73D CONGRESS : : : 2D SESSION

JANUARY 3–JUNE 18, 1934

SENATE DOCUMENTS

VOL. 21

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1934

73d Congress, 2d Session - - - - - - Senate Document No. 92

ANNUAL REPORT

OF THE

PUBLIC PRINTER

1933

UNITED STATES GOVERNMENT PRINTING OFFICE

MAIN BUILDING WITH EXTENSION AT REAR OLD BUILDING ANNEX AND WAREHOUSE

UNITED STATES GOVERNMENT PRINTING OFFICE

73d Congress, 2d Session - - - - - - - Senate Document No. 92

UNITED STATES GOVERNMENT PRINTING OFFICE
GEORGE H. CARTER, Public Printer

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UNITED STATES GOVERNMENT PRINTING OFFICE,
OFFICE OF THE PUBLIC PRINTER,
Washington, D.C., January 4, 1934.

To the Congress of the United States:

In compliance with law, I have the honor to submit the following report on the work of the Government Printing Office for the fiscal year ended June 30, 1933, and from July 1 to December 15 of the calendar year 1933.

Resources available to the Government Printing Office, including the Office of the Superintendent of Documents, from appropriations and payments for work during the fiscal year ended June 30, 1933, totaled $13,709,716.44, a decrease of $1,517,756.60 from the resources for the preceding fiscal year.

During the 20 fiscal years 1914–33 the resources of the Government Printing Office have nearly doubled, the income for 1914 having been $7,042,607.46.

DECREASE OF $2,837,574.83 IN EXPENDITURES

Expenditures from all resources available for the entire Office in the fiscal year 1933 totaled $12,372,913.37, a decrease of $2,837,574.83 from the expenditures for the preceding fiscal year. The expenditures for the fiscal year 1933 included $740,602.38 for the Office of the Superintendent of Documents, which sells, distributes, and catalogs Government publications under the direction of the Public Printer.

During the 20 fiscal years 1914–33 the expenditures of the entire Office have also about doubled, the amount for 1914 having been $6,959,961.53.

Purchases of paper, printing materials, and machinery included in the expenditures for the fiscal year 1933 amounted to $2,710,718.20, which was $1,819,194.79 less than the total purchases in the preceding year. Paper purchases in 1933 amounted to $1,680,724.73, the lowest expenditure for that purpose since 1916. During the 20 fiscal years 1914–33 the Government Printing Office has expended $57,956,316.56 for paper used in its work and supplied to other departments and establishments of the Government.

The larger part of the expenditures in the fiscal year 1933 was for labor, amounting to $10,122,859.98, but of this sum $1,055,079.94 was impounded by the Economy Act and returned to the Treasury, thus reducing the actual compensation paid employees to $9,067,780.04. This includes leave and holiday pay and was $1,612,542.10 less than similar compensation in the preceding fiscal year. Payments for wages, salaries, and leave in 1914 totaled $4,424,010.86.

Average compensation per employee in 1933 was $1,923.34, or $270.87 less than in 1932, due to Economy Act reductions. The average compensation in 1914 was $1,113.47, or $809.87 less than in 1933.

FEWER EMPLOYEES IN FISCAL YEAR 1933

The average number of employees on the rolls during the fiscal year 1933 was 4,754, a decrease of 239 from the 1932 average. The highest average during the last 20 years was 5,042 for war work in 1919. The number of employees then gradually decreased to an average of 3,985 in 1926, since which time the annual average has grown with the work, and reached an average of 4,993 for the fiscal year 1932.

The number of employees on the rolls June 30, 1933, was 4,557, and was further reduced to 4,297 on October 1. Since then there were 63 additional separations from the rolls up to December 15.

Rapidly increasing requirements of printing and binding for the new recovery activities of the Government have necessitated the temporary employment of 417 pressmen, bookbinders, bindery operatives, and laborers, making an enrollment of 4,651 employees on December 15, 1933.

$1,336,803.07 RETURNED TO THE TREASURY

Receipts from appropriations and payments for work during the fiscal year 1933 exceeded the expenditures with an unobligated balance of $1,336,803.07, which the Public Printer has returned to the Treasury. This is the largest unexpended balance that the Government Printing Office has accumulated since 1922, when the sum of $2,114,818.15 was returned to the Treasury by the present Public Printer, who in the last 13 years has left in the public funds unexpended balances totaling $9,415,921.82.

In addition to the unobligated balance of $1,336,803.07 and the impounded wage reduction of $1,055,079.94, both of which were returned to the Treasury out of the $13,709,716.44 of resources available for the fiscal year 1933, the Public Printer deposited to the credit of miscellaneous Treasury receipts the sum of $233,071.68 from profits in the sales of Government publications and payments for waste paper and other unserviceable materials.

These returns to the Treasury of unused funds for the fiscal year 1933 totaled $2,624,954.69, an increase of $2,436,033.28 over similar returns in the preceding year.

During the 13 years 1921–33 unexpended miscellaneous receipts deposited in the Treasury by the Public Printer have amounted to $3,282,363.59, which, added to the unexpended balances for the same period, make the savings for the 13 fiscal years total $12,698,285.41, the largest sums ever returned to the Treasury by any Public Printer.

DRASTIC REDUCTION IN PURCHASES

The unusually large balance returned to the Treasury on June 30, 1933, was due principally to a drastic reduction in purchases during the fiscal year, especially of paper and machinery. For paper, $1,033,468.56 less was expended in the fiscal year 1933 than in 1932. Of the annual allotment of $300,000 authorized by Congress for the purchase of new machinery, only $4,658.60 was spent in the fiscal year 1933.

In view of the decrease of approximately $3,000,000 in the regular appropriations available to the departments for expenditure at the Government Printing Office in the fiscal year beginning July 1, 1933, it was deemed advisable to reduce the stock of paper and materials. The inventory of paper and materials on hand June 30, 1933, totaled $512,188.90, being $358,558.51 less than that of June 30, 1932. Paper on hand June 30, 1933, totaled 7,705,148 pounds, a decrease of 3,625,398 pounds from the 1932 inventory.

The large unexpended balance was also partly caused by abnormal receipts in the closing months of the fiscal year due to a settlement of accounts with Congress and the assistance which the Public Printer rendered at the request of various departments by completing and charging as much work as could be done before July 1 so as to conserve their reduced appropriations for the fiscal year 1934.

CONGRESS ADJUSTS ITS ACCOUNTS

Congress adjusted its accounts with the Government Printing Office by allowing $450,000 of its printing funds for 1934 to be available in the fiscal year 1933 and authorizing the unallotted balance of $298,800 in the $2,250,000 working capital of the Government Printing Office to be used for congressional printing and binding for 1933. As the cost of labor and material for the work thus charged to Congress had already been paid by the Government Printing Office, the $748,800 made available for this work was credited to the accounts of Congress with the Government Printing Office and subsequently included in the unexpended balance returned to the Treasury on June 30, 1933.

By rushing work to the limit during June, the annual " hang-over " of uncompleted and uncharged departmental printing and binding, which at the beginning of the fiscal year 1933 totaled $3,275,187.17, was reduced to $1,513,010.37 on July 30, 1933. Departmental printing appropriations were thereby relieved of the usual amount of " hang-over " charges which the Director of the Budget had proposed to include in a limitation of total cash withdrawals under any appropriations in the fiscal year 1934. The computed product for June 1933, totaled $1,529,236.21, an increase of $432,910.62, or 39 percent.

FINANCIAL HELP TO THE DEPARTMENTS

In further relief of departmental appropriations for 1934, the Public Printer charged to available 1933 appropriations approximately $411,000 for labor and materials used on jobs uncompleted by June 30. Ordinarily these charges would not have been collected until the work was completed in the fiscal year 1934 and then placed to the credit of the Government Printing Office for subsequent use.

As a result of rendering this financial assistance to the various departments and establishments, the Government Printing Office denied itself approximately $1,000,000 additional funds for use in the fiscal year beginning July 1, 1933, most of which was returned to the Treasury with the unexpended balance thus accumulated in the fiscal year 1933.

COMPLICATIONS UNDER THE ECONOMY ACTS

In addition to the impounding of wages and other restriction of funds, the financial transactions of the Government Printing Office have been greatly complicated by the following provisions in the two Economy Acts which were in effect during the fiscal year 1933:

1. Under the Economy Act of June 30, 1932, the Public Printer exercised the option of adopting a 5-day (40 hours) work week for the Government Printing Office, with a reduction of one eleventh in the pay of employees which had been at the rate of 48 hours for a 44-hour work week under the Saturday half holiday law. The Economy Act of March 20, 1933, effective on April 1, ended the fixed rate of wage reduction and authorized the President to determine the impounding of wages on a percentage basis, which was set at 15 percent.

This change in the method of wage reduction, from one eleventh of an employee's earnings in a 40-hour work week to 15 percent of his pay in a 44-hour work week, resulted in the impounding of $674,195.56 under the first Economy Act and $380,884.38 under the second Economy Act for the fiscal year 1933.

However, the Public Printer was able to continue the 5-day work week for the Government Printing Office until September 9 by combining the Saturday half holidays granted by the act of 1931 with leave restored by the Economy Act of 1933, thus giving employees a full holiday with pay on Saturdays until their available leave was exhausted.

SHORTER WORK WEEK AGAIN RECOMMENDED

Since September 9 the Office has been operating under the Saturday half holiday law, which is difficult of administration and disturbing to the work routine by requiring compensatory time off on another day if employees work more than 4 hours on Saturday. Therefore, the Public Printer's recommendation of a 5-day work week is renewed in the interest of more efficient operation of the Government Printing Office and in justice to its employees who are entitled to a shorter work week in accord with the National Recovery Act.

2. Another fiscal complication has resulted in restoration by the 1933 Economy Act of leave with pay which had been reduced from 30 to 15 days by the Economy Act of 1932 and suspended for the fiscal year 1933. The Comptroller General decided on April 21, 1933, that, under the Economy Act effective April 1, 1933, the Public Printer was authorized to grant 15 days' leave that employees had earned in the fiscal year 1932 and also pro rata leave for the remainder of the fiscal year 1933. The new leave legislation required the expenditure of $272,000 in the granting of leave during the last 3 months of the fiscal year 1933. This sum was paid out of the funds available from charges for work done in that year without additional appropriations.

PAYMENTS FOR LEAVE AND HOLIDAYS

Payments for leave, Saturday half holidays, and other holidays granted by law for the fiscal year 1933 totaled $1,288,279.55, all of which had to be included in the charges for work done during the year. On account of Economy Act restrictions, the expenditures for leave and holiday pay in 1933 were $665,105.50 less than in 1932.

Due to the expectation that leave would not be restored during the fiscal year beginning July 1, 1933, the regular appropriation to the Government Printing Office for that period did not include any specific authority for payment of leave. Therefore, when leave was restored by the act effective April 1, 1933, it was necessary to obtain an authorization by Congress for leave payments, which was granted in the Deficiency Act of May 29, 1933.

By this act, $400,000 of the working capital of the Government Printing Office for the fiscal year 1934 was made available for granting 15 days' annual leave of absence with pay to employees. Although an estimate, it was believed at the time that such a sum would be sufficient. However, an unusual rush of work at the close of the fiscal year ended June 30 reduced the granting and charging of leave in that fiscal year, and a large part of this expense had to be transferred to the succeeding fiscal year with its $400,000 limitation on leave payments.

Leave granted in compliance with law during the first 5 months of the present fiscal year has amounted to $299,567.07, which shows that additional funds will have to be made available for that purpose during the year. If the limitation is removed, the leave can be paid from the regular funds received by the Government Printing Office for work done, without any additional appropriation. Legislative authorization therefor is recommended.

CURRENT RATE FOR LEAVE PAY PROPOSED

To simplify and reduce the expense of leave accounts, it is recommended that the Public Printer be authorized to grant leave to employees at the rate of pay for their regular positions at the time leave is taken, instead of at the rate at which it was earned. The proposed change would conform to the method, which obtains in all other branches of the Government service, of granting leave to employees at their current rate of pay.

Under the accounting system required of this Office it has often been necessary to compute an employee's leave pay at half a dozen different rates at which he worked during the preceding fiscal year. Many employees are thus required to take leave at a higher or lower rate of pay than their regular compensation at the time they are granted leave, which also causes much confusion and uncertainty in the preparation and auditing of pay rolls.

PRESENT LEAVE PAY IS COMPLICATED

The present procedure is further complicated by the fact that under the 1932 Economy Act leave is now cumulative from year to year and may include many more different rates of pay than heretofore. Furthermore, the Comptroller General held on May 9, 1933, that the Public Printer may grant leave with pay the same year in which it is earned, thereby changing the old rule that leave must be earned in one year and taken in the succeeding year. It may now be possible to grant some employees leave at the current rate of pay and others at the rate in which it was earned in prior years.

The law for leave ought to be uniform to prevent possible discriminations, and therefore the current rate is recommended as fair to the employee and a simpler basis of accounting.

3. The Economy Act of March 20, 1933, also increased the cost of work done during the remainder of the fiscal year by restoring the former night differential of 15 percent which the 1932 Economy Act had reduced one half, and by reviving the extra rate for overtime work. During the 9 months that these restrictions were in effect approximately $335,000 was saved in labor costs.

4. Both of the Economy Acts, 1932 and 1933, restrict promotions, thus depressing the morale and offering little hope of reward for efficient service. This restriction prevented promotion during the fiscal year 1933 of 87 employees who were entitled to advancement under Office rules and trade agreements.

COSTS AND CHARGES FOR WORK

The cost of all operations and materials required in the production of printing, binding, and blank paper during the fiscal year 1933 amounted to $12,454,187.04, which was $1,850,584.39 less than the cost for the preceding fiscal year. In addition, approximately $400,000 was spent on uncompleted jobs for labor and materials to be charged in the fiscal year 1934.

Production costs for the fiscal year 1933 included labor, $7,685,-569.13, a decrease of $584,043.04; paper and materials, $2,327,888.34, a decrease of $1,113,728.02; maintenance and upkeep of buildings and equipment, $1,542,743.97, an increase of $28,247.60; administrative and clerical, $698,277.29, a decrease of $67,444.26; delivery and plate storage, $127,824.18, a decrease of $13,844.94.

Charges for work done during the fiscal year 1933 amounted to $12,941,095.24, exceeding the total cost, including the impounded wage reductions, by $486,908.20, or 4 percent.

PRINCIPAL ITEMS OF ANNUAL CHARGES

In the charges for work delivered during the fiscal year 1933 were the following principal items: Composition, $5,408,788.60; presswork, $1,208,388.15; bindery, $2,473,121.34; platemaking, $279,773.22; illustrations, $265,914.10; authors' alterations, $253,787.54, an increase of $13,616.24; rush and overtime work, $170,072.57, including an extra charge of $14,943.59 on rush jobs, a decrease of $50,978.21.

Paper charges amounted to $2,081,064.11, including $412,918.74 for blank paper, a decrease of $839,129.92 for the year.

Printing and binding supplies, including inks, rollers, and glues, were sold to other Government departments at charges amounting to

$38,982.85, a decrease of $90,516.63 as compared with the amount of similar supplies sold in 1932.

The following summary of charges for all work done by the Government Printing Office during the fiscal year 1933 shows the amounts allotted under sections 302 and 303 of the Economy Act (Public, No. 212, 72d Cong.), charges for work completed in the fiscal year 1933 under allotments and exemptions therefrom, charges to other appropriations for work ordered prior to and completed in 1933, and grand totals of all charges by the Public Printer for printing and binding, blank paper, and printing supplies:

Summary of charges by Government Printing Office in the fiscal year 1933

Printing, binding, blank paper, and supplies	Allotted for work at Government Printing Office	Charges for work completed in 1933	Charges in 1933 on orders placed in prior years	Total charges in 1933
Printing and binding:				
Under 1933 Economy Act limitation of $8,000,000:				
Legislative ($2,500,000):				
Congress	$1,951,200.00	$1,951,200.00		$1,951,200.00
Library of Congress	395,000.00	354,020.13	$16,014.38	370,034.51
Superintendent of Documents	153,800.00	138,710.89	39,163.88	177,874.77
Total legislative under allotment	2,500,000.00	2,443,931.02	55,178.26	2,499,109.28
Departmental ($5,500,000)	5,112,892.60	[1] 3,348,070.23	2,402,095.32	5,750,165.55
Congress, additional (act Feb. 28, 1933)	748,800.00	748,800.00		748,800.00
Total, legislative and departmental	8,361,692.60	6,540,801.25	2,457,273.58	8,998,074.83
Exempt from allotment:				
Postal cards		438,643.60	180,500.00	619,143.60
Money orders		133,080.35	3,047.23	136,127.58
Patent Office		1,274,702.23	36,395.46	1,311,097.69
Other activities (24)		203,841.60	798,845.87	1,002,687.47
Private orders		53,259.38		53,259.38
Superintendent of Documents:				
Miscellaneous		50,605.71	1,069.77	51,675.48
Sales		315,688.20		315,688.20
Library of Congress: Miscellaneous		1,439.42		1,439.42
Total exempt from Economy Act allotment		2,471,260.49	1,019,858.33	3,491,118.82
Grand total, printing and binding	8,361,692.60	9,012,061.74	3,477,131.91	12,489,193.65
Blank paper:				
Under 1933 Economy Act limitation of $400,000	380,620.00	[2] 283,065.34	96,046.64	379,111.98
Exempt from allotment		33,771.33	35.43	33,806.76
Grand total, blank paper	380,620.00	316,836.67	96,082.07	412,918.74
Printing supplies: Inks, rollers, glues, etc		38,982.85		38,982.85
Grand total charges for all work				12,941,095.24

[1] Additional obligations for printing and binding ordered but not completed in 1933 amounted to $1,025,900.62, making total $4,373,970.85.

[2] Additional obligations for blank paper ordered but not delivered in 1933 amounted to $5,985.64, making total $289,050.98.

The charges for work done in the fiscal year 1933 included labor at the normal basic rates with no allowance for decreased cost to the Government by the wage-impounding provisions of the Economy Act. If the Public Printer had been authorized to charge for printing and binding at the reduced labor cost instead of at the regular wage rates, the total billings for 1933 could have been reduced $999,091.53, the impounded amount of wages and salaries for the production divisions.

IMPOUNDED FUNDS FOR CONGRESSIONAL WORK

By a provision in the Legislative Appropriation Act for the fiscal year beginning July 1, 1933, not to exceed $1,000,000 of Government Printing Office funds which otherwise would be impounded during that year under provisions of the Economy Act "relating to the legislative furlough, compensation reductions, and reduced differential for night work" is to be credited to the working capital of the Government Printing Office and made available for printing and binding for Congress. Thus, for another fiscal year at least, reduced labor costs cannot be reflected in charges for work done by the Government Printing Office, which must continue its scale of prices in accord with the basic wage rates that have been in effect since 1924.

However, notwithstanding the impounding of wage and salary decreases under the Economy Act, substantial reductions were made in charges for work done during the fiscal year 1933 and the year beginning July 1, 1933.

On February 1, 1933, an average reduction of 10 percent was made in the scale of charges for general printing and binding with a saving of approximately $464,000 in billings for work done during the remainder of the fiscal year ended June 30. The charges for postal cards were reduced 10 percent at the beginning of the fiscal year 1933. A decrease of approximately $100,000 was also made in charges for Patent Office printing which was not included in the general 10-percent reduction on February 1.

$500,000 REDUCTION IN PATENT PRINTING

As a result of changes in type and method of printing patent specifications and the Official Gazette which were agreed to by Secretary of Commerce Roper on June 2, 1933, and effective with the issue of August 1, a reduction of approximately $500,000 will be made in this work for the Patent Office during the fiscal year 1934, as compared with the charges for 1932.

A further reduction, effective June 1, 1933, was made in the charges for postal cards and money orders, saving approximately $225,000 to the Post Office Department for the fiscal year beginning July 1, 1933.

PRODUCTION RECORDS FOR THE YEAR

Copies of all kinds of printed matter, ranging from postal cards, blank forms, and letterheads to pamphlets, patent specifications, and more pretentious publications, were produced in the fiscal year 1933 to the number of 3,098,684,889, a decrease of 304,924,547 copies from the preceding fiscal year.

The principal part of the printed matter produced in 1933 consisted of blanks, notices, schedules, and postal cards, which totaled 2,726,143,488 copies, a decrease of 237,269,712 for the year. Postal cards printed in 1933 totaled 1,290,469,000, a decrease of 75,601,000.

Tabulating cards were printed to the number of 229,832,000, an increase of 133,119,000 due to furnishing of cards throughout the year to the Postal Service. Sixteen special presses are used exclusively for the printing of tabulating cards. Several of the presses are equipped with colored striping devices developed in this Office, and 3,900,000 striped cards were printed during the year.

The cost of tabulating cards furnished by the Government Printing Office is about half the prices charged by the tabulating-machine companies, which continue to exact of the Government 18½ percent extra rental charges if Government-made tabulating cards are used in their machines. A suit by which the Government is seeking relief from the alleged discriminatory rentals and unfair practices of the tabulating-machine companies is pending before the United States District Court in New York City.

CATALOG CARDS FOR LIBRARY USE

Included in the card production for the year was a total of 24,699,600 catalog cards printed for the use of and for sale by the Library of Congress, an increase of 1,071,060 over the 1932 total. Of this number of cards, 3,564,000 were reprinted by the offset process. For the printing of new cards, 98,499 titles were set during the year, an increase of 4,812.

Publications, other than the Congressional Record, printed in the fiscal year 1933, totaled 78,100,771 copies, of which 41,512,176 were of octavo size, a decrease of 16,380,259 copies from the preceding year. There were 2,027,092 type pages in the publications for 1933, an increase of 33,891. Copies of publications bound totaled 1,071,229, a decrease of 134,634. The total cost of publications, other than the Congressional Record, was $6,075,616.55, a decrease of $204,009.77.

Annual reports of the various departments and establishments of the Government for the fiscal year 1932, printed in 1933, consisted of 19,083 type pages, a decrease of 3,098 from the reports for 1931. There were printed of all the 1932 reports a total of 433,520 copies at a cost of $203,072.80, a decrease in cost of $49,907.39.

The annual reports for the fiscal year 1933 now in process of printing will be reduced about 40 percent in size and considerably less in number. In 1932 there were 55 more reports printed than have been put into type for the year 1933.

Printed letterheads and envelops totaled 101,327,785 copies for the fiscal year 1933, a decrease of 35,079,044. The cost was $178,261.55, a decrease of $60,516.85.

REDUCTION OF EMBOSSED STATIONERY

Embossed letterheads and envelops ordered for departmental use in 1933 cost $7,841.33 for 1,162,250 copies, a decrease of 112,300 copies. Embossed stationery has not been furnished to Members and committees of Congress for the last 20 years except at personal expense, and only three small cash orders were received in the fiscal year 1933.

Blank books of various kinds and sizes were produced to the number of 1,731,443 copies, a decrease of 163,808. The total cost of blank books ordered in 1933 was $415,057.99, a decrease of $32,500.82.

With the reduced volume of work and fewer employees in the fiscal year ended June 30, 1933, various operations of typesetting, proofreading, platemaking, presswork, and binding likewise were less than during the fiscal year 1932.

Ems of type set in 1933 totaled 2,383,599,100, a decrease of 406,645,900 ems from the record-breaking total in 1932 which included type for the extensive reports of the 1930 census and the large increase of patent specifications and the Congressional Record. Substantially all the type was machine set and cast on 174 linotypes, 100 monotype keyboards, and 130 monotype casters. Linotype composition in 1933 totaled 1,129,106,900 ems and monotype 1,203,425,400 ems.

TYPE-MACHINE OPERATORS' AVERAGES

The type-machine operators' averages for 1933 were as follows: Linotype, 5,257 ems per hour, an increase of 107 ems; monotype, 7,002 ems per hour, a decrease of 424 ems.

The monotype casting machines produced a total of 866,423,987 units in the fiscal year 1933, a decrease of 143,709,705 units. An average of 4,306 units per hour were cast. These machines also cast 723,000 pounds of sorts during the year. The sorts supply room issued 727,807 pounds of type, rules, slugs, leads, etc., in 1933 and had 199,750 pounds on hand June 30.

A recent inventory also showed 178,000 pages of type in the Office awaiting return of proofs or orders for reprints. At the same time 23,000 galleys of type were on hand for proofreading and correction. The standing type weighs approximately 2,500,000 pounds.

A daily average of 410 proofreaders, working in pairs, read 1,104,192 galley proofs of printed matter, including patent specifications and the Congressional Record, during the year, a decrease of 128,669 from the number of galleys read in 1932.

WORK OF THE PLATEMAKING DIVISION

The Platemaking Division produced 4,797,486 square inches of stereotype plates, 3,578,867 square inches of electrotype plates, 925,914 square inches of unplated matrices and 640,033 square inches of wood and metal blocking, making a total of 9,942,300 square inches in 1933; a decrease of 1,224,568 compared with 1932.

Stored in the vaults of the Platemaking Division are 2,975,621 electrotype and stereotype plates, and 500,000 stereotype matrices, which are held subject to future orders for reprints.

In a special vault are 201,915 plates for volumes 1 to 256, inclusive, of the United States Supreme Court Reports which were purchased from the original publishers with a special appropriation of $50,000 by Congress in 1930. The Government Printing Office began printing Supreme Court Reports with volume 257 in 1922, and is now able to reprint the entire series whenever there is sufficient demand for additional copies for sale or official use.

The Photo-engraving Section, which the present Public Printer installed in 1922, produced 612,139 square inches of half-tones, line cuts, and combinations during the fiscal year 1933. A total of 58,192 line cuts were made for the weekly issues of the Patent Gazette. The Photo-engraving Section also made 6,262 negatives for offset plates.

PRODUCTION OF THE PRESSWORK DIVISION

The Presswork Division produced a total of 656,466,876 actual impressions in the fiscal year 1933, an increase of 47,988,523. The chargeable impressions for the year totaled 1,985,697,739, a decrease of 204,811,382 owing to less number of copies per actual impression in 1933. During the year, 161,192 forms were put to press, a decrease of 16,156. Press-running time totaled 210,747 hours, as compared with 230,555 hours in 1932. These figures do not include the output of the postal-card and money-order presses, nor the 4 presses in the Library of Congress branch.

The total number of printing presses in the Government Printing Office is 192, made up of 24 rotary web, 114 cylinder, 8 automatic rotary sheet feed, 10 automatic envelop, 2 embossing, 4 offset, 16 tabulating card, 2 fanfold, and 12 platen.

Bindery operations uniformly decreased during the fiscal year 1933 in company with the reduced volume of printing. The Bindery Divi-

sion had a daily average of 65 fewer employees on its rolls and 77 less on June 30, when the total was 968.

The principal bindery work in the fiscal year 1933, as compared with 1932, was as follows: Sheets folded, 336,092,301, decrease of 74,465,396; signatures gathered, 130,325,878, decrease of 34,637,945; signatures sewed, 43,394,325, decrease of 9,258,359; copies wire-stitched, 39,505,927, decrease of 11,040,972; copies paper-covered, 8,860,923, decrease of 4,247,752; copies trimmed, 40,499,587, decrease of 26,368,286; books cased in, 1,240,900, decrease of 7,325; sheets machine-ruled, 26,235,643, decrease of 13,052,975; copies punched and drilled, 133,255,943, decrease of 44,688,912; tablets made, 3,182,726, decrease of 589,701; books rebound, 99,287, decrease of 417.

COST OF CONGRESSIONAL PRINTING

Congressional printing during the fiscal year 1933 was most unusual in that it included two entire sessions of Congress and part of a third session. There was also a reorganization of both the legislative and administrative branches of the Government.

The three sessions of Congress during the fiscal year beginning July 1, 1932, covered 206 calendar days as follows: Seventy-second Congress, first session, 16 days, July 1–16, 1932; Seventy-second Congress, second session, 90 days, December 5, 1932–March 4, 1933; Seventy-third Congress, first session, 100 days, March 9–June 16, 1933. The first session of the Seventy-second Congress also covered 207 calendar days in the fiscal year 1932.

Thus, for 413 days in the last 2 fiscal years, 1932 and 1933, Congress has required the Government Printing Office to be ready at all times to execute its orders for printing and binding, including the publication of the daily Congressional Record.

DECREASE COMPARED WITH PRECEDING YEAR

Although Congress was in session in the fiscal year 1933 almost the same length of time as in the fiscal year 1932, the total charges of $2,700,000 for its printing in 1933 were $300,000 less than in 1932. The charges for 1933 also included $199,784.53 for work done in 1932 in excess of the funds available therefor.

Due to the extra work required for the special session of the Seventy-third Congress from March 9 to June 16, 1933, it was necessary to carry over into the fiscal year beginning July 1, charges for congressional printing and binding amounting to $295,473.44.

If the second session of the Seventy-third Congress requires the usual amount of printing and binding, the appropriation of $2,300,000 for congressional work during the fiscal year 1934 will not be adequate

especially as $1,000,000 of this sum is to be derived from the 15-percent reduction of employees' compensation under the Economy Act, and is thus subject to change by the President.

The cost of printing and binding the Congressional Record in the fiscal year 1933 amounted to $803,236.59, an increase of $108,774.51 over the preceding year. The 1933 cost included the bound edition and part of the daily for the first session of the Seventy-second Congress, the daily and part of the bound for the second session of the Seventy-second Congress, and the daily for the first session of the Seventy-third Congress.

Daily copies of the Record printed in the fiscal year 1933 totaled 6,700,071, an increase of 2,037,916. The number of bound volumes totaled 72,900, an increase of 34,020, due to binding for two sessions in one fiscal year.

COST OF THE RECORD FOR 72D CONGRESS

The daily and bound editions of the Record for the 2 sessions of the Seventy-second Congress cost $1,257,936.95, a decrease of $324,879.29 from the charges for the 3 sessions of the Seventy-first Congress.

The daily Record for the first session of the Seventy-second Congress totaled 16,428 pages, with an average of 93 pages for the 178 issues; and for the second session, 5,914 pages, with an average of 79 for the 75 issues. The bound set for the first session of the Seventy-second Congress consists of 15 volumes, and for the second session 6 volumes.

The daily and bound Record for the first session of the Seventy-third Congress cost $292,452.83. The daily Record for this session totaled 6,541 pages, with an average of 83 for the 79 issues. The largest daily Record for the session contained 192 pages, and the daily average for the last 8 days of the session was 127 pages.

SPEED IN PRINTING THE DAILY RECORD

Notwithstanding unusual delays in furnishing copy, the Records for the last session were off press before 8 o'clock every morning except four. If copy were available, the Record could be set and proofread at the rate of 30 pages an hour with the normal number of machines and employees assigned to that work.

The permanent Record for the first session of the Seventy-third Congress, which is a complete remake-up and repaging of the daily issues to consolidate the appendixes in proper order with the proceedings, consists of 7 volumes, of which 4,825 sets were printed and bound with complete session index and history of bills. The final proof of the index was returned to the Government Printing

Office on October 1 and delivery of bound sets to the Capitol completed on December 13, 1933.

An average of 35,000 copies of each issue of the daily Record is printed for free distribution by Members of Congress, 59 being allotted to each Representative and 87 to each Senator.

Receipts from the sales of the Congressional Record during the fiscal year 1933 amounted to $9,000.30, including 339 subscribers for the 3 months of the first session of the Seventy-third Congress.

The subscription price of the daily Record as fixed by law has been $4 for each " short " session and $8 for each " long " session, or $1.50 per month. With the change in the annual convening of Congress the length of a session will be uncertain, and none can be designated as " short " or " long." Therefore, until Congress may otherwise direct, the Public Printer has decided to charge subscriptions for the daily Record on a monthly basis at the rate of $1.50 per month, as fixed by law, which is approximately the actual cost.

PRINTING PAID FOR BY THE MEMBERS

Senators and Representatives paid the Public Printer a total of $40,445.99 in 1933 for printing in pamphlet form 11,880,482 copies of their speeches which previously had been published in the Congressional Record. The 1933 receipts were $7,121.74 less than Members paid the preceding year for 1,730,768 fewer copies. The orders covered 1,170 different speech pamphlets.

In addition, Members of Congress paid the Public Printer $12,802.15 for extra copies of congressional documents, reports, and bills ordered by them in the fiscal year 1933.

During the last 20 years 1914–33, private orders paid for by Senators and Members have amounted to $1,710,848.62.

STATEMENT ABOUT PRINTING SPEECHES

The following statement in regard to the cost of printing speeches for Members of Congress was submitted to Hon. Raymond J. Cannon of Wisconsin by the Public Printer under date of May 22, 1933:

You are reported in the Congressional Record of Friday, May 19, as having made the following statement in regard to the printing of speeches for Members of Congress by the Government Printing Office:

" May I say that the Printing Office has advised me that they are losing money daily on these speeches, and that they are not receiving the actual cost of printing these speeches."

I have been unable to locate any employee of the Government Printing Office who will admit having advised you that this Office is losing money in the printing of speeches for Members of Congress. The fact is, the Government Printing Office charges every Member of Congress the actual cost of printing extracts

from the Congressional Record, as required by law (title 44, sec. 185, U.S. Code), and does not lose money on speeches printed for Members of Congress. Therefore, I respectfully request that you inform me as to the source of your erroneous information, which was unjust both to this Office and to Members of Congress.

I also note in your remarks of May 19 the statement that a Member of the House a very short time ago sent out 200,000 copies of a speech printed at the Government Printing Office at a cost of $11.30 for the first thousand and $2.30 for every additional thousand and that "a reputable union printer" in Washington had submitted an estimate to you that he could print the same speech without any profit for $40 for the first thousand and $10 for the balance.

A careful examination of the records of this Office shows that one order for 200,000 copies of a Member's speech has been printed since July 1, 1932. That speech consisted of one page, Record size, for which $5.70 was charged for the first thousand and $1.38 for the additional thousands, which was based upon actual cost exclusive of composition. Even if composition had been included, the charge for the first thousand copies would have been only $13.92.

COMPARISON WITH COMMERCIAL CHARGES

The nearest charge to that quoted by you would be $11.14 for the first thousand copies of an 8-page document speech and $2.31 for additional thousand. Including composition, the charge for the first thousand copies of this speech would have been $33.07. It is inconceivable in either instance that a reputable printer would charge $10 as his added thousand rate if his price of $40 for the first thousand included the full composition charge. The Government Printing Office charge for the first thousand does not, of course, include composition, as the type for the reprinting of speeches is almost invariably picked up from the Congressional Record. However, if new composition is required in the reprinting of speeches, the full cost thereof is properly charged to the Member.

I am therefore pleased to advise you that the Government Printing Office is not losing money in the printing of congressional speeches and in every instance charges the actual cost thereof to the Member, who pays the bills with his own funds. In the fiscal year 1932, Members of Congress paid the Public Printer $47,567.73 for the cost of printing their speeches. In the fiscal year 1931 the amount so paid totaled $61,257.91. These payments fully reimbursed the Government for the cost of the printing of speeches for Members of Congress as provided by law.

In this connection I also respectfully invite your attention to the following statement in my letter to you under date of April 18, 1933:

"No profit whatever is derived by Government Printing Office in reprinting speeches appearing in the Record. The work is done at actual cost. The prices compare favorably with commercial charges."

FRANKED ENVELOPS FOR CONGRESSMEN

Franked envelops furnished free to Senators and Members for mailing extracts from the Congressional Record totaled 11,185,615 and cost $27,264.55 in the fiscal year 1933, a decrease of 2,354,335 in number and $5,711.40 in cost. The total charges for franked envelops and document slips for congressional use during the year were $40,336.72, a decrease of $13,182.04.

Bills, resolutions, and amendments printed for the sessions of Congress in the fiscal year 1933 totaled 8,800,968 copies and consisted of 122,655 type pages, a decrease of 1,411,707 copies and an increase of 23,515 type pages as compared with the fiscal year 1932. The cost in 1933 was $396,261.44, a decrease of $138,537.74.

BILLS PRINTED FOR PRESENT CONGRESS

In the first session of the Seventy-third Congress, 8,685 bills and resolutions were introduced and printed, 6,558 being for the House and 2,127 for the Senate. The Clerk of the House anticipated its flood of bills by having 1,487 printed in advance of the opening day when 1,434 additional bills were introduced in Congress and ordered printed. During the session there were 10,688 prints of bills in various stages of legislation.

The second session of the Seventy-second Congress, which was also held in the fiscal year 1933, had printed a total of 2,938 bills and resolutions notwithstanding it was the last "lame-duck" session of Congress. In the first session, 19,329 bills were introduced and printed, bringing the total for the Seventy-second Congress up to 22,267.

Printing for committees of Congress, including hearings, calendars of pending legislation, reports, and stationery, cost $552,265.40 in the fiscal year 1933, a decrease of $14,630.12. The cost for Senate committees was $289,122.58 and for the House committees, $263,142.82.

Committee hearings printed in the fiscal year 1933 cost $378,467.53 for 288,041 copies, with 87,858 type pages, an increase of $94,516.86 in cost, 151,520 in copies, and 42,548 in pages.

PRINTING OF COMMITTEE HEARINGS

For the second session of the Seventy-second Congress, 133 separate hearings were printed, and for the first session of the Seventy-third Congress the hearings numbered 67. The latter included extensive proceedings relating to the national recovery legislation, banking, stock exchanges, airships, and the 30-hour week, some of which are continuing with additional printed hearings.

Hearings at the second session of the Seventy-second Congress on appropriation bills for the fiscal year 1934 totaled 8,906 pages, a decrease of 4,473 from the number of pages for the preceding year.

Committee reports printed in 1933 cost $66,493, a decrease of $11,494.91. There were 781 reports printed for the second session of the Seventy-second Congress and 416 for the first session of the Seventy-third Congress.

Publications for Congress, exclusive of the Record and bills, totaled 4,863,089 copies, an increase of 1,000,353 for the fiscal year 1933.

Charges for congressional publications printed during the year totaled $1,204,707.31, a decrease of $283,891.87 notwithstanding the large increase of copies. However, the reduction in these charges was due to exceeding the congressional printing allotment for 1933, which necessitated carrying over into the fiscal year 1934 charges amounting to $295,473.44, as heretofore noted.

Included in the publications for Congress, besides committee hearings and reports, were documents printed for distribution by Members through the Capitol folding rooms, which in 1933 cost $479,831.41, a decrease of $105,944.99; Senate and House documents costing $130,828.42, a decrease of $140,889.54; and publications for international exchanges costing $13,601.38, a decrease of $205.37. Senate and House documents for the first and second sessions of the Seventy-second Congress numbered 800, and for the first session of the Seventy-third Congress, 189.

SAVINGS BY HOUSE PRINTING COMMITTEE

The House Committee on Printing is continuing to effect a considerable saving in the printing of War Department reports on river and harbor improvements, which, under the direction of Chairman Lambeth, are being carefully examined with a view to eliminating all unnecessary bulk and such charts and maps as are not deemed essential.

As the result of a saving of $107,000 by the House Committee on Printing, which was mentioned in the Public Printer's Report last year, the House Committee on Appropriations inserted in the War Department Appropriation Act, approved March 4, 1933, a provision for the printing of only such reports on river and harbor surveys as may be authorized by the House Committee on Printing. That committee is now supervising the printing of all river and harbor survey reports and requiring that the cost shall be charged to the War Department, thereby effecting a worth-while saving in printing which had heretofore been charged to Congress.

PRINTING OF INVESTIGATION REPORTS

Several other large charges against congressional printing funds appear to be nearing an end. The reports of the Federal Trade Commission on its investigation of electric-power and gas utility companies in compliance with a Senate resolution of May 3, 1928, which are being printed as Senate Document No. 92, Seventieth Congress, have cost to date $250,924.52 for 59 volumes containing 36,770 pages. Six volumes are now in the course of printing.

Investigation of the cottonseed industry, which the Federal Trade Commission has been conducting since 1930 in compliance with another Senate resolution, has been printed as Senate Document No. 209, Seventy-first Congress. The thirteenth volume was completed August 2, 1933, bringing the total number of pages up to 16,032, and the printing charge to $85,147.56.

EXECUTIVE JOURNALS OF THE SENATE

The Executive Journals of the Senate for the Fifty-seventh to the Seventy-second Congresses are in course of printing under authority of a Senate resolution of February 28, 1931. Ten volumes have been printed and delivered. Type has been set and proofs submitted for 23 additional volumes. Four other volumes are in course of printing, and copy is to be furnished for 2 more, making 39 in all. Five hundred copies of each volume are to be printed and bound in buckram for the exclusive use of the Senate until released by its order. Charges for the volumes already delivered amount to $45,622.11. The cost of printing and binding the 39 volumes of the Senate Executive Journals will amount to $155,000, it is estimated.

By order of the Senate the report of the United States Tariff Commission entitled "Economic Analysis of the Foreign Trade of the United States with Special Relation to the Tariff" was printed in record time for the special use of the American delegation to the London Economic Conference. The document was in three parts, making a total of 740 pages, principally tabular matter. The edition of 1,961 copies cost $36,199.10.

PROMPTNESS PLEASED TARIFF COMMISSION

In recognition of the effort of the Government Printing Office to expedite the printing of this document for "urgent high official use", the United States Tariff Commission directed its Secretary, Maj. Sidney Morgan, to write the following letter to the Public Printer on June 3, 1933:

> The special effort made by your force to finish the printing of our reply to Senate Resolution 325 (S.Doc. 180) entitled "Economic Analysis of the Foreign Trade of the United States with Special Relation to the Tariff" in time for urgent high official use, was successful under what we realize were great technical difficulties.
>
> As the result of willing and expert assistance from your force it was possible for us to supply the Secretary of State, the Secretary of Agriculture, the Secretary of Commerce, the Assistant Secretary of State, the Assistant Secretary of Agriculture, and others personally and at a very opportune time in advance, with copies of this valuable information. We were also enabled, by your very

special cooperation, to supply personally to the members of the American delegation to the London Economic Conference this useful compilation in printed form 4 days before they sailed for London.

This Commission and others high in the interested departments wish to express very real appreciation for your active and intelligent part in making this information promptly available in convenient and excellent form. Will you not further oblige us by conveying some expression of this appreciation to workers of all ranks who made success possible?

PUBLICATION HELPFUL TO FOREST SERVICE

Another Senate document entitled "A National Plan for American Forestry" received high praise from the Chief of the Forest Service, the late R. Y. Stuart. This publication is in two parts, making a total of 1,692 pages, of which 7,935 copies were printed at a cost of $14,295.45. Writing to the Public Printer under date of May 6, 1933, Mr. Stuart said:

The Forest Service has naturally been deeply interested in every detail of the production of the recently published Senate Document 12, "A National Plan for American Forestry", which originated in this Bureau. This was an unusual publication in many ways, amounting to more than 1,600 printed pages and because of the very general interest in its subject matter just at this time, urgently desired at the earliest possible moment.

The intelligent care and unusual speed with which the printing of these volumes was accomplished have delighted us. One expects much from so outstanding an organization as the Government Printing Office, but in this case our expectations notably fell short of the actual performance. I would like personally to express my appreciation of all that you and those associated with you have done to produce this report in record time and in such very attractive form.

COST OF MEMORIAL VOLUMES REDUCED

Memorial proceedings and eulogies in honor of 18 deceased Members of Congress, which were printed and appropriately bound during the fiscal year 1933, cost $36,038.09 for 95,742 copies.

By direction of the Joint Committee on Printing, on March 18, 1933, the type set for printing eulogies in the Congressional Record is used again for the memorial volumes. This economy in composition, together with the committee's reduction in number of copies printed for congressional distribution, effected a saving of approximately $15,000 in the cost of memorial volumes of the Seventy-second Congress.

Supplement VI of the United States Code containing the laws of the Sixty-ninth, Seventieth, Seventy-first, and first session of the Seventy-second Congresses, with ancillaries and index, was delivered on January 18, 1933, there being 10,466 copies printed and bound as provided by law at a cost of $18,336.91.

Supplement VII, which will supersede all the preceding supplements of the Code and include the laws of the first session of the Seventy-third Congress, is now in course of printing.

Printing of the first supplement of the 1929 edition of the Code of the District of Columbia was completed in the latter part of December 1933.

PROGRESS OF THE WASHINGTON EDITION

Progress is being made in printing the definitive edition of the Writings of George Washington from the original manuscript sources as prepared under the direction of the United States George Washington Bicentennial Commission and published by authority of Congress. To date, nine volumes, including the Writings from 1745 to November 1777, have been printed and delivered. Four additional volumes, bringing the Writings up to December 1, 1778, are in process of printing. The set will conclude with the Writings for the year 1799 and will probably consist of 25 volumes of 550 pages each.

Congress authorized the printing of 3,000 sets of the Washington Writings, of which 2,000 sets are to be offered for sale and 1,000 reserved by the Commission for distribution to designated Government officials, including 1 set for each Member of Congress eligible therefor up to December 31, 1935. The official distribution is being made as the volumes are printed.

Of the 2,000 sets provided for sale, only 199 have been sold to libraries and institutions and societies of learning at the special price of $50 per set, as authorized by Congress if ordered before July 1, 1932. No sales have been made to the public, as the Bicentennial Commission has not fixed the public sales price which Congress has required shall include the cost of preparing the manuscript not yet completed. The cost of printing the Washington Writings to date is approximately $75,350, which has been paid for by the Bicentennial Commission.

BINDING RARE PAPERS FOR THE SENATE

Numerous rare historic papers and documents of the First Congress which were hidden for more than a century in the files of the Senate are now being restored by skilled bookbinders of the Government Printing Office and made available to public view. Under the direction of Col. Edwin A. Halsey, Secretary of the Senate, Mr. James D. Preston, its librarian, has assembled and arranged the original records of the beginning of the Government for preservation in suitable display cases at the Capitol. Among the treasures thus far

unearthed from their crowded and dingy cubbyholes is President Washington's first inaugural address in his own handwriting. It has been bound in appropriate and permanent form with the most enduring materials. The original manuscript of President Monroe's message to Congress announcing his famous American Doctrine, was preserved in similar manner several years ago.

HISTORIC INAUGURAL MANUSCRIPTS PRESERVED

By a most interesting coincidence, about the same time that Washington's manuscript of his first inaugural address was being bound at the Government Printing Office, the White House intrusted to the Public Printer the original manuscript and typewritten copy of President Franklin D. Roosevelt's inaugural address, which likewise have been mounted on permanent paper and artistically bound in full morocco.

Among the other Senate records that have recently been similarly preserved by skillful repair and restoration are the electoral certificates of the first Presidential election and the mileage certificates for the Members of the First Congress. One appropriately bound book contains President Washington's messages to the First Congress. In another have been preserved the resolutions of the several State legislatures ratifying the first 10 amendments (the Bill of Rights) of the Federal Constitution.

In the Senate collection of historical papers are also to be preserved, by the skill of Government bookbinders, various printed bills and joint resolutions which created the Department of the Treasury, the Department of War, the Department of Foreign Affairs, afterward renamed the Department of State, and other records of similar importance. This work is now well under way, and part of it is being done by the Government Printing Office branch bindery in the Senate Library.

APPRECIATION FROM SECRETARY OF SENATE

In appreciation of the binding of Washington's manuscript of his first inaugural address, the Secretary of the Senate, Colonel Halsey, addressed the following letter to the Public Printer under date of July 10, 1933:

> You were so very kind to bind the original documents of George Washington so beautifully, and I want to take this opportunity to express sincere thanks on behalf of the Senate and myself.
>
> The documents bound in this way will be preserved for many generations and I know will be greatly appreciated by all.

The branch bindery in the Library of Congress has bound in morocco Washington's Manuscript Diary in nine volumes and the following Presidential papers: Jefferson's in 239 volumes, Madison's in 91 volumes, William Henry Harrison's in 8 volumes, Tyler's in 1 volume, and Cleveland's in 98 volumes. Work is still in progress on the Madison papers.

WORK DONE FOR DEPARTMENTS

Printing, binding, blank paper, and printing supplies charged to the various executive departments and establishments of the Government in the fiscal year 1933 amounted to $9,270,032.30, a decrease of $872,053.81 from similar charges in the preceding fiscal year.

The 1933 charges included $3,516,953.55 for printing, binding, and blank paper ordered in previous years and furnished in 1933; $2,121,943.18 for orders exempt from the Economy Act limitation; and $3,631,135.57 for orders placed under Economy Act allotments and completed in 1933.

Additional departmental obligations under the Economy Act limitations for work not completed in the fiscal year 1933 amounted to $1,031,886.26, bringing the total obligations in 1933 up to $4,663,021.83, which were within the Economy Act limitations of $5,500,000 for departmental printing and binding and $400,000 for departmental blank paper.

PRINTING FOR POST OFFICE DEPARTMENT

Next to Congress, the Post Office Department was the best patron of the Government Printing Office in the fiscal year 1933, with a total expenditure for printing, binding, and blank paper of $1,607,460.80, a decrease of $76,903.29 from the charges for the preceding year.

The largest item of postal printing in 1933 was, as usual, postal cards, of which 1,290,044,000 were charged, a decrease of 76,105,000. The charges for postal cards in the fiscal year 1933 amounted to $619,143.60, a decrease of $83,141.40.

The demand for postal cards increased to 13,309,400 more for the first 5 months of the fiscal year 1933 than for the corresponding 5 months of the preceding year, the total output from July 1 to December 1, 1933, being 582,322,480 cards.

Post Office money orders printed in the fiscal year 1933 totaled 169,041,235, which were made up into 846,666 books for distribution direct to 50,000 post offices throughout the United States. The year's output of money orders decreased 16,435,215, which were collated in

82,328 fewer books than in the fiscal year 1932. Charges for money-order printing in 1933 amounted to $136,127.58, a decrease of $14,210.66.

In view of a material saving in operating expense and reduced paper costs, the Public Printer notified the Postmaster General on May 19, 1933, of a reduction of approximately $225,000 in the yearly charges for postal cards and money orders, effective June 1. Postmaster General Farley, in accepting the reduced prices for postal cards and money orders, replied to the Public Printer:

> The Department is appreciative of your action, which will involve a considerable saving.

MONEY ORDERS GOOD BUSINESS GAGE

The demand for money orders has always been deemed a reliable gage of business conditions. For the first time in 9 years it was necessary recently to employ an extra press force at night to assist in supplying the urgent demands for larger quantities of money orders.

Since July 1, 1933, there has been a steady increase of requisitions for money orders for all parts of the United States. During the 5 months to December 1, 1933, the requirements for money orders increased 20,554,000 over the number printed in the corresponding 5 months of 1932 and more than offset the decrease for the entire fiscal year ended June 30, 1933. The total number of money orders printed in the 5 months beginning July 1 was 92,585,800.

Publications for the Post Office Department totaled 1,796,289 copies, a decrease of 96,845 for the year.

POSTAL GUIDE AND ITS SUPPLEMENTS

The principal publication printed for the Post Office Department is the Postal Guide and its monthly supplements. Of the 1933 Guide, 93,063 copies were printed, of which 27,724 were bound in cloth, at a total cost of $65,261.38. The Superintendent of Documents has sold 11,097 copies of the 1933 Guide and 7,672 sets of the monthly supplements, the receipts from which up to December 13, 1933, totaled $20,481.50. In addition, the Post Office Department had printed for official use 15,500 copies of an abridged edition of the 1933 Postal Guide and 8,134 copies of its State lists.

Other printing for the Postal Service included the annual supply of 200,700,000 copies of money-order application blanks, which are made up in pads of 500 each by an automatic binding machine; 125,303,000 copies of registered, insured, and c.o.d. notices; 25,862,000 return-receipt cards; 27,350,000 undeliverable publication notices; and 15,000,000 change-of-address orders.

COMMERCE AND CENSUS PUBLICATIONS

The Department of Commerce, exclusive of the Patent Office, spent $1,357,038.62 for printing, binding, and blank paper procured of the Government Printing Office in the fiscal year 1933, an increase over 1932 of $187,652.07, which was the largest and one of the few increases of work for executive departments during the year.

The number of publications printed for the Department of Commerce showed a decided decrease, with 3,107,733 fewer copies than in 1932. The total number of copies for 1933 was 3,856,019 as compared with 6,963,752 in 1932.

The larger part of the printing for the Department of Commerce in 1933 was ordered by the Bureau of the Census, for which 65,000 pages of reports and schedules were produced at a cost of $731,505.88. Charges for all the other bureaus in the Department of Commerce amounted to $625,532.74.

The total charges for printing and binding for the Fifteenth Census (1930) in the fiscal years 1930 to 1933, inclusive, amounted to $2,997,261.62. The final reports of the Fifteenth Census contained approximately 33,000 printed pages in 32 volumes.

PATENT SPECIFICATIONS AND GAZETTE

Patent Office printing, including the text of specifications and the cuts and text of the weekly Gazette, for the fiscal year 1933, cost $1,311,097.69.

Charges for printing the text of specifications for patents, trade marks, and designs issued in the fiscal year 1933 amounted to $1,036,658.07, a decrease of $105,593.69, which complied with the proposal in the Public Printer's Report for 1932 of a $100,000 reduction in the 1933 charges for printing specifications if the Patent Office would effect certain economies in copy preparation and editing.

A total of 66,573 patents, trade marks, and designs were printed in 1933, a decrease of 2,552. Type pages numbered 192,997, a decrease of 882. The number of copies totaled 6,488,380, a decrease of 217,648. The weekly average of patent issues was 977 as compared with 1,010 per week during the preceding year.

For the weekly Gazette, the printing and binding charges in the fiscal year 1933 amounted to $259,699.83, which included $26,841.65 for an extra month that could not be charged in 1932 on account of lack of funds. Otherwise, the charges would have been substantially the same as in 1932. The Gazette charges in 1933 were based on 18,527 pages and 259,522 copies, as compared with 14,789 pages and 264,448 copies in 1932, an increase of 3,738 pages and a decrease of 4,926 copies.

The cost of the Patent Gazette in 1933 also included $47,063.37, which was charged to the Superintendent of Documents for sales copies. The sale of the Patent Gazette was taken over by the Government Printing Office in March 1927, since which time the Patent Office has been relieved of charges for sales copies. The receipt from sales by the Superintendent of Documents in the fiscal year 1933 amounted to $62,450.60, including $5,763.40 for copies of the indexes.

ECONOMIES IN PATENT PRINTING

A notable economy in the present and future cost of printing patent specifications and the weekly Gazette has been effected by the Public Printer in cooperation with Secretary of Commerce Roper and the Joint Committee on Printing and will reduce the charges therefor in the fiscal year 1934 to approximately $500,000 less than in the fiscal year 1932. The reduced charges did not become effective until August 1, 1933, which will proportionately decrease the proposed saving for the remainder of the fiscal year. Nevertheless, it is believed the total charges will come within the $900,000 appropriation for patent printing in the fiscal year 1934.

The saving of half a million dollars annually has been effected by the adoption of a new style and size of type for printing specifications which reduces the number of pages required for the same amount of matter approximately 16 percent. The saving is further increased by reusing the type set for specifications in printing the weekly Gazette which heretofore had to be entirely reset in a different sized type. Other typographic changes, such as using the same headings in both the specifications and the Gazette, have added to the substantial economies which ended double typesetting and proofreading formerly required by all new composition for the Gazette.

PROPOSAL SUBMITTED BY PUBLIC PRINTER

In proposing the more economical methods of printing patent specifications and the Gazette the Public Printer submitted the following statement under date of May 18, 1933, to the Joint Committee on Printing, which by law has jurisdiction over all printing for the Patent Office (U.S.C., title 44, sec. 284; act of Jan. 12, 1895):

Receipt is acknowledged of your letter of May 9, soliciting the Public Printer's cooperation with the Department of Commerce in effecting economies for the printing of patent specifications and the Official Gazette of the Patent Office as suggested in your accompanying communication of May 3 to the Secretary of Commerce.

In compliance with your request, I have submitted to the Division of Publications, Department of Commerce, copies of the enclosed sample pages of patent specifications and the Gazette, showing economies in printing that have been proposed by this Office.

If these suggestions are adopted and the Patent Office continues to improve the quality of its copy as it has done during the past year under urge by the Public Printer, the charges to the Patent Office for the printing by this Office of an equivalent quantity of patent specifications and the Gazette during the fiscal year 1934 can be reduced $506,955, as compared with the charges for the fiscal year 1932. This reduction includes $100,000 for the decrease in charges made effective for the fiscal year ending June 30, 1933.

The total charges to the Patent Office for printing patent specifications and the Gazette during the fiscal year 1932 amounted to $1,348,257. If the economies proposed by this Office are adopted, it is estimated that the charges for an equal amount of printing in the fiscal year 1934 will be $841,302, or $506,955 less than the charges for the fiscal year 1932 and well within the $900,000 appropriation for 1934.

It is believed that the quantity of patent printing in the fiscal year 1934 will at least equal that for 1932, as the amount of type set for patent work during the 10 months of the present fiscal year (1933) is only 2½ percent less than for the corresponding 10 months of the fiscal year 1932.

ECONOMY IN THE CHANGE OF TYPE

The principal economy proposed is the changing and reduction in size of the type used for the printing of patent specifications, for which 10-point roman, set solid, is now used. It is suggested that 7½-point Ionic type on 9-point body, as used in the Congressional Record, be adopted for patent specifications. This would increase the amount of matter printed on each page by 21 percent and consequently reduce the total pages of specifications printed per year by approximately 16 percent. The change of type would effect a saving of $406,919 for the same amount of composition required in the printing of patent specifications during the fiscal year 1932.

The new type, although actually smaller in size, would, it is believed, increase the legibility of the printed specifications due to the letters being more open and thereby more easily read than the old-style type. This improvement has been clearly demonstrated in the case of the Congressional Record.

SAVING IN COMPOSITION FOR GAZETTE

Another economy essential to the proposed saving would be the adoption of the same sized type for the printing of the Official Gazette, which is now reset in 6-point roman, leaded. By using the same sized type for both the specifications and the Gazette, the claim and the heading to be reproduced in the Gazette could be picked up and reprinted without the present additional expense of resetting in another size and style of type.

Although somewhat larger and more readable, the 7½-point type solid and the new heading type would increase the bulk of the Gazette about 7 percent, but the saving in composition charge by picking up all this type from the specifications would more than offset the additional cost for extra presswork, binding, and paper. In fact, the net saving in the Gazette would be $100,036, based on the 1932 charges for an equal amount of printing.

In addition to the foregoing proposed reductions in charges for patent printing based on the adoption of the suggested economies, consideration should also be given to the fact that the impounding of 15 percent of the wages of employees engaged on this work will save the Government approximately $104,000 during the next fiscal year, making the actual cost of patent printing in 1934 total approximately $610,000 less than the charges to the Patent Office in 1932, if an equal amount of patent printing is to be done in 1934.

If relieved of the impound of wage reductions under the Economy Act, the Government Printing Office could make an additional reduction of approximately 12 percent in its charges to the Patent Office for the next fiscal year. This additional saving to the Government by the impounding of 15 percent of the wage charge ought to be taken into consideration in comparing the Government Printing Office costs with prices proposed by any commercial printer.

I, therefore, urgently recommend that the Public Printer be authorized and directed to print patent specifications and the Official Gazette in the form and style proposed by the accompanying samples, the change to become effective with the first issues for the fiscal year beginning July 1, 1933.

BETTER EQUIPPED TO MEET EMERGENCIES

If the suggestions meet with your approval, it will be necessary to purchase additional matrices of the new type face and other minor equipment for 62 linotype machines in the Patents Section at a cost of approximately $12,000. Forty-eight other machines regularly used for Congressional Record composition are already equipped with similar matrices and would be available for whatever patent work could not be handled by the section established for that purpose. Thus, the Government Printing Office would be equipped to meet almost any emergency or abnormal requirement of the Patent Office, such as has heretofore happened when nearly a hundred linotype machines were used to complete the printing of patent specifications and the Gazette within the required time.

Assuring you that this Office is always ready and willing to cooperate to the fullest extent in effecting economy and efficiency in the public printing and binding, * * *

A copy of the foregoing proposal was submitted by the Public Printer to Secretary of Commerce Roper. The following approval was received from him under date of June 5, 1933:

Careful consideration has been given to your suggestions in connection with the printing of patent specifications and the Official Gazette of the Patent Office.

The suggestion that the Printing Office use a size of type which will meet the needs of both the text of the specifications and the Official Gazette so that only the removal of the leads from the specifications would be necessary in order to print the Gazette is excellent and this Department heartily approves of the use of 7½-point Ionic type on 9-point body and appropriate instructions have been issued to the Commissioner of Patents.

This change may take effect as soon as your Office can make the arrangements necessary therefor.

BUDGET DIRECTOR GRATIFIED BY SAVINGS

The Director of the Bureau of the Budget was also advised of the proposed economy in patent printing, and under date of May 23, 1933, the Public Printer received the following commendation from Mr. F. W. Lowery, technical adviser for the Director:

Mr. Douglas asks me to acknowledge receipt of your letter of May 19 enclosing copy of your letter same date to Secretary Roper, and copy your letter of May 18 to Chairman of Joint Committee on Printing, together with samples of Patent Office printing.

Mr. Douglas wishes me to express his gratification with your purpose to bring about the great savings mentioned in your letters.

The 7½-point Ionic type really makes a better appearance than the old type, and is easier to read.

The new type dress for patent specifications and the Gazette was first used in the issues of August 1, 1933, it having been necessary to procure additional linotype matrices, molds, and other equipment before the approved changes could be put into effect. Since then the economy has progressed with evident satisfaction.

During the 5 months from July 1 to December 1, 1933, of which 4 were at the reduced cost, the charges for patent printing amounted to $383,731.79, as compared with $609,258.74 for the corresponding 5 months in the preceding fiscal year. During the same period in 1933, the number of patents averaged 975 per week, with a total of 72,410 type pages, and in 1932 the weekly average was 1,114 pages with 90,649 type pages.

AGRICULTURE AND FARMERS' BULLETINS

Agriculture ranked third in departmental orders for printing and binding during the fiscal year 1933 with a total expenditure of $786,-531.71, a decrease of $296,236.34, which took the Department of Agriculture out of the million-dollar group of Government Printing Office customers.

Publications printed for the Department of Agriculture in 1933 totaled 18,620,835 copies, a drop of 11,743,678 from the number printed in the preceding fiscal year. Part of the decrease was in Farmers' Bulletins, of which 2,634,830 fewer copies were printed in 1933, with a total of 9,585,482, at a cost of $124,985.17, or $48,889.81 less than in the preceding year.

Farmers' Bulletins are printed largely for distribution by Members of Congress, and in the fiscal year 1933 they sent to constituents 7,309,859 copies, as compared with 14,535,897 copies required for congressional distribution during the preceding year.

CONGRESSIONAL ALLOTMENT OF BULLETINS

Due to reduced funds in the fiscal year 1933, the Department of Agriculture allotted only 5,000 copies of Farmers' Bulletins to each Member of Congress instead of 20,000 copies which formerly had been annually allotted for a number of years.

During the 5 months from July 1 to December 1, 1933, there were distributed by the Superintendent of Documents for Members of Congress 1,672,148 copies of Farmers' Bulletins. The copies on hand December 1 totaled 10,637,244, and 1,618,189 additional copies are in

process of printing, so that there evidently will be an ample supply on hand for 1934.

Another Agriculture publication of great interest to Members of Congress and their constituents is the Yearbook, of which 247,343 copies were printed in 1933, a decrease of 143,062, the quotas for Members of Congress having been reduced accordingly. The 1933 Yearbook contained 787 pages, as compared with 975 in the 1932 book, and 200 fewer illustrations. The cost for the 1933 book was $112,642.76, as compared with $225,191.34 for 1932, a decrease of $112,548.58.

This reduction effects a saving which the Public Printer proposed to the chairman of the Economy Committee of the House of Representatives under date of March 8, 1932, when he suggested that an economy of approximately $100,000 annually could be made by reducing the size of the Agriculture Yearbook.

AGRICULTURE YEARBOOK COST REDUCED

The cost of producing the Agriculture Yearbook has been materially decreased by the use of 32-page signatures, reducing the folding, gathering and sewing formerly required by smaller signatures. The economy was made possible with the installation of new presses constructed to print and fold 32-page signatures.

Notwithstanding the widespread free distribution of Agriculture Yearbooks, the Superintendent of Documents in 1933 sold 1,050 copies of various issues, including 648 of the 1932 Yearbook and 167 of the 1933 edition. The sales receipts totaled $1,132.45.

Soil surveys are another activity of the Department of Agriculture in which Members of Congress are especially interested through the distribution of printed reports of surveys in their respective districts and States. The distribution of these reports on orders of Members of Congress is now handled by the Superintendent of Documents at the Government Printing Office.

SOIL SURVEY REPORTS FOR CONGRESSMEN

In the fiscal year 1933, the soil surveys of 17 areas were printed, of which 6,375 copies were allotted to Senators, 15,250 to Representatives, and 16,810 to the Department of Agriculture. Of this number, 22,646 were distributed during the year. Each report, with a large map of the area surveyed, costs approximately $2,000 for the number of copies printed.

Although the Treasury Department has its own Bureau of Engraving and Printing for the production of stamps, checks, paper money, and Government securities, its relief printing is done at the Government Printing Office, which also made 20,689 electrotype plates for the Bureau during the fiscal year 1933.

Thanking the Public Printer for cooperation in furnishing workmen and a large number of plates for the use of the Treasury Department during the banking emergency, Hon. Alvin W. Hall, Director of the Bureau of Engraving and Printing, wrote on April 13, 1933:

> I intended to write you before this to express my thanks and appreciation for the hearty support and cooperation rendered by you during the recent banking emergency.
>
> The splendid response of your office in detailing pressmen and bookbinders to this Bureau contributed very largely to the solving of a very difficult production program.

DECREASE OF INCOME-TAX BLANKS

Charges for Treasury Department printing and binding in 1933 amounted to $683,458, a decrease of $205,885.98.

Publications printed for the Treasury Department during the year totaled 2,495,229 copies, a decrease of 206,281. Income-tax blanks were printed to the number of 47,010,000, a decrease of 835,000.

The War Department obtained printing and binding of the Government Printing Office in 1933 amounting to $596,405.60, a decrease of $94,562.85. Publications for the War Department numbered 7,489,290 copies, a decrease of 2,993,495.

Charges for the Navy Department totaled $685,165.59, an increase of $2,016.03. Navy Department publications totaled 4,668,616 copies, a decrease of 1,133,507.

Other departmental expenditures for printing and binding during the fiscal year 1933 were: Interior, $438,774.47, an increase of $72,290.37; Justice, $229,468.27, a decrease of $113,893.84; Labor, $215,172.33, a decrease of $69,832.30; State, $182,931.49, a decrease of $19,657.79.

PUBLICATIONS FOR THE DEPARTMENTS

The Department of the Interior printed a total of 1,932,048 copies of its publications in 1933, a decrease of 167,308. The output for other departments was as follows: Labor, 1,533,638, a decrease of 961,044; Justice, 196,663, an increase of 40,640; State, 496,090, an increase of 22,017 copies.

An attractive publication produced by offset printing for the Department of the Interior during the year was an octavo volume entitled "Hawaii and Its Race Problems." It contains 130 half-tones printed on antique paper with the text. A special cover design printed in two colors on appropriate cloth binding conforms to the charm of the printing. The Department ordered 3,000 copies of the book, and the Superintendent of Documents has sold 328 copies to date.

State Department work for the fiscal year 1933 included the printing and binding of 164,078 passports. With the appointment of a

new Secretary of State on March 4, it was necessary to supply a sufficient number of passports with his signature for immediate use. This was done to the satisfaction of the Department, as expressed by the following letter which the Public Printer received from Assistant Secretary of State Hon. Wilbur J. Carr, under date of March 8:

I desire to express to you on behalf of the Department of State our very sincere appreciation of the action of the Government Printing Office in making deliveries of the new passports on such short notice and under the pressure of work incidental to the last days of the Seventy-second Congress.

I should appreciate it very much indeed if you would also make known to Mr. Mitchell our appreciation of his successful efforts in our behalf. The passports for the Department and the agencies were delivered in time to meet all our necessities and enable the issue of new passports to take place promptly on March 6.

It was a very fine piece of work, and I congratulate you.

APPRECIATIONS OF GOVERNMENT PRINTING

Among other expressions of appreciation of work done by the Government Printing Office during the year the following letters are especially gratifying as the views of well-known authorities on good printing and efficient service:

From Dr. George F. Bowerman, Librarian of the Washington (D.C.) Public Library:

I wish to offer my thanks and congratulations on the good work of the Government Printing Office in printing our leaflet "Art Exhibitions, 1933 and 1934." This is a piece of work of which I am proud and I trust you are proud. We shall take great pleasure in distributing it to readers. We have already sent copies to the prominent art magazines of the country.

From Mr. James E. West, Chief Scout Executive of the Boy Scouts of America:

I wish to take this occasion to express to you our warmest appreciation for the unusual cooperation extended to us by Mr. Mitchell and his staff. Indeed, the record of cooperation on the part of the Government Printing Office officials for many years past in our efforts has been most heartening. We are very grateful.

EMPLOYEES AND WORK SINCE JULY 1

Computed charges for printing, binding, and blank paper furnished in the 5 months beginning July 1, 1933, amounted to $3,780,390.04, a decrease of $2,213,644.09, or 37 percent, compared with the corresponding 5 months of the preceding fiscal year.

A large part of this decrease was due to the greatly reduced quantity of uncompleted work carried over from the preceding fiscal year, the total on July 1, 1933, being $1,513,010.37 as compared with $3,275,187.17 of uncompleted work on hand July 1, 1933. In other words, there was $1,762,176.80 less uncompleted work on hand at the begin-

ning of the present fiscal year than at the outset of the preceding year, and this reduction correspondingly decreased the funds available from charges during the 5 months beginning July 1, 1933.

This further drastic reduction in printing and binding since July 1 confirms the estimate made by the Public Printer at the beginning of the present fiscal year that funds available for printing and binding would be approximately $3,000,000 less than was expended for that purpose in the preceding fiscal year, on account of which a reduction had to be made at once in the Government Printing Office pay rolls.

REDUCTION INCLUDED MARRIED EMPLOYEES

As required by law in effecting reductions of personnel, married employees in the class to be reduced were first considered for dismissal if the husband or wife was also in the service of the United States or the District of Columbia. In such cases, married couples were permitted to decide which one would resign from the Government service. During June, July, and August, 111 married employees of the Government Printing Office were thus separated from the service, and 122 other married employees were permitted to retain their positions in the Government Printing Office through the separation of the wife or husband from some other branch of the Government service.

It became necessary to make additional reductions of the force at the beginning of the fiscal year, and employees who were within 5 years of the retirement age and had at least 30 years' service were included. These employees are entitled to the maximum annuity granted by law under the provisions of the Economy Act of June 16, 1933. Preference was given to veterans in every instance.

30—YEAR SERVICE EMPLOYEES RETIRED

Retirements under the 30-year law numbered 121 in June and July and totaled 138 up to December 1. Other retirements for age and disability during the 6 months numbered 96. There were also 75 separations for various causes, including 50 resignations and 10 deaths, making a total of 420 separations for the 6 months from June to November, inclusive.

The total number of employees on the rolls June 1, 1933, was 4,663. Owing to decreasing work and consequent lack of funds, the enrollment was gradually reduced until October 1, when the total was 4,297, a decrease of 506 from the number of employees on October 1 of the preceding year.

In the meantime the rapidly increasing emergency work required for the various recovery and relief activities of the Government was

necessitating a complete rearrangement of the production program of the Government Printing Office to meet the new conditions. The Office was flooded with immense orders for job printing and binding, almost completely replacing its former principal output of book work. This radical change of operations decreased the need for typesetting and greatly increased the activities of the pressroom and bindery.

Accordingly, it was necessary to furlough employees of the Printing Division occasionally on account of lack of work and at the same time increase the number of employees in the Presswork and Binding Divisions, to which from October 1 to December 15, 1933, there were added 417 temporary and emergency employees. The emergency appointments were authorized by the Civil Service Commission when its lists of eligibles became exhausted.

GREAT REDUCTION IN COMPOSITION

The following typical examples show more definitely the radical changes that have recently come about in the kind of work now being done by the Government Printing Office to meet the present emergencies. For instance, the composition cost on one job of 6,000,000 copies was only $74.28 out of a total charge of $35,982.25 for other labor and material; while 1,000 copies of a book of 476 pages cost $1,833.66 for composition alone out of a total charge of $2,135.86.

During the 5 months' period July–November of the present year, typesetting decreased 281,177,400 ems in comparison with the same period of the preceding year, the total for the 5 months in 1933 being 752,163,000 ems.

On the other hand, presswork increased 31,761,185 actual impressions during the same period, and there were 25,742,632 more sheets folded, 8,684,492 more copies wire-stitched, and 6,775,728 more copies trimmed than during the 5 months of 1933, thus recording in definite figures the fact that the Government Printing Office is now doing a vast amount of job printing in place of book work.

CHANGE FROM BOOK TO JOB WORK

The great change from book to job work has been due to the constant and urgent demands by the emergency activities for great quantities of blank forms, circulars, pamphlets, and letterheads for immediate delivery. Ten or more of the vital recovery and relief administrations have been placing orders with the Government Printing Office in steadily increasing quantities since early in July.

The total charges for this work up to December 1 amounted to $502,213.84, while the charges for work for the regular activities of the Government have decreased 40 percent, with a total of $3,278,-176.20 for the 5 months.

Approximately 50 percent of the work that the Office has been doing during the past 5 months has been of an emergency nature requiring immediate deliveries.

In the 5½ months to December 15, 1933, a total of 502,369,916 copies of various kinds of printing matter were ordered for the new emergency organizations, including the National Recovery Administration, Agricultural Adjustment Administration, Public Works Administration, Civil Works Administration, Federal Emergency Relief Administration, Emergency Conservation Work, Tennessee Valley Authority, Reconstruction Finance Corporation, Home Owners' Loan Corporation, and the Federal Coordinator of Transportation.

Of the vast quantity of emergency work, 400,000,000 copies were cut to size, 74,000,000 were folded, and 14,000,000 were ruled or punched.

MILLIONS OF COPIES FOR EMERGENCIES

Included in the emergency work were 332,196,675 blank forms, 120,445,005 printed cards, 15,778,048 pamphlets, 15,727,500 letterheads, 7,163,300 envelops, and 11,059,388 miscellaneous items, such as colored posters, folders, charts, tags, circulars, etc.

A total of 4,089 orders were placed for the emergency work, including orders varying from 100 to as high as 52,000,000 copies of one job.

To provide paper for the immense orders of printed matter and blank stock, 772 carloads, weighing 27,400,000 pounds, were procured by the Government Printing Office, in addition to the regular supply on hand, during the 5 months up to December 1, 1933. On several occasions from 20 to 30 cars of paper were received by the Government Printing Office in 1 day. Recently 39 carloads arrived in the Washington railroad yards the same day. In 1 week 53 cars of paper were unloaded. All of these deliveries have been handled and stored by the motor trucks and employees of the Government Printing Office.

MILLS FILL URGENT ORDERS FOR PAPER

So urgent was the requirement for most of this paper that telegraphic bids and orders had to be placed for large quantities which various paper mills began making immediately so as to start shipments within 12 to 24 hours thereafter.

Paper dealers and manufacturers and the producers of other materials required in these emergencies have rendered a splendid service to the Government and made it possible for the Government Printing Office to meet promptly the tremendous demand for its products in the last 6 months.

To keep the work moving properly and expeditiously with the increased force of pressroom and bindery employees it has been necessary to establish three shifts for continuous 24-hour production, as

well as to require considerable overtime, Sunday, and holiday work whenever the emergency demanded such service. From July 1 to December 1, 1933, there were 45,741 hours of extra work, for which employees received 50 percent additional to their regular day rates. A differential of 15 percent is paid for regular night work. In the corresponding 5 months of 1932 overtime, Sunday, and holiday work totaled only 1,976 hours.

N.R.A. PRINTING A GREAT TASK

The National Recovery Administration early took the lead, which it still maintains, in the quantity and urgency of work it has required of the Government Printing Office, costing approximately $200,000 in the 5 months.

Undoubtedly the hardest and fastest job ever handled by the Government Printing Office was the printing and mailing of 6,000,000 letters containing the President's Reemployment Agreement, which required 12,000,000 pieces of printed matter within 5 days. During that time 12,000,000 envelops were made and printed elsewhere and delivered by motor trucks.

This job included the printing and folding of 6,000,000 copies of the President's agreement, the printing and cutting of 6,000,000 certificates of compliance, the stuffing of these 12,000,000 enclosures and 6,000,000 return envelops into individual forwarding envelops addressed " To Every Employer ", which were sealed, counted into the various required quantities, and mailed direct from the Government Printing Office to more than 48,000 post offices throughout the United States. At one time 600 employees were assigned to stuffing and sealing the envelops.

DELIVERIES BY EXPRESS AND AIRPLANE

This unexpected work necessitated the immediate procurement of a score of envelop-sealing machines, most of which were generously loaned by commercial firms and Government departments in Washington, and several sent by express from a Connecticut factory in time for operation the same day.

At the same time the Government Printing Office printed and cut 22,000,000 N.R.A. consumers' cards and mailed them to every post office in the United States. This order was subsequently increased to 42,000,000 cards.

In the final 24 hours of the first rush for the N.R.A., 1,500,000 blank code letters and 7,000,000 consumers' cards were mailed. One shipment was sent by airplane to Albuquerque, N.Mex., to complete the entire delivery within the specified time. The Government Print-

ing Office thus did its part in starting the N.R.A. on the way to success.

In appreciation of this service, the Chief Clerk of the National Recovery Administration, Mr. Bradish J. Carroll, Jr., addressed the following letter to the Public Printer under date of August 1, 1933:

> I desire to acknowledge the splendid service of the Government Printing Office in completing in so short a time an order from the National Recovery Administration involving the printing of 6,000,000 copies each of 2 forms, folding 6,000,000 sheets, enclosing 3 pieces in 6,000,000 envelops, and sealing and mailing some 48,000 addresses. Concurrently with the execution of this mammoth enterprise, the Government Printing Office printed and shipped 22,000,000 cards 5 by 3 inches in size. In fact, all of our printing needs are being cared for with a promptness and intelligence that is deserving of special acknowledgment.
>
> I would suggest that you express the sincere appreciation of this organization to your very courteous and efficient assistants and the general personnel of your Office who by their cooperation made possible the successful accomplishment of a task that required such help as we received.

24-HOUR SERVICE FOR N.R.A. PRINTING

The Government Printing Office has also maintained a 24-hour service for the printing of N.R.A. codes since the beginning of this work. Up to December 15 there had been 1,281 prints of codes in various forms—601 as submitted, 395 as revised, 174 as approved, and 111 reprints—making in all approximately 8,806,750 copies, with 7,955 pages of type, the codes varying from 3 to 53 pages each. The largest edition was 145,000 copies of the Retail Code.

The N.R.A. codes have been sold to the number of 321,296 copies, for which the Superintendent of Documents has received $14,621.46.

Another special job for the N.R.A. was the printing and mailing of 8,000 portfolios, each containing 12 large art posters and 24 smaller display advertisements for an extensive publicity campaign. The work was completed in a week's time, and two subsequent orders for 7,000 of the smaller posters and 1,000 of the large ones were filled with even greater speed.

POSTER PRINTING IS HIGHLY PRAISED

Copy for the posters was furnished by N. W. Ayer & Son, Inc., of Philadelphia, and its vice president, Mr. H. A. Batten, in expressing appreciation of the skillful handling of this work by the Government Printing Office, wrote the Public Printer, under date of October 18, 1933, as follows:

> The work your office did on the N.R.A. portfolios (the typesettings, the printing, and the very involved job of collating the various groups of materials for special mailings) required great skill, even if unlimited time were given; but, when you consider that this work was put through in a few days, it is an

achievement of which you may well be proud. The morale and enthusiasm of everyone who participated in this work are a great tribute to the management.

I have been in many printing offices during the past 20 years, but I have never in all this experience seen a finer group of men than you have in the Government Printing Office.

The Government Printing Office was able to help the Bureau of Mines administer the new Code of Fair Competition for the Petroleum Industry by the prompt printing of forms required in that emergency. The chairman of the Petroleum Administrative Board, Mr. Nathan R. Margold, wrote the Public Printer on October 31:

Your courtesy in having these forms delivered so promptly will enable the Bureau of Mines to go on with the work in connection with the oil code without complications caused by the lack of necessary forms, and I assure you that your cooperation in this respect is appreciated greatly.

PUBLIC PRINTER PLEDGES COOPERATION

The Public Printer has also cooperated with the N.R.A. in other ways, as indicated by the following letter which he addressed to the Administrator, Gen. Hugh S. Johnson, on August 9, 1933:

In accord with your statement, as quoted in this morning's Washington Herald, that you do not believe the Government itself will buy where the firm is selling goods that are not under the Blue Eagle, I am pleased to advise you that all requests for open-market purchases issued by the Government Printing Office since August 1 have contained the following qualification:

"Preference in awards will be given to members of the National Recovery Administration who comply with the specifications and other provisions of this request for proposals.

"Are you a member of the N.R.A.?

"Are the goods you propose to furnish made by members of the N.R.A.?"

In accord also with the policy of the administration, as stated by the President on August 6, this Office has requested advice of the Comptroller General as to the application to the Government Printing Office of paragraph 12 of the President's Reemployment Agreement, providing that prices fixed by contract before the approval of the National Industrial Recovery Act on June 16, 1933, shall be adjusted to meet any increase in cost caused by the seller having signed the Reemployment Agreement or having become bound by any code of fair practice approved by the President.

ADJUSTMENTS OF GOVERNMENT CONTRACTS

If the Comptroller General sanctions such a modification of contracts entered into prior to June 16, 1933, it is our purpose to make such adjustments in contract prices as may be necessary to meet any increase in cost under the operation of the National Industrial Recovery Act. Contracts for paper and other printing materials amounting to approximately $2,000,000 may be subject to such an adjustment.

I am also pleased to report to you that the association of employees, operating a large cafeteria in the Government Printing Office and employing at their own expense about 60 persons, has subscribed to the blanket-code pledge and is heartily supporting the national industrial recovery program, as indicated by the enclosed announcement.

The Government Printing Office as a whole has likewise been delighted with the opportunity to serve the National Recovery Administration in the vast amount of emergency printing and mailing which we were recently called upon to do. In this connection, I believe you will be interested in the accompanying statement which I issued to employees complimenting them for "a record-breaking job well done."

Hoping that our efforts thus far will assure you that the Government Printing Office is always ready and willing to assist the Recovery Administration in every way possible, * * *.

General Johnson expressed his thanks in the following letter to the Public Printer under date of August 10:

Thank you for your letter and enclosure of August 9. I am glad to know that the Government Printing Office is backing the N.R.A. with such wholehearted cooperation.

You did a splendid job in getting out the huge amount of printing material which was prepared and mailed from your Office in launching the Blue Eagle.

COMPTROLLER GENERAL'S DECISION ON CONTRACTS

The Comptroller General's decision referred to in the foregoing correspondence with General Johnson was rendered to the Public Printer on August 10, as follows, it being one of the first interpretations by the Comptroller General of the National Industrial Recovery Act and a decision of vital importance to Government contractors affected by the increased cost of their products under code compliances:

There has been received your letter of August 7, 1933, as follows:

"I respectfully request your views and advice as to the application to the Government Printing Office of paragraph 12 of the President's Reemployment Agreement providing that prices fixed by contract before the approval of the National Industrial Recovery Act on June 16, 1933, for the purchase of goods to be delivered during the period of such agreement, shall be adjusted to meet any increase in cost caused by the seller having signed the Reemployment Agreement or having become bound by any code of fair practice approved by the President.

"In this connection I respectfully invite your attention to the following statement issued by the President under date of August 6 and request your advice as to the proper procedure thereunder as regards all contracts entered into by the Government Printing Office prior to June 16, 1933:

STATEMENT ISSUED BY THE PRESIDENT

"'The United States Government as a buyer of goods should be willing itself to take action similar to that recommended to private buyers. Therefore, wherever adjustments can be made under existing law, I shall recommend that they be made. In other cases where such adjustments cannot be made under authority now possessed by the executive departments, I shall recommend that the next Congress, meeting in January 1934, take action giving authority to the executive departments, under such safeguards as the Congress may approve, and making any necessary appropriations to provide for recompensing such buyers who have in good faith and wholeheartedly cooperated with the administration of the National Industrial Recovery Act, and as a result thereof

should equitably be allowed an increase in the prices of goods furnished in the interim in accordance with the terms of contracts entered into with the Government prior to June 16, 1933.'

"As practically all of the paper and other materials used in printing and binding during present fiscal year were contracted for prior to June 16, 1933, any material increase in their costs would seriously affect the charges for printing and binding and necessitate an immediate revision of our scale of charges. It is therefore urgent that we receive your advice in this regard as soon as possible if adjustments of these contracts can be made under existing law."

NO POWER TO CHANGE GOVERNMENT CONTRACTS

Contracting with the United States involves problems not necessarily applicable to contracting between private parties in that officers and employees of the Government have but limited authority. *Floyds Acceptances*, 7 Wall., 666. When a contract has been entered into with the United States, the terms of such contract may not be changed prejudicial to the United States by any officer or employee thereof without adequate consideration moving to the Government for such change and the courts have settled the proposition that the United States as a contractor is not responsible for its acts in its sovereign capacity. See 8 Comp. Gen. 25, and the cases cited therein of *Horowitz* v. *United States*, 267 U.S. 458, and *Maxwell* v. *United States* (C.C.A.), 3 Fed. (2d) 906. The Supreme Court of the United States in the *Horowitz case* cited with approval the early Court of Claims cases of *Deming* v. *United States*, 1 Ct.Cls. 190, 191; *Jones* v. *United States*, id., 383, 384; and *Wilson* v. *United States*, 11 Ct.Cls. 513.

Where a contract has been entered into with the United States at a fixed price for the delivery of material and supplies or for other purposes there is no existing law authorizing any increase in price because of conditions which may have arisen after the date of the contract, whether such changed conditions result from the operation of the terms of the National Industrial Recovery Act of June 16, 1933, referred to by you, or otherwise.

Where it can be shown that there was an increase in the cost of performance to the contractor by reason of the act of June 16, 1933, and the amount thereof, and that such increase was not contemplated by the contractor at the time of the submission of his bid, the question whether such contractor may be allowed any addition to the contract price is a question of policy solely for the determination of the Congress.

Your question is answered accordingly.

3,000 EMPLOYEES MARCH IN N.R.A. PARADE

Loyalty to N.R.A. was also shown by 3,000 employees of the Government Printing Office who constituted nearly a third of the marchers in the Washington N.R.A. parade on August 29. The Government Printing Office division was composed of an escort of its uniformed guards, its own Veterans' Drum and Bugle Corps, two companies of uniformed Veterans of American Wars, the Public Printer and his official staff, and the other marchers with identifying banners for each division and section of the Office. Every Government Printing Office representative in the parade carried a Blue Eagle flag.

The Government Printing Office division was headed by an attractively decorated motor truck carrying the historic linotype machine and its war-veteran operator, Corpl. J. Monroe Kreiter, who served together at General Pershing's headquarters in France. On each side of the float was a banner inscribed as follows:

This machine and operator served General Pershing in France during World War. Now helping General Johnson in printing of the N.R.A. Blue Eagle.

A brilliantly illuminated Blue Eagle, the insignia of the N.R.A., shone forth as a headlight over the driver's cab and shared the plaudits of 150,000 spectators who lined historic Pennsylvania Avenue from the Capitol to the reviewing stand near the White House.

MAJ. GEN. FRIES ENTHUSED BY PARADE

In a letter of appreciation, Maj. Gen. Amos A. Fries (retired), general chairman, National Recovery day celebration, Washington, D.C., wrote the Public Printer as follows:

I am an enthusiast and an optimist by nature and by training—and by desire as I grow older. I want to say, however, that my optimism was very much stretched when I was told that you proposed to turn out more than 3,000 employees of the Government Printing Office for our parade on the night of August 29.

You not only turned them out, but you turned them out in formation and with N.R.A. flags so that they furnished an inspiration for all who saw them, and added to a highly successful evening. Please accept for yourself, and convey to all employees of the Government Printing Office who took part in the parade, my deepest appreciation. My personal appreciation is added to the appreciation of the entire committee.

The flags carried by practically everyone in your unit was a fine idea beautifully carried out.

AGRICULTURAL ADMINISTRATION PRINTING

The Agricultural Adjustment Administration has also utilized the facilities of the Government Printing Office to the fullest extent during recent months to carry on its extensive campaigns for the relief of cotton, tobacco, wheat, corn, and hog growers. These various undertakings were started with the printing and mailing by the Government Printing Office of 109,239,900 copies of numerous forms of contracts and regulations for these industries, costing $158,460.27 up to December 15.

Orders for the Agricultural Adjustment Administration included 34,117,500 copies of forms for cotton growers, 32,927,500 for wheat growers, 32,200,000 for corn-hog growers, and 9,655,700 for tobacco growers.

To supply the required printing within the limited period specified for this work, more than 30 presses were kept running almost continuously for a number of days and nights.

The folding of these jobs required 2 large machines in addition to the 18 other folders that were kept in almost continuous operation. The additional folding machines were brought by motor truck from Cleveland, set up, and put to work within 48 hours after they were ordered by telephone.

THANKS FROM ASSISTANT SECRETARY TUGWELL

Assistant Secretary of Agriculture Tugwell sent the following letter of thanks to the Public Printer and his staff for the cooperation which he stated "merits the thanks not only of this Department but also of the millions of farmers who will benefit by the Government's program":

I want personally to thank you and the members of your staff—especially Captain Moorhead, Mr. Huse, Mr. Mitchell, Mr. Tisdel, and Dr. Benner—who have worked overtime to secure the prompt issuance of legal forms, instructions, and leaflets urgently needed for the campaign being conducted throughout the South this week by the Agricultural Adjustment Administration.

We have been compelled to send copy to your office at all hours of the night, and have had to make last-minute alterations in proofs. We have sent two jobs to your office with the request that actual mailing to the field start within 18 hours. In all cases your force has responded to our needs even beyond our expectations. I am told that yesterday (Sunday) the force in the press sections as well as in Mr. Tisdel's and Dr. Benner's section worked all day to get our forms into the mails.

Your cooperation in this emergency merits the thanks not only of this Department but also of the millions of farmers who will benefit by the Government's program.

AID TO NATIONAL REEMPLOYMENT SERVICE

In recent months the National Reemployment Service of the Department of Labor has obtained 33,175,000 printed cards and forms for its emergency work in the relief of unemployment throughout the United States. The Director of the United States Employment Service, Mr. W. Frank Persons, in expressing his appreciation of the attention given the prompt printing and distribution of an important bulletin for the assembling of the Reforestation Army, wrote to the Chief of the Division of Publications, Department of Labor:

The copy for this 24-page document was put in your hands at 9 o'clock on the morning of Thursday, April 27. Five hundred copies were at this office at 9 o'clock on the following morning, and 10,000 copies were in the mails before evening of Friday, April 28.

It is very essential that documents of this character be in the hands of our field workers throughout the United States without delay, in order to assure uniformly, in all States, the selection of men of the highest character and in conformity with our standards of eligibility. Your help and the help of those who cooperated in this effort have advanced our work by 3 days.

The Assistant Director of the Employment Service, Mr. T. G. Addison, also wrote the Public Printer the following appreciation, dated August 30:

> The United States Employment Service has found it necessary during the past 2 months to call upon you for the printing and distribution of some 16,000,000 items of printing.
>
> In spite of the numerous demands upon your service by recently established emergency organizations, you have complied with our requests with a degree of dispatch which has greatly facilitated the efforts of the United States Employment Service in establishing a national reemployment service throughout the United States.
>
> May I therefore take this opportunity of thanking you, your superintendent of works, and your other division chiefs for the excellent cooperation you have extended to us through our departmental division of publications and supplies?

The Commissioner of Labor Statistics, Mr. Isador Lubin, likewise expressed his thanks to the Public Printer for the prompt printing of an important Labor bulletin, saying:

> There has been a great demand for the information contained in this bulletin, and due to your cooperation the information was available to the public in record time.

HELP TO EMERGENCY CONSERVATION WORK

Similar help has been rendered to the Emergency Conservation Work in the printing of numerous publications for its activities, including 50,000 copies of a booklet entitled "The National Parks and Emergency Conservation" which was delivered in record time. In acknowledging receipt of advance copies of another conservation publication on "Eastern Forest Tree Diseases in Relation to Stand Improvement", Director Robert Fechner, of the Emergency Conservation Work, wrote the Public Printer on September 19:

> I wish to thank you for your cooperation in the issuance of this publication, for I realize the great strain under which your organization is now working. The promptness with which you have been able to do this work was exceedingly gratifying to me, while the character of the work done bespeaks the high quality of the printer's art as developed at the Government Printing Office.

MILLIONS OF CHECKS FOR CIVIL WORKERS

Assisting in the job of putting 4,000,000 men upon the pay rolls of the Civil Works Administration, the Government Printing Office, at the special request of the President, completed the printing of the first order for the duplicate and triplicate copies of 23,225,000 checks (the original being produced at the same time by the Bureau of Engraving and Printing) at the rate of 2,732,353 checks daily for 17 working days of 24 hours.

Another order for 53,672,300 similar checks was received on December 15 and handled with like expedition. The checks are numbered

serially, collated, and delivered in sets. In all, 116,125,000 copies have been printed to date.

On the day the first order was completed, large quantities of the checks were carried by several special airplanes to the Pacific coast and the Southwestern States. Airplanes were also utilized to convey from New York 75 new numbering machines which the Government Printing Office needed immediately to equip additional presses for this emergency work.

The press and bindery work in the printing and collating of the first order for 46,450,000 copies of the checks required the services of 206 employees and the supply of 3 carloads of paper.

15,045,800 COPIES PRINTED IN 3 DAYS

Another recent job for the Civil Works Administration consisted of the printing and mailing of 15,045,800 copies of 32 forms required immediately for accounting work in various States. Copy for part of the forms was received Saturday afternoon, December 16, and all was in type and part plated the following night. A total of 616 stereotype and electrotype plates were made for the 29 presses used in printing the 15,045,800 copies. The presswork was started Monday morning and the entire run completed Tuesday night. The bindery work was complicated with requirements for gathering, cutting, padding, and stitching forms of various colors and sizes. Mailing of the entire order to the designated States was completed by the Superintendent of Documents on Thursday, December 21, the fifth day after receipt of the order. Duplicate orders were received December 29 for the printing of 26,000,000 additional copies of these forms.

RUSH CIVIL SERVICE EXAMINATION FORMS

Several emergency jobs of special importance to the Post Office Department included the printing of 566,000 copies of various forms required by the Civil Service Commission in Presidential postmaster examinations. The President of the Civil Service Commission, Hon. Harry B. Mitchell, conveyed its thanks to the Public Printer for this service with the following letter of July 31:

> The Commission wishes to express its appreciation and thanks for the hearty cooperation of your Office in making prompt deliveries on the forms required by this Commission for the Presidential postmaster examinations.
>
> The work before the Commission in connection with the Presidential postmaster work is of high importance and your promptness in delivering the desired material is very much appreciated.

On November 15 the Secretary of Commerce requested the cooperation of the Public Printer in the prompt printing of approximately 1,500,000 copies of 84 forms ranging from 1 to 8 pages each, to be used in taking the biennial census of manufactures for 1933, stating that it would be necessary to have complete delivery by December 1. This was done.

CENSUS DIRECTOR COMMENDS SPEEDY WORK

The Director of the Bureau of the Census, Mr. W. L. Austin, expressed his appreciation in the following letter to the Public Printer, December 12, 1933:

We want to express to you our appreciation of the fine cooperation you are giving this Bureau in its preparation for the Census of American Business. We have particularly in mind the speed with which you provided us with 1,000 advance copies, from type, of the main schedule or inquiry form.

The speed with which this job was completed has helped us materially in our task of preparing our men to undertake the field job. The three men named and their assistants, with whom we came in contact, were invariably helpful, and we wish to take this occasion to express to you our appreciation for your organization's cooperation.

To aid in the activities of the Home Owners' Loan Corporation, 29,500,000 copies of printed matter have been produced for that organization since July 1, a great part of the work being delivered within 24 hours after receipt of order.

THE PRESIDENT'S TOKEN OF APPRECIATION

The President of the United States delighted every employee of the Government Printing Office by specifically including this Office in the following Executive order excusing Federal employees from duty December 23 and 30 "as an evidence of appreciation of the splendid service" they had rendered the Government:

EXECUTIVE ORDER EXCUSING FEDERAL EMPLOYEES IN THE DISTRICT OF COLUMBIA FROM DUTY DECEMBER 23 AND 30, 1933

As an evidence of appreciation of the splendid service of the employees of the Government, most of whom have been working under exceptional pressure for the last 9½ months, it is hereby ordered that the several executive departments and independent Government establishments in the District of Columbia, including the Government Printing Office and the Navy Yard and stations, be closed on Saturday, December 23, 1933, and Saturday, December 30, 1933, and all clerks and other employees in the Federal service in the District of Columbia, except those who may for special public reasons be excepted from the provisions of this order, or those whose absence from duty would be inconsistent with the provisions of existing law, are hereby excused from duty on those days.

FRANKLIN D. ROOSEVELT.

THE WHITE HOUSE,
December 20, 1933.

N.R.A. ADMINISTRATOR SAYS "FINE WORK"

The following letter of appreciation from General Johnson, Administrator of the National Recovery Administration, with his good wishes for the holidays, also was posted on the office bulletin boards for the information of employees, to all of whom the message was most pleasing:

NATIONAL RECOVERY ADMINISTRATION,
Washington, D.C., December 21, 1933.

Mr. GEORGE H. CARTER,
Public Printer,
Government Printing Office, Washington, D.C.

DEAR MR. CARTER: For some time now, I have wanted to tell you how much I appreciate the fine work your organization has done for the National Recovery Administration.

I realize under what pressure your organization must work when every job is in the nature of a rush job and how difficult the task has been. Capt. E. S. Moorhead, Production Manager, and Mr. W. A. Mitchell, Superintendent of Planning, have been of invaluable assistance and have cooperated admirably.

With every good wish to you and your associates for Christmas and the New Year, I remain,

Sincerely yours,

HUGH S. JOHNSON, *Administrator.*

CURRENT PUBLICATIONS ALSO KEPT MOVING

While all the emergency printing was being handled, the current work of the Office was progressing. Approximately 5,000,000 postal cards were printed, packed, and shipped daily. The output of money-order books increased 24 percent. Six dailies, 9 weeklies, some 60 monthly publications, and the weekly issues of specifications of patents and the Official Gazette were printed on schedule time. Bindery edition work was completed on the Agriculture Yearbook with 250,000 copies, the bound sets of the Congressional Record with 7 volumes averaging 4,825 copies each, and the Postal Guide with 87,667 copies.

LARGE ORDERS PLACED WITH CONTRACTORS

In addition to the work done in its own plant, the Government Printing Office has procured from contractors and furnished to various emergency activities since July 1 a total of 11,907,500 sets of folded forms, varying from 2 to 10 printed parts per set, at a cost of $68,195.92.

The Office also spent $107,741.69 for lithographs and engravings furnished by commercial printers during the year. Of this amount $50,308.42 was for soil survey maps and $23,695 for an atlas of American agriculture.

PUBLIC DOCUMENTS DIVISION

The Public Documents Division, in charge of the Superintendent of Documents, rendered a record-breaking service in the distribution of 229,158,947 printed copies during the first 5½ months of the fiscal year beginning July 1, 1933. This was 160,097,822 more copies than were distributed in the entire fiscal year 1933.

The enormous increase was due to the new recovery and relief activities which utilized the facilities of the Government Printing Office for mailing as well as for printing their publications. The National Recovery Administration headed the list with a total mailing of 79,175,825 copies, followed by the Agricultural Adjustment Administration with 61,181,005 copies, the National Reemployment Service with 15,378,990 copies, the Civil Works Administration with 15,600,000 copies, the Federal Emergency Relief Administration with 12,988,325 copies, the Reconstruction Finance Corporation with 8,085,500 copies, the Farm Credit Administration with 750,720 copies, the Home Owners' Loan Corporation with 501,000 copies, and several others ranging from 49,000 to 449,000 copies each.

1,453,766,112 COPIES IN THE 21 YEARS

During the 21 years up to December 15, 1933, the Superintendent of Documents has handled a total of 1,453,766,112 copies of Government publications printed for free distribution on departmental orders, for depository libraries, and for sale to the public.

With a stock of 29,635,464 copies on hand at the beginning of the fiscal year 1933 and the receipt of 58,215,647 copies from the Public Printer, the Superintendent of Documents had a total of 87,851,111 copies available for distribution during the fiscal year ended June 30, 1933. Of this number, 69,061,125 copies were distributed, leaving a balance on hand June 30, 1933, of 18,789,986 copies, a decrease of 10,845,478 from the stock at the beginning of the fiscal year.

MILLIONS OF OBSOLETE COPIES DISCARDED

Part of the reduction was due to the discarding of 8,318,355 copies of obsolete departmental publications, mostly leaflets and small pamphlets, which completes the reconditioning of the stockrooms that has been in progress for the last 2 years.

The following table is a statement of publications received and distributed by the Superintendent of Documents during the fiscal year 1933, showing the number of copies on hand July 1, 1932, the number received during the year, the number distributed, and the

number on hand June 30, 1933, for the various departments and establishments of the Government:

Department or establishment	Copies on hand July 1, 1932	Copies received during year	Copies distributed during year	Copies on hand June 30, 1933
Executive departments:				
State		2,346	2,346	
Treasury	2,052,764	1,896,873	3,003,339	946,298
War		2,477	2,427	50
Justice	240,466	167,094	321,567	85,993
Post Office		8,185,925	8,185,925	
Navy	144	63,065	38,772	24,437
Interior	591,049	1,457,427	1,349,582	698,894
Agriculture	10,912,389	27,806,711	27,090,813	11,628,287
Commerce	5,407,845	2,257,992	6,262,485	1,403,352
Labor	3,100,920	1,882,905	4,104,837	878,988
Independent offices:				
Civil Service	10,184	2,909	13,093	
Employees Compensation Commission	33,353	14,347	47,399	301
Farm Credit Administration	1,034,237	594,099	992,936	635,400
Federal Home Loan Bank Board		29,000	29,000	
Federal Power Commission		1,938	1,135	803
Federal Reserve Board	8,424	269,785	278,209	
Federal Radio Commission		601		601
Federal Trade Commission	266,411	71,435	314,496	23,350
General Accounting Office		1,250	1,042	208
Interstate Commerce Commission		1,069,714	1,069,714	
National Advisory Committee for Aeronautics	15,864	876	15,612	1,128
Personnel Classification Board	4,202		1,989	2,213
Smithsonian Institution	216,327	166,208	198,617	183,918
U.S. Tariff Commission	534	3,186	3,720	
Veterans' Administration	2,312	446	2,758	
Judiciary:				
Supreme Court of the United States		8,926	8,926	
Court of Customs and Patent Appeals	548	340	703	185
Congressional:				
Bicentennial Commission	3,996	4,000	6,103	1,893
Congress		6,585	4,095	2,490
Library of Congress		15,754	15,251	503
Total	23,901,969	45,984,214	[1] 53,366,891	16,519,292
Superintendent of Documents	5,733,495	12,231,433	[2] 15,694,234	2,270,694
Grand total	29,635,464	58,215,647	69,061,125	18,789,986

[1] This total includes 4,069,839 copies of discarded obsolete publications, deducting which reduces the actual distribution for the year to 49,297,052 copies.

[2] This total includes 4,248,516 copies of discarded obsolete publications, deducting which reduces the actual distribution for the year to 11,445,718 copies.

Sales of publications in the fiscal year 1933 totaled 8,255,490 copies, an increase of 541,096 over 1932. The sales for the first 5 months of the present fiscal year have also increased, with a total of 3,483,430 copies up to December 1, 1933, or 697,657 more copies than were sold in the corresponding period of the preceding fiscal year.

Receipts from the sales of publications in the fiscal year 1933 amounted to $540,532.29, a decrease of $68,615.72 owing to the purchase of less expensive publications although greater in number.

Notwithstanding the reduced receipts, the net earnings of $222,130.87 on the sale of publications during the year were an increase of $80,784.75 on account of the new sales law recommended by the Public Printer.

Earnings of $92,316.02 for the 5 months, July–November 1933, were an increase of $28,690.55 over the corresponding period of the preceding year.

SALES RECEIPTS $3,065,135 FOR 20 YEARS

The total receipts from the sales of publications in the last 20 years have amounted to $8,406,565.76, of which $3,065,135.09 was in excess of the printing costs and therefore deposited in the Treasury as miscellaneous receipts.

The number of orders received in 1933 was 481,295, a decrease of 38,302. In the first 5 months, July–November 1933, orders totaled 189,803, an increase of 620.

Practically all of the sales are mail orders, the gross receipts of $598,325.03 in the fiscal year 1933 being paid mostly by checks. Only four checks, totaling $4.10, remain outstanding. Refunds on orders for unavailable publications amounted to $44,294.90.

An average of $2,000 a month is received for over-the-counter sales by the Government bookstore maintained for the convenience of the public in the new extension of the Government Printing Office.

Expenditures for salaries, wages, and leave of the daily average of 331 employees in the Public Documents Division during the fiscal year 1933 amounted to $529,952.38, of which $55,988.41 was impounded under the Economy Act, making the net cost to the Government $473,963.97. Against this amount may be offset the sum of $222,130.87, the earnings for return to the Treasury from the sales of publications at 50 percent above cost.

PUBLICATIONS FOR DEPOSITORY LIBRARIES

Depository libraries designated by law were furnished 1,888,564 copies of selected publications during the fiscal year 1933, a decrease of 201,535. These publications were distributed among 499 libraries, of which only 94 selected all the classes of Government publications available for depositories.

Distribution to libraries was also restricted by the annual appropriation for that purpose, which in the fiscal year 1933 was $76,000.

In an effort to obtain information that would be helpful to the adoption of a better plan for library distribution, a questionnaire was submitted to all designated depositories in 1932–33. The following summary of the library replies indicates that there is still

considerable waste in depository distribution for which no effective remedy has been proposed as yet:

Question: Are Government publications classified?

Answer: 174 libraries state that they classify all Government publications; 18 classify bound volumes only; 236 make partial classification; 49 make no classification; 5 did not reply to this question.

Question: Are Government publications cataloged?

Answer: 128 libraries state they catalog all; 30 state they catalog bound volumes only; 227 catalog in part; 90 do not catalog any; 7 failed to answer this question.

Question: Extent of use?

Answer: 229 libraries state publications are in constant use; 88 state they are used by faculty and students only; 77 state they are used moderately; 58 make no answer to this question.

Question: Is the depository privilege of real value?

Answer: 460 libraries state it is invaluable; 18 qualify their replies as follows: 11 state it would be of value if they were permitted to select only those publications in the different series that would be of interest to their communities; 5 state it is of value in some respects to certain people; 2 state it is not of value to the general public.

VIEWS OF SUPERINTENDENT OF DOCUMENTS

The Superintendent of Documents submits the following views in regard to the depository library problem:

We have hoped that before this time some constructive suggestion concerning the depository library problem might have been forthcoming from the American Library Association, but so far no report has been received from the committee that has been making a study of the situation.

The public documents committee of the American Library Association is now engaged in defining the needs of the various types of libraries and when such a program is worked out a library can direct its efforts toward completing its files on certain subjects that are of real interest to the community it is serving. Government publications are recognized as a necessary source of material for research work on political, economical, industrial, social, and practically all other subjects, but to be of value sets must be complete.

In summing up the situation, I believe there should be fewer depository libraries and that the responsibility for proper selection and determination as to the eligibility of a library to become a depository should be imposed upon the State library commission or some other authorized body of the State.

Depository libraries are provided to make Government publications available for the use of the general public and no library should be designated unless it has an organization capable of making the publications available.

BIG CATALOG OF GOVERNMENT PUBLICATIONS

The Documents Catalog of all publications issued by the Government during the 2 years of the Seventy-first Congress, July 1, 1929, to June 30, 1931, is in course of printing and will be ready for distribution early in March of 1934. A total of 60,807 entry cards were prepared for the catalog, which is 4,670 more cards than were used for the catalog of the Seventieth Congress.

Work is progressing on the catalog for the Seventy-second Congress, and it is planned to have this additional list of Government publications available for use in 1934. This will complete the catalogs up to the present Congress and make the series current for the first time in many years.

With the approval of the Joint Committee on Printing, the Session Document Index was discontinued with the completion of the index for the second session of the Seventy-second Congress. As stated in the Public Printer's Report for 1932, the session index is no longer needed with the bringing up to date of the Documents Catalog. The discontinuance of the session index will save approximately $10,000 annually in the expense of printing and the time of indexers who have been transferred to other work.

DUPLICATION OF CONGRESSIONAL DOCUMENTS

In the following statement, with which the Public Printer concurs, the Superintendent of Documents again calls attention to waste and duplication of departmental publications that are also printed as numbered congressional documents:

> There is no need for printing departmental publications as Senate and House documents, and no good reason has been advanced for including in the congressional set a few series of departmental publications, when many other series are omitted. Objections have been made in the past to taking annual reports out of the congressional set, but now some departments take advantage of the law making it discretionary whether they print consolidated reports, and, when omitted, the reports are automatically dropped from the congressional series.
>
> It has long been advocated that the publications bearing congressional document and report numbers should be only those that emanate from Congress, of which no other plain title edition is printed.
>
> The simplest and most effective way to untangle this publication duplication is to provide that no publications issued under the authority of the executive or judicial branches of the Government shall be printed or duplicated as numbered congressional documents. To accomplish this the Joint Committee on Printing could issue regulations requiring that the usual number should not be printed of any publications having a department edition.

TESTS AND TECHNICAL CONTROL

The Division of Tests and Technical Control, which was established by the present Public Printer on February 1, 1922, as a small testing section, now has developed into one of the most important and serviceable divisions in the Government Printing Office. Its functions correlate with all the maintenance and manufacturing units of the Office for which material service is rendered either in the making of inks, glues, type metals, and rollers, or in the exercise of technical control over the various chemical processes of the graphic arts.

These functions, as they relate to the manufacturing units of the Government Printing Office, are here listed to show the materials

made in the Technical Division, the materials produced under its technical control by other divisions, and the processes that are either all or partly under technical control; the quality of the materials listed being maintained by technical specifications for purchase and laboratory tests of deliveries:

Purchasing:
- Supplying specifications for materials
- Recommendation for awards, based on tests of material submitted with bids
- Recommendation for rejection of materials for noncompliance with specifications or accepted samples

Planning:
- Furnishing information on materials for printing and binding
- Testing samples submitted with requisitions from Government departments

Printing:
- Linotype metal [1]
- Monotype metal [1]
- Detergents
- Chases
- Monotype keyboard paper
- Adhesives [1]

Platemaking:
- *Stereotyping:*
  - Stereotype metal [1]
  - Paste [2]
  - Matrix paper
  - Matrix-releasing compound [1]
  - Molding blankets
  - Felt
- *Electrotyping:* [3]
  - Backing metal [1]
  - Soldering fluid [1]
  - Depositing solutions
  - Graphite
  - Copper sulphate
  - Nickel sulphate
  - Chromium trioxide
  - Sulphuric acid
  - Molding wax
  - Copper and nickel anodes

Platemaking—Continued.
- *Electrotyping*—Continued.
  - Solder
  - Molding lead
  - Blocking wood
- *Photoengraving:* [3]
  - Copper and zinc
  - Collodion
  - Enamels and developers
  - Dragon's blood
  - Carbons
  - Chemicals
  - Rubber solutions
  - Brushes and detergents

Binding:
- Paste, bookbinder's [2]
- Glues, flexible compositions [1]
- Ruling inks [1]
- Book-cover inks [1]
- End paper
- Book cloths
- Muslin
- Mousseline
- Headbands
- Sewing threads
- Binders board
- Duck
- Crash
- Binding leather
- Imitation leather
- Bronze stamping leaf
- Marbling colors [1]
- Paper-cutting knives
- Marbling gums [2]
- Brushes
- Egg albumin

Presswork:
- Inks [1]
- Rollers [1]
- Paper
- Tabulating cards [3]
- Postal cards [3]

[1] Materials manufactured in the Division of Tests and Technical Control.
[2] Materials produced under technical control by the respective divisions.
[3] All or in part under technical control.

Presswork—Continued.
- Cartons
- Detergents
- Adhesives [2]
- Rags and waste
- Offset etches [1]
- Offset felt
- Offset plush
- Gums
- Egg albumin

Maintenance:
- *Carpenter and paint shop:*
  - Moisture in wood
  - Glue
  - Awning materials
  - Duck and drilling
  - Brushes
  - Paint
- *Maintenance*—Continued.
- *Electrical shop:*
  - Solder [1]
  - Carbon brushes
  - Armature paper
- *Machine shop:*
  - Lubricating oils and greases
  - Cutting oils
  - Steel, iron, bronze, etc.
- *Pipe and sheet-metal shop:*
  - Solder [1]
  - Lead, sheet, and pipe
  - Iron pipe
  - Cutting oils
- *Sanitary section:*
  - Detergents
  - Towels
  - Brushes and mops

The total cost of operating the Division of Tests and Technical Control, including salaries, wages, materials, and new equipment, for the fiscal year 1933 was $152,363.08, a decrease of $7,845.30 from the preceding year's expenditures.

The Division was credited during the year with the production of inks, rollers, and metals amounting to $105,721.43, leaving an overhead charge of $46,641.65, which was equivalent to the cost of its laboratory tests and technical control service to all manufacturing units and the expense of research work.

The laboratory made 6,611 tests of materials received during the fiscal year ended June 30, 1933, of which 3,837 were of paper and envelop deliveries. The total tests for the year were 1,229 less than were made in 1932.

LABORATORY KEPT PACE WITH EMERGENCY

In the first 5 months of the fiscal year beginning July 1, 1933, the laboratory kept pace with other emergency work in the testing of 3,244 samples of materials. Of these tests, 2,228 were of paper and paper products, almost two thirds as many as were made during the entire preceding year.

Tests caused the rejection of 312 deliveries for noncompliance with specifications, 259 being of paper, 16 of envelops, and 37 of other materials.

Paper rejections amounted to 3,131,259 pounds, or 8.6 percent of the total quantity received, as compared with 8.8 percent rejected in

[1] Materials manufactured in the Division of Tests and Technical Control.
[2] Materials produced under technical control by the respective divisions.

the preceding year. The principal causes of paper rejections was high acidity, a new restriction in many items of paper, and deficiency in folding endurance.

As a result of the tests a number of changes have been made in the paper specifications adopted by the Joint Committee on Printing for Government use. All the changes tend to improve the quality, especially as regards acidity and folding endurance, in order to insure permanence and greater durability.

Several cooperative studies of paper problems were also carried on during the year, including the relative rates of deterioration of sulphite paper, a smoothness test as an aid in determining the printing quality of paper, methods of microscopic examinations, and variations in the moisture contents of paper under varying conditions and seasons.

REMELT 14 TONS OF METAL DAILY

The Metal Section is now equipped with three 9-ton and one 5-ton furnaces operated with automatic feeders and pumps that minimize manual labor in filling the pots and pouring the metal, formerly a most irksome task.

A total of 8,522,238 pounds, or approximately 14 tons daily, of type metal was remelted and standardized in these furnaces during the fiscal year 1933. The metals, remelted and corrected to the required standards with alloys, included 5,742,697 pounds of linotype, 2,020,578 pounds of monotype, 526,022 pounds of stereotype, and 171,671 pounds of electrotype metal. These figures cover repeated remeltings of the same metals during the year.

The actual amount of type metals on hand in ingots, galleys, standing forms and pages, and sorts totals 3,117,724 pounds. In addition, reserve ingots of electrotype backing and stereotype metals weigh 136,000 pounds.

STORAGE OF METALS AND PLATES

A recent survey shows that there are approximately 10,000,000 pounds of type and plate metals in use and in storage in the Government Printing Office. Of this enormous weight, 6,970,190 pounds were contained in 2,975,721 electrotype and stereotype plates stored in vaults underneath the street walks adjoining the main building.

Since the inventory, a large number of dead plates have been remelted with the consent of the departments for which they had been stored. An effort is also being made to reduce by sale the amount of type metal for regular use to approximately 3,000,000 pounds.

During the year 335,000 pounds of excess linotype metal, 164,313 pounds of electrotype plates, and 131,695 pounds of dross were sold or exchanged for needed alloys.

Production of printing inks in the fiscal year 1933 amounted to 154,498 pounds for the use of the Government Printing Office and other establishments of the Government, exclusive of the Bureau of Engraving and Printing which makes its own inks. The output of ink decreased 101,328 pounds from the 1932 quantity, due to discontinuance of the manufacture of stamp-cancelation ink for the Post Office Department.

Among the products of the ink section for the year were 42,599 pounds of mimeograph ink and 12,056 quarts of writing inks furnished to various departments of the Government.

At the request of several Government officers, new inks were made for instrument recording, stenciling, prison laundry marking, and other special printing requirements.

Marbling pulp colors were developed for the bindery and improvements made in striping inks for tabulating cards.

DISCARD OF WASTE INKS REDUCED

Improvements in the making and handling of printing inks during recent years have resulted in reducing the discard of waste inks from 13.4 percent in 1923 to 1.6 percent in 1933, with a total discard of 2,680 pounds of waste ink in the latter year as compared with 13,650 pounds in 1923.

Press rollers manufactured during the year totaled 2,985, a decrease of 326, partly due to the purchase of complete sets of rubber rollers for the three 64-page Congressional Record presses.

Molded glue, for bindery use, totaled 76,038 pounds, including 43,605 pounds of flexible glues.

Of glucose-glycol paste, 27,000 pounds were made according to the formula developed by the Government Printing Office, which is now in general use by the bookbinding industry.

STUDY OF PHOTO-ENGRAVING MATERIALS

Photo-engraving research studies of the Technical Division during the year were devoted to materials employed in the processes of photo-engraving with a view to standardizing their chemical and physical properties. Progress was made in the study of dragon's blood, collodion, rubber solutions, cold top developer, zinc plates, carbons for photographic arc lamps, and various chemicals used in photo-engraving and offset work.

An especially interesting development of photo-engraving research was the adaptation of trichromatic photography for the reproduction of intricate marbled paper designs by the offset process. For this work, which marks the introduction of color photographic process in the Government Printing Office, special lithographic inks were made for the first time by the Technical Division. The marbled papers thus produced for bindery work have been highly commended for their artistic and faithful reproductions of the original hand-made papers.

COOPERATION WITH EMPLOYING BOOKBINDERS

Research cooperation with the Employing Bookbinders of America, through its research associate assigned to work in the Government Printing Office laboratory, has continued throughout the year and is still in progress. Special cooperative studies in connection with the work of the Government Printing Office were made of binders board, book cloth, pyroxylin-treated fabric, glue, and bronze stamping leaf.

In his fifth annual report to the convention of the Employing Bookbinders of America at Chicago on October 26, 1933, the research associate thus surveyed the year's cooperative work with the Government Printing Office:

> The 71 requests for information received during the past year far exceeded that of any previous year. To answer these requests it was necessary to furnish information on some 30 different subjects, ranging from flat-opening notebooks to patent information concerning the use of zippers on books.
>
> Other subjects included in the list are: Printing inks, stamping film, paper-cutting knives, the publications issued by the Research Division, mold on leather, rubberized paper, shellac size, glycerine suitable for use in flexible glue, equipment needed for making flexible glue, linen thread, and numerous other subjects.
>
> This information service feature of the research work is growing rapidly and will in time become one of the more important factors in the work.
>
> During the past year, a total of 129 samples, an increase of 13 over that of the preceding year, was tested at the request of members of the association. Included in this number are: 41 samples of pyroxylin-treated fabric, 29 of book cloth and buckram, 27 of imitation gold leaf, 12 of glue, 6 of book-end paper, and 12 miscellaneous samples.

RESOLUTION OF BOOKBINDERS' ASSOCIATION

The 1933 convention of the Employing Bookbinders of America adopted the following resolution expressing appreciation of the assistance rendered by the Government Printing Office in research work:

> Whereas the Government Printing Office, through Hon. George H. Carter, the United States Public Printer; Mr. B. L. Wehmhoff, former Technical Director, and his successor Mr. M. S. Kantrowitz; and Mr. Martin R. Speelman, Superin-

tendent of the Bindery of the Government Printing Office, have extended many courtesies to the Employing Bookbinders of America and have rendered great assistance to our research associate; and

Whereas, without the aid of these gentlemen and the Government Printing Office, it would not have been possible for the association to maintain a research division: Therefore be it

Resolved, That the Employing Bookbinders of America, in fourteenth annual convention assembled, do sincerely thank Mr. Carter, Mr. Wehmhoff, Mr. Kantrowitz, and Mr. Speelman and the Government Printing Office for all the courtesies and assistance rendered the association during the past year.

REPORT ON NEWSPRINT AND NEWS INK

The final report on newsprint and news ink by the mechanical department of the American Newspaper Publishers Association and the Division of Tests and Technical Control of the Government Printing Office was published during the year. It has been widely commended as a most helpful and valuable service to the newspaper printing industry.

The report contains 86 pages of text and numerous technical illustrations and charts. It is based on several years of cooperative research studies by B. L. Wehmhoff, former Technical Director, and D. P. Clark, associate chemist, of the Government Printing Office, and D. H. Boyce, research associate of the American Newspaper Publishers Association.

Upon completion of the report, Mr. Boyce returned to the A.N.P.A. headquarters in New York, but the Government Printing Office is continuing to assist the mechanical department and members of the A.N.P.A. with tests of newsprint, inks, and type metals, and studies of other problems submitted from time to time by newspaper publishers. From April 1 to December 15, 1933, 68 tests of newsprint, news ink, type metals, and flux were made for newspapers by the laboratory of the Government Printing Office.

PUBLIC PRINTER ON A.N.P.A. COMMITTEE

Mr. L. B. Palmer, general manager of the American Newspaper Publishers Association, on May 24, 1933, sent the Public Printer the following invitation to continue as a member of its mechanical committee, a privilege that was accepted as an opportunity to render further service to the newspaper industry:

This association has always appreciated your kindness in cooperating, in your capacity as Public Printer of the Government Printing Office, with our mechanical department, and naturally your advice and assistance to us has been particularly valuable in the work our mechanical department is doing because of your direction of similar work in the Government.

President Davis has therefore asked me to learn from you if you will not continue as a member of our mechanical committee, which, as you know, directs

the affairs of the mechanical department, during your tenure of office, and to President Davis' hope that you will accept this reappointment, I add that of Mr. S. H. Kauffmann, chairman of the committee, and of Mr. Wines and myself.

I shall hope to receive word from you at your convenience that you will accept this appointment.

NEWSPRINT AND INK REPORT SUMMARY

The final report on newsprint and news ink, of which 1,800 copies have been distributed and a number sold, was printed as Technical Bulletin No. 18 of the Government Printing Office. The report contains the following summary and statement of its scope:

Cooperative research on newsprint and news ink by the United States Government Printing Office and the mechanical department of the American Newspaper Publishers Association was started in 1928 pursuant to the following resolution adopted at the Mechanical Conference of the American Newspaper Publishers Association in Cleveland, June 5–7, 1928:

"Whereas there is a dearth of mechanical information concerning materials used in the printing industry, particularly the basic materials, ink and paper; and

"Whereas a more complete knowledge of printing materials is needed by those engaged in the printing of newspapers; and

"Whereas Public Printer George H. Carter has offered the services and equipment of the Technical Division of the United States Government Printing Office in cooperating with the American Newspaper Publishers Association in a technical investigation of paper, ink, type metals, and other printing materials: Therefore be it

"*Resolved*, That this offer of the Public Printer should be, and is hereby, approved and accepted by the mechanical division of the American Newspaper Publishers Association."

The association was represented in the laboratory of the Government Printing Office by a research associate, under the direction of Mr. W. E. Wines, manager of the mechanical department.

PURPOSE OF THE COOPERATIVE RESEARCH

The purpose of the work was to determine those qualities of newsprint and news ink which should be evaluated and controlled in order to obtain the best and most economical results from a printing standpoint and also develop tests by which the publishers could assure themselves that deliveries of paper and ink were of the desired quality.

Progress reports were presented at the annual conferences of the mechanical department in 1929, 1930, 1931, and 1932. The 1931 conference was held in the Government Printing Office.

A conference of news ink and newsprint paper manufacturers with representatives of the mechanical department of the American Newspaper Publishers Association and the Government Printing Office was also held at the Government Printing Office on October 12, 1932. Methods of analysis, value of different tests, and means of conveying the results to nontechnical men were discussed and a tentative program was prepared for a uniform system of testing news inks and reporting the results.

The first report was reprinted in part in the Annual Report of the Public Printer for the fiscal year 1929, the other three were printed as Government Printing Office Technical Bulletins Nos. 9, 13, and 16. All were printed separately by the mechanical department as Mechanical Bulletins Nos. 30, 43, 60, and 72 for distribution to the members of the American Newspaper Publishers Association.

Most of these reports and bulletins are now out of print, and since the laboratory research has been brought to a close it is deemed advisable to make a full report, covering all phases of the work done on both newsprint and news ink.

The laboratory studies were completed in March 1933, and the American Newspaper Publishers Association transferred its research associate from the Government Printing Office to headquarters in New York, where he will be in a position to assist members in applying the results of the laboratory work.

Further progress in this work depends on the cooperative efforts of the paper maker, ink maker, and publisher in applying the results of this research work in actual practice.

PUBLIC PRINTER OFFERS FURTHER AID

In a letter to Mr. L. B. Palmer, general manager of the American Newspaper Publishers Association, relative to concluding the work, Public Printer Carter wrote:

"Although your research associate has been withdrawn from the Government Printing Office, I wish to assure you and your associates that this Office will be glad to continue assisting in your technical work in any way that you may deem we can be of service from time to time, and shall be as keenly interested as ever in your problems."

Mr. Palmer replied:

"I want to thank you very much for your kind letter of April 21 and to say that I really appreciate your offer to assist in our technical work from time to time."

NEWSPRINT

The study of materials used in the manufacture of newsprint, together with a study of the paper itself, yielded considerable information concerning the characteristics to be desired in newsprint which would give good printing results on newspaper presses. It is fully realized that it may not be practicable for the paper maker to meet all these requirements, due to problems which might arise in the paper mill or to increased manufacturing costs.

Fiber composition.—Tests on papers containing various percentages of sulphite pulp indicate that if the sulphite content is reduced the opacity, surface, oil absorption, and general printing qualities are improved without serious loss of tensile strength. It is believed that if newsprint can be successfully manufactured entirely of good quality ground-wood pulp, such paper would be much superior in printing qualities to that of the usual fiber composition.

Smoothness.—This is a most important property from the printing standpoint, and until recently, no method of measuring this property has been available. Results of tests made with the Bekk Smoothness Tester on many samples of newsprint are reported in this bulletin. They show variations in the surface of commercial newsprint ranging from 23 seconds to 160 seconds. The average of over 500 samples was 43 seconds on the wire side and 51 seconds on the felt side. Such checks on these tests as we were able to make with the printed

sheets indicate that papers giving the higher tests with the Bekk instrument gave the better printing.

Now that a method of measuring smoothness of paper is available, newsprint manufacturers will be enabled to measure the smoothness of their product in numerical terms. It is hoped that it may be possible in the future to establish a smoothness range for newsprint within which the best printing may be expected.

It has been established that there is a relationship between the smoothness of newsprint and the rate of ink absorption as measured by the oil absorption test.

Oil absorption.—The rate of oil absorption of newsprint is important since it is directly related to offset, ink drying, penetration, smudging, show-through, and strike-through. As the smoothness increases, the rate of oil absorption decreases (oil absorption time increases). There is, therefore, an upper limit for smoothness which should not be exceeded. Beyond this point offset and smudging may be expected. It is also possible that the rate of oil absorption may be too rapid, which will result in excessive strike-through and show-through. A proper balance between smoothness and oil absorption, which would yield paper having the greatest smoothness consistent with proper oil absorption, is highly desirable.

Strength.—It is believed that the tensile strength test is more informative than the bursting strength test. The average tensile strength of newsprint in the machine direction is approximately 11 pounds per inch of width. Such data as are available show that the tension to which paper is actually subjected while running through the press is about ½ to 1 pound per inch. It appears that newsprint as now manufactured has a strength factor of safety between 10 and 20.

Opacity.—High opacity is obviously a desirable property and it has been found that the opacity of commercial newsprint varies over rather wide limits. A number of instruments for measuring this property have recently been developed. It was found that the same papers when tested on instruments of different design yielded numerical results which varied greatly. Until there is some agreement as to the most desirable type of instrument, no definite recommendation on this point is possible.

Filler.—Inasmuch as very little commercial newsprint contains clay or filler, it has not been possible to reach any conclusions as to its effect on the printing quality of such paper. It is believed that no definite conclusions can be drawn from an ash determination.

NEWS INK

The study of news ink and its relationship to newsprint shows that improvement along some lines would overcome to a considerable extent many of the present-day complaints on the quality of newspaper printing.

Vehicle.—Mineral oil, the vehicle used in news ink, must possess the requisite characteristics of length and flow. The results obtained with an experimental ink indicate, however, that possibly too much attention has been paid to these characteristics in the past, and that a somewhat shorter ink may be more desirable. The amount of yellow stain produced by the oil has a marked effect on the quality of the printed sheet, and should be kept at the minimum.

Pigment.—The grade of carbon black ordinarily used as news ink pigment is of satisfactory quality, but the amount used should be the minimum required to give a good black print.

Toner.—Whether or not toner is to be used in a news ink is largely a matter of personal preference. The toner and toner solvent, although present in but

small amounts, exert a definite effect on the printed work. Excessive amounts of toner carry the color through the paper to a degree that makes the printing plainly visible from the reverse side. This is due primarily to the penetrating effect of oleic acid, the most commonly used toner solvent. Our work indicates that other fatty acids are equally as good as oleic acid in dissolving the dye toner and do not have as much penetrating effect.

General.—Apart from the quality or proportions of the various materials used, the manufacturing processes such as grinding, etc., exert a marked effect on the working properties of the finished ink. This, of course, has a definite effect on the quality of printing. The users of ink are more interested in the working qualities of the ink and the results obtained than in the actual ingredients used in its manufacture.

TRIBUTE TO FORMER TECHNICAL DIRECTORS

Although regretting the loss of their valuable services to the Government, the Public Printer is pleased and proud of the recognition that has been deservedly accorded the ability of Mr. Edward O. Reed and Mr. B. L. Wehmhoff, the first two Technical Directors of the Division of Tests and Technical Control.

Mr. Reed, who had assisted the Public Printer in the organization and operation of the Technical Division during the first 7 years of its service to the Government Printing Office and the printing industry, resigned on October 15, 1929, to become director in charge of technical control of the paper mills of Crane & Co., at Dalton, Mass.

Mr. Wehmhoff, who was Mr. Reed's assistant and successor as Technical Director, resigned on July 5, 1933, to take charge of the newly created technical division of the W. F. Hall Printing Co., at Chicago.

Thus, two great organizations in the paper and printing industries, respectively, have expressed appreciation of the work of the Government Printing Office by selecting in succession as their technical directors men whose experience and knowledge in the application of scientific research to the printing industry was acquired under the direction of the Public Printer.

PROCUREMENT, STORES, AND DELIVERY

Purchasing, hauling, and storage of the vast amount of materials required in the work of the Government Printing Office and the delivery of its multitudinous products are important activities requiring capable management and efficient service, which was rendered as usual during the fiscal year 1933.

The Purchasing Agent placed 6,138 purchase orders, a decrease of 2,581, and issued approximately 16,750 requests for open-market proposals, a decrease of 3,000. The total expenditures for purchases for the fiscal year 1933 amounted to $2,710,718.20, a decrease of $1,819,194.79.

The work of the Purchasing Division is further shown by 151,000 entries on stock cards during the year.

The Division reports a saving of $29,582.29 for the year in the advantageous placing of its orders and in the transfer of surplus materials.

Contracts for paper and envelops awarded by the Joint Committee on Printing for the year beginning March 1, 1933, showed a reduction of approximately $450,000 based on the same quantity as purchased in the preceding year.

CHANGE OF TIME FOR PAPER CONTRACTS

With the regular sessions of Congress beginning in January hereafter, the Public Printer has recommended to the Joint Committee on Printing that the paper contract year be changed from March 1 to July 1 so as to conform to the standard fiscal year of the Government and simplify the cost accounting and scale of prices for the Government Printing Office.

The Delivery and Stores units received 973 carloads of paper and materials which, with the less-than-car lots and commercial truck deliveries, totaled 41,196,820 pounds gross weight.

Local deliveries by the fleet of Government Printing Office trucks carried 110,710 orders, or approximately 360 daily.

Outgoing freight, principally rejected paper, returned cores, and type metals, totaled 8,594,794 pounds, a decrease of approximately 1,000,000 pounds, due principally to smaller shipments of paper to Government field services.

The principal task of the Stores Division, aside from the receipt and storage of all materials and supplies delivered to the Government Printing Office, is filling orders for the thousands of items carried in stock for every activity of the entire establishment. Storekeeper's orders for paper numbered 59,500 and for other materials 30,738, as shown by entries for the year on the control cards of the Purchasing Division.

The Stores Division also issued 9,667,428 copies of standard printed forms from its stock for departmental use.

MAINTENANCE DIVISION SERVICES

The work of the Maintenance Division includes—

Maintaining buildings and equipment in an efficient operating condition;

Handling all problems of an engineering character;

Preparing specifications for new machinery and equipment;

Carrying through with its own units, or by contract, building alterations and repairs;

Designing, constructing, and installing special machinery and equipment to meet unusual requirements;

Operating all machinery and equipment for power conversion and distribution, emergency electric generating, heating, lighting, ventilating, refrigerating, compressed-air service, signal systems, elevators, conveyors, laundry, and cleaning of buildings.

DECREASE OF EXPENSES FOR MAINTENANCE

A decrease of $358,456.40 was made in the gross operating cost of the Maintenance Division for the fiscal year 1933, which totaled $932,289.38, as compared with $1,290,745.78 for the preceding year. Deducting payments to the Capitol Power Plant of $112,562.08 and direct charges of $260,989.17 for services to other divisions and the City Post Office, the net cost of maintenance applied to all productive divisions was $671,300.21, a decrease of $305,033.08.

A further decrease of $72,316.92 was made in the operating expenses of the Maintenance Division for the first 5 months of the fiscal year beginning July 1, 1933, with a total of $338,882.41, of which $27,369.60 was paid to the Capitol Power Plant and $85,485.59 charged for services to other divisions and the City Post Office.

The value of work completed by the Maintenance Division, including general upkeep of buildings, new projects, and routine jobs, was $372,609.01, a decrease of $89,090.64 for the year.

Contract work, including alterations to buildings, cost $27,704.83, a decrease of $120,335.38.

The total charges for all maintenance work, including alterations and repairs to buildings, machinery, etc., was $400,313.84, a decrease of $209,426.02.

The daily average number of employees on the rolls of the Maintenance Division, including the carpenter, painting, electrical, machine, power, pipe, sheet-metal, buildings, elevator, and cleaning units, was 375, a decrease of 20.

REDUCTION IN MAINTENANCE LABOR COSTS

The compensation of these employees totaled $708,362.82 for the year, a decrease of $73,568.40. Of the total compensation, $74,424.20 was impounded by the Economy Act as a further saving to the Treasury, making the actual labor cost for the Maintenance Division $147,992.60 less than for the preceding year.

After several years of active building operations, including the new extension completely and fully occupied in 1932, the work of the Maintenance Division has resumed a somewhat normal routine, but now has approximately 20 percent additional floor space and correspondingly more machinery and equipment to maintain in proper condition.

The gross floor space occupied by the Government Printing Office totals 974,777 square feet, including 14,417 square feet of space used by branches in the Capitol and the Library of Congress.

The principal building improvement during the year was the construction of a one-story warehouse extension, for which Congress authorized an expenditure of not to exceed $25,500 as requested by the Public Printer. The new extension contains 5,494 square feet of floor space, with a basement room for oil tanks, and has an automatic elevator giving access to the basement of the main building. The brick, steel, and concrete work was completed on September 8, 1933.

NEW WAREHOUSE EXTENSION FACILITIES

The warehouse extension provides much-needed facilities for the storage and issue of gasolines, oils, and building materials, and the storage of unserviceable equipment and refuse awaiting disposal. Gasolines and oils are issued from 25 measuring pumps. All the highly inflammable or explosive items are stored in underground tanks which have outdoor filling connections, while the nonexplosive items are stored in tanks directly under the pump room. An adjacent room has been provided for the storage of acids.

Among the new activities of the Maintenance Division during the year were several surveys for the purpose of improving conditions in the old buildings. These surveys had been delayed by the more important construction work and the accompanying movement of equipment.

A survey was completed of electrical equipment. The power demand of each one of the 2,200 motors has been recorded for use in determining operating schedules in any emergency requiring temporary reduction of power.

ELECTRICAL FIRE HAZARDS ARE REDUCED

The Electrical Section also overhauled all the wiring throughout the old buildings and power plant, removing unused power circuits and modernizing active circuits to reduce the fire hazards. During the year the Electrical Section handled 31,189 jobs, of which 283 were new installations.

The removal of a large amount of dead plumbing and piping in the basements and numerous service shafts was the result of another survey which improved conditions in the main and old buildings. The Pipe and Sheet Metal Section, which had charge of this work, reported a total of 5,805 jobs during the year, including the installation of automatic temperature controls on the steam-heated wax kettles and case-stripping table in the Platemaking Division.

A survey of every machine in the plant was made to ascertain whether additional safeguards were needed to protect the operators from unnecessary hazards. In the survey of 3,741 machines and motors, 3,558 were found to be properly guarded. Recommendations were submitted for added safety devices on 183 other machines. The survey was also of value in pointing out hazardous features to operators so that they may be on their guard against possible injury.

Machinists are likewise constantly at work reconditioning and improving machinery and equipment throughout the Office. Repairs to machinery and equipment in 1933 cost $104,972.68, an increase of $7,402.29 over the preceding year. A total of 47,302 jobs of all kinds were done during the year by the Machine Section.

44 NEW ALL-METAL IMPOSING TABLES

The Machine Section recently built 44 all-metal imposing tables of uniform size and design to replace old wooden tables, the iron tops of which were reground for further use. The new imposing "stones" are also fitted with metal drawers and suspensions made by the Sheet Metal Section.

Another good job that the Machine Section did for the Printing Division was the construction of a number of skeleton chases for vertical presses on which several hundred discarded Gordon chases can now be used. This economical plan was proposed by the foreman of the job composing section, who had found the unused chases in a general overhauling of his section.

Important improvements were made during the year on a number of machines by redesigning troublesome parts and adding devices to do work for which the machine was not originally designed.

Radical changes were made in the operations of the "perfect" binder, insuring firmer gluing of the covers and more careful delivery of the books to the specially designed carrier, which reduces handling and insures a better product.

INVENTIVE WORK OF MECHANICS

Other examples of the inventive work done by Government mechanics may be seen on recently installed web presses, which have been equipped with effective roller oil-wiping devices to prevent ink smudges or smears, and with guards to protect the pressmen while feeding sheets into the folders.

A number of folding machines have been equipped with "tipping" devices to paste any size sheet from the minimum to the maximum capacity of the machines. The devices have effected a saving of approximately 25 percent in the cost of this work, owing to faster production. The idea was suggested by the bindery and worked out by the machine shop.

The carpenter, paint, and building sections also performed their full share of the work of the Maintenance Division during the year. The Carpenter Section handled a total of 36,117 jobs, notwithstanding a 50 percent reduction in its force during the last 2 years. Included in the carpenter work was the making of 10,057 boxes, for which 160,608 board feet of lumber was reclaimed from other boxes received with shipments of paper and materials. The carpenter shop also built and repaired numerous work cabinets, tables, and racks and made all the wooden "furniture" used in the Printing Division.

SERVICES RENDERED BY POWER SECTION

A vital part of the Maintenance Division, and, indeed, of the entire plant, is the Power Section, which operates as a substation of the Capitol Power Plant where the electric current for light and power and steam for heating and industrial purposes are produced. The current and steam are conveyed through a tunnel 7,014 feet in length to the Government Printing Office for conversion and distribution by the substation.

The electric current used in the fiscal year 1933 decreased 599,969 kilowatt-hours, with a total of 6,612,302 kilowatt-hours. The cost of electric current decreased from $113,355.38 to $80,205.18, a difference of $33,150.20, or 29.3 percent. The lower cost was partly due to a material reduction in the rate of charges by the Capitol Power Plant and to a decrease in cost of substation operations. The installation of an additional converter obtained as surplus from the Bureau of Engraving and Printing aided in the reduced cost.

Steam consumption decreased 6,124,811 pounds, with a total of 54,982,866 pounds, costing $23,697.62 for the year, a saving of $2,639.77, or 10.02 percent.

Gas consumption likewise decreased, amounting to 6,381,700 cubic feet, or 937,000 cubic feet less than were consumed in the preceding year. The expenditure for gas in 1933 totaled $4,472.44. It is used largely for heating metal furnaces.

SANITARY SECTION KEEPS PLANT CLEAN

To complete the record of the Maintenance Division for the year requires mention of the Sanitary Section, which operates a laundry in addition to the daily cleaning of the entire plant. The laundry washed and ironed 1,138,446 hand towels during the year so as to provide a clean towel daily for every employee. In addition, 41,341 pounds of greasy rags were washed; a worth-while saving in the large quantity of wiping rags necessary to a printing plant.

MECHANICAL PROGRESS OF THE PLANT

Supplementing his annual report, the Mechanical Superintendent has submitted the following comprehensive and informative statement of the mechanical progress that has been made by the Government Printing Office, nearly all in the last 12 years:

Rapid progress has been made in recent years in the mechanization of many operations between the starting and finishing of a printing job in the Government Printing Office. To realize what has been accomplished, it will be of interest to note facilities and equipment available when the Office was established.

A 5-year-old plant, evidently well equipped for its period, was taken over on March 4, 1861. It contained a job composing room, proofreading room, press room, wetting and drying rooms, bindery room, folding room, machine shop, and office. There were also a boiler house and a stable.

Among the items listed in the inventory were 1 timepiece, 5 wrenches, one 40-horse engine, 104 press boards, 2 wetting tubs, and a fair assortment of book and job type.

The proofreading room had 8 armchairs, 2 pine desks, and 1 mahogany desk.

The bindery had a few machines, with only 2 ruling and 2 cutting machines. The bindery inventory included 10 pairs of shears, 4 bodkins, and other minor equipment.

The pressroom had 23 Adams presses and 3 cylinder presses.

With the stable came 2 horses, 1 wagon, and 1 carry-all. The boiler house had one 60-horsepower boiler, 525 feet of fire hose, 5 buckets, etc.

As the demands for printing increased, several additional buildings were erected which ranged in height from four to seven stories. In 1904 an eight-story building, now called the main building, was completed. An extension to this building was completed in 1930 at a cost of $1,250,000. The total floor-area of the group is now 960,360 square feet, exclusive of space occupied in the Capitol and Library of Congress. The present plant valuation including equipment is $10,575,000.

IMPROVEMENTS IN THE POWER HOUSE

The present power house, centrally located in the group of buildings, provides and distributes service essential to every one of the 1,586 pieces of productive machinery and equipment, and 2,155 motors.

The only prime movers in the power house are two diesel engines which were obtained by transfer from the Navy Department. These units were installed for standby service and have sufficient capacity to carry the load for producing the Congressional Record and other rush printing. By distributing the work over 24 hours it would be possible to carry on all the normal office production.

For regular operation, however, the steam and electricity for heating, lighting, and industrial purposes are supplied by the Government-owned Capitol Power Plant, located a mile and a quarter away. Steam mains are carried through a tunnel system adjacent to which are ducts carrying the 6,600-volt electric feeders. Transformers in the power house step down this voltage, and converters change part of it into 115- and 230-volt direct current. Alternating current is used for most electric heating and some motor applications, while direct current operates most of the machinery and equipment throughout the plant.

In addition to the power transforming, converting, and distributing equipment, the power house contains air compressors, heating system vacuum pumps, water-service pumps, water heaters, refrigerating machines, and storage batteries.

Compressed air is distributed throughout the buildings at 50-pounds gage pressure which is sufficient for most work. It is reduced by automatic valves where lower pressures are required. There are, however, a few isolated applications for which this pressure is not sufficient or not economical, and these are taken care of by small automatic compressors. For example, the 50-pound pressure is not adequate on book presses and for this application a small automatic machine is provided at the point where this service is needed.

A small automatic compressor also supplies air for door operation of a group of elevators where 24-hour service is maintained. This small machine obviates the need for running one of the large compressors in the power house and keeping service on the whole system when the office is not working.

Another special compressed-air application is that of agitating electroplating solutions. Here a multistage blower supplies a large quantity of air at a few pounds pressure, at a considerable saving as compared with the cost of supplying reduced high-pressure air. The multistage blower also has the important advantage, in this instance, of delivering air free from oil, which the conventional type of air compressor cannot do.

A battery of pumps supplies and circulates cooled water for drinking purposes, hot water, also water for industrial applications, and direct high-pressure service to the Cafeteria.

The new water-supply systems have been installed with a view to economy of operation, both in the matter of reusing water for industrial purposes which has passed through cooling jackets of air compressors, refrigerating machines, typesetting machines, molds, casting boxes, etc., and in the matter of economy in the use of power. The latter has been accomplished by careful selection of pump sizes, using small pumps for night service, automatic pressure control on continuous service, and automatic start and stop control on service supplying storage tanks. Recent installation of the latter control shows a saving in electric power of more than $5,000 per year.

From the power house is also supplied refrigeration for drinking water, and electric power from storage batteries to operate fire-alarm and guard-patrol systems, time stamps, and work bells.

HANDLING AND STORING MATERIALS

Handling and storing materials, and particularly paper, is an important part of the work in the operation of Uncle Sam's big print shop. Items carried in regular stock, including materials entering directly into the product and other materials, supplies, and repair parts, total approximately 20,000 different stock items. There are 700 items of paper, ranging from 100 percent rag stock to newsprint and kraft wrapping paper. Included in this number of items are necessarily a variety of stock sizes to meet various requirements.

Daily average of incoming shipments has been approximately 5 carloads, but it is not uncommon to have as many as 20 carloads in the freight yards at the beginning of a work day following the closing for a holiday and week-end.

Until recent years all material was handled by manual labor. A few two-wheeled and four-wheeled trucks in addition to horse-drawn wagons formed the material-handling equipment. Block-and-fall was used for lifting heavy loads, and bales of waste paper were loaded by use of a team of horses hitched to a rope carried over a series of pulleys. Then a hand block-and-fall was attached

to a carrier which rolled along an I-beam. After an object had been raised it could be moved along the I-beam to a desired position and lowered. Next came the electric hoist; first it was in a fixed position, then attached to a carriage moved by hand, and finally to the motor-propelled type. The traveling bridge crane operated from a cab is a full development of this particular material-handling device.

The first outstanding labor-saving equipment consisted of hand-operated tiering machines, which to some are known as "stackers" or "portable elevators." The hand-operated machine was superseded by the electrically operated one, the modern types of which are telescoping.

During the last 10 years several other modern and novel material-handling devices have been added to the equipment. The Printing Office was one of the early users of lift trucks and skids for hauling sheet paper around the plant. Our earliest lift trucks were cranked up and down. These have been superseded by the conventional types in which the load is lifted by means of the truck handle.

For the longer hauls, bringing new stock from stores, electric lift trucks are used. For long hauls in the basement an electric tractor with a fleet of trailers have replaced the use of hand-propelled stevedore trucks.

Much of the stacking of rolls and cases of paper which was formerly done by use of tiering machines is handled with electric crane trucks. Booms and tongs for this work have been specially devised for operation in low headroom. The tongs which are necessarily heavy have a latching arrangement so that as soon as the roll or case of paper has been deposited in the desired place the tongs are latched open and no manual labor is required to lift the tongs clear of their load.

Since a large part of the heavy paper stock is stored in the basement of the main building, the length of which together with the extension is nearly 600 feet, special arrangements were made in the recently completed extension to receive paper shipments.

FREIGHT ELEVATOR FOR LOADED MOTOR TRUCKS

A large freight elevator with a capacity of 32,000 pounds carries loaded automobile trucks to the basement. Here the trucks drive off into a pit the depth of which brings the floor of the truck level with the basement floor. A three-motor bridge crane picks rolls or boxes off the truck and places them on trailers which are hauled away by the tractor and stacked by equipment previously mentioned. The truck floor being at the level of the basement floor means that very little hoisting and lowering is necessary. It also makes possible the easy loading or unloading of any heavy machinery.

The buildings have 29 elevators, including modern high-speed passenger cars with automatic floor leveling. Freight elevators in general have 5,000 pounds capacity, but one can carry loads up to 20,000 pounds.

Several automatic dumb waiters are installed for special services. One pair carries all forms between the composing rooms and press rooms.

Several belt conveyor systems are also used. One of these is used for carrying mail sacks from the Government Printing Office to the City Post Office, a distance of 1,000 feet. Loading points are conveniently located, so that no hauling of mail sacks is necessary within the building.

Another of these belt conveyor systems provides 2-way service between several points on different floors in different buildings. On this system all material is carried in boxes which are automatically switched to go to the station for which intended. The principal service of this system is to carry

publications from stockrooms to the Superintendent of Documents' salesroom, and records from the file room to the Accounts Division.

A belt conveyor is also used to carry galleys of type from the monotype casting room to the assembling room. The feature of this conveyor is the smooth motion of the canvas belt obtained by its sliding over a solid wood bed. Belts carried on rollers always produce an up and down rocking motion when small objects are carried.

IMPROVED HANDLING OF WASTE PAPER

Great improvements have been effected in the handling of waste paper. Trim from cutting machines is collected in box trucks and dumped in chutes which terminate near the baling presses in the basement. Waste paper from all continuous trimmers is conveyed pneumatically from hoppers in each machine to roomlike bins adjacent to the baling presses. A separate duct runs from each machine to the baling room, where a switching arrangement is provided so that the trim from any machine can be discharged into any desired bin.

In this way the different classes of waste paper are kept separate. The market price thus exceeds what it would be if all classes were mixed together. Receipts for waste paper thus separated amounts to approximately $35,000 annually, whereas if it were all mixed it would sell for much less.

Baling press operators are kept informed of the class of paper coming from each machine by means of light signals. They are likewise warned when the class is to be changed and what change is to be made. Thus, one or more machines may be cutting the same class of paper and all discharging the trim into the same bin, or they may be cutting different kinds of paper, in which case the trim goes into different bins.

The baling presses have been equipped with pneumatic tampers which avoid the former unhealthy task of tramping by foot the paper into the baling hopper. With the same baling presses one man can now produce a bale of about 600 pounds weight in about a fourth of the time formerly required by two men to produce a bale weighing between 400 and 500 pounds.

Pneumatic tube systems are used to carry copy and proofs between the proof and composing rooms, and in the Office of the Superintendent of Documents to carry correspondence and stock cards between clerical groups located in different buildings.

Duct systems of conventional design also collect and convey sawdust and shavings from woodworking machines in the carpenter shop, box shop, and wood-blocking room of the Platemaking Division.

DUST-COLLECTING SYSTEM FOR PRESS

A specially designed dust-collecting system, the first in this country, has been installed within the past year on one of the double-deck rotary magazine printing presses. This system is operated by a 3-stage centrifugal exhauster having 6-inch pipe connections and driven by a direct connected 3,600 r.p.m. 20-horsepower motor. These figures show that it is truly a high-powered system. A lower powered system first tried out which followed standards used in sawdust collecting proved inadequate.

The system as now in operation removes dust which originates at the rotary disks which slit the web longitudinally, and at the cutting cylinder which shears the paper. Collecting orifices or nozzles are also provided which collect dust along the edges of the product as it moves on tapes to the press delivery. No provision is made for removing dust from the unwinding stock roll, this having been considered unnecessary.

The collecting system on the press consists of standard pipe with vacuum cleaner fitting for readily applying and removing the dust-collecting attachments so as to make all parts of the press accessible for adjustment and repair.

Dust-collecting attachments are only put in place for slitters actually in use on any particular run, thus providing a maximum of vacuum and cleaning for the points at which dust is actually originating. Clean-outs and convenient outlets are also provided for the attachment of flexible hose for use with hand tools for general clean-up. All collecting orifices have been most carefully designed. The disk slitters are almost completely enclosed. The whole system is very effective, removing probably more than 90 percent of the dust created.

MECHANIZATION OF THE METAL ROOM

The remelting and reconditioning in the metal room of a daily average of 14 tons of linotype and monotype metal required arduous manual labor until a mechanical system was worked out and installed to load and pour the metal. Linotype metal and, to a lesser degree, monotype metal do not lend themselves to handling by such standard equipment as bucket elevators, nor if stored in bins will they flow out by gravity unless they are allowed to move in a single mass.

An arrangement tried out for elevating hand trucks carrying a thousand pounds of metal and dumping directly into a metal pot was found objectionable because of the danger of splash from this quantity dropping into already molten metal. Bottom pouring of metal pots was also tried out with unsatisfactory results. Valves and swivel joints subjected to the heat of the furnace and molten metal gave much trouble. Hand ladling of the molten metal was therefore the standard practice.

Filling the pots by hand shoveling and emptying by hand ladling have now been replaced by successful mechanical means.

A balcony has been installed above the metal pots to which trucks, each containing 1,000 pounds of type metal, are carried by one of the building elevators. When a pot is ready for filling, these trucks are dumped one at a time on a slowly moving apron-type conveyor. Dumping of the trucks is accomplished by engaging the hook of an electric hoist with the handle of the box truck.

The box trucks, built of heavy angle-iron frames with sheet-steel plates, have swivel casters at the handle end and stationary casters at the other end. The end opposite the handle is hinged and has a sturdy latch, which is released when the truck is ready for dumping. Elevating the handle end causes the type metal to flow out on the slowly moving apron conveyor. As the metal reaches the end of the conveyor it falls off in a fairly steady stream into a chute and into the metal pot.

Three 9-ton metal pots each with a separate loading conveyor are in service. They are heated by efficient gas burners having automatic control. Molten metal is pumped out of the pots into water-cooled ingot molds arranged in an arc about the pots. These pumps are of the sump well type, electrically driven, and discharge through a swiveling spout which the operator moves from mold to mold. An electric switch mounted in the handle of the swiveling spout controls the flow of metal.

The metal room is operated under direction of the Technical Director and each pot of metal is analyzed and any necessary corrections made before it is poured into ingots.

DEVELOPMENTS OF PRODUCTION DIVISIONS

Reference has here been made to the early history of the Government Printing Office and some engineering developments, more particularly in the material handling field, have been described. Advances in the crafts specifically applying to the production of printed matter also have been outstanding.

The largest division in the Office is the Printing Division, which performs all work necessary to put manuscripts or copy into type form. All typesetting

was done by hand until 1904 when the first typesetting machines were installed in the Office. Now there are in use 406 such machines, including 174 linotypes, 100 monotype keyboards, 130 monotype and 2 Ludlow casting machines. During the fiscal year 1932 they produced 2,790,245,000 ems of type, also necessary leads, rules, slugs, and spacing material. By comparison this would fill 78,550 pages of an 8-column newspaper set in 7-point type.

The Platemaking Division is equipped to cast stereotype plates and to produce copper, nickel, and chromium electrotypes. The quantity of each is in the order named. New copper electrotyping equipment has features of especial interest. Two semiautomatic tanks each have a capacity of 30 cases and 1,250 gallons of solution. Each contains a conveyor system which carries cases to be plated from the loading point at one end to the rear and back to the loading point. Conveyors are set to operate at a speed such that when a case has made one complete circuit around the tank it has received the proper deposit and is ready for removal.

The solution is agitated by air supplied by multistage blowers, insuring freedom from oil, and the temperature is automatically controlled by thermostats which admit steam or cold water into lead coils in the bottom of each tank. Current for plating is supplied by a generator for each of these tanks having a capacity of 7,500 amperes, at 6 to 8 volts.

Many platemaking processes have been mechanized. Improved machinery has replaced many hand operations and crude machinery formerly used. Plate straightening is done partly with machines having power-driven hammers. The chisel and hammer operation of removing surplus material is now done quicker, better, and safer with the routing machine. The shaving of backs of plates, once performed on a crude machine having a knife driven by a hand-turned wheel, is now performed on motor-driven combination roughing and shaving machines.

Electrotypers will recall that it was necessary to keep the wheel turning and knife moving on the old shaving machines, as any stop produced a ridge on back of the plate being shaved. Beveling was performed by means of a hand plane set in a groove. Sometimes the knife was set at the proper angle, but in most cases the plate was tilted to the approximate angle and frequent accidents cut off letters. Beveling machines now have saw-cutting heads capable of beveling accurately and rapidly plates of either copper or nickel.

The process called "bumping" came into use about 10 years ago. Subjecting the plates to a high pressure in what is called a "solidifying" press removes many inequalities which were formerly left to the finisher to remove by hand.

The blocking room has also seen improvements in woodworking machinery, including saws, planers, and nailing machines, and an efficient dust collecting system for removing shavings and sawdust which formerly filled the air.

GREAT INCREASE IN PRINTING PRESSES

Since 1861, when the inventory showed "23 Adams presses and 3 cylinder presses", the improvements in printing have been truly marvelous. The Government Printing Office now operates a total of 192 presses, including 24 rotary web presses.

Three of the latter are of special design to print the daily proceedings of Congress—the Congressional Record. This daily publication varies from 8 pages up to more than 200 pages. The Record presses have web dampening boxes with electrically operated valves which automatically turn steam on and off. Web dampening saves ink, and produces better printing with less strike through. The presses can paste or wire stitch and deliver stitched copies up

to 64 pages. Larger editions are gathered and wire stitched on a separate machine. These presses are each capable of printing and stitching up to 64 pages at the rate of 12,000 copies per hour.

Four other latest design magazine web presses print long runs of half-tone work. They are equipped with rolls and oiling rollers to prevent offset or smear. A wire-stitching attachment is part of the press. Capacity of each, 10,000 copies per hour.

Several offset presses are used, including a perfecting press to print on both sides of the sheet at the same time.

Money orders and postal cards are also printed on web presses, three of the postal card presses having a capacity of 384,000 cards per hour or 6,400 per minute.

Statistical tabulating cards are printed on a battery of 16 special presses, each having a capacity of 12,000 impressions per hour.

Horizontal and vertical presses of recent design form important groups for job work.

Several envelop presses, which open envelop flaps, print the envelops, then close the flaps and deliver at the rate of 15,000 per hour, are of particular interest because of the high capacity of a remarkably small press. Until these presses were installed this work was done on larger presses at much lower speeds.

MANY NEW MACHINES IN THE BINDERY

A greater variety of operations is found in the Bindery than in any other production division of the Government Printing Office. During the past 12 years 111 new machines have been installed in that division. Some of these have replaced worn-out or obsolete machines, but a great many have replaced hand operations. The majority of these new machines are standard equipment. A few, however, have special interest.

Two types of three-knife trimmers for trimming books and pamphlets have been improved by added air attachments to clear the knives running certain kinds of paper. Extension of the feeding trough on one of these types makes possible better jogging and increased production.

A recently installed one-knife trimmer for trimming and gang cutting has a novel feature in a belt-conveyor delivery, which carries the work away from the cutting knife and directly to wrappers without any intermediate handling.

Two pamphlet-wrapping machines of a new design are in operation, the novel feature of which is their ability to fold-wrap thin or flexible pamphlets and flat-wrap thick or stiff pamphlets. They are capable of delivering 6,000 to 8,000 pamphlets with wrappers per hour.

Five cutting machines are equipped with spacing devices by which the back guides may be set to automatically space cuts of any desired width.

Eight single-arm, straight-needle book-sewing machines have automatic pasting devices.

A folding machine with two feeders folds two 16-page signatures, inserts for one 32-page signature, and stitches the same into a paper cover.

A rounding and backing machine has been successfully connected to a crashing, lining, and head banding machine in such a way that each machine can be operated separately, or the two operated as a single unit performing six different operations.

A forwarding machine attaches crash and lining paper to books, pastes end papers, attaches cases or book covers to books, and piles the books into air presses.

A book cover stamping press is self-feeding and has attachment for using roll stamping materials.

The disc paper-ruling machine rules sheets both sides, one way, in one operation. It is equipped with a self-feeder for sheets and a roll feeder with cut-off to cut sheets to required widths, also with an inserter or feeder by which separating sheets of paper or card may be inserted.

A perforating machine using one set of punch tools for a line of perforations, or a multiple of tools for several lines, carries sheets through the machine automatically. It is also arranged for struck or part-line work.

A "perfect" binding machine has been improved in several important details since its installation. An additional book clamp, new roughers, and new glue rollers mounted in such a way as to first bend the back of the book to one side and then to the other forcing glue down between leaves, produces a far superior gluing job. A new feeder cover trip was also devised. A new side delivery holds books squarely on their backs, preventing ill-shaped books. These improvements increased production with stronger binding and a better-shaped book.

BUILDING PROJECT FOR PUBLIC WORKS BOARD

The need of replacing the older buildings of the Government Printing Office with modern fireproof structures, as stated in prior reports of the Public Printer, becomes more urgent every year. The Public Printer therefore availed himself of an opportunity to present this project to the Special Board of Public Works through its chairman, Hon. Harold L. Ickes, and the Secretary of Commerce, Hon. Daniel C. Roper, to whom the following letter was addressed on June 30, 1933:

In reply to the letter of June 29, 1933, from Mr. Fred E. Schnepfe, Assistant to the Temporary Administrator of Public Works, suggesting that the Government Printing Office submit projects for the program of construction and reconditioning, I am pleased to submit the following:

New building to be located at North Capitol and H Streets NW., to replace antiquated buildings, $3,500,000.

Enclosed extracts from my annual reports of 1930 and 1931 state in detail the need for a new building. Briefly, the requirement is for a modern fireproof building to replace a group of old buildings, dating back to 1856, which have highly inflammable wooden interiors and inadequate capacity. Structural conditions are such that tierods have had to be installed to support walls and intermediate posts placed to strengthen floors, the loading of which have been greatly restricted as the result of an inspection made by Army engineers many years ago.

These old buildings house important workrooms and provide storage space for approximately 20,000,000 Government publications; also large stocks of paper and other materials used in the daily production of the Government Printing Office.

From preliminary plans, the Supervising Architect's Office reported, in February 1931, that $4,000,000 would be adequate for this project. With reduced construction costs, $3,500,000 is now considered adequate.

A bill was introduced into the Seventy-first Congress by Hon. Frank Murphy, of Ohio, chairman of the subcommittee of the House Committee on Appropriations, for this amount. Members of the committee and officials of the Treasury Department expressed their approval of the project, but due to the approaching adjournment of Congress it failed of further consideration.

I earnestly urge the approval of this project, as it is not only needed to provide proper protection for millions of dollars' worth of Government publications, materials, and supplies but also for important workrooms.

APPROVED BY JOINT COMMITTEE CHAIRMAN

The Public Printer's proposal was approved by the chairman of the Joint Committee on Printing, Hon. Duncan U. Fletcher, in the following letter addressed to the Secretary of the Interior under date of October 17, 1933, for consideration by the Special Board of Public Works:

The Public Printer has submitted to the Joint Committee on Printing copies of certain correspondence with the Special Board of Public Works and the Secretary of Commerce, including extracts from the Annual Report of the Public Printer for 1930 and 1931, relative to an allotment of $3,500,000 from the Public Works program for the erection of a new fireproof building for the use of the Government Printing Office, to replace the old dilapidated storehouse constructed in 1856 which is located at North Capitol and H Streets NW.

The letter of June 30, 1933, addressed to you by the Public Printer fully sets forth the needs for the construction of this fireproof building, and I might add that this matter has been discussed among the individual members of the Joint Committee on Printing for a number of years. This committee heartily endorses and approves of this project because the old building has been regarded as a menace to public safety for many years.

It is hoped that your board will give the matter serious and prompt consideration in order that the necessary steps may be taken to conform to the requirements of the Federal Emergency Administration of Public Works.

APPRENTICE SCHOOL GRADUATION

The principal event of the year for the Apprentice School was the graduation of the class of 1933, for whom appropriate exercises were held in the Government Printing Office Auditorium on the evening of August 3. More than a thousand persons were present to express their interest in the graduates and the school. Twenty-seven young men who during the year had completed the prescribed courses of training were presented by the Public Printer with certificates as qualified journeymen in their respective trades, entitling them to appointments in the Government Printing Office.

The Secretary of Commerce, the Hon. Daniel C. Roper, graciously accepted an invitation to address the graduates and their friends and gave a most encouraging talk in support of technical training for

the Government service. Mr. Roper related how, as Commissioner of Internal Revenue, he had started a somewhat similar training school to promote the efficiency of the work then under his supervision. The continued interest which Mr. Roper as Secretary of Commerce manifested in adequate and proper training for public service was especially encouraging to the graduates who have endeavored to qualify through the prescribed technical training to become efficient employees of the Government Printing Office.

PROGRAM FOR THE APPRENTICE GRADUATION

The program for the graduation of the class of 1933, was as follows:

Washington and Lee Swing.....Allen
Government Printing Office Orchestra

Invocation.....Rev. Dr. John Carpenter Palmer
Pastor Washington Heights Presbyterian Church

Remarks of Chairman.....Mr. John Greene, Deputy Public Printer
1st Scherzo in B Flat.....Schubert
Piano solo by Miss Jean Guaragna

Address.....Hon. Daniel C. Roper, United States Secretary of Commerce
A Song of India.....Rimsky-Korsakoff
Saxophone solo by Alfredo Guaragna
Raleigh W. Christie, accompanist

Remarks of Class President.....Mr. Charles G. McMahan
Class Prophecy.....Mr. Milton A. Smith
Selections from the Student Prince.....Romberg
Government Printing Office Orchestra

Presentation of Diplomas.....Hon. George H. Carter, Public Printer
All-American Girl.....Lewis
Government Printing Office Orchestra

GRADUATES PRINT AN ARTISTIC BROCHURE

In honor of the occasion an artistic brochure was printed and presented to the guests of the evening and other friends of the graduates. The booklet attracted special attention on account of its novel cover of green-white marbled paper, a new offset product recently developed by the Government Printing Office. The typographic lay-out by a graduate apprentice, Harry W. Richards, likewise received high commendation.

In addition to the program and an individual half-tone of each member of the graduating class, the souvenir booklet gave expression to the following "Appreciation":

To Mr. Carter, for his efforts in making possible our training through the establishment of the apprentice school, for his intense devotion to the cause of

youth, and for his persistence in championing good citizenship among those studying the various crafts; to Mr. Greene, for his excellent supervision of the activities of this school; to our instructors, for their painstaking efforts to make of us capable craftsmen; and to the members of the alumni and other journeymen of the office, whose encouragement and assistance have been of great value:

It is difficult to capture in a few phrases the spirit of gratitude which has an embodiment in the person of every member of this class.

Still, embarked as we are upon a new phase of our careers, in the preparation for which you have each and all been important factors, we feel some expression of this appreciation should be forthcoming.

Therefore, it is our earnest hope that in the years to come this spirit will find expression in the excellence of our respective contributions to the product of this greatest of all printing establishments.

INLAND PRINTER COMMENDS THE PUBLICATION

It is pleasing to note that the Christmas number (1933) of the Inland Printer, in its review of notable specimens of printing, reproduced in colors the cover and title pages of the Government Printing Office graduation booklet for 1933 with the following comment:

> Attractive cover of souvenir booklet issued by Government Printing Office for graduation of apprentices. The label is printed in black on light green stock, pasted to a darker green marbled paper, French folded. This program is typical of much of the fine printed matter inspired by George H. Carter, Public Printer.

Another interesting contribution to the graphic arts by the apprentice school was an eight-page insert of Specimens of Typography in colors, which was printed for the February (1933) issue of the American Printer. The lay-out and typography were the products of printer apprentices, and the presswork was done by Apprentice Guy O. Long. One of the pages, by Apprentice Orville C. Barchet, was selected by the principal of the New York School of Printing, Mr. J. Henry Holloway, for demonstration and instruction in his school.

APPRENTICE SCHOOL WINS HIGH AWARD

An honor that also came to the printer apprentices of the Government Printing Office during the year was the winning of second place for a cover page submitted in a Nation-wide competition of vocational schools held in connection with the Twelfth Annual Conference on Printing Education at Columbia University in New York, June 26, 27, and 28, 1933.

An " award of merit " was granted to the Apprentice School of the Government Printing Office, with an engrossed certificate signed by the chairman of the exhibit committee, Mr. Allan Robinson, principal of the Mergenthaler School of Printing, Baltimore, and

Mr. Fred J. Hartman, director of education, United Typothetae of America. The winning cover page was the product of Apprentice William H. Weed.

Included in the report of the Columbia University conference, published in the November 1933 number of Printing Education, is the following paragraph:

> As a tribute to the importance of the conference and because of his interest in education, Mr. George H. Carter, Public Printer of the Government Printing Office, flew from Washington and was one of the guests of honor.

Bookbinder apprentices have likewise demonstrated their skill as craftsmen with beautiful specimens of their art for the Century of Progress Exposition at Chicago. The original designs and the artistic hand-tooling on the fine leather bindings by the apprentices received high praise by the many visitors to the Government Printing Office exhibit.

SCHOOL HAS TRAINED 488 APPRENTICES

Since the establishment of the Apprentice School by the present Public Printer on July 5, 1922, a total of 488 apprentices have been appointed. The number of appointments ranged from 29 the first year to 78 in 1931, the total at any one time being limited by law to 200. No apprentices have been appointed in the last 2 years owing to the large number of journeymen out of work in the printing trades.

Graduates of the school, including the class of 1933, number 283, of whom 224 are printers, 27 bookbinders, 12 pressmen, 8 electrotypers, 4 stereotypers, 4 photo-engravers, and 4 machinists. Practically all of the graduates are still employed in the Government Printing Office, and a number of them have received substantial promotions in recognition of their outstanding ability and service.

The school enrollment on December 1, 1933, was 117, of whom 83 are printer, 12 bookbinder, 8 pressman, 6 electrotyper, 3 stereotyper, 1 photo-engraver, and 4 machinist apprentices. Of this number, 22 are in their fourth and final year of training.

PRODUCTIVE WORK REDUCES SCHOOL COST

Expenditures for the Apprentice School, including wages, materials, and its share of maintenance and administrative overhead, amounted to $253,702.05 for the fiscal year 1933, a decrease of $64,813.88.

In return for their training, the apprentices assisted in work for which the Office received a total of $191,469.28 during the year. The net cost of training a daily average of 147 apprentices during the fiscal year 1933 was thereby reduced to $55,187.25, or an average cost of $375 for each apprentice.

Included in the chargeable productive work of the apprentices for the year were the setting of 68,537,200 ems of type, 155,546 hours of printing operations, 26,533 hours of presswork, 7,078 hours of bindery operations, 12,879 hours of platemaking, 2,282 hours of photoengraving, and 7,750 hours of machine shop work.

ACADEMIC STUDIES FOR THE APPRENTICES

Apprentice training in the Government Printing Office also requires special instruction in certain academic studies, including grammar, English composition, syllabication, spelling, arithmetic, American literature, and history of printing, which are deemed essential knowledge for a competent craftsman.

The beneficial results of the additional academic instruction is shown in the better workmanship of the apprentices. Better spelling has resulted in cleaner proofs and consequent saving of correction time, the school average in spelling for the year being 95.5 percent. Apprentice Kenneth L. Romjue has maintained a perfect record for spelling 2,425 test words since his admission to the school on January 12, 1931. The spelling tests include syllabication, indication of ligatures and accents, and capitalization.

The academic ratings of the entire school averaged 90.8 percent for the year, high-school graduates averaging 95.1 percent, and the others 86.6 percent. The highest average rating for all required subjects was 96.6 percent, attained by Apprentice George Yates.

TEXTBOOK ON "THE MAKING OF A BOOK"

The series of apprentice instruction books received a valuable addition during the year with the publication of information on The Making of a Book, which was prepared under the direction of the Deputy Public Printer, Mr. John Greene. Succeeding sections of the textbook are devoted to a typical example of progressive printing operations, planning, illustrations, preparation of copy, composition, platemaking, imposition, presswork, offset printing, binding, and lay-outs for flat-bed and web presses.

The purpose of the book, which is useful to apprentices and journeymen alike, is stated in the following foreword:

> This book is designed primarily for the information of students in the Apprentice School of the United States Government Printing Office. It is the story of the progressive making of a book, from the receipt of the requisition to the delivery of the finished product, by the Government Printing Office. The technical operations required in the making of a book are described in the orderly sequence of its progress through the various manufacturing divisions. Analyses of its physical elements and other related data explain the multitude of details involved in the production of a modern publication.

Particular attention is directed to the chapter on imposition, and the relation which that work bears to subsequent printing and binding operations. This and similar subjects emphasize the necessity for cooperation and correlation, since a complete understanding between the various manufacturing units is essential to harmonious production under the most economical methods.

This compilation may also serve the journeyman, as well as be of value to authors, editors, and others who want to familiarize themselves with the manifold phases of the making of a book.

COMMENDED BY NEW YORK SCHOOL PRINCIPAL

"The Making of a Book" has been commended as an excellent source of information by many experts and educators in the printing industry, whose expressions of approval are in accord with the following letter from Principal J. Henry Holloway, of the New York School of Printing, to Deputy Public Printer Greene under date of April 7, 1933:

I was indeed very happy today to receive a copy of the Making of a Book, no. 10 in the apprentice series. This book will be a very valuable help in the instruction given in this school, and I am very grateful to you for having sent it to us.

The Apprentice School enjoyed the privilege of greeting a group of 3 instructors and 8 students of the London School of Printing, who made a tour of important American printing centers in August 1933 and devoted several days to an inspection of the Government Printing Office.

In honor of the visitors, a special convocation of 500 members of the school and its alumni and the official staff of the Government Printing Office was held in Harding Hall on August 18, when inspiring talks were made by the instructors from the London school in response to their welcome by the Public Printer.

LONDON SCHOOL PARTY VISITS THE OFFICE

As a token of appreciation of the courtesy extended to its representatives, the London School of Printing, through its distinguished principal, Mr. J. R. Riddell, who likewise has visited the Government Printing Office in recent years, sent to the Public Printer the following "Greetings", printed with artistic borders on a large folio of hand-made paper and enclosed in a handsome cover with appropriate design:

It is desired to place on record our *Appreciation and Thanks* for the enthusiastic welcome, and the kindness, extended to the members of the party from the School, who had the privilege and the esteemed honour of meeting you, during their recent tour in North America.

They wish to express to you their gratitude for the *Great Courtesy* with which they were greeted; and the reception accorded to them will remain a memorable and pleasant incident of the tour.

It is their *Especial Desire* that I should ask your acceptance of this *Token of Appreciation*, as an expression of thanks to a friend, who helped to make the visit not only interesting and informative, but most enjoyable.

The visit will form a closer bond of *Fraternal Understanding* between us and our fellow craftsmen of Canada and the United States.

REVISION OF THE G.P.O. STYLE MANUAL

A new and thoroughly revised Style Manual of the Government Printing Office was issued by the Public Printer on March 1, 1933, with the publication of the text unanimously recommended by the Department Advisory Board and the permanent Style Board of the Government Printing Office.

The Manual has already proven so popular and useful that a third edition is now in process of printing. Of the first two editions, issued in March and April 1933, the Superintendent of Documents sold 2,350 copies, and additional orders have necessitated another reprint. Each reprint is revised to date.

An abridged edition of the Style Manual for departmental use was also printed in April with the approval of the Permanent Conference on Printing. Of the abridgment, 4,086 copies were requisitioned by various departments and establishments of the Government, and 998 copies have been sold to the public.

The new Style Manual was accorded special recognition by the President of the United States in an Executive Order of August 10, 1933, requiring that the punctuation, capitalization, orthography, and other matters of style for draft Executive orders and proclamations "shall conform to the most recent edition of the 'Style Manual of the Government Printing Office.'"

An important innovation of the new Style Manual is that, for the first time in the more than 40 years during which Manuals have been issued at irregular intervals by the Government Printing Office, representatives of other departments were invited by the Public Printer to participate in its preparation and requested to make a thorough revision based upon general principles and modern American usages.

TWO BOARDS SUBMIT NEW MANUAL

In transmitting to the Public Printer the text proposed for the new Style Manual, the two boards subscribed to the following statement under date of February 7, 1933:

Transmitted herewith is the proof of the proposed text of the new Manual of Style. Your Style Board and the Departmental Advisory Board unanimously recommend its adoption and publication.

The draft as recommended comprises certain prior decisions by you, general principles governing each element of style, a few simple rules based upon these principles, and examples illustrating the application of the principles and rules.

In compliance with your request, a thorough revision has been attempted. That agreement upon details was not always unanimous is to be expected as long as style usages are in an experimental stage, in which basic principles are incomplete or do not fully recognize purpose as the determining factor.

The English language is changing, and your advisory groups have not ignored obvious trends in American usages, such as reducing punctuation consistently with clearness; rationalizing word formation, especially of compound words; wider use of the explicit arabic numerals as found desirable in technical text; reduced capitalization of common nouns derived from proper nouns and liberalization of capitalization in titles where a distinct purpose is served; and other trends.

General principles constitute a novel element in style-manual practice. It was found wise to base rules of style on fundamental principles found or formulated as criteria for case decisions. Established practice, however, may resist change even where the rational decision is clear.

We emphasize the belief that rational principles based upon purpose to be served will bring about an enduring regularization of style to the extent possible in a developing language. It is believed that such principles should eventually replace personal judgment, even of experts, and case decisions based on arbitrary rules. The new Manual of Style hereby submitted will, it is believed, be a step in this direction.

The individual members of your advisory boards in reaching unanimity in recommending the new Manual as a whole necessarily gave up personally preferred usages to gain a more logical basis or a more nearly perfect agreement. It is hoped that all changes in usage will be found clearly in the direction of an improved style.

Respectfully submitted.

MEMBERS OF ADVISORY BOARD: Henry D. Hubbard, Chairman, Assistant to the Director, Bureau of Standards, Department of Commerce; Alice M. Ball (with reservations), Office of Historical Adviser, Department of State; Bernard H. Lane, editor, Geological Survey, Department of the Interior; Frank D. Smith, Assistant Chief of Publications, Department of Agriculture; W. P. True, editor, Smithsonian Institution.

MEMBERS OF STYLE BOARD: H. B. Barnhart, Chairman, Superintendent of Printing, Government Printing Office; Roscoe E. Baber, Assistant Foreman Proof Section, Government Printing Office; M. E. Bullock, Foreman Proof Section, Government Printing Office; V. M. Giffen, Foreman Proof Section (night), Government Printing Office; William Graf, copy editor, Government Printing Office; E. A. Huse, Night Production Manager, Government Printing Office; Frank W. Kihlbom, proofreader, Government Printing Office; W. A. Mitchell, Superintendent of Planning, Government Printing Office.

The report of the joint boards on Style Manual revision was accepted by the Public Printer with a few modifications deemed essential to preserve uniformity and simplicity in Government printing as regards geographic names and a definite authority for spelling.

MANUAL PREFACE BY THE PUBLIC PRINTER

The new revision was published March 1, 1933, with the following preface by the Public Printer, as a historical review of Government

Printing Office Style Manuals and an appreciation of the work of the members of the Government boards in making the latest edition the best of all the Manuals:

Section 12 of the act of Congress of June 25, 1864 (13 Stat. L., 186), provided that—

> The forms and style in which the printing or binding ordered by any of the departments shall be executed, the materials and size of type to be used shall be determined by the Superintendent of Public Printing, having proper regard to economy, workmanship, and the purposes for which the work is needed.

The same language was repeated in section 51 of the Printing Act of January 12, 1895 (U.S. Code, title 44, sec. 216), except the title of Superintendent of Public Printing was changed to Public Printer.

In compliance with the law, numerous editions of Style Manuals containing information and rules concerning uniformity in Government printing have been issued at various times during the last half century.

In earlier years of the Government Printing Office, rules of style were posted for the information of compositors and proofreaders. Rules governing the printing of patent specifications, with a list of words and technical terms used by the Patent Office, were published in 1887 by the Government Printing Office. This Style Manual was revised and reissued in 1896. In the meantime, a Manual of Style Governing Composition and Proofreading in the Government Printing Office was prepared under the direction of the Public Printer and published in 1894. This book was the beginning of the regular series of Style Manuals for Government printing.

The Manual issued in 1894 contained 40 pages of rules relating to orthography, capitalization, compounding, tabular work, bills and other congressional publications, and suggestions for compositors, readers, and revisers. The preface to the first Style Manual stated that "clear and positive rules for composition and proofreading are needed in printing offices to prevent confusion and unnecessary delay and expense." Department editors were requested to make their copy conform as nearly as possible to the style presented in the Manual.

The Style Manual issued in 1900 contained 194 pages, the greater part of which consisted of decisions of the United States Board on Geographic Names. It is interesting to note that the 1903 Manual retained the names of type sizes instead of using the point system, which it prophetically stated "is apparently destined to entirely supersede the old system."

The 1908 Manual of Style was "for use of copy editors, proofreaders, operators, and compositors engaged in the production of executive, congressional, and departmental publications." The list of Geographic Board decisions was omitted from this edition.

The Style Book of 1911 was designated as "a compilation of rules governing executive, congressional, and departmental printing, including the Congressional Record", and this language was repeated in subsequent revisions.

The revision of the Style Manual in 1922 was formally approved by the Joint Committee on Printing and was also approved and adopted by the Permanent Conference on Printing as "the style to be followed in all Government departments and independent bureaus on and after February 15, 1922." Revised editions were printed in 1924 and in 1926.

Heretofore all compilations and revisions of the Style Manuals have been made by a board composed exclusively of members chosen from the personnel of the Government Printing Office. An innovation was undertaken by the Public Printer in the preparation of the present Manual. By letter of September 23, 1929, the

Public Printer invited the heads of several Government departments and establishments to appoint representatives on an advisory board to cooperate with the permanent Style Board of the Government Printing Office in a complete revision of the Manual. In acceptance of this invitation, the Secretary of State, the Secretary of Commerce, the Secretary of Agriculture, the Secretary of the Interior, and the Secretary of the Smithsonian Institution kindly designated especially competent representatives to cooperate with the board of the Government Printing Office.

The two boards have worked diligently for many months in assembling data, studying authorities, formulating rules, and making decisions for this comprehensive Manual which, it is hoped, will materially improve the style of Government printing, as well as effect necessary economies in copy editing and authors' alterations.

It is gratifying to note that the letter transmitting the text of the new Style Manual has been signed by all the members of the two boards with a notation of reservations by only one member.

The Public Printer has accepted the report as submitted with the exception of a few modifications which he believes are essential to preserve the necessary uniformity in Government printing and to secure essential economies. The modifications of importance relate to the use of diacritical marks in geographic names and to a definite authority for spelling. The Public Printer believes that diacritical marks in geographic names are not essential to general printing for the American people and that their adoption would unnecessarily increase the cost of Government printing. The Public Printer is also of the opinion that, following the uniform requirement of all Style Manuals issued in the last 40 years, a definite authority for spelling must be recognized by the Style Manual.

In submitting the new Manual for determining the forms and style in which printing or binding ordered by any of the departments shall be executed, as required by law, the Public Printer desires to express his thanks to the members of the departmental and the Government Printing Office boards whose diligent and efficient efforts made this book possible, and to the heads of the Government establishments who so generously cooperated with the Public Printer in the designation of members of the Advisory Board.

COMMENTS ON THE NEW STYLE MANUAL

Among the many favorable comments on the new Style Manual, the following are especially appreciated:

From the Yale University Press, New Haven, by Mr. George T. Bailey, manufacturing manager:

I have looked this (the Style Manual) through carefully and with great interest. It will prove to be, I feel sure, an invaluable reference for our work.

From The Conde Nast Press, Greenwich, Conn., by Mr. John A. Croft:

So complete a reference book will undoubtedly be of frequent and valuable assistance.

From the Oregon State School of Journalism, Corvallis, by Prof. C. J. McIntosh:

We have found the book very valuable in our class work, and greatly appreciate your making possible our using it.

From the California State Bureau of Printing, Sacramento, by Supt. J. M. Welsh:

This Manual is indeed very interesting and will prove very helpful to us at this time.

From the International Bureau of the Federations of Master Printers, Berlin, by Mr. E. Kopley, secretary:

I am exceedingly pleased with the copy of the Style Manual of the United States Government Printing Office which you were so kind to send me. This useful book will be very helpful for my bureau, as it not only contains a wealth of information about the English language but also comparative tables of weights, measures, and typographical measurements used in different countries of the world.

From the May issue of The Caxton Magazine, London:

If the United States Government Printing Office can produce such a thorough and exhaustive guide as the one under review, surely some of the printing trade organizations in this country could equally well compile one that would meet with general acceptance.

It is believed by the compilers of this American Style Manual that "rational principles based upon purpose to be served will bring about an enduring regularization of style to the extent possible in a developing language. It is believed that such principles should eventually replace personal judgment, even of experts, and case decisions based on arbitrary rules."

The Style Manual is indeed a step in this direction and is an example that British printers would do well to urge their trade organizations to cooperate in following.

From the March issue of the Graphic Arts Monthly, Chicago:

This is a well-bound book of over 300 pages giving the style employed on all printing and binding ordered by any of the Government departments and executed by the Public Printer. It goes into all those matters dear to the heart of a proofreader, and in addition to the chapters on general instructions, capitalization, spelling, compound words, abbreviations, etc., it also contains a considerable bit of statistical information doubtlessly used in Government printing. This book contains what many technical books do not contain and should—namely, an index.

FOREIGN LANGUAGE SUPPLEMENT TO MANUAL

A foreign language supplement to the Style Manual is now in process of printing for the use of printers and translators. The foreign language supplement will contain about 150 pages of transliterations, syllabications, and other information useful in the printing of more than 50 foreign languages. The manual is intended merely as a guide and not a textbook.

The supplement has been prepared by Mr. George F. von Ostermann, head foreign reader in the Government Printing Office and an authority on many languages. Several leading university presses have assisted in revising the proofs and a number of Washington authorities have generously aided in perfecting the text of languages in which they are especially well versed.

The foreign language manual will be especially useful in the Government Printing Office when typesetters and proofreaders are required to handle copy and proofs in many languages. There are proofreaders now in the office capable of translating or insuring the correct printing of 20 foreign languages. The foreign readers are frequently called upon to make translations for other branches of the Government service; during the past year they translated 1,718 folios of various languages, in addition to their regular work as proofreaders.

CENTURY OF PROGRESS EXHIBIT

An attractive and instructive display of the work and products of the Government Printing Office was made at the Century of Progress Exposition in Chicago during the summer and fall of 1933. The Government Printing Office exhibit had one of the best locations in the Government Building and was highly commended by thousands of visitors.

The specimens of Government Printing Office products were shown in four double cabinets, each side having a glass-enclosed horizontal and upright display case with individual electric lights. Eight double display frames, glass enclosed, provided additional space for showing photographs of workrooms, posters, placards, and other large specimens of printing. The cabinets and frames were also the products of the Government Printing Office, having been constructed in Washington by the Carpenter Section and finished in aluminum and black to conform to the modernistic motif of the exposition.

VOLLBEHR FOLIO ATTRACTS MUCH ATTENTION

Among the specimens of typography which attracted much attention were copies of the Vollbehr folio designed by the Public Printer in honor of the acquisition of the Gutenberg Bible and the other incunabula purchased for the Library of Congress at a cost of $1,500,000. The publication is in the style and form of the first printed book and presented a marked contrast to the examples of ultra-modern printing and binding which were also products of the Government Printing Office, typifying the spirit of the Century of Progress Exposition.

Another interesting comparison was a copy of the Directory printed for the Twentieth Congress in 1827, alongside which was a Directory of the Seventy-second Congress printed in 1933.

The exhibit also contained an original plate used in printing the Congressional Globe, the predecessor of the Record, of February 4, 1858. The old plate was made of 68 percent silica, 27 percent gum

shellac, 4.2 percent tar, and 0.8 percent linseed oil, while the modern stereotype plate shown contained 7 percent tin, 13 percent antimony, and the remainder of lead.

FINE BOOK BINDINGS ARE DISPLAYED

The display of fine book bindings of inlaid and hand-tooled leather was highly praised, special commendation being given to the skillful work of the bookbinder apprentices in designing and finishing books according to their own modernistic ideas. Other features of the bindery section of the exhibit were illustrative of methods of repairing manuscripts, the splitting of a sheet of newspaper to make both sides available for separate mounting, and the artistically marbled papers of various colors and hand-made designs.

Reprints of original woodcuts showed the various workrooms and the primitive machines of the Government Printing Office in 1861, when it was established by Congress. In comparison were exhibited half-tone illustrations of the modern workrooms and up-to-date machinery in the Government Printing Office of 1933.

The Apprentice Section of the exhibit was also in keeping with the excellent showing made by all the other activities of the Government Printing Office and covered every branch of the printing trades with fine typographic, platemaking, presswork, and bookbinding specimens.

EXHIBITS BY THE TECHNICAL DIVISION

The functions of the Division of Tests and Technical Control were graphically explained by its comprehensive part of the exhibit. Photographs, accompanied by descriptive cards, showed the extensive laboratory with chemists and physicists engaged in research and testing work; the ink plant with the latest type of mills; the roller and glue section, with its up-to-date equipment; and the metal furnace room, with its automatic conveyors and other modern methods of handling metal designed by direction of the Public Printer. A display of diagrammatic charts portrayed the Technical Division's functions as related to the manufacturing divisions of the Government Printing Office.

For the display of paper fibers, six photomicrographs with the magnification of 75 diameters were printed on polygraphic films and so arranged that by pressing a button they were illuminated and disclosed the various types of hand-colored fibers as if viewed through a microscope. Progressive samples showed paper-making materials and their finished products. Numerous tubes contained the stains used in making fiber analysis.

The ink-making exhibit included various raw materials used in the manufacture of ink, also a chart showing the interrelation of the various ingredients of black and colored printing inks.

Samples of metals and alloys used in the manufacture of printing types and plates were also included in the technical display. Photomicrographs (magnification 220 diameters) showed the crystalline structure of various metals by a push-button control of illumination.

The photo-engraving exhibit included chemicals and other materials required in the production of half-tones and line cuts, with a description of their functions.

The laboratory specimens of bookbinding materials included book cloths, buckrams, leathers, threads, cords, glue, etc. The permanence to light of book cloths was technically demonstrated, and tensile strength and stretch tests were illustrated by a chart on which had been automatically recorded the performance of actual tests.

OFFICE PRODUCTS ALSO IN OTHER EXHIBITS

Products of the Government Printing Office were also displayed in connection with several other Government exhibits at the Chicago exposition. The Department of Agriculture had an especially conspicuous showing of Government publications relating to agriculture. The exhibits of the Departments of State, Interior, Commerce, and Labor also included pamphlets and books produced by the Government Printing Office. Likewise, the Library of Congress showed a number of books made by the Government Printing Office and displayed attractive broadsides designed by the Planning Division.

ARTISTIC BROADSIDES FOR LIBRARY EXHIBIT

Mr. M. A. Roberts, superintendent of the reading rooms of the Library of Congress, addressed the following letter of appreciation to the Public Printer:

> I am sending this note of keen appreciation for the aid rendered by members of your staff in the preparation of the printed broadsides which formed an important part of our exhibit at the Chicago "A Century of Progress."
>
> As in many instances of the past, Mr. Mitchell, the Chief of the Division of Planning, again gave us the benefit of his highly trained and efficient service. His associate, Mr. Halluin, was also especially helpful from the beginning to the end—the choice of type, the composition and arrangement, and all the many details that contributed so much to make the printed broadsides so attractive and artistic are due chiefly to his efficient and constructive efforts—all his aid given with most commendable enthusiasm.

Numerous letters expressing admiration of the Government Printing Office exhibit at Chicago have been received. The following

commendation came from John J. Pleger, widely known writer of several authoritative textbooks on bookbinding:

> I had occasion to visit the World's Fair and was certainly surprised at the splendid exhibit of the bindery. When we talk about the superiority of the ancient craftsmen and look at the work displayed and executed under your supervision, I must confess that I have seen nothing in Europe done by our ancient brethren of the craft that compares with it.
>
> Modern methods and design are so far ahead of the past efforts that we might as well admit that real progress has been made which outdistances work of past centuries.
>
> I take this opportunity to congratulate you and through you the craftsmen who produced the beautiful bindings. Let no one tell you that for beauty, harmony, and consistency they can be surpassed.

The Franklin Institute of Philadelphia has requested that some of the material exhibited at Chicago by the Government Printing Office be placed in its permanent museum as a tribute to Franklin, the printer. The Smithsonian Institution of Washington has also asked the Public Printer to allow certain parts of the material shown at Chicago, especially the ink-making display, to be transferred to the collections in the National Museum illustrating various chemical arts.

PERMANENT CONFERENCE ON PRINTING

The Permanent Conference on Printing, which held its monthly meetings at the Government Printing Office for the past 13 years, was included in the Federal Coordinating Service abolished by an Executive order of June 10, 1933. The conference was the first coordinating agency of the Bureau of the Budget and was organized at the suggestion of the Public Printer, which the Director of the Budget approved on July 22, 1921.

The Printing Conference consisted of representatives from each of the executive departments and independent establishments of the Government, including the District of Columbia, making a membership of approximately 33, each of whom was actively concerned with the printing and publications for his respective department or establishment.

CHAIRMANSHIP FOR THE PUBLIC PRINTER

At the first meeting of the conference on August 4, 1921, the Public Printer was selected as permanent chairman and served as such throughout the entire period of the Coordinating Service.

The purpose of the Printing Conference, as laid down by the Bureau of the Budget, with the approval of the President, was to "investigate and propose uniform standards, businesslike methods,

and proper economies in the public printing and binding and the distribution of Government publications."

Immediately upon its organization the Printing Conference concerned itself with the following major subjects: The preparation of copy by issuing offices and the limitation of authors' corrections in proof; the standardization of grades, sizes, weights, and colors of papers used in printing; the standardization of form, size, and binding of Government publications; the standardization of blank forms and letterheads; the avoiding of "rush work"; the prevention of duplication in publications between Congress and the departments; the distribution of reports and documents; and numerous other matters pertaining to printing and binding for the Congress and for the executive branch of the Government.

The conference was of necessity more active in the earlier years of its organization, as then there were many economies to be effected that were self-evident and needed prompt attention. The first annual report of the conference shows that it participated in printing economies amounting to more than $326,000, most of which savings have continued from year to year.

ACHIEVEMENTS OF THE PRINTING CONFERENCE

The annual report of the Printing Conference for 1924 enumerates the following principal achievements during the first 3 years of its organization:

Approved revised Style Manual prepared by the Government Printing Office.

Standardized letterheads as to paper stock and size. Use of embossed stationery restricted. Estimated saving, $15,000 a year.

Saved $43,000 by restricting duplication in the printing of annual reports.

Standardized wall calendars for all departments at a saving of approximately $5,000 a year.

Cooperated with the Joint Committee on Printing in restricting the printing of journals, magazines, periodicals, and similar publications, and aided in the enactment of Public Resolution No. 57, approved May 11, 1922.

Limited free distribution of Government publications, many of which are now being sold by the Superintendent of Documents.

Appointed member to serve annually on the committee to prepare paper specifications for the Joint Committee on Printing.

Approved legislation for direct appropriations for printing and binding instead of former allotment plan.

Approved discontinuance of the printing of the Official Register (Blue Book) for 1923. Issue dated 1921 cost $21,000. Since revived in abridged form.

Assisted the Government Printing Office in relieving the congestion of obsolete and useless public documents. More than 2,000,000 worthless publications disposed of in 1923–24 to provide room for new publications.

Standardized printing of various Government forms in cooperation with Bureau of the Budget and General Accounting Office.

Authorized by President to consider all proposed changes in standard forms before recommendation to Director of the Bureau of the Budget.

Recommended plan adopted by Congress for centralizing paper standardization, purchase, and supply under the Government Printing Office.

Cooperated with Public Printer in remelting of useless electrotype and stereotype plates, thereby making 624,000 pounds of metal, valued at $68,000, available in 1 year for future use.

Continued effort to reduce cost of authors' alterations in copy, unnecessary rush work, and voluminous annual reports.

STANDARDIZATION OF MANY PRINTED FORMS

Perhaps the most outstanding accomplishment of the Permanent Conference on Printing was the standardization of printed forms in cooperation with the Interdepartmental Board on Simplified Office Procedure, the Interdepartmental Board on Contracts and Adjustments, and the General Accounting Office. During the period of Coordinating Service 172 Government forms were standardized for common use by the various departments, establishments, and the General Accounting Office.

The standardization of these forms greatly decreased the number and variety of printed blanks used by the various departments and establishments of the Government and effected much-needed uniformity in the transaction of Government business, as well as materially reducing the cost of printing. In the fiscal year 1933 a total of 5,957,214 copies of standard forms were issued from the stocks maintained by the Government Printing Office.

In this connection attention is invited to the fact that the Government standard of 8 by 10½ inches for printed forms and letterheads has effected a saving of approximately $50,000 annually in paper that would be wasted by the use of other sizes, especially the commercial 8½ by 11 size of forms and letterheads.

STANDARD SIZES OF ENVELOPS ARE REDUCED

The sizes of envelops printed by the Government Printing Office were reduced from more than a dozen varieties to four standards.

Publications have been reduced from more than fifty-odd sizes to eight standards, and approximately three fourths of the books and pamphlets now printed by the Government are either octavo or quarto.

In effecting these economies and standardizations the Requisition Review Board of the Government Printing Office, organized by the Public Printer on July 25, 1921, with the approval of the President and the Director of the Budget, has been of excellent service. The duties of the Board, which is under the direction of the Production Manager and part of the Planning Division, are to examine all orders

for printing and binding to determine: (1) Whether the job ordered is authorized by law; (2) whether it will occasion waste or unnecessary duplication; and (3) whether any real economy can be effected by adopting a more businesslike method of handling the particular job in question.

Since its organization the review board has effected economies in the cost of printing and binding for Congress and the departments amounting to more than $400,000. This large saving was made possible through the standardizing of sizes of publications and blank forms, substituting cheaper stock for certain classes of work whenever possible without impairing the usefulness of the finished product, changing the size and style of type, providing for the numbering and perforating of forms at time of printing instead of having this work performed as a separate bindery operation, eliminating stereotype and electrotype plates for short runs, and numerous other printing and binding changes that simplified the production of a given job and resulted in worth-while economy.

PERSONNEL, HEALTH, AND RELIEF

The following table shows the number of employees on the rolls of the Government Printing Office, by principal divisions and units, on June 30 of the fiscal years 1932 and 1933 and on December 1, 1933, the number actually working, and the total pay roll for each day:

Government Printing Office employees

Division	June 30, 1932	June 30, 1933	Dec. 1, 1933
Printing	1,632	1,585	1,481
Binding	1,045	968	1,100
Presswork	585	540	600
Platemaking	142	136	128
Planning	55	51	46
Maintenance	340	321	306
Tests and Technical Control	40	38	32
Purchasing	22	21	20
Stores	116	109	109
Delivery Section	51	48	44
Administrative and Clerical	34	33	31
Chief Clerk	23	23	23
Accounts	106	93	87
Apprentice Section	173	129	119
Guards	56	51	51
Miscellaneous units	69	68	60
Total printing and binding roll	4,489	4,214	4,237
Superintendent of Documents	356	343	330
Total, Government Printing Office	4,845	4,557	4,567
Total number actually working	4,554	4,041	4,157
Total pay roll this day	$34,008.18	$31,468.73	$30,587.39

The enrollment of 4,567 on December 1, 1933, included 295 emergency and temporary employees required for extra work of the present national recovery activities. The number of employees on the permanent rolls December 1 was 285 less than on June 30, 1933, and 573 less than on June 30, 1932.

It may be noted that the pay roll on June 30, 1933, was $881.34 more than on December 1, 1933, although there were 116 fewer employees actually working on the former date. The larger pay roll of June 30 was due to more employees on night work, for which the rate is 15 percent extra.

WAGES FIXED BY COLLECTIVE BARGAINING

The compensations of all employees in the Government Printing Office, except office positions under the Superintendent of Documents, are determined by collective bargaining and arbitration as provided in the act of June 7, 1924, proposed by the present Public Printer. The Classification Act determines the grades and rates of pay of 193 employees in the Office of the Superintendent of Documents.

There were only 11 appointments of employees during the fiscal year ended June 30, 1933, by far the smallest number obtained from the civil service registers in more than 20 years. Of these appointments, three were printers. No bookbinders, pressmen, or other printing-trades men were appointed during the fiscal year 1933.

Separations from the service during the fiscal year 1933 totaled 299, of which 146 were on account of age and disability retirements. Among those who left the service of the Government Printing Office during the year were 65 printers, 26 bookbinders, 11 pressmen, 7 platemakers, 9 mechanics, 34 laborers, and 30 clerks.

EMERGENCY APPOINTMENTS SINCE JULY 1

From July 1 to December 15, 1933, there were 419 appointments, of which 413 were emergency and temporary. Of these appointments 98 were pressmen, 14 press feeders, 93 bookbinders, 13 bookbinder machine operators, 102 bindery operatives, 93 skilled laborers, 3 guards, and 1 each of cataloger, junior messenger, and junior office helper. No additional printers were appointed during the period as the emergency work required enlarging only the bindery and pressroom forces.

From July 1 to December 15, 1933, there were 322 separations from the rolls of the Government Printing Office, of which 175 were on account of a necessary reduction of the force at the beginning of the fiscal year. All of these removals were either married persons who

had a husband or wife in some other branch of the Government service, or employees who had 30 or more years' service and were eligible for the maximum annuity provided by law. The retirements during the period numbered 77 and resignations 48.

The total enrollment on December 15, 1933, was 4,651, as compared with 4,766 on the same date last year.

The number of women employees on December 15, 1933, was 875, compared with 880 on June 30, 1933, and 966 on June 30, 1932. Women employees receive the same rate of pay as men for similar classes of work. A number of women have been promoted by the Public Printer to supervisory positions with highly important duties.

ANNUITIES GRANTED UNDER RETIREMENT LAW

Since the Retirement Act became effective on August 20, 1920, the number of employees granted annuities on account of age or disability up to June 30, 1933, totaled 1,318. Due to deaths the number of Government Printing Office employees on the annuitant rolls of the Government June 30, 1933, was reduced to 948, of whom 663 had been retired for age, 130 for disability, 66 by involuntary separation, and 89 by their own option after 30 years' service. Of the retired employees, 818 were mechanics, 80 laborers, and 50 clerks; 720 were men and 228 women.

Deductions from employees' compensation for the retirement fund at the rate of 3½ percent as required by law amounted to $337,723.34 for the fiscal year 1933. The total contributions by Government Printing Office employees since the retirement law became effective amounted to $3,083,304.03.

TREATMENTS BY THE OFFICE HOSPITAL STAFF

There were 16,829 treatments given to employees during the year by the emergency hospital staff of the Government Printing Office, a decrease of 637, including 368 fewer injuries received while on duty. Surgical treatments for injuries numbered 2,703, and for conditions other than injuries, 1,749. Re-treatments of these cases totaled 4,573. Medical care was given on 7,806 occasions. Employees of the nearby city post office were given 177 treatments.

Time lost by employees on account of personal or family illness during the year amounted to 11,635 hours, a decrease of 7,983 hours from the time similarly lost in the preceding fiscal year.

Twenty claims were made for compensation for time lost due to injuries, and seven were disallowed by the United States Employees' Compensation Commission. Claims paid Government Printing Office employees during the year totaled $2,685.57 for the loss of 818½ days' work. The largest compensation was $986.20.

The Medical and Sanitary Director concluded his report for the year with the following statement of conditions in the Government Printing Office:

> Throughout the year sanitation and good working conditions have been maintained to secure maximum comfort and contentment of employees. Careful consideration is now being given in planning work to avoid unnecessary manual efforts in handling heavy and difficult tasks; use of labor-saving machinery and modern methods not only increases efficiency but minimizes hazard. Physical qualification is the determining factor in fitting the employee to the task.

GROUP LIFE INSURANCE OF EMPLOYEES

The Employees Group Life Insurance Association, organized on May 1, 1931, with 1,845 members, now has 2,717 members, 1,231 of whom have taken out a second unit of insurance in the same amount as their first-unit policies. The total amount of insurance for both units is $3,283,250, or an average of $831 per policy. Up to December 27, 1933, there were paid 59 death claims, amounting to $42,750.

In addition to cordially supporting numerous charitable and relief organizations of their own membership, employees of the Government Printing Office have always contributed generously to the assistance of others, annually raising substantial funds for the Red Cross, the Community Chest, and aiding other organizations in various ways. To the Washington Community Chest they have pledged approximately $100,000 in the last 4 years, and at the same time have given many thousands of dollars to other charitable and relief funds.

ASSISTANCE RENDERED WAR VETERANS

Department Commander O. W. Hollingsworth, of the Veterans of Foreign Wars, in expressing appreciation for the assistance which the Government Printing Office annually gives to the veterans' poppy campaign, wrote the Public Printer on April 29, 1933:

> * * * It is impossible for me to estimate the appreciation of the Veterans of Foreign Wars for what you have done for this organization.
>
> You can rest assured that this organization appreciates the cooperation that you have given us, and I want to say to you as department commander of the District of Columbia that you will always be considered as one of the most treasured friends of the Veterans of Foreign Wars.

War veterans employed in the Government Printing Office on December 1, 1933, numbered 860, of whom 717 served in the World War, 64 in the Spanish American, 15 in both wars, and 53 in the Regular Army or Navy. Eleven women employees have civil service preference for military service.

There are two units of the United Veterans of American Wars composed of Government Printing Office employees, one having 402 members and the other 60. The units render both benevolent and patriotic service in aiding fellow employees and conducting the annual Memorial and Armistice Day programs. Recently a uniformed drum and bugle corps was organized among the veterans, and they made a fine showing in the Washington N.R.A. parade.

The Public Printer has also encouraged employees in National Guard service. Military leave granted by authority of law in the fiscal year 1933 amounted to $15,715.08, of which $3,156 was paid to apprentices who are enlisted in the National Guard of the District of Columbia.

CAFETERIA AND RECREATION ASSOCIATION

Owing to furloughs, wage reductions, and fewer employees, the patronage of the cafeteria operated by a voluntary association of employees decreased 25 percent during the 12 months ended September 30, 1933. The cafeteria served a total of 591,768 meals as compared with 770,424 the preceding year, and 982,220, 3 years ago.

The gross receipts of the Cafeteria and Recreation Association for the past year were $109,895.50, a decrease of $86,738.18 from the total for the preceding year, and $156,396.70 less than for 1930.

For the first time since the cafeteria was opened 11 years ago, the annual receipts were less than the expenditures; but, with a reserve fund for such an emergency, the association decided to sustain the loss rather than increase prices for foodstuffs at a time when the incomes of employees were also decreased.

It was found necessary, however, to effect other economies in the operation of the cafeteria; and its staff of employees, all of whom are compensated by the association, was reduced from 67 to 48, and the annual pay roll decreased from $58,000 to $43,300.

CAFETERIA CONFORMS TO THE N.R.A. CODES

Nevertheless, the association promptly subscribed to and has complied with the President's Reemployment Agreement and the restaurant code and also operates its bowling alleys in accordance with an N.R.A. code.

Among the recreational activities under the supervision of the association are bowling, baseball, basket ball, golf, and tennis. The basket-ball team won the championship trophy of the Government League for 1932–33. The golf club also added a winner's cup to the well-filled trophy case. The senior baseball team was the runner-up for the Departmental League championship, an honor that it had held for several years.

The association also assists in sponsoring an orchestra of 25 members and a chorus of 40, all employees of the Government Printing Office. These musical organizations entertain with concerts on various occasions and assist in the customary holiday programs throughout the year. The orchestra also gives concerts in the Auditorium during the lunch period every Friday except during the summer months.

The orchestra is under the leadership of Mr. William C. Buckingham and the chorus of Mr. Gerald L. Whelan, both accomplished musicians and able directors to whom the Office is especially grateful for the good music that they and their talented associates have so graciously rendered for the enjoyment of their fellow employees.

CALENDAR OF HARDING HALL EVENTS

The following calendar of the principal events in Harding Hall under the auspices of the Cafeteria and Recreation Association completes the record of the Government Printing Office for 1933:

January 10: Meeting of Association of Government Buildings Superintendents. Lecture and demonstration on progress of electric illumination by A. C. Knudstrup, of Potomac Electric Power Co., and William R. Flounders, of the General Electric Co., with stereopticon views.

January 11: Annual banquet, business meeting and entertainment of United Veterans of American Wars, Government Printing Office Unit No. 1. A beautiful ship bell on marble base was presented by the unit to the Cafeteria and Recreation Association.

January 20: Concert by Government Printing Office chorus. Guest soloist, Miss Dorothy Edythe Davenport, accompanied by Mrs. Elizabeth Coombs.

January 27: Annual meeting of Columbia Lodge No. 174, International Association of Machinists, for presentation of honor service badges. Master of ceremonies, James J. O'Connell, of Columbia Lodge. Guest speakers: Mr. Walter L. Desbrow, president of Columbia Lodge No. 174; Hon. George H. Carter, Public Printer; and Commander O. M. Hudspeth, of the Washington Navy Yard. Entertainment and dancing.

January 31: Government night of Washington Club of Printing House Craftsmen. Guest speaker, Mr. Theodore R. McKeldin, of Baltimore. Guests of honor: Hon. Alvin W. Hall, Director of the Bureau of Engraving and Printing; Hon. George H. Carter, Public Printer of the United States; and Mr. Joseph D. Ashby, president of the Washington Typothetae. Guests: Mr. Clark R. Long, third international vice president; Mr. James J. Fulton, district representative; Maj. W. W. Kirby, honorary member. Dinner and stage entertainment.

February 7: Dinner and meeting of Government Buildings Superintendents.

February 10: Entertainment by Col. Charles Young Unit, United Veterans of American Wars.

February 17: Joint concert, Government Printing Office chorus and orchestra. Guest artists, Mrs. Flora M. Weber and William J. Weber, piano duet.

March 4: Roosevelt-Garner inaugural ball under auspices of Committee on Special Entertainment, Prof. G. David Houston, chairman; Woolsey W. Hall, executive secretary; Frederick D. Wilkinson, chairman of subcommittee on inaugural ball. Attended by several hundred inauguration visitors from various parts of the United States.

March 10: Deaf employees of Government Printing Office entertained members of the National Fraternal Society of the Deaf, with an evening of bowling and bridge in the Green Room.

March 31: Concert by Government Printing Office orchestra. Vocal solos by Miss Dorothy Edythe Davenport, accompanied by Mrs. Elizabeth Coombs.

April 21: Concert by Government Printing Office orchestra. Vocal solos by Miss Marguerite Latham, accompanied by J. D. Dowd.

April 28: Concert by Government Printing Office orchestra. Trumpet solos by Edward F. McCarthy, Jr.; Lawrence I. McCarthy, accompanist.

May 2: Annual ladies' night and dinner by Government Buildings Superintendents; welcome by R. L. Swenson, president; Representative Will Rogers, of Oklahoma, was guest of honor and speaker. Stage presentation.

May 4: Government Printing Office chorus broadcast over Station WMAL; directed by Gerald L. Whelan, accompanied by William J. Weber; incidental solo by Harry F. Bateman.

May 5: Concert by Government Printing Office orchestra.

May 12: Joint concert, Government Printing Office orchestra and chorus.

May 15: Presentation of trophy to Government Printing Office basket-ball team, championship of Government League for 1932–33. Presentation by Mr. Luther C. Stewart, president National Federation of Federal Employees; acceptance by Hon. George H. Carter, Public Printer, on behalf of the team, Harry L. Merold, manager, and Carl Miller, captain.

May 19: Concert by Government Printing Office orchestra.

May 29: Memorial Day services under the auspices of United Veterans of American Wars. Invocation by Capt. Frank L. Miller, chaplain, Walter Reed General Hospital. Speakers—Judge John H. Shepherd, department commander, Department of Potomac, G.A.R.; P. J. Callan, department commander, United Spanish War Veterans; O. W. Hollingsworth, department commander, Veterans of Foreign Wars. Music by United States Navy Band, Government Printing Office chorus, and Radiotone quartet.

June 2: United Veterans of American Wars, Government Printing Office Unit No. 1, gave a minstrel show for the drum and bugle corps. Jack Mullane, producer and director; Howell K. Stephens, business manager; Charles S. Hawkins, arrangement chairman; William J. Weber, director. Entire cast of Government Printing Office employees.

July 20: Luncheon by members of the Permanent Conference on Printing to Mr. Shelby Smith, retiring member for the Department of Labor. Remarks by Mr. Frank Smith, secretary of the conference, and presentation of gift by Hon. George H. Carter, Public Printer.

August 3: Graduation exercises, apprentice class of 1933. Speaker, Hon. Daniel C. Roper, Secretary of Commerce. The exercises were preceded by a class dinner served by the Government Printing Office cafeteria.

August 14: The Public Printer entertained at luncheon a party of instructors and students from the London School of Printing.

August 17: The convocation of Apprentice School and alumni in Harding Hall to greet party of instructors and students from the London School of Printing.

September 29: Concert by the Government Printing Office orchestra and chorus.

October 6: Entertainment by Capital Branch No. 142 of the National Association of Letter Carriers.

October 20: Concert, Government Printing Office orchestra.

November 3: Concert, Government Printing Office orchestra.

November 10: Joint concert, Government Printing Office orchestra and chorus.

November 17: Concert, Government Printing Office orchestra; guest soloists, Señora Aurelia C. de Alfaro, soprano, Mr. Albert Bell, baritone; Miss Elizabeth Gardner Coombs and Mrs. Leslie W. Bell, accompanists.

November 24: Concert, Government Printing Office orchestra.

November 29: Annual Thanksgiving program. Address by the Most Reverend John M. McNamara, D.D., auxiliary bishop of Baltimore and pastor of St. Gabriel's Church, Washington. Music by Calvary Quartet and Government Printing Office orchestra and chorus.

December 1: Concert by the Government Printing Office orchestra.

December 7: Benefit minstrel show by the drum and bugle corps of the United Veterans of American Wars, Government Printing Office Unit No. 1.

December 8: Joint concert at noon by the Government Printing Office orchestra and chorus.

Evening, entertainment by the United Veterans of American Wars, Col. Charles Young Unit No. 2.

December 15: Concert, Government Printing Office orchestra.

December 22: The Government Printing Office chorus, led by Gerald L. Whelan, and assisted by members of the Government Printing Office orchestra, sang Christmas carols in the Green Room and in the workrooms throughout the building.

December 27–28: Christmas entertainment for 2,600 children of employees of the Government Printing Office. Christmas music by the office orchestra; motion pictures, and stage show. A beautifully decorated Christmas tree was set in a mountain village scene with running water wheel and falls, brook with live fish, moving trains, tunnels, railway station "Le Mars", Government Printing Office airport with beacon light, houses, church, mill, fountain, and automobiles with headlights; a complete village in miniature. Each child received a present, ice cream, and cake.

Under authority of the following provision in the act approved February 28, 1933 (Public, No. 381, 72d Cong.), the Public Printer has discontinued the printing of such other and additional reports of the Government Printing Office for the fiscal year ended June 30, 1933, as have been prepared for transmission to Congress, the original copies of which are on file for public inspection:

In order to keep the expenditures for printing and binding for the fiscal year 1934 within or under the appropriations for such fiscal year, the heads of the various executive departments and independent establishments are authorized to discontinue the printing of annual or special reports under their respective jurisdictions: *Provided*, That where the printing of such reports is discontinued the original copy thereof shall be kept on file in the offices of the heads of the respective departments or independent establishments for public inspection.

The foregoing authorization for discontinuance of the printing of annual or special reports was first included in an appropriation act for the fiscal year 1921 and has since been repeated annually. In compliance therewith, the heads of various executive departments and independent establishments of the Government have effected a saving of more than $2,000,000 in the printing of annual reports for the last 13 fiscal years.

Annual reports for the fiscal year 1920, before their discontinuance was authorized, contained 58,940 type pages; while the reports for the fiscal year 1932 were reduced to 19,083 type pages, a decrease of 39,857 pages as compared with the reports for 1920. The cost of printing and binding the reports for the fiscal year 1920 totaled $360,436.65, and for 1932 the total was $203,072.80, a decrease of $157,363.85.

The reports recently printed for the fiscal year 1933 were further reduced approximately 40 percent as compared with the reports for 1932.

The reports of the present Public Printer for the 13 fiscal years 1921–33, inclusive, cost $13,241.80 for printing and binding, as compared with a cost of $64,752.88 for the 13 preceding fiscal years, 1908–20, a decrease of $51,511.08.

George H. Carter.

Public Printer.

DIVISION OF ACCOUNTS

STATISTICAL TABLES

STATISTICAL TABLES

COMPILED BY THE SUPERINTENDENT OF ACCOUNTS AND BUDGET OFFICER

TABLE 1.—*Resources and liabilities under appropriations for the fiscal year ended June 30, 1933*

RESOURCES

Appropriation for working capital	$2,250,000.00		
Public Act 381, 72d Cong., approved Feb. 28, 1933	450,000.00		
Repayments from all sources for printing and binding	10,163,446.74		
Refunds from various sources	1,441.98		
Bills receivable July 1, 1933, for printing and binding furnished	77,648.50		
		$12,942,537.22	
Appropriations for salaries, office of Superintendent of Documents		550,000.00	
Appropriation for general expenses, office of Superintendent of Documents		210,800.00	
Balance of appropriation for equipment, Government Printing Office Building (appropriated in 1929; available until expended)		1,379.22	
Chicago World's Fair Centennial Celebration, 1933–34		5,000.00	
Total resources available for fiscal year 1933			$13,709,716.44

LIABILITIES

Working capital and repayments for printing and binding:			
Disbursed to June 30, 1933	$9,544,024.27		
Impounded and credited to surplus fund	[1] 999,091.53		
Outstanding obligations July 1, 1933	1,087,110.10		
Total disbursed and outstanding obligations		$11,630,225.90	
Salaries, office of Superintendent of Documents:			
Disbursed to June 30, 1933	454,977.17		
Impounded and credited to surplus fund	55,988.41		
Outstanding obligations July 1, 1933	18,986.80		
Total disbursed and outstanding obligations		529,952.38	
General expenses, office of Superintendent of Documents:			
Disbursed to June 30, 1933	172,863.67		
Outstanding obligations July 1, 1933	37,786.33		
Total disbursed and outstanding obligations		210,650.00	
Equipment, Government Printing Office Building:			
Disbursed to June 30, 1933	174.19		
Outstanding obligations July 1, 1933			
Total disbursed and outstanding obligations		174.19	
Chicago World's Fair Centennial Celebration 1933–34:			
Disbursed to June 30, 1933	850.18		
Outstanding obligations July 1, 1933	1,060.72		
Total disbursed and outstanding obligations		1,910.90	
Total disbursed to June 30, 1933	10,172,889.48		
Total impounded and credited to surplus fund	1,055,079.94		
Total outstanding obligations July 1, 1933	1,144,943.95		
Total disbursed, impounded, and outstanding obligations			12,372,913.37
Unobligated balance, subject to 10 percent over and under on outstanding orders (includes $1,205.02, equipment Government Printing Office Building, available until expended, and $3,089.10 Chicago World's Fair Centennial Celebration, available in 1934)			1,336,803.07
Total			13,709,716 44

[1] Does not include $177.92 on deceased employees' accounts, handled entirely by General Accounting Office.

TABLE 2.—*Summary of financial transactions in fiscal year ended June 30, 1933, covering appropriations for fiscal years 1931, 1932, 1933*

APPROPRIATION FOR 1931

	Resources	Disbursements	Unexpended balance July 1, 1933
Public printing and binding:			
Appropriation balance, July 1, 1932	$49,241.52		
Credits to appropriation by payments from all sources for printing and binding and other receipts from miscellaneous sources	196.56		
Disbursed for material and supplies		$7,481.65	
Total	49,438.08	7,481.65	$41,956.43
Salaries, office of Superintendent of Documents:			
Appropriation balance, July 1, 1932	25,004.25		25,004.25
General expenses, office of Superintendent of Documents:			
Appropriation balance, July 1, 1932	21,753.78		
Disbursed		12,891.04	
Total	21,753.78	12,891.04	8,862.74
Grand total appropriation	96,196.11	20,372.69	75,823.42
Unobligated balance of 1931 appropriation on June 30, 1933			75,823.42

APPROPRIATION FOR 1932

Public printing and binding:			
Appropriation balance July 1, 1932	$607,239.34		
Credits to appropriations by payments from all sources for printing and binding and other receipts from miscellaneous sources	911,556.36		
Disbursed for labor		$455,808.92	
Disbursed for paper		698,692.25	
Disbursed for lithographing and engraving		49,373.04	
Disbursed for material and supplies		301,547.45	
Total	1,518,795.70	1,505,421.66	$13,374.04
Salaries, office of Superintendent of Documents:			
Appropriation balance, July 1, 1932	34,163.10		
Disbursed		22,443.50	
Total	34,163.10	22,443.50	11,719.60
General expenses, office of Superintendent of Documents:			
Appropriation balance, July 1, 1932	57,932.59		
Disbursed		57,370.91	
Total	57,932.59	57,370.91	561.68
Grand total appropriation	1,610,891.39	1,585,236.07	25,655.32
Deduct for outstanding obligations			8,670.48
Unobligated balance of 1932 appropriation on June 30, 1933			16,984.84

APPROPRIATION FOR 1933

Public printing and binding:			
Appropriation for working capital, legislative act of June 30, 1932	$2,250,000.00		
Public Act 381, 72d Cong., approved Feb. 28, 1933	450,000.00		
Addition to appropriation by repayments and bills receivable from all sources for printing and binding, and other receipts from miscellaneous sources	10,242,537.22		
Disbursed for labor		$8,134,550.45	
Disbursed for paper		982,032.48	
Disbursed for lithographing and engraving		44,823.63	
Disbursed for material and supplies		382,617.71	
Impounded and credited to surplus fund		999,091.53	
Total	12,942,537.22	10,543,115.80	$2,399,421.42

TABLE 2.—*Summary of financial transactions in fiscal year ended June 30, 1933, covering appropriations for fiscal years 1931, 1932, 1933*—Continued

APPROPRIATION FOR 1933—Continued

	Resources	Disbursements	Unexpended balance July 1, 1933
Salaries, office of Superintendent of Documents:			
Appropriation, legislative act of June 30, 1932	$550,000.00		
Disbursed		$454,977.17	
Impounded and credited to surplus fund		55,988.41	
Total	550,000.00	510,965.58	$39,034.42
General expenses, office of Superintendent of Documents:			
Appropriation, legislative act of June 30, 1932	210,800.00		
Disbursed		172,863.67	
Total	210,800.00	172,863.67	37,936.33
Equipment, Government Printing Office Building:			
Appropriation balance July 1, 1932, available until expended	1,379.22		
Disbursed to June 30, 1932		174.19	
Total	1,379.22	174.19	1,205.03
Chicago World's Fair Centennial Celebration, 1933-34:			
Public Act 14, 72d Cong., approved Feb. 8, 1932	5,000.00		
Disbursed		850.18	
Total	5,000.00	850.18	4,149.82
Grand total appropriation	13,709,716.44	11,227,969.42	2,481,747.02
Deduct for outstanding obligations			1,144,943.95
Unobligated balances of 1933 appropriations on June 30, 1933 (includes balances on equipment, Government Printing Office Building, available until expended, and on Chicago World's Fair Centennial Celebration, 1933-34, available 1934)			1,336,803.07
Total unobligated balances (subject to change by 10 percent over and under on outstanding obligations):			
1931			75,823.42
1932			16,984.84
1933			1,336,803.07
			1,429,611.33

RECAPITULATION—ALL APPROPRIATIONS

Total paid for labor	[1] $8,590,359.37
Total paid for material and supplies	691,646.81
Total paid for lithographing and engraving	94,196.67
Total paid for paper	1,680,724.73
Total impounded and credited to surplus fund	999,091.53
Total paid for printing and binding	12,056,019.11
Total paid for salaries, office of Superintendent of Documents	[2] 477,420.67
Total paid for general expenses, office of Superintendent of Documents	243,125.62
Total paid for equipment, Government Printing Office Building	174.19
Total paid for Chicago World's Fair Centennial Celebration	850.18
Total impounded and credited to surplus fund	55,988.41
Grand total	[3] 12,833,578.18

[1] Includes $319,927.99 paid into retirement fund.
[2] Includes $17,795.35 paid into retirement fund.
[3] Includes $337,723.34 paid into retirement fund.

TABLE 3.—*Moneys received during fiscal year 1933, the source, and Treasury deposit*

1930		
Deposited to the credit of appropriation for public printing and binding:		
Refund		$1.10
1931		
Deposited to the credit of appropriation for public printing and binding:		
For miscellaneous printing and binding	$91.90	
Refunds	100.66	
Total		192.56
1932		
Deposited to the credit of appropriation for public printing and binding:		
For printing and binding for departments and bureaus	$902,464.52	
For miscellaneous printing and binding	7,748.52	
Refunds	241.42	
Total		$910,454.46
1933		
Deposited to the credit of appropriation for public printing and binding:		
For printing and binding for departments and bureaus	10,003,219.29	
For miscellaneous printing and binding	50,045.56	
Auditor disallowance	21.41	
Total		10,053,286.26
Deposited to miscellaneous receipts:		
Sale of waste paper	22,759.93	
Salvage, waste wood, metal, etc	8,332.13	
Surplus from sale of documents	201,966.22	
Telephone messages	13.40	
Total		233,071.68
Grand total		11,197,006.06

TABLE 4.—*Production of principal items entering into printing and binding in fiscal years 1931, 1932, 1933*

	1931	1932	1933
Main office and Congressional Library branch:			
Total charges for printing and binding	[1] $14,546,440.75	[1] $14,333,380.35	[2] $12,941,095.24
Jackets written—number	64,938	62,455	55,268
Estimates made—do	59,661	56,417	48,466
Bills computed—do	86,303	79,741	74,105
Total ems set—do	2,507,813,400	2,790,245,000	2,383,599,100
Timework in composing sections—hours	282,197	268,912	249,913
Electrotypes, stereotypes, and matrices—square inches	11,438,314	11,166,868	9,942,300
Postal cards printed—number	1,485,384,120	1,366,070,600	1,290,469,560
Money-order books shipped—do	1,060,127	928,994	846,666
Forms sent to press—do	163,558	181,800	165,428
Actual impressions—do	588,768,017	610,621,912	658,750,722
Chargeable impressions—do	2,393,483,181	2,216,059,261	2,013,499,936
Sheets folded—do	396,746,323	410,557,697	336,092,301
Signatures gathered—do	150,538,801	164,963,823	130,325,878
Tips made—do	23,627,442	20,714,194	13,929,809
Copies wire-stitched—do	49,371,739	50,546,899	39,505,927
Copies paper-covered—do	13,582,217	13,108,675	8,860,923
Books and pamphlets trimmed—do	55,809,139	66,867,873	40,499,587
Books rounded and backed—do	1,131,092	1,178,720	1,164,972
Books marbled and edged—do	243,804	243,084	183,037
Stamping impressions—do	2,711,569	2,456,972	2,645,351
Books cased in—do	1,474,904	1,248,225	1,240,900
Indexes cut—do	135,809	168,970	109,135
Sheets passed through ruling machine—do	40,335,332	39,288,618	26,235,643
Signatures sewed—do	51,873,305	52,652,684	43,394,325
Copies punched and drilled—do	169,093,892	177,944,855	133,255,943
Sheets and lines perforated—do	11,979,426	8,611,419	6,335,548
Tablets made—do	4,656,283	3,772,427	3,182,726
Miscellaneous rebinding, etc—do	101,536	99,704	99,287

[1] Does not include estimated $800,000 labor and material on uncompleted jobs.
[2] Does not include estimated $400,000 labor and material on uncompleted jobs.

TABLE 5.—*Charges for work and to whom delivered during the fiscal year ended June 30, 1933*

Congress:		
Congressional Record	$803,236.59	
Publications for folding rooms	479,831.41	
Publications for international exchange	13,601.38	
Franked envelops and document franks	40,336.72	
Bills, resolutions, and amendments	396,261.44	
Committee reports	66,493.00	
Documents	130,828.42	
Hearings	378,467.53	
Miscellaneous publications	31,264.64	
Miscellaneous printing and binding	359,678.87	
Total congressional printing and binding		$2,700,000.00
Private orders by Members of Congress:		
Documents, reports, bills, etc		12,802.15
Speeches		40,445.99
Private Orders for electrotypes		11.24
Superintendent of Documents		545,238.45
Library of Congress		372,565.11
Agriculture		786,531.71
Commerce		1,357,038.62
Interior		438,774.47
Justice		229,468.27
Labor		215,172.33
Navy		685,165.59
Post Office		1,607,460.80
State		182,931.49
Treasury		683,458.00
War		596,405.60
Alien Property Custodian		1,605.17
American Battle Monuments Commission		91.40
Arlington Memorial Bridge Commission		12.13
Board of Mediation		1,077.43
Board of Tax Appeals		29,223.70
Bureau of the Budget		33,061.89
Bureau of Efficiency		300.89
Chicago World's Fair Centennial Commission		213.23
Civil Service Commission		21,971.96
Commission of Fine Arts		212.28
Court of Claims		21,498.68
Court of Customs and Patent Appeals		5,230.08
Customs Court		212.04
District of Columbia		99,308.34
Emergency Conservation Work		981.01
Employees' Compensation Commission		5,926.83
Farm Credit Administration		6,571.98
Federal Board for Vocational Education		11,205.94
Federal Emergency Administration of Public Works		667.90
Federal Emergency Relief Administration		700.35
Federal Farm Board		15,900.72
Federal Home Loan Bank Board		8,516.99
Federal Power Commission		4,910.72
Federal Radio Commission		6,512.27
Federal Reserve Board		40,508.02
Federal Trade Commission		23,666.54
General Accounting Office		56,709.94
Geographic Board		7,641.30
George Rogers Clark Sesquicentennial Commission		9.75
George Washington Bicentennial Commission		35,849.66
Home Owners' Loan Corporation		932.54
Inland Waterways Corporation		453.23
Interstate Commerce Commission		165,568.50
Mount Rushmore National Memorial Commission		20.25
National Academy of Sciences		203.89
National Advisory Committee for Aeronautics		19,558.49
National Capital Park and Planning Commission		575.10
National Forest Reservation Commission		294.13
National Recovery Administration		213.73
Pan American Sanitary Bureau		13,604.56
Pan American Union		26,251.16
Panama Canal		15,210.70
Patent Office		1,311,097.69
Personnel Classification Board		143.55
Public Buildings and Public Parks		3,821.67
Railroad Administration		151.85
Reconstruction Finance Corporation		170,486.93
Shipping Board		18,870.69
Smithsonian Institution		97,673.63
Supreme Court, District of Columbia		4,979.54
Supreme Court, United States		6,015.48
Tariff Commission		23,151.05
Tennessee Valley Authority		166.84
Veterans' Administration		156,375.02
War Finance Corporation		25.45
White House		11,480.61
Total		12,941,095.24

TABLE 6.—*Cost of production for the fiscal year 1933*

Division, office, or section	Salaries, wages, leave, and holiday pay	Material and supplies for operation	Maintenance and upkeep	Work by other sections, including proof and apprentice	Expense of delivery of product and storage of plates	Administrative and clerical expense	Paper and other stock issued, illustrations ordered, outside purchases vouchered	Reconciliation between issues and orders and same items computed	Total	Credits by work for other sections	Total cost of production
Job	$254,927.98	$358.54	$38,747.04	$73,078.63	$5,586.24	$22,442.47			$395,140.90	$57,122.32	$338,018.58
Patents	350,545.22	345.55	85,922.18	309,398.00	4,224.70	30,931.40			781,367.05	5,391.84	[1] 775,975.21
Linotype	628,724.96	849.24	167,108.33	679,242.30	12,738.54	53,537.60			1,542,200.97	129,560.98	1,412,639.99
Monotype	1,073,004.76	3,746.83	282,546.90	1,408,332.95	21,845.97	91,804.42			2,881,281.83	367,635.12	2,513,646.71
Hand	400,163.74	2,123.91	57,887.26	77,036.24	8,240.96	34,517.09			579,969.20	426,109.56	153,859.64
Proof	1,136,527.08	598.53	166,577.70	60,046.73	13,822.10	101,308.65			1,478,880.79	1,478,880.79	
Apprentice	195,741.89	508.35	27,156.13	12,508.33	2,593.34	15,194.01			[2] 253,702.05	198,514.80	[3] 55,187.25
Platemaking—molding, stereotyping, and finishing	233,438.47	8,178.15	45,939.31	33,267.12	4,948.47	28,424.57			354,196.09	75,301.65	278,894.44
Photo-engraving	70,955.08	6,775.60	11,179.10	8,095.03	1,503.80	8,627.61			107,136.22	10,057.31	97,078.91
Press	1,058,974.59	50,788.78	215,816.42	142,087.91	22,590.71	102,173.62			1,592,432.03	232,697.22	1,359,734.81
Pamphlet	703,824.47	7,227.66	119,805.47	219,981.99	8,295.32	65,405.21	$9,734.50		1,134,274.62	487.44	1,133,787.18
Blank	485,738.63	7,541.70	80,263.50	15,308.69	5,757.38	45,477.74	448,743.63	−$11,307.50	1,077,523.77	15,651.01	1,061,872.76
Book	524,263.17	16,776.75	93,322.90	38,048.91	6,404.29	50,579.65	89,207.29		818,602.96	19,741.32	798,861.64
Money Order	42,956.99	616.60	9,294.36	602.32	515.60	4,062.52	38,953.79		97,002.18	178.63	96,823.55
Postal Card	91,031.39	17,975.67	20,471.10	585.83	1,327.35	10,641.38	227,617.11		369,649.83		369,649.83
Library printing branch	75,984.15	110.37	2,507.71	9,861.39	1,570.28	4,814.88	19,204.62		114,053.40		114,053.40
Library binding branch	130,353.67	621.73	3,192.13	799.66	1,557.79	9,962.28	5,351.87		151,839.13	13,251.94	138,587.19
Details chargeable	55,224.14	8.30	644.71	9.35	637.53	3,385.50	55.58		59,965.11		59,965.11
Metal	12,850.53	20,076.89	15,933.31		249.19	1,692.16			50,802.08	50,802.08	
Stores	141,465.89	1,687.70	37,675.21	3.82	1,683.86	11,349.92			193,866.40	2,703.03	191,163.37
Ink	12,973.41	19,760.19	2,622.81		197.62	1,335.47			36,889.50	36,889.50	
Roller and Glue	5,898.92	9,609.00	1,769.01	12.00	89.84	609.14			17,987.91	17,987.91	
Paper stock, Presswork Division							1,142,485.57	+$83,721.46	1,226,207.03		1,226,207.03
Illustrations							107,741.69	+53,494.13	161,235.82		161,235.82
Outside purchases							48,963.99	−3,584.02	45,379.97		45,379.97
Work for stock returned to stores				48,797.80				−48,797.80			
Light and power for city post office			19,670.25						19,670.25		19,670.25
Miscellaneous service for Superintendent of Documents other than printing and binding		13,542.66	36,691.13	217.31	1,443.30				51,894.40		51,894.40
Total	7,685,569.13	189,828.70	1,542,743.97	3,137,322.31	127,824.18	698,277.29	2,138,059.64	+73,526.27	15,593,151.49	3,138,964.45	12,454,187.04

[1] Cost of work done in section; work in other sections is additional and included therewith.

[2] Total expense of all apprentices.

[3] Total expense of apprentices not detailed to other divisions.

TABLE 7.—*Itemized statement of the classes and charge for work delivered during the fiscal year ended June 30, 1933*

Kind or description of work	Number of copies	Number of type pages	Publications bound	Charge for composing-room work except authors' alterations	Charge for authors' alterations	Charge for electrotyping or stereotyping	Charge for pressroom work	Charge for bindery work	Charge for illustrations or engravings	Charge for paper	Charge for rush and overtime work	Charge for miscellaneous items	Total charge
Publications:													
Smaller than octavo	5,206,117	21,206	35,732	$50,147.23	$3,496.47	$5,500.30	$14,866.53	$52,844.42	$3,898.21	$19,499.09	$226.77		$150,479.02
Octavo	41,512,176	702,524	789,848	2,107,697.52	117,262.60	126,775.27	274,187.57	678,892.40	147,665.45	282,641.62	73,854.96	$1,098.81	3,810,076.20
Royal octavo	1,312,038	64,190	26,107	198,233.93	15,809.37	10,341.26	28,437.82	43,210.39	7,198.59	18,124.60	6,683.89	2,789.86	330,829.71
Quarto	5,162,673	253,678	36,184	953,142.28	66,659.67	20,777.09	59,801.29	84,014.94	65,513.15	49,724.29	6,175.29	.10	1,305,808.10
Miscellaneous	24,907,767	985,494	183,358	41,142.57	451.30	7,280.44	64,234.26	209,438.36	9,973.22	94,984.52	102.27	50,816.58	478,423.52
Congressional Record in year	6,700,071	34,975	72,900	269,528.69	9,409.15	62,569.92	83,494.51	250,826.68	44.64	88,974.00	38,389.00		803,236.59
Bills, resolutions, and amendments	8,800,968	122,655	778	247,868.54	91.02		78,925.29	22,981.24		9,758.20	36,637.15		396,261.44
Specifications of patents, trade marks, etc	6,488,380	192,997		926,406.73	10,688.50		80,234.14	5,361.26		13,994.44			1,036,685.07
Official Gazette and Annual Indexes, Patent Office	259,522	18,527	30	175,037.04	850.74		21,858.35	20,758.34	16,866.20	14,916.45		9,412.71	259,699.83
Post-office money orders	169,041,235									41,680.59		94,446.99	136,127.58
Letterheads and envelops	101,327,785			30,619.65	99.42	1,846.75	55,328.14	14,398.32	4,340.84	70,803.80	411.36	413.27	178,261.55
Blanks, notices, schedules, cards, etc	2,726,143,488			349,383.78	25,131.40	37,839.37	387,174.94	354,311.43	6,320.11	881,576.71	5,968.14	377,963.39	2,425,669.27
Blank books	1,731,443			18,206.34	760.68	4,150.84	44,827.16	282,352.23	57.78	61,547.45	693.54	2,461.97	415,057.99
Binding newspapers, documents, reports, etc	91,226							296,504.55			11.61		296,516.16
Blank paper										366,471.97		46,446.77	412,918.74
Contract printing												46,140.23	46,140.23
Printing and binding supplies											780.74	38,202.11	38,982.85
Miscellaneous charges				41,374.30	3,077.22	2,691.98	15,018.15	157,226.78	4,035.91	66,366.38	137.85	129,992.82	419,921.39
Total	3,098,684,889	2,396,246	1,144,937	5,408,788.60	253,787.54	279,773.22	1,208,388.15	2,473,121.34	265,914.10	2,081,064.11	170,072.57	800,185.61	12,941,095.24

TABLE 8.—*Inventory of quantity and cost of paper and envelops, material and supplies, and machinery and equipment on hand June 30, 1933*

[Compiled by the Purchasing Division]

	Pounds	Cost
Paper:		
Printing	2,828,000	$72,013.06
Mimeograph	329,000	12,299.96
United States money-order writing	79,000	4,851.50
Safety writing	5,839	575.42
Writing	646,897	23,192.11
Map	98,284	8,424.28
Manifold	114,276	16,730.61
Bond	819,602	59,848.06
Ledger	463,000	37,351.55
Index	146,000	11,209.24
Cover	163,000	9,462.84
Manila	168,000	7,386.88
Kraft	242,000	5,971.94
Manila tag board	372,000	23,325.96
Cardboard	46,000	2,108.65
Bristol board	556,000	15,037.82
Miscellaneous	115,000	11,146.30
Binders board	513,250	12,066.36
Total	7,705,148	333,002.54
Envelops		9,254.88
Total paper and envelops		342,257.42
Other material and supplies:		
Miscellaneous supplies		126,922.70
Book cloth		12,017.54
Buckram		8,630.06
Leather		8,450.53
Ink ingredients		3,556.49
Ink (made in Government Printing Office)		3,193.97
Gold leaf		3,038.95
Imitation leather		2,187.26
Cartons and containers		1,933.98
Total, material and supplies		169,931.48
Total, material and supplies, paper and envelops		512,188.90
Machinery and equipment		5,433,068.31
Grand total		5,945,257.21

TABLE 9.—*Publications, including annual reports and documents, printed on requisition during the fiscal year ended June 30, 1933, for Congress and Government departments and independent establishments*

	Copies
Congress (does not include Congressional Record, bills, or private orders)	4,863,089
Superintendent of Documents	7,861,678
Library of Congress	129,612
Agriculture	18,620,835
Commerce	3,856,019
Interior	1,932,048
Justice	196,663
Labor	1,533,638
Navy	4,668,616
Post Office	1,796,289
State	496,090
Treasury	2,495,229
War	7,489,290
Alien Property Custodian	1,867
American Battle Monuments Commission	2
Board of Mediation	2,021
Board of Tax Appeals	57,655
Bureau of the Budget	790
Bureau of Efficiency	510
Civil Service Commission	148,176
Commission of Fine Arts	5,523
Court of Claims	47,943
Court of Customs and Patent Appeals	3,565
District of Columbia	268,549
Emergency Conservation Work	8,500
Employees' Compensation Commission	15,703
Farm Credit Administration	133,060
Federal Board for Vocational Education	81,127
Federal Emergency Administration of Public Works	23,700
Federal Emergency Relief Administration	2,000
Federal Farm Board	395,252
Federal Home Loan Bank Board	51,300
Federal Power Commission	4,408
Federal Radio Commission	20,668
Federal Reserve Board	541,388
Federal Trade Commission	86,161
General Accounting Office	16,271
Geographic Board	22,002
George Washington Bicentennial Commission	12,000
Home Owners' Loan Corporation	50,000
Inland Waterways Corporation	3,000
Interstate Commerce Commission	1,591,277
National Academy of Sciences	4,000
National Advisory Committee for Aeronautics	40,959
National Capital Park and Planning Commission	1,000
National Forest Reservation	5,000
National Recovery Administration	20,000
Pan American Sanitary Bureau	53,900
Pan American Union	134,314
Panama Canal	2,611
Public Buildings and Public Parks	1,560
Reconstruction Finance Corporation	369,801
Shipping Board	22,842
Smithsonian Institution	148,890
Supreme Court, D.C	13,830
Supreme Court, U.S	7,640
Tariff Commission	43,004
Veterans' Administration	139,173
War Finance Corporation	100
White House	22,127
Total	60,564,305

TABLE 10.—*Receipts from miscellaneous sales during the fiscal year ended June 30, 1933*

Condemned material, machinery, etc	$4,256.70
Waste wood	630.80
Waste metal	1,796.91
Waste gold	1,647.72
Waste paper	22,759.93
Telephone	13.40
Total	31,105.46

DIVISION OF TESTS AND TECHNICAL CONTROL

REPORT OF THE TECHNICAL DIRECTOR

REPORT OF THE TECHNICAL DIRECTOR

To the PUBLIC PRINTER:

The report of the Division of Tests and Technical Control for the fiscal year ended June 30, 1933, is herewith submitted.

The total number of samples tested during the year was 6,611, a decrease of 15.7 percent from the number tested last year. Following is a tabulation of the various materials tested during the fiscal years 1932 and 1933:

Materials tested	Samples	
	1932	1933
Paper and envelops	4,990	3,837
Textiles	776	600
Bookbinding leather	74	41
Metals	1,031	808
Glue	50	61
Ink-making materials	246	288
Inks	82	132
Oils and greases	43	42
Gasoline	77	82
Chemicals	102	352
Miscellaneous	369	368
Total samples	7,840	6,611

Three hundred and twelve deliveries were rejected for noncompliance with specifications. Of these rejections, 259 were of paper, 16 of envelops, and 37 of miscellaneous materials.

PAPER

As a result of tests on deliveries of paper to the Office during the past 2 years, a number of changes have been made in the paper specifications, all tending toward the improvement in the quality of the paper. Definite limits for acidity have been included for the first time in a number of the specifications for book, lithographic, manifold, bond, ledger, and index papers. The folding endurance requirement has been increased on the writing, bond, and ledger papers, and has been added to the specifications for several other grades in order to insure greater durability of these papers.

The total amount of paper received during the year was 36,266,791 pounds, a decrease of 23 percent from last year. Of this amount, 3,131,259 pounds, or 8.6 percent, were rejected.

As in previous years, the greatest amount of paper rejected was between March 1, the beginning of the fiscal year for paper purchases, and June 30.

There were 270,804 pounds, or 0.75 percent, of paper rejected for deficiency in folding endurance as compared with 235,636 pounds, or 0.50 percent, rejected last year.

Some difficulty was encountered this year with newsprint not conforming with specifications in tensile strength, although this requirement was fully complied with in previous years. The trouble experienced last year with dirty paper and lack of opacity has decreased considerably, due no doubt to greater care by the contractors to comply with specifications and standard samples. Rejections for deficiency in stock, bursting strength, unsatisfactory color or finish also decreased to some extent.

The principal cause for the rejection of paper during the year was high acidity. There were 709,463 pounds, or 1.9 percent, rejected for noncompliance with specifications in this respect. This requirement was included in the specifications for the first time on many items, and the rejections were therefore due either to lack of or limited technical control in the mill or unfamiliarity of some of the new contractors with the more accurate methods of testing for acidity.

Requests for details of the quinhydrone electrometric method for determining acidity used by the Government Printing Office were received from the contractors experiencing trouble in meeting this requirement. After furnishing them full details of procedure subsequent deliveries by most of these contractors fully complied with specifications.

DETERMINATION OF PAPER ACIDITY

As stated in last year's report the section of the work assigned to the Government Printing Office in the cooperative research on methods of determination of pH values and total acidity in paper has been completed. Issuance of the final report is still being held up waiting the completion of the work at the other laboratories. Acidity requirements are now included in the specifications for 36 grades of paper as compared with 14 grades last year. The quinhydrone method for determining the pH value of paper was prepared in detail, and many requests for this method have been received.

DETERIORATION OF SULPHITE PAPERS

The study of relative rates of deterioration of papers containing varying percentages of bleached and unbleached sulphite pulp conducted in cooperation with the Bureau of Standards has been continued during the year.

Two years of natural aging of the samples stored and of the samples exposed to light in the laboratory office and in the constant temperature and humidity room has been completed and the physical tests have been made to determine the amount of deterioration. Tests after 2 years of natural aging by storing in the laboratory office indicate that the loss in strength of the papers containing unbleached sulphite pulp as determined by bursting strength and folding endurance is greater than in the 100 percent bleached sulphite paper. The loss in folding endurance of the papers exposed to natural light for 2 years in the same room is about the same for all papers.

The deterioration of papers exposed to natural light is greater than the corresponding papers stored under normal conditions. Of the papers hung and stored in the paper humidity room under controlled atmospheric conditions the samples containing 50 and 75 percent unbleached sulphite pulp showed greater deterioration than the samples containing 25 percent unbleached and no unbleached sulphite pulp. The papers which were stored showed greater deterioration than the papers which were hung in the room.

The deterioration of the papers exposed to natural light and stored in the laboratory office is greater than that of the corresponding papers hung or stored in the paper humidity room under controlled atmospheric conditions.

PAPER-SMOOTHNESS TESTER

A study was made of the value of the Bekk smoothness tester in evaluating printing papers. This tester was found to be the first practical instrument for measuring the smoothness of paper surfaces, giving results in numerical terms. The results of the study indicate that smoothness limits or smoothness range can be determined for certain classes of printing papers.

A report of this study entitled "The Bekk Smoothness Tester as an Aid in Studying the Printing Quality of Paper" was presented at the annual meeting of the Technical Association of the Pulp and Paper Industry in New York, February 13–16, 1933, and was published in the Paper Trade Journal, volume 96, no. 4, January 26, 1933.

PAPER-WEARING TESTER

Owing to difficulty in obtaining representative samples of paper for test, and also due to work on more urgent problems, the study of the paper-wearing tester developed in this office has not been completed as contemplated. The data so far obtained tend to show that at 50 percent relative humidity and 70° F. temperature the wear test, as determined with this instrument, grades paper in the same general order as the folding-endurance and tensile-strength tests. The data also show that the wearing test is greatest at 50 percent relative humidity, decreasing from this point with either increasing or decreasing relative humidity.

MICROSCOPICAL EXAMINATION

This work was carried out in conjunction with the microscopic subcommittee of the Technical Association of the Pulp and Paper Industry. In view of the fact that the official Bright method for determining the amount of unbleached fiber in paper consumes too great a time for making an analysis, a study was made of this method with a view of shortening the time for the determination.

A modified method of procedure in which an analysis can be completed in approximately 15 minutes instead of 1 hour will be recommended to the microscopic subcommittee for adoption by the Technical Association of the Pulp and Paper Industry.

An article entitled "Rapid Methods for Determining Unbleached Fibers in Paper" is ready for publication. In addition to the modified method of procedure of the official method, there is described in this paper a procedure employing a malachite green stain which can be used by experienced analysts when quick and only approximate results are desired.

Work was also done on the Shaffer method for distinguishing bleached sulphate from bleached sulphite fibers, and comments on the same were submitted to the microscopic subcommittee.

MOISTURE IN PAPER

At the request of the chairman of the paper-testing committee of the Technical Association of the Pulp and Paper Industry, the percentage of moisture in paper as received in this office is being determined on all papers. This is done in order to obtain information as to the variations in moisture content of papers shipped by different mills and the amount at different seasons of the year.

ENVELOPS

Envelops purchased during the year totaled 30,936,533, a decrease of 17,413,669, or 36 percent. Of these, 951,975 were rejected. There were 16 rejections, comprising 3.1 percent, as compared with 30 rejections, or 7.9 percent, last year.

The physical requirements of the specifications for envelops remained the same as last year, and no great difficulty was experienced by any contractor in furnishing envelops conforming with specifications.

There were only 155,350 envelops rejected for deficiency in folding endurance, of which 10,000 were also rejected for noncompliance with specifications in stock and bursting strength.

TYPE METALS

During the fiscal year 1933 a total of 8,522,238 pounds of type metal was standardized for the use of the Government Printing Office, a decrease of 379,528 pounds, or 4.3 percent.

A comparison of the amount of the various alloys standardized during the fiscal years 1932 and 1933 is given below:

Kind of metal	1932	1933	Decrease	Decrease
	Pounds	*Pounds*	*Pounds*	*Percent*
Linotype	6,079,524	5,742,697	336,827	5.5
Monotype	2,118,897	2,020,578	98,319	4.6
Stereotype	402,735	526,022	[1] 123,287	[1] 30.6
Electrotype	300,610	171,671	128,939	42.8
Slug		61,270		[1] 100.0
Total	8,901,766	8,522,238	379,528	4.3

[1] Increase.

Following is a detailed tabulation showing the correction of linotype, monotype, stereotype, and electrotype metals for the fiscal

year 1933, including the quantity returned for remelting, correction metals, dross, percentage increase due to correction, and percentage loss due to dross, calculated on the quantity of metal remelted.

Metal corrections	Linotype	Monotype	Stereotype	Electrotype	Slug
Returned for remelting----------pounds--	5,715,642	2,023,729	504,913	[1] 170,459	[2] 61,270
Correction metal used:					
Lead-antimony alloy [3]----------do----	3,580	10,970	2,700	75	----------
Tin-antimony alloy [4]----------do----	40	26,055	315	----------	----------
Tin----------do----	390	3,549	225	----------	----------
Lead----------do----	59,955	1,360	20,065	1,675	----------
Total correction metal used---do----	63,965	41,934	23,305	1,750	----------
Total corrected metal----------do----	5,742,697	2,020,578	526,022	171,671	----------
Dross----------do----	36,910	45,085	2,196	538	----------
Increase due to correction--------percent--	1.12	2.07	4.61	1.02	----------
Dross----------do----	.65	2.22	.43	.31	----------

[1] Electrotype metal consists chiefly of shavings and trimmings which are remelted, pigged, and returned to the Electrotype Section without being corrected.
[2] Remelted only. No correction required as it is used for "solid body" work (metal base).
[3] Lead-antimony alloy consists of approximately 60 percent lead and 40 percent antimony.
[4] Tin-antimony alloy consists of approximately 33 percent tin and 67 percent antimony.

The percentages of dross in linotype and monotype metals were 0.65 and 2.22, respectively, as compared with 0.38 and 1.83 last year. These increases over the previous year are due to interruption of use of the dross renovator during the remodeling of the metal room.

Fifty thousand pounds of electrotype metal were obtained during the year by exchange for old electrotype plates. Due to accumulation of excess reserve linotype metal, 100,000 pounds of linotype slugs were sold. Fourteen thousand seven hundred and twenty pounds of linotype slugs were converted into monotype metal; 6,300 pounds of old electrotype plates were converted to stereotype metal, and 5,940 pounds of old electrotype plates to monotype metal.

During the fiscal year 101,959 pounds of electrotype shavings and trimmings were melted, separated from the copper scraps and dross, pigged, and delivered to the Electrotype Section. No correction metals were required in this work. This small total is accounted for by the fact that remodeling of the metal room made it necessary to remelt most of the shavings and trimmings in the Electrotype Section.

For the Ludlow machines, 7,970 pounds of metal containing 6.5 percent tin and 11.5 percent antimony were made.

Forty-three thousand four hundred and twenty-nine pounds of correction alloy were bought and 70,000 pounds of dross and 14,313 pounds of electrotype shells were accepted as part payment thereon.

Included in the total amount of monotype metal corrected are 115,481 pounds of metal containing 10 percent tin, 19 percent antimony, and the remainder lead, which is used in rule casting and other special monotype work.

PRINTING INKS

The production of printing inks for the fiscal year 1933 was 154,498 pounds, a decrease of 101,328 pounds, or 39.6 percent, from last year. There were also produced 9,867 pounds of blue toner, 2,006 quarts of ruling inks, 12,056 quarts of blue and red writing inks, and 316 quarts of striping ink for tabulating cards.

The decrease in the production of printing inks was largely due to discontinuance of the manufacture of stamp-cancelation ink for the Post Office Department.

Fifty-six special colors were matched by the staff of the ink plant for the illustration section of the pressroom. Fourteen special colors were also matched for the Offset Section.

As a result of technical standardization of the inks used in this office, standard inks for single- and four-color process work were adopted. A process black was also developed and is now being used.

The work on ruling inks was continued during the year with the development of waterproof ruling inks in colors as well as a jet black waterproof ruling ink.

Considerable improvement of striping inks for tabulating cards was made by the purchase of better quality dyes. A new solvent was found to permit the use of a larger range of colors.

At the request of the Offset Press Division a denser black offset ink was made without the use of toner to be used on text only when an extra strong ink is required.

In cooperation with the marbling section of the bindery a full line of marbling pulp colors was developed, resulting in more uniform quality products. Two hundred and five pounds of pulp colors were manufactured.

At the request of various Government departments a number of new inks were made, including instrument recording ink, laundry marking ink, blue and black stencil ink, and special writing inks.

Work was done on the standardization of the raw materials entering into the manufacture of printing inks. The specifications for several of the materials were revised and some materials formerly used were discontinued. Since the requirements of certain materials cannot be specified in chemical or numerical terms, a practical test has been included in order to obtain satisfactory products.

A number of new pigments including blue, violet, and green tungstic toners and Hansa yellow were added to replace the older and less suitable dry colors. A new varnish was added for use in rotary press inks.

The methods of news ink analyses were improved to give greater accuracy and to shorten the time of analysis. A procedure for analyzing writing inks was developed for both research and routine work.

An improvement was also made in the method for making photomicrographs of cross-section paper to show ink penetration.

A device was developed for determining the drying time of finished printing inks. Its use, however, is limited to testing half-tone black inks, but it is believed that by modification of the instrument its scope can be enlarged to include other classes of inks.

Examination of a large number of ink-making varnishes indicates the need for standardization of this class of material. The work was undertaken by the National Association of Printing Ink Manufacturers and recently by the American Paint and Varnish Manufacturers Association.

The amount of waste ink discarded during the year was 2,680 pounds. This waste ink as compared with that of 1923, before the

ink section was placed under the direction of the Division of Tests and Technical Control, was reduced from 13.4 percent to 1.6 percent of the total production.

The following tabulation gives the amount of waste ink returned to the ink section or discarded during the 11 years, together with the percentage of the total production for each year:

Fiscal year—	Waste ink	Percent of waste to production	Fiscal year—	Waste ink	Percent of waste to production
	Pounds			*Pounds*	
1923	13,650	13.4	1929	3,710	2.3
1924	14,785	13.1	1930	4,116	2.3
1925	12,350	9.2	1931	3,830	2.1
1926	9,896	8.4	1932	2,440	1.0
1927	5,520	3.7	1933	2,680	1.6
1928	5,606	3.7			

The cooperative research work on news ink, which was completed this year and published in Technical Bulletin No. 18, was conducted under the supervision of the chemist in charge of ink work.

Since the withdrawal of the research associate of the American Newspaper Publishers Association from the Government Printing Office, samples of news ink submitted by members of the association are analyzed by the ink chemist of the Government Printing Office.

PRESS ROLLERS, GLUES, AND PASTE

Press rollers manufactured during the year totaled 2,985, as compared with 3,311 for 1932, a decrease of 326, or 9.8 percent. A number of rubber rollers also were purchased for use on the Congressional Record presses.

A total of 76,038 pounds of molded glue was manufactured during the fiscal year 1933, as compared with 76,367 pounds last year.

Due to satisfactory service of the rollers and molded glue, there was no need for any change in the formulas or composition of these materials.

During the past year 27,000 pounds of glucose-glycol paste were prepared under the direction of the Division of Tests and Technical Control. This paste was made in accordance with the modified formula developed by this office in cooperation with the Employing Bookbinders of America.

The revised formula for glucose-glycol paste is as follows:

	Percent
Water (added at the start)	35.0
Diethylene glycol	10.0
Glucose (43 percent Baumé corn sirup)	20.0
Beta naphthol	.1
Ammonium alum	.3
Flour (soft winter wheat)	19.6
Water (condensation of cooking steam)	15.0

SUPPLIES FOR GOVERNMENT AGENCIES

As in previous years other Government agencies were furnished with miscellaneous materials manufactured by the Government Printing Office.

The total charge for such materials this year was $19,280, as compared with $38,129 last year. The estimated savings to the departments for the year were $15,000.

The following tabulation gives a comparison of the amounts of the different materials furnished the Government agencies in the fiscal years 1932 and 1933:

Materials furnished Government agencies	1932	1933
	Pounds	*Pounds*
Mimeograph ink, black	49,852	46,650
Printing inks, black and colored (including multigraph)	5,886	4,791
Addressograph ink, blue and black	283	135
Writing ink, blue, black, and red	[1] 11,743	[1] 12,349
Stamp-pad and numbering-machine inks	5,929	1,460
Post-office stamp-canceling ink	59,200	----------
Molded glue, including canceling stamp composition	2,756	2,859
Paste	19,964	10,516

[1] Quarts.

PHOTO-ENGRAVING RESEARCH

An intensive study of the chemical substances employed in photo-engraving processes has been made with a view to standardizing their chemical and physical properties. A continuation of the research outlined in last year's report has been extended to include the introduction of trichromatic photography in the reproduction of intricate marble paper designs.

DRAGON'S BLOOD

The fundamental study of synthetic resins with a view to their adoption as substitutes for the chemically more complicated natural resins employed in the manufacture of commercial brands of dragon's blood has been continued intermittently as the greater pressure of other problems permitted.

Approximately 25 different synthetic resin mixtures have been made and their characteristics studied in the experimental laboratory etching plant with the aid of a stereoscopic binocular microscope. Supplementing this laboratory study, these mixtures were given practical tests in the deep etching of zinc plates in the Photo-engraving Section. The results obtained are promising, and, in some cases, these mixtures proved superior in certain respects to dragon's blood, but none have yet been made to combine in a single mixture all of the desirable characteristics. It is planned to continue this investigation to incorporate all of the required physical properties into a single composition.

COLLODION

Iodized collodion for wet-plate photography has been purchased throughout the year on the basis of the specifications developed and defined in the preceding annual report of the Public Printer. Collodion emulsion has been satisfactorily prepared and employed in experimental trichromatic photography.

Stripping collodion is made in the Photo-engraving Section by dissolving nitrocellulose in an ether-alcohol solution. The nitrocellulose

used for this purpose is obtained in metal containers and is wetted with water in order that it may conform to the safety requirements for transportation and storage. It was found that the action of the water on the container contaminated the nitrocellulose with rust, which was detrimental to the printing qualities of negatives flowed with solutions made from such material.

To overcome this condition, the following specification has been prepared, through which a satisfactory nitrocellulose has been obtained:

Nitrocellulose (low nitrogen content)—
Shall have a viscosity of 15–20 seconds when dissolved in sufficient quantity in a 50-50 ether-alcohol mixture to form a 12.2 percent solution (by weight);
Shall be colorless and free from organic impurities, insoluble solids, or other foreign matter;
Shall be dehydrated with pure ethyl alcohol and contain at least 30 percent by weight of pure ethyl alcohol when delivered in airtight metal containers.

RUBBER SOLUTIONS

Commercial rubber solutions, employed in flowing negatives to prevent the solvent action of stripping collodion on the original film, frequently present a rippled pattern upon evaporation of the solvent benzol from the plate. This pattern interferes with the printing of fine screen half-tones upon copper enamel. A technical study was instituted to discover the cause of this pattern.

The data so far obtained indicate that an unequalized rate of evaporation of the benzol, due to the presence of traces of water or insoluble suspended matter, was a contributing cause in the formation of this pattern.

A number of similar solvents in the same chemical series, such as toluene and xylene, possessing higher boiling points than benzol, were added in small amounts to control the evaporation rate. These substances tended to reduce the ripple pattern but did not completely eliminate it.

The following specification was drawn to cover the satisfactory purchase of this commodity:

Rubber solution for photo-engraving use—
Shall contain not less than 1.5 percent by weight of pure, pale, crepe rubber dissolved in water-free benzol.
Shall be free from insoluble suspended matter and without turbidity.
Viscosity: Not less than 425 millipoises.

The viscosity of a rubber solution of any given percentage by weight is dependent upon the characteristics of the rubber, its degree of milling, the action of time, light, and contact with certain metals. The decrease in the viscosity of rubber solutions in storage is greatly accelerated by the presence of small amounts of acetic acid. For these reasons it is well to avoid storage of large quantities of this material and to standardize its use upon the basis of a desired viscosity for the type of work required rather than its rubber content.

COLD TOP DEVELOPER

Experimental work indicated that a dilution with water of the previous formula to an 80–82 percent alcoholic content speeded up the time of development of the enamel print. The dyestuff employed

in this developer was changed from purple, formerly used, to a basic green, which facilitates the observation of the action of the dragon's blood during the etching process due to the contrasting colors.

This type of developer has been successfully prepared by the laboratory and employed in the Photo-engraving Section with several brands of commercial cold top enamels throughout the year.

POLISHED ZINC

An extensive study was made of photo-engraving zinc to determine the chemical and physical structure of the metal most suitable to the etching and routing processes. A technical discussion of the data accumulated during this investigation lies outside the scope of the present report. The conclusions drawn from this investigation served to determine the limits of chemical composition of zinc best adapted for producing fine line work on deep etched plates.

The following specification was drawn to cover the purchase of this material:

Cadmium, not more than	percent	0.30
Lead, not more than	do	.40
Iron, not more than	do	.016
Zinc, not less than	do	99.3
Thickness (tolerance, plus or minus 0.002 inch)	inch	.065

It should here be noted that the above specification does not constitute a formula for any particular brand of commercial zinc, nor a recipe for the preparation of an engraving zinc of optimum quality. However, deliveries made in conformance with this specification have proven satisfactory.

CARBONS FOR PHOTOGRAPHIC ARCS

A study was made in both the Photo-engraving and Offset Sections of the electrical resistances across carbon arcs while in use. It was found that a particular type of chemical cored carbon produced the steadiest rate of burning and the maximum amount of actinic light, giving most satisfactory photographic records. As a result of this study, five of the six varieties of carbons formerly thought indispensable have been eliminated, and the supply carried in stock has been reduced to a single suitable type.

CHEMICALS

Various chemicals used in photo-engraving and offset processes have been studied and the effects of their impurities determined. Specifications for some of these materials have been developed, resulting in improved operating conditions. Of such is the specification for sodium sulphide used in finishing wet-plate negatives to increase their opacity to light. Dark colored technical grades frequently contain iron salts in such proportion as to cause yellow streaks or stains which impair the printing quality of the negative by requiring a longer time of exposure to light to penetrate the stain.

Specification for sodium monosulphide—

Shall consist of not less than 99 percent by weight of $Na_2S.9H_2O$ crystals which do not deliquesce at ordinary temperatures.

Water solution shall be colorless and free from insoluble matter.
Shall contain no iron, lead, or other metals.
Shall be free from calcium salts.
Delivery in 5-pound glass containers.

SCREEN SWEATING

By maintaining a silver nitrate bath temperature below that of the half-tone screen, "fogging" and "sweating" of the screen was entirely eliminated. Glass tubes, packed with ice, are immersed in the silver nitrate baths to obtain this effect. Because of the satisfactory results obtained, the installation of an efficient and flexible temperature control is contemplated.

TRICHROMATIC PHOTOGRAPHY

A laboratory investigation was made of the possibility of reproducing, by means of three-color photography, marbled paper, used for "end sheets" in the bindery to match marbled book edges. Formerly such designs were reproduced from hand-drawn copies of the original marbled paper. Irregularities of form and color were apparent in the offset prints made from such negatives.

A set of 60 experimental gelatine color filters of the Wratten type was obtained and their properties of separation of spectral wave lengths tested against the original colored hand-marbled patterns. Collodion emulsion, hypersensitized with dyestuffs appropriate to those parts of the spectrum to be photographically recorded, was used in connection with these absorption filters to produce the color-record negatives without the use of an intervening screen.

The "medium comb" marbled paper design was first used as copy and satisfactorily reproduced by experimental test plates printed by the lithographic process. Subsequent to this experimental test, regular negatives were prepared by the Photo-engraving Section and printed to full sheet sizes, 25 by 30 inches, from zinc plates by the Offset Section.

For this work, special yellow, red, and blue lithographic inks were made for the first time by the Division of Tests and Technical Control, and were used successfully.

The results obtained were commended by the bindery for artistic appearance and faithful reproduction of the original.

This work marks the introduction of the three-color photographic process into the Government Printing Office. No satisfactory equipment is at hand at present to adapt this three-color process to screen separations. Only line negatives, which are eminently suited to the reproduction of marbled designs, have been attempted.

ELECTROTYPING RESEARCH

The study of applying silver films to electrotype molds has been continued. The difficulty encountered last year in the tendency of the silver film to peel from the wax in one place soon after the copper deposition starts has not been overcome. However, some improvement in the adhesion of the silver film was obtained by brushing the wax mold before silvering on type, rule, and figure work.

Another source of trouble was the occurrence of porous shells; that is, shells with side and type face holes. A probable cause of these side holes was the use of talc as a dusting powder over the form in molding instead of graphite. The former being a nonconductor, any particle forced into the wax and not removed by subsequent " pumping out " resulted in a hole in the shell when the copper was deposited thereon. Apparently the success of eliminating porous shells depends upon a fine molding releaser with the conductive properties of graphite. It is hoped to find such a material.

New equipment consisting of an electrically heated wax-case storage cabinet holding 105 cases, 13 by 24 inches in size, a case-stripping table and two additional wax-melting kettles, all steam heated, were installed in the Molding Section in January 1933. All the wax-melting equipment, consisting of case-stripping table and the five wax-melting kettles, were equipped with automatic temperature-control devices.

The use of the new equipment resulted in the production of cases of uniform quality, eliminating difficulties due to differences in the temperature of the wax at the time of molding and preventing overheating of the wax.

The semiautomatic copper electrotyping equipment has now been in satisfactory use for 2 years. There were no further changes made in the equipment from that reported last year.

Strict control was maintained over the copper, nickel, and chromium solutions and no changes were made in the operation of the plating systems.

BOOKBINDING RESEARCH

The work on bookbinding research was conducted in cooperation with the Employing Bookbinders of America.

BINDERS BOARD

Studies on binders board have been continued during the year. The work was confined chiefly to substitutes for binders board and to other types of boards used by bookbinders for cover stiffening.

Tentative specifications for various classes and grades of paper board used for bookbinding purposes have been submitted to the research committee of the Employing Bookbinders of America.

BOOK CLOTH

The study of the qualities of book cloth made in cooperation with the Employing Bookbinders of America was completed during the year. There were tested 255 samples, representing 69 commercial grades of material.

The information obtained from this investigation was used in revising the specifications of some of the book cloths purchased by this Office.

Tentative specifications for the more competitive grades of book cloth have been submitted to the research committee of the Employing Bookbinders of America by their research associate and are now under consideration by a joint committee of the Employing Bookbinders of America and the manufacturers of book cloth.

PYROXYLIN-TREATED FABRICS

Within the past 2 years a new pyroxylin-treated fabric for covering books has been placed on the market. This material differs from pyroxylin-coated fabrics in that the fabric is impregnated with a pyroxylin base instead of being merely coated. The impregnated fabrics often resemble in appearance the starch-filled fabrics generally designated as book cloth.

The research associate of the Employing Bookbinders of America has made numerous tests on the pyroxylin-impregnated fabrics obtained from various manufacturers and has submitted a report of this work to the research committee of his association.

GLUE

The research associate of the Employing Bookbinders of America made a study during the year of the glues used by various members of the association. The data obtained indicate that the grades of glue used varied widely even for the same type of work. In a report to the association the research associate pointed out the need of a better understanding by some bookbinders of the quality of glue used and submitted specifications for three grades of glue.

It was recommended that glue be purchased according to definite specifications for jell strength, viscosity, and pH value and that where only one grade of glue is used, glue of relatively high jell strength should be purchased. This type of glue absorbs more water than the lower grades and can be thinned to any desired consistency depending upon the type of work.

As a result of tests of deliveries to this office the requirements for viscosity and jell strength of the specifications for glue were modified this year to conform to the limits adopted by the National Association of Glue Manufacturers.

BRONZE STAMPING LEAF

Technical Bulletin No. 17, entitled " Evaluation of Bronze Stamping Leaf ", published last year, furnished valuable information as to the quality of the various brands of bronze stamping leaf offered to the trade, and described the various tests used in evaluating this material. As a result of the information furnished in this bulletin the manufacturers improved the quality of some of their brands and also placed new brands on the market.

The research associate of the Employing Bookbinders of America obtained and tested 30 samples of bronze stamping leaf from 10 manufacturers and dealers. The tests described in Technical Bulletin No. 17 were repeated with some slight modifications. The testing procedure as modified during the course of the investigation is now used by this Office in testing deliveries of bronze stamping leaf.

NEWSPRINT AND NEWS INK RESEARCH

The cooperative study of newsprint and news ink with the mechanical department of the American Newspaper Publishers Association which was started in 1928 was brought to a close April 30, 1933, as

the laboratory work had reached the point where practical applications could be made of the laboratory experiments.

A report on the whole program was presented at the seventh mechanical conference of the American Newspaper Publishers Association at Pittsburgh on June 6, 7, and 8, 1933. The report was printed as Government Printing Office Technical Bulletin No. 18.

Favorable comments on the newsprint and news-ink bulletin were received from technical experts of foreign countries as well as of the United States. The following are excerpts from some of the letters received:

From Prof. K. H. Broum, technical director, money-printing plant of the Austrian National Bank, Vienna, June 19, 1933:

This work in particular has a very great value and gives information in many matters on printing and ink. I congratulate you sincerely on this valuable contribution.

From Dr. G. L. Riddell, technical director, British Printing Industry Research Association, London, June 23, 1933:

I should like to thank you for sending me this valuable publication and I shall be grateful if you will convey to all those connected with this work my congratulations on a good piece of work well done. In my opinion the printing industry needs more research work of this nature.

From W. N. Bacon, consulting chemist, Sindall & Bacon, London, June 28, 1933:

Like all the others you have sent me, it appears very interesting and is well worth keeping for future reference.

From Dr. Ludwig Clemm of the J. W. Zanders Paper Mills, Bergisch-Gladbach, Germany, June 27, 1933:

It has been of special interest to us to learn which methods and apparatus you have found best for practical use.

From Dr. Ir. L. DeWeerd, chief chemist, John Enschede en Zonen, Haarlem, Holland, July 3, 1933:

We have received your bulletin no. 18 on newsprint and news ink and beg to say that we appreciate very much your kindness.

By your former bulletins we could follow the development of your research from year to year. Now that you have finished and summarized the work, we believe you have given a valuable contribution to the knowledge of technologic printing factors, for which we ourselves and every other printer in the world has to be very thankful.

From Dr. Harry F. Lewis, professor of organic chemistry, the Institute of Paper Chemistry, Appleton, Wis., June 13, 1933:

There is an enormous amount of data accumulated and I can appreciate the fact that it represents a big job.

PUBLICATIONS

During the year the following publications were prepared by the Division of Tests and Technical Control:

The Bekk Smoothness Tester as an Aid in Studying the Printing Quality of Paper.

Newsprint and News Ink, Technical Bulletin No. 18.

Technical Bulletin No. 18 is the final report of the cooperative research conducted by the mechanical department of the American Newspaper Publishers Association and the Division of Tests and

Technical Control of the Government Printing Office. Owing to the great demand for this bulletin not more than one copy can be supplied gratis on request. Additional copies may be obtained from the Superintendent of Documents, Washington, D.C., at 15 cents each.

The following is a complete list of Technical Bulletins issued by the Government Printing Office:

*No. 1. Determination of Fiber Content of Paper. 1923.
*No. 2. Tentative Specifications for Bond and Ledger Papers. (Superseded by no. 4.) 1925.
*No. 3. Technical Investigations. 1927.
No. 4. Proposed Specifications for Bond and Ledger Papers. 1928.
*No. 5. Training and Research at the Government Printing Office. 1929.
*No. 6. The Necessity for Research in the Printing Industry. 1929.
No. 7. Analysis of Some English Bookbinding Leathers. 1929.
No. 8. Preliminary Report on the Determination of pH Values and Total Acidity in Paper. 1930.
*No. 9. Progress Report on Study of News Ink and Newsprint. (Superseded by no. 18.) 1930.
No. 10. Technical Specifications for Paper Users. 1930.
*No. 11. Progress Report on the Determination of pH Values and Total Acidity in Paper. 1930.
No. 12. A Study of Methods of Evaluation of Kraft Paper. 1931.
No. 13. Second Progress Report on Study of News Ink and Newsprint. (Superseded by no. 18.) 1931.
No. 14. Bindery Adhesives. 1931.
No. 15. Standard Mimeograph Ink and Paper. 1932.
No. 16. Third Progress Report on Study of News Ink and Newsprint. (Superseded by no. 18.) 1932.
No. 17. The Evaluation of Bronze Stamping Leaf. 1933.
No. 18. Newsprint and News Ink. (Supersedes nos. 9, 13, and 16.) 1933.

OTHER ACTIVITIES

The Division of Tests and Technical Control has rendered valuable assistance to other Government departments, including Interior, Agriculture, Commerce, Navy, Veterans' Administration, and Library of Congress, on problems pertaining to paper, ink, glues, tabulating cards, etc.

Technical service was rendered the Folger Shakespeare Library in furnishing specifications and testing of paper and boards for permanent file and mountings, and testing of leather for compliance with specifications for durable bookbinding leather.

The Division has also been consulted on numerous occasions by headquarters staff of the United Typothetae of America in regard to various problems pertaining to ink and paper.

CENTURY OF PROGRESS EXPOSITION

In the exhibit of the Government Printing Office at the Century of Progress Exposition in Chicago is a display of the various activities of the Division of Tests and Technical Control. Photographs show the laboratory with the chemists engaged in research and technical work, an ink plant with the modern equipment including high-speed four-roller ink mills, the roller and glue room with mechanically agitated pots for the production of composition rollers and molded

* Out of print.

glues, and the metal room with its four melting furnaces and new semiautomatic system for handling metal and ingots.

At the Chicago exposition were also shown samples and charts of the materials that enter into bookbinding and the manufacture of paper, ink, and type metal. Photomicrographs show the crystalline structure of type metals and stained paper fibers as they appear under a microscope.

A chart shows the functions of the Division of Tests and Technical Control as related to the various divisions of the Government Printing Office.

CORRESPONDENCE

Approximately 1,800 letters were received during the year. These letters requested information relating to the printing, binding, and allied industries. Requests for Government Printing Office bulletins were so numerous that the stock of some of the bulletins was quickly depleted, necessitating reprints.

COMMITTEE MEMBERSHIP

The Technical Director is a member of the paper specifications committee of the Joint Committee on Printing; executive committee of the Federal Specification Board; the pulp and paper committee of the Printing Industries Division of the American Society of Mechanical Engineers; the paper-testing committee, permanence and durability subcommittee, and chairman of the subcommittee on ink resistance of printing papers of the Technical Association of the Pulp and Paper Industry; the Standards Council of the American Standards Association; the advisory committee on lithographic papers for the Lithographic Technical Foundation; and the advisory committee on permanent papers for the National Research Council.

Respectfully submitted.

M. S. KANTROWITZ,
Acting Technical Director.

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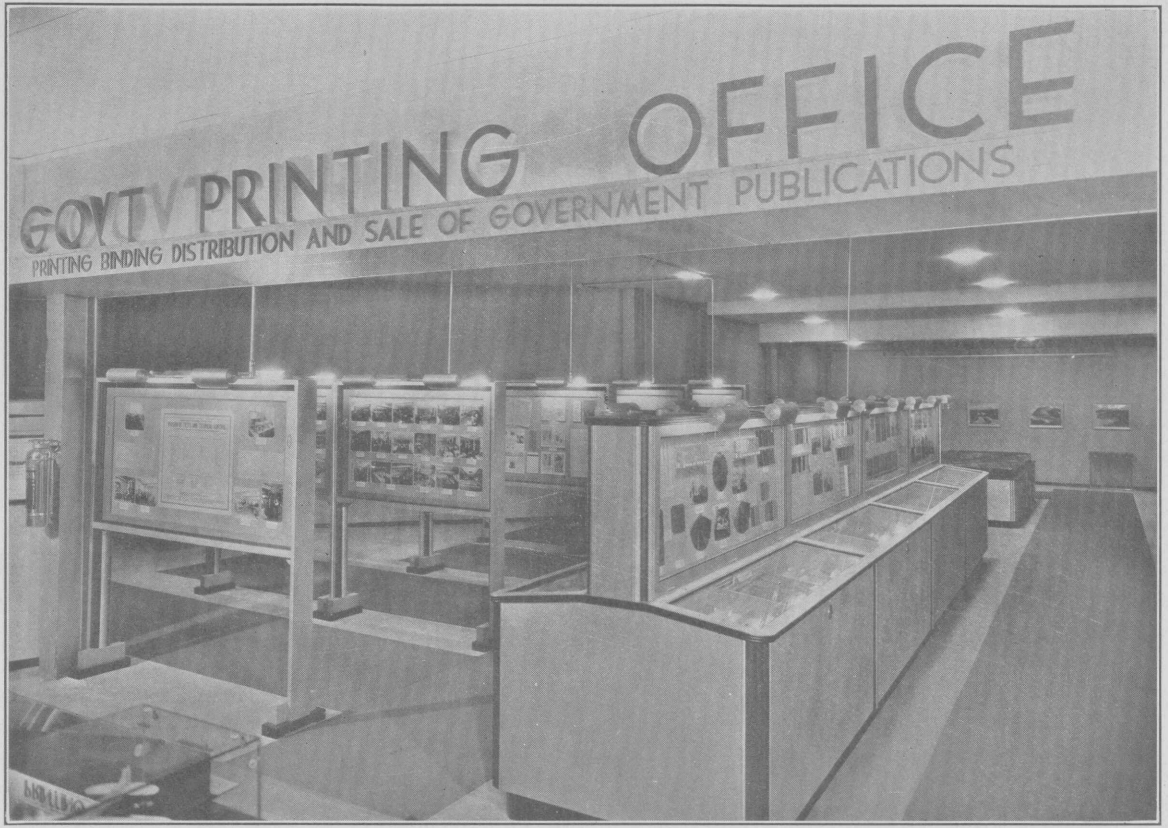

GOVERNMENT PRINTING OFFICE EXHIBIT
CENTURY OF PROGRESS EXPOSITION, CHICAGO, 1933


UNITED STATES OF AMERICA
GOVERNMENT PRINTING OFFICE