in universities and colleges in the United States.

BULLETINS, 1935

No. 1. Educational directory, 1935.
Parts
I. State and county school officers.
II. City school officers.
III. Colleges and universities, including all institutions of higher education.
IV. Educational associations and directories.

No. 2. Biennial Survey of Education, 1932–34.
Chapters
VI. Statistics of private elementary and secondary schools, 1932–33.
VII.[2] Statistics of commercial schools, 1932–33.
VIII.[2] A review of educational legislation, 1933 and 1934.

No. 3. Parent education opportunities.
No. 4. Compulsory-school-attendance laws and their administration.
No. 5. Bibliography of research studies in education, 1933–34.

[1] This bulletin appeared in June 1935, but was given a 1933 number to complete the list for that year.

[2] Prepared for the printer before July 1, 1934, but delivered by the Government Printing Office during the fiscal year July 1, 1934–June 30, 1935.

No. 6. Fundamentals in the education of Negroes.
No. 7. Coordination of effort for the education of exceptional children.
No. 8. Private proprietary and endowed schools giving trade and industrial courses.
No. 9. Education in the Philippine Islands.
No. 10. Public education in Hawaii.
No. 11. Education in Czechoslovakia.
No. 12. Availability of education to Negroes in rural communities.
No. 13. Statistics of the education of Negroes.
No. 14. Federal student-aid program.

BULLETINS, 1936

No. 1. Educational directory, 1936.
Parts
II. City school officers.
III. Colleges and universities, including all institutions of higher education.
IV. Educational associations and directories.

PAMPHLETS

No. 50.[2] Public education in the Virgin Islands.
No. 51.[2] Educational activities for the young child in the home.
No. 52.[2] The cost of going to college.
No. 53.[2] Statistics of high schools in larger cities.
No. 54.[2] Teachers' problems with exceptional children.
IV. Deaf and hard-of-hearing children.
No. 55.[2] Teachers' problems with exceptional children.
V. Crippled children.
No. 56.[2] Teachers' problems with exceptional children.
VI. Children of lowered vitality.
No. 57.[2] Aids in book selection for secondary-school libraries.
No. 58. The economic outlook in higher education for 1934–35.
No. 59. Legislation concerning free textbooks.
No. 60. Doctors' theses in education.
No. 61. Per-capita costs in city schools, 1933–34.
No. 62. Legislation concerning early-childhood education.
No. 63. Education of native and minority groups: A bibliography, 1932–34.
No. 64. High-school cooperation with the home.

LEAFLETS

No. 45. Federal grants for education, 1933–34.

BIBLIOGRAPHIES

No. 5. Nursery education (revised).
No. 6. Education by radio (revised).
No. 14. The school auditorium (revised).
No. 15. Character education (revised).
No. 21. Secondary education: Instruction.

[2] Prepared for the printer before July 1, 1934, but delivered by the Government Printing Office during the fiscal year July 1, 1934–June 30, 1935.

No. 22. Secondary education: Administration and organization.
No. 28. Education and social change.
No. 29. The curriculum and social change.
No. 30. Discussion groups.
No. 31. The junior college.
No. 32. Visual aids in education: Motion pictures.
No. 41. Teaching music in elementary schools.

MISCELLANEOUS

School Life, 10 issues and index.
Handbook of the Office of Education.
Education price list.
Circular No. 139, Recent courses of study for elementary and secondary schools.
The preparation of teachers for small rural schools. (A reprint from Vol. V, Part VII, of Bulletin, 1933, No. 10, National Survey of the Education of Teachers.)
Office of Education section of the Annual Report of the Secretary of the Interior.

VOCATIONAL EDUCATION BULLETINS

Agricultural Service

No. 169. Analysis of special jobs in farm forestry.
No. 177. Emergency programs of vocational agriculture.
No. 178. Teaching farm credit.
No. 180. Summaries of studies in agricultural education.

Home Economics Service

No. 179. Bibliography of studies of the home economics curriculum.
No. 181. Rooms and equipment for instruction in homemaking.

Trade and Industrial Education

No. 106. Stone Setting (revised 1935).
No. 128. Bibliography on foreman improvement (revised 1935).

Vocational Rehabilitation Service

No. 148. Vocational guidance in rehabilitation (revised 1935).
No. 161. Organization and administration of a State program of vocational rehabilitation.

7. ADMINISTRATION

Appropriations.—For the fiscal year 1935, Congress appropriated for salaries in the Office of Education, not including those for vocational education and rehabilitation, the sum of $231,022, an increase of $15,297 over the amount available for that object for the fiscal year 1934. This increase did not provide for any addition to the staff, but was due entirely to the restoration of salary reductions. For the fiscal year 1936 the amount has been increased to $251,720, and provides for the addition of a specialist in State school administration and a stenographer.

The other appropriations were $12,500 for general purposes, including travel expenses and $40,000 for printing and binding. For 1936 these amounts were increased to $15,000 and $46,500, respectively.

Howard University.—Howard University was inspected during the year, as required by law.

A number of changes have taken place in the membership of the board of trustees. Dr. Abraham Flexner, the president of the board, tendered his resignation February 9, 1935. He was succeeded by T. L. Hangate, Auditor, Teachers College, Columbia University. The new members elected to the board are: Dr. Guy W. Coleman, Boston; Mrs. Floyd K. Garrison, Madison, Wis.; C. C. Spaulding, Durham, N. C.

Under the new plan of organization the Liberal Arts College now includes the School of Education and the courses in art and home economics.

The trustees named as the dean of the New Graduate School, Dr. D. O. W. Holmes, formerly dean of the School of Education.

In April the new classroom building known as Douglas Hall was dedicated and handed over by the Government to the trustees of the university.

The chemistry building is rapidly nearing completion, and when completed will relieve the pressure for space in the scientific departments.

The new organ was installed in the college chapel and was dedicated in January.

The total enrollment of the university for the year 1934–35 was 1,907, of whom 999 were men and 908 were women. In 1933–34 the enrollment was 1,626, of whom 939 were men and 687 were women. This indicates an increase of 281 over the past year.

The university conferred degrees and certificates on 246 graduates, distributed as follows: 123, the bachelor's degree in arts, sciences, or music; 35, the master's degree; 2, the doctor's degree in dentistry; 8, the certificate in oral hygiene; 10, the degree of bachelor of laws; 55, the degree of doctor of medicine; 5, the title of pharmaceutical chemist; 2, the degree of bachelor of science in pharmacy; 4, the degree of bachelor of divinity, and 2, the degree of bachelor of theology.

The teaching staff of the university in 1934–35 included a total of 241 members, of whom 134 were full-time and 107 were part-time. These are the equivalent of a full-time staff of $156\frac{9}{10}$. The teaching staff for 1933–34 included a total of 237 members, of whom 135 were full-time and 102 were part-time.

Financial statement.—In 1934–35, the total income of Howard University was $1,743,818.99, including current and capital funds.

The year preceding this amounted to $1,178,764.80. The income from the Federal Government for 1934–35 was $1,395,461.12. The total operating expenditures for 1934–35 were $1,709,992.63.

The total amount spent for capital expenditures in 1934–35 was $756,606.28, as against $229,271.55 in 1933–34.

THE LAND-GRANT COLLEGES AND UNIVERSITIES

The land-grant colleges and universities, once known as agricultural and mechanical colleges, were established by authority of the first Morrill Act of 1862, which provided Federal endowment by the sale of grants of land. Each State received by the terms of this act an amount of public land or land scrip equal to 30,000 acres for each Senator and Representative then in Congress. The sale of these lands created an endowment called the 1862 land-grant fund. In 1933–34 the income from this fund was $1,127,344, derived from interest on the principal of $23,350,743 and rentals and rights on unsold land appraised at $13,726,827.

Additional Federal support was provided for these institutions through the second Morrill Act of 1890 and the Nelson amendment of 1907. Since 1911 each State has received $50,000 annually, including Puerto Rico, Alaska, and Hawaii; the total appropriation now amounts to $2,550,000 annually. These moneys must be expended either for salaries or facilities for instruction in certain allowed subjects, and generally most of the appropriation is spent for salaries, as it was in 1933–34, when $2,533,605 was paid out to faculty members.

The new Bankhead-Jones Act, which was signed and became a law at the end of this fiscal year on June 29, 1935, supplements and increases the Morrill-Nelson appropriations beginning with the year 1935–36. By this act there is authorized to be appropriated annually (Public Act No. 182, title II, sec. 22) to the 48 States and the Territory of Hawaii (Alaska and Puerto Rico do not participate) the sum of $980,000 to be divided equally—$20,000 each. In addition, the sums of $500,000 in 1936–37, $1,000,000 in 1937–38, and $1,500,000 in 1938–39 and thereafter annually, are authorized to be appropriated, but the division of these funds is on a basis of population, i. e., the ratio that total population of each State and the Territory of Hawaii bears to the total population of all States and the Territory of Hawaii. Provisions of the act of August 30, 1890, as amended and supplemented, apply to the use and payment of these additional funds.

Sixty-nine land-grant institutions are now maintained—52 primarily or exclusively for white students, and 17 for Negro students. There is a land-grant college in every State, Puerto Rico, Alaska, and

Hawaii; Massachusetts provides 2 institutions, and in the 17 Southern States there are 17 Negro land-grant colleges.

Congress has authorized the Secretary of the Interior to supervise the expenditures of the funds mentioned above, and to require annual reports in detail from the treasurers and presidents of the land-grant institutions. This duty has been assigned to a specialist in the Office of Education. A few of the pertinent facts gleaned from the 1933–34 report are:

In the 69 land-grant institutions faculty members number 25,895, of whom 22,572 are employed full time.

Resident-undergraduate students totaled 104,892 men and 49,202 women; graduate students—10,998 men and 4,625 women; freshman students—30,559 men and 14,780 women.

Enrollments in arts and science courses represented a larger proportion and a larger number of students than ever before in these courses—63,811 men and women. In agriculture, 11,469 students, mostly men, represented an increase over the previous year, but a decided loss during the depression years. In engineering, the lowest enrollment in a decade was reported—26,207 students, all men, with the exception of 112 women.

Receipts for educational purposes totaled $103,124,212, of which the Federal Government contributed $18,014,174. In addition there was reported $1,063,092 for noneducational purposes, $7,057,428 for capital outlays and plant extensions, $16,127,153 for auxiliary enterprises including student unions, dining halls and athletics, and $1,513,022 for net increase of permanent funds. The value of buildings was placed at $275,261,569, grounds at $60,540,171, and total plant values at $436,488,174.

III. VOCATIONAL EDUCATION

This report covers the eighteenth year of operation under the Vocational Education Act of 1917, and the fifteenth year of operation under the Vocational Rehabilitation Act of 1920—the two fundamental acts which, having been accepted by the States and Territories, provide the legislative basis of the cooperative Federal-State programs (1) of vocational education in agriculture, trades, and industries, and homemaking, and (2) of vocational rehabilitation and placement in wage-earning employment of persons disabled in industry or otherwise. It covers the second year of administration of these acts by the Office of Education, to which the functions of the Federal Board for Vocational Education, and the personnel of the staff of this board were transferred by Executive order in 1933.

VOCATIONAL ACTS ADMINISTERED BY THE OFFICE OF EDUCATION

The vocational acts administered by the Office of Education under the direction of the Assistant Commissioner for Vocational Education, include the following fundamental acts and acts supplementary thereto:

1. The Vocational Education Act (Smith-Hughes), to provide for cooperation with the States in the promotion of vocational education. (Approved Feb. 23, 1917.)

2. The Vocational Rehabilitation Act, to provide for the promotion of vocational rehabilitation of persons disabled in industry or otherwise and their return to employment. (Approved June 2, 1920, as amended June 5, 1924, June 9, 1930, and June 30, 1932.)

3. An act extending the benefits of the vocational education and vocational rehabilitation acts to the Territory of Hawaii. (Approved Mar. 10, 1924.)

4. An act to provide for vocational rehabilitation of disabled residents of the District of Columbia. (Approved Feb. 23, 1929.)

5. An act extending the benefits of the vocational education and vocational rehabilitation acts to the Island of Puerto Rico. (Approved Mar. 3, 1931.)

6. An act (George-Ellzey) to provide for the further development of vocational education in the several States and Territories, authorizing for the years 1935–37, additional appropriations for vocational education. (Approved May 21, 1934.) This act continued authorizations of additional appropriations upon expiration of the George-Reed act of February 5, 1929, which had authorized additional appropriations for the years 1930–34.

7. An act (Social Security Act) authorizing additional appropriations for 1936 and annually thereafter for cooperation with the States and Hawaii in extending and strengthening their programs of vocational rehabilitation of the physically disabled. (Approved Aug. 14, 1935.)

Appropriations of Federal funds for allotment to the States and for service and research to aid the States in developing their vocational and rehabilitation programs are made or authorized by these acts.

COMPOSITION OF THE FEDERAL BOARD FOR VOCATIONAL EDUCATION

The Federal Board for Vocational Education, created by the Vocational Education Act of 1917 as the national agency of cooperation with the States in the building up of public vocational training programs of less than college grade, consists of 4 members ex officio—the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Labor, and the Commissioner of Education; and 3 citizens appointed by the President—1 representative of manufacturing and commercial interests, 1 representative of agricultural interests, and 1 representative of labor.

So composed the Board is representative of educational interests in general, of public and private interests involved in the several broad fields of vocational training, and of employer-employee interests

in such training. Representation of these interests on the Board safeguards vocational education as a development of our publicly supported educational systems, State and local, and as a program for promoting the economic welfare and security of workers in all fields.

By Executive order of June 10, 1933, effective August 10 of that year, the functions of the Board were transferred to the Department of the Interior, and the Board made an advisory board to serve without compensation. Three vacancies were created on the Board by expiration of terms of the appointive members. To fill these vacancies the President on August 14, 1935, submitted to the Senate the following Executive nominations:

A. Lincoln Filene, of Massachusetts, for the unexpired term of 3 years from July 17, 1933, vice Edward T. Franks, term expired (representative of commerce and commercial interests.)

Clarence Poe, of North Carolina, for the unexpired term of 3 years from July 17, 1934, vice W. Harry King, term expired (representative of agricultural interests).

Henry Ohl, of Wisconsin, for the unexpired term of 3 years from July 17, 1935, vice Perry W. Reeves, term expired (representative of labor).

The Senate confirmed these nominations on August 16, 1935.

CONSISTENT DEVELOPMENT OF NATIONAL POLICY

On review of the acts listed above it will be apparent that Congress has consistently developed the policy initiated in 1917 of providing national grants for support and promotion of State and local programs of vocational education and vocational rehabilitation. It extended this policy to include the vocational training and placement of physically disabled persons in 1920; extended the benefits of the vocational education and vocational rehabilitation acts to Hawaii in 1924; authorized appropriation of additional grants to the States and Territories for vocational agriculture and vocational home economics in 1929 (under the George-Reed Act which expired June 30, 1934); provided funds and administration for vocational rehabilitation service in the District of Columbia in 1929; extended the benefits of the vocational education and vocational rehabilitation acts to Puerto Rico in 1931; authorized additional grants to the States and Territories for vocational agriculture, trades and industries, and home economics in 1934 (on expiration of the George-Reed Act); and in an act (the Social Security Act) approved after the close of the last fiscal year, has authorized additional appropriations annually for vocational rehabilitation of the physically disabled.

Section 4 of title V of the Social Security Act authorizing additional appropriations for 1936 and annually thereafter, for "co-

operating with the States and Hawaii in extending and strengthening their programs of vocational rehabilitation of the physically disabled", was not included in the security bill as originally introduced, but was inserted by the Ways and Means Committee of the House at the request of the National Rehabilitation Association. Administration of the increased funds provided will develop new demands upon the rehabilitation service of the Office of Education, for service to aid the States in expanding and strengthening their programs.

It may be noted further that during the past year legislation has been pending in Congress for further increasing grants authorized for vocational education.

In this matter of increasing the financial support and expanding the scope of the vocational education and vocation rehabilitation programs, States and local communities have assumed their share of responsibility, and have generally exceeded requirements in their appropriations from year to year of State and local funds for expenditure under State plans jointly with Federal funds.

ACCEPTANCE OF THE VOCATIONAL REHABILITATION ACT BY HAWAII

During the year just ended the General Assembly of the Territory of Hawaii enacted a law accepting the provisions of the National Rehabilitation Act. Although the Territorial appropriation for the current year is not sufficient to match the Federal allotment, it is reported that additional funds will be made available to carry on the program and match the allotment.

ACCEPTANCE OF THE VOCATIONAL EDUCATION ACT BY ALASKA

By an act approved March 14, 1935, the Territory of Alaska accepted the Vocational Education Act of 1917 and acts supplementary thereto, designated the treasurer of the Territory custodian of Federal funds to be allotted to the Territory, designated the Territorial board of education as the agency to have full and complete authority to cooperate with the Federal office, and appropriated $30,000 for the biennium, 1935–37, and biennially thereafter, for matching Federal funds. The commissioner of education of Alaska came to Washington during the week of April 15, and the vocational staff assisted him in preparing the Territorial plan for vocational education, which was approved by the Territorial board of education, May 14, and by the United States Commissioner of Education, May 17, for the period beginning July 1, 1935, and ending June 30, 1937.

This acceptance of the Federal act, and compliance with all the provisions of the act, entitles Alaska to allotments under authoriza-

tion of the George-Ellzey Act for each of the fiscal years 1935, 1936, and 1937 of $5,000 for agricultural education, $5,000 for home-economics education, and $5,000 for trade and industrial education. On June 26 these amounts were certified for the current fiscal year for payment to the Territory in semiannual installments July 1, 1935, and January 1, 1936.

On May 23, 1935, a bill was introduced in the House (H. R. 8188) extending to Alaska the benefits of the Vocational Education Act of 1917, and of the Vocational Rehabilitation Act of 1920, and authorizing appropriations to Alaska under these acts—those for vocational education being additional to those authorized in the George-Ellzey Act. This bill was pending at the close of the fiscal year.

COOPERATIVE SERVICE TO THE STATES

Service and research to aid the States in building up their vocational programs operated under State plans have continued during the year past, as in other years. As a result of this cooperative Federal, State, and local effort, enrollments under these programs in vocational evening, part-time, and all-day classes have increased from year to year from 164,000 in 1918 to over 1,100,000 youths and adults of all ages in 1931 and in each of the years following. In the period, 1921 to 1934, some 68,000 physically handicapped dependent persons were vocationally rehabilitated and returned to employment, and at the beginning of the last fiscal year over 37,000 physically handicapped persons were on the rolls of the States in process of rehabilitation. Services rendered to the States during the past year, however, in the several fields of vocational education—agricultural, trade and industrial, commercial, and home economics—and in the field of vocational rehabilitation have dealt largely with emergency activities under recovery programs.

These activities have included extensive cooperation with emergency agencies for adult education, for relief of unemployment, for rural rehabilitation, for agricultural adjustment, for vocational training of unemployed workers, for safeguarding the welfare of the home in the case of families on relief, and for organizing nursery school centers to care for children in families where the homemaker is employed outside the home. In connection with these activities assistance has been rendered through advising with school officials and emergency agencies, in planning and adapting vocational courses to meet emergency needs—especially in developing emergency education programs for unemployed adults on relief and women in the homes of these workers.

The demands made upon the Federal staff for service in promoting these emergency recovery programs have developed without any cor-

responding lessening of the demands for services rendered, year in and year out, in promoting the established going programs of vocational education, and have been met without increase in permanent staff of the Office.

In all fields of vocational education regular services to the States have been continued through the year in visits to schools and teacher-training institutions, in individual and group conferences with State and local administrative staffs, in assisting in the development of State and local programs, and in organizing and conducting the regular annual regional conferences of State supervisors and teacher-training staffs on regional problems in the field of vocational education.

During the year a special survey of vocational teacher training was made for the State of Michigan in which the agricultural, trade and industrial, and home economics services of the Office cooperated.

Some specific services rendered in the several fields of vocational education may be briefly noted:

In the field of vocational agriculture.—Members of the Agricultural Education Service of the Office have worked with State supervisors and teacher trainers in setting up definite vocational programs in evening and part-time classes for out-of-school farm youth and adult farmers. The service has cooperated with the Federal Agricultural Adjustment Administration in developing material on agricultural adjustment and financing, and members of the staff have followed up this material in conferences with State supervisors, teacher trainers, and teachers. They have assisted in formulating plans for utilizing the material in all-day, part-time, and evening classes organized to keep farmers informed on new developments. As a result of these efforts instruction of this character has been given to more than 500,000 farmers and farm youth to enable them to manage their farming operations so as to bring them into better adjustment with changing conditions of agricultural production, marketing, and financing.

Early in the fiscal year the Commissioner of Education brought together a number of State supervisors and teacher trainers in agricultural education for a conference under the direction of the Assistant Commissioner for Vocational Education and the Chief of the Agricultural Education Service, with the objective of organizing the full strength of vocational education forces in agriculture in solving the problem of out-of-school farm youth. The response of State workers was immediate. Many local communities have been surveyed to determine the nature and dimensions of the local out-of-school farm youth problem, and many thousands of these youth have been brought together in part-time classes during the year

under regular and special teachers of agriculture to consider their individual problems, and provide training to meet these problems. Individual teachers report services rendered in their respective communities to from 50 to 400 out-of-school youth who have come to them for group instruction and individual assistance. These services have been rendered by teachers who have been carrying their regular full-time teaching loads with crowded schedules. Agents of the Federal staff have followed up and cooperated in promoting this work in the States.

In the field of trade and industrial education.—While the Trade and Industrial Service of the Office has been severely handicapped throughout the year by having one of its special agents assigned to the Federal Emergency Relief Administration, service to the States has been maintained to the greatest possible extent. In view of the reduced personnel some curtailment of the program was necessary, but service to the States was regarded as a matter of first importance, and the principal curtailment has been in the field of studies and investigations, and in the preparation of manuscripts for publication.

During the year special surveys of the need for trade and industrial education were conducted at Tampa, Fla.; in the State of Arizona; and in the city of Portland, Oreg. The Trade and Industrial Education Service cooperated with other services of the Division of Vocational Education in making a special survey of vocational teacher training for the State of Michigan.

In addition to and supplementing the regular work of the regional agents, special field service was rendered in a large number of States. In Virginia a foremanship program was successfully operated at Covington. Instructor training, including demonstrations for instructors and drill masters of fire departments, was conducted at the request of the State departments of education at Concord, N. H., and at Texarkana, Ark.

Special assistance for the improvement of industrial teacher-training programs was given in Massachusetts, New York, Pennsylvania, Tennessee, Minnesota, Texas, Wisconsin, Florida, and a number of other States.

In the field of commercial education.—Cooperative service to the States in the field of commercial education has included: Assisting the State of Wisconsin in maintaining conference classes for men in distributive occupations in some 15 cities, and planning for extension of this service to 32 cities of the State, and for appointing full-time itinerant teachers to conduct classes for small-store executives, salespeople, retail grocers, meat dealers, and others in distributive occupations; assisting the State of Missouri in initiating a program of part-time classes for salespeople employed in stores;

assisting the State of Mississippi in developing a part-time program for men in distributive occupations, especially for retailers and their employees in small towns; assisting the State of Massachusetts in planning the program for a commercial department in a vocational school to be carried out under the supervision of the Commercial Service of the Federal Office, with the intention of aiding other schools of the State in establishing similar classes; assisting the State of New York in developing a commercial education program for adults; and assisting the State of Pennsylvania in directing the revision of commercial curricula, and in the preparation of a handbook on organization and administration of commercial education.

In the field of home economics education.—In response to requests from the States, the staff of the home economics education service has assisted State departments in setting up programs of in-service training for home-economics teachers, in surveying local conditions and revising home-economics curricula to meet these conditions, and in surveying State programs of teacher training.

The service has worked with State officials and teacher trainers in promoting training for girls who have returned to school because of unemployment. In work for these groups emphasis has been given to the study of homemaking responsibilities through which girls and women can sell their services to others for monetary return. Thus the instruction serves two purposes—to prepare for homemaking and to lead to employment.

The service cooperated with the Women's Work Division of the Federal Emergency Relief Administration in the preparation of material for use by that office.

In conference with State staffs recommendations have been formulated for modifications of day-school programs under the George-Ellzey Act, thus making State and Federal funds serve a larger number of girls.

Assistance through regional, State, and local conferences and through preparation of material has been given toward the education of the consumer-buyer.

The staff has participated in conducting conferences of city supervisors in the development of urban home-economics programs.

A national conference of college home-management specialists was called by the Federal service to work on improving the preparation of vocational teachers in the field of home management.

A member of the staff assisted teacher-training institutions through evaluating their programs for graduate studies in the field of home-economics education.

In the field of vocational rehabilitation.—As in preceding years, the Rehabilitation Service has continued to extend to the States

cooperating in vocational rehabilitation such assistance as they needed and requested for the promotion of their work, and the development of more efficient methods of administration and case procedure.

As a part of the general program of assistance to the States, the Federal rehabilitation staff during the past fiscal year made surveys of the rehabilitation programs in three States—Iowa, Georgia, and Illinois. The reports of these surveys covered in an introductory section basic conditions under which the State rehabilitation department must operate in administration of the work—such as transportation facilities, travel barriers, and topography; geographical distribution of population; social conditions; economic conditions; and rehabilitation and related legislation. A second section of the survey report covered organization of the rehabilitation staff, location and number of district offices, office facilities, functions of the staff, qualifications of personnel, functions of the administrative board, and working agreements with other agencies. A third section dealt with the case-work program—including an analysis of cases rehabilitated, of cases closed as not rehabilitated, and of cases on the live roll at the time of the survey.

Detailed reports of these surveys were submitted to the State officers concerned and, subsequent to submission of the reports, conferences were held with the administrative officers and case-work staff of the States, to discuss the findings and to assist the States in such reorganization of their work as would make for more effective service to the handicapped.

A number of States have requested that similar surveys be made during the current fiscal year.

During the past year special services were requested by a number of the States, and the following services were rendered: Assistance in establishing local programs in Florida at Miami, Tampa, and Jacksonville, and in Ohio at Toledo; assistance in the conduct of State staff conferences in New York, New Jersey, Pennsylvania, Michigan, Illinois, Wisconsin, Ohio, California, Georgia, Oklahoma, and Kentucky; assistance in training new staff workers appointed in expansion of programs in a number of States; assistance to States in the development of supplementary programs of rehabilitation carried on through Federal Emergency Relief funds; assistance in the development of cooperative working relations with employment services in a number of the States; assistance in several of the States in planning and carrying on special studies and investigations—such as the taking of a census of the disabled in the State, the taking of a census of industries in the State to determine employment opportunities for the disabled, and studies for developing more effective methods of carrying on the rehabilitation work.

CONTRIBUTION TO RELIEF OF UNEMPLOYMENT

On occasion of approving the George-Ellzey Act authorizing additional appropriations for vocational education for the years 1935, 1936, and 1937, the President expressed the desire that funds made available to the States by the new act be used for the benefit of the unemployed. With exception of a provision in that act that part-time classes for employed workers operating for less than 144 hours per year might receive Federal aid, the requirements for approval of expenditures in the States for trade and industrial education were the same as those governing expenditures from funds granted to the States by the Smith-Hughes Act.

During the past 18 years definite policies have been established, and interpretations of the Smith-Hughes Act have been made to aid the States in the administration of their program. So far as the standards recommended in these policies were discretionary, and based upon interpretations of the Smith-Hughes Act, they have been reexamined to see what modifications might be made to bring them into conformity with the wish of the President. A conference of State officials was called in Washington in June 1934, and certain modified standards, interpretations, and definitions were agreed upon. These temporarily modified standards, after approval by the Commissioner of Education, were made known to the States in Miscellaneous 1715 and 1599. The evidence is conclusive that the modified rulings and interpretations have functioned as they were intended to function during the year, in making it easier for the States (1) to operate special classes for persons who were in need of vocational training to bring themselves up to date in their trades, and (2) to provide short units of training to meet the specific needs of unemployed persons generally.

It may fairly be stated that the entire program of trade and industrial education, carried on cooperatively between the Federal Government and the States, is one social agency for dealing effectively with the unemployment problem. The record shows that a very large percentage of graduates of full-time day-trade schools have been able to secure employment, even during the depression years. Where there has been a pronounced shortage of trained help locally, and where the school has limited its enrollment to persons in line for available employment, the placement record has been practically 100 percent. This type of school has in fact functioned generally to prevent unemployment in a fundamental way, by removing one of the basic causes of unemployment, namely, lack of training qualifying for employment in an available job.

Service to out-of-school groups, also, including adults who need vocational training to build up or maintain their employability, con-

tributes in an important way to solution of the unemployment problem. Many thousands of adults, by taking advantage of opportunities to receive appropriate vocational training, have been able to secure profitable employment during the past year. Adult retraining work has been conspicuously successful.

For home economics education, with its center of interest in the home, unemployment has developed difficult problems. One responsibility assumed by teachers of home economics has been to find out how home conditions were being affected locally by unemployment, and to bring vocational education into the home to meet conditions found, by safeguarding family health and welfare under these conditions. In the emergency situation home economics education has accordingly been developed in courses based upon surveys of individual family needs, and devised to meet these needs. The homemaker has been taught how to conserve and make the most of the meager resources of the family—how to make over old garments, renovate household furnishings, and buy economically.

The Federal staff has advised with State supervisors and school administrators in promoting cooperation with relief agencies. This cooperation has embraced planning courses for adult homemakers from families on relief, and preparing materials for use in such classes. Members of the staff have conducted conferences with teachers on adapting instruction given in regular day-school classes, and in classes organized for adults to meet the needs of unemployed and low-income groups, and of groups on relief. They have conducted conferences, also, on developing instruction to meet the needs of wage-earning girls and women working in homes, and for girls thrown out of employment by minimum age requirements set up under N. R. A. codes. They have prepared material on service jobs in the field of home economics and on consumer education.

In rural communities home economics teachers have cooperated with teachers of vocational agriculture in developing live-at-home programs—budgeting family needs for food, planning and planting home gardens to meet these needs, and preserving surplus fruits, vegetables, and meats for winter consumption.

Among the consequences of unemployment in urban industrial centers has been a back-flow of population into rural areas, a return to the farm of farm youth who had in other years found employment in urban communities, and a closing-up of avenues of employ ment for such youth in other fields than farming.

Vocational agriculture has functioned in this situation to establish in farming these youth, and urban families which in many instances have had little if any practical experience in farming for the market, or in farming or gardening for home consumption.

In the field of vocational agriculture relief of unemployment during the past year in its larger aspects has meant for the Federal staff, for State administrators and supervisors, and for agricultural teachers generally modification of programs and development of new lines of instruction to promote agricultural adjustment, rural rehabilitation, and subsistence homestead programs.

NEW PROBLEMS OF THE ALL-DAY AND PART-TIME SCHOOL VOCATIONAL PROGRAMS UNDER CHILD-LABOR LAWS

As was noted in the annual report for 1934, the elimination of child labor under State laws and N. R. A. codes fixing minimum ages of employment, and under policies adopted by employers, has created a gap in our educational system between the age of leaving school and the age of entering into regular wage-earning employment, and imposed upon our public-school system new and very large responsibilities.

Youth in the ages of 14 to 16 and 18 years, who are as a matter of public policy or industrial expediency excluded from entrance into regular employment, cannot be abandoned to complete idleness by local communities during the most critical habit-forming and character-forming period of adolescence. It follows that educational opportunities adapted to the needs of these youth must be generally provided to bridge the gap which has opened up between the years of school attendance and those of productive employment.

For several years past vocational programs have been in process of expansion and adaptation to meet the needs of these out-of-school out-of-work youth. In general the all-day and part-time vocational schools have been modifying and developing their programs to meet the needs of older groups—the all-day school to meet the needs of youth in full-time school attendance beyond the age of 14, to the ages of 16 to 18 years, and the part-time school to meet the needs of employed youth in more advanced ages. The problem of providing for the educational needs of these youth is one large phase of our "youth problem."

In this matter of adapting part-time school instruction to meet the needs of older youth, the Office of Education and State vocational staffs have a large responsibility, since one-third of the Federal funds appropriated to the States under the Smith-Hughes and George-Ellzey Acts for trade and industrial education, if used by the States, must be used for part-time schools.

APPRENTICE TRAINING

Apprenticeship was definitely recognized in the Smith-Hughes Act, and the Federal-State cooperative program of vocational education

in the industrial field was planned to meet the need in this country for skilled mechanics. For many years industries in this country had depended largely upon Europe to train their skilled artisans. The few apprentice training programs which were in operation in this country in 1917 amounted to very little except in a few cases, of which those conducted in railroad shops, navy yards, arsenals, and a few of the larger corporations may be cited as samples.

In the effort to extend employment for adult workers under N. R. A. codes opportunity to develop and operate apprentice training programs in industries and trades covered by the codes was for the time being eliminated. When, however, in 1934 it became apparent that there was an actual and prospective shortage of thoroughly trained skilled workers in these fields of employment, the President issued an Executive order which made it possible to organize apprentice training under the codes through granting certain exemptions from wage and hour provisions. The responsibility for carrying out this Executive order was assigned to the Secretary of Labor, and a Federal Committee on Apprentice Training was appointed. This committee consisted of one member and one alternate each from the N. R. A., the Department of Labor, and the Office of Education. Up to the time that the N. R. A. codes were invalidated by a decision of the Supreme Court, 44 State committees had been formed to administer apprentice training, but the number of apprentices actually indentured under the program was very small, except in the State of Wisconsin where the program was merely a continuation of what that State had been doing for many years.

Reports from the States show that throughout the country the promotion of the program of apprentice training is recognized as a major responsibility of State boards for vocational education in developing the cooperative Federal-State programs of vocational education.

As indicative of the status of apprentice training under the Smith-Hughes Act, it may be noted that 1,400 apprentices were in attendance during the past year at the Washburne Continuation and Apprentice School in Chicago; and that in Detroit 450 apprentices were in school 4 to 8 hours per week and at work the balance of the time. By adding to this figure for Detroit the number of cooperative students, a total of 948 is found as the number of young workers actually learning trades under an organized system of vocational training in the public vocational schools of the city and on the job.

Definite arrangements for extending and developing apprenticeship have been made in Massachusetts, New Jersey, New York, Maryland, Pennsylvania, Ohio, Michigan, Minnesota, Indiana, Virginia,

Florida, Mississippi, Texas, Colorado, California, Oregon, and a number of other States.

A survey of apprentice training made in 1931 indicated that there were at that time more than 31,000 apprentices or trade-school students receiving the equivalent of apprentice training. While exact data on the present status of apprenticeship under the Smith-Hughes Act are not available at this time, it is believed that for the country as a whole the number of apprentices is well over 50,000.

The need for systematic development of apprentice-training programs is particularly urgent in the field of commercial education. In our larger cities one-sixth of the young workers between the ages of 18 and 24 years are employed in distributive occupations, and at least 100,000 youth in the country as a whole are serving in the lower-level positions in retail stores. Apprentice training would greatly benefit those youth.

OCCUPATIONAL ADJUSTMENT TRAINING

In its report to the President last January, the Committee on Economic Security noted that "education, training, and vocational guidance are of major importance in obtaining economic security for the individual and the Nation." It declared with special emphasis that "the educational and vocational equipment of individuals is a major factor in their economic security", and added the following statement:

> It has become apparent particularly that education cannot be regarded as completed upon leaving school. * * * In a day and age of rapidly changing technics and market demands, many people will find it necessary to make adjustments long after they have first entered industry. Adjustment of our educational content and technic to this situation is a vital need in a long-range program for economic security.

In this sense vocational education, as it has developed under the Vocational Education Act of 1917, is one long-range social program for promoting the economic security of the worker.

It was in recognition of the vital need for adjustment of our educational content and technic to meet the needs of adult workers, that the act of 1917 provided that Federal funds appropriated to the States by the act for vocational education should be available for evening classes organized to give instruction to adult workers, "supplementary to their daily employment." Since such instruction must be supplementary to daily employment it is essentially occupational adjustment instruction.

Enrollments in such classes of all types—agricultural, trade and industrial, and home economics—totaled 370,000 in 1934, and there is no reason to expect that reports to the Office of Education from the States for 1935, when these reports become available, will show

any falling off of enrollments. Rather it is expected that reports for 1935 will show material increases over 1934 in enrollments of adult workers.

The total of 370,000 for 1934 included 140,000 trade and industrial workers, and 100,000 farmers enrolled in evening classes for instruction supplementary to their daily employment—that is to say, for instruction planned with the objective of promoting their economic security by enabling them to make the continuous occupational adjustments required by "rapidly changing technics and market demands." Finally the total for evening schools includes 129,000 women enrolled for instruction to enable them to safeguard and promote the welfare of the home under the rapidly changing conditions of home life.

By way of promoting occupational adjustment training, the Division of Vocational Education of the Office of Education issued during the past year a bulletin on Vocational Education and Changing Conditions, summarizing in part some results of an inquiry undertaken at the request of the American Vocational Association. In this publication the larger aspects of problems developing for vocational education in all fields out of recent economic and social changes are presented. A second publication dealing with these problems in more technical detail, as they present themselves to officials administering and supervising agricultural, trade and industrial, and home-economics vocational programs in the States and local communities, is in process of preparation. The evidence assembled in this inquiry justifies the conclusion that it is becoming increasingly difficult in the skilled trades for workers to learn the new technics of their trades on the job without expert assistance, and that opportunities for adults to secure systematic occupational adjustment training, where and as they need it to maintain their employability, are more essential today than they have been in any earlier period; that it is becoming increasingly difficult for the farmer to learn the new technics of farming without expert guidance in applying on the farm the results of scientific research in agriculture; and increasingly difficult for the homemaker to learn without such assistance the new technics of homemaking for health protection, child care, selection and preparation of food, and home management.

Workers in trade and industry must learn these new technics or pay the price of shifting to lower occupational levels, and eventually to the level of unemployability. Workers on the farm must learn the new technics of farming or pay the price of shifting to lower levels of economic welfare and even to the level of insolvency; and workers in the home must learn the new technics of homemaking in urban and rural communities or pay the price of shifting to lower levels of welfare in the home affecting all members of the household.

This need for occupational-adjustment training in all fields, which is rapidly becoming more urgent with the accelerating pace of invention and of scientific and technological advance, is being generally recognized in the States. In the State of Texas, for example, during the past year 231 evening trade-extension classes for men employed in one industry alone—the production and refining of petroleum—were operated as a part of the vocational program in 56 cities. These classes enrolled over 4,000 men from 82 different oil companies. In Oakland, Calif., 1,300 adults were enrolled in 18 different trades in one trade school of the city—the Central Trade School. In Massachusetts 3,515 individuals were given vocational training either full time or part time in new classes or departments in addition to 25,000 enrolled in the regular vocational program—all of these enrollees being unemployed and, except for the training provided, more or less unemployable. A class in Diesel-engine operation, maintenance, and repair was operated in Montana for a period of 3 months, with a long waiting list during all of the time of men from all sections of the State who wanted this training to help them keep up to date in their knowledge of internal-combustion engines. These typical instances may serve to illustrate the variety and scope of occupational-adjustment training being provided by the States in the trade and industrial field.

In the field of agriculture the demand for adjustment training has been met in the States by organization of evening classes for adult farmers dealing with problems of production adjustment, marketing, and farm financing. The prime objective of these evening agricultural courses is to promote the economic security of the farmer in the face of shifting market demands.

Home-economics instruction in evening classes organized for adults has been essentially occupational-adjustment training for home workers.

Special reports to the Office of Education during the past year from State directors and local school superintendents indicate that vocational directors, supervisors, teacher trainers, and teachers in every section of the country in all fields of vocational training have been actively promoting, organizing, and conducting classes for adult workers, employed and unemployed, to bring their occupational skills and technical qualifications into line with the changing requirements of industry, commerce, agriculture, and homemaking. As a result many thousands of unemployed workers have been brought back into employment; the job tenure of many thousands of employed workers has been rendered more secure; and the economic welfare of the farmer, and of homes in urban and rural communities has been improved.

COOPERATION WITH OTHER AGENCIES

The vocational education and vocational rehabilitation programs, initiated in 1917 and 1920, respectively, and consistently developed by subsequent legislation are fundamentally cooperative programs—fundamentally programs (1) for cooperating with the States in utilizing established State and local educational agencies for extension of educational service into the fields of vocational training and vocational rehabilitation of the physically disabled; and (2) for cooperating with other services of the Federal Government to aid the States in building up their vocational programs. In the emergency situation of the past few years, and more particularly of the last fiscal year, cooperative activities have embraced those of Federal, State, and local recovery agencies generally.

All vocational services of the Office of Education—agricultural, trade and industrial, home economics, and rehabilitation—have cooperated with the F. E. R. A. in promoting emergency vocational-education and rehabilitation programs for unemployed adults. These services have all cooperated in their respective fields with Federal emergency activities for relief of unemployment. They have cooperated with agencies organized specially to deal with the out-of-school unemployed youth problem in rural and urban communities.

The Agricultural Education Service has cooperated continuously throughout the year with the Agricultural Adjustment Administration in preparing material for teachers on production-adjustment programs and in following up this material with supervisors, teacher trainers, and teachers to insure its effective use in all-day, part-time, and evening classes. In cooperation with the Farm Credit Administration, the Agricultural Education Service has prepared a bulletin on Teaching Farm Credit for use of teachers in giving instruction on agricultural financing. Two specialists in agricultural education were brought to Washington to work with the agricultural staff in the Office in cooperation with the Civilian Conservation Corps educational authorities in developing course outlines for farm boys in C. C. C. camps. Teachers in the field located near these camps and near subsistence homestead communities have assisted the camp or homestead-educational programs. The service has cooperated extensively with soil conservation and rural rehabilitation agencies in providing counsel and assistance to individual rehabilitation clients and in organizing classes to meet the needs of such clients.

The Home Economics Education Service has cooperated with Federal, State, and local agencies, in rural rehabilitation work, in developing live-at-home programs, in organizing, recruiting, and conducting of emergency home-economics classes for adult women, in

establishing preschool centers, in training emergency teachers and parent-education workers, and in preparing and distributing material on consumer education for use of emergency workers in the field of home economics. In addition to these special cooperative activities in the emergency program, members of the home-economics service have served as members and chairmen of important committees of national organizations interested in promoting home welfare, such as the American Home Economics Association, the National Council of Parent Education, the National Congress of Parents and Teachers, the American Vocational Association, and the National Education Association.

The trade and industrial service has participated in many of these activities. Members of the staff have cooperated in the effort making under Federal, State, and local leadership to revive and develop home crafts generally and particularly for families in subsistence homestead communities. They have cooperated with emergency agencies for unemployment relief. As noted in connection with apprentice training, the chief of the Trade and Industrial Education Service has served throughout the year as representative of the Office of Education, together with representatives of the N. R. A. and the Department of Labor, on a committee appointed by the Secretary of Labor, to organize apprentice training under N. R. A. codes.

The Rehabilitation Service has continued during the past year to build up its cooperative relations with other agencies dealing with the disabled and operating in allied fields. Much of this cooperation is required under laws providing workmen's compensation and employment agency services. Under the Social Security Act the need for cooperation with agencies operating in the field of pensions, unemployment insurance, service to crippled children, service to the blind, and public-health activities will be greatly expanded. Funds made available by the F. E. R. A., for the year, for expanding and promoting in the States the service of vocational rehabilitation, amounting approximately to $840,000, have been administered by the established national and State agencies operating the regular program of vocational rehabilitation under the act of 1920, in close cooperation with the emergency education program of the F. E. R. A. Although these developments tend to complicate the rehabilitation problem, they materially increase its effectiveness.

NEED FOR ADDITIONAL FEDERAL APPROPRIATIONS

During the past year Congress has given consideration to the need for additional appropriations to the States for the promotion of vocational education and vocational rehabilitation of the physically disabled. It has had under consideration bills increasing authoriza-

tions of appropriations in the several fields of vocational education, partly to meet emergency needs and partly to provide for developing the permanent program of vocational education.

It is recognized that the rural areas of the United States are facing an emergency situation, that farmers in every section of the country are confronted with difficult problems of agricultural adjustment, farm financing, production control, shifting markets, and reduced incomes, and that these conditions call for an expanded vocational program in rural areas. Changing conditions on the farm and in urban and rural homes are presenting many new problems for adjustment. The unemployment situation in both urban and rural communities has created an emergency need for expansion of vocational programs in all fields of vocational training to prevent the unemployed from becoming permanently unemployable and dependent on relief measures, and to provide educational facilities for unadjusted out-of-school youth. At the same time it has become apparent that many States and most rural communities are unable to finance the needed expansion of vocational programs for farmers, industrial workers, homemakers, and unemployed youth.

The requirement that Federal funds appropriated to the States for vocational education shall be matched, dollar for dollar, with State or local funds has worked to restrict the development of vocational programs to those communities which were financially able to provide matching funds and to deprive communities unable to provide such funds of the benefits of vocational programs—to deprive, that is to say, communities which in many instances are precisely those in which the need for vocational education facilities is most urgent.

In this situation it has been proposed to provide additional appropriations for vocational education and to make these appropriations available in part over a period of years without matching with State or local funds. Additional appropriations have been proposed also to provide for some of the expanding needs of the permanent vocational program.

The need for additional Federal funds in the field of vocational rehabilitation has been recognized in the Social Security Act, which provides additional appropriations for this service. The States are at present in a position to absorb about $1,500,000 of Federal aid for vocational rehabilitation. Sessions of the State legislatures which were held during the past winter and spring in many instances increased appropriations for rehabilitation. In a few of the States appropriations were held to what they were for the past biennium. In none of the States were the funds decreased. Following the passage of the Social Security Act, special sessions of the legislature will be held in a number of the States, and on the

basis of past experience in the development of the program it may be assumed that the cooperating States will be in a position to absorb an additional million dollars of Federal money in the next 2 or 3 years. This amount of money, together with the State and local funds will not, however, be adequate to meet the rehabilitation problem. The future development of the rehabilitation program will be largely dependent on the degree to which the Federal Government participates.

For reasons that appealed to the 1914 Commission on National Aid to Vocational Education, the Smith-Hughes Act of 1917 did not provide Federal aid to the States for occupations in the field of commerce as in other vocational fields. The need for more adequate vocational-training programs for those engaged in distributive occupations is becoming urgent. Small-store operators and other commercial workers are now demanding classes in which they and their employees can be taught more efficient methods and practices. According to the Census Reports about one-tenth of the workers between 18 and 24 annually enter distributive occupations without any preparatory or supplementary vocational training. It is now being realized that vocational training in the field of commerce to promote efficient distribution of the products of farms and factories is as essential to the economic welfare of the country as vocational training in other fields.

LEGISLATION IN THE STATES

During the past year, and in provisions for the current year, the States have continued their appropriations in support of vocational-education and vocational-rehabilitation programs. In some instances States and local appropriations, which had been reduced under the pressure for economy have been restored or increased. Alaska accepted the vocational-education act, and submitted its plan for developing a vocational-education program. Hawaii provided for initiation of a program of vocational rehabilitation. Two States, Florida and South Carolina, enacted compensation legislation which will increase the efficacy of rehabilitation work in these States, and, in addition, a number of States enacted legislation, in the fields of social welfare and employment, of material value for the rehabilitation program.

RESEARCH AND PUBLICATIONS

During the year work continued in compilation of the results of the inquiry undertaken at the request of the American Vocational Association on Vocational Education and Changing Conditions. One bulletin (no. 174), summarizing some results of this inquiry has been issued, and provisional copy for a second publication under this

general title, covering modifications required in vocational programs for wage-earning occupations to bring them into line with changing economic and social conditions, has been distributed to State directors with the request that it be reviewed by their supervisory and teacher-training staffs.

A summary of studies in agricultural education which was undertaken jointly by the Agricultural Education Service and the agricultural section of the American Vocational Association was completed during the year, and summaries of 373 studies will be published by the Office as a bulletin of the Agricultural Service. The research specialist in this service is cooperating with a regional group of teachers in the conduct of a study of supervised-farm practice. As an experimental procedure which may be followed at other institutions, this specialist held advisory conferences for a period of 1 week during the year with teachers working on problems in agriculture, at the summer-school session of one institution. A study was in progress of the activities of teachers of agriculture in connection with emergency and certain long-time programs related to agriculture.

In the Trade and Industrial Education Service two studies in the field of vocational training for the aviation industry were initiated, and will be published during the current fiscal year. One of these studies deals with training for sheet-metal workers in the industry. The second, making a general survey of the entire field of aviation and of different types of courses related to the industry, is being prepared for the general reader rather than those concerned chiefly with technical details.

The home-economics staff has worked with State groups and institutions requesting assistance in making surveys and studies for curriculum revision. A member of the staff has served as chairman of a committee on graduate work, which is studying the graduate program in home-economics education and needs for research in this field. Graduate studies in home-economics education at colleges and universities have been listed and indexed, and studies completed since 1930–31 have been abstracted. Bulletins representing extended research on Rooms and Equipment for Instruction in Homemaking and Consumer-Buying in the Educational Program for Homemaking were prepared.

The Commercial Education Service has made substantial progress toward the completion of manuscripts on changes in commercial occupations in relation to high-school commercial courses, and on the teaching of retail selling in high schools. These bulletins will be published this coming year.

During the year a manual for procedure in the conduct of rehabilitating case work, which had been prepared during the preceding year, was published. Research projects in the field of vocational rehabilitation included comprehensive surveys of State rehabilitation programs in 3 States—Iowa, Georgia, and Illinois, as already noted—revision of 2 bulletins, and preparation of a bulletin on a Procedure for the Survey of a State Program of Vocational Rehabilitation, and of a miscellaneous publication on Opportunities for Employment of the Physically Handicapped Under the United States Civil Service.

Principal publications for the year include, in addition to regular reports of regional conferences, the following:

GENERAL

Misc. 1615. Digest of annual reports of State boards for vocational education to the Office of Education, Division of Vocational Education, for the year ended June 30, 1934.

Misc. 1623. Vocational education and unemployment. Examples of how vocational education funds are being used for the relief of unemployment. Compiled for State and local vocational staffs to aid them in further promotion of unemployment relief.

Misc. 1573. Vocational education in the United States. Report presented by the Assistant Commissioner for Vocational Education at the second conference of the Inter-American Federation of Education meeting in Santiago, Chile, September 9–16, 1934.

C. L. 1697. Anticipated utilization of Federal funds under State vocational programs in the year ending June 30, 1936, as reported to the Federal office by State directors of vocational education.

AGRICULTURAL EDUCATION

Bulletin No. 178. Teaching farm credit. A discussion of principles and practice together with suggestions to teachers, based on illustrative cases.

Bulletin No. 180. Summaries of studies in agricultural education. An annotated bibliography of 374 studies in agricultural education with a classified subject index and a general evaluation.

Misc. 1590. Report of conference on out-of-school farm youth.

TRADE AND INDUSTRIAL EDUCATION

Bulletin No. 106. Stone setting. The setting of cut-stone trim in brick buildings (revised).

Bulletin No. 128. Bibliography on foreman improvement. A selected and annotated list of references including books, pamphlets, and magazine articles (revised).

Misc. 1599. New definitions and interpretations affecting trade and industrial education.

Misc. 1613. Vocational training for household employment.

Misc. 1586. Apprentice training under N. R. A. codes. A discussion of the organization of related, technical, and general instruction for apprentices.

Misc. 1580. Report of conference on new problems in trade and industrial education.

State compulsory school attendance standards affecting the employment of minors. State child-labor standards. (Material prepared by the Children's Bureau of the U. S. Department of Labor.)

Report of conference to study problems of industrial-youth organizations.

HOME ECONOMICS EDUCATION

Bulletin No. 179. A bibliography of studies of the home-economics curriculum. Studies reported during the period 1926 to May 1934. Prepared by a committee of the home economics section, Association of Land Grant Colleges and Universities.

Bulletin No. 181. Planning and furnishing rooms for instruction in homemaking. A guide in the selection, arrangement, and use of space and equipment.

Misc. 1163. Studies and research in home-economics education reported by colleges and universities, with supplement indicating studies reported in published form (revised January 1935).

Misc. 1607. An annotated bibliography on adult education for home-economics programs.

Misc. 1569. Vocational-education program in cooperation with the emergency relief (home-economics education).

Misc. 1603. The home-economics program and parent education.

Misc. 1567. Curriculum construction (home-economics education).

Misc. 1568. Consumer education.

Misc. 1635. A study of supervision as it related to improvement of home-economics teachers in service in the vocational departments of Indiana high schools: 1931–35.

VOCATIONAL REHABILITATION

Bulletin No. 161. Organization and administration of a State program of vocational rehabilitation. A discussion of principles and methods involved in the organization and administration of a State program of vocational rehabilitation (revised).

Bulletin No. 148. Vocational guidance in rehabilitation service. A manual of procedure for counseling and advising physically handicapped persons and assisting them in adjusting or readjusting themselves to vocational life.

Misc. 1040. Opportunities for the employment of the handicapped under United States civil service.

APPROPRIATIONS: 1935 AND 1936

Appropriations under the several vocational-education and vocational-rehabilitation acts for 1935 and 1936, for research and service to aid the States and administration of the acts, are shown in table 1; totals of appropriations to the States and Territories under these acts in table 2; and allotments to the States and Territories in table 3.

Appropriations for research, service, and administration which had been reduced in 1933 and 1934 under the economy acts, were in somewhat larger amounts in 1935, and were further increased for the current year 1936.

TABLE 1.—*Appropriations for research and service to aid the States and for administration: 1935, 1936*

Act	1935	1936
Smith-Hughes Act	$180,000	$192,000
George-Ellzey Act	60,000	64,000
Rehabilitation Act	58,000	63,500

Appropriations to the States under the Smith-Hughes Act, which, also, had been reduced under the economy acts for 1933 and 1934, were restored in 1935 to the basic appropriations provided in the act. Similar restorations were made in appropriations for Hawaii, Puerto Rico, and the District of Columbia, and the full amounts authorized to be appropriated under the George-Ellzey Act were appropriated for 1935. These appropriations to the States under the several acts have all been provided in the same amounts for the current fiscal year 1936 as for 1935.

TABLE 2.—*Appropriations for allotment to the States and Territories for vocational education and vocational rehabilitation: 1935, 1936*

Act	Appropriation
Smith-Hughes Act:	
Total	$7,167,000.00
Vocational agriculture	3,027,000.00
Vocational trade, industry, and home economics	3,050,000.00
Vocational teacher training	1,090,000.00
George-Ellzey Act:	
Total	3,084,603.00
Vocational agriculture	1,031,019.75
Vocational trade and industry	1,032,191.60
Vocational home economics	1,021,391.65
Vocational Rehabilitation Act	1,097,000.00
Hawaii	30,000.00
Puerto Rico	105,000.00
District of Columbia	15,000.00

TABLE 3.—*Allotments of Federal money to the States and Territories for vocational education and vocational rehabilitation, years ending June 30, 1935 and 1936*

State or Territory	Smith-Hughes Act				George-Ellzey Act				Vocational rehabilitation act
	Total	Vocational agricultural education	Vocational trade, industrial, and home economics education	Vocational teacher-training	Total	Vocational agricultural education	Vocational trade and industrial education	Vocational home economics education	
Total	[1] $7,157,977.62	[1] $3,018,853.83	[1] $3,049,265.27	[1] $1,089,858.52	$3,084,603.00	$1,031,019.75	$1,032,191.60	$1,021,391.65	$1,089,858.52
Alabama	160,268.82	106,018.23	32,611.15	21,639.44	93,135.83	43,759.65	14,181.83	35,194.35	21,638.44
Arizona	35,926.19	15,926.19	10,000.00	10,000.00	15,286.94	5,000.00	5,000.00	5,286.94	10,000.00
Arkansas	113,969.95	82,028.87	16,776.23	15,164.85	71,762.61	36,550.17	7,981.72	27,230.72	15,164.85
California	313,266.41	84,540.06	182,301.17	46,425.18	103,235.99	20,259.34	54,912.31	28,064.34	46,425.18
Colorado	61,536.56	28,757.35	22,779.21	10,000.00	26,957.25	9,234.22	8,176.60	9,546.43	10,000.00
Connecticut	89,214.52	26,484.45	49,589.77	13,140.30	30,299.37	5,000.00	16,507.46	8,791.91	13,140.30
Delaware	30,000.00	10,000.00	10,000.00	10,000.00	15,000.00	5,000.00	5,000.00	5,000.00	10,000.00
Florida	84,785.54	39,488.86	33,290.52	12,006.16	35,131.68	9,108.65	12,914.11	13,108.92	12,006.16
Georgia	175,228.68	112,207.67	39,236.98	23,784.03	99,743.24	46,314.07	16,180.15	37,249.02	23,784.03
Idaho	37,587.72	17,587.72	10,000.00	10,000.00	16,988.57	6,150.06	5,000.00	5,838.51	10,000.00
Illinois	420,534.11	111,199.48	246,935.68	62,398.95	141,551.42	32,625.19	72,011.89	36,914.34	62,398.95
Indiana	185,584.34	80,412.77	78,689.02	26,482.55	79,577.66	26,544.44	26,338.99	26,694.23	26,482.55
Iowa	146,260.73	83,146.09	42,908.77	20,205.87	75,743.10	31,928.34	16,213.17	27,601.59	20,205.87
Kansas	111,527.42	64,167.24	31,978.49	15,381.69	57,137.61	23,089.74	12,746.59	21,301.28	15,381.69
Kentucky	157,592.30	101,201.53	35,010.22	21,380.55	87,624.79	38,413.16	15,616.26	33,595.37	21,380.55
Louisiana	124,390.87	70,683.15	36,522.14	17,185.58	64,385.30	27,119.04	13,801.93	23,464.33	17,185.58
Maine	50,615.30	26,528.15	14,087.15	10,000.00	21,191.88	5,582.94	6,802.52	8,806.42	10,000.00
Maryland	92,659.43	36,602.80	42,714.98	13,341.65	35,042.23	7,752.87	15,138.51	12,150.85	13,341.65
Massachusetts	225,939.31	23,310.27	167,878.22	34,750.82	57,547.23	5,000.00	44,809.04	7,738.19	34,750.82
Michigan	270,137.03	85,855.27	144,684.11	39,597.65	98,133.56	25,544.93	44,087.68	28,500.95	39,597.65
Minnesota	148,887.03	72,816.70	55,103.85	20,966.48	71,525.22	29,232.88	18,119.74	24,172.60	20,966.48
Mississippi	124,424.02	93,141.81	14,847.09	16,435.12	82,441.92	44,496.42	7,025.68	30,919.82	16,435.12
Missouri	209,813.81	98,675.62	81,459.38	29,678.81	96,454.11	36,387.58	27,309.67	32,756.86	29,678.81
Montana	39,875.61	19,875.61	10,000.00	10,000.00	18,277.94	6,679.93	5,000.00	6,598.01	10,000.00
Nebraska	82,280.54	49,713.06	21,299.32	11,268.16	44,229.32	19,122.97	8,603.35	16,503.00	11,268.16
Nevada	30,000.00	10,000.00	10,000.00	10,000.00	15,000.00	5,000.00	5,000.00	5,000.00	10,000.00
New Hampshire	32,679.49	10,714.23	11,965.26	10,000.00	15,000.00	5,000.00	5,000.00	5,000.00	10,000.00
New Jersey	218,495.63	39,135.29	146,312.71	33,047.63	60,453.69	5,000.00	42,462.14	12,991.55	33,047.63
New Mexico	37,642.12	17,642.12	10,000.00	10,000.00	16,035.83	5,179.26	5,000.00	5,856.57	10,000.00
New York	679,136.35	115,167.53	461,031.10	102,937.72	190,615.77	23,505.47	128,873.71	38,231.59	102,937.72
North Carolina	192,981.96	131,572.98	35,484.35	25,924.63	112,967.34	52,236.85	17,052.86	43,677.63	25,924.63
North Dakota	51,635.26	31,635.26	10,000.00	10,000.00	28,473.33	12,971.53	5,000.00	10,501.80	10,000.00
Ohio	371,096.69	119,248.45	197,495.50	54,352.74	133,843.01	33,081.63	61,175.07	39,586.31	54,352.74
Oklahoma	143,352.81	87,756.55	36,002.87	19,593.39	77,466.22	33,435.59	14,898.52	29,132.11	19,593.39
Oregon	57,324.88	25,866.11	21,458.77	10,000.00	23,817.83	7,302.66	7,928.52	8,586.65	10,000.00

Pennsylvania	537,709.58	172,677.04	286,273.09	78,759.45	180,579.47	27,970.81	95,285.92	57,322.74	78,759.45
Rhode Island	47,842.03	10,000.00	27,842.03	10,000.00	17,286.75	5,000.00	7,286.75	5,000.00	10,000.00
South Carolina	106,714.19	76,236.31	16,259.29	14,218.59	64,159.77	29,922.51	8,929.47	25,367.79	14,218.59
South Dakota	51,323.28	31,323.28	10,000.00	10,000.00	28,138.31	12,740.08	5,000.00	10,398.23	10,000.00
Tennessee	156,555.22	95,875.76	39,282.82	21,396.64	86,726.44	39,684.15	15,214.90	31,827.39	21,396.64
Texas	343,814.26	191,491.24	104,691.96	47,631.06	178,077.40	76,800.99	37,708.02	63,568.39	47,631.06
Utah	35,132.76	13,466.11	11,666.65	10,000.00	15,000.00	5,000.00	5,000.00	5,000.00	10,000.00
Vermont	33,424.97	13,424.97	10,000.00	10,000.00	15,000.00	5,000.00	5,000.00	5,000.00	10,000.00
Virginia	145,433.63	91,209.99	34,419.18	19,804.46	77,295.40	31,041.94	15,974.93	30,278.53	19,804.46
Washington	89,381.85	37,840.26	38,757.07	12,784.52	36,179.26	9,949.57	13,668.05	12,561.64	12,784.52
West Virginia	104,667.06	68,990.85	21,535.80	14,140.41	51,466.78	14,663.44	13,900.79	22,902.55	14,140.41
Wisconsin	169,327.36	77,210.55	68,083.37	24,033.44	76,745.11	28,766.16	22,347.75	25,631.20	24,033.44
Wyoming	30,000.00	10,000.00	10,000.00	10,000.00	15,000.00	5,000.00	5,000.00	5,000.00	10,000.00
Alaska					15,000.00	5,000.00	5,000.00	5,000.00	
Hawaii	30,000.00	10,000.00	10,000.00	10,000.00	15,870.52	5,870.52	5,000.00	5,000.00	
Puerto Rico	105,000.00	30,000.00	[2] 60,000.00	15,000.00					

[1] The allotments to Hawaii and Puerto Rico are not included in the totals under the Smith-Hughes Act.
[2] Trade and industrial education, $30,000; home economics education, $30,000.

GENERAL EDUCATION BOARD

(L. M. Dashiell, Treasurer)

This corporation, which was created by an act of Congress approved January 12, 1903, section 6 of which requires the corporation to file annually with the Secretary of the Interior a report, in writing, stating in detail the property, real and personal, held by the corporation and the expenditure or other use or disposition of the same or the income thereof during the preceding year, has for its object the promotion of education within the United States.

On June 30, 1935, principal fund, belonging without restriction to the Board, amounted to $44,415,140.50. This fund is invested in stocks and bonds. In addition the sum of $11,597,952.21 is reserved to pay appropriations to various educational institutions. This fund is also invested in stocks and bonds. Lapses and refunds on prior years' appropriations amounted to $1,250,000 and $470, respectively. The sum of $499,729.20 was paid during the year ended June 30, 1935.

Appropriations from income during the year aggregated $4,994,-150.03. Lapses on account of prior years' appropriations amounted to $741,673.71, however, leaving a net increase in income appropriations of $4,252,471.32.

The income from the above funds, together with income from undisbursed income (and including the sum of $142.85 received on account of income from the estate of Lucy M. Spelman), amounted during the year to $2,525,124.35. The balance of income from the previous year as of June 30, 1934, amounted to $11,334,932.44, together with sundry refunds amounting to $71,561.84, which increased the total to $13,860,056.79.

Disbursements from income during the year were as follows:

Whites:		
Colleges of liberal arts: General endowment, buildings, and other purposes		$328,988.23
Science of education:		
Schools of education	$353,426.90	
Special projects	261,149.14	
		614,576.04
Natural sciences		12,931.56
Medical sciences:		
Schools of medicine	248,000.00	
Special projects	16,156.15	
		264,156.15

Whites—Continued.			
Humanities		$150,232.41	
Public education:			
Fellowships	$43,402.14		
Special divisions in State departments of education	168,881.13		
Teacher training	33,262.14		
Library training	34,050.00		
Studies	24,172.36		
Other purposes	7,000.00		
		310,767.77	
Miscellaneous		161,951.70	
General education		172,529.55	
Child growth and development		160,586.89	
Training of personnel for the advancement of knowledge		109,680.53	
			$2,286,400.83
Negroes:			
Colleges and schools: General endowment, buildings, and other purposes		515,449.85	
Social sciences		12,500.00	
Medical sciences:			
Schools of medicine	$167,476.34		
Special projects	7,067.94		
		174,544.28	
Public education:			
Summer schools	3,889.53		
Anna T. Jeanes foundation	32,500.00		
John F. Slater fund	37,500.00		
Rural-school agents	128,585.43		
Fellowships	66,229.12		
Special divisions in State departments of education	1,500.00		
Other purposes	5,372.52		
		275,576.60	
Miscellaneous		4,994.54	
			983,065.27
Surveys and studies			19,839.23
Miscellaneous projects			5,384.22
Administration			304,751.75
			3,599,441.30

This leaves an undisbursed balance of income on June 30, 1935, of $10,260,615.49, which is invested as follows: Securities, $4,961,906.89; certificates of deposit, $3,500.000; cash on deposit, $1,367,719.04, and accounts receivable, net, $430,989.56. It should be noted, however, that against this balance of $10,260,615.49 there are unpaid appropriations amounting to $9,233,709.30, leaving unappropriated income amounting to $1,026,906.19.

The Anna T. Jeanes Fund, the principal and interest of which are to be used for Negro rural schools, amounted, on June 30, 1935,

to $107,744.16. This sum is invested as follows: Bonds, $82,839.16; stocks, $16,645; and cash on deposit, $8,260. During the year the sum of $50,000 was appropriated from principal, which added to the balance unpaid June 30, 1934, totaled $52,997.50, which was paid in full during the year.

The income from this fund during the year was $5,112. Added to the balance from previous year of $6,007.77, the total available income amounted to $11,119.77. The sum of $5,815 was paid, leaving $5,304.77 accounted for in cash on deposit. Of this balance of $5,815 there were unpaid appropriations of $2,450, leaving $2,854.77 available for appropriation.

BUREAU OF MINES

(John W. Finch, Director)

The Bureau of Mines is primarily a field organization, and although its administrative offices are in Washington its investigations of methods of producing, treating, and utilizing ores, fuels, and nonmetals and its safety training are conducted in the country's principal mining centers and, as needed, at individual establishments.

The Bureau comprises four branches, which were designated Technologic, Economics, Health and Safety, and Administrative during the past year.

The Technologic Branch covers a broad field of research on problems affecting the mining, metallurgical, and petroleum industries and includes the Mining, Metallurgical, Petroleum and Natural Gas, Experiment Stations, and Explosives Divisions.

The Economics Branch compiles and issues data on various economic problems, including statistics on the production and value of minerals. During the fiscal year 1935 it consisted of the Coal, Mineral Statistics, Petroleum Economics, Rare Metals and Nonmetals, and Common Metals Divisions, but on July 1, 1935, was reorganized as the Economics and Statistics Branch and will include the Coal Economics, Petroleum Economics, Metals and Nonmetals, Foreign Mineral Service, and Mineral Resources and Economics Divisions.

The Health and Safety Branch, which studies and endeavors to reduce hazards to workers in the mineral industries, during 1935 functioned in two divisions, Safety and Demographical, the Health Division having been recessed due to lack of funds. On July 1, 1935, the Demographical Division became the Section of Employment Statistics of the Economics and Statistics Branch. Some of the activities of the Health Division will be revived as funds permit.

The Administrative Branch has two divisions—Office Administration and Information. It handles routine administrative matters, such as personnel, clerical assignment, and multigraphing, and is responsible for the editing and distribution of publications and motion-picture films. The Assistant to the Director of the Bureau also acts as chief of the Administrative Branch.

SUMMARY

The following review of Bureau of Mines activities in the fiscal year 1935 discloses a creditable return on an investment of $1,511,047.76. New processes have been devised and turned over to the mineral industries, information on the production and distribution of the major minerals has been supplied promptly, and the number of persons who completed safety-training courses increased nearly 40 percent.

Technologic Branch.—Twenty-five electric devices for use in mines passed permissibility tests conducted under supervision of the Mechanical Division. The division continued to aid Federal agencies in suggesting ways for efficient utilization of fuel. Nearly 9,600 samples of coal and coke were analyzed, and the Bureau's coal-sampling truck collected samples at 41 hard-coal breakers in Pennsylvania in cooperation with the Anthracite Institute. The petrographic study of American coals was continued, and data on carbonization products from 30 such coals were published.

The Mining Division assisted operators of small gold and silver mines in solving operating problems. Subterranean water supplies were located in Nevada drought areas by geophysical prospecting methods. Three papers on sand and gravel excavation were prepared. An index of the division's 258 information circulars on mining and milling methods was compiled, an important bulletin on lead was issued, and 14 information circulars were published, as well as the monthly Geophysical Abstracts.

The Metallurgical Division succeeded in developing new methods for agglomeration and flotation of ores, made advances in magnetic separation of minerals, and was able to demonstrate on a pilot-plant scale the reduction of iron ore by natural gas and conversion of this iron into steel by direct melting. The mineral forms of the phosphorus occurring in Alabama red iron ores have been studied. Progress has been made in the explosion shattering of minerals.

The Petroleum and Natural-Gas Division prepared special reports for the Subcommittee on Petroleum Investigation of the House. A gas-saturated oil from Crescent pool, Oklahoma, two commercial repressuring projects (1 in Kentucky and 1 in Oklahoma), and output and input characteristics of Texas Panhandle natural-gas wells were investigated. Special problems were handled for the States of Kansas and Michigan. A bulletin describing manufacture of paraffin wax was completed. Tabulated analyses of Texas and Louisiana crudes were issued. The Amarillo Helium Plant produced over 10,000,000 cubic feet of helium, including 320,000 for the United States Army-National Geographic Society stratosphere flight.

During the year the Experiment Stations Division supervised the work of the Bureau's 11 experiment stations in American mining

centers. The Mississippi Valley Station devised a method of separating sylvite from halite, thus producing fertilizer at lower cost than by the present process. The Nonmetallic Minerals Station developed a scheme for retarding the setting of cement, and the Southern Experiment Station showed how high-grade barite concentrates could be produced from various ores. The Northwest Station has been finding new uses for Washington talcs and soapstones, and has made washing studies of Pacific Northwest coals. A hydrogen sulphide detector was developed, principally for use in the petroleum industry. Eighteen values for limits of inflammability of gases or vapors were determined. Thermodynamic functions were calculated for a number of hydrocarbons and for several other substances. Three hose masks and seven respirators were approved, and numerous extensions of approval were granted.

The Explosives Division added 35 explosives to the active permissible list and transferred 17 to the inactive list. It cooperated with the United States Forest Service in devising specifications for explosives to be used in forestry and road building.

Office of chief mining engineer.—The cause of a series of "bumps" in the Cumberland Mountain coal field (Kentucky and Virginia) was investigated and changes in mining methods proposed to avoid recurrence. A survey of potash-mining methods on Government leases in New Mexico was conducted. A few coal-dust explosion demonstrations were held at the experimental mine.

Economics Branch.—In the Economics Branch of the Coal Division continued to speed up the work of reporting promptly to producers, distributors, and consumers data concerning the supply of and demand for coal and coke. The division supplied much information to the Bituminous Coal Code Authority. The annual peat convass (recessed since 1926) was resumed. During the year 43,400 requests for service were handled.

The Mineral Statistics Division was responsible for compilation of the Minerals Yearbook, an annual volume of data on production, consumption, and distribution of mineral commodities. Work was done to correlate data on man-hours worked and production for 22 minerals. The division made more than 100 annual statistical surveys of important minerals.

The Petroleum Economics Division resumed the national survey of fuel-oil distribution, discontinued in 1931. It made monthly forecasts of the demand for gasoline and crude oil, in addition to its usual fact-finding work on the production and distribution of petroleum products.

The Rare Metals and Nonmetals Division published a number of reports on various mineral commodities and made horizontal studies of minerals by consuming industries. The division maintained lists

of buyers and sellers of rare metals and nonmetals and distributed them on request. Progress was registered in forecasting the demand for minerals.

The Common Metals Division assisted the Tin Investigating Committee of the House and prepared world charts on 15 strategic minerals for the War and Navy Departments. Eleven chapters were written for the Minerals Yearbook. Data were assembled on prices of gold and silver.

The office of the principal mineralogist prepared four chapters for the Minerals Yearbook and answered nearly 1,500 letters on mineral subjects.

Health and Safety Branch.—The Safety Division, Health and Safety Branch, trained over 77,000 persons in first-aid methods during the fiscal year. In addition, 1,132 temporary first-aid instructors' certificates were issued to men who had trained groups under Bureau supervision. Members of the Division personnel attended 448 meetings of Holmes safety chapters and 962 other safety meetings. Seventy manuscripts on topics in the division's field were prepared during the year.

Routine questions on health were handled within the branch, although the Health Division has been recessed for 2 years.

The Demographical Division assembled data on accidents in the mineral industries and noted a general reduction in accident rates. It conducted the annual safety contest, participated in by 334 mines and quarries. Statistics were compiled on the production and consumption of explosives.

Administrative Branch.—The Office Administration Division handled matters of administrative routine during the year. The Bureau personnel numbered 523 permanent and 89 part-time employees. The property of the Bureau, with acquisitions during the year, was valued at nearly 4 million dollars.

The Information Division distributed over 430,000 free publications of the Bureau during the year, answered 61,000 letters of inquiry on general subjects, edited 410 manuscripts, and prepared several hundred illustrations for Bureau publications. Motion-picture films produced under supervision of the division were shown to a total audience of nearly 5 million persons.

Bureau of Mines Advisory Board.—During the year an Advisory Board to confer with the Director on matters of Bureau policy was appointed by the Secretary of the Interior. Its 30 members represent the main mineral industries and the principal mining and labor organizations. The purpose of the Board is to place the Bureau into direct contact with industry, to impart a better understanding of the Bureau's functions, and to give it the benefit of

suggestions by the Board that might guide its activities toward a more effective service.

An all-day meeting was held in Washington, April 15, 1935, at which the work of the Bureau was fully explained. Useful recommendations were made by the Board, and standing committees were appointed to work with the Director on special problems.

FUTURE NEEDS

The branches and divisions comprising the Bureau as they report upon past services point out the need of additional work believed to be of great value in building a sound foundation for future orderly development of our mineral industries. An increase in appropriations has been made for 1936, but is inadequate to support all the useful activities that should be carried on.

The needs of the Technologic Branch are varied to meet the demands of the industries. They call for enlarged laboratory facilities at strategic centers, such as Salt Lake City, Utah, College Park, Md., and Tuscaloosa, Ala.; and, to keep step with the advancing technology of petroleum and natural gas, modernized buildings and equipment are needed at the Petroleum Experiment Stations at Bartlesville, Okla., and Laramie, Wyo. Facilities for the study of factors that may influence the action of explosives should be provided at Pittsburgh. Also at that station the development of additional outlets for the use of coal and its byproducts is an important research project. Many States are requesting assistance in applying geophysical methods of prospecting, which already have proved their usefulness in locating favorable areas for mineral exploration and underground water in desert regions. Operators of small metal mines are bringing increasing numbers of problems to the Mining Division.

The Metallugical Division aims to prove that pilot-plant tests of some of its processes will demonstrate the economy and efficiency forecast by laboratory experiments. Air-conditioning of mines is an appealing humanitarian study that promises to become an economic necessity as mines increase in depth. Preliminary research on pollution of the atmosphere and of streams by fine particles and chemical solutions indicates the need for further investigation. Improved methods of extinguishing mine fires should be found. An ever-growing number of letters and publications are necessary to answer the great variety of questions from the industry.

Investigations in the experimental mine should also be extended so that mine operators can be shown the causes and methods of prevention of mine disasters and accidents.

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In the Economics and Statistics Branch it is the desire to serve producers and consumers of minerals more quickly and systematically. The fuel market should be watched carefully, to permit speedy dissemination of news regarding changes in demand and in competitive sources of power, and make possible a balance of production and consumption. Horizontal studies of minerals according to consuming industries are proving valuable, and investigation of regional, national, and international factors affecting trade conditions can be expanded to advantage. The necessity for conservation should be indicated to the petroleum industry through data that will show present waste as well as proper economic utilization of oil and its products. Plans for reorganization of the Economics and Statistics Branch, which will enable it to make a start in the widened fields of study indicated, have been approved.

Soon the Bureau will issue its millionth training certificate to some graduate of its first-aid classes. Curtailment of funds to support this phase of Health and Safety Branch activity prevented attainment of that record in 1935. As it is, the Bureau is deluged with requests it cannot fulfill—including dozens from executives in charge of Federal work projects involving quarrying, blasting, underground work, or other occupations in the Bureau's field—to train employees to labor more safely and to take prompt action when accidents occur. An accident-prevention course for the bituminous industry already has been given to nearly 9,000 persons, most of them officials. Similar courses should be prepared for the other principal mineral industries and adequate personnel supplied to teach them.

Much information on the Bureau's activities and achievements has been spread by its publications. Funds should be forthcoming to permit results of investigations to be issued in permanent form as soon as possible after they are completed. The present makeshift policy of submitting many of such reports to scientific journals in order to bring them to public attention thus would be avoided and the Bureau would be able to present more effectively its contributions to the efficiency and safety of the mining industry.

FINANCES

The total funds available to the Bureau of Mines for the fiscal year ended June 30, 1935, including direct appropriations, departmental allotments, reappropriated balances, and sums transferred from other departments for service work, were $1,546,989.94. Of this amount $1,511,047.76 was spent, leaving an unexpended balance of $35,942.18. Owing to uncompleted work in the helium program for the Army and Navy there was a carry-over from 1934 of $53,-

895.04 of helium-plant funds, of which $50,000 was reappropriated for the fiscal year 1935.

On the regular work of the Bureau $1,349,764.55 was expended. This figure is subject to slight corrections due to unpaid obligations.

In addition, for the helium program, which is purely service work for the Army and Navy and has no part in the regular plans of the Bureau, $30,930.87 was appropriated directly to the Bureau, and $110,000 was transferred from the Army and Navy for the purchase at cost of helium produced by the Bureau for the National-defense establishment.

TECHNOLOGIC BRANCH

MECHANICAL DIVISION

Electricity in mines.—Routine inspection and tests in the Bureau's electrical laboratories led to formal approval of 8 cutting machines, 13 loading and conveying machines, 1 storage-battery gathering locomotive, 1 rock-dust distributor, 1 mine pump, and 1 special electric cap lamp for mine officials.

A simple, inexpensive device to be added to flame safety lamps for detecting methane in coal mines has been developed by the electrical section.

A permanent exhibit showing 10 ways in which an explosion of gas may be caused by faulty and nonpermissible electric equipment and circuits was viewed by more than 700 persons during the year.

Use of fuels.—Tests to determine the heat-insulating effect of soot in domestic heating boilers showed that under ordinary conditions this loss usually is less than 5 percent of the fuel instead of 30 to 50 percent, as often stated.

Investigation of the effect on the burning characteristics of fuels by treating them with small amounts of chemical salts has shown that the claims of large savings to householders by their use are not justified.

A bulletin published during the year discusses the effects on the burning of fuels by applying overfeed and underfeed principles, with preheated air and with air at room temperature.

Fuel economy service section.—To aid Federal agencies to purchase and utilize fuel more efficiently this section made numerous power-plant studies, fuel-efficiency tests, and acceptance tests of new equipment, advised on the selection of proper fuel for specific boiler and heating plants, and acted as consultant to various Government departments on such problems as purchases of fuel and of new equipment, preparation of standard specifications for various types of boilers and stokers, and the development of a system of boiler feed-water conditioning.

Fuel inspection and coal analysis.—By means of its fuel-inspection service and coal-analysis laboratory the Bureau of Mines aids other Federal agencies in purchasing their coal to best advantage and places at the disposal of the public extensive, accurate information on the quality of American coals. During the year 6,721 samples of coal furnished on contract to Federal agencies and 1,595 samples of coal, coke, and carbonaceous products taken in connection with scientific work were analyzed. In addition, ash-fusion temperature determinations were made on 1,092 samples.

To furnish information on which to base awards of contracts for coal the Bureau's coal-sampling truck collected 90 samples at 49 bituminous and semianthracite mines.

In cooperation with the Anthracite Institute 268 samples were collected by the truck at 41 breakers shipping approximately 50 percent of the total anthracite production of Pennsylvania. The weighted average of the analyses of these samples gives a fair picture of the quality of well-prepared Pennsylvania anthracite.

Constitution of coal.—Correlation of western Pennsylvania coal beds on the basis of their microstructure, undertaken in cooperation with the Pennsylvania Geological Survey, has identified several doubtful beds as Lower Kittanning. The petrographic study of American coals in connection with their classification and carbonization has included samples from various States—in particular, block and splint coals and a Pleistocene coal from Washington which was found to represent a new step in coal formation half-way between peat and brown coal.

Coal carbonization.—The yield and quality of carbonization products from 30 representative American coals were described in Bureau of Mines Monograph 5, which made available for the first time data by which the carbonizing properties of these coals can be evaluated by a standard test method. This study is being continued.

Carbonizing studies of a typical splint coal from the Millers Creek bed in Kentucky showed that coke of excellent physical properties could be obtained by blending it with a high-volatile coal, such as the Pittsburgh, in the proportions of 30 percent splint and 70 percent high-volatile bright coal. Blends of splint and low-volatile coal did not produce satisfactory coke.

The kindling and burning properties of cokes were correlated with carbonizing temperature by laboratory test methods, giving valuable indication of the carbonizing conditions under which domestic coke should be made.

Conclusions.—Some additional appropriations for the coming fiscal year will provide much-needed partial restoration of the Bureau's research program on enlarging the uses of coal. The former appropriations of the Bureau should be restored in full to permit

thorough investigation of methods for sampling coal, preliminary to a comprehensive study of the properties of the various American coals and the byproducts obtainable therefrom.

MINING DIVISION

Although operating under a reduced budget, the Mining Division was able to give valuable service to many operators of small precious-metal mines by close field contacts and by publication of a number of circulars dealing with technical problems. This service covers a long-neglected field to which the Nation must look for discovery and utilization of new sources of ore.

Through efforts of the division personnel Nation-wide attention has been directed toward the need of better technical control in many nonmetallic mineral industries. Studies are being made to improve existing conditions.

Early in the year considerable assistance was given new Federal agencies in compiling information from Bureau records. In the latter part of the year much time was devoted to preparing emergency relief projects.

Mining and milling methods and costs—metallic ores.—Bulletin 381, Lead and Zinc Mining and Milling in the United States, was issued. Fourteen information circulars were published. Of these, 4 dealt with mining methods and costs and 1 with mining and milling at individual mines, 1 discussed milling methods at a small gold mine, 3 placer-mining methods and costs, 1 tungsten, and 4 special phases of mining, including 2 designed especially to assist operators of small mines. A subject index was prepared for publication covering the 258 information circulars on mining (metal, nonmetal, and coal) and milling methods and costs. Frequent requests for such an index have been made by mine managers and engineers.

Nonmetallic mining. The first 3 of a series of 6 information circulars covering technical problems connected with sand and gravel excavation were published and the other 3 completed in manuscript form. A circular presenting experimental data on domestic mica tended to disprove the current opinion that foreign mica is of superior quality.

Falls of roof and coal.—Investigations on falls of roof and coal were discontinued due to lack of funds.

Geophysical prospecting.—Articles published included Technical Paper 556, A Study of Some Seismometers, and Geophysical Abstracts 63 to 74. Four manuscripts on geophysical subjects were completed; these await funds for printing as technical papers.

Geophysical investigations were conducted to contour bedrock in connection with the location of dam sites in the Muskingum Water-

shed Conservancy District in Ohio. The accuracy of this work was demonstrated by subsequent drilling. Resistivity surveys were made in Nevada for the F. E. R. A. to locate subterranean water supplies, and a reconnaissance field survey in the Boulder Dam region at the request of the Bureau of Reclamation to determine the feasibility of mapping mineral deposits in that area by geophysical methods. A new type of resistivity apparatus was designed, and six instruments were built and furnished to the F. E. R. A. at Reno, Nev.

Conclusions.—Field contacts during the year revealed that the series of circulars on mining and milling methods and costs are being used extensively by operators. Many circulars are out of print, and requests for reprints are increasing. Various Federal and State bureaus have asked the Bureau to make special geophysical investigations. Requests have been received from many sources for expansion of the service to aid operators of small mines.

Funds should be provided for reprinting the more important information circulars, to increase technical aid to small mines, to resume investigations of coal-mining practice, for research on mining and milling practice in relation to operating costs, for ventilation surveys, and for research on air-conditioning hot and dusty mines.

METALLURGICAL DIVISION

Ore-dressing section.—The availability of a new type of chemical reagent characterized by a combination of extremely hydrophile and extremely lypophile groups combined in the same molecule has made possible a distinct advance in flotation technique. The important problem of separating sodium and potassium chlorides was solved in two ways—by selective agglomeration using the new reagent and oil followed by tabling and by straight flotation using only the organic reagent, which is both frother and collector for potassium salts. An emulsion of paraffin oil with these reagents was also found useful as a collector for certain sulphide and oxide ores.

The study of soap flotation applied to tungsten ores was completed, and the results have been published.

A method was developed for separating chert from limestone in rock used in cement making by tabling after agglomeration. The process makes available the low-grade material now left in the quarries and will supersede the hand-picking now employed.

Research on the fundamentals of grinding has been continued. In ball-milling a means of calculating a revised ball charge better adapted to grinding ore to a fine size has been developed. Extensive comparisons of wet and dry grinding have been made. Roll grinding has been studied. Innovations introduced by inventors to increase ball-mill efficiencies have been tested. A home-made drag

classifier was improved further and brought to a high state of efficiency. Much grinding was done in closed circuit.

X-ray work has been pursued to determine the surface conditions of flotation films and to study the effect of lattice discontinuities on the magnetic properties of magnetite.

The flotation of nonsulphide minerals has progressed. A Vermont talc ore was studied; the gangue, which had been regarded by the operator as dolomite, was found to be magnesite. Flotation gave a high-grade talc product and a magnesite byproduct that may prove of more value than the talc.

Laboratory treatment of a Nevada cobalt ore and of a complex Arizona molybdenum-vanadium ore was developed. A Bureau engineer assisted in putting the latter process into commercial use.

An improved laboratory elutriator was designed and tested. The need for accurate determination of fine material is becoming increasingly important, as many buyers of nonmetallics now specify sizes by microns.

A pilot plant for table-concentration tests of classified feeds was installed in cooperation with the Missouri School of Mines and Metallurgy.

Iron and steel section.—The Bureau participated informally in constructing and operating a pilot plant for producing sponge iron by natural-gas reduction, in accordance with the method it had described previously. The project was entirely successful, and the products were found to be suitable for conversion into wrought iron or steel. The properties of some of these products were studied and the results have been published. A detailed report of the construction and operation of the pilot plant is being prepared.

A study of iron ores varying in reducibility and porosity over a range of 6 to 1 has furnished a basis for blending ores and a means for determining the size to which ores should be crushed. Practice has shown that crushing and sizing an ore of medium density saved a large amount of fuel.

Methods advocated by the Bureau for determining the gas-flow characteristics of blast furnaces and for correcting undesirable conditions by changes in methods of filling were applied to commercial furnaces with a substantial saving in fuel.

Information from the Bureau's laboratory results on the relative desulphurizing power of blast-furnace slag is being used in the industry to adjust conditions in the lower-alumina slags which have resulted from increased use of concentrates deficient in alumina.

A study of the mineral forms in which the phosphorus of Alabama red iron ore occurs has been completed. The red ores of the Birmingham district, the principal source of Birmingham pig iron, contain on an average about 0.28 percent phosphorus. It is custom-

ary at blast-furnace plants to obtain a certain amount of low-phosphorus ore or concentrates from outside sources to mix with the Birmingham ore to keep the phosphorus in the pig iron within the 0.8 percent maximum permissible in the manufacture of cast-iron pipe from the pig iron. The high phosphorus content of the pig iron usually renders it unsuitable for manufacture of machinery castings. Investigators occasionally have studied the possibilities of removing the phospohrus from the ores by leaching but have been handicapped by lack of knowledge as to the forms in which the phosphorus occurs. Investigations completed during the past year have shown conclusively that in the unleached or hard red ores the phosphorus occurs principally as calcium phosphate, while in thoroughly leached outcrop ores the small amount of phosphorus which has not leached out along with the lime is mainly in the form of ferric and aluminum phosphates.

Special studies section.—New methods of attack in the campaign for lowering crushing and grinding costs, a considerable item in the market price of the metals, have resulted from further studies on explosion shattering and on the magnetic properties of minerals. Under proper control of moisture and impact, explosion shattering has been shown to compare favorably in power cost with the best that can be obtained by grinding in ball mills to the same degree of comminution. By igniting and exploding an arsenical pyrite ore the extraction of gold by cyanidation was increased from 68 to 80 percent.

A simple, direct procedure for using standard magnetite ore to measure the efficiency of crushing and grinding machinery has been evolved as a practical byproduct of the theoretical study of the magnetic properties of mineral powders. A rapid method of demagnetization peculiarly suited for the treatment of crushed material produced in the magnetic roasting process of beneficiating low-grade iron ores is another practical development of the study.

Copper metallurgy section.—The studies on flash-roasting copper concentrates indicate that the calcines may be made amenable to leaching but that metallic copper cannot be produced satisfactorily in one operation, even by adding reducing agents to the feed or to the furnace gas. By flash roasting, followed by leaching, the copper can be obtained in solution, the iron as a pure iron oxide residue and the sulphur as relatively rich sulphur dioxide gas.

Metallurgical fundamentals section.—The active research during the year included investigations of low-temperature specific heats, heats of fusion and melting-point data, thermodynamics of chromium reduction, and density changes in cold-worked metals. The thermodynamic study of metallic carbonates was completed and has been described for publication.

Metallurgy of lead and zinc section.—A detailed report covering the work of the Bureau on reduction of zinc ores by natural gas has been published. The work on smelting zinciferous charges in the blast furnace has been completed and published in a series of reports of investigations.

Metallurgy of precious metals section.—Many problems in the recovery of gold and silver from refractory ores have been studied. The results have been prepared for publication. Among the findings of more general interest are the depressing of clean gold, argentite, and cerargyrite in the flotation circuit by sodium sulphide and the effect of impurities on the loss of mercury in amalgamation.

Conclusions.—The following projects should be mentioned as particularly outstanding among those brought to successful consummation during the year:

1. The application of the type of chemicals known in the textile industry as "wetting-out agents" to flotation and agglomeration of ores, particularly soluble salts such as sodium and potassium chloride, which must be treated in saturated brine.

2. The demonstration of a linear relation between surface and coercive force in magnetic minerals and its application to magnetic separation and to the determination of grinding efficiencies and other metallurgical data which required surface determination at very fine sizes.

3. The pilot-plant demonstration of the practicability of reducing iron ore by natural gas and the conversion of this direct iron into steel by direct melting and by forging and rolling before melting. The structure and properties of the iron so produced were studied in detail.

The necessity of carrying the work of the division past the laboratory and into the pilot-plant stage in order that it may be of real service in building up new metallurgical industries has become obvious. The elements of cost that determine the willingness of industry to put new processes to use can be determined only in this way. Funds for the erection and operation of a versatile metallurgical test unit of pilot-plant size are needed. Location at Boulder City, Nev., where power and Federal buildings are available and important mineral deposits are close at hand, is suggested.

PETROLEUM AND NATURAL-GAS DIVISION

A form of cooperation new to the Bureau of Mines was the assignment of three engineers of the division to duty with the Special Subcommittee on Petroleum Investigation of the House Committee on Interstate and Foreign Commerce, at the request of Hon. William P. Cole, Jr., chairman. In addition to serving as technical advisers

these engineers prepared two reports, published in the subcommittee hearings; one dealt with petroleum development and production and the other with the effect of technologic factors on the supply of and demand for petroleum products.

Production of petroleum and natural gas.—Results of study of the flow of crude oil through oil sands, by laboratory investigations of consolidated sand cores from oil- and gas-producing horizons, conform to the relationships obtained previously on unconsolidated sands. Knowledge of flow of wells and reservoir conditions was advanced by study of a sample of gas-saturated oil obtained under a pressure of 2,800 pounds per square inch at a depth of 6,100 feet in the Crescent pool, Oklahoma. A covering report is in preparation, and a paper on petroleum solubility and liberation phenomena and their practical application was read before a technical society.

Laboratory investigations reported last year, which showed definitely that oxidation by contact with air changes the characteristics of oils, were supplemented by a study of two commercial repressuring projects using air and air-gas mixtures as the repressuring media. One project, in Kentucky, contains about 800 producing wells; part of the field has been repressured with air since 1929. The other is a large property in Nowata County, Okla., repressured with air-gas mixtures. Production data obtained from these two areas will show the effect of repressuring with oxidizing gases on the quality and quantity of oil from a given formation.

A report was prepared for publication, giving results of the study of output and intake characteristics of natural-gas wells in the Texas Panhandle field. It was demonstrated that the rates of input may be determined from a law similar to that previously established for rates of output. A monograph on the flow of natural gas through high-pressure transmission lines and one discussing back-pressure data on natural-gas wells were also prepared.

Engineering field studies.—A technical paper was issued describing equipment used in drilling wells and producing oil in the Oklahoma City field; subsurface conditions in the Zwolle (La.) field and the use of acid in that area to stimulate production were covered in another report. Practical methods of disposing of oil-field brines were studied in cooperation with the Kansas State Board of Health; a preliminary report on brine disposal in the Ritz-Canton field, McPherson County, is in preparation, and preliminary studies of the oil and gas field in the Walnut River drainage area have been made.

Cooperation with the Department of Conservation, State of Michigan, was continued, and the extent and availability of natural-gas reserves in the Michigan " stray " sandstone horizon were estimated. The availability of gas from reserves in central Michigan is particu-

larly important in the commercial operation of the fields since the gas-producing areas and the gas reserves per acre are comparatively small.

Special engineering problems.—A bulletin on methods and equipment for reducing evaporation losses of petroleum and gasoline was issued, and a technical paper on losses of gasoline at bulk-storage stations is in press.

Chemistry and refining.—A bulletin describing manufacture of paraffin wax from petroleum is in press. Methods for determining "molecular" weights of higher-boiling petroleum fractions were investigated in cooperation with 16 research laboratories of oil companies and universities. Results obtained by the laboratories on identical samples varied widely. It is hoped that a suitable method for determining molecular weights of high-boiling petroleum fractions may be developed.

A report of investigations tabulating analyses of Texas crude oils and another containing analyses of crudes from some southern Louisiana fields were published. A report has been written covering experimental work on refining Rocky Mountain high-sulphur petroleum (black oil) before the Laramie (Wyo.) field office was closed June 30, 1933, due to lack of funds. With the reopening of this office in July study of the problem will be resumed.

Helium section.—The Amarillo (Tex.) helium plant produced 10,218,840 cubic feet of helium—320,000 for the United States Army-National Geographic Society stratosphere flight and 9,898,840 for use by Army and Navy airships. The average purity was 98.33 percent helium—a new record.

The rock pressures of the wells in the Government-owned helium-bearing Cliffside field indicate a depletion of slightly more than 2 percent of the gas reserve after more than 68,600,000 cubic feet of helium has been produced in 6 years. National defense thus is assured a supply of helium for a long period to come. The available gas supply from the Cliffside field was increased by drilling a new gas well, completed with an open flow of 12,000,000 cubic feet per day. Helium research in the cryogenic laboratory, important in improving methods of helium production and reducing costs, was discontinued for lack of funds.

Conclusions.—One of the two most pressing needs of the Petroleum and Natural-Gas Division—additional operating funds—has been relieved to a gratifying extent for the coming fiscal year. The next most pressing need, which has existed many years and is as urgent as ever, is for additional buildings at the Petroleum Experiment Station, Bartlesville, Okla., to remove the handicaps of inadequate equipment and improper working conditions.

The division plans to resume as rapidly as possible the studies suspended in recent years due to curtailment of appropriations and to carry on its unified program of research to the extent that funds allotted will permit. Additional funds are needed to extend the Bureau's studies in American oil and gas fields.

Even in the face of curtailed demand for helium, provision should be made to preserve the valuable Government-owned gas properties near Amarillo, Tex., and to maintain the Amarillo helium plant in an operating status by retaining the nucleus of a trained personnel. Funds should be provided for research on natural gases and their constituents in the cryogenic laboratory.

EXPERIMENT STATIONS DIVISION

The Experiment Stations Division has administrative control over and coordinates the work of the 11 experiment stations at which most of the technologic studies of the Bureau of Mines are conducted. In addition, the division exercises technical supervision over the Bureau's research on nonmetallic minerals, coal preparation, coal processing, and gas and fuel chemistry.

The most important contribution to nonmetallic mineral technology made by the Bureau in 1935 was the development at the Mississippi Valley Experiment Station, Rolla, Mo., in cooperation with the Missouri School of Mines and Metallurgy and the Potash Co. of America, of processes for the mechanical separation of sylvite (KCl) from halite (NaCl) by agglomeration and tabling or flotation. This development, forecast in the 1934 report on the basis of small preliminary laboratory tests, was carried to a successful conclusion and turned over to the potash industry. While this method does not give a product as pure as that obtained by solution and fractional crystallization, it produces material of higher grade than is demanded by the fertilizer industry at less cost than by solution methods.

In addition, chemical methods have been developed on a laboratory scale at the Nonmetallic Minerals Experiment Station, for producing potassium sulphate, potassium carbonate, potassium hydroxide, anhydrous sodium sulphate, magnesium compounds, and various fertilizer salts from domestic polyhalite. Some of these chemicals are now largely imported, and all are important to the American chemical industry.

Work of experiment stations.—The largest station is at Pittsburgh. It is engaged in the study of coal mining in all its phases, including mine safety, first aid and mine rescue work; fuels chemistry, utilization, processing, and constitution; toxicity of industrial gases; and metallurgy of iron and steel. With this station are co-

ordinated the work of the Explosives Experiment Station and of the Experimental Mine, both at Bruceton, Pa., 14 miles from Pittsburgh; both are operated exclusively for scientific research.

The Petroleum Experiment Station, Bartlesville, Okla., studies the production, consumption, and utilization of petroleum and natural gas.

The Southern Experiment Station, Tuscaloosa, Ala., is concerned with the preparation of coal and the beneficiation of various metallic and nonmetallic ores of the South.

The Nonmetallic Minerals Experiment Station, Rutgers University, New Brunswick, N. J., conducts inquiries into the treatment and utilization of nonmetallic minerals and their products.

Beneficiation of the low-grade iron ores of the Lake Superior district and fundamentals of iron blast-furnace operation are investigated at the North Central Experiment Station, Minneapolis, Minn.

At Rolla, Mo., the Mississippi Valley Experiment Station handles problems in ore dressing, including the determination of fundamental principles and the application of these data to the various ores of the United States, especially the lead and zinc deposits of the region.

The Intermountain Experiment Station, Salt Lake City, Utah, studies the treatment of complex, low-grade ores, lead smelting, and the relation between mineral occurrence and operating results.

The Rare and Precious Metals Experiment Station, Reno, Nev., is interested in more efficient production of unusual and valuable metals and utilization of low-grade ores not now of commercial value.

The Southwest Experiment Station, Tucson, Ariz., endeavors to give assistance with the mining and metallurgical problems of the Southwest, especially those that affect the mining and treatment of low-grade copper ores.

The Pacific Experiment Station, Berkeley, Calif., conducts highly specialized physical-chemical research, chiefly concerned with the determination of fundamental metallurgical constants and the application of these data to metallurgical operations.

The Northwest Experiment Station, Seattle, Wash., investigates the beneficiation and utilization of the coals and nonmetallic minerals of the Pacific Northwest and Alaska.

Alteration of properties of cement by seasoning.—The Nonmetallic Minerals Experiment Station showed that exposure of cement to air of controlled temperature and humidity subsequently decreased the water requirement and decreased the evolution of heat during setting; furthermore, the setting process was retarded without using any of the substances usually added to produce this effect. These

discoveries will prove important in the preparation of cement for large concrete structures.

Concentration of barite.—High-grade barite concentrates can be made from the high-iron barite ore of Tennessee and the high-silica ore of South Carolina, using methods developed during 1935 at the Southern Experiment Station, in cooperation with the University of Alabama. This development is significant, since barite is considered one of the strategic minerals and the reserves of commercial-grade ore in this country are limited.

Development of northwestern mineral resources.—Investigations at the Northwest Experiment Station have shown that certain Washington talcs and soapstones can be used for furnace linings in the soda-recovery furnaces of the paper industry and that the powdered products from other deposits may have value as fillers. Certain sand deposits were shown to be suitable for use in foundries, as abrasives, and, after proper treatment, for bottle glass.

Coal washing.—Based largely upon coal-washing studies of Pacific Northwest coals at the Northwest Experiment Station in cooperation with the College of Mines, University of Washington, one new coal washery with a capacity of 3,000 tons per day is being constructed in Washington, and another is being designed for immediate construction.

In cooperation with the University of Alabama the Southern Experiment Station completed washability studies of samples from the Henry Ellen and the Mary Lee coal beds showing possible reduction of ash in efficiently operated washing plants. The ash content of the washed coal has been lowered without increasing the washery loss.

Grindability of coal.—The laboratory test for measuring grindability of coal was developed by the northwest station to the point that it was accepted by the American Society for Testing Materials as a tentative standard.

Development of analytical procedures for gases and vapors.—The development of practical detectors and analytical procedures for harmful gases and vapors is essential to the establishment and maintenance of safe, hygienic conditions in the mineral-producing and consuming industries. A new microchemical test was worked out for determining atmospheric contamination with benzol vapor in byproduct- and solvent-using plants. A description of a hydrogen sulphide detector, developed primarily for use in the petroleum industry, was published as a report of investigations.

Stream-pollution investigation.—Several States did work by Bureau of Mines methods which showed conclusively the practical value of the Bureau recommendation for sealing abandoned coal mines to mitigate stream pollution by acid coal-mine drainage. In West

Virginia acid was reduced 80 to 85 percent in less than 1 year after 215 mines were sealed.

Inflammability of gases and vapors.—Investigations of the inflammability and ignitibility of gases and vapors, the influence of inert gases on these properties, and public, industrial, and municipal gas-explosion hazards were continued. Eighteen new or revised values for limits of inflammability of gases or vapors in air or oxygen were determined. The extinction of flames by the use of nitrogen and carbon dioxide was studied, and means for preventing gas explosions by controlling the oxygen concentration of combustible mixtures were developed.

Fundamental gas studies.—Calculation of thermodynamic functions from spectroscopic data on propane, butane, pentane, tetraethyl, methane, nitrous oxide, and carbon dioxide were completed. These functions are useful in calculating theoretical yields and heat balances in proposed processes for manufacturing useful chemical substances from waste natural gas and coal gas.

The new theory of flame propagation developed last year in connection with explosion-prevention research has been applied successfully to ozone flames. After burning was shown to be nonexistent in explosions of nitrogen, carbon monoxide, and methane. A complete theoretical analysis was made of the data on upper and lower explosive limits of hydrogen-oxygen-inert gas mixtures, including for the first time a correct treatment of chain-breaking at the walls.

Devices for respiratory protection.—New approvals granted during the year include 3 hose masks, 1 with a positive-pressure blower supplying 1 or 2 men and 2 with velocity-blade-type blowers, 1 of which is approved for 1 or 2 men. Numerous extensions of existing approvals were granted. Six respirators (type A) were approved for protection against pneumoconiosis-producing or nuisance dusts. One respirator (type C) was approved for protection against inhalation of the mist of chromic acid. Several extensions of approval were granted for various improvements on these devices.

Fan-performance and fan-gage charts.—The application of graphic charts to the solution of fan-performance problems was studied exhaustively. A number of compact and convenient forms were evolved by means of which such problems can be solved easily and quickly. An ingenious combination of indicating pressure gages and a chart was developed for mine-fan installations; it permits direct determinations of the efficiency of operation and the quantity of air handled.

Conclusions.—A review of the forgoing accomplishments shows a tremendous return on the expenditure. The first successful process for mechanical beneficiation of potash ore or the new methods for domestic production of several chemicals now largely imported can return to industry in a short time more than was spent for all the

research of the division. Dollars cannot measure the value of the increased safety with which workmen can labor because of the data on inflammable limits of gases and vapors determined by the Bureau or because of the more efficient devices for respiratory protection that have resulted from the year's approval studies. If such significant progress is possible under the handicaps of the past few years, it is obvious that still greater accomplishments can be expected with increased appropriations.

In the field of nonmetallic-minerals investigations the extension of research on chemical and physical properties of fine particles in relation to their solution, dispersion, coagulation, and settling in various media is needed urgently to reduce pollution of air by fly ash from power plants burning powdered coal, to prevent stream pollution from coal-washery wastes, and to collect finely divided minerals from slimes in metallurgical plants.

In gas research the fundamental investigations on ignition and propagation of gas explosions should be extended, since the results to be obtained have such wide applicability to safety. The origin and evolution of combustible and irrespirable gases in mines and tunnels, the relative hazards in underground use of various fuels for internal-combustion engines, the prevention and removal of dust, air conditioning, gas diffusion, and extinguishing of underground fires should be given intensive study.

EXPLOSIVES DIVISION

Physical and chemical tests of explosives.—Aside from a limited number of investigations undertaken at the request of State mine departments and several branches of the Federal Government the work of the Explosives Division was confined largely to making tests under current schedules. During the fiscal year 1935, 32 explosives were added to the active permissible list, and 17 explosives were transferred from the active to the inactive list, leaving 148 permissible explosives. The active permissible list also includes five models of blasting devices.

The Explosives Division assisted the United States Forest Service in inaugurating a system of purchasing explosives suitable for use in forestry and road building. This required, among other problems, the development of a test to determine the fire-setting capacity of explosives to ascertain their suitability for use during forest-fire seasons.

Conclusions.—The explosives research work of the division, which has been suspended because of reductions in allotments, should be resumed. Studies of certain variables are needed to see if the present procedure for testing explosives for placement on the active

permissible list can be improved, but increased personnel would be necessary. These investigations should cover various methods of loading explosives, the dimensions of the borehole, temperature, humidity, and other factors that might influence the action of the explosives.

OFFICE OF CHIEF MINING ENGINEER

Coal-mine "bumps."—A series of disastrous "bumps", killing many miners, has occurred during the past 2 years in coal mines of the Cumberland Mountain field, Kentucky and Virginia. At the request of a coal operators' association the chief mining engineer was detailed to investigate and report possible causes and remedies. Changes in the mining method were proposed which might alter the sudden, violent failure of the strong overlying rocks by compression, causing "bumps", to tensile breaks that would be without shock. The method is being tested, so far with success.

Potash salt-mining methods at Carlsbad, N. Mex.—The New Mexico potash mines are operated on Government leases under supervision of the United States Geological Survey. The Survey requested of the Bureau a report on methods for obtaining complete recovery of potash salts without causing rupture of overlying strata and thereby admitting water from formations above. A mining method was devised based on the compressibility of potash salts as determined by tests of specimens at the Bureau's Experimental mine. Convergence records of the roof and floor are to be made in the mine as trial of the proposed method proceeds.

Experimental mine investigations.—The tests of potash specimens mentioned above disclosed that under high pressure the potash salt is plastic that tentatively the load on pillars in initial development should not exceed 2,000 pounds per square inch, and that above this pressure the salt deforms plastically. This last property is valuable in final mining, as the pillars are mined out gradually, allowing slow compression without sudden collapse.

Owing to insufficient funds, it was impossible to carry on a program of large-scale investigation of the explosibility of coal dusts, but explosion demonstrations were made before large groups of mining men at the request of safety associations.

Repairs were made to the experimental mine through allotment of funds from the Public Works Administration, and a mine fire in adjoining property was controlled successfully by relief workers.

Laboratory dust-inflammability studies.—Fifty-two samples of coal and other dusts, including dusts from the Holland Tunnel ventilating ducts, smelter flues, and steel mills, were tested for relative

inflammability. Chemical solutions for wetting coal dust and the absorption of water by different rock dusts were also studied.

Mine Safety Board.—The members of the Board are the chief mining engineer and the chiefs of the Health and Safety Branch, the Technologic Branch, and the Mining Division. During the year mine-disaster reports and certain safety matters were considered. One mine safety decision formulated was approved by the Director and thereby became embodied in the policy of the Bureau, with previous decisions.

ECONOMICS BRANCH

COAL DIVISION

Service to coal industry.—The Coal Division rendered 43,400 individual services during the year by mail, telephone, or personal interview, exclusive of the distribution of regular publications to established mailing lists. The division issues a series of current reports, available to producers, distributors, and consumers, that follow short-time movements of supply and demand; it also prepares detailed annual reports that provide a background for the current service and trace underlying changes in the industry.

Speeding up work.—The outstanding achievement of the year was continued speeding up of the work and prompt release of the final annual figures. The good record of the previous year was maintained; for example, the manuscript for the annual chapters on coal and coke for the Minerals Yearbook were completed by May in both 1934 and 1935. As heretofore, the final annual figures were mimeographed and released to the public before they were issued as printed pamphlets. Special effort was made to release the reports earlier to comply with many requests from the N. R. A.

Monthly bituminous-coal production, by N. R. A. code-authority areas.—At the request of the N. R. A. the Bureau of Mines assisted in canvassing monthly production by code-authority areas. The results of these surveys were published by the Bureau.

Production of peat.—Since no summary of peat production has been issued later than 1926, the Bureau deemed it advisable to undertake such a canvass for 1934. A chapter embodying these data will be included in Minerals Yearbook, 1935. The results of the survey may help domestic producers to recover some of the domestic market now supplied from foreign sources.

Special investigations—Special publications released during the year include studies of the mechanical cleaning of bituminous coal and of the mechanized mining of bituminous coal and anthracite.

Economies in publication.—The collection of statistical reports through trade agencies, inaugurated several years ago to reduce costs,

was followed in the fiscal year 1935. The cooperative arrangement with the National Association of Purchasing Agents for collecting current reports on coal stocks and consumption continues to be very satisfactory. Publication costs were cut by combining reports and condensing tables to make more efficient use of available space. Editions were reduced, and national coal-trade organizations assisted by reprinting extra copies.

Conclusions.—Agencies established under the National Industrial Recovery Act taxed the facilities of the division to supply data on the coal and coke industries. In addition to supplying information to the Bituminous Coal Code Authority the division has answered many requests for information from the Reconstruction Finance Corporation, the Public Works Administration, the Division of Subsistence Homesteads, the Federal Emergency Relief Administration, the Tennessee Valley Authority, the Federal Housing Administration, the Federal Securities and Exchange Commission, and the Federal Power Commission. In all such work the division's service is limited to finding and certifying the facts that may be established by the statistical record or derived immediately therefrom.

The efficiency of the service the division can render would be increased if funds were provided for printing reports in detail and publishing additional data on the coal industry. Producers and consumers of coal should be supplied with the following basic information of national scope:

1. Annual detailed surveys of the distribution of coal from each producing to each consuming market, urgently needed to show changes under altered conditions in the industry.

2. Annual statistics of the domestic fuel market, involving the equivalent of 160,000,000 tons of coal, which would help the coal industry to hold its proper share of the market.

3. Current information on changes in production capacity, which would show the industry the probable effect of such changes on the market and might discourage unnecessary or unwise expansion.

4. Economics of byproduct recovery; studies of supply and present and potential demand for the byproducts of coal processing.

5. Statistical analyses of the competitive relations between coal, fuel oil, natural gas, and hydroelectric power.

MINERAL-STATISTICS DIVISION

The division met the need for early release of statistics by mimeographing periodic current reports and preliminary mineral market summaries. Of the latter, annual reviews for 1934 on more than 25 important commercial minerals had been published by April 1935.

Minerals Yearbook.—Minerals Yearbook, 1934, comprising 1,154 pages and including 72 chapters, 106 illustrations, and a comprehensive index, was issued in October 1934. This annual volume represented a decided improvement over Minerals Yearbook, 1932–33, in that statistics and analyses of current developments in the mining industry were printed in more complete form.

Employment data.—Various Federal, State, and industrial agencies have evidenced keen interest in the Bureau's long-time records of employment in mining camps, particularly in connection with current relief and employment problems. The division has been asked to cooperate with such organizations as the F. E. R. A. and the National Resources Board in supplying information. To make employment data of greatest usefulness to producers the figures are correlated with those on man-hours worked and on production. Complete reports for the iron-ore and mercury industries, covering employment, man-hours worked, and output per man-hour during the past 10 years, were published during the year, and similar studies were undertaken for 20 other minerals.

Market information on mineral products.—By making more than a hundred annual statistical surveys of metallic and important nonmetallic minerals (except mineral fuels) this division compiles essentially the only market information available on supply, demand, and utilization of specific mineral products. It prepares statistical material for most of the Minerals Yearbook chapters, compiles data on world production, arranges for statistical studies in cooperation with 16 States, and maintains field offices at San Francisco, Salt Lake City, Denver, and Joplin which not only collect statistical data but also give direct information to the mining industry.

Conclusions.—Shrinking markets, disappearing profits, idle capacity, unemployment, and huge accumulations of metal indicate the need for continued intensive research in mineral economics. In attempting to adjust themselves to the present situation mineral producers should have comprehensive information on mineral resources, output, consumption, distribution, and trade conditions, as well as on regional and international factors that affect the movement and utilization of mineral commodities. As the division's present resources are taxed to the utmost its funds would have to be doubled to permit organization of an adequate basic information service.

PETROLEUM ECONOMICS DIVISION

The Petroleum Economics Division maintained and improved its regular services during the fiscal year. The monthly petroleum statement was enlarged to include data on the movement of crude

oil and refined products from the Gulf of Mexico to the Atlantic seaboard. There has been a steadily increasing demand for information concerning sales of fuel oil, particularly Diesel oil, by States and industries. Accordingly, the national survey of fuel-oil distribution, which was begun in 1926 but discontinued in 1931, was resumed to cover the calendar year 1934.

The weekly report on crude-oil stocks and the monthly report on crude-oil movements prepared by the division from data collected on questionnaires of the Petroleum Administrative Board were continued throughout the year. A new series of cooperative reports covering the distribution of natural gasoline was inaugurated in January 1935.

The Supreme Court decision of May 27, 1935, invalidated the control provision of the Petroleum Code, including the part that made it mandatory for operating companies to submit statistical data. It therefore became necessary for the Bureau of Mines to collect these data on a voluntary basis, as had been its practice with similar data in the past.

The division, in cooperation with the Petroleum Administrative Board, made monthly forecasts of demand for gasoline and crude oil and recommended to the Petroleum Administrator production allowables for the various producing States, as prescribed in the code. After invalidation of the code the petroleum industry and most of the important producing States requested the Interior Department to permit the Bureau to continue this work, the forecasts to be recommendatory for use as an economic guide. Inasmuch as the division collects and compiles virtually all of the supporting data and has several specialists engaged in studies of demand it was relatively simple to prepare the forecasts for July and August.

The new work undertaken at the inception of the Petroleum Code rounded out the fact-finding work of the division to virtually 100-percent coverage. All of the questionnaires or surveys have demonstrated their usefulness, and none should be abandoned.

The division has been handicapped by the lack of a specialist on natural gas and natural gasoline. The importance of these subjects justifies the expenditure of much more time and money to study them than have been available in the past.

Conclusions.—The usefulness of the work of the Petroleum Economics Division has been evidenced by expressions of appreciation and approval of its fact-finding service by the petroleum industry. New studies undertaken to supply information essential to code administration have proven invaluable to the industry and should be continued.

RARE METALS AND NONMETALS DIVISION

Responsibility for furnishing information on 82 chemical elements and nearly 1,000 mineral combinations of these elements has been placed on the Rare Metals and Nonmetals Division. To cope effectively with the many inquiries on these numerous and diversified commodities the division some 6 years ago instituted a program of research and writing directed toward preparing published summaries that would anticipate the questions asked most frequently. This program has been continued successfully, though at a retarded pace during the past 2 years.

In the fiscal year commodity studies were published on arsenic, asbestos, clay, minor mineral-fertilizer materials, sodium sulphate, titanium, and vermiculite; moreover, lacking more direct means of publication, considerable basic information on other commodities was incorporated into Minerals Yearbook chapters. A new chapter on minor nonmetals was added to the yearbook contributions prepared wholly or partly by this division. Supplementing individual commodity studies the division has made several horizontal studies of minerals grouped according to consuming industries. Additions to this service during the fiscal year included a circular on the fertilizer industries, a paper for a national engineering society on the refractories industries, and a trade-journal article on the future of the building-stone industries. As usual, general summaries of the rare-metals and nonmetallic-minerals industries were prepared for the annual review number of Mining and Metallurgy. By request of the editors a chapter was prepared for the milling volume of the American Institute of Mining and Metallurgical Engineers, summarizing current technology for preparing all the leading industrial minerals for market.

The Division maintains and distributes lists of buyers and sellers of rare metals and nonmetals, a service helpful to purchasing agents as well as to those who undertake to develop mining properties. In June the revision and enlargement of these lists were undertaken. The procedure for relieving the specialists of their burden of routine inquiries was improved further. Despite this, however, such routine work and the added responsibility of furnishing data to the various new agencies concerned with mineral products consumed a substantial part of the time of the Division's inadequate staff.

Measurable progress has been made toward short-term forecasting of the demand for various mineral commodities; for example, there seems to be a prospect of forecasting production of phosphate rock a year ahead.

Conclusions.—Reduced personnel and increased responsibilities tended to restrict the outflow of publications from the Division, but

the essential factors for economic planning by industry and the Government were maintained, and facilities for more effective utilization of these stores of information may be speedily reconstructed.

COMMON METALS DIVISION

During the year old and new Government agencies increased considerably their requests for services of a consulting nature by the Common Metals Division. A typical example was the assistance given the tin-investigating committee of the House of Representatives. A comprehensive picture of the world tin industry was presented orally to the committee, and special research into the history of tin smelting in the United States and its economic factors was undertaken. In addition, world charts that illustrate strikingly the position of the United States with respect to its supplies of 15 strategic minerals were prepared at the request of the War and Navy Departments. The Division's commodity specialists were consulted frequently by many other agencies, including the Treasury Department, National Recovery Administration, Federal Emergency Relief Administration, Securities Exchange Commission, and Reconstruction Finance Corporation.

Besides serving as a consultant to other Government agencies the Division prepared chapters on 11 major mineral commodities for Minerals Yearbook, 1935. Over 3,000 requests for information were received and answered during the year. The Division's files of fundamental data on the common metals were maintained and expanded. The files, which now contain over 4,000 subject folders covering all economic phases of the metal industries, are invaluable as a source of information.

Work on the many special problems of interest to the industry necessarily has been postponed, due primarily to reduction in the staff. Nevertheless, some attention was given to questions arising from the increased prices of gold and silver, and considerable basic data on long-time trends in metal consumption were assembled. It is hoped that more time can be devoted to economic research of this type as additional personnel is provided.

Conclusions.—At the end of the year the Common Metals Division was merged into the new Metals and Nonmetals Division. Inasmuch as the personnel covering the subjects formerly handled by the Common Metals Division was reduced from 6 to 4 the need for additional employees is most urgent.

PRINCIPAL MINERALOGIST

In consequence of the public interest in minerals the principal mineralogist answered 1,473 letters on 215 subjects during the year;

these had come from every State and from 22 foreign countries. The Bureau is greatly interested in this service, because it makes available to mine operators of limited means essential technical information that they could not afford otherwise.

Chapters on molybdenum, tungsten, radium, uranium, and vanadium, and commercial gases were written for Minerals Yearbook, 1935. The glossary of mining and metallurgical terms published by the Bureau in 1919 is being rewritten and greatly enlarged.

FOREIGN MINERAL SERVICE DIVISION

The supply bill for the Department of the Interior, approved May 9, 1935, authorized transfer from the Bureau of Foreign and Domestic Commerce to the Bureau of Mines of certain activities that justified establishment on July 1 of a Foreign Mineral Service Division. This division is essentially a procurement agency responsible for the collection and compilation of data on foreign mineral production and trade.

Statistics will be collected and compiled throughout the year for publication annually in World Summary of Production and Commerce in Minerals, a reference work designed to supply in concise and handy form a digest of production and trade in minerals for all countries in the world.

A comprehensive bibliographic reference file is being maintained covering foreign mineral resources and trade.

The need of all major industrial nations for strategic and deficiency mineral raw materials, coupled with the fact that few countries are self-sufficient in their domestic reserves of such minerals, indicates the desirability of periodic studies of international flow of these commodities. It is manifest that the competitive position of the principal manufacturing countries is affected by all factors that tend to divert the normal movement of essential raw materials. Recommendations have been made by the National Resources Board, the Science Advisory Board, the War Department, and the Navy Department that the Bureau of Mines make periodic presentation in chart form of the international flow of the principal minerals of commerce. One series of such charts has been prepared during the past year. It is expected that this series will be revised every 2 or 3 years.

HEALTH AND SAFETY BRANCH

SAFETY DIVISION

During the fiscal year 1935 the Safety Division comprised 62 persons, including 24 engineers, 22 safety instructors, 12 clerks, 3 cooks, and 1 laborer. Members of the division assigned to field duty were distributed among the 10 safety stations (Berkeley, Calif., Birmingham, Ala.; Jellico, Tenn.; McAlester, Okla.; Norton, Va.; Pittsburgh, Pa.; Salt Lake City, Utah; Seattle, Wash.; Vincennes, Ind.; and Wilkes-Barre, Pa.), the 2 field offices (Denver, Colo., and Duluth, Minn.), and the 2 mine safety cars in active service, 1 in the Pennsylvania anthracite region and 1 in West Virginia and Kentucky. A few field safety instructors had no definite headquarters but went from place to place on request, giving safety courses to employees of the mining and allied industries. Eight of the Bureau's 10 all-steel railroad mine safety cars were held inactive on sidetracks through the year because of insufficient funds to operate them—4 at Pittsburgh, Pa.; 1 at Salt Lake City, Utah; 1 at Denver, Colo.; and (during part of the year) 1 at Norton, Va. All these cars have been exposed to deterioration by the weather since July 1, 1933. However, in the spring of 1935, 5 cars were placed in a new storage building at Pittsburgh, so that at present only 3 cars are in "dead storage" on sidetracks.

The field activities of the Safety Division consist chiefly of work for the mining industry, giving training in first aid, mine rescue, and accident prevention, making safety inspections and reports, attending mine-safety meetings, and assisting on request after mine fires and explosions. Nearly all this work demands rapid transportation to and from mines and mining plants, and for this purpose 37 motor vehicles—including 18 trucks—were in use and were driven 528,620 miles in the fiscal year.

Training courses.—Persons competent to judge agree that a full course in first-aid training to every person in a mining organization probably is the most effective present-day means of arousing safety consciousness in the workers. It is believed that at least 200 lives are saved and probably as many as 25,000 lost-time nonfatal accidents forestalled each year as a direct result of Safety Division courses. During the past fiscal year 75,809 persons in the industries were given the full Bureau of Mines first-aid course and 1,401 the complete mine-rescue course (instruction in the use of oxygen breathing apparatus, gas masks, etc.), 20,482 more than in 1934 but far short of the record of 112,220 trained in the fiscal year 1931, before allotments for this work were reduced so drastically. The occupational distri-

bution of the persons trained in 1935 was: Coal mining, 52,476; metal mining, 10,265; petroleum industry, 5,977; metallurgical industry, 2,255; nonmetallic mining, 1,904; tunneling, 1,225; cement industry, 376; public utilities, 282; miscellaneous, 2,450. The training was conducted in 484 communities in 35 States. Bureau of Mines personnel also attended 51 first-aid and mine-rescue meetings or contests in 16 States, usually acting as judges. The demands for such work are far greater than the Bureau's present personnel can satisfy.

The Bureau's safety engineers have devised an accident-prevention course for bituminous-coal mining, a more advanced, more technical, and more direct approach to mine safety than the first-aid or mine-rescue courses. This advanced course is suitable for only the more intelligent workers, but has proved invaluable to mine bosses. The course was started in 1930 and to July 1, 1935, had been taken by 8,851 persons; here again the demand exceeds the supply of instructors. During the past year 1,211 bituminous-coal-mine officials and other workers in 8 States took the full course, which requires attendance at about 20 meetings. About 10 members of the Safety Division devote much of their time to this important work, and three or four times as many could be given full-time duty on it, as this high type of safety education should be extended to the metal-mining, quarrying, cement, and petroleum industries, with experienced personnel as instructors.

Much first-aid training is now done in cooperation with the industry; the Bureau safety instructor conducts an intensive course of first-aid training for selected keymen of the mining company, who then divide the company's personnel into squads or classes of about 25 men each and give them the first-aid course, with the Bureau of Mines safety man as supervisor. Keymen with suitable qualifications, who have acted as temporary instructors, are recommended by the Bureau representative to receive temporary certificates as Bureau of Mines first-aid instructors; these are made permanent if the recipients do certain prescribed first-aid work each year for 5 years. In the last fiscal year 1,132 of these temporary or annual first-aid instructors' certificates were issued in 26 States, and 716 certificates previously issued were renewed. To June 30, 1935, the Bureau had distributed 5,699 first-aid instructors' certificates. They are much desired, because holders frequently have benefited by being given preferential rank and higher pay or have obtained fairly responsible positions in other industries than mining.

Holmes safety chapters.—To promote safety in mines and mining communities the Bureau sponsors the formation of community safety organizations called "Holmes safety chapters", named for its first director, Joseph A. Holmes. During the fiscal year the Safety

Division organized 68 new Holmes chapters in 7 States with an aggregate membership of over 18,000 persons. To the end of the fiscal year, 433 chapters had been organized in 29 States. Bureau of Mines personnel attended 448 meetings of safety chapters during the year and prepared and distributed to them a series of mimeographed safety lectures in popular, nontechnical language, which described the principal causes of accidents and available methods of prevention.

Safety meetings.—Attendance at mine-safety gatherings is an important duty of Safety Division engineers. In the past year 962 safety meetings in 28 States, with a total attendance of about 157,000, were included on the schedule of the division's safety men. The Bureau men addressed these gatherings on their work and in turn received information on mine safety.

Safety inspections.—Safety inspections of mines or plants associated with the mining industry constitute another important phase of Safety Division activity. In 1935, 173 such inspections and reports were made in 23 States, and in 11 States 22 confidential written reports were submitted to the operating companies with suitable recommendations for improvement in safety. In consequence of these inspections and reports, hundreds of improvements, some of them very important, are made annually in and around mines to promote greater safety of operation.

Publications.—Seventy manuscripts on various topics within the division's field were prepared for publication during the year; 50 of these were published, chiefly in mimeographed form, in the proceedings of mining and other societies, or in the technical press. All available printing funds for the division were used for reprinting the First-Aid Manual; even so the supply of this textbook needed for the division's field work was far from sufficient. To date 36 editions of the manual, totaling 1,016,525 copies, have been issued.

Although the Health Division was recessed in July 1933 because of drastic curtailment of funds, hundreds of inquiries on health in connection with the mining industry have been received and answered annually, and in addition publications have been prepared for issuance both by the Bureau and the technical press on health subjects, particularly dust diseases. These publications have been so popular that the normal number of copies could not supply the demand.

Conclusions.—Safety in the mining and related industries has improved greatly in the past few years. The training courses given nearly 900,000 persons in those industries are thus earning substantial dividends. For example, in coal mining the fatality rate in 1933 and 1934 was much lower than in any other calendar year, in

the history of the industry. Moreover, instead of nearly a score of major explosion disasters annually in the coal mines the total was 1 in 1933, 2 in 1934, and 2 to July 15, 1935. The employees of the Safety Division make personal contacts each year with 300,000 to 500,000 persons in the mining industry, bringing to them directly the safety teachings of the Bureau and thus helping to increase safety in the production of our minerals.

DEMOGRAPHICAL DIVISION

The Demographical Division conducted statistical investigations to determine the number and cause of accidents to employees in United States mineral industries, the relation between frequency and severity of accidents, the quantity of minerals produced, and the number of men employed. Information of this kind is required as a basis for accident prevention and as a measure of progress in safeguarding miners' lives. Such data are furnished to mining companies and others interested in preventing accidents.

The outstanding fact revealed by investigations during the calendar year 1934, which were based upon reports from representative plants in all parts of the country, was general reduction in accident rates for most branches of mining, notwithstanding increased tonnages mined. Although complete data for the year are not yet available, it is believed that final returns will confirm the showing forecast by reports already examined.

Iron-ore mines.—A notable increase in the number of men employed at the mines and in the quantity of ore produced was accompanied by a decreased accident rate. There was, however, a slight reduction in the quantity of ore mined per man-hour of labor. The number of workdays per man increased.

Copper mines.—A marked reduction in the accident rate was effected by copper-mining companies, although the tonnage of ore mined, the number of men employed, and the total man-hours of employment were larger than in the previous year. Productivity per man-hour increased slightly.

Gold, silver, and miscellaneous metal mines.—Increased tonnage of ore mined, a larger number of employees, and an increase in the aggregate number of man-hours worked at mines of this class unfortunately were accompanied by an increased accident rate. Productivity per man-hour increased slightly.

Lead and zinc mines.—More men were employed, more ore was mined, and a material increase was made in the total number of man-hours worked. Productivity per man-hour and accident rate both increased.

Cement mills and quarries.—This branch of the mineral industry consistently maintains low accident rates from year to year. The rate for 1934, though low compared with other industries, was slightly higher than in 1933. Total production and productivity per man-hour of labor both increased. The number of employees was somewhat larger than in 1933, and the total man-hours of employment increased.

Other quarrying.—Quarrying and other related work, such as rock-dressing, crushing, and the manufacture of lime, reduced their accident rate slightly in 1934; a larger tonnage of rock was produced and a larger number of men employed than in 1933. Productivity per man-hour declined slightly.

Accident-prevention contest.—A safety contest conducted among 334 mines and quarries in 38 States showed that safety had progressed so far in a number of States that accidents were eliminated. Through the accident reports furnished by the competing companies the Bureau obtains a fund of reliable information required in studying causes of accidents at mines and quarries, the frequency and severity of such accidents, and means whereby accidents may be prevented.

Explosives.—During 1934, 39,207,845 pounds of permissible explosives, 206,625,027 pounds of high explosives other than permissibles, and 68,935,050 pounds of black blasting powder were produced in the United States. The mineral industries consumed 65 percent of the total.

Conclusions.—Due to insufficient funds, the division cannot compile and make available to the industry adequately the vital facts concerning causes and frequency of accidents, such as might be obtained from the accident and employment reports furnished regularly by mining companies. The recommendation made a year ago is repeated, namely, that additional trained personnel should be obtained to enable the division to supply the mining industry with a larger measure of the information that may be obtained from the reports the operating companies furnish to the Bureau for its general study of accidents.

Effective July 1, 1935, the duties and personnel of the Demographical Division were transferred, by order of the Director, from the Health and Safety Branch to the Economics and Statistics Branch.

ADMINISTRATIVE BRANCH

OFFICE ADMINISTRATION DIVISION

The Office Administration Division is charged with handling personnel matters, property records, accounting, multigraphing and mimeographing, and general administrative routine.

Personnel.—On June 30, 1935, there were 523 full-time employees on duty at the Bureau. The employees were distributed and classified as shown in the following table:

	Classification and number of employees				
	Professional	Subprofessional [1]	C. A. F.	Custodial [2]	Total
Washington	[3] 36	4	133	6	179
Pittsburgh	[4] 59	30	37	47	173
Field in general	[5] 92	20	35	24	171
Total	[6] 187	54	205	77	523

[1] Includes instrument makers, safety instructors, laboratory aids, assistants, etc.
[2] Includes janitors, laborers, messengers, etc.
[3] Engineers, 19; chemist, 1; miscellaneous, 16; total, 36.
[4] Engineers, 30; chemists, 21; miscellaneous, 8; total, 59.
[5] Engineers, 43; chemists, 26; miscellaneous, 23; total, 92.
[6] Total: Engineers, 92; chemists, 48; miscellaneous, 47; grand total, 187.

In addition to the foregoing full-time employees the following persons were engaged on a when-actually-employed basis: 7 laborers, etc., employed on field agreements; 1 consulting metallurgist; 29 consulting engineers (Advisory Board); and 52 other employees holding classified, unclassified, and excepted appointments on a part-time basis, making a total of 612 employees.

Property.—The property records of the Bureau, as of June 30, 1935, show accounts as follows:

Automobiles and trucks	$74,762.45
Canvas and leather goods	3,498.10
Drafting and engineering instruments	10,061.92
Electrical equipment	62,492.72
Hardware and tools	31,683.23
Household equipment	19,016.99
Laboratory apparatus	467,645.30
Medical equipment	8,202.66
Office furniture and equipment	297,589.90
Photographic apparatus	28,786.29
Machinery and power-plant equipment	1,005,787.19
Land, buildings, and improvements	1,523,430.92
Rescue cars and specialized apparatus	403,014.92
Total	3,935,972.59

This property is located in Washington and at the various field stations and offices of the Bureau.

INFORMATION DIVISION

The Information Division comprises five sections concerned with dissemination of information on the Bureau's investigations.

Publications.—During the past year the publications section supervised the distribution of 100,234 copies of the free editions of printed

Bureau publications and approximately 330,000 reports of investigations, information circulars, and monographs. These were sent, however, only as the result of a direct request either for a specific publication or for all publications on a particular subject. In addition, the Superintendent of Documents sold about 100,000 copies of the Bureau's printed reports.

Numerous brief statements announcing the issuance of new publications or describing current investigations were supplied to the daily and technical press. These short items were printed widely and effectively acquainted the public with the results of the Bureau's work.

The section handled more than 61,350 letters requesting publications or information regarding the Bureau's activities and general mining subjects.

Editorial.—During the fiscal year 8 bulletins, 7 technical papers, 1 economics paper, 72 Minerals Yearbook and Minerals Yearbook Appendix separate chapters (1934 edition), and 4 miscellaneous papers—a total of 92 printed publications—were edited and sent to the printer. Moreover, during the year 71 chapters for Minerals Yearbook, 1935, which was sent to the printer soon after July 1, were edited. Owing to lack of printing funds, however, only part of the Bureau's output could be published in this manner; consequently, 157 papers (compared with 115 in 1934) were submitted for publication in the technical and trade press.

The section also edited 28 reports of investigations and 69 information circulars—papers which supply promptly to the mining industry and the general public the essential results of Bureau investigations usually described in detail in later printed reports or which present salient facts on the mineral industries in concise form suitable for use in reply to queries.

Motion-picture production.—As a means of disseminating information regarding safety and efficiency in the mineral industries the Bureau maintains what is perhaps the largest library of motion-picture films in the world. These films, prepared under supervision of the Information Division through the cooperation of industrial concerns which bear the entire cost of production, show where essential minerals are found and how they are mined, manufactured, or refined into useful products, utilized, and conserved. The prevention of accidents and the protection of human life have been given special attention, and several pictures deal specifically with these important subjects.

During the past year 5 film subjects were revised, and 522 additional reels obtained for circulation.

Library.—The year's accessions to the library comprised 3,770 books and pamphlets; 300 periodicals were received currently; and 6,442 books were loaned for use outside the library.

Graphic section.—In addition to drafting and photographic service the graphic section circulates the Bureau's films. This work is centralized at the Pittsburgh Experiment Station, but there are 11 subdistribution centers throughout the country, selected with regard to accessibility. The films are loaned to schools, churches, clubs, civic and business organizations, miners' local unions, etc. No charge is made for use, but exhibitors are asked to pay transportation charges. On June 30, 1935, the Bureau had 1,368 sets of films, including 2,771 reels, aggregating 1,789,990 feet. During the year the films were shown on 61,002 occasions before an estimated audience of 4,970,010. The number of showings and attendance were both 22 percent higher than in the last fiscal year.

Conclusions.—The Information Division, as the outlet through which the results of the Bureau's scientific investigations are made available to the mining industry and to the general public, rendered valuable and efficient service during the year in editing more than 410 manuscripts, distributing over 430,200 publications, revising and circulating educational motion-picture films, answering letters and inquiries, and preparing statements widely printed in the daily, trade, and technical press.

Table 1 presents classified and complete information regarding the financial history of the Bureau since its establishment in 1910. Table 2 gives a statement of the distribution of congressional appropriations to the branches and divisions within the Bureau and the expenditure of these funds in 1935, by Bureau divisions.

TABLE 1.—*Bureau of Mines appropriations and expenditures, fiscal years ended June 30, 1911–35*

Fiscal year	Appropriated to Bureau of Mines	Departmental allotments [1]	Funds transferred from other departments [2]	Total funds available for expenditure	Unexpended balances	Total expenditures	Expenditures exclusive of service items [3]
1911	$502,200.00	$34,200.00		$536,400.00	$22,818.27	$513,581.73	$513,581.73
1912	475,500.00	45,640.00		521,140.00	6,239.77	514,900.23	514,900.23
1913	583,100.00	47,850.00		630,950.00	4,087.20	626,862.80	626,862.80
1914	664,000.00	57,307.79		721,207.79	4,678.29	716,629.50	716,629.50
1915	730,500.00	55,424.60		785,924.60	4,178.11	781,746.49	781,746.49
1916	757,300.00	48,710.87		806,010.87	9,058.63	796,952.24	796,952.24
1917	981,060.00	52,400.00		1,033,460.00	48,588.10	984,871.90	984,871.90
1918	1,467,070.00	51,901,98	[4] $3,062,000.00	4,580,971.98	395,745.10	4,185,226.88	1,172,939.64
1919	[5] 3,245,285.00	49,542.86	[6] 8,600,000.00	11,894,827.86	2,452,236.78	9,442,591.08	1,137,471.37
1920	1,216,897.00	52,800.00		1,269,697.00	9,592.18	1,260,104.82	1,245,891.36
1921	1,362,642.00	62,618.72	666,720.00	2,091,980.72	13,985.89	2,077,994.83	1,412,923.15
1922	1,474,300.00	59,800.00	182,200.00	1,716,300.00	52,120.45	1,664,179.55	1,483,038.47
1923	1,580,900.00	70,814.30	97,100.00	1,748,814.30	10,959.08	1,737,855.22	1,640,840.57
1924	1,784,959.00	50,710.00	347,820.00	2,183,489.00	38,085.43	2,145,403.57	1,804,800.41
1925	2,028,268.00	57,500.00	236,465.86	2,322,233.86	107,743.20	2,214,490.66	1,998,669.20
1926	1,875,010.00	81,220.00	510,501.15	2,466,731.15	28,891.78	2,437,839.37	1,841,150.80
1927	1,914,400.00	94,443.39	325,000.00	2,333,843.39	44,871.29	2,288,972.10	1,926,910.12
1928	3,025,150.00	113,266.45	328,000.00	3,466,416.45	[7] 736,235.62	2,730,180.83	1,997,270.66
1929	2,725,118.00	103,000.00	205,500.00	[7] 3,753,094.67	[8] 152,701.34	3,600,393.33	2,280,960.68
1930	2,274,670.00	123,300.00	166,200.00	[8] 2,684,386.38	[9] 135,714.93	2,548,671.45	2,216,995.72
1931	2,745,060.00	120,680.91	166,500.00	[9] 3,134,595.10	[10] 195,534.37	2,939,060.73	2,304,121.45
1932	2,278,765.00	137,866.48	194,500.00	[10] 2,770,712.18	[11] 344,689.43	2,426,022.75	2,186,799.92
1933	1,860,325.00	75,100.00	184,000.00	[11] 2,398,947.38	[12] 488,335.34	1,910,612.04	1,710,949.42
1934	1,574,300.00	50,230.60	17,000.00	[12] 1,890,171.98	[13] 408,674.26	1,481,497.72	1,254,846.72
1935	1,293,959.07	50,000.00	126,513.10	[13] 1,546,989.94	[14] 35,942.18	1,511,047.76	1,349,764.55
Total	40,420,738.07	1,746,028.35	15,416,020.11	59,289,396.60	5,751,707.02	53,537,689.58	35,901,889.10
1936	1,994,011.00	72,000.00	20,000.00	[15] 2,113,011.00			2,048,011.00

[1] Includes printing and binding, stationery, and contingent funds.
[2] Includes proceeds from sales of residue gas.
[3] Service items include Government fuel yards, helium, and other investigations and services for other departments.
[4] Includes gas investigations for War Department.
[5] Includes $1,586,388 for Government fuel yards.
[6] Includes War Minerals Relief Commission $8,500,000.
[7] Includes $719,476.67 unexpended balance reappropriated.
[8] Includes $120,216.38 unexpended balance reappropriated.
[9] Includes $102,354.19 unexpended balance reappropriated.
[10] Includes $159,580.70 unexpended balance reappropriated.
[11] Includes $214,713.96 unexpended balance reappropriated.
[12] Includes $184,056.04 unexpended balance reappropriated.
[13] Includes $50,000 unexpended balance reappropriated.
[14] Includes $27,000 unexpended balance reappropriated.
[15] Estimated.

TABLE 2.—*Bureau of Mines expenditures, fiscal year 1935*

Branch or division	General expenses	Operating rescue cars and stations and investigation of accidents	Mining investigations in Alaska	Testing fuel	Mineral mining investigations	Oil and gas investigations	Expenses, mining experiment stations	Care, etc., buildings, and grounds
Office of the Director	$10,999.22							
Office of the Assistant to the Director	9,051.55							
Administrative Branch:								
Office Administration Division	24,712.86	$16,846.31			$1,133.04			
Information Division	6,331.37	15,758.59	$410.50	$6,328.12	6,725.53	$7,175.33	$8,352.44	$3,910.00
Total	31,044.23	32,604.90	410.50	6,328.12	7,858.57	7,175.33	8,352.44	3,910.00
Office of Chief Mining Engineer		25,689.02						
Technologic Branch:								
Experiment Stations Division	2	119,539.45		53,309.31	4,909.68		66,201.88	61,317.38
Explosives Division		23,166.90						
Mechanical Division		37,390.99	6,156.08	44,699.85	672.50			
Metallurgical Division					43,842.70		60,662.79	
Mining Division					33,862.08			
Petroleum and Natural-Gas Division						111,529.70		
Total		180,097.34	6,156.08	98,009.16	83,286.96	111,529.70	126,864.67	61,317 38
Economics Branch:								
Coal Division								
Common Metals Division								
Mineral Statistics Division								
Office of Principal Mineralogist								
Petroleum Economics Division								
Rare Metals and Nonmetals Division								
Total								
Health and Safety Branch:								
Demographical Division		20,348.07						
Safety Division		219,414.07						
Total		239,762.14						
Total appropriations	51,189.88	478,542.20	6,601.61	104,414.20	91,248.27	118,820.06	135,335.40	65,302.16
Total expenditures	51,095.00	478,153.40	6,566.58	104,337.28	91,145.53	118,705.03	135,217.11	65,227.38
Unexpended balance	94.88	388.80	35.03	76.92	102.74	115.03	118.29	74.78

Branch or division	Economics of mineral industries	Helium production	Helium plants	Gas production	Printing and binding	Department contingent	Special transferred funds	Total
Office of the Director								$10,999.22
Office of the Assistant to the Director								9,051.55
Administrative Branch:								
Office Administration Division	$8,501.56	$6,904.85			$9,287.24	$13,000		80,385.86
Information Division	9,508.36	24.75			822.05			65,347.04
Total	18,009.92	6,929.60			10,109.29	13,000		145,732.90
Office of Chief Mining Engineer								25,689.02
Technologic Branch:								
Experiment Stations Division					1,066.75			306,344.45
Explosives Division					72.93			23,239.83
Mechanical Division					1,213.90			90,133.32
Metallurgical Division					1,543.40			106,048.89
Mining Division					2,201.00			36,063.08
Petroleum and Natural-Gas Division		80,483.50	$49,919.22	$23,950.89	1,226.10		$4,048.03	271,157.44
Total		80,483.50	49,919.22	23,950.89	7,324.08		4,048.03	832,987.01
Economics Branch:								
Coal Division	49,491.10							49,491.10
Common Metals Division	20,279.13						2,995.12	23,274.25
Mineral Statistics Division	92,268.53				13,625.62			105,894.15
Office of Principal Mineralogist	7,032.55							7,032.55
Petroleum Economics Division	32,522.25							32,522.25
Rare Metals and Nonmetals Division	22,670.61				247.54			22,918.15
Total	224,264.17				13,873.16		2,995.12	241,132.45
Health and Safety Branch:								
Demographical Division					1,762.09			22,110.16
Safety Division					3,931.38			223,345.45
Total					5,693.47			245,455.61
Total appropriations	242,505.29	114,413.10	50,000.00	26,517.77	37,000.00	13,000	12,100.00	1,546,989.94
Total expenditures	242,274.09	87,413.10	49,919.22	23,950.89	37,000.00	13,000	7,043.15	1,511,047.76
Unexpended balance	231.20	[1] 27,000.00	80.78	2,566.88			5,056.85	35,942.18

[1] Reappropriated for expenditure in 1936.

The following table covers expenditures by the Bureau of Mines to June 30, 1935, from allotments from National Industrial Recovery and Public Works appropriations:

Project no.	Description	Allotment	Balance	Expenditure
1	Repair mine rescue station, McAlester, Okla	$1,000		$1,000.00
2	Plans for building for experiment station, College Park, Md	16,800		16,800.00
3	Buildings and grounds, Pittsburgh and Bruceton, Pa	172,000	$4.48	171,995.52
4	Roads, Pittsburgh and Bruceton	13,000	1.16	12,998.84
5	Repairs to experimental mine	15,000	.17	14,999.83
6	Repairs to building and equipment, Bartlesville Experiment Station	45,000	.52	44,999.48
7	Paving Bartlesville Experiment Station	10,000	3.75	9,996.25
8	Building and equipment, experiment station, Tuscaloosa	200,000	177,768.87	22,231.13
9	Locating underground water resources in Nevada	4,950	4,110.27	839.73
	Total	477,750	181,889.22	295,860.78

ST. ELIZABETHS HOSPITAL

(William A. White, M. D., Superintendent)

MOVEMENT OF POPULATION

On June 30, 1935, 5,315 patients remained in the hospital as compared with 5,191 on June 30, 1934, an increase of 124.

The total number of patients under treatment during the year was 6,015, as compared with 5,875 for the preceding year, an increase of 140.

The total number of admissions during the year was 824, as compared with 894 the preceding year, a decrease of 70.

The total number of discharges for the year was 396, as compared with 426 for the preceding year, a decrease of 30.

The total number of deaths for the year was 304, as compared with 258 for the preceding year, an increase of 46, or about 18 percent.

The total number of discharges and deaths, combined, was 700, compared with 684 for the preceding year, an increase of 16, or about 2½ percent.

There were 64 burials in the hospital cemetery, as compared with 57 the preceding year, an increase of 7. With the cooperation of the War Department the bodies of 36 service men, honorably discharged, were buried in the Arlington National Cemetery, several as "indigent" who had no estate whatever. The other 268 bodies were buried by private undertakers, in cemeteries in Washington and elsewhere throughout the United States, one having been shipped to England.

The daily average patient population was 5,266.5, as compared with 5,049 the preceding year, an increase of 217.5.

Movement of patient population, fiscal year 1935

	Male			Female			Total
	White	Colored	Total	White	Colored	Total	
Remaining on rolls June 30, 1934	2,671	747	3,418	1,088	685	1,773	5,191
Admitted during year ended June 30, 1935	385	137	522	202	100	302	824
Total number under care and treatment during year ended June 30, 1935	3,056	884	3,940	1,290	785	2,075	6,015

Movement of patient population, fiscal year 1935—Continued

	Male			Female			Total
	White	Colored	Total	White	Colored	Total	
Discharged as—							
Not insane	10	3	13	3	0	3	16
Recovered	85	14	99	34	13	47	146
Improved	70	10	80	19	9	28	108
Unimproved	79	21	100	22	4	26	126
Total discharged	244	48	292	78	26	104	396
Died	118	51	169	79	56	135	304
Total of patients discharged and died	362	99	461	157	82	239	700
Number of patients remaining on rolls June 30, 1935	2,694	785	3,479	1,133	703	1,836	5,315

ADMINISTRATIVE DEPARTMENT

OFFICE OF THE ASSISTANT TO THE SUPERINTENDENT

Supplies.—The supplies produced on the hospital reservation, including farm and garden products such as potatoes, tomatoes, beans, parsley, spinach, squash, turnips, etc., were 265,311 gallons of milk, 156,411 pounds of fresh pork, 14,742 dozen eggs, 6,336 pounds of chicken, 23,970 bunches beets, 20,670 bunches carrots, 5,700 bunches endives, 14,600 bunches green onions, 8,800 bunches parsley, 28,200 bunches radishes, 211 bunches asparagus, 81 bushels apples, 1,450 bushels cabbage, 50 bushels cabbage cuttings, 511 bushels carrots, 122 bushels cucumbers, 106 bushels eggplant, 3,565 bushels kale, 877 bushels mustard, 489 bushels parsnips, 87 bushels pears, 274 bushels green peppers, 845 bushels sweetpotatoes, 1,745 bushels rape, 129 bushels rutabagas, 1,525 bushels turnips, 967 bushels spinach, 27,000 ears of green corn, 1,500 pumpkins, 1,800 squash, etc., 12,500 pairs of shoes and slippers, 5,812 brooms, 2,089 brushes, 2,150 men's belts, 3,800 pairs of suspenders, 2,179 mattresses, 1,800 pillows, 850,000 loaves of bread, 3,265,000 rolls, 90,000 pounds of pastry, 22,000 gallons ice cream, and the laundering of 11,295,000 articles, in addition to hundreds of other items.

Amongst the items raised on the farm, in addition to the garden products, were 940 tons of ensilage corn, 127 tons of alfalfa hay, 54 tons of sudan grass and soybean hay, 100 tons of wheat-green, and 2,300 bushels of field corn.

In addition, large quantities of clothing for men and women were made in the sewing rooms and tailor shops, and articles of clothes, bed linen, tableware, all boots, shoes, and other leather goods were repaired. The patients on the wards, under the direction of occupational therapists, made all the dresses furnished the patients, hemmed all the sheets and blankets, and assisted in making stand covers, table covers, tablecloths, towels, and other items.

All the steam, electricity, ice, and refrigeration used on the reservation was manufactured in the hospital shops.

Dairy and cow barn.—The Holstein-Friesian herd has again been tested for tuberculosis, and one cow reacted; this cow was sold in January. No lesions were found post-mortem. The herd is evidently free of tuberculosis. The herd consists of 233 cows, 94 heifers, 82 calves, and 8 bulls, a total of 417 animals. This is the twenty-first year that there have been practically no reactions from tuberculosis. This is one of the largest accredited herds in the country.

Bang abortion disease found in May 1934 continues to be a problem in the herd, though it seems to be under control, as no new cases have developed since December 1934. Blood tests were made on the herd since May 1934 as follows:

May 1934, 380 cows, heifers, and bulls, Bang disease reactors	36
June 1934, 255 cows and bulls, Bang disease new reactors	2
July 1934, 378 cows, heifers, and bulls, Bang disease new reactors	1
August 1934, 195 cows, heifers, and bulls, Bang disease new reactors	0
September 1934, 356 cows, heifers, and bulls, Bang disease new reactors	1
October 1934, 241 cows, heifers, and bulls, Bang disease new reactors	1
December 1934, 293 cows, heifers, and bulls, Bang disease new reactors	0
January 1935, no test made.	
February 1935, 312 cows, heifers, and bulls, Bang disease new reactors	0

These tests, since May 1934, show that the first blood test practically cleaned the herd, as only five new reactors have occurred since that date and no reactions occurred in either the August, December, or February tests.

Unless something unforeseen occurs, it looks as if Bang disease is under control. Investigations were made by veterinarians of the Bureau of Animal Industry, who spoke favorably of the results of the blood testing, quarantining, and other efforts made on the hospital herd, and stated that they knew of no large herd in which the desired results had occurred so promptly.

The herd produced 265,311 gallons of milk during the past year, about 4 percent less than the previous year. This was an average production of about 12,000 pounds of milk per cow per year.

The quality of the milk, as indicated by the various bacteria counts, has been highly satisfactory, the average, well below 10,000 colonies per cubic centimeter (average about 6,800), being well within the requirements for certified milk.

The hospital continues to cooperate with the United States Department of Agriculture in the use of pure-bred bulls from its Beltsville (Md.) Experimental Station.

Piggery.—The hospital slaughtered 603 hogs during the year, which furnished 156,411 pounds of dressed pork, about 44,000 pounds more than during the previous year.

Farm and Garden.—The past fiscal year has not been marked by any serious disturbing factors, neither have any unusual successes been attained. Some improvements have been made that are not apparent on the surface, the chief item being the maintenance of general production in spite of reductions in both land and labor. As previously reported, this has been done at some sacrifice to general appearance of the farm and premises.

The amount of land available for production is gradually decreasing. No additional land has been purchased for farming purposes since 1891, when the hospital had about 1,200 patients, while it now has 5,300 patients. To house the increased number of patients required more beds and more buildings. Each building reduced the land available for farming. Each building required other utilities—lawns, walks, water, steam pipes, electric lights, etc. All of this reduced the land that could be cultivated for farm and gardening. The time has been reached when something should be done. When St. Elizabeths Hospital was first established it was located some distance away from the center of the city of Washington. The growth of the city has encompassed the hospital. The city that now surrounds the main portion of the institution, and what was formerly rural district is part of the city itself. The cow barns and piggery are located adjacent to Nichols Avenue and close to several of the buildings housing patients. Provision should be made for the purchase of land some distance away from the main portion of the hospital to locate the farm activities. This should include not only land for raising forage, fruits, and vegetables, but also to establish the dairy, piggery, and poultry plant. If about 5,000 acres of land could be purchased, the various items named could be located on the new farm and building erected, providing quarters for about 240 patients, whose services could be used helping to do the work on the farm and we believe such work would be of therapeutic value to the patients.

Diet.—The hospital continues the study of the diet. Not only are efforts being made to serve a greater variety of food to the patients and a larger variety of greens, but even greater efforts are being made to see that the food is being served in a more appetizing manner.

The manner of feeding through cafeteria has been extended. A cafeteria has been opened for the West Lodge dining room, which furnishes food not only for the patients in the West Lodge building but many from the Garfield, Dawes, and Ash wards. Four hundred and sixty patients are served in this cafeteria.

The dining room adjacent to the Detached Building has been equipped for cafeteria feeding, and 596 patients are served in this dining room.

The dining room attached to the S. P. B. group has been equipped for cafeteria service, and 530 patients are served in this dining room.

More than 2,600 patients are now fed by the direct cafeteria system, and 1,000 additional by a modified form of cafeteria system which will best suit the needs of the various patients. That means that about 3,500 out of 5,300 patients at the hospital are fed by the cafeteria system, which permits them to participate in the choosing of the food that they are to eat. The hospital method of furnishing food by cafeteria style is to give the patients an election. The result of this change seems to be appreciated by the patients, who have not hesitated to express their approval of the improvement in the manner in which the food is served.

The cafeteria set aside for employees has been reconditioned, new toilet and locker rooms being provided.

Two classes in dietetics have been taught this year by one of the dietitians. Each class had 13 student nurses. The class consisted of 15 hours of lectures and 30 hours of laboratory work.

Two classes in diet and disease have also been taught by one of the dietitians. There were 15 students in one class and 10 students in the other, these classes consisting each of 15 hours of lecture.

Ice cream and pasteurizing plant.—A total of 263,975 gallons of milk, or a daily average of 723 gallons, were clarified and pasteurized at 148° F., held for 30 minutes, cooled as rapidly as possible to 46° F., and then bottled and canned. The bottles and cans had been thoroughly washed, steamed, and inspected before being used.

About 25 gallons of buttermilk were made daily and bottled and canned.

In the ice-cream department a total of 21,667 gallons of ice cream, or a daily average of 59 gallons, was made.

Bakery.—The output of bread during the year was 850,000 loaves, with 3,275,000 rolls and 90,000 pounds of pastry. During the year a change was made in the ingredients used in the dough by adding powdered milk and malt sirup which, it is believed, has made a great improvement in the output of the bakery.

Laundry.—The work of the laundry continues to increase. The number of pieces laundered during the past year was 11,293,923, about 550,000 increase over the previous year. There has been no increase among the paid employees, notwithstanding the additional number of pieces laundered.

A new disinfector has been installed, and a larger air compressor is at present being installed.

During the month of April more than 1,000,000 pieces were washed and laundered. We have practically reached the limit of the capac-

ity of the present laundry, and material increase will result in increasing the number of shifts or extending the laundry and purchasing new equipment.

Shoeshop.—During the year the shoeshop manufactured about 10,800 pairs of shoes and slippers; repaired 2,500 pairs of shoes; manufactured all kinds of brushes, numbering 2,113; made 3,189 pairs of suspenders and 2,147 belts.

There is one paid employee in charge of this department, all the other help being patients.

There was a slight reduction in the number of shoes made, but there were sufficient to meet all requirements.

Lawns and grounds.—The topsoil near the male receiving building was regraded and sown with grass seed. Trees were planted adjacent to this building. Shade and ornamental trees were planted near the continued-treatment buildings. In front of tuberculosis building no. 1 dwarf trees were planted so as to give a pleasing effect without cutting off the light from the windows.

Fires.—There were 27 fires during the past year, the total property damage being $113. Fire inspections and fire drills are regularly made. During the past year the Federal Fire Council made a very exhaustive inspection of the entire institution and in their report, which has just been received, there are some recommendations which will require early action. They commented upon the favorable condition in which the institution is kept and the work done by the hospital fire department, which resulted in a minimum amount of damage by fire.

Construction.—Installed window grilles, metal windows and concrete window sills for all windows on West Lodge porch. Also, window grilles, metal windows and concrete window sills on Oaks–A porch, south side. Extended this porch on west side of Oaks–A, two floors complete, in keeping with the renovation authorized by allotment from the Public Works Administration.

Made a complete overhaul of railroad track and sidings. Changed the location of track along the old cemetery to reduce the curves and improve the grade.

Built a new underground brine line for the cold-storage rooms in the general storeroom from the ice plant to storeroom.

P building was vacated by male patients and is now used by female patients. Renovated this entire building, putting in new floors, pointing up plaster, painting, additional radiators, and changing the plumbing. Laid tile floors in all toilets and bathrooms and quarry tile floors in serving room. Enlarged and improved the pasteurizing room of the dairy. Laid new tile floor, plastered walls and ceiling, and painted the dairy.

Renovated J building. Repaired floors, laid tile floors in bath and toilet rooms.

Erected a sun parlor for Q building, provision being made for a hydrotherapy department on the first floor. General repairs were made in Q building. One dormitory and the visiting room received a new wooden floor. All toilets and bathrooms were tiled. Radiator covers were changed. The S. P. B. group of buildings required considerable repairs, resulting in a general reconditioning in order to keep them in a usable state. Installed new concrete floors in bath and toilet rooms, and replaced wooden beams under dormitories and day rooms.

Replaced wooden floors in bakery with reinforced concrete, with quarry tile finish.

Replaced the concrete floor in the old boiler room at the power house. Installed a 12-inch sewer line through the old boiler room and connected same with sewer line in coal pocket. Built a concrete trench through boiler room for an ash pipe; extended this trench through ash pits under boilers.

Laid water mains around female receiving building for domestic and fire service.

Installed new grille work on porches of J, K, I, N, and Q buildings.

Built a fence with gates between continued treatment buildings nos. 1 and 2. Also a similar fence at two places around the S. P. B. buildings. This permits the patients in the continued treatment and S. P. B. buildings to have freedom of the grounds with limited supervision.

The porches of Allison–A building were enclosed, the remodeling permitting these porches to be used for sleeping purposes.

All coal ranges were replaced by gas ranges, and the heating plant in the propagating house, which is a part of the greenhouse, was connected up with the steam plant, practically doing away with the necessity of using anthracite.

Disbursements.—During the year the President in reorganizing all disbursing departments of the Government located in Washington and centralizing all the work in a general disbursing office of the United States, under the Treasury Department, transferred the disbursing of funds for St. Elizabeths Hospital from the hospital proper to the central disbursing office noted. The reorganization took from the hospital the drawing and mailing of checks for payments. The responsibility for such payments and all other work pertaining to the payments, including the examining of accounts, the keeping of the records and accounts for the trust funds, the payment of small cash balances, continues to be the work of the

hospital employees. The change as noted relieved the hospital disbursing agent from such duties and resulted in a change of title from disbursing agent to Chief of Finance and Accounts Division, St. Elizabeths Hospital, and agent cashier of the General Disbursing Office of the Government.

Public Works projects.—All Public Works projects for which funds were allotted have been completed, with the exception of Federal project no. 1, St. Elizabeths Hospital, female receiving building, on which there has been some delay but it is believed now that this building will be completed October 1, 1935.

Supplies.—Orders were placed for supplies during the year amounting to $916,150. Of this amount, $761,141 was covered by formal contracts entered into by the hospital directly with contracting parties.

Personnel.—The total number of employees on the hospital rolls June 30, 1935, was 1,556, an increase of 7 employees.

During the year Congress passed an act reestablishing the standard wage scale, restoring salary reductions which have been made for the past several years.

During the year several of the old employees were retired from the service on account of age, including:

Lebanon Griffith	Head carpenter.
George R. Baxter	Tinner.
Martha Weedon	Housekeeper.
Julia A. Henson	Laundress.
Pinkey A. Moussard	Kitchen helper.

The following were retired on account of disability:

Charles J. Harbaugh	Supervisor.
Mary A. O'Brien	File clerk.
Walter B. Treakle	Assistant supervisor.
Mary M. Thompson	Charge psychiatric nurse.
Frank McClure	Attendant.
Thomas Lewis	Do.
Ola R. Belfield	Do.
Charles W. Marmaduke	Fire fighter.
John R. Moore	Laborer.

RECREATIONAL, VOCATIONAL, AND OCCUPATIONAL WORK

Occupational therapy.—During the year this department furnished work for 929 patients. This work included weaving, sewing, toy making, woodwork, basketry, etc. In the industrial department there were made 21,660 sheets, 10,610 pillow cases, 28,016 towels, and 6,610 dresses. It has been the practice as far as possible that the patients should make their own dresses.

Red Cross.—The Red Cross continued to maintain a hospital unit during the past fiscal year. The psychiatric social workers attached to this unit are primarily concerned in case correspondence and contact work. During the past year that office sent out 3,902 letters and received 4,088 letters concerning patients and their affairs.

The psychiatric case-work staff has continued filing pensions and the referring of other types of claims to the proper authorities for action.

Three thousand and eighty-six tickets of all classes were donated to the Red Cross for the use of St. Elizabeths' patients, about the same number as during the previous year. These tickets covered baseball, football, athletic events of all sorts, moving pictures, etc. There were 77 moving picture shows in Hitchcock Hall, on the hospital reservation. The athletic director has continued the work of organizing, supervising, and assisting the patients to participate in many athletic events.

During the past year service bands have given 23 concerts.

MEDICAL DEPARTMENT

Library.—The library is divided into two parts, primarily that noted as the medical library, and that noted as the patients' library. The total number of volumes in the combined library is about 31,000. There were 60 books added to the medical library during the year. The hospital subscribes to several newspapers and approximately 100 periodicals, magazines, etc. About 150 books were added to the patients' library. There are approximately 3,500 books in constant circulation.

Social-service department.—The work of this department during the past year included training of students from the hospital training school and from the social-service school.

The social service report from July 1, 1934, to June 30, 1935, showed the following:

Number of out-patients on rolls July 1, 1934	93
Number of out-patients on rolls June 30, 1935	149
Average number on rolls per month	122
Number of patients discharged from the rolls	45
Number of out-patients under care during the year	219

Training school.—Nineteen students graduated in the 3-year course of the training school. Twenty completed their course and will probably receive their diplomas in September 1935. There were in the training school on June 30, 1935, 28 postgraduate students, 26 affiliating students, 18 seniors, 14 juniors, and 10 freshmen.

In September the affiliation with Garfield Hospital was reopened, and in the same month an agreement was made with the Washington

Sanatorium at Takoma Park, Md., to give their male students psychiatry. In March 1935, an affiliation agreement was made with the Georgetown University Hospital.

Affiliations for St. Elizabeths' students are still in effect with Emergency, Sibley, Children's Hospitals, of Washington, D. C., and Bellevue Hospital, of New York City. There is also an affiliation with the Instructive Visiting Nurse Society, of Washington, D. C.

Medical and surgical wards.—Quite an advance was made in the treatment of fractures of the hip by the use of a new style of fracture apparatus. Progress has been made in the treatment of carcinoma through the use of deep therapy X-ray machines.

In addition to his regular duties, the doctor in charge of the antiluetic clinic has, during the year, cooperated intensively with various of the personnel of the United States Public Health Service in an investigation which has been made into the relative efficiency and accuracy of the various methods used for determining the presence or absence of syphilis by means of blood and spinal fluid serum reaction. The Public Health Service has made a comprehensive report of this work, and its result should be of considerable advantage in the future in the use of this method as an aid to diagnosis.

The service has been cooperating with the experimental laboratory at Walter Reed Hospital in connection with the artificial culture of the malaria organism.

Two full reels of moving pictures were taken this spring, showing the various activities of the medical and surgical service and were exhibited at the meeting of the American Psychiatric Association in May.

The matter of intravenous injection of large quantities of dextrose and salt solution as a therapeutic measure in various types of illnesses, has received considerable attention during the year. This form of therapy has come into general use in recent years and has proved itself very efficient, accomplishing results heretofore not realized.

Men's services.—The new male receiving building was completed and occupied, beginning on August 8, 1934. With the opening of the new building a definite change of policy with reference to transfer of patients to other services was instituted. During the year there has been retained in this service all acute mental cases, including all problem cases even though chronic, with the exception of several patients who have been transferred to the Howard Hall department because of their extremely dangerous tendencies. Problem cases from other services have been transferred back to the male receiving service for special care and attention.

During the year there were 56,608 treatments given in the hydrotherapy room and 1,238 packs given on the ward, in addition to many continuous baths given on the ward.

With the opening of the male receiving building and the transfer of continued treatment building no. 1 to the Richardson group service, P building, formerly used for male patients, was transferred to the women's department for their use. The use of continued-treatment building no. 1 permitted the erecting of a wire fence between continued-treatment buildings nos. 1 and 2, so that the intervening ground would permit more outside activities for the patients in these buildings. Trees have been planted which we hope eventually will result in many shade spots for the patients out on the lawn during the hot season.

The erection of a fence on each end of the S. P. B. group, between the buildings and the fence, permits the use of the enclosure for the patients in these buildings, giving them fresh air which is a decided relief during the hot weather, as the old S. P. B. group of buildings is unusually warm.

Master radios were installed in continued-treatment buildings nos. 1 and 2, with the control in the supervisor's office and loud speakers on each of the four wards of these buildings.

An occupational index was established in part of the hospital during the last year which has helped in increasing the number of patients usefully occupied. A card was maintained for each patient showing the type of occupation, date of assignment to such, date when work was discontinued and the reason for its discontinuance, such as disturbed, sick, on visit, etc. In addition to the occupational index, every charge nurse was requested to furnish the clinical director with a list of patients on that ward, giving the name, case number, and whether employed or idle; if employed, the type of occupation, with some general remarks as to patient's behavior and habits. These lists were gone over with the physician in charge and the clinical director was able to assign a number of idle patients to various occupations.

The rebuilding of the porches on West Lodge building permitted the use of such porches as sitting rooms. The patients are no longer compelled to sit in dark hallways, as was formerly the case. This has diminished the number of minor injuries resulting from disturbances and fights among patients, and has generally served to improve the patients' morale.

The abolishment of small dining rooms through the establishment of cafeteria in West Lodge has given space for 58 additional beds.

The installation of a cafeteria in the detached service dining room was a marked step forward in the feeding of these patients. It was

a surprise to see the large number of patients belonging to the chronic and deteriorated groups who were able to get along with this type of service.

Women's services.—The completion of the new male receiving building and the reconditioning of the porches around Oaks Building have resulted in many changes. As noted, P building, formerly occupied by men, was turned over to the women's services. Q building is to be made into a receiving building for colored women.

The new women's receiving building will be completed during the fiscal year 1936 and the patients in C building, at present used for a receiving service, will be transferred to the new building. This will permit to some extent the relieving of the crowded condition, especially among colored women.

It is hoped that additional funds will be allotted to the hospital for rebuilding of the porches around Oakes-B, D, and E, and erection of additional buildings.

The cement porch in front of B building has been replaced by soil in which grass will be planted. The taking up of this cement has apparently lowered the temperature of the wards and rooms along this section of the building.

The new water section and south porch rebuilt adjacent to Oaks-A were completed in November, and the west porch adjacent to Oaks-A in March. The north porch is now being reconstructed. The changes from more or less of a fire menace to fireproof porches not only give additional room but furnish more protection for the inmates of this building.

Laboratory.—The work of the laboratory continues to increase. A division of electrophysiology has been added to the laboratory to be used in analysis of the action currents of the brain.

Educational.—The hospital continues to cooperate with the various educational institutions around Washington by having members of its staff give lectures to the students in the medical schools.

The teaching work with the George Washington medical students was continued through the year as during the preceding year, with Dr. Lind acceptably substituting for Dr. Lewis in giving a course of lectures to the first year medical students on medical psychology. The Superintendent lectured to the third year students during the winter and spring. Dr. Hall gave a course of clinical lectures on organic psychology at the medical school in the second year. The fourth-year students now have the benefit of Dr. White's lectures during the third year before they make their clinical contacts on the wards of the hospital, and show this by improvement in their interest and quality of work. The fourth-year ward work to the students was conducted with the help of Drs. Silk, Lind, Twombly, and Duval.

Dr. Hall gave two courses of clinical lectures and demonstrations to the University of Maryland students in abnormal psychology.

Dr. Richmond gave lectures to students in the Naval Medical School, George Washington University Medical School, and a group of Child Welfare Workers from the city.

Dr. Karpman gave a course of lectures to students of the Howard University Medical School.

Dr. Campbell gave lectures on gynecology to nurses; Dr. Coyne lectured to nurses on nervous anatomy, and Dr. Twombly gave lectures to the students of the George Washington Medical School, and lectures and clinics were given to the American University students.

NEEDS OF THE HOSPITAL

An estimate of $1,199,025 for the support, clothing, and treatment of the patients in St. Elizabeths Hospital for the fiscal year ending June 30, 1937, was recommended. This amount was based on 1,825 patients. The hospital at the present time has 5,394 patients. The average for the fiscal year 1935 was 5,267, as compared with 5,049 for the previous year, an increase of 218. The average for the fiscal year 1937, it is estimated, will be 5,570, 176 more than the present number. The 5,570 are divided as follows: 1,825 Federal patients, appropriated under the title of St. Elizabeths Hospital in the Interior Appropriation Act; 3,300 beneficiaries of the District of Columbia, and appropriated for in the District of Columbia Appropriation Act; 110 beneficiaries of the United States Veterans' Administration, and carried in the appropriation of the United States Veterans' Administration; 130 beneficiaries of the United States Public Health Service, and carried in its appropriation; 35 United States Soldiers' Home beneficiaries, and payment for these to be received from that service; 70 beneficiaries of the Bureau of Indian Affairs, to be paid for by transfer from funds appropriated for conservation of health among Indians.

The rate estimated for the care of the patients during 1937 is $1.80 per capita per day. This is the same as for the present year, notwithstanding the fact that the deductions from the pay roll under the economy act have been entirely restored and the cost of food seems to be increasing. Not only is the cost of food increasing at the present time but the cost of forage, textiles, and other supplies seems to be on the upgrade.

Included in the estimate is $200,000 that is essential to keep up the repairs and make the necessary improvements to buildings and grounds. The amount allocated for this work for the fiscal year 1936 was $185,000, but we question whether this will be sufficient to do all the work of this class that should be done during the year. Out of

these repairs will come funds for keeping more than 100 buildings in repair, repair and widen roads and walks, the maintenance of railroad tracks, replacing glass in windows, fixing floors, repairing and doing all other work of this nature.

The hospital continues to grow. The admissions are increasing. There is still a shortage of beds. Seven hundred additional beds should be provided to cover immediate needs. If authority should be given to erect buildings containing 700 beds, and the number of patients admitted continues to increase as for the past several years, there would still be a shortage of several hundred beds properly to house and take care of the patients. In addition to the shortage noted, some provision should be made for replacing the 500 beds in the semipermanent buildings. These buildings were built in 1918 under wartime conditions at a cost of $156,000, out of an appropriation for construction and equipment of $200,000. It was estimated that their life would be 15 years; they have now been in use more than 17 years, and are rapidly deteriorating. The cost of maintenance is very high and is increasing each year. The plumbing must be replaced, new floors should be laid, the buildings will have to be reroofed, and in some cases the foundations and underpinning must be taken out and replaced by new construction.

Considering the additional buildings that have been erected and are being erected, it was necessary to make a survey of the hospital to see if the various utilities can service the new buildings and the additional number of patients. Such survey took into consideration water, steam, electricity, fire protection, roads, walks, transportation, including communication with the various buildings, land for farming, gardening, dairying, and general farm purposes, and other similar necessary items. After making such survey we found, to meet the immediate needs, that it is necessary to ask for an appropriation of $3,420,510 for the following:

Six continuous treatment buildings, each containing 160 beds, or a total of 960 beds. The hospital erected two of these buildings. At the same time it built a central kitchen constructed in such a manner that additional buildings of the same class could be erected around it and facilities made for connecting dining room to the kitchen and using the kitchen for about 1,500 to 2,000 patients. The form of construction in the continuous treatment buildings, which are fireproof, permits of the greatest elasticity, at a very low rate of cost per bed. The average cost per bed for this class of construction, including preparation of plans and specifications, advertising, superintendent of construction, and equipment would be about $1,600. These buildings would take up four spaces around the continuous treatment kitchen already built and permit the two other buildings in the same vicinity to house a different class of patients, permitting a better

classification. The total cost of the six buildings, it is estimated, will be $1,508,000.

Among the needs of the hospital is a chapel for the religious services for the patients. In 1875 a place for a chapel was left on the third floor of the old center building. This chapel can accommodate about 300 patients. It is in a building that has no elevator, and to reach the same it is necessary to climb a narrow stairway, difficult for many of the patients. The hospital has nearly 5,400 patients and it is growing away from the site on which the old center building is located. It is considered advisable to erect a nondenominational chapel on a plot of ground on the east side of Nichols Avenue, with a seating capacity of 1,000 to 1,500, to be used by the various religious denominations having followers among the patients of the hospital. This chapel to have its meeting place on the ground floor and located in a central place will be more accessible to the patients and available to such patients who are feeble or crippled and could hardly attend divine services where it is necessary to climb steps, where no elevator is available. The various chaplains of the hospital have made a recommendation for such an edifice. The estimated cost of this building is $150,000.

The hospital has recently erected one building to house tubercular patients containing 80 beds. In 1909, $20,000 was appropriated for erecting five buildings containing 20 beds each, or a total of 100 beds, for the patients of the hospital suffering from tuberculosis. These buildings are of wood frame covered with pebble-dash. They have been in use for about 26 years and it will be necessary shortly to replace them. An appropriation of $240,000 was recently made to provide 80 beds for white tubercular patients. Additional beds should be provided, including the care of white and colored women and colored men patients. Two buildings of this sort would provide 160 beds, making a total of 240 beds to care for the tubercular patients. It is essential to provide these beds at an early date. It is estimated that they could be provided at a cost of $495,170.

An estimate is made for additional land for general farm purposes. The hospital consists of four plots of ground, in all about 800 acres. The last land purchased for hospital use was in 1891. At that time the hospital had less than 1,500 patients, and over 600 acres were used for farm and garden purposes. Gradually the population has increased until there are now under treatment 5,400 patients. To take care of these patients new buildings have been erected, gradually decreasing the amount of land available for farm purposes. The hospital while originally isolated some miles from the center of the city, at the present time on account of the growth of the city and the change in the use of forms of traffic is now adjacent to the city and

the center of a growing population. The dairy and the piggery surround buildings occupied by patients. This is undesirable, if not objectionable. One part of the farm, containing about 69 acres, is located about a half a mile from the main site, in what is known as Congress Heights. It has been recommended that a portion of this ground be turned over to the National Capital Park and Planning Commission for playgrounds for children who reside in the vicinity of this ground.

Another part of this land is desired by the District of Columbia for streets and roads. Some parts of the same land have already been taken over by the city for widening streets and cutting through new streets. Another plot of the hospital is about four and a half miles from Washington; a part of it is on low land, sometimes under water. This contains approximately 400 acres of land. The proposed drive under the Crampton Act would bisect this land, materially reducing the amount left available for farm purposes. It is believed desirable to get additional land for the use of the hospital. If 5,000 or 6,000 acres of land could be provided, the hospital could concentrate on farm projects in one place, increase the size of the dairy herd, the piggery, and the poultry plant, build cottages to house about 250 patients, and buildings for the various employees who would work on farm land. The work of the patients on the farm, it is believed, would add to the therapeutic benefits obtained. The hospital would be able to secure sufficient milk for all purposes, increase the quantity of fresh pork products, cured pork products, reducing the quantity of ham, bacon, and shoulder to be purchased, and increase the quantity of poultry products, such as fowl and eggs. It is believed that this land could be purchased and buildings erected at a cost of about $750,000.

The rapid growth of the hospital, the increase in population, addition to the buildings on the reservation and the number of animals on the farm to be cared for, have outgrown the available water supply. In 1930 the hospital received all of its water from nine wells. The drought of that year lowered the water line so that it became unprofitable to operate them. Connection was made with the District mains, which have been supplying the hospital with all water required. The increase in the number of patients in the hospital and the additional buildings of a greater height than previously in use, demanded a greater supply of water than the District could furnish. It has been necessary to put pumps in several of the new buildings in order to furnish water to the upper floors. The danger line has been reached. In case of outbreak of fire it is questionable whether sufficient water could be furnished for the full operation of the District fire apparatus. An engineer of the Public Works

Administration was detailed by the Secretary of the Interior to make an investigation, and he reports that:

> The water supply question at St. Elizabeths Hospital is extremely urgent. The fire protection is wholly inadequate and the demand during the summer months can barely be met by the present arrangement.
>
> Steps should be taken immediately to provide an adequate supply for the hospital.

The same engineer made an estimate that to provide adequate water supply either by sinking a 24-inch well, or by cross-connections with mains, increasing size and elevation of the water tank, and further connection with the District mains could be secured at a probable cost of $80,000.

St. Elizabeths Hospital occupies land on both sides of Nichols Avenue. Most of the older buildings are on the right hand, or west, side, while the newer buildings are on the left hand, or east, side. In 1903 a subway was erected under Nichols Avenue, connecting both sides of the hospital grounds for more efficient, economic, and safer transportation and traffic between the two sides of the institution. When this subway was built no consideration was given to motor transportation. In addition, the growth of the hospital has resulted in an increase in the number of patients on that part of the institution where the newer buildings are being erected, until at the present time about 2,000 patients are being quartered in such new buildings. Traffic in the subway by patients and employees, also relatives and friends visiting patients, has increased very materially. Motor vehicles cannot pass each other in this subway, and it is dangerous for the patients to go back and forth while vehicles are coming through. The height of this subway is such that it not only prevents loaded trucks of the hospital from coming through, but altogether stops the passage of any fire apparatus. A survey has been made by an engineer of the Public Works Administration, and in his report he stated that it is essential that additional provision be made at an early date. It is suggested that the present subway be used altogether for pedestrian traffic, and a new two-way subway be erected wide enough for two vehicles to pass each other, with a center partition, thus adding to the safety of the patients. It is estimated that $50,000 would be required for this work.

The kitchen in the basement of the administration group furnishes meals for the patients in the various buildings on each side of the main building. There is a tunnel connecting with two adjacent buildings, but no tunnel connecting the further building, known as " M building ", and it is necessary to carry the food upstairs and have patients wheel it to this other building. In wet or cold weather this is undesirable and the food is often cool before it reaches the patients. A connecting tunnel from what is known as " C building ",

on the west side of Nichols Avenue, to M building could be erected at a cost not exceeding $6,000. This would permit the serving of the food while hot and, it is believed, in better condition. The hospital recently installed three 750-horsepower boilers, which were sufficient for its needs at that time. Space was left for an additional boiler that would be required when the new buildings were erected. The growth of the hospital, with the recommendation for additional buildings, will require additional boiler, air compressor, and utility equipment. It is believed that these can be purchased and installed at a cost of $200,000.

It has been the practice of the hospital to make all of the buildings as near fireproof as possible. A recent survey by the Federal Fire Council called attention to certain wooden porches adjacent to fireproof buildings. To remedy this condition it is desirable to replace these wooden porches with concrete and brick porches, erecting same in such a manner as to become fireproof. In erecting these porches it is desirable to enlarge the space available for patients' recreation. Some of the older buildings have no porches of any sort. Patients whom it is not advisable to take from such buildings get little or no fresh air. It is considered of advantage to place similar porches to use as day rooms for these patients. To replace porches around Allison and Oaks Buildings, and erect new porches for Garfield and Dawes Buildings, it is estimated, would cost about $83,000.

The additional number of patients, including the buildings to house them, will require additional facilities for all utilities. The work of the laundry has been continually increasing until now it must take care of 1,000,000 pieces each month. Each year additional machines have been purchased until now all room in the present building has been occupied. The growth of the institution will require a further increase in the facilities of the laundry, and to properly take care of the same it will be necessary to erect an addition to this shop. It is estimated that such addition would cost $16,000.

The present storeroom was built about 1900, when the cold storage for meats and vegetables was installed. There were about 2,000 patients in the hospital at that time, while at the present time there are about 5,400 patients. The amount of food required to be stored has more than doubled. It has been increasingly difficult properly to take care of and protect the food products. It is urgent to provide additional food storage and cold storage. The same condition applies to the other stores and the hospital will soon require a new storeroom, of much larger proportions than the one at present in use. Temporarily to increase the cold storage space in the present storeroom, to meet the immediate difficulties, it is estimated that $6,000 will be required.

The same explanation given in reference to other utilities applies to the bakery. To provide additional room, including a freight elevator, for the bakery, $3,500 will be required.

There are about 8 or 10 buildings on the hospital grounds that have local heating arrangements. It is considered economical, as well as more efficient, to connect these building up with the central heating plant. This could be done for $7,300. The cost of coal saved in a few years would offset this amount.

The additional number of patients require more vehicles for the handling of food, laundry, and for general use of the hospital. The garage when constructed seemed of ample size. It had a small place for repairs. More room is needed to house vehicles and to properly service the hospital machines. A recommendation is made to build and addition to the present garage which, it is estimated, could be done for about $12,000.

The spray pond, to aerate water for condensing purposes, was constructed about 1912. The remodeling of the power house, with additional boilers, increased the quantity of water used. When the present spray pond has to be repaired or cleaned, it stops all aerating of the water. It is considered essential to have an additional spray pond for the proper operation of the plant, and it is estimated that this could be provided at a cost of $11,000.

Many of the buildings of the hospital have not been painted in years. This is due to the limited amount of money available for repairs. Unless these buildings are painted at an early date, it is feared that deterioration will take place and require a much larger sum for repairs. It is estimated that $14,000 would be required to paint R, P, I, M, N, J, K, and L buildings.

The same explanation given in reference to growth of the hospital and the additional facilities required for other purposes, applies to the manufacturing of ice and cold storage. No addition has been made to this department for over 15 years. The present building was formerly used as a boiler house. It was converted into an ice plant and contains one Remington and one York Compressor, with pumps. The plant has reached its capacity in both the manufacturing of ice and furnishing of cold storage. The large quantities of food used require more cold storage, and additional compressor and brine pump required to ice them. An addition to the ice storage room is to house the ice manufactured. If the additional building is erected around the cold storage plant, it will be necessary to build a road for approach. It is estimated that this addition, with machinery and road, could be furnished at a cost of $19,040.

The storm sewer from the road areas in the vicinity of Hitchcock Hall passes by the power plant. The pipe in a number of places is in bad condition and liable to break under heavy rain. Should this

occur the power plant would be in danger of being flooded, and with the present drainage from the boiler rooms and from the basement of the engine rooms would on failure to remove the water shut down the steam and electric plant. The regrading and draining of coal pockets around the new coal silo, just completed, cut off the former drain pipe in that area; and the water in recent storms was trapped on floors several inches deep before it could flow up through the outlets. It is estimated that the cost of making changes to remove the condition noted would be about $9,500.

REVISION OF LAWS FOR THE ADMISSION OF PATIENTS TO ST. ELIZABETHS HOSPITAL

A bill has been introduced in Congress, upon the recommendation of the District Commissioners, to change the method of admissions to St. Elizabeths Hospital. The hospital cooperated with representatives of the District upon the form of the proposed bill.

STAFF CHANGES JULY 1, 1934, TO JUNE 30, 1935

The following appointments were made during the year:

Junior medical officers (internes): Eugene J. Alexander, Derwood G. Hall, Alfred L. Abrams, Anna R. Coyne, Thomas J. Taylor, J. L. Hoffman, Walther H. Thiele, Maurice Kleinerman, and Stephen S. Kramer, Jr.

The following resignations took effect during the year:

Junior medical officers (internes): Joseph A. Rieger, Elmer Peterson, Jesse F. Casey, Meyer Beber, Alexander Wolf, and Judah Marmor.

Assistant medical officer: Roger S. Cohen.

PUBLICATIONS

White, William A., superintendent:

The frontier of the mind. Journal of the Washington Academy of Sciences. Vol. 25, no. 1, January 15, 1935.

The frontier of the mind. (Read at a joint meeting of the District of Columbia Medical Society and the Washington Academy of Sciences, Washington, D. C., Nov. 21, 1934.) Published in Mental Hygiene, vol. XIX, no. 1, January 1935, pp. 78–94.

Man, The Great Integrator. Science, March 8, 1935, vol. 81, no. 2097, pp. 327–343.

Judicial Versus Administrative Process at the Prosecution Stage. (Delivered at the Attorney General's conference on crime, Washington, Dec. 11, 1934.) Journal of Criminal Law and Criminology. Vol. XXV, no. 6, March–April 1935, pp. 851–858.

The Teaching of Clinical Psychiatry. Reprint from the proceedings of the Second Conference on Psychiatric Education, held in New York City at the Waldorf-Astoria on May 27, 1934, pp. 16–21.

White, William A., superintendent—Continued.

Personality, Psychogenesis and Psychoses. (Lecture delivered at the Pennsylvania School of Social Work, Philadelphia, Pa., Apr. 29, 1935. Privately printed.)

Modern Housing of Mental Patients. (With Monie Sanger.) Published in the Modern Hospital, vol. 45, no. 1, July 1935, pp. 42–47.

Diseases of the Nervous System. (With Dr. S. E. Jelliffe.) (Text book—Sixth edition.) Published by Lea & Febiger, Philadelphia, Pa., 1935, pp. 1175.

Eldridge, Watson W., principal medical officer:

(With Simon, A., and Ramos, R.) Oxycephaly: Report of two cases. American Journal of Roentgenology and Radium Therapy. Vol. 33, no. 4, 1935, pp. 516–521.

Karpman, Benjamin, senior medical officer:

Obsessive paraphilias: Critical review of Stekel's works on sadism, masochism, and fetishism. Archives of Neurology and Psychiatry. Vol. 32, no. 3, September 1934, pp. 577–626.

The individual criminal; studies in the psychogenetics of crime. (Book.) Washington. Nervous and Mental Disease Publishing Co. Pp. 317.

Preliminary to the psychotherapy of criminals. Journal of Criminal Law and Criminology. Vol. 25, no. 6, March–April 1935, pp. 918–927.

Fong, Theodore C., senior medical officer:

Treatment of neurosyphilis. Medical Annals, District of Columbia, vol. 3, no. 8, August 1934, pp. 217–222.

Treatment of neurosyphilis. Journal of Chemotherapy, vol. 9, no. 4, January 1935, pp. 138–143.

Simon, A., assistant medical officer:

(With Eldridge, Watson W., and Ramos, R.) Oxycephaly: Report of two cases. American Journal of Roentgenology and Radium Therapy, vol. 33, no. 4, April 1933, pp. 516–521.

Ramos, R., junior medical officer:

(With Eldridge, Watson W., and Simon, A.) Oxycephaly: Report of two cases. American Journal of Roentgenology and Radium Therapy, vol. 33, no. 4, 1935, pp. 516–521.

Richmond, Winifred V., psychologist:

An introduction to sex education. (Book.) N. Y. Farrar and Rinehart, pp. 314.

Sex problems of adolescence. Journal of Educational Sociology, February 1935, pp. 333–341.

HOWARD UNIVERSITY

(Mordecai W. Johnson, *President*)

The year 1934–35 was the fourth of the 10 years involved in the program of development approved by the Government. The enrollment of the university increased by 281, or 17.3 percent, and the institution was closely approaching the achievement of several of the qualitative objectives set up for the first 5 years of the program. There was an increase of 45, or 30.6 percent, in the number of secondary schools sending students into the undergraduate colleges of the University. There was also an increase of 21, or 65.7 percent, in the number of institutions from which students entered undergraduate colleges of the university with advanced standing. Sixty-six percent of the new entrants into the professional schools were persons having 4 years or more of college training, while 428 students, or 22.4 percent, of the entire enrollment of the university were persons of graduate caliber, holding one or more academic degrees.

There was an increase also of 41 in the number of graduates, as compared with the previous year. The graduates of the university since its beginning now number 9,246. Of these the university has secured 7,000 living addresses in 42 States, the District of Columbia, and 24 foreign countries, and these addresses are classified alphabetically, by sex, by classes, by schools, by cities, and by States. A university-wide placement bureau has been established whereby the continuous services of the graduate body may be available for help in the vocational placement of the current graduates of the university.

The instructional staff of 241 persons, representing a full-time equivalent of 156 teachers, was approximately adequate for the student body, and with but two exceptions, had approximated the student-teacher ratio set-up in the 10-year program of advance for each major division of instruction. Excessive teaching hours and class numbers had been reduced to a minimum, and by far the major portion of instruction was given by teachers under conditions favorable for adequate attention to the individual student. The teaching staff had but slightly passed the half-way mark in maturity, however, as indicated by the program objectives, there being a manifest need for an addition of 30 mature teachers in the professorial rank. The members of the staff continued to take the fullest advantage of

opportunities for further study. Ten percent of the full-time staff were spending the full year in further study in the United States and in Europe. The Journal of Negro Education published by the university closed its fourth year with a secure position in the educational world and with increasing support. Members of the teaching staff published 2 books and 92 scholarly articles during the year.

With the restoration of the last 5 percent of the prevailing Government cuts in salary, all teachers in the ranks of instructor, assistant, and associate professor [1] were receiving at least the minimum salary set up in the program, and the average salary in these three ranks had approximated the program average by $242, $115, and $180, respectively. Fifteen professors were still receiving less than the minimum agreed upon in the program, however, and the average professorial salary was still more than $1,000 below the agreed-upon average. In numbers and in salary the university is still heavily disadvantaged at the most important point in its work, namely, the mature teaching staff in the professorial rank.

This was the first year of the operation of the graduate school as a separate educational division under its own dean. The work was successfully begun with an increase in graduate enrollment from 164 to 225.

During this year the work formerly carried on separately by the college of education was combined with the college of liberal arts, and the work in home economics and art, formerly done in the college of applied science, was also combined with the college of liberal arts. These organizational measures were carried through successfully, resulting in a unified and thoroughly cooperative faculty of liberal arts handling a total of 1,156 students.

The school of engineering and architecture passed through the first year of its existence as a separate school of the university with a total enrollment of 27 students.

The college of dentistry conducted the first successful course in dental hygiene, graduating 8 students.

The trustees of the university voted to establish courses in social service on the graduate level, beginning in the school year 1935–36.

By the use of $460,000 of funds provided by the Public Works Administration, the university completed the erection of Frederick Douglass Memorial Hall, a modern classroom building accommodating all the classes in the humanities and the social sciences, with offices for the instructional staff and rest rooms for men and women students in the undergraduate colleges.

With the use of a large part of the $630,000 fund appropriated by the Public Works Administration for the purpose, the university

[1] One exception.

had completed the exterior walls and roof of the new chemistry building and had brought the project within 2 months of completion.

The contract for the new heat, light, and power plant, made possible by an appropriation of $549,000 by the Public Works Administration, had been let and the work was well under way.

Further improvements to the buildings and grounds were made through assistance given by the Emergency Works Administration, the Bureau for Transients and the Public Works Administration. An additional sum of $40,884 was spent from the private funds of the university, provided by the General Education Board and the Julius Rosenwald Fund and from the income of properties previously purchased through extension funds, for the purchase of additional lands. The total increase in the land resources for the further expansion of the university, provided from private funds, has now reached the value of $1,130,282.

The income of the university from all sources was increased during the year by a gross sum of $474,323, of which $36,740 represented an increase in current funds. Expenditures were carefully budgeted and the finances were kept at balance with a surplus of income over expenditures. The amount and percentage of funds spent for resident instruction were increased and approximated the percentage set up in the 10-year program by 1.8 percent. Percentages of expenditure for general library purposes and athletics were practically the same as programmed 4 years ago, and the regular costs of operation and maintenance approximated the planned percentage by 1.6 percent.

Seven and one-half percent of all student fees were again devoted to scholarship and student aid. University funds, with the help of the F. E. R. A., were able to provide urgently needed assistance to more than 300 students.

The outstanding needs of the university are (1) money to secure 30 competent teachers in the professional rank; (2) increased scholarship funds for undergraduate schools and substantial increases in the number and size of fellowships for graduate students; (3) the earliest possible expedition of the new library building; (4) increased funds for books in every division, and especially in those departments offering graduate majors; and (5) the early acquisition of dormitory facilities for at least 200 men.

REGISTRATION

1. *Enrollment for the year 1934–35.*—The following table shows the enrollment of Howard University during the year 1934–35, including the first and second semesters and excluding duplicates, distributed by major instructional divisions and by sex, as compared with the year 1933–34.

Summary of students enrolled in Howard University for the years 1934–35 and 1933–34

Divisions of the university	Net enrollments							
	1934–35			1933–34			Total gain	Total loss
	Total	Men	Women	Total	Men	Women		
The colleges:								
College of liberal arts	----	----	----	541	381	160	----	----
College of education (college of education absorbed by liberal arts, 1934–35)	1,156	547	609	379	83	296	236	----
School of engineering and architecture (formerly applied science)	27	27	0	67	36	31	----	40
School of Music	60	24	36	49	21	28	11	----
Graduate school	225	76	149	164	66	98	61	----
Total	1,468	674	794	1,200	587	613	268	----
Professional schools:								
Theological college	11	10	1	21	20	1	----	10
Graduate school of theology	13	13	0	11	11	0	2	----
Law school	44	43	1	37	37	0	7	----
School of medicine:								
College of medicine	168	161	7	203	196	7	----	35
College of dentistry	35	34	1	39	38	1	----	4
College of pharmacy	26	23	3	22	19	3	4	----
Total in professional schools	297	284	13	333	321	12	----	36
Total in regular courses	1,765	958	807	1,533	908	625	241	----
Special students in music, law, dentistry	142	50	92	93	31	62	49	----
Grand total (net)	1,927	1,008	899	1,626	939	687	281	----

The total enrollment for the year 1934–35 was 1,907, of whom 1,008 were men and 899 were women, as compared with the total 1,627 for 1933–34, of whom 939 were men and 987 were women. A net gain of 281 students, or 17.3 percent, is shown as compared with a net loss of 267, or 14 percent, in 1933–34, and a net loss of 571, or approximately 23 percent, in 1932–33.

2. *Geographical distribution.*—Ninety-four percent of the total enrollment during the school year 1934–35 came from continental United States, while 5.1 percent came from without the borders of the United States, as compared with 92.8 percent and 7.2 percent, respectively, during 1933–34. The percentage of candidates for degrees coming from the District of Columbia during 1934–35 was 27.2 percent, as compared with 30.1 percent for the year 1933–34.

Thirty-nine States sent 1,675 candidates for degrees in 1934–35, as compared with 38 States sending 1,423 candidates in 1933–34. The gain of 232 candidates is shown to have been shared by 30 States. Sixteen of them sent increases of from 1 to 5 candidates; 5 States sent increases of from 6 to 10; 7 sent increases of from 11 to 20; while 2 sent increases of 32 and 41, respectively.

Eleven foreign countries sent 90 candidates for degrees during the school year 1934–35, as compared with 14 foreign countries with a total of 110 candidates for degrees in 1933–34.

3. *Widening support of secondary schools.*—During the school year 1934–35, 192 secondary schools sent 409 students into the regular courses of the undergraduate colleges, as compared with 147 secondary schools sending 306 entering students in 1933–34. This represents an increase of 35 schools, or 30.6 percent.

4. *Growth in students of advanced standing.*—During the school year 1934–35, 89 students entered the undergraduate colleges with advanced standing from 57 institutions, as compared with 54 such students from 33 institutions in 1933–34.

Sixty-four, or approximately 66 percent, of 97 students entering the professional schools for the first time during the year 1934–35, were equipped with 4 years or more of college training. Of the 1,907 students in the entire institution, 428, or 22.4 percent, were persons holding one or more academic degrees.

5. *Scholarship and student aid.*—The trustees of the university continued to set aside 7½ percent of all student fees as a special scholarship fund for needy students. They also made special provisions for increased work opportunities for students, continued the reduced price of room and board, as well as the installment system of fee payments. In addition thereto, the Federal Emergency Relief Administration awarded aid averging $15 per month to 12 percent of the full-time student body. By these combined measures more than 300 students in the undergraduate colleges received at least some aid during the course of the academic year, while approximately 20 percent of the professional students were also helped.

This aid was devised to help students to remain in school who otherwise would have been obliged to discontinue. All scholarships and student aid were awarded to students in the order of excellence in scholastic standing. Support was thereby given to all other measures stimulating earnest scholarly work. Measurably constructive results were manifest in the scholarly performance of the students.

The scholarship committee of the undergraduate colleges reports that it acted upon 1,400 applications for aid during the school year 1934-35, as compared with 625 applications for the preceeding year. These and other indications make us certain that there are many worthy students who desired to enter Howard University but were not able to enter for lack of encouraging aid.

GRADUATES

1. *Number and distribution.*—The following table exhibits the number of graduates from each division of the university during 1934–35, as compared with 1933–34. The table shows that there was a total of 272 students graduated during the year, representing an

increase of 41, as compared with the group of graduates in 1933–34. The percentage of male graduates was 53.7 percent in 1934–35, as compared with 56 percent in 1933–34, while the corresponding percentage of women graduates was 46.3 percent and 44 percent, respectively. The 272 graduates represent 28 states and 4 foreign countries.

Summary of students graduated by Howard University for the years 1934–35 and 1933–34

Divisions of the university	Graduates							
	1934-35			1933-34			Gain	Loss
	Total	Men	Women	Total	Men	Women		
The colleges:								
College of liberal arts	144	55	89	51	28	23	22	
College of education	(1)	(1)	(1)	71	11	60		
School of engineering and architecture (applied science)	0	0	0	9	8	1		9
School of music	5	1	4	2	0	2	3	
Graduate school	35	12	23	29	14	15	6	
Total	184	68	116	162	61	101	31	9
Professional schools:								
Theological college	2	2	0	6	6	0		4
Graduate school of theology	4	4	0	1	1	0	3	
Law school	10	10	0	7	7	0	3	
School of medicine:								
College of medicine	55	53	2	47	46	1	8	
College of dentistry:								
4-year course	2	2	0	6	6	0		4
Dental hygiene	8	0	8				8	
College of pharmacy	7	7	0	2	2	0	5	
Total in professional schools	88	78	10	69	68	1	27	8
Grand total	272	146	126	231	129	102	58	17

[1] Absorbed by liberal arts.

2. *Honorary degrees.*—Two honorary degrees were conferred at commencement in June 1935. William A. Warfield, surgeon in chief, Freedmen's Hospital, was awarded the degree of doctor of laws; and Mary Elizabeth Branch, president of Tilotson College, Austin, Tex., was also awarded the degree of doctor of laws.

3. *Placement bureau for graduates.*—A university-wide placement bureau was established in the office of the registrar for the purpose of helping to place the graduates of all divisions of Howard University in competent positions throughout the Nation.

4. *Number and distribution of living graduates.*—The total number of living graduates of Howard University is now 9,246. Of this number the registrar has 7,000 actual addresess in 42 States, the District of Columbia, and 24 foreign countries. These addresses are now classified alphabetically, by States, by cities, by sex, by schools, and by classes.

TEACHING STAFF

1. *Number and distribution of teachers.*—There were 241 members of the teaching staff during the school year 1934–35, of whom 134 were on full time and 107 were on part time, representing together a full-time equivalent of 156 teachers, as compared with a total of 237 members of the teaching staff during the year 1933–34, of whom 135 were on full time and 102 were on part time, representing together a full-time equivalent of 154 teachers. This represents a loss of 1 full-time teacher and the gain of 7 part-time teachers, representing a net full-time equivalent gain of 2 teachers.

2. *Number of teachers in relation to the objectives of the 10-year program.*—The 10-year program for Howard University agreed upon by the Government, sets up certain objectives regarding the ratio of students to teachers in each division of the university. The status of our progress in relation to these objectives is very favorable, there being only two colleges in which the ratio of students to teachers is higher than that provided in the program, namely, liberal arts and music. At present the 225 graduate students are all taught by a group of teachers in liberal arts. This constitutes an additional load for liberal-arts teachers and requires an addition of about nine mature persons to that faculty. On the basis of the program, two additional teachers are needed for music.

While the ratios of full-time equivalent teachers of medicine, law, and religion are adequate, it is apparent that the best work in these schools requires a substantial increase in the actual number of full-time teachers employed as soon as possible.

3. *Teaching hours, class size, and class-hour loads.*—Now that the university has been able to acquire a faculty approximately adequate in numbers, we have been able to reduce the number of excessive teaching hours, class sizes, and class-hour loads to a minimum. Throughout the university there are now only 14 classes of more than 50 students each; there are only 14 teachers carrying more than 16 teaching-hours per week, and only 6 teachers with pupil clock-hour loads in excess of 500. While there are as many as 165 classes with students ranging from 16 to 50 each, by far the majority of classes now enroll 15 students or less, and the major portion of the instruction is given by teachers working an average of 12 hours and less and carrying a pupil clock-hour load of 250 hours or less. This is a very favorable quantitative situation for competent instruction of the individual student.

4. *Maturity of the Staff.*—Of the 156 full time and full-time equivalent teachers on the staff of Howard University during the current year, 32, or 28.5 percent, were professors; 26, or 16.7 percent, were associate professors; 29, or 18.6 percent, were assistant professors; 69,

or 44.2 percent, were in the instructors' rank and below. The 10-year program of development calls for the following percentage distribution in the four leading ranks: professors, 40 percent; associate professors, 10 percent; assistant professors, 20 percent; instructors, 30 percent. On this basis the present staff should have a distribution as follows: 62 professors, 16 associate professors, 31 assistant professors, and 47 instructors. The outstanding need of the university at this moment is the securing of 30 capable scholars for important positions on the professorial staff of the university. All other programs are subsidiary to and wait upon this for their fullest effectiveness.

5. *Improvement of the staff.*—The teachers continued their work of self-improvement through further study. Sixteen of them were on leave of absence or under fellowship privileges with contract to accept appointment at Howard University. This number represents more than 10 percent of the full-time equivalent staff of the university.

6. *Salaries of teachers.*—In the 10-year program of development for Howard University, the Government agreed that the professors should receive a minimum of $4,000, a maximum of $6,000, and an average of $5,000; that the associate professors should receive a minimum of $3,000, a maximum of $3,900, and an average of $3,500; that the assistant professors should receive a minimum of $2,300, a maximum of $3,200, and an average of $2,800; and that instructors should receive a minimum of $1,600 a year, with a maximum of $2,500, and an average of $2,100. With steady and successful steps made possible primarily by a careful use of private funds, the university has gradually advanced toward these objectives. After the restoration of the last 5 percent of the salary cuts hitherto prevailing in the Government, the salary situation at Howard University at June 30, 1935, was as follows: Every full-time instructor was receiving at least the minimum of $1,600 agreed upon in the 10-year program and the average instructional salary had reached $1,858, that is $242 below the agreed-upon average. Every full-time assistant professor was receiving at least the minimum salary of $2,300 agreed upon in the 10-year program, and the average assistant professor's salary had reached $2,685 or $115 less than the program average. Every full-time associate professor in the university save one (to which case a problem of policy was attached) was receiving at least the minimum salary of $3,000 agreed upon in the program, and the average associate professor's salary had reached the sum of $3,320 or $180 less than the program average. There were 15 full-time professors, however, who were receiving a salary less than the minimum agreed upon in the program, and the average pro-

fessor's salary had reached the sum of $3,893 or $1,107 below the program average.

It is clear, therefore, that in addition to the securing of an adequate number of full-time professors, Howard University still confronts the task of building up the professorial salary to a point where the full-time professor may freely devote his services to education work under substantially attractive conditions.

GRADUATE SCHOOL

1. *General trends.*—For the first time in the history of the university, graduate work was carried forward in 1934–35 under a separately organized graduate school, with a separate dean and faculty.

Prof. Dwight O. W. Holmes, formerly dean of the college of education, was elected dean of the graduate school, beginning July 1, 1934; and by vote of the board of trustees, on October 23, 1934, the administrative affairs of the graduate school were placed in the hands of "the graduate council", composed of the president of the university, the dean of the graduate school, the registrar of the university, and the heads of the 15 departments authorized to offer graduate majors. This council was given all the powers of a faculty as defined by the charter and bylaws of Howard University.

The graduate school began auspiciously with an enrollment of 225, representing an increase of 61 students over the previous year, and the largest graduate enrollment in the history of the institution. The trustees voted to institute graduate work in social service in 1935–36, and by vote of the graduate council the work of the school will be extended into the field covered by the preclinical branches of medicine during the school year 1935–36.

2. *Distribution of enrollment by departments.*—The graduate enrollment was distributed among departments as follows: Botany 6, chemistry 9, economics 2, education 91, English 31, German 5, history 19, mathematics 10, philosophy 1, physics 2, political science 5, psychology 21, Romance languages 10, sociology 8, zoology 5; total 225.

3. *Scholarships and fellowships.*—During the year 42 graduate students received fellowships, scholarships, or some form of aid, totaling $6,648. There is urgent need of an increase in the number and size of the stipends available.

4. *Courses in social work.*—The board of trustees has authorized the inauguration of courses in social work for the year 1935–36. Plans for this work are going forward, and both preparatory courses offered by the college of liberal arts and professional courses offered by the graduate school will be scheduled during the year 1935–36. The course of study for those interested in this work

will be under the direction of the department of sociology. In view of the present pressing demand for professionally trained workers, this promises to be a substantial contribution which the university can make to social improvement.

6. *Faculty.*—During the school year 1934–35 all the work in the graduate school was done by members of the faculty of the college of liberal arts. During the coming year members of the faculty of medicine will give assistance.

7. *Graduate degrees conferred.*—Thirty-eight graduate degrees were awarded during the year, 13 to men and 35 to women. Thirty-one of the candidates received the degree of master of arts, and seven received the degree of master of science.

8. *Research and publications.*—The university considers that research is indispensable to its teachers. In spite of meager funds some of our teachers go forward continuously. The Journal of Negro Education closed its fourth successful year, with a secure position in the educational work and with increasing support.

9. *The future of graduate work.*—The university is proceeding with caution and care to establish the work for the master's degree on a thoroughly sound basis before undertaking at all further work for the doctor's degree. The establishment of the graduate school as a separate division and the inauguration of work toward the master's degree in 15 departments emphasize the need for the earliest possible advancement of all those phases of university life which may assure the sound competence of this work: (1) The maturing of the staff through the securing of an adequate number of scholars in the professorial ranks; (2) the development of a substantial number of scholarships and fellowships for advanced students; and (3) the rapid advancement of book collections in every department offering graduate work.

THE COLLEGE OF LIBERAL ARTS

1. *The enlarged college.*—This was the first year of the absorption by the college of liberal arts of the entire work in education, formerly done by the college of education which ceased on July 1, 1934, its existence as a separate division, and of the departments of art and home economics of the former college of applied science which on July 1, 1934, changed its character and became the college of engineering and architecture. On the whole the change appears advantageous. Where formerly there were two colleges operating side by side with some duplication of effort, we now have a single college with a unified purpose and with perfect staff cooperation.

2. *Students.*—The student registration during the current year was 1,156, of whom 547 were men and 609 women. These were distributed by departments as follows: Art, 110; botany, 120; chemistry,

273; commerce and finance, 118; economics, 70; education, 535; English, 768; freshmen orientation, 77; German, 198; history, 499; home economics, 171; Latin, 32; mathematics, 169; military science and tactics, 237; philosophy, 79; physical education for men, 225; physical education for women, 263; physics, 103; political science, 165; psychology, 307; romance languages, 267; sociology, 162; and zoology, 157.

3. *Graduates.*—During the academic year 144 degrees were conferred, distributed as follows: Bachelors of arts, 32; bachelors of science, 26; bachelors of science in commerce, 6; bachelors of arts in education, 55; bachelors of science in home economics, 11; bachelors of science of art, 3.

4. *Faculty.*—There were 84 active members of the faculty of the college of liberal arts during the academic year 1934–35. Of these 21 were professors, 14 associate professors, 19 assistant professors, 22 instructors, 7 assistants, and 1 technician. Eleven were on leave of absence during 1934–35. Nine others will be on leave of absence during 1935–36. There were 8 appointments, including substitutes for teachers on leave, and 2 retired for age after 44 years of service each.

5. *Special lectures and conferences.*—During the year the departments of the social sciences sponsored at the university a group of lectures upon the Problems, Programs, and Philosophies of Minority Groups. A month later a national conference was held under the auspices of the social science division of Howard University and the joint committee on national recovery upon the general theme, the Position of the Negro in Our National Economic Crisis.

6. *New building facilities.*—A new classroom building, made possible by funds from the Public Works Administration, the Frederick Douglass Memorial Hall, was dedicated on April 30, 1935. This new structure stands high among academic buildings of the country. The departments of instruction occupying it are the humanities group, the social sciences group, and the department of psychology. The college of liberal arts is very grateful for this splendid addition to its facilities.

The department of chemistry and the college of liberal arts as a whole are looking forward with pleasure and appreciation to the early completion of the new chemistry laboratory, which will offer to our work here in chemistry accommodations and equipment ranking among the best in the country.

SCHOOL OF ENGINEERING AND ARCHITECTURE

1. *Reorganization.*—On June 30, 1934, and by an act of the board of trustees, the college of applied science was abolished and its departments of art and home economics transferred to and placed under

the administration of the college of liberal arts. Its departments of architecture, civil engineering, electrical engineering, and mechanical engineering were reorganized and now are administered under the separately established new school of engineering and architecture.

The school of engineering and architecture began operation under the university's new plan of organization July 1, 1934. This is the only school in the United States primarily for Negroes, offering undergraduate curricula leading to the degree of bachelor of science in civil, electrical, and mechanical engineering, and in architecture.

2. *Aims.*—It is the aim of the school (1) to prepare students for entrance to the professions of architecture, civil engineering, electrical engineering, and mechanical engineering, (2) to place strong emphasis on undergraduate programs, and to pursue the practice of directing certain of its graduates to other institutions for advanced work.

3. *Enrollment.*—During the school year 1934–35, 46 individual students pursued courses in the departments covered by this school, of whom 31 were candidates for degrees as compared with 23 in 1933–34. The following table shows the number of courses offered in each department and the number of students taught in each course.

Courses and enrollment, by departments, school of engineering and architecture, 1934–35

Department	Number of courses offered		Number of students taught	
	First semester	Second semester	First semester	Second semester
Architecture	10	12	22	41
Civil engineering	10	14	27	32
Electrical engineering	3	4	8	8
Mechanical engineering	7	11	12	18

4. *Scholarships.*—Nine scholarships, including 4 F. E. R. A. work scholarships were awarded to students in this school during the year.

5. *Graduates.*—There were no degrees awarded in the school of engineering and architecture in the year 1934–35, as compared with nine degrees in the year 1933–34. This unusual circumstance is due to the period of transition incident to the reorganization of the various departments and their operation upon an improved basis under the new school of engineering and architecture. There will be eight seniors for the year 1935–36.

The 4 departments of this school have 58 graduates to date, as follows: Architecture, 11; mechanical engineering, 2; civil engineering, 23; and electrical engineering, 22.

A number of our graduates are holding representative positions in their respective fields in Federal and municipal government divisions

or as private practitioners in such areas as the States of Florida, Georgia, Illinois, New York, Pennsylvania, the District of Columbia, and in Cuba, Russia, and Santo Domingo.

6. *Teaching staff.*—The faculty of the school of engineering and architecture for the school year 1934–35 included eight full-time members. One member of the faculty remained on leave, serving as architect to the Subsistence Homesteads Division of the Public Works Administration.

SCHOOL OF MUSIC

1. *Enrollment.*—The enrollment of the school of music again showed an increase in 1934–35 in a general trend of increased music enrollment over a period of 6 years. There was an average enrollment during the current year of 178 as compared with 140 during the year 1933–34, with 46 new matriculants in the first semester and 15 in the second.

2. *Scholarship and student aid.*—Sixteen students received scholarship aid during the year from 4 sources: Special university scholarships of $150, 7; gift scholarships from the school of music, 5; and work scholarships through the university and the Federal Emergency Relief Administration, 3. These scholarships are responsible, in a very large part, for the increased enrollment of the school.

3. *Courses and faculty.*—Courses were offered in piano by 2 teachers, in organ by 1 teacher, in voice by 3 teachers, in violin, orchestration, string, and percussion instruments, by 1 teacher; in public-school methods, by 1 teacher; in theory and appreciation of music, by 2 teachers; and in the junior piano department, by 3 teachers. The total faculty of 11 included 1 professor, 2 assistant professors, 6 instructors, and 2 assistants. One member of the faculty was away on sabbatical leave for further study in Vienna, Austria. Three members of the faculty appeared in recitals in 11 States and the District of Columbia.

One member of the faculty has been chosen by the Theatre Guild of New York to create the leading role in George Gershwin's opera production, "Porgy and Bess."

4. *Musical organizations.*—Three of the musical organizations functioned during the year—the university choir, the university glee club for men, and the university glee club for women. The university choir was the largest and best organization in the history of the institution. Together with the many fine voices, the new pipe organ added much to the quality, depth, and richness of tone.

6. *University concert series.*—On the concert series program, under the auspices of the school of music, there appeared 1 organist, 1 singer, 2 pianists, 1 violinist, 2 glee clubs, and the National Symphony Orchestra of Washington. Each recital was not only well attended

by interested and sympathetic music lovers, but also the financial returns were most encouraging for the continuance of the series.

7. *National Music Week.*—For the first time the school of music observed in a formal manner National Music Week, at which time 5 concerts served as a source of inspiration, education, and enjoyment to those who were present.

8. *Graduates.*—Five degrees were conferred at commencement. Two degrees of bachelor of music were conferred upon students with majors in piano, and 3 degrees of bachelor of school music upon students specializing in public-school music.

MILITARY SCIENCE AND TACTICS

1. *Excellent rating for the second successive year.*—The Howard University R. O. T. C. bears the rating of "Excellent" for the years 1933–34 and 1934–35. This rating, which is the highest of the War Department, was given as the result of the formal inspection during the spring of 1934 by Maj. T. M. Chambliss, Inspector for the Third Corps Area, and again in the spring of 1935 by Maj. E. W. Leard, Inspector for the Third Corps Area. In making their reports to the War Department these inspecting officers especially commended the efficiency of the instruction given by the military staff, the ability, neatness, and discipline revealed by the student cadets, the large improvement in the physical facilities of the R. O. T. C. rooms in Spaulding Hall, and the cooperation received from the officials of the University.

2. *Enrollment.*—The enrollment in military science and tactics during the year 1934–35 was 268, as compared with an average of 256 during the preceding year. Two hundred and twelve of the students were enrolled in the basic course and 56 in the advanced course.

3. *Commissions awarded.*—Twenty-eight students were awarded commissions as second lieutenants of infantry, in the Reserve Corps of the United States Army.

4. *Teaching staff.*—The teaching staff included 5 members, as follows: professor, 1; assistant professor, 1; assistants, 3.

SCHOOL OF MEDICINE

The school of medicine is the functional organization which represents the cooperative interests of the entire medical unit of the university without superseding the direct lines of authority from the independent faculties of its member units to the board of trustees. Freedmen's Hospital, an independent institution built upon grounds owned by the university, is functionally a part of the university medical unit.

COLLEGE OF MEDICINE

1. *Survey of the college.*—The survey of the school as part of the nation-wide survey of medical schools in the United States and Canada by the Council on Medical Education and Hospitals of the American Medical Association, in cooperation with the Association of American Medical Colleges and the Federation of State Boards, was the outstanding event of the year. Although no report will be available until the general survey has been completed, the study of this school revealed that our major problems are:

(1) Provision of a greater number of well-trained clinical teachers, the major portion if not all of whose time can be controlled by the university for clinical service and clinical teaching; (2) a greater quantity and variety of clinical material under adequate control for teaching purposes; and (3) facilities for the study of tuberculosis and acute contagious diseases.

2. *Students.*—Of a total of 211 applicants for admission, 119 satisfied the minimum requirements for admission. Forty new students were admitted. The highest number registered at any one time during the year was 167.

3. *Instruction.*—During the year instruction has been furnished to 248 students; 167 from the college of medicine, 35 from the college of dentistry, 14 from the college of pharmacy, 1 from the college of liberal arts, and 31 nurses from the Freedmen's Hospital. Instruction included for the first time a course in anatomy for art students, a course in public health for college students, and a course in physiology for home-economics students.

4. *Scholarship and student aid.*—In accordance with the scholarship-aid plan, 7 full-tuition scholarships and 13 half-tuition scholarships were awarded to medical students. Twenty-four other needy students were aided by the Federal Emergency Relief Administration.

5. *Graduates.*—Fifty-five graduated with the degree Doctor of Medicine. Fifty of these accepted internships in 12 approved hospitals.

6. *Faculty.*—Two full-time new appointments to assistant professorships were made of former General Education Board Fellows, 1 in anatomy and 1 in public health. Two General Education Board Fellows, one in physiology and the other in pathology, have been reappointed for a second year of graduate study at the University of Chicago and Western Reserve, respectively. Of the faculty of 98, 20 were full-time teachers as compared with the faculty of 62, with 3 full-time teachers in 1929–30. One member studied dermatology and syphilology in Europe during the year under a grant from the Oberlaender Trust of Philadelphia. Another has been

granted leave of absence for a year's residency in tuberculosis. Five are at special study during the summer. There have been 23 scientific publications by members of the faculty during the year 1934–35. Five other publications are in the press.

The college of medicine was represented on the program of the Federation of American Societies for Experimental Biology in Detroit in April by the head of the department of physiology, the head of the department of pharmacology, and the acting head of the department of biochemistry. The college was represented on the program of the American Association of Anatomists by the associate professor of anatomy.

7. *Departmental, interschool, hospital, and community relations.*—The dean of the college of dentistry gave a series of five lectures to medical students on diseases of the mouth. Dr. Wm. A. Warfield, surgeon-in-chief of Freedmen's Hospital, has made available four rooms in the hospital, three to be used as offices for the heads of the clinical departments and one to be used by the clerk for these departments.

The newly appointed health officer of the District of Columbia made available to the school the facilities of the Municipal Tuberculosis Hospital, the City Prenatal Clinic, and the City Infant Welfare Station located at Freedmen's Hospital..

Following approval of the Freedmen's Hospital by the Council on Medical Education and Hospitals of the American Medical Association for residencies in medicine, pediatrics, surgery, obstetrics, and gynecology, two residents were appointed to begin service October first, 1 in pediatrics, and 1 in obstetrics-gynecology. This marks the beginning of a much-needed improvement in the hospital service and should reflect favorably upon the clinical teaching. Howard University has provided an annual stipend of $500 for each of the two residents appointed. This is a very important accomplishment.

COLLEGE OF DENTISTRY

1. *General trends.*—Though the college of dentistry is stressing, through an enrollment campaign, the acquisition of numbers, major emphasis is being placed upon the quality of students it attracts. The high caliber of recent graduates is a fair testimonial of our rigid adherence to entrance and curricular requirements. A check-up on the performance of our recent graduates before State boards reveals a decided increase in the percentage of successful candidates.

2. *Enrollment.*—The school year opened with a registration of 4 seniors, 5 juniors, 13 sophomores, 13 freshmen, and 9 students in the new department of oral hygiene. With an alleviation of financial handicaps, through university aids and general economic better-

ment, our incoming classes will eventually make up the enrollment deficiency which we now suffer.

3. *Graduates.*—Three graduating students were awarded the degree of doctor of dental surgery at the June commencement. Eight students were awarded certificates in oral hygiene.

4. *Oral hygiene.*—The department of oral hygiene rounded out its first year of operation with a commendable record of success. As an indication of the splendid work done by them as students, 6 of the 8 graduates took the examination for licensure in the District of Columbia and all were successful.

5. *Faculty.*—There were 13 active members of the faculty during the year, distributed as follows: Two associate professors, one assistant professor, and 10 instructors.

The following promotions and appointments were made this year: One member of the faculty was promoted from instructor to the rank of assistant professor of dentistry; one to the rank of assistant in the department of oral hygiene; one additional instructor was employed on half-time for the months of May and June; and one was granted leave of absence for the year 1934–35. Four members of this faculty published five scholarly articles during the year. The dean has inaugurated a program for further specialized study on the part of teachers.

6. *Library.*—In order to render more effective library service, the college of dentistry transferred its books and periodicals to the medical school library, where it will share in the facilities of this well-organized department.

THE COLLEGE OF PHARMACY

1. *Organization and curriculum.*—Since 1932 the College of Pharmacy has given instruction in the following departments: Pharmacy, pharmacology, pharmacognosy, physiology, bacteriology, preventive medicine, and public health, with instruction in English, modern and romance languages, mathematics, chemistry, physics, economics offered in the college of arts and sciences of the university. The curriculum for the college of pharmacy for the 4-year course leading to the degree of S. B. in pharmacy has been adjusted to conform to requirements of the National Association of Colleges of Pharmacy.

2. *Registration.*—Twenty-four students registered in the college of pharmacy; 8 in the freshman class, 8 in the sophomore class, and 3 in the junior class. This enrollment shows an increase of two students over last year.

3. *Scholarship and student aid.*—During the year 1934–35, two work scholarships were awarded in the first semester and three in the

second. One tuition scholarship of $70 was awarded. Two others applied, one of whom did not meet requirements for award, and the other was recommended but could not accept, being unable to meet the other expenses of the course.

4. *Graduates.*—There were 7 graduates from the college, 5 from the 3-year, 2 from the 4-year course, 2 having advanced standing which enabled 1 to complete the course in 3 years and the other in 1 year.

5. *Faculty.*—There has been no change in the faculty in 1934–35 as compared with 1933–34. The staff included 2 full-time persons who are heads of departments, 1 of whom is vice dean of the college, 1 associate professor, 1 full-time instructor, 1 part-time instructor, and 1 lecturer. Two scientific papers were published by faculty members during the year.

The college was represented on the program of one of the joint meetings of the Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy, held in Washington during the year.

6. *Equipment.*—The physical equipment is now quite adequate. Additions and improvements are being made, to some extent, annually.

7. *Library.*—The library for the college of pharmacy is included in the medical school library. As a separate pharmaceutical school library it had been practically insignificant. During the past year, however, some 50 volumes have been added to the list and it is hoped gradually to accumulate a creditable library.

SCHOOL OF LAW

1. *Enrollment.*—The enrollment for the school of law showed a slight increase over that of 1933–34. Figures for the last 3 years are as follows: 1932–33, 44; 1933–34, 38; 1934–35, 46. The most significant thing about the student body is the speed with which the school of law is approaching a purely graduate basis. Every member of the senior class, 1934–35, had his college degree; 31 of the 46 students had bachelor's degrees and 9 had at least 3 years of college work.

In an effort to increase the enrollment the vice dean visited and spoke at some 10 colleges during the year.

2. *Graduates.*—Nine graduates received the degree of bachelor of laws in June 1935, as compared with 7 in 1933–34.

3. *Faculty.*—There were 10 active members of the teaching staff during the year. Four of them were full-time members and 6 were serving for part-time. During the school year, 1 member of the faculty received the S. J. D. degree from Harvard University,

another published in the Iowa Law Bulletin an extended scholarly examination of "Title to Lands by Adverse Possession", and the vice dean of the school continued his participation in matters of public concern affecting the status of Negroes before the law.

4. *Physical plant.*—The inadequacies of the physical plant of the school of law have been pointed out in previous reports. The trustees plan to move the school to the main campus of the university during the school year 1935–36.

5. *Library.*—As of June 30, 1935, there were 15,823 books accessioned on the library records.

6. *Vice dean on leave.*—After 6 years of vigorous and constructive service in which he has led in the transformation of the school of law from a part-time evening school into a full-time day school of law admitted to membership in the American Association of Law Schools, vice dean Houston is taking a year's leave of absence. Professor Taylor will serve the year in his stead.

SCHOOL OF RELIGION

1. *General trends.*—The school of religion at Howard University is passing through a period of transition. It is eliminating the 4-year theological college and establishing the school on a graduate basis. For 3 years, now, we have accepted only such new students as come to us with a college degree or its equivalent. Our total enrollment during the period of transition has naturally declined in view of the fact that we cannot accept high-school graduates as in former years. June 1936 will see the end of the theological college.

2. *Changes in curriculum.*—Instead of the one oral examination on the mechanics of the Bible, as part requirement for the B. D. degree, two other examinations have been added. The students must pass an oral, comprehensive examination on the various fields of religion and he must defend, by oral examination, his thesis.

3. *Enrollment.*—The total enrollment in the two departments was 28—14 in the graduate school and 14 in the theological college, a decrease of slightly more than 24 percent over that of last year. Though the total enrollment was decreased, there was an increase of 33 percent of the regularly classified students in the graduate school.

4. *Faculty.*—Not being supported by the Government, the funds for the school of religion are meager. We are not able to employ a staff of full-time teachers. We must rely, for at least half of the teaching staff, upon part-time teachers, men who have regular employment in the churches or universities of the city. We had 3 full-time teachers and 6 part-time teachers for the first semester,

and 7 part-time teachers for the second semester. Three members of this faculty published five scholarly articles during the year.

5. *Extension work.*—The school of religion sponsors an annual institute for rural and small-town ministers, in Kinston, N. C. It serves the churches of the city of Washington also by providing courses in religious education. Our students work in the churches of the city. We supply the Sunday speakers for the Maryland Normal School in Bowie, Md.

6. *Needs of the school.*—The school needs a more adequate building, a modern library, an increase in the amount of its scholarship fund, and a full-time staff of at least six teachers.

7. *Graduates.*—Six students were graduated on June 7, four receiving the B. D. degree and two the B. Th. degree.

PERSONNEL

The personnel division of the university includes the registrar, the division of student health, the dean of men, and the dean of women.

1. *Registrar.*—In addition to the routine duties of the registrar set forth in the last report, this office has undertaken to establish and maintain a university-wide placement bureau so that information and assistance in connection with employment may be available to graduates of every school and college of the university.

During the school year 1934–35 the registrar also utilized the services of 14 F. E. R. A. students to compile valuable statistical information concerning the graduates of Howard University.

2. *The dean of women.*—The work of the dean of women falls into the following divisions: Housing of students, supervising student organizations, vocational guidance, part-time placement, scholarships, establishing and maintaining social standards on the campus, academic advising and supervising students on problems. The calendar for student activities participated in by men and women is kept by the dean of women, who must approve and provide chaperons for all of these functions.

3. *The dean of men.*—The dean of men reports that the male students made an unusually heavy demand for dormitory accommodations during the year. As a result, Clark Hall was overcrowded, with an average of over 169 students in the building, primarily on three floors. Fifty professional and graduate students were accommodated at Miner Hall and 14 additional students were accommodated in the International House. This made a total of 233 students crowded in the meager dormitory facilities for men during the year, with only Miner Hall furnishing reasonably satisfactory conditions. The crowded condition in Clark Hall caused a great deal

of anxiety throughout the year. The trustees have voted that the accommodations in this hall during the next school year shall be limited to 125 students, and they have further voted that the International House shall be torn down. Dormitory accommodations for male students will thus be reduced to a maximum of 176; and the need for the new dormitory becomes manifestly more urgent.

4. *Student health.*—The Howard University health service is staffed with 1 full-time physician, 2 full-time nurses, a full-time secretary, and 5 part-time student assistants.

This office examined the incoming freshman class for physical defects and gave this group conferences as to the findings. It also extended practically unlimited medical service to the university student body, giving 2,974 medical consultations during the year. Eighty-six students were confined to the university infirmaries for an average of 4 days each, while 10 students were confined to Freedmen's Hospital for an average of 10 days each.

Community hygiene included sanitation of the buildings and grounds and the care of sanitation of the university swimming pool, which was rated to be the most sanitary of the 25 pools in the District of Columbia.

LIBRARIES

1. *Accessions.*—There were 6,727 accessions during the year. The total number of volumes in all libraries is now 90,753. Total number of accessioned volumes in the general library, departmental libraries, and medical school library, 74,957; total number of acquisitions in the law library, 15,796. One thousand three hundred ninety-one volumes were bound during the year. The total number of subscriptions to periodicals was 544.

2. *Gifts.*—The university libraries have received from Howard University, governmental departments, other libraries and institutions, and individual donors 1,449 gifts.

3. *Reference librarian.*—A special reference librarian was assigned to aid students in the use of the catalog with reference questions, and in the preparation of bibliographies and student papers.

4. *F. E. R. A. student aid.*—Thirty-seven students receiving aid from the F. E. R. A. assisted with many useful library projects. Fourteen were employed regularly.

5. *Publicity.*—Members of the staff posted weekly lists of the additions of volumes to the library and assisted in the preparation of 4 publications. There were 15 exhibitions in the general library during the year.

6. *Loans.*—The library has borrowed for students and teachers through interlibrary loans a total of 390 volumes. Carnegie Library has loaned to other libraries 19 volumes.

7. *Loans from Veterans' Bureau collections.*—The preparation and distribution of Veterans' Bureau books to approved schools and institutions have been accomplished through the aid of four students regularly employed on F. E. R. A. scholarships. Twenty-six thousand three hundred and thirty-five volumes were loaned since July 1, 1934 to 83 schools and institutions.

8. *Moorland Foundation.*—The Moorland Foundation has rendered excellent service to the members of the faculty and to students interested in the fields of Negro literature, art, history, and sociology. Research demands on the material in the collection from persons not connected with the university have increased during the year. Reference and bibliographical aid has been rendered in the form of reading lists on various subjects requested by readers. The assistance of two F. E. R. A. workers has helped to make this service possible. This collection added 766 volumes during the year. It now contains 5,141 bound volumes by and about the Negro.

9. *The professional libraries.*—In the law library growth and progress on the part of the staff and library are noted. A notable gift of 1,500 law reports was made to the library by Mr. James Marshall, of New York City. The fact that this library does not have sufficient stack space to shelve this contribution indicates an urgent need for larger quarters. The number of acquisitioned volumes is 15,796; total circulation, 460 volumes; gifts, 1,770 volumes.

The medical school library reports an increase in the number of additions by purchase and by gift over those of the previous year. The number of periodicals on circulation has increased from 138 to 166. The transfer of 971 volumes from the dental school library to the medical school library was made at the beginning of the year. The total number of volumes reported in this library is 9,257; total circulation for the year, 42,560 volumes.

10. *Cataloging.*—Thirty-two thousand four hundred and twenty-three cards were made and filed, and 5,241 volumes were cataloged and recataloged.

11. *Staff.*—The professional staff of the main library is composed of 8 persons, 1 of whom has written and published 8 scholarly articles during the year. The law and medical libraries carry a single professional staff worker with student assistants.

12. *New library building and the future outlook.*—With the shelving of the additions of the year, we have found stack space in the general library exhausted. It was necessary throughout the year to shift constantly in order that books might be kept shelved in the proper classification scheme. The volumes anticipated from recent orders, together with those expected from the bindery, will necessitate removing to the basement the books not often called for, so that space may be provided in the stacks. In

addition, the purchases out of the 1935–36 budget must be shelved. The need for a new library building, therefore, becomes an urgent one, while the constant fear that scattering the collection in different parts of the building will cripple service, is ever before us.

13. *Election of new librarian.*—Mrs. Emma Murray, acting librarian since the death of Mr. Williams, has closed a very helpful period of service. The university has chosen Prof. Walter G. Daniels, formerly of the staff in education, as full-time librarian.

BUILDINGS AND GROUNDS

1. *Two divisions of work.*—Work on the buildings and grounds of the university went forward during the year under two major divisions: (1) The regular university department of operation and maintenance, and (2) building construction work under the direction of an architect, with a contract for each project.

2. *The regular work of operation and maintenance.*—During the fiscal year 1934–35 the activities of the department of operation and maintenance included: (1) Regular routine repairs and improvements to buildings and grounds covered by the regular maintenance budget; (2) the maintenance of extension-fund properties, and the supervision of contract work on the same; (3) special services to the several departments of the university, chargeable to funds in their several budgets; and (4) the planning and supervision of a considerable amount of work performed under special grants from the Emergency Works Administration, the District of Columbia Bureau for Transients, and the Public Works Administration.

Emergency Works Administration project.—From November 1934, through the end of the fiscal year, the following work on university grounds was accomplished with laborers made available by the Emergency Works Administration: Improved roadways on the main campus, the resurfacing of 4 tennis courts, the laying of approximately 250 feet of 6-inch sewerage, the laying of approximately 800 feet of concrete curbing, the preparation of beds for the planting of shrubbery and other plants, together with assistance to the gardener in the university nursery.

Allotment from Bureau for Transients.—Laborers supplied by the Bureau for Transients did the following work between September 1934, and the end of the fiscal year: Shored up grandstand supports, erected chain-link fence, and cleared southwest corner in the stadium; turned over compost in the nursery; laid approximately 150 feet of 8-inch sewerage on the grounds east of Miner Hall; aided in the preparation of planting areas on various parts of the campus; did some cleaning in buildings, and moving of furniture.

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Public Works Administration appropriation for repairs.—A special P. W. A. appropriation (project no. 37) made possible the installation, early in 1935, of a fire escape on the south side of Science Hall.

3. *Public Works Administration building projects.*—The following table shows the list of building projects in process during the year ending June 30, 1935. All these projects were going forward on P. W. A. funds.

Building projects in process, 1934–35

No.	Description of project	Date authorized	Total appropriations
2	Construction and equipment of a chemistry building	May 4, 1929	$626,300.00
5	Construction and equipment of a library building	Feb. 14, 1931	800,000.00
7	Construction and equipment of a classroom building	do	461,200.00
8	Construction and equipment of a heat, light, and power plant	Feb. 17, 1933	528,076.99

The status of the above-listed projects was as follows at June 30, 1935:

Project no. 2, chemistry building.—External walls and roof complete; building expected to be ready for occupancy about November 1, 1935.

Project no. 5, library.—Plans and specifications were approved by the Government in October 1934, and the architect was preparing same for bids when $500,000 of the appropriation was temporarily impounded by the President of the United States. Application for restoration of the appropriation is still pending.

Project no. 7, classroom building.—Project complete; dedicated under the name of Frederick Douglass Memorial Hall and placed in use during the second semester of the current year.

Project no. 8, heat, light, and power plant.—Contracts were let and the building was under way. Completion is promised by the architect in time for the heating season 1935–36.

FINANCES

The total assets of the university at June 30, 1935, were $7,323,287.28, exclusive of the unexpended balances of Government appropriations for the chemistry building, the classroom building, the heat, light, and power plant, and the library. Of the total assets $1,130,282.20, an increase of $40,883.95 since the last report, represents assets in the physical plant extension made possible through private gifts from the general board and the Julius Rosenwald Fund; $910,127.15, an increase of $48,973.48 since the last report, represents endowment; $5,097,399.69, an increase of $817,009.40 since the last report, represents plant fund assets, exclusive of the

unexpended balances of Government appropriations for buildings, as indicated above. The remaining $167,234.66 represents assets of the current fund.

The total income for the year was $1,743,818.99, including current and capital funds. This represents a gross increase of $474,323.05 over the total income for 1933–34. The total income for current expenses was $987,212.71, representing an increase of $36,740.22 over the income for 1933–34, shared by both Government and private sources.

The total expenditures for all purposes, current and capital, were $1,709,992.63, representing an increase of $590,945.20 over the expenditures for 1933–34. The total expenditures for current purposes, however, were $953,386.35, representing $3,461.34 less than the preceding year.

Attention is respectfully directed to the increase in the amount and in the percentage of current funds used for resident instruction and to the reduction in the amount and percentage of current funds used for the operation and the maintenance of the physical plant. The former is only 1.8 percent below the programed percentage and the latter only 1.6 percent above it. The percentage of funds spent for general library purposes and for athletics is approximately the same as the programed objectives. These indices afford effective tests of the competence of financial administration in relation to educational objectives.

Once again careful budgeting and economic administration have made possible an excess of income over expenditures in the amount of $33,826.36.

The auditing of all the university's accounts has been done by certified public accountants. All moneys appropriated by the Congress were expended under the supervision of the Department of the Interior.

FREEDMEN'S HOSPITAL

(W. A. Warfield, Chief Surgeon)

The hospital was operated to full capacity throughout the year, and there were numerous occasions when applicants for treatment could not be accommodated because of limited facilities.

The professional activities of the hospital accomplished all that could be expected with available funds.

It was a continuous struggle to supply the many wants and at the same time keep within appropriations as required by law.

PATIENTS

At the beginning of the year, there were 236 patients remaining from the preceding fiscal year, who, with 5,034 admissions during the year, made a total of 5,270 indoor patients under care. Of those remaining, 36 were pay patients, 59 indigent residents of the States, and 141 indigent residents of the District of Columbia. Of those admitted into the hospital, including births, 682 were pay patients, 1,755 were indigent residents of the States, and 2,597 were indigent residents of the District of Columbia.

There were discharged during the year, including births, 5,037, of whom 2,676 had recovered, 1,838 improved, 156 unimproved, and 367 died, leaving 233 in the hospital July 1, 1935, of which number 30 were pay patients, 74 indigent residents of the States, and 129 indigent residents of the District of Columbia.

Of the deaths, 93 were coroner's cases, 130 died within 48 hours after admission, and 30.6 percent were autopsied at the hospital. The mortality rate from all causes was 6.9 percent.

There were 2,579 surgical operations, or 371 in excess of last year.

In the dental department 2,505 received treatment.

In the out-patient department 24,024 received care, of whom 6,709 were new cases and 17,315 old. There were 6,672 emergencies. This department as well as the indoor was overcrowded, and many applicants could not receive attention because of insufficient personnel.

The following table shows the number of visits to the various clinics:

Clinic	Number of visits	Clinic	Number of visits
Dermatology	925	Oral surgery	123
Ear	217	Orthopedic	4,709
Nose	100	Pediatric	2,473
Throat	1,778	Prenatal	1,254
Eye	1,617	Postnatal	375
Urological	3,914	Surgical dressing	5,242
Gynecological	2,593	Minor surgery	1,042
Luetic	3,682	Tubercular	353
Medical	4,899		
Neurological	730	Total	36,026

The total number of patients receiving hospital care was 30,696, or 11,302 more than during the preceding year.

NEEDS

Among the most pressing needs of the hospital is a larger personnel. During the last few years several buildings have been added to the hospital without any increase in the necessary personnel required for satisfactory operation. Especially is this true in the nursing department, where the most glaring deficiency exists.

Twenty-one additional graduate nurses must be employed in order that the patients may be given at least the minimum of required care, and at the same time reduce the hours of duty for the nurses to a daily basis of 8, which is in accordance with minimum standards.

A clerk is urgently needed in the social-service department. This branch of the hospital has two workers, but no regular clerk. At times a clerk is detailed from some other department to help out, but this is in no way satisfactory.

Three orderlies are needed: 1 for night duty in the male surgical ward, 1 for service in the new clinical building, and 1 for the interne's residence.

A maid is also needed for night duty in the obstetrical wards.

Provision should be made for 2 residents: 1 for the surgical department and 1 for the medical. It is proposed to appoint physicians as residents who have served, with some distinction, as internes for at least 1 year in a class A hospital. The training of residents in special branches of medicine and surgery represents advance or post-graduate instruction for physicians whose ultimate aim is to prepare for the practice of a specialty.

THE SCHOOL OF NURSING

The demands for service in this department of the hospital were very heavy. The service rendered by the nurses was, on the whole, satisfactory, but there were many evidences of a need of a larger number of graduate nurses. This is regarded as very essential to

efficient care of the patients, satisfactory training of student nurses, and to reduce the hours of duty to a daily 8-hour basis.

The superintendent of nurses is of the opinion that 21 additional graduate nurses should be employed. In this opinion I heartily concur.

On account of the intensive theoretical program pursued by the first-year students, two additional instructors are necessary for teaching and follow-up work.

The graduating exercises were held June 4, 1935, in the Andrew Rankin Memorial Chapel of Howard University, at which time 28 nurses were graduated, making a total of 631 graduates from the school.

COLUMBIA INSTITUTION FOR THE DEAF

(Percival Hall, President)

During the fiscal year July 1, 1934, through June 30, 1935, there were under instruction in the advanced department of the institution, known as Gallaudet College, 81 men and 56 women, a total of 137, representing 36 States and the District of Columbia. This in a decrease of five as compared with the preceding year. In the primary and grammar department, known as the Kendall School, there were under instruction 34 girls and 38 boys, a total of 72. This is an increase of two as compared with the preceding year. Of the total in this department, 67 were admitted as beneficiaries of the District of Columbia. There were admitted to the institution 27 males and 31 females; discharged, 33 males and 22 females.

Excellent health prevailed among the students and pupils during the year. There were no deaths and no serious cases of illness. Four cases of appendicitis were successfully treated, 3 by operative and 1 by nonoperative methods.

A special course in world literature was added to the curriculum and a study made for future adjustment in connection with all courses given in the advanced department.

The increasing number of pupils and students in the institution shows still further the pressing need of a library and recitation building, which has been asked for by the secretary; also revision and improvement of the power house and heating and lighting system. In the near future the gymnasium should be remodeled and special appropriations made for the construction of a new primary plant.

Research work in the occupations of the deaf was conducted by normal students of the institution during the year, and a study of family background of former students was made by a deaf graduate student.

Particular attention is needed to the study of acquisition of language by deaf persons and the best methods of teaching English. This and other important reasearch projects call for a research worker and assistant to be employed regularly by the institution. The increase of students calls, also, for the employment of an additional instructor.

Twenty additional scholarships were granted to the advanced department of the institution by Congress, making a total of 145 now available.

Receipts for the year were $170,258.64; expenses, $169,001.02.

On commencement day, 6 pupils of the Kendall School received diplomas, 6 members of the normal department received the degree of master of arts, 2 deaf graduate students received the degree of master of arts in course. The degree of bachelor of arts was conferred on 11 members of the senior class, and the degree of bachelor of science on 9.

THE ALASKA RAILROAD

(O. F. Ohlson, *General Manager*)

GENERAL REMARKS

The program of improvements and rehabilitation, consisting of ditching, bank widening, grade raising, ballasting, filling-in of wooden trestles, replacing wooden culverts with concrete pipe, placing rock to protect roadbed against erosion from rivers and streams, and making line changes to eliminate snowsheds progressed favorably.

INVESTIGATION AND DEVELOPMENT OF MINERAL RESOURCES

The Alaska Railroad continued actively to aid the mining industry by maintaining an office, with a mining geologist, through which, in cooperation with the Alaskan branch of the Geological Survey, prospectors, mine operators, and prospective investors are given what information is available. In connection with this aid a number of investigations of prospects, mines, and mineralized areas were made, and this information is available to the public.

Gold is the chief metal mined in the Railroad belt. With the continued stimulation of a $35-per-ounce price, prospecting, development, and mining has been at its highest point since the World War. Numerous new gold placer mines have been started on properties that could not be worked at the old price of gold, and machinery is being placed on many claims that previously have been mined by hand. The installation of several new dredges is contemplated for the immediate future. Some promising new strikes have been made in districts that heretofore have been neglected. Several new gold-quartz mines have been added to the list of already producing mines.

The mining of base metals is at a low ebb, due to the continued low price of these metals, and an immediate prospect of these deposits contributing tonnage for the Railroad cannot be expected.

Early in the fiscal year 1935 the examination of the Eska coal lease, which is the Railroad's emergency coal reserve, was completed. As a result of the examination it was decided to drive a

new tunnel to open up coal beds containing a higher-quality coal. The project calls for approximately 1,500 feet of underground work, and was started about the 1st of August and continued until the middle of October. Work was resumed in June 1935 and will be completed in early December, this year. The new coal development will eliminate the flood hazard of Eska Creek, reduce mining and mine-maintenance costs, and will assure the Railroad of a continued fuel supply in the event of any emergency that may arise at the privately operated mines.

Late in the fiscal year 1935 a topographic and geologic survey of the Matanuska bituminous coal field between Eska and Moose Creeks was started. Ultimately this work will be of great value, not only for the development of the private mines, but will also enable the Railroad to ascertain the available coal reserves in this part of the field.

The Healy River Coal Co., in the Healy River coal field, and the Evan Jones Coal Co., and the New Black Diamond Coal Co., both in the Matanuska coal field, operated almost continuously throughout the year, and entirely supplied the Railroad and the commercial market with coal.

AGRICULTURAL DEVELOPMENT

A progressive stride in the colonization of Alaska was made when, during May 1935, 200 colonists with their families were transported to Alaska and installed upon land in the Matanuska Valley. This movement was initiated and sponsored by the Federal Emergency Relief Administration and later turned over to the Alaska Rural Rehabilitation Corporation.

The Railroad continued throughout the year to disseminate information on requests by prospective settlers, which were quite heavy due to press reports covering the Government project at Palmer. However, but few settlers acted upon the information furnished and located in the Railroad belt, due greatly to a lack of capital necessary to undertake such a venture.

TOURIST TRAFFIC

Tourist traffic increased over that handled the previous year, notwithstanding many cancelations received during the 1934 tourist year, caused by the Pacific coast longshoremen's strike. The great amount of publicity given to Alaska in recent months has greatly encouraged Alaska travel, and from the volume of business booked for the 1935 tourist season, it is indicative that travel to Alaska is continuing on an upward trend.

FINANCIAL

Revenue from all sources, including nonoperating income, was $1,476,567.76, an increase of $182,883.46, or 14.14 percent.

The operating ratio of the Railroad decreased from 117.26 percent in 1934 to 105.61 percent in 1935.

Total expenses for rail and water line were $1,557,563.18, an increase of $86,067.12, or 5.85 percent. Total deficit for rail- and river-line operation and including miscellaneous operations was $73,674.66, a decrease of $105,298.67, or 58.83 percent. From this should be deducted the amount of $16,619.18 expended during the fiscal year for investigation of mineral and other resources, reducing the deficit to $57,055.48.

There was an increase of 15,702 tons in amount of rail-line freight tonnage during 1935 over that of the previous year, with a corresponding increase in freight revenue of $126,527.08.

The increase of 15,702 tons in freight tonnage was divided 8,051 tons coal shipments and 7,651 tons miscellaneous merchandise. The increase in freight tonnage is attributed to the expansion of the gold mining industry carried on adjacent to the line of the Alaska Railroad.

The number of rail-line revenue passengers carried increased 7,486 over that carried in 1934; rail-line passenger revenue likewise increased $52,561.29 over the preceding year.

The pay roll for 1935 amounted to $1,338,825.27, an increase of $96,124.87 over the previous year. The increase in pay roll was due mostly to discontinuance of legislative salary deductions, and partly to increased tonnage handled during the fiscal year, requiring increased operating personnel.

GENERAL BUSINESS CONDITIONS AND OUTLOOK FOR TRAFFIC IN FUTURE

The mining industry, having been stimulated during the year by a favorable gold price, may be expected under the current gold price to continue to develop and expand during 1935–36, thereby creating an increase in tonnage for the Alaska Railroad.

The colonization project in the Matanuska Valley, which created a large amount of tonnage for the Railroad during the latter part of the 1935 fiscal year, will resolve to a volume of traffic normally to be expected from a farming community of its size, on completion of the construction and development stages of the project.

There are no apparent indications, other than those mentioned, for any increases in general business in other lines for the coming fiscal year.

THE PERRY'S VICTORY MEMORIAL COMMISSION

(Webster P. Huntington, President)

The Fifteenth Annual Report of the Perry's Victory Memorial Commission to the Secretary of the Interior for the fiscal year ended December 1, 1934, noted total receipts from operation of the Memorial during the season of 1934 in the sum of $2,980.95, and total disbursments of $3,062.70, the latter figure including accumulated indebtedness of $1,440.25 carried over from previous seasons since the advent of the general business depression. The actual expenses on account of operation in 1934 were $1,622.45. Receipts indicated an approximate increase of 17 percent over those of 1933, and actual expenses of operation a decrease of approximately 30 percent. This decrease, however, was accomplished at the sacrifice of proper care of the Memorial grounds as compared with previous seasons and reduced consumption of electric current for night lighting, thus affording only the minimum of protection to navigation and aviation within the financial resources of the Commission to provide. The increase in receipts was the first recorded in 5 years, or since the depression began.

At the time of filing this summary (Aug. 29, 1935) indications are that a slight increase of receipts for the present season will be recorded over the season of 1934.

Within the year the Commission has concluded and paid for all contracts for improvements and repairs authorized by the grant of $25,025 by the Federal Emergency Administration of Public Works, except two items thereof rescinded and the item of $175 for repairs to the lightning-protection system of the Memorial, the latter still remaining in course of adjustment. The rescinded items were $2,000 for expenses incurred in connection with the contract to change the drainage system of the Memorial and $2,465 for expenses incurred in connection with the contract to install the electric lighting system, the allotted funds for both of which were returned to the United States Treasury. The chief allotment of the P. W. A. grant was $18,400 for a new retaining and sea wall along the north shore of the Memorial grounds. The contract for this work was let for $17,100, and the completed wall justifies the highest expectations in regard to it as a protection against erosion for many years to come.

Concerning the physical condition of the Memorial proper, its approaches and terraces, the Commission reports that it evidences no deterioration affecting the permanence of their construction.

At the late session of the Seventy-fourth Congress legislation was introduced seeking to transfer full control of the Memorial property to the National Park Service under the direction of the Secretary of the Interior and continuing members of the present Commission as constituting a board advisory to the national authorities. The identical Senate and House bills to accomplish this object failed of enactment. The Commission renews its former representations in support of such legislation in the hope and expectation that it will receive congressional approval at the coming session.

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