

ANNUAL REPORT
OF THE
PUBLIC PRINTER

1928



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
D. C.

U. S. GOVERNMENT PRINTING OFFICE

Public Printer.—GEORGE H. CARTER, Iowa

Deputy Public Printer.—JOHN GREENE, Massachusetts.

Production Manager.—ELLWOOD S. MOORHEAD, Pennsylvania.

Assistant to Public Printer.—MISS MARY A. TATE, Tennessee.

Chief Clerk.—HENRY H. WRIGHT, New York.

Assistant Chief Clerk.—J. THOMAS FORD, Nevada.

Superintendent of Accounts and Budget Officer.—JAMES K. WALLACE, Ohio.

Assistant Superintendent of Accounts.—FRANK E. BUCKLAND, Indiana.

Purchasing Agent.—ERNEST E. EMERSON, Maryland.

Assistant Purchasing Agent.—WILLIAM J. CASSIDAY, District of Columbia.

Superintendent of Documents.—ALTON P. TISDEL, Ohio.

Assistant Superintendent of Documents.—MISS JOSEPHINE G. ADAMS, District of Columbia.

Superintendent of Planning.—WILLIAM A. MITCHELL, North Carolina.

Assistant Superintendent of Planning.—ROBERT W. SUMMERS, New York.

Storekeeper and Traffic Manager.—WILLIAM H. KERVIN, New York.

Assistant Storekeeper.—GEORGE LAMB, Pennsylvania.

Medical and Sanitary Officer.—Dr. DANIEL P. BUSH, Nebraska.

Assistant Medical and Sanitary Officer.—Dr. ARTHUR G. HUNT, Oklahoma.

Technical Director.—EDWARD O. REED, District of Columbia.

Assistant Technical Director.—BYRON L. WEHMHOF, Washington.

Disbursing Clerk.—EDWARD J. WILVER, Pennsylvania.

Deputy Disbursing Clerk.—J. BASIL PERKINS, Minnesota.

Chief Instructor of Apprentices.—BURR G. WILLIAMS, Iowa.

Assistant Chief Instructor of Apprentices.—NATHANIEL G. WATTS, Missouri.

Congressional Record Clerk.—WILLIAM A. SMITH, District of Columbia.

Superintendent of Printing.—HERMANN B. BARNHART, Indiana.

Assistant Superintendent of Printing.—MAURICE H. PHILLIPS, Ohio.

Foreman Linotype Section.—WILLIAM D. SKEEN, Pennsylvania.

Foreman Monotype Section.—WILLIAM H. CHASE, Maryland.

Foreman Proof Section.—MARION E. BULLOCK, Maryland.

Foreman Patents Section.—RAYMOND H. LECRAW, Rhode Island.

Foreman Hand Section.—HUGH REID, Wisconsin.

Foreman Job Section.—ALLAN C. CLOUGH, New Hampshire.

Foreman Library Printing Branch.—JAMES H. HESLET, Kansas.

Chief Type Machinist.—DANIEL L. LIDDLE, Michigan.

Superintendent of Press Work.—BERT E. BAIR, Michigan.

Assistant Superintendent of Press Work.—DANIEL BECKWITH, New Hampshire.

Foreman Main Pressroom.—DANIEL I. LEANE, New York.

Foreman Job Pressroom.—JAMES E. VEATCH, New York.

Foreman Postal Card Section.—JOSEPH A. FENTON, Michigan.

Foreman Money Order Section.—JOHN A. MASSEY, Jr., Georgia.

Superintendent of Binding.—MARTIN R. SPEELMAN, Missouri.

Assistant Superintendent of Binding.—JOHN A. PATTERSON, New York.

Foreman Pamphlet Binding Section.—CHARLES J. OREM, Maryland.

Foreman Ruling and Sewing Section.—WALTER H. OLIVER, Maine.

Foreman Library Binding Branch.—GEORGE R. ERLER, Maryland.

Superintendent of Platemaking.—EDWARD G. WHALL, Massachusetts.

Assistant Superintendent of Platemaking.—EDWARD A. KERR, Massachusetts.

Foreman Molding Section.—JAMES H. BABCOCK, Jr., Rhode Island.

Foreman Finishing Section.—CHARLES H. HANSON, Pennsylvania.

Foreman Photo-Engraving Section.—

Night Assistant Production Manager.—EDWARD A. HUSE, Massachusetts.

Assistant Superintendent Presswork, night.—JOHN D. MEYERS, Ohio.

Foreman Linotype Section, night.—HARRY L. MURRAY, Pennsylvania.

Foreman Monotype Section, night.—WILLIAM A. MORRIS, Missouri.

Foreman Proof Section, night.—HARRY B. GOODRELL, Iowa.

Foreman Hand Section, night.—GEORGE O. ATKINSON, Massachusetts.

Assistant Foreman Pamphlet Binding, night.—CHARLES C. COVERT, New York.

In Charge Platemaking, night.—HERMAN C. GROTH, Pennsylvania.

Superintendent of Construction and Maintenance.—ALFRED E. HANSON, Massachusetts.

Chief Draftsman.—HENRY A. LUDWIG, Maryland.

Chief Carpenter.—ABRAHAM B. BATTON, Maryland.

Chief Machinist.—MICHAEL J. MCINERNEY, New York.

Chief Electrician.—EDWARD H. BRIAN, District of Columbia.

Chief Engineer.—WALTER A. BROWNE, New Hampshire.

Chief Pipefitter.—OVLUP H. GEORGE, New York.

Construction Foreman.—DANIEL W. BRUCE, District of Columbia.

Foreman Sanitary Section.—JOSEPH L. MAY, Virginia.

Chief of Delivery.—WALTER G. COPP, District of Columbia.

Captain of Guards.—CHARLES H. WARNER, District of Columbia.

ANNUAL REPORT OF THE PUBLIC PRINTER

UNITED STATES GOVERNMENT PRINTING OFFICE,
OFFICE OF THE PUBLIC PRINTER,
Washington, D. C., December 31, 1928.

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, 1928, and also for the last half of the calendar year 1928.

This report will complete eight fiscal years for which the present Public Printer has submitted to Congress annual accountings of his management of the Government Printing Office. In view of the fact that this cycle of years coincides with that of the last two presidential terms and covers a service equal to that of the preceding Public Printer, it seems fitting to begin this report with a brief comparison of the two periods of eight years each, from 1913 to 1920 and from 1921 to 1928, inclusive.

Undoubtedly the best test of the success or failure of any manufacturing establishment like the Government Printing Office is an analysis of its financial reports. The records of this office justify the statement that its financial success in the last eight years has exceeded that of any similar period in its history.

The total funds available to the Government Printing Office for the eight years 1921-1928 were \$100,220,601.97, which was \$27,375,-997.72, or 37½ per cent more than for the preceding eight years 1913-1920.

UNEXPENDED FUNDS TOTAL \$7,339,242.07

Of the total funds available for the last eight years, \$7,339,242.07 were returned to the Treasury unexpended. This saving was \$3,954,726.40 more than the unexpended amount returned to the Treasury in the preceding eight years 1913-1920. Thus the net increase of funds expended in the last eight years as compared with the 1913-1920 period was reduced to \$23,421,271.32, and this increase was due entirely to additional expenditures on account of higher wages, larger purchases of paper, extensive replacement of machinery and equipment worn out by war work, and much-needed repairs and alterations to the buildings of the Government Printing Office.

The wage charge alone, as authorized by law, for the last eight years increased \$16,467,594.98, or 37 per cent, including approximately \$7,000,000 previously paid as bonus and not charged as an office expenditure in the preceding eight years. The wage increase was paid to an average of 241 fewer employees, the average number employed during the eight years 1913-1920 being 4,374, as compared with 4,133 during the eight years 1921-1928.

The average annual compensation for each employee, including skilled, unskilled, and clerical, for the eight years 1913-1920 was \$1,264.47, and for the eight years 1921-1928 the average annual pay was \$1,836.25, a yearly increase of \$571.78, or 45 per cent.

COMPARISON OF HOURLY COMPENSATION

The following table shows the principal rates of wages for the years 1913, 1921, and 1928, the beginning and ending of the 8-year periods noted above:

Designation	1913	1921 ¹	1928
Compositor.....	\$0.50	\$0.85	\$1.00-1.05
Linotype and monotype operator.....	.60	.85	1.05-1.10-1.15
Proof reader.....	.60	.85	1.10
Imposer.....	.60	.85	1.10
Maker-up.....	.60	.85	1.10
Copy editor.....	.65	.85	1.10
Type machinist.....	.60	.90	1.10
Monotype casterman.....	.35	.65	.70
Type-machine helper.....	.35-.40	.65	.60-.85
Stereotype.....	.60	.90	1.10
Electrotype finisher and molder.....	.60	.90	1.10
Photo-engraver.....	None.	None.	1.20
Pressman, cylinder.....	.55	.85	1.10
Pressman, platen.....	.55	.85	1.00
Press feeder, cylinder.....	.27½	.55	.70
Press feeder, platen.....	.27½	.55	.65
Banders.....	.27½	.55	.70
Bookbinder.....	.50	.85	1.00
Bookbinder machine operator.....	.55	.85	1.05
Bindery operative:			
Folder.....			
Folding-machine operator.....			
Signature pressman.....			
Perforator.....	.25-.40	.45-.70	.55-1.05
Sewing-machine operator.....			
Ruling-machine feeder.....			
Supervisor.....			
Stock keeper.....	.30-.55	.55-.80	.70-1.00
Carpenter.....	.50	.85	1.10
Painter.....	.50	.85	1.10
Electrician.....	.55	.90	1.10
Machinist.....	.55	.90	1.10
Pipe fitter (steam fitter and plumber).....	.50	.85	1.10
Skilled laborer.....	.25	.45	.65

¹ Including the \$240 bonus, amounting to 10 cents an hour, granted by Congress in 1921.

In addition to wages, the following principal items were included in the increase of expenditures for the eight years 1921-1928: For paper stock the increase was \$5,248,034.75; for machinery and equipment, \$1,354,675.12; and for building repairs and improvements, \$1,312,000. The total for the foregoing specified increases, including the wage increase, for the eight years 1921-1928 was \$24,382,304.85, or \$961,033.53 more than the net increase of all expenditures over the preceding years 1913-1920.

It is evident, therefore, that, aside from the increased payments for wages, paper, machinery, and building improvements, the expenditures of the Government Printing Office during the last eight years, 1921-1928, were considerably less than for the eight years 1913-1920, notwithstanding the fact that approximately \$2,500,000 more was expended for permanent improvements, such as machinery, equipment, power-plant, and building operations, during the eight years 1921-1928 than in the preceding 8-year period.

In addition to operating at an actually less cost, excepting the unavoidable extra wage charges, the Government Printing Office materially increased its production in the 8-year period 1921-1928 over that of 1913-1920. The computed charges for work done during the eight years 1921-1928 amounted to \$20,065,747.05, or 28 per cent, more than for the eight years 1913-1920.

INCREASE OF ONLY 10 PER CENT IN PRICES

Included in the 28 per cent increase of the total charges was an advance of approximately only 10 per cent in the general scale of prices, which was due chiefly to the large increase of wages and shows that the greater part of the increased charges was on account of the larger volume of work done.

With the heavy and unavoidable burden of the increased wage charge, including absorption of the war bonus as a part of the office pay roll instead of a gratuity, it is indeed remarkable that the general scale of prices could be kept down to an advance of only 10 per cent.

The higher wage charge was also offset by the increased efficiency of employees and the greater production of the more improved machinery installed during the last eight years.

Larger presses and greater pressroom efficiency reduced the number of actual printed impressions for the eight years 1921-1928 to 408,-211,055 less than for the preceding eight years, while at the same time the number of chargeable impressions or copies printed was increased 1,244,622,283 copies more than for the preceding eight years 1913-1920, the total number of chargeable impressions for the eight years 1921-1928 being 16,703,294,028. This total does not include postal cards or money-order forms.

Of postal cards, 11,565,660,424 were printed in the eight years 1921-1928, an increase of 4,287,751,375, or 59 per cent more than were printed in the preceding eight years.

The increased production of money-order forms almost equaled the unprecedented growth of postal-card printing. During the last eight years 2,503,605, or 48 per cent, more money-order books of 200 forms each were printed than during the eight years 1913-1920, the total number of money-order books for the eight years 1921-1928 being 7,719,404.

MORE WORK BY FASTER MACHINES

The output of several groups of bindery machines also increased greatly during the eight years 1921-1928. With the installation of larger and faster folding machines, this work increased 210,704,917 sheets, or 13 per cent, the total number of sheets machine-folded for the eight years 1921-1928 being 1,777,721,171.

Likewise, there was a good increase in signatures gathered by machines, which numbered for the last eight years 1,126,436,161, an increase of 33,496,943, or 3 per cent more than for the eight years 1913-1920. During the 8-year period 1913-1920 a large amount of folding and gathering was done by hand, which has been superseded by machine work in the last eight years.

On the other hand, the number of ems of type set and the number of books wire-stitched (paper bound) and cased-in (cloth bound)

decreased materially during the eight years 1921-1928, showing clearly that the Government has returned to normal in its publications, which reached the highest peak in the eight years 1913-1920, including the war period.

With approximately 70 fewer compositors, including type-machine operators, the number of ems of type set in the eight years 1921-1928 was 17,032,936,300, within 1,778,651,800, or 9 per cent, of the type output during the war period of 1913-1920. This splendid record was made possible by the increased efficiency of the type-machine operators during the eight years 1921-1928. In that period the average number of ems set per hour by linotype operators was 4,240, or 444 (12 per cent) more than the hourly average for the eight years 1913-1920. The average for monotype-keyboard operators was 5,806 ems per hour, or 966 (20 per cent) more than the hourly average for the preceding eight years, 1913-1920. The increase was brought about largely by the sliding scale of wages paid operators based on their individual production and inaugurated in 1924.

NEW METHODS DECREASE PLATING

There was a large decrease in the amount of electrotype and stereotype plates produced in the eight years 1921-1928 as compared with the preceding eight years, due principally to new economies in printing methods, such as the installation of offset presses, use of 32-page in place of 16-page chases, and the increase of printing from type to save unnecessary plating cost.

In the eight years 1921-1928 there were made 89,707,423 square inches of electrotype and stereotype plates, a decrease of 25,393,420 square inches, or 22 per cent less than the output for the eight years 1913-1920.

The large amount of printing plates made during the war period was due principally to the tremendous requirements of the Army for the printing of its orders, regulations, and drill manuals, of which vast quantities were furnished by the Government Printing Office.

The records of the office show that wherever there was a greater output of any product for the eight years including the war period, 1913-1920, than in the last eight years, 1921-1928, the larger production was due entirely to the greater force of employees and the longer hours of labor during the preceding eight years. No record was kept of the total amount of overtime, Sunday, and holiday work done by the employees of the Government Printing Office during the eight years 1913-1920, but it is known that the extra hours of employment of the larger force in these years far exceeded the additional working hours as fully recorded for the smaller force of the last eight years. During the period the United States was in the World War three shifts of employees were required to work a great amount of overtime to keep the plant in operation almost continuously until after the armistice.

OVERTIME AND HOLIDAY WORK REDUCED

An insight of the vast amount of extra time required by the larger force of the preceding administration to complete its work is to be had in the records recently compiled for the last year of that period,

1920, in which there were 356,480 hours of overtime, Sunday, and holiday work. In the first year of the present administration of this office, 1921, the extra time was reduced to 130,362 hours.

In accord with the foregoing comparison of the two 8-year periods 1913-1920 and 1921-1928, the Government Printing Office has progressed in efficiency during each of the last eight years. Having passed the peak period of expenditures for necessary rehabilitation of the plant after the exhausting war work, the cost of operation for the fiscal year 1928 was reduced \$511,040, or 4 per cent, under that of the fiscal year 1927, the total cost of operation for 1928 being \$11,994,042.58.

Purchases made in the fiscal year 1928 totaled \$3,717,540.40, a decrease of \$301,000 from the expenditures for that purpose in the preceding year.

The overhead expense for the year 1928 was reduced about 1 per cent, notwithstanding the authorized advances in wages and salaries.

917 FEWER EMPLOYEES THAN IN 1920

The average number of employees on the rolls in the fiscal year 1928 was 4,072, which was 31 less than for the preceding year and 917 under the average number of employees in the fiscal year 1920.

Compensation of employees, not including those in the public documents division, increased approximately \$50 per employee for the fiscal year 1928, due to having earned their leave for that year at the higher rates granted in the preceding year under the Kiess Act.

The total amount of salaries and wages earned during the year 1928 was \$8,541,605.81. Of this sum, \$279,888.43 was transferred to the retirement fund and the remainder paid to the employees.

With a better-paid and more-contented force, the labor turnover for the fiscal year 1928 was reduced to 13 per cent, the lowest it has been for many years. This stabilizing of employment greatly increased efficiency by retaining a more experienced and reliable force of workers.

With these economies and notwithstanding the higher wages, it was still possible to leave in the Treasury at the end of the fiscal year 1928 an unexpended and unobligated balance of \$622,653.98 out of the total of \$13,017,244.39 of funds that were available for expenditure by the Public Printer during the year.

In addition to returning to the Treasury \$622,653.98 out of the total available funds, there was deposited in the Treasury as miscellaneous receipts, which are not available for expenditure by the Government Printing Office, the sum of \$278,030.16 from the sale of publications and waste materials, an increase of \$86,455.71 over the miscellaneous receipts so deposited in the fiscal year 1927.

UNUSED BALANCES AND RECEIPTS

Thus the total amount of money which the Government Printing Office turned over to the Treasury in the fiscal year 1928 for other use by the Government was \$900,684.14, bringing the amount of unexpended balances and deposits to miscellaneous receipts for the eight years 1921-1928 up to the grand total of \$9,499,930.25.

Printing and binding for the fiscal year 1928 amounted to \$13,170,-146.63, including \$800,000 expended for labor and materials on uncompleted jobs, which total exceeded the charges for 1927 by \$477,832.14. These charges were made against 330 different appropriations available to the various branches of the Government service for printing and binding.

Orders for printing and binding to the number of 58,900 were received during the fiscal year 1928, some single orders covering hundreds of jobs. Separate and detailed instructions for working each one of these jobs had to be written, together with advance estimates as to the cost of 52,149 of the orders. About 7,000 orders are in progress through the plant at all times.

The increase in number of orders for the year was 4,732, which represents the annual normal growth of the business of this office. The estimated value of uncompleted departmental orders on hand July 1, 1928, was \$2,397,524, an increase of approximately \$223,000 over those on hand July 1, 1927.

In charging completed work to the various branches of the Government service, 74,489 bills were computed during the fiscal year 1928, an increase of 2,000 more bills than in 1927. The bills are all based on a uniform scale of charges, which is determined by an accurate record of the cost of the various operations compiled from individual and production meter reports covering every one of the large number of operations required for the finished product.

For the first time in a number of years the cost of composition was reduced somewhat. This was due to the increased efficiency of the type-machine operators, who set 2,101,301,000 ems of type, or 41,000,000 ems more, during the fiscal year 1928 than in 1927.

REDUCTION IN COST OF COMPOSITION

The greater production of type by practically the same number of operators and the increase in proof reading by fewer employees brought about a reduction of $6\frac{3}{5}$ cents in the cost per thousand ems of type set, proof read, made up, and locked up.

Linotype operators increased their average for the year to 5,133 ems per hour as compared with an average of 4,883 ems in 1927 and an average of 3,545 in 1920. Monotype-keyboard operators maintained an average of 6,849 ems per hour for the fiscal year 1928, which was only 6 per cent short of their record mark of 7,312 ems per hour in 1927 and far outdistanced the 1920 average of only 4,528 ems per hour.

In compensation for the increased production, more than 50 per cent of the type-machine operators were paid the maximum rate of \$1.15 per hour for day work and \$1.32 per hour for night work, the full-time annual compensation at the latter rate amounting to \$3,305.28 per operator.

Presswork also made a fair gain in the fiscal year 1928, with a total of 496,693,620 actual impressions, or 12,014,941 more impressions than were printed in 1927, although the division had 15 fewer employees on the roll in 1928.

FINE SHOWING OF OFFSET WORK

A fine showing was made in the increase of offset presswork during the year, the chargeable impressions of which increased 30,000,000 over the preceding year. With a new press installed during the year, the section now has three offset presses in operation, with a complete equipment of other machines required for this work.

A special undertaking in offset printing has been the reproduction of millions of catalogue cards for the Library of Congress. This new method of printing the cards has brought about a worth-while economy and has materially expedited the reproduction of catalogue cards for the use of libraries throughout the country.

Authors' alterations, the bugaboo of printing, cost \$31,163.15 less in 1928 than in 1927, the total expense for making these changes in type amounting to \$192,818.94 for the fiscal year 1928.

It is rather startling to note that authors' alterations in the last eight years, 1921-1928, cost the Government the sum of \$1,610,-051.61, much of which expense could undoubtedly have been saved by the better preparation of copy before it was submitted to this office to be put into type.

The Department of Commerce heads the list of authors chargeable with this additional cost of printing in an expenditure of \$211,936.06 for alterations made to printed proofs reviewed by that department in the last eight years. Authors' alterations in congressional publications during the same period cost \$175,376.71, and in agricultural publications \$147,791.61. The War Department paid \$146,656.73 for its authors' alterations in the eight years. The Navy Department likewise had to expend \$138,117.63.

None of these expenditures includes the cost of the original proof reading, which was done in the Government Printing Office, and they cover only the additional expense incurred in making alterations as requested by the respective departments.

CHARGES FOR "RUSH" WORK DECREASE

"Rush" work, consisting of jobs that on request are handled ahead of the usual routine of work in the Government Printing Office, is showing some decrease, owing to the more expeditious completion of the regular run of work. The extra charges for departmental "rush" work in the fiscal year 1928 amounted to \$24,130.39, which was \$1,449.78 less than for 1927. The total extra charge for "rush" work in the last eight years, 1921-1928, was \$223,036.49.

Voluminous annual reports have been held in check quite well by the various departments and establishments of the Government in recent years. The cost of printing the annual reports in the fiscal year 1928 was \$211,963.09, as compared with the cost of \$211,571.96 for the annual reports in 1927.

The annual reports in 1928 filled 20,103 type pages, of which 461,076 copies were printed, while the reports in 1927 made 20,276 pages, of which 412,315 copies were printed.

The annual reports in the fiscal year 1920 cost \$360,436.65 and filled 58,940 type pages, of which 481,708 copies were printed.

The total cost of printing the annual reports of the Public Printer for the eight fiscal years 1913 to 1920, inclusive, was \$41,000.72, and the total cost for the eight years 1921 to 1928 was \$6,383.91, a decrease of 84 per cent.

NO NIGHT WORK LAST SUMMER

For the first time since the beginning of the World War it was found possible to disband temporarily the regular night force on May 31, 1928, immediately after the adjournment of Congress for the session. The night employees were then united with the day force, and the work of the office carried on more economically and efficiently with a single working force during the summer and early fall of 1928.

However, with an increase of work and the urgency for expediting annual reports later in the year, the night force was partially restored on October 1, and when congressional work resumed a full night force was reassigned to duty beginning November 26.

The combination of the day and night forces, when the latter is not needed for congressional work, is made possible by the installation of additional type-setting machines and presses and the enlargement of the proof room, together with better facilities throughout the entire plant for the handling of the work.

During the fiscal year 1928 there were 70,429 hours of overtime, Sunday, and holiday work for which employees were paid 50 per cent in addition to the regular day rate of wages. Of this extra work 15,511 hours were used by the night force to complete congressional printing within the delivery requirements through the session of Congress. In the fiscal year 1927 extra work amounted to 65,294 hours, or 5,135 hours less than in 1928.

It is the constant endeavor of the Public Printer to keep overtime work at the lowest possible number of hours consistent with meeting the demands for emergency and immediate service, and a comparison with the overtime hours which employees were required to work prior to 1921 will show how great has been the reduction. In the fiscal year 1920 employees were required to work 356,480 hours in addition to their regular eight hours of daily employment, including extra services rendered on Sundays and holidays. The cost of the extra work in that year was \$303,473.83.

CONGRESSIONAL PRINTING HEADS LIST

More printing was done for Congress than for any other establishment of the Government during the fiscal year 1928. Charges for printing and binding for Congress in 1928 amounted to \$2,460,616.08, which was approximately \$430,000 more than the cost of printing for the entire Postal Service (except stamped envelopes, which are not printed by this office), which is the next largest customer of the Government Printing Office. The cost of congressional printing increased \$227,647.08, or 10 per cent, over the amount expended for that purpose in the preceding fiscal year.

Congress is the only establishment of the Government that pays in advance for its printing. The \$2,500,000 working capital annually

appropriated for the Government Printing Office is chargeable with the entire cost of printing for Congress to an equal amount. Thus far the fund has proven adequate, although each year the amount of congressional printing almost exhausts the entire working capital.

Although the first session of the Seventieth Congress, which coincided with the fiscal year 1928, was one of the shortest first sessions for many years, its activities required more printing and binding than any first session for at least the last six Congresses.

The average number of pages of the daily Congressional Record for the session was 80, which was more than the average for any preceding session of Congress. The average for the first session of the five preceding Congresses was 66 pages for each issue of the daily Record.

The total number of pages of the daily Record for the last session, 12,844, was somewhat less than for the first session of the two preceding Congresses, owing to the fact that those sessions covered 10 and 29 days more, respectively. For eight consecutive days, near the close of the last session, the Record averaged 145 pages daily.

DAILY RECORD PRINTED ON TIME

Notwithstanding the unusual size of the Record throughout the session, this office was able to complete its printing and mailing before 8 o'clock of the morning following for each day of the session with only two exceptions, neither of which was due to any delay in printing.

The total cost of printing and binding the daily and permanent editions of the Record for the first session of the Seventieth Congress was \$650,305.75. However, only part of this expense was chargeable to the fiscal year 1928, as the bound edition of the Record was not completed until after July 1, 1928.

Printing the issues of the daily Record required 1,940,000 pounds of newsprint paper.

In addition to the 34,000 copies of the daily Record, there were printed of the permanent edition 4,830 sets of 11 volumes each, making in all a total of 53,130 volumes which were printed on machine-finish paper and bound in buckram for distribution by the Members of Congress.

It is interesting to note that 919 "speeches" were inserted in the Congressional Record during the session under "leave to extend remarks" not uttered on the floor. Of this number, 69 were printed under the "general leave" granted by the House on the last day of the session, May 29, 1928.

MEMBERS PAY FOR REPRINTING SPEECHES

Senators and Members of the House paid the Public Printer a total of \$68,266.19 for reprinting from the Record 17,191,250 copies of their speeches for personal distribution during the fiscal year 1928. In the fiscal year 1927 they paid \$66,272.22 for 15,719,400 copies of speeches printed by the Government Printing Office.

These charges do not include the cost to the Government of printing 27,466,950 envelopes, which, by law, are furnished free to Sen-

ators and Members for mailing their speeches and other Government publications. The cost of the envelopes so printed and furnished free during the fiscal year 1928 was \$66,813.17.

The cost of printing the extensive hearings held by committees of Congress is increasing year by year. In the fiscal year 1928 the charges for printed hearings amounted to \$275,328.76. The hearings of that year filled 58,665 type pages, and 257,646 copies were printed.

For the three years 1926, 1927, and 1928 the total cost of the hearings printed was \$799,594.11. The hearings for the three years totaled 203,609 type pages, and 809,118 copies were printed.

The largest hearing printed in 1928, that held by the House Committee on Flood Control, contained 5,406 pages. Preliminary to the printing of this hearing the committee in charge was furnished with 20 galley and 20 page proofs of the entire hearing and its 407-page report, making a total of 186,810 proofs that were submitted to the committee previous to the final prints of the hearing and the report.

HEARINGS ON APPROPRIATION BILLS

Hearings on appropriation bills in the fiscal year 1928 totaled 13,545 pages, one House hearing alone having 1,442 folios of type-written copy, which made 502 type pages. For the hearings on appropriation bills a total of 143,495 proofs were supplied to the House Committee on Appropriations.

On the same night that the 502-page appropriation hearing was printed there were also printed a Congressional Record of 121 pages, 66 committee reports making 210 pages, 17 appropriation documents, 253 bills, and 5 committee calendars making 370 pages. In all, 295 forms of type were sent to press that night in addition to the completion of numerous smaller jobs of printing. This indicates the amount of work that has to be handled by the night force of the Government Printing Office during a session of Congress. In fact, approximately 90 per cent of all the printing for Congress is done by the night force.

The total cost of all printing for the committees of Congress in the fiscal year 1928, ranging from letterheads to hearings and other large publications, was \$444,678.97. Of this sum, \$122,477 was expended in printing for committees of the Senate and \$322,201.97 for committees of the House.

For the 132 legislative days of the last session (Seventieth Congress, first session) 19,802 separate bills and resolutions were printed, of which from 130 to 740 copies each were delivered to the Capitol. This set a new record for bills and resolutions introduced at one session of Congress and exceeded the record of the first session of the Sixty-ninth Congress, with its 158 legislative days, by 922 bills and resolutions.

PRINTED BILLS AVERAGE 220 DAILY

The total number of all kinds of prints of bills and resolutions was 29,022, or an average of 220 for each day of the first session of the Seventieth Congress.

The total number of pages of bills and resolutions printed during the session was 103,942.

Committee reports on the bills and resolutions of the session numbered 3,254, of which 1,327 were Senate reports and 1,927 were House reports. This number of reports exceeded by 458 the reports of the preceding session. The committee reports in the first session, Seventieth Congress, were not only greater in number, but were also larger in volume. As before mentioned, the report of the House Committee on Flood Control alone filled 407 pages.

As a result of printing more bills and committee reports, there was a marked increase in the printing of laws enacted by the first session of the Seventieth Congress. For the session 993 laws were passed, each of which was printed in the form of slip laws, session laws, and as part of the Statutes at Large.

Included in this large number of laws were five omnibus pension bills, which had been made up by consolidating 4,117 separate pension bills, thus bringing the total number of bills enacted into law during the session up to 5,105. Therefore, approximately one-fourth of the number of bills introduced in the first session of the Seventieth Congress became laws.

COMPARISON FOR SIX SESSIONS OF CONGRESS

The following table compares the work done by the Government Printing Office in the printing of the Congressional Record, bills, resolutions, and committee reports for the first sessions of the Sixty-fifth to the Seventieth Congresses, inclusive:

First sessions, Sixty-fifth to Seventieth Congresses

Class of work	Sixty-fifth Congress	Sixty-sixth Congress	Sixty-seventh Congress	Sixty-eighth Congress	Sixty-ninth Congress	Seventieth Congress
CONGRESSIONAL RECORD						
Daily and index:						
Issues.....	171	165	177	171	190	161
Total pages.....	9,593	10,402	10,028	13,016	14,798	12,844
Average pages per issue.....	56	63	57	76	78	80
Bound Record, total pages.....	9,170	9,868	9,526	12,037	13,935	11,704
SENATE BILLS AND RESOLUTIONS						
Bills.....	2,984	3,457	2,773	3,492	4,549	4,600
Simple resolutions.....	151	234	178	258	275	23
Joint resolutions.....	104	127	137	146	127	263
Concurrent resolutions.....	15	17	15	21	25	166
Total.....	3,254	3,835	3,103	3,917	4,976	5,052
HOUSE BILLS AND RESOLUTIONS						
Bills.....	6,511	10,735	9,283	9,802	13,263	14,143
Simple resolutions.....	173	397	235	355	312	238
Joint resolutions.....	163	249	226	295	291	326
Concurrent resolutions.....	26	38	31	29	38	43
Total.....	6,873	11,419	9,775	10,481	13,904	14,750
Total Senate and House.....	10,127	15,254	12,878	14,398	18,880	19,802
REPORTS						
Senate.....	177	309	324	796	1,189	1,327
House.....	201	476	495	1,030	1,607	1,927
Total.....	378	785	819	1,826	2,796	3,254

In addition to the vast amount of printing for Congress, as heretofore noted, the Government Printing Office also furnishes a large amount of other printing and binding for Congress every year.

An increasing task is the printing of business calendars for various committees of the Senate and the House. During the last session of Congress calendars were printed for 25 committees. These calendars have to be made up anew and reprinted for every meeting of a committee, and they contain from 8 to 202 pages for each issue.

CALENDARS FOR SENATE AND HOUSE

Business calendars are also printed daily during a session for the use of the Senate and the House. The House Calendar in particular has become quite a pretentious publication and reached a total of 11,414 pages for the entire session.

The printing of forms for consideration by the Senate of presidential nominations is also quite an undertaking and a very exacting one. During the last session of Congress such papers were printed for the consideration of 8,501 presidential nominations.

Congress is also especially interested in the printing of the Agriculture Yearbook, which has the largest edition of any publication printed annually by the Government Printing Office. Approximately 400,000 copies of the Yearbook are printed annually, and of this number 360,000 are distributed by Members of Congress.

The Yearbooks printed in 1928 cost \$315,920.65, and of this amount \$286,614.14 was charged to Congress for copies printed in that year for distribution by Members of Congress.

COST OF AGRICULTURE YEARBOOKS

The Yearbooks dated 1925, which were printed in 1926, cost \$363,610.48, or \$47,689.83 more than the 1926 books, printed in 1927. The higher cost was due to the greater number of pages in the book of 1925, which contained a total of 1,538 pages. A book of this size was too large for economical handling on bindery machines. At the suggestion of the Public Printer the size of the 1926 Yearbook was reduced to 1,319 pages, which was handled on bindery machines at considerably less cost than was incurred in the numerous hand operations required by the larger Yearbooks. Copies of the Yearbook are bound in cloth.

A further improvement in the Yearbook could be made by omitting the annual report of the Secretary of Agriculture for the preceding fiscal year, inasmuch as the law authorizing the Yearbook requires that the Secretary's report shall be printed as a separate part. For instance, the Yearbook printed in 1928 bears the date 1927 because it contains the Secretary's report of that fiscal year. This, of course, makes the Yearbook seem almost obsolete when published, although, except for the Secretary's report of that year, it consists almost entirely of up-to-date matter. Dating the book one year behind the year in which it is printed also causes unjust criticism of the Public Printer for an apparent delay in printing, which really is not the fact.

The Government Printing Office has not yet received copy for the Yearbook of 1928, which will be printed in 1929 and therefore will not become available for distribution until the middle of that year.

Members of Congress are also greatly interested in the printing of Farmers' Bulletins, of which they distribute about 10,000,000 copies annually. In the annual appropriations for the Department of Agriculture there is an item of "not to exceed" \$250,000 to pay for the publication of Farmers' Bulletins, and the law allots four-fifths of the copies printed with this appropriation to Members of Congress for distribution to constituents. The mailing of these bulletins is done at the Government Printing Office under the direction of the Superintendent of Documents, to whom the orders of Members of Congress are submitted through the Department of Agriculture.

In the fiscal year 1928, the total number of Farmers' Bulletins printed was 11,166,115, costing \$150,595.16; and in 1927 the number printed was 13,060,511, costing \$181,594.16.

PRINTING FOR POST OFFICE DEPARTMENT

The Post Office Department, which sometimes tops the list, ranked second to Congress in the volume of printing done for it by the Government Printing Office during the fiscal year 1928. The total charge for Postal Service printing in the year 1928 was \$2,031,595.71, which was approximately \$400,000 less than for the preceding fiscal year.

The two principal jobs of printing which this office does for the Postal Service are postal cards and money orders. Postal cards printed in 1928 totaled 1,726,524,392, and the Post Office Department paid this office \$980,495.20 for cards shipped from this output. The printing of Government postal cards decreased 223,983,908 cards from the record production of almost 2,000,000,000 cards in 1927. This decrease was due undoubtedly to the new law reducing the postage rate on commercial cards and to authorizing the use of postage permits in lieu of stamps and stamped cards.

On the other hand, money-order printing increased slightly, with a total production for the year 1928 of 1,005,265 money-order books of 200 forms each. The charge for printing money orders for the year was \$163,853.66.

On account of the reduced cost of printing postal cards and money orders, the Public Printer, on July 30, 1927, notified the Postmaster General of a voluntary reduction in the charges for printing postal cards and money orders beginning August 1, 1927. The reduction in charges will save approximately \$209,000 a year for the Post Office Department, which reduced its estimate of appropriations accordingly for the ensuing fiscal year.

RUSH JOB BY RADIO AND AIRPLANE

The wonderful service which the radio and the airplane are now rendering the Government was shown in a most impressive manner recently by the use of both of these marvelous inventions to expedite the delivery of money-order forms printed by this office for the postmaster at Ketchikan, Alaska. The postmaster sent a radiogram from the Alaskan office at 6.04 p. m. on November 19. The message was received by the Navy station in Washington, D. C. at 9.45 a. m. November 20 and was telephoned through the Post Office Department to the Government Printing Office a few minutes later. The

required money-order forms were printed by this office within an hour and by noon the same day were on their way to Alaska by airplane. The Alaskan postmaster thus received the much-needed forms within six days after he had radioed his order to the Government Printing Office.

The Post Office Department states that this is probably the shortest time ever made in forwarding any article from the Atlantic coast of the United States to far-away Alaska, and is a remarkable record considering the fact that the forms had to be printed and bound into a book after receipt of the order. It is pleased to note that the Government Printing Office did its full part in making this record possible.

In addition to postal cards and money orders, the Government Printing Office prints millions of other cards and blank forms for the Postal Service. Of money-order applications, registry cards and notices, and address and delivery slips, there were printed in 1928 a total of 469,742,000, an increase of 44,466,000 over similar printing done in the fiscal year 1927.

COMMERCE DEPARTMENT RANKS THIRD

The Department of Commerce, including the Patent Office, which was transferred to that department from the Department of the Interior on April 1, 1925, now comes third in the volume of printing executed annually by the Government Printing Office. The total charges for printing for the Department of Commerce in 1928 amounted to \$1,769,674.62. This sum included \$977,209.41 for printing for the Patent Office, making the net total of printing for all the other branches of the Department of Commerce amount to \$792,465.21, or \$10,626.25 less than in 1927.

In the year 1928 there were printed by the Government Printing Office 5,355,084 copies of specifications of patents, trade-marks, and designs, a decrease of 247,000 copies from the 1927 total. The number of type pages of specifications in 1928 was 142,073 as compared with 148,914 in 1927. The decrease was due to the insufficient force in the Patent Office for the examining of specifications and the growing accumulation of applications awaiting action in the Patent Office.

The Commissioner of Patents reports an income to the Government of more than \$28,000 a month from the sale of patent specifications at 10 cents per copy. The number sold by him in 1928 was 3,459,829 copies.

SAVING IN SALE OF PATENT GAZETTE

Transfer of the public sale of the Official Gazette of the Patent Office to the Superintendent of Documents on recommendation of the Public Printer relieved the Patent Office of the charge for 110,000 copies of the Gazette which were sold by the Superintendent of Documents in 1928. The sale of the Patent Gazette was transferred to the Superintendent of Documents on January 1, 1928, in compliance with the act of May 11, 1922, which authorized the Superintendent of Documents to sell copies of Government publications. In accordance with that law, the price of the Gazette was increased from \$5 to \$10

a year, which more nearly reimburses the Government for the cost of such printing.

The charge to the Patent Office for the printing of the Official Gazette in 1928 was \$172,921.11, which was \$73,593.67 less than the charge for 1927, and represents in part the saving to the Patent Office in the sale of the Gazette by the Superintendent of Documents.

In the year 1928 there were printed 279,136 copies of the Gazette, which was 57,871 less than in 1927. The number of pages of the Gazettes printed in 1928 was 12,896, as compared with 16,174 in 1927.

The total cost of the Patent Gazette in 1928, including sale and distribution copies for the Superintendent of Documents, was \$191,-487.33, which was \$55,027.45 less than in 1927.

Fourth place in the list of customers of the Government Printing Office was held both in 1927 and 1928 by the Treasury Department, which expended for its printing in 1928 the sum of \$967,803.77.

About the biggest job printed annually for the Treasury Department is that of income-tax blanks, of which 50,335,000 were printed in 1928, a decrease of 2,714,500 from the total number of income-tax blanks printed in 1927.

DECREASE OF INCOME-TAX BLANKS

With the reduction of income taxes and the elimination of many taxpayers, the printing of tax blanks has been decreasing year by year. In 1926 the total was 77,884,746 blanks, and for several years prior the maximum number of approximately 100,000,000 blanks was reached.

Other large customers of the Government Printing Office are the Department of Agriculture, which expended \$884,886.23 for printing and binding in the fiscal year 1928; the War Department, with an expenditure of \$654,509.55; the Navy Department, with \$614,388.04; and the Library of Congress, with a printing and binding expenditure for the year of \$343,853.76.

The Library of Congress printing included a great number of catalogue cards, for which it is subsequently reimbursed by its customers among libraries throughout the world.

In all, the Government Printing Office had as its customers during the year 57 establishments in the executive, legislative, and judicial branches of the Government.

LETTERS COMMENDING WORK OF OFFICE

Numerous letters and messages commending the work of the Government Printing Office during the year have been received from various officers of the Government, who have been appreciative of the Public Printer's efforts always to meet their special requirements and emergencies.

It was particularly pleasant to note a statement of the Hon. Charles Evans Hughes, former Secretary of State, calling attention to "the superior expertness and facilities of the Government Printing Office."

The following are extracts from some of the letters addressed to the Public Printer expressing appreciation of the prompt and efficient services rendered by the Government Printing Office in numerous instances:

From Mr. Robert E. Olds, Undersecretary of State:

My attention has just been called to the fact that the department has received in the last two months two pieces of work from the Government Printing Office which deserve special commendation.

The memorial book of the Lindbergh flight was handled by the Government Printing Office in 7 days, June 3 to June 9, inclusive, including the binding. It was a rush job to meet an obvious emergency and everyone appears to have cooperated heartily.

More recently the Government Printing Office has delivered 601 pages of page proof twice document size, the preliminary report of the approaching radio-telegraph conference, most expeditiously. * * * This constitutes a notable record.

From Mr. Tyler Dennett, Chief of the Division of Publications, writing for the Secretary of State:

The rebound volumes of the original laws of the first 17 Congresses have been delivered to the department. I am glad to say that everyone is very much pleased with the looks of these volumes and the splendid workmanship which has gone into the rebinding. From the standpoint of utility, as well as good looks, this is the finest job of the sort I have ever seen. The Government Printing Office is to be congratulated on being able to command the services of such expert and clever workmen.

From Dr. L. S. Rowe, director general, Pan American Union:

I want to take an early opportunity to express to you my deep appreciation of your kindness in pushing the completion of the printing of the report of the delegation of the United States to the Habana conference.

I am always very grateful to you for your constant and unfailing cooperation.

THANKS FROM THE SOLICITOR GENERAL

From Col. William D. Mitchell, Solicitor General of the United States:

I want to speak of a very fine piece of work that your office has just done for mine. Owing to a sudden break of the calendar of the Supreme Court the case of *Grosfield et al. v. The United States*, No. 62, was reached for argument to-day, when we had not expected it to be reached for a week or more. Yesterday afternoon the typewritten draft of our brief was delivered to your office, and to-day, before the court convened at 12 o'clock, the printed brief, practically without errors, was on file.

I want to congratulate you on the efficiency of your department and to thank the workmen in this case for helping us out of a difficult situation, and at the same time to express my appreciation of the work you have done for us in the past.

From Hon. Ogden L. Mills, Undersecretary of the Treasury:

During the past week the Treasury's refunding operations necessitated exceptional demands upon the Government Printing Office for circulars, placards, and other printed matter. These announcements were essential in order that the thousands of holders of second Liberty loan bonds might be advised of the Treasury's offer to exchange their bonds, and any delay in the mailing of these announcements would have appreciably impaired the effectiveness of the announcement.

I wish to advise you of this department's appreciation of the manner in which the work was accomplished by the Government Printing Office. Prompt attention was given to the composition and revision, and deliveries were expedited in full accord with the Treasury's wishes. I shall be pleased if you will convey my thanks to your assistants who cooperated so heartily with the Treasury in this undertaking.

SECRETARY OF TREASURY PLEASED

Another letter from Undersecretary Mills:

I desire to express for the Secretary his appreciation of your courtesy in connection with the printing of his annual report for the fiscal year 1927. The work was promptly and skillfully executed under heavy pressure in point of time because of the department's inability to obtain earlier the mass of figures which it contains. The report was delivered to the Congress at the appointed time.

The marked and uniform courtesy of the employees of your office in dealing with representatives of the department deserves especial mention, and I am pleased to advise you of it.

From Surg. Gen. H. S. Cumming, of the Public Health Service, Treasury Department:

I take pleasure in inviting your attention to the very satisfactory manner in which your office handled two recent requisitions for printing sent in by the Public Health Service.

I refer to Treasury Department requisition No. 2713, which called for 1,000 posters to be used in connection with National Negro Health Week. This requisition was made on February 5, and proof of the posters, to be printed in colors, was returned to the bureau for approval on February 14.

On February 9, Treasury Department requisition No. 2775 was sent to your office, calling for the bulletins to be used during National Negro Health Week. On February 16, proof of this bulletin was received, approved, and returned to the Government Printing Office. We are expecting to receive the finished job on both the posters and the bulletin before the end of February.

From Hon. Alvin W. Hall, Director, Bureau of Engraving and Printing:

I want to express to you my appreciation and thanks for the exceptional service rendered this bureau in the preparation and delivery of 4,670 electrotypes for the printing of standard form Treasury bonds.

On Wednesday, May 25, at 1.30 p. m., Mr. Duncan, superintendent of the surface printing division, presented our problem to Captain Moorhead. Through the courtesy and cooperation of your planning unit, job composing room, and foundry, all regular work was set aside for the special order from this bureau, with the result that on the next morning a delivery of electrotypes for the bond backs was made and we were able to print 84,000 impressions on bonds the same day. On May 28, the final delivery on this order of electrotypes was received.

I have always received splendid cooperation from your organization, but the results obtained in this instance were so striking that I believe they deserve special mention.

From Dr. George Otis Smith, Director of the Geological Survey:

You will be interested in the comment recently received from Prof. Henry Fairfield Osborn, of the American Museum of Natural History, New York, who has been examining the page proof of Geological Survey Monograph 55, *The Titanotheres of Ancient Wyoming, Dakota, and Nebraska*, of which he is the author. He writes:

"On the whole the printing is a magnificent piece of work, which reflects the greatest credit on your staff and on the Public Printing Office as well."

APPRECIATION FROM SECRETARY JARDINE

From Hon. William M. Jardine, Secretary of Agriculture:

May I express my pleasure at the very satisfactory and expeditious handling by the staff of the Government Printing Office of Miscellaneous Circular 107, *Emergency Method for Reconstruction of Flooded Sugar-Cane Districts in Louisiana*.

We forwarded the manuscript and photographs for halftone illustrations to the printing office on the evening of June 8, and the first delivery of the

edition were received June 11, at which time a portion of the edition was mailed to field addresses furnished.

The situation which made necessary the prompt issue of the circular was pressing and important, and through the splendid cooperation of your force we were able to meet it in a very effective way.

I hope you will convey to all who had a part in this piece of work our appreciation of their efforts.

From Mr. Nelson Antrim Crawford, Director of Information, Department of Agriculture:

I appreciate greatly the prompt service given by the Government Printing Office in the printing of Department Circular 416, Demand, Marketing, and Production of Oregon and Washington Prunes. The job was completed in three days, to our gratification and to the benefit of the northwest fruit growers, who wished to use the publication this month in planning their season.

From Mr. C. E. Schoenhals, administrative assistant, Packers and Stockyards Administration, Department of Agriculture:

These forms are for use of field men who are oftentimes called upon to make up reports under adverse weather conditions, the original getting wet from snow or rain, making them difficult to read.

Mr. Briggs, our weighing engineer, who has supervision over the scale work of this administration, is highly pleased with the manner in which this requisition has been filled and is desirous of expressing to you his satisfaction with the work.

From Mr. Axel H. Oxholm, director, National Committee on Wood Utilization:

This office recently had need to call upon you and the Government Printing Office for some special service in the printing of three publications: The Seasoning, Handling, and Care of Lumber (Consumers Edition), Grade-Marking of Lumber for the Consumers' Protection, and The National Committee on Wood Utilization, Its Accomplishments and Aims.

Although the material for these publications could not be submitted until a very late date, it was of the highest importance that they be ready for distribution by May 1 before the annual meeting of the National Lumber Manufacturers' Association, Chicago; the Lumber Standards Conference of the Division of Simplified Practice, at Washington; and the annual meeting of this committee May 4 and 5, also at Washington. It was therefore most gratifying that the Government Printing Office was able to deliver these bulletins to us on April 28, and the committee wishes that those who made this possible understand that we are appreciative of their endeavors.

I wish to express to you our very great gratification for your cooperation in obtaining such speedy printing of these three items, and I wish you would extend to those officials of the Government Printing Office who made this possible our deep appreciation in giving us these booklets within such a short time.

PROMPT WORK FOR STANDARDS BUREAU

From Dr. George K. Burgess, Director of the Bureau of Standards:

May I express appreciation for the prompt action on a recent bureau requisition for binding the scientific periodicals for the bureau's reference library? This job required only 32 days. As you know, these periodicals are essential tools in the daily research work of the bureau. The prompt return of the books is of decided advantage in keeping the bureau in touch with progress in its field throughout the world.

From Mr. Leighton W. Rogers, executive officer, International Civil Aeronautics Conference:

I could not let the opportunity pass without expressing the great appreciation our conference feels for the wonderful job which the Government Printing Office has done for us. * * *

There has not been a single delay, and the accomplishments we have attained are largely due to the help which the Government Printing Office has afforded us.

From Hon. William P. MacCracken, jr., Assistant Secretary of Commerce for Aeronautics:

Please accept this expression of my appreciation of your interest and assistance in the production of airway bulletins necessary for pilots of the National Reliability Tour.

From Mr. Carl H. Butman, secretary Federal Radio Commission:

I wish to thank you and your staff for the fine cooperation given the Federal Radio Commission in connection with the rush job of printing the commission's brief prepared for the Court of Appeals of the District of Columbia, as Nos. 4870 and 4871.

The job was certainly handled expeditiously, and as far as I can see is 100 per cent perfect.

From Mr. Marcus Benjamin, editor United States National Museum:

I have been specially gratified with the very satisfactory cooperation that I have received from the Government Printing Office during the past fiscal year.

My work has been made easy and its execution almost a joy in consequence of the courteous relations that have continued to prevail between your associates and myself. I venture to hope that they may long continue, and it is a pleasure to tell you so.

EFFICIENCY CHIEF ALSO AIDED

From Mr. Herbert D. Brown, Chief, Bureau of Efficiency:

I wish to express my appreciation of the service rendered by your organization during the last few weeks in expediting the delivery of the more important forms used by the public schools of the District of Columbia.

From Mr. Robert LeFevre, superintendent of supplies, General Supply Committee:

The Government Printing Office made a new record in turning out the first delivery of the General Schedule of Supplies for the fiscal year 1928, due in a large measure to your cooperation and efficient management. Although the last three signatures were not ready for press until 3 p. m. June 23, 700 copies were delivered June 25 at 9 a. m., considerably less than two days thereafter. Complete delivery of 5,000 copies was made by July 7, 1927.

This issue of the schedule is the largest ever printed, comprising 608 pages, and from an artistic standpoint is fully up to the usual high standard of the publication.

From Hon. Royal S. Copeland, United States Senator:

I have only words of highest praise for your splendid and accurate work.

FROM PRINTING COMMITTEE MEMBER

From Hon. W. F. Stevenson, of South Carolina, member of the House Committee on Printing, in regard to the recent printing of the history of the Battle of Kings Mountain and the Battle of the Cowpens:

The job is one of the most highly complimented in all this section that has come from the Government Printing Office, and I certainly appreciate the splendid way in which you got it up.

From Lieut. Col. H. L. Landers, Army War College, author of the history of the Battle of Kings Mountain and the Battle of the Cowpens:

I want you to know how much I appreciate the superior quality of work represented by this book. The paper, type, binding, reproduction of maps and photographs, all are of such high quality as to make me feel deeply gratified

that such thoughtful consideration was given my manuscript. Thank you very much for clothing the typed pages in such attractive adornments.

From Mr. David Lynn, Architect of the Capitol:

I want you to know how very much I appreciate the efforts of the employees in your office to make Mr. Charles F. Fairman's book, *Art and Artists of the Capitol of the United States of America*, something better than the usual class of books that are published upon such subjects.

Everyone who has seen the book admires the work of the master printers and illustrators who have done so admirably in the preparation of this wonderful production.

WORLD'S MODEL PLANT, SAY VISITORS

To-day the Government Printing Office is recognized as a model plant and the best equipped in the entire printing industry. It is now being visited and studied by the foremost experts in the trade throughout the United States and other parts of the world, coming from almost every country in Europe and South America, and from Canada, Mexico, South Africa, Ceylon, India, Japan, Australia, and New Zealand. Hardly a day passes without some noted printer from home or abroad visits the Government Printing Office to pay his respects and to express his approval of the high standard that this establishment has now attained in the printing world.

Besides the personal visits, letters of inquiry come every day from all parts of the world, where a vital interest has been stimulated in the operation of the United States Government Printing Office by the notable work that it is doing on behalf of all the graphic arts in the technical research laboratory which was established six years ago by the present Public Printer.

In appreciation of the services of the Public Printer and the Deputy Public Printer, the Congress of the United States, by unanimous vote of both the Senate and the House, increased the salary of the Public Printer from \$7,500 to \$10,000, and the salary of the Deputy Public Printer from \$5,000 to \$7,500 per annum in an act approved by the President on May 29, 1928.

Transmitting an enrolled copy of this act, signed by the President, the Vice President and the Speaker of the House, the chairman of the Joint Committee on Printing, Senator George H. Moses, addressed the following letter to the Public Printer:

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON PRINTING,
Washington, May 31, 1928.

DEAR GEORGE: I am sending you with this a duplicate of the act recently passed by Congress affecting your salary.

I am sure that the signatures upon this copy will render it of as much sentimental value to you as the effect of the act itself.

I am heartily glad that this merited recognition has come to you, and I trust that there remain to you many years of even more effective service in your post.

Yours, ever,

GEO. H. MOSES.

BIGGEST BOOKSTORE IN THE WORLD

In addition to being the most prolific publisher in the world with an annual output of more than 100,000,000 copies of publications, the Public Printer also operates the world's biggest bookstore in the Office of the Superintendent of Documents.

For the fiscal year 1928 the Superintendent of Documents distributed 63,601,277 copies of Government publications, which were either furnished free to the public by direction of the respective departments or sold at a nominal price. The number of publications disposed of in this manner increased 8,234,856 copies over the distribution for the fiscal year 1927.

The sales copies in 1928 totaled 10,226,678, for which the public paid the sum of \$696,954.57, an increase of \$102,114.32 over the receipts for 1927. The cash orders in 1928 numbered 467,661, an increase of 52,128 over the number of cash customers in 1927.

During the last eight fiscal years the sale of Government publications has nearly doubled in number of copies and more than doubled in the amount of cash receipts. The number of copies sold by the Superintendent of Documents in the fiscal year 1920 was 5,895,470, which was 4,331,208 less than in the fiscal year 1928. The receipts from the sales in 1920 amounted to \$231,532.21, or \$465,422.36 less than the receipts for 1928.

PUBLICATIONS FOR DEPOSITORY LIBRARIES

An important part of the work of the Superintendent of Documents is the distribution of Government publications to designated depository libraries throughout the United States. At the present time there are 477 depository libraries, although 663 may be designated as depositories. To these libraries in 1928 there were sent 2,042,332 copies of Government publications.

The growing burden on the libraries of storing the annual supply of Government publications is evident from the fact that only 59 out of the 447 depository libraries have chosen, under the selective plan adopted in 1922, to receive the entire consignment annually. All the other depository libraries select only a small part of the Government publications offered annually for their use.

The utter impossibility of all but a few libraries to provide shelf space for the accumulation of Government publications, which increases tremendously from year to year, is demonstrated in the library of the Superintendent of Documents. That library has increased from 81,675 books and pamphlets and 10,450 maps in 1907 to a total of 423,330 publications and 32,457 maps at the end of the fiscal year 1928. In the 21 years from 1907 to 1928 the number of Government books, pamphlets, and maps in the library of the Superintendent of Documents has increased 363,662 copies, or almost fivefold.

It is quite evident, therefore, that comparatively few libraries can continue to handle such a vast and increasing collection of Government publications. The only remedy that now seems practicable is a further restriction of the selective plan and the designation of certain libraries as depositories of special classes of Government publications that are best suited to their respective localities. The number of libraries that may be designated as depositories under the present law appears ample.

NEW WEEKLY LIST OF PUBLICATIONS

In an effort to acquaint libraries and the public more promptly with the available current publications of the Government, the

Public Printer authorized the Superintendent of Documents to issue a Weekly List, beginning on July 11, 1928. This list supplements the Monthly Catalogue and features the more important publications that the various departments of the Government are about to issue. It also presents an up-to-date statement of these publications as they come from the presses of the Government Printing Office.

It is believed that the information contained in the Weekly List will be of great service to libraries in the selection of Government publications that are of special interest to their readers and that it will also better acquaint the public with the real worth of many Government publications that might otherwise receive little attention if no publicity were given to them until long after date of issue.

LIBRARIANS' RESOLUTION OF THANKS

The proposed publication of the Weekly List was approved by the Public Documents Round Table of the American Library Association in the following resolution adopted at its meeting in West Baden, Ind., on June 1, 1928:

Resolved: That the Public Documents Round Table of the American Library Association in annual conference assembled at West Baden, Indiana, extends its heartfelt thanks to Mr. George H. Carter, Public Printer, for recommending the publication of a Weekly List of United States Government publications.

Miss Edith Guerrier, chairman of the Round Table meeting and a supervisor in the Boston Public Library, has been one of the foremost advocates of an information service to aid the public in the proper use of Government publications. In a letter to the Public Printer advising him of the adoption of the foregoing resolution, Miss Guerrier wrote:

We all thank you most heartily for your response to our request. Librarians were unanimous in expressing their appreciation of the efforts of your office and of the office of the Superintendent of Documents to serve them. Never in the history of Government printing was that cooperation more satisfactory.

We hope to show our appreciation by increased purchase of the publications issued by "the largest publishing house in the world."

The Christian Science Monitor, of Boston, commenting at length on the new Weekly List of Government publications, said in its issue of October 10, 1928:

Among the librarians who were active in getting the Weekly List established was Miss Edith Guerrier, of the Boston Public Library, who had made vigorous and persistent efforts to have a library information service established by the Government.

The first plan had been to have it located in the Bureau of Education, but later the request was made that it be placed in the Office of the Superintendent of Documents in the Government Printing Office. Mr. Carter lent a sympathetic ear to the appeal, and Alton P. Tisdell, Superintendent of Documents, who has seen 31 years of service, agreed to add this to his numerous functions. He and Mr. Carter each give the other credit for making possible the establishment of the new service, and credit is doubtless due both of them.

The first number of the Weekly List appeared on July 11, and it and succeeding numbers have indicated that an important innovation has been made in giving to the public as soon as published information concerning the varied and important Government publications. Where it is possible, not only current but advance notice will be given. This is of great value to librarians and other interested persons.

The list is in the form of a 4-page leaflet, and, in addition to the names of various publications and their description, it carries from time to time

notes of general interest. * * * The price of each publication is given in the Weekly List, which is sent free upon request to the Superintendent of Documents, Government Printing Office, Washington. Owing to circumstances certain publications possibly may not be listed, but bibliophiles, librarians, collectors, or others interested in keeping complete sets may be able to get them on application.

CATALOGUING AND INDEXING A BIG JOB

The office of the Superintendent of Documents, which is officially designated as the Public Documents Division of the Government Printing Office, is not occupied entirely with the sale and distribution of Government publications. Big as that job is, another large part of the division is devoted to the indexing and cataloguing of the unending output of Government publications and to answering thousands of inquiries received annually concerning the publication activities of all branches of the Government service.

In the fiscal year 1928 there were received and answered 175,083 letters requesting information concerning a wide range of Government publications. The source of this information is found largely in the library of the Superintendent of Documents, which contains almost half a million books, pamphlets, and maps issued by the Federal Government and is the most complete library of its kind in existence.

ISSUED BY SUPERINTENDENT OF DOCUMENTS

The work of the Public Documents Division is also reflected in the following publications issued by the Superintendent of Documents during the year or now in the course of preparation:

Index to Monthly Catalogue, July, 1926-June, 1927 (190 octavo pages).

Twelve numbers of Monthly Catalogue, July, 1927-June, 1928 (totaling 1,152 octavo pages).

Twenty-ninth Preliminary Schedule of Volumes, Reports, and Documents of the Sixty-ninth Congress, second session, December 6, 1926-March 4, 1927 (6 octavo pages).

Document Index No. 37, Sixty-ninth Congress, second session, December 6, 1926-March 4, 1927 (200 octavo pages).

Sixty-nine Price Lists and Six Leaflets.

The Document Index, No. 37, Sixty-ninth Congress, second session, December 6, 1926-March 4, 1927, listed above, indexes 1,662 documents, divided as follows: 528 Senate reports; 712 House reports; 90 Senate documents; 332 House documents.

The Document Catalogue of the Sixty-sixth Congress, July 1, 1919-June 30, 1921, is about ready for the printer, and copies should be available for distribution before the end of the calendar year 1929. Thousands of cards have already been prepared for the Sixty-seventh Congress catalogue, and every possible effort will be made to hurry the work along.

In 1928 there were 282 employees in the Public Documents Division under the direction of the Superintendent of Documents, an increase of 65 employees since the fiscal year 1920, notwithstanding the far greater increase of work now done by that division.

REORGANIZATION OF DOCUMENTS DIVISION

On July 1, 1928, the Public Documents Division was reorganized to meet the needs of the greater volume of its business. A procurement section was established and separate units created for the

cashier and the work of bookkeeping. The organization of the division now consists of the following 10 units, in which is grouped all of the work of the division:

1. Administrative:
Superintendent and assistant superintendent.
General supervision over all sections.
2. Procurement section:
Provides for sales stock either by requisitioning the printing or by transfer from departmental stocks.
3. Stock section:
Maintains record of stock received and on hand and prepares the orders for the shipping section.
4. Cashier's section:
Receives and disburses all funds.
5. Bookkeeping section:
Maintains all books of record, including deposit, exchange, and consignment accounts, and audits cash mail.
6. Correspondence section:
Has charge of files, typing, and stenographic force, and handles certain classes of correspondence.
7. Mail list section:
Maintains all mailing lists, both departmental and paid subscriptions.
8. Receiving and shipping section:
In charge of all stocks of publications, including sales, library, and departmental. Responsible for storage, filling of orders, and mailing.
9. Reference section:
Research work, answering of correspondence, preparation of Price Lists, Weekly Lists, and card index of publications.
10. Catalogue and library section:
Maintains complete library of Government publications and prepares official catalogues and indexes.

NEW ADDITION IS NOW UNDER WAY

When the new addition now under way is completed, the Government Printing Office will have almost as much floor space as the Woolworth Building in New York City. According to the Washington Star, the world's tallest skyscraper has a rental floor space of approximately 938,000 square feet, which the enlarged Government Printing Office will approach with a total of 917,773 square feet.

The floor space now occupied by the Government Printing Office amounts to 744,273 square feet without the buildings recently demolished to make way for the new addition. The new structure to be available sometime in 1930 will add 173,500 square feet.

By raising the roof of the present main building and converting an attic into a full story, and by constructing numerous mezzanine floors, as well as filling in useless court spaces, together with a better utilization of other wasted areas, there was added a total of 93,689 square feet to the available floor space of the Government Printing Office in the last eight years, but at present this increase has been reduced to 72,447 square feet by the razing of the old buildings on the site for the new addition.

The additional floor space has made possible a better layout and a rearrangement of the entire plant, and extra room has permitted the addition of numerous new activities, such as the photo-engraving department, offset presswork, the apprentice school, a blank-paper section, the cafeteria and kitchen, the recreational and rest rooms, and Harding Hall, as well as providing space for enlargement of the

workrooms of the printing, binding, platemaking, and presswork divisions.

MANY IMPROVEMENTS REHABILITATE PLANT

Anyone familiar with the arrangement and equipment of the Government Printing Office eight years ago, who has not visited it in the meantime, would fail to recognize the Government Printing Office in its renovated and reequipped condition of to-day.

As before stated, \$1,312,000 more was expended for building alterations and permanent improvements in the eight fiscal years 1921-1928 than in the eight fiscal years 1913-1920. During the same periods the increased expenditures for machinery and equipment was \$1,354,675.

These large sums had to be used to rehabilitate a plant which was almost worn out with work during the war period and were required to bring the establishment up to the present-day standards of efficient equipment and operation.

Included in the expenditures of the last eight years were the costs of adding the full story covering the entire main building and the complete reequipment of the power plant with the construction of a concreted tunnel 2,751 feet long to connect with the Capitol electric conduits and steam pipes.

It was necessary during the last eight years to replace and add to much of the worn-out, obsolete, and inefficient machinery used in the productive divisions of the Government Printing Office. In the eight years 1921 to 1928, inclusive, 67 new printing presses were purchased and put into operation, 48 of the latest model of linotype machines were added to the 101 already in use, 63 new and more efficient monotype casting machines were installed to replace 60 machines that had been in use for nearly 25 years, 33 of the latest model 90-em scale monotype keyboards to replace old equipment, and many new machines were procured for both the binding and platemaking divisions to modernize and speed up their operations.

NEW MACHINERY AND EQUIPMENT

The principal installation of machines and equipment during the years 1927 and 1928, in addition to the 63 monotype casting machines already mentioned, included 6 cylinder presses with automatic feeders, 2 perfecting presses for the printing of the Patent Gazette and similar work, 2 fast job presses, 4 electric proof presses, 23 book-sewing machines, 1 gathering, stitching, and covering machine, 9 folding machines, 2 oversewing machines, 1 case-making machine with feeder, 1 forwarding machine equipped to crash, line, and cover cloth-bound books, 1 pamphlet-binding machine, 2 book-gluing machines, 3 index-cutting machines, 5 paper-cutting machines, 2 hydraulic book presses, 1 cover-stamping press, 1 electroplate-finishing machine, 1 stereotype-molding press, a second wax-ruling machine, 1 block-planing machine, 1 all-metal 36 by 36 inch camera, 1 electrically heated electrotype backing-up pot, 1 chromium tank, 2 tiering machines, 1 crane truck, and 2 pipe-threading machines.

In the last eight years, 50 automatic feeders have been placed on printing presses which were formerly hand-fed, bringing the total

number of automatic-fed presses up to 113, in addition to 31 roll-fed presses, and reducing by 65 the number of employees required on hand-fed presses.

Ink agitators have been placed on 33 presses and gas neutralizers installed on 35 presses.

The job pressroom and part of the main pressroom are also equipped with humidifiers, which aid in reducing the static conditions of these rooms and facilitate the handling of paper stock.

The installation and repair of machinery and the routine work of construction and maintenance for the entire plant are duties of the construction and maintenance division, consisting of the carpenter, paint, machine, electric, sheet-metal and pipe-fitting shops, the power plant, and the elevator and cleaning forces.

MORE WORK BY FEWER EMPLOYEES

Notwithstanding the great increase in the work of this important division, the number of its employees, not including the guard force which in 1921 was placed under other supervision, has been reduced from 309 in 1920 to 295 in 1928.

Exclusive of expense of the guard force and the bonus estimated at \$70,000, and including labor, materials, supplies, and the cost of heat, light and power, the total expense in 1920 was \$672,584.45, while in 1928 it was \$805,017.45, an increase of \$132,433. The wages of employees in this division in 1928 were \$585,868, or \$174,075.51 more than in 1920, with an average of 14 fewer employees.

During the 8-year period, 1921-1928, more work was required by installation of the large number of machines, and the floor space of the entire plant was increased approximately 12 per cent. All this additional work was handled by an average of one less employee, and the cost of maintenance and upkeep of buildings was reduced 1 cent per square foot.

An important building project carried to successful completion during 1928 was the removal of the waste paper baling room from the first floor to the basement of the main building. This change made 1,122 square feet of floor space available to the main pressroom, where five additional presses have already been installed.

IMPROVEMENT IN BALING ROOM

The waste paper baling room in the basement has been equipped with three baling presses with automatic tampers for the making of heavier and more compact bales of waste paper, from the sale of which there was received the sum of \$46,716.49 in the fiscal year 1928. Brick bins have been constructed adjoining the baling room, and the waste paper is brought to these bins by air ducts from various parts of the plant, which permit a better sorting of the paper. The bins have been equipped with an exhaust system that reduces to a minimum the exposure of employees to the dust which heretofore had been somewhat objectionable.

To better handle the bales of waste paper and the delivery of paper stock to the basement, an inclined driveway has been constructed by which large motor trucks may load or unload at the level

of the basement platform. Deliveries are placed on a continuous carrier and taken directly either to or from the platform and the basement floor. This new system has greatly decreased the elevator and labor service heretofore required in the handling of immense quantities of paper stored in the basement under the entire main building.

DIESEL ENGINES FROM NAVY DEPARTMENT

By courtesy of the Secretary of the Navy and other officials of the Navy Department, the Government Printing Office has received two fine Diesel engines, which are now being installed and will be used as stand-by equipment in event of any interruption of the regular service from the Capitol power plant. These engines are estimated to be worth approximately \$100,000, and the Public Printer desires to thank the Navy Department for its splendid cooperation and generosity in transferring the engines to the Government Printing Office without any cost other than the expense of shipment and minor repairs and alterations.

The Diesel engines thus acquired have direct connected generators, each with a capacity of 400 kilowatts, which will produce sufficient power to operate the Government Printing Office on a restricted service in event of any serious breakdown or interruption in the service from the Capitol power plant. This stand-by source of power is vitally important to continue the operation of the Government Printing Office for congressional and other urgent work during any emergency.

The work of installing the two engines is now in process and will be completed in the next few months.

SITE AND SIZE OF THE NEW ADDITION

After a slow start, due to the long delay in condemnation proceedings, work has progressed quite satisfactorily toward the erection of the \$1,250,000 addition, which will increase the floor space of the Government Printing Office approximately 22 per cent.

The site of the new addition, including a 1-story garage, is west of the main building and has a frontage on G Street of 112 feet. The street front of the addition, excepting the garage, will conform in construction to the style and height of the main building and when completed will provide a structure of uniform appearance and height for a distance of 468 feet along G Street west from North Capitol Street.

The frontage on Jackson Alley is considerably greater, with a total length of 168 feet, including the 52-foot garage. The addition connects at the first floor and basement with the power plant, which joins the main building on the Jackson Alley side. The depth of the new site is 175 feet from G Street to Jackson Alley.

The area of the entire new site is 26,972 square feet, on which will be erected an 8-story and basement brick building and a 1-story garage. This additional space will provide better and safer quarters for the construction and maintenance division, including the carpenter, paint, machine, electrical, sheet-metal, and pipe-fitting shops,

which are now located in the old building that has long been condemned as a fire menace.

Additional space in the new building will be assigned to the Superintendent of Documents for his office force and valuable library of Government publications.

The division of tests and technical control will also be transferred to larger quarters, where much-needed and improved facilities are to be provided for the important work of this division under the supervision of the technical director.

An entire floor will be devoted to offset and other special press-work.

Another floor will be given over to the extensive files of the office, which are now in constant danger of loss by fire in the old building; in fact, a fire on January 8, 1928, destroyed part of the files and caused other damage to the stock and building amounting to approximately \$10,000.

Additional space will likewise be available for the platemaking and photo-engraving division, which does not have adequate room at present in the main building for the proper handling of its work.

GARAGE FOR FLEET OF MOTOR TRUCKS

Adjoining the new addition on the west will be a 1-story garage to provide for the fleet of 29 motor trucks and delivery cars that now have to be parked in the alley and courtyards between the present buildings. A driveway and elevator will be constructed for trucks to be taken to the basement to unload at floor level the vast stocks of paper to be stored there. It will also give access to the truck repair shop in the basement underneath the garage.

Increased room for the storage of supplies and paper stock is to be provided in the new addition and will be of much-needed service in addition to the extra space that will be available for storage in the old building when the shops located there at present are removed to their new assignment.

The old building at the corner of North Capitol and H Streets will then be devoted almost entirely to storage of stock until such time as it may be replaced by a modern fireproof structure, which ought to be done as soon as possible.

TEMPORARY RENTAL OF WAREHOUSE

With the demolition of the old boiler house and the Yale laundry building, which more recently had been used for storage, that space was made available for the new addition, and it was necessary to obtain other storage room pending the completion of the new building. The Public Printer, with the approval of the Joint Committee on Printing, accordingly leased approximately 25,000 square feet of storage space in the Terminal Warehouse at First and K Streets NE., at a rental of \$1,000 a month until such time as the new addition is ready for occupancy.

All of the old buildings on the site for the addition have been demolished, and, at the date of this report (December 31, 1928), the excavation of the entire basement has been nearly completed.

The building contractor has been allowed until May 11, 1930, to complete his work, but if the present rate of progress continues, the new building will be available for use well ahead of that date.

The entire work is being done under the direction of the Supervising Architect of the Treasury, as provided by law for the erection of public buildings. The preliminary plans, however, were drafted by the superintendent of construction and maintenance of the Government Printing Office in conference with the Public Printer, and the superintendent has rendered valuable assistance to the Supervising Architect in the further study and completion of the plans to meet the requirements of this office.

CHRONOLOGY OF THE NEW ADDITION

The following chronology records the principal events to date in the progress of the new building:

May 25, 1926—Public buildings act, authorizing \$50,000,000 for the erection of Government buildings in Washington, including the Government Printing Office, approved by the President.

May 28, 1926—Public Buildings Commission, through its chairman, Senator Smoot, approved the request of the Public Printer for the allotment of \$1,250,000 of the public buildings fund for acquiring a site and erecting an addition to the Government Printing Office.

July 3, 1926—The President approved an act of Congress authorizing the Secretary of the Treasury to enter into contracts for the entire cost of building and land for the addition to the Government Printing Office in an amount not exceeding \$1,250,000, and appropriating \$100,000 to be immediately available therefor.

November 22, 1926—The Treasury Department requested the Department of Justice to proceed by condemnation to procure land for the proposed addition to the Government Printing Office.

November 23, 1927—Condemnation proceedings filed in the District court by the Department of Justice.

February 2, 1928—Plans for the new building submitted to the Public Printer by the Supervising Architect of the Treasury.

February 20, 1928—Board of site condemnation appointed by the District Supreme Court.

February 25, 1928—Building plans approved by the Public Printer and returned to the Supervising Architect of the Treasury.

March 5, 1928—As a part of the original authorization of \$1,250,000, the further sum of \$600,000 was appropriated for construction of addition.

August 28, 1928—Department of Justice informed the Public Printer that title to the additional land required as a site for the new building had finally been vested in the United States, the sum paid therefor amounting to \$27,486.90. This amount was in addition to the \$42,000 which Congress had previously appropriated for the purchase of the Yale laundry property taken over by the Public Printer on October 11, 1926.

September 10, 1928—Notice issued by the Treasury Department calling for proposals for the erection of the new addition to the Government Printing Office.

October 15, 1928—Bids for the new addition opened in the Office of the Supervising Architect of the Treasury.

TREASURY DEPARTMENT AWARDS CONTRACTS

November 9, 1928—Treasury Department awarded building contract to the Rust Engineering Co., of Pittsburgh, Pa., for \$823,700, the lowest bidder for the general contract covering the razing of the old buildings, making the required excavations, and erecting the building as provided by the plans and specifications. The Treasury Department also awarded the contract for mechanical equipment, including heating, lighting, power, and ventilating work, to the lowest bidder, the Virginia Engineering Co., of Newport News, Va., in the sum of \$96,900. Separate contracts will be awarded later for elevators and minor work, including awnings, shades, etc. The total of all these contracts will be well within the authorized expenditure of \$1,250,000.

November 17, 1928—Contractor started demolition of old buildings on site of the addition.

November 22, 1928—Excavation work began.

DIVISION OF TESTS AND TECHNICAL CONTROL

The division of tests and technical control of the Government Printing Office has the most complete laboratory in the United States devoted exclusively to the testing of materials and research work for the printing industry. The laboratory was established by the Public Printer on February 1, 1922, beginning in a small way to test and develop standards for materials used in the work of the Government Printing Office. Gradually the laboratory has been expanded into a full-fledged division, having under its control the production of printing inks, type metals, bindery glues, and press rollers, a considerable portion of which, especially inks and glues, is furnished to other departments of the Government.

Congress at the last session enacted into law a recommendation of the Public Printer that the Government Printing Office be authorized to engage in cooperative research within its scope under the same conditions as other branches of the Government service cooperate in scientific work with organizations and individuals having similar interests. The legislative authority was obtained by including the Government Printing Office in the list of Government establishments privileged by section 91, title 20, of the United States Code of Laws, to grant facilities for study research for the promotion of knowledge to scientific investigators and other duly qualified individuals. (Public Act No. 386, 70th Cong., p. 17.)

COOPERATION WITH AMERICAN NEWSPAPERS

In accord with the authorization by Congress, the Public Printer has undertaken cooperative research work with the American Newspaper Publishers Association through its mechanical department, which has placed a research associate in the laboratory of the Government Printing Office to assist in the investigation of paper, ink and type-metal.

In accepting the offer of the Public Printer to cooperate with the newspapers in developing useful standards of printing materials,

the mechanical department of the American Newspaper Publishers Association at its meeting in Cleveland, June 5-7, 1928, adopted the following resolution:

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 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.

Mr. L. B. Palmer, general manager of the American Newspaper Publishers Association, in transmitting a copy of the above resolution to the Public Printer, wrote as follows under date of June 13, 1928:

It is a pleasure, in this connection, to transmit to you a copy of the resolution adopted by that conference, and at the same time I take this opportunity of saying to you that the entire association is indebted to you and to Mr. Reed for the great interest you have shown in the problems of the newspaper publisher, and the hearty cooperation you are extending to us in an endeavor to find a solution of these problems.

REPORT ON NEWSPAPER RESEARCH WORK

The cooperation of the newspapers and the Government Printing Office was further discussed by Mr. W. E. Wines, manager of the mechanical department of the American Newspaper Publishers Association, in his report to that association at its Virginia Beach meeting on November 12, 1928. In his report Mr. Wines stated:

One valuable accomplishment has been the establishment of relations with George H. Carter, Public Printer, whereby the technical division of the Government Printing Office is cooperating with us in two investigations of major importance. The first of these relates to the deterioration of linotype and stereotype metals in use under newspaper conditions, and the second relates to newsprint paper and news ink.

A progress report of the type-metal investigation was made to the Second Mechanical Conference at Cleveland by E. O. Reed, technical director of the Government Printing Office. Mr. Reed's paper and the ensuing discussion have been published in Mechanical Bulletin No. 13. This and the companion bulletin, No. 5, covering Mr. Reed's paper, and the discussion at the Harrisburg Mechanical Conference contain the first impartial, authoritative, and trustworthy information on the subject of type metal ever offered to newspaper publishers.

Technical literature abounds in information on iron, steel, and the alloys used in machine construction, but type metal has been ignored. It is expected to continue the investigation somewhat into the field of dross losses and dross reclamation in addition to continuing the investigation of the deterioration of the metal itself.

The interest of the membership in the subjects of ink and paper are reflected in the correspondence on these subjects received by the department and by the response to the request for paper samples to be sent to Washington. Two hundred and fifty-five paper samples from mills in the United States, Canada, and overseas have been received from 150 members.

A letter recently received by Mr. Reed states that the following tests have been completed on these samples: Weight, thickness, bursting strength, ash content, tensile strength, and stretch. Examination for fiber content has been

completed on about one-half the samples. In addition, the following tests are to be made: Finish or gloss, oil penetration, opacity, and, possibly, tear resistance.

The purpose of this investigation on newsprint is to establish definitely the most suitable tests for indicating the quality of newsprint for newspaper printing—that is, its strength, finish, and resistance to printing ink. This work should develop a standard specification for newsprint and furnish reliable information for determining the relation of newsprint to the ink used on newspaper presses.

This investigation will be incomplete, however, without an investigation relative to the printing inks used by newspapers, and a complete investigation is therefore planned in this connection for the purpose of developing tests for controlling the quality of ink and its covering power. Special runs will be made, using different inks, in order to obtain conclusive data in this connection.

BOND AND LEDGER PAPER STANDARDS

During the fiscal year 1928 the division of tests and technical control completed its final report on the cooperative work that has been in progress for several years with the United Typothetæ of America and paper manufacturers for the purpose of establishing commercial as well as Government standards for bond and ledger papers.

The Public Printer and the technical director of the Government Printing Office submitted this report to the standardization committee of the United Typothetæ of America at its meeting in Quebec, Canada, on October 1, 1928. It was agreed at that meeting that the standardization committee would hold a conference with representatives of bond and ledger paper manufacturers at some convenient time in the near future to consider the adoption of the proposed standards by the printing trade and the makers of paper.

The standards proposed have already been adopted by the Joint Committee on Printing in the purchase of bond and ledger papers for the Government Printing Office and have been in satisfactory use by the Government for four years. The specifications cover six grades of bond and five grades of ledger, including papers with 100 per cent, 75 per cent, 50 per cent, and 30 per cent of rag stock, and two grades of chemical wood stock.

Beginning with paper that will be furnished under contracts to be awarded for the year commencing March 1, 1929, bond and ledger papers for the Government Printing Office will be specially watermarked to show the rag content of each sheet of paper. The watermark will consist of the seal of the United States with a halo of four stars (☆☆☆) for 100 per cent rag paper, three stars (☆☆☆) for 75 per cent, two stars (☆☆) for 50 per cent, and one star (☆) for 30 per cent.

Other investigations have been and are being conducted in collaboration with the manufacturers and users of various materials, such as type-metal alloys, ink-making materials, bindery and roller glues, book cloth, book leather, binders' board, and book-sewing thread.

OTHER COUNTRIES FAVOR STANDARDS

The accomplishments of the Government Printing Office in the standardization and testing of paper and other printing materials, under the direction of the Joint Committee on Printing, have at-

tracted favorable attention everywhere, and these standards are being considered for adoption by numerous countries as well as by the printing trades in the United States and Canada.

The paper specifications of the Government Printing Office are regarded as the highest and best authority on that subject and have been recognized as such even by the German experts, who before the war were regarded as leaders in the standardization of paper and other printing materials.

The routine work of the year for the division of tests and technical control consisted, to a large extent, of the testing of 8,138 samples of various printing materials. Of these samples, 6,906 represent materials, chiefly paper, used by the Government Printing Office.

The amount of paper delivered to the Government Printing Office during the year was 45,196,912 pounds, from every individual delivery of which representative samples were taken and tested before the delivery was accepted or rejected.

The technical inspection resulted in the rejection of 2,400,692 pounds of paper, or approximately 5 per cent, on account of the failure of manufacturers to comply with the Government standards upon which all contracts are based. Most of the rejections were on account of deficiency in stock, bursting strength or folding endurance, and for variation in weight. The number of rejections was 46 less than in the preceding year, including 240,000 less pounds of rejected paper.

1,110 CARS OF PAPER IN ONE YEAR

The great importance of paper, which constitutes about a quarter of the charge for work done by the Government Printing Office, is further shown by the fact that approximately 1,110 out of the 1,161 cars of materials received by the Government Printing Office during the fiscal year 1928 were loaded with paper.

The total freight shipments delivered to the Government Printing Office in the fiscal year 1928 amounted to 47,136,586 pounds, and of this vast quantity of materials the paper alone weighed 45,196,912 pounds.

The cutting and wrapping of blank paper for supply to the various branches of the Government service in Washington has come to be a big undertaking. This work was begun under authority of the act of Congress of June 7, 1924, on the recommendation of the Permanent Conference on Printing and the Public Printer.

The consolidation of the paper purchases under the direction of the Joint Committee on Printing and the supply of blank paper and envelopes by the Public Printer has effected a worth-while economy and provided far better quality and service to all the Government offices in the city of Washington.

During the fiscal year 1928 the Government Printing Office furnished 5,138,386 pounds of blank paper and 4,507,385 envelopes, at a cost of \$559,230.94, to other establishments of the Government. This was about the amount furnished in the preceding year.

RECONDITIONING OF TYPE METAL

Under the supervision of the division of tests and technical control, 6,915,750 pounds of type metal were analyzed and standardized

during the year. Since the work of reconditioning all of the vast quantity of type and stereotype metal in the Government Printing Office was begun in April, 1925, a total of 19,948,579 pounds have been reconditioned to conform to the standard amount of tin, lead, and antimony. The total amount of metal in stock in the Government Printing Office is estimated at approximately 6,000,000 pounds. The reconditioning of type metal is never ending, owing to changes in composition due to loss by drossing.

The press-roller section of the division produced 3,109 inking rollers for the presses of the Government Printing Office during the year. This was a decrease of 348 from the requirement for the preceding year and 833 less than in 1926, which indicates a decided improvement in the quality of the rollers due to technical control in the last two years.

BINDERY GLUE FROM OLD ROLLERS

Several years ago laboratory tests showed that old roller composition could be used for the making of suitable bindery glue with a considerable saving of the material which formerly was sold as waste.

During the year 78,759 pounds of glue composition were produced, and of this quantity 2,450 pounds were required to fill departmental orders. In addition, this office furnished 10,370 pounds of paste to the various departments in Washington.

The ink mills of the Government Printing Office produced 149,630 pounds of printing inks during the year, which was an increase of 1,306 pounds over the output for 1927. Of this quantity of ink, 34,741 pounds were furnished to other establishments of the Government for mimeograph, multigraph, and other work.

This office also made and furnished to the departments during the year 9,000 quarts of writing inks.

On account of the great interest that has been taken by the printing industry in the research work of the division of tests and technical control, the full report of the technical director is attached hereto and made a part of the Public Printer's Report.

SIXTH YEAR OF APPRENTICE SCHOOL

One of the first important decisions of the present Public Printer was the establishment of an apprentice school in the Government Printing Office for the proper training of its own skilled workers. This school began on July 5, 1922, with the instruction of a class of 25 apprentices, the number then limited by law.

On recommendation of the Public Printer, Congress increased the limitation to allow the employment of 200 apprentices under the act of February 20, 1923. Since that time the number of apprentices in training at any one time has been maintained at near the maximum of 200. The apprentices have been assigned to the several trades, including printers, bookbinders, pressmen, stereotypers, electrotypers, photo-engravers, and machinists.

To date, 68 apprentices have satisfactorily completed the 4-year courses required to qualify them for appointment as journeymen in

their chosen trades. Of this number, 63 are now employed in the Government Printing Office and are among the best qualified and most industrious journeymen in the office. Already the work of the apprentice school has more than compensated for the trouble and cost of its operation.

There is no doubt that, if the apprentice school is maintained in the years to come, it will provide the Government Printing Office with the finest force of skilled workers to be found in any printing plant in the world. No better or more diligent group of ambitious young men has ever entered any school in the country than those who have chosen to begin their life's work in the Government Printing Office.

WIDESPREAD INTEREST IN THE SCHOOL

The widespread and inspiring interest in the school that has been manifest throughout the country is shown by the fact that more than 800 young men in various parts of the United States enrolled at the last civil-service examination for appointment as apprentices in the Government Printing Office. Under the law of Congress, as before stated, only 200 apprentices can be trained at any one time. Up to the present a total of 333 apprentices have been enrolled in the school, including those now in training and those who have completed the course or have left the school.

The graduation exercises for the class of 1927 were held in Harding Hall on January 13, 1928, when the Public Printer gave 60 of the apprentices their certificates as journeymen, entitling them to employment at their chosen trades in the Government Printing Office. The principal address on that memorable occasion was made by Mr. Cameron Beck, personnel director of the New York Stock Exchange, who gave a most inspiring talk on the subject, "Building a Bigger To-morrow."

Although the apprentices complete their four years' training at different times during the year, depending on the date of entrance and their progress in the work, formal graduation exercises are held only once a year, and at that time all the apprentices who have satisfactorily completed their training during the preceding year are included in the class of graduates for the year. However, on completing the course of training they are at once eligible for appointment as journeymen without waiting for the formal graduation.

SPECIAL ACTIVITIES OF THE APPRENTICES

In addition to the graduation exercises, the apprentices participated in numerous events of interest during the year. On April 19, 1928, the entire school and the apprentices in local printing offices were guests of the Typothetæ of Washington at a dinner and program of addresses in Harding Hall. Instructive talks were given by Mr. O. T. Wright, president of the Fourth District Typothetæ Federation; Mr. Charles W. Sylvester, director of vocational education, Baltimore; Mr. L. H. Dennis, deputy state superintendent of education, Harrisburg, Pa.; Mr. Fred J. Hartman, director department of education, United Typothetæ of America, Chicago; and Dr. Frank W. Ballou, superintendent of public schools, District of Columbia.

All of the apprentices in the school and several of its graduates visited the paper mill of the P. H. Glatfelter Co. at Spring Grove, Pa., on May 18, 1928. The purpose of this expedition was to instruct the apprentices concerning the manufacture of paper, a material with which they will have much to do in the printing trade. The officials and employees of the Glatfelter mill were especially courteous to the apprentices and gave them much useful information concerning the processes of paper making. The expenses of the trip were paid voluntarily by the apprentices, who expressed their great appreciation of the opportunity to learn something practical about the manufacture of printing papers.

Through the courtesy of the Hearst newspapers, a motion picture, entitled "The Making of a Newspaper," was exhibited to the apprentices and their guests in Harding Hall on June 6, 1928. This picture was especially instructive in showing the various operations required in the preparation and printing of a great daily newspaper.

Plans are under way for the making of a somewhat similar film showing the various operations involved in the printing of the Congressional Record and other publications by the Government Printing Office.

HEALTH AND WELFARE OF EMPLOYEES

The health and welfare of all employees are regarded by the Public Printer as the most important consideration in the operation of the Government Printing Office. To safeguard the health of employees and render adequate relief in cases of illness or injury in line of duty, an emergency hospital is at the service of employees both day and night with two physicians and three graduate nurses on duty.

Under the present administration the hospital has been more than doubled in size, provided with separate wards for men and women patients, and is now fully up to date in its equipment and facilities.

The hospital gave 13,023 treatments to sick and injured employees during the fiscal year 1928, a slight decrease from the number of treatments in 1927. Of these treatments, 3,479 were surgical and 5,439 were medical, requiring 4,105 retreatments. The surgical treatments decreased 134 from the number in the preceding year. The Government Printing Office hospital also gave 337 treatments to employees of the city post office, and 43 Government Printing Office employees were sent to other Government bureaus for treatment during the year.

In the year 1928 the hospital treatments for injuries received in line of duty totaled 2,120, which were 202 less than in 1927. The injured employees lost 592 days from their work, but all of this time was either covered by leave pay or else compensated for under the Federal employees' compensation law.

FEW INJURIES DURING THE YEAR

Only 17 employees were injured so seriously during the year as to necessitate compensation for their injuries by the United States Employees' Compensation Commission. This small number of injured employees is an excellent testimonial to the safeguarding of machinery and to the constant care of employees, when it is considered that the Government Printing Office has 4,100 employees

and operates 1,325 machines, most of which are in use the greater part of 16 hours almost every day when Congress is in session.

It is interesting to note in this connection that the printing and binding of a cloth-bound book requires approximately 148 separate and distinct hand and machine operations, the machine operations alone numbering 58. In addition, there are 48 laboratory tests of the materials used in the printing and binding of a cloth-bound book. These operations and tests all involve more or less risk to the persons who perform them, and it is therefore even more remarkable that the number of injuries are so few as reported by the medical officer. As before stated, every precaution is taken to protect employees by safeguard equipment on all machines which they are required to operate.

GREAT DECREASE OF ABSENTEES

Largely on account of a better system of checking by the hospital staff of employees' excuses for absence, the number of absentees has been greatly reduced in the last two years. In 1928 the number of employees reported as absent on account of illness or injury, not in line of duty, and illness in family, was 3,280, which was 522 less than in 1927 and a decrease of 1,078 from the total number absent in 1926. The loss by employees reported as sick or injured, other than in line of duty, in 1928 totaled 16,036 days out of a grand total of about 1,250,000 possible working days.

In addition to being entitled by law to medical and surgical care and compensation for loss of time due to sickness or injury in line of duty, all employees so disabled are privileged to retire from the service at the age of 55 years, the amount of the disability retirement annuity depending upon their length of service, which the law requires shall have been not less than 15 years in each instance.

All employees classed as mechanics by the Public Printer may be retired at the age of 65 years and receive an annuity for the rest of their lives, if they have had not less than 15 years of Government service. The maximum annuity for 30 years' service is now \$1,000, but it is quite likely that Congress will soon increase this amount to \$1,200 a year, which is the least annuity that should be granted to employees who have been in the service of the Government during the better part of their lives.

RETIREMENTS NUMBER 765 TO DATE

A total of 765 employees have retired from the Government Printing Office since the act of August 20, 1920, and up to June 30, 1928, on account of age and disability. The annuities granted them range from \$214.80 to \$1,000, and 271 of these employees were granted the maximum annuity on their retirement.

Retirements for the fiscal year 1928 numbered 62, of which 46 were on account of age and 16 on account of disability.

During the period of the operation of the retirement act from August 20, 1920, to June 30, 1928, the employees of the Government Printing Office have contributed a total of \$1,392,433.20 to the general retirement fund of the United States Treasury. The original retirement law required contributions by each employee of $2\frac{1}{2}$ per cent of his Government earnings, and the assessment was increased

to 3½ per cent by the act of July 3, 1926. Retirement contributions are returned by the Government to the employee or his family in case of death or separation from the service before retirement age.

LEAVE AND HOLIDAYS WITH PAY

The Government has been liberal in the granting of leaves of absence and holidays with pay to all its employees. The law grants employees in the Government Printing Office leave on full pay for 30 days, exclusive of Sundays and holidays, annually, but Government Printing Office employees are not allowed sick leave, which other establishments of the Government may by law extend to their employees for a period of not exceeding 30 days annually. If the sick leave is to continue for other branches of the Government service, there is no good reason why such privilege should not be granted to employees of the Government Printing Office.

Adding the 30 days' annual leave, the legal holidays, and the Saturday half holidays ordered by the President each summer makes a total of 46 days off duty on full pay that are enjoyed annually by employees of the Government Printing Office. Although the office is nominally on an 8-hour 6-day working basis, the leave and holidays with pay reduces the number of actual working hours to an average of 41 instead of 48 hours per week. If Saturday half holidays throughout the year are authorized by Congress, the number of actual working hours would be reduced from the present average of 41 to 38.4 hours per week.

The leave and holiday pay for all employees of the Government Printing Office, except those in the Public Documents Division, amounts to approximately \$1,150,000 annually. This sum has to be included in the cost of printing as charged by the Public Printer to the various branches of the Government.

DAILY PAY ROLL APPROXIMATELY \$28,000

The daily pay roll of the Government Printing Office is approximately \$28,000, and every additional holiday costs the office almost an equal sum, as nearly all the employees of the Government Printing Office are paid hourly rates instead of annual salaries, as obtain in other departments of the Government. On that account the extra holidays do not cost other establishments of the Government anything in addition to their annual appropriations for salaries, but the Government Printing Office has to obtain funds for all pay days, including leave and holidays, from its charges for work done. Every additional holiday correspondingly increases the expenditure for wages as authorized to be charged against the working capital annually appropriated for the Government Printing Office.

A bill granting employees of the Government Printing Office Saturday half holidays throughout the year has passed the Senate and is now pending before the House Committee on Printing. If this bill is enacted into law, the year-round half holidays on Saturday will compel the Government Printing Office to add approximately \$425,000 to its pay rolls for the extra nonworking half days, and the charges for printing will have to be increased accordingly to offset this additional cost.

An even greater increase will have to be made if the Saturday half holiday bill does not include Congress and all other establishments of the Government in Washington. In that event the Government Printing Office will have to maintain a force on Saturdays to carry on work for Congress and the establishments that are not granted the Saturday half holiday. Employees required to forego their Saturday half holidays will have to be paid extra for such employment, thus greatly increasing the cost of Saturday work. In that event a Saturday half holiday law would not mean an actual holiday or weekly rest period for employees of the Government Printing Office, but would really require extra payment to them for working during the time designated as a half holiday.

Therefore, the Public Printer is of the opinion that if a Saturday half holiday is to be declared by law it should apply to every establishment of the Government, including Congress, so as to be of practical and real use as a holiday to employees of the Government Printing Office.

EMPLOYEES' CAFETERIA A SUCCESS

The cafeteria, which began service on January 23, 1922, continues in successful operation under the supervision of the voluntary association of employees of the Government Printing Office.

During the year ended October 15, 1928, the cafeteria served 840,410 orders of food, which were 34,000 more orders than were served in the preceding year and 56,000 more than two years ago. The daily average number of orders was 2,609, and the largest number served in any one day during the last year was 3,236.

The gross receipts of the Cafeteria and Recreation Association for the year were \$221,766.22, an increase of nearly \$10,000 over the receipts for the preceding year.

The total gross receipts from the opening of the cafeteria in January, 1922, to October, 1928, amounted to \$1,572,104.15.

From this sum has been paid the operating expenses of the cafeteria, including the entire cost of all materials for service and sale and the wages of an average of 56 employees of the Cafeteria Association, none of whom is compensated by the Government. In addition, the employees' association has expended over \$24,000 for replacements, including dishes, and improvements in cafeteria and kitchen equipment originally installed by the Government at a cost of approximately \$45,000.

All of the accounts of the officers of the Cafeteria Association are regularly audited and approved by a committee appointed by the Public Printer and the association.

The Cafeteria Association also finances all the recreational and entertainment activities of the Government Printing Office, including two championship baseball teams, four regulation bowling alleys, and numerous programs of entertainment and instruction in Harding Hall, as well as the annual Christmas treat, attended by approximately 2,000 children of employees and the annual outing to a near-by beach, which was attended by 1,500 employees and their families last summer.

The first gathering in Harding Hall was for the Christmas exercises in 1921. Regularly since then formal Memorial Day, Fourth

of July, Armistice Day, and Thanksgiving Day exercises have been held there. The exercises are attended on each occasion by approximately 3,000 employees, who, on account of the size of the hall, are divided into two equal groups, and the program repeated.

DISTINGUISHED SPEAKERS IN HARDING HALL

Distinguished speakers are invited to address the employees on these occasions. The Government Printing Office considers itself highly honored to have had as its guests and speakers during the past year the following notable persons:

Hon. Duncan U. Fletcher, United States Senator from Florida.
 Hon. Edgar R. Kiess, Member of Congress from Pennsylvania.
 Hon. Edward M. Beers, Member of Congress from Pennsylvania.
 Hon. William F. Stevenson, Member of Congress from South Carolina.

Col. Charles Burton Robbins, Assistant Secretary of War.
 Rev. ZeBarney T. Phillips, D. D., chaplain of the United States Senate.

Mr. Cameron Beck, personnel director of the New York Stock Exchange.

Other noted persons who have spoken in Harding Hall since the auditorium was made available to employees for exercises that formerly had to be held on hall stairways:

Corp. James Tanner, past commander in chief Grand Army of the Republic.

Col. John McElroy, past senior vice commander in chief Grand Army of the Republic.

Lieut. Gen. Nelson A. Miles, United States Army, retired.

Maj. Gen. John A. Lejeune, Commandant United States Marine Corps.

Maj. Gen. John L. Clem, United States Army, retired, commander Department of the Potomac, Grand Army of the Republic.

Dr. James Shera Montgomery, Chaplain of the United States House of Representatives.

Rev. C. R. Stauffer, Ninth Street Christian Church.

Judge William H. De Lacy, of Washington Juvenile Court.

Dr. W. S. Abernethy, Cavalry Baptist Church.

Rev. Jason Noble Pierce, First Congregational Church.

Right Rev. James E. Freeman, bishop of the Episcopal diocese of Washington.

Rev. John C. Palmer, Washington Heights Presbyterian Church.

Very Rev. Ignatius Smith, prior, Dominican House of Studies.

Hon. George H. Moses, United States Senator from New Hampshire.

Hon. George Wharton Pepper, United States Senator from Pennsylvania.

Hon. Daniel F. Steck, United States Senator from Iowa.

Col. Hanford MacNider, Assistant Secretary of War.

Col. Theodore Roosevelt, former Assistant Secretary of the Navy.

Hon. Joseph W. Byrns, Member of Congress from Tennessee.

Dr. Thomas E. Green, national director, speaking service, American Red Cross.

FLAGS AND MEMORIALS FOR WAR VETERANS

The Cafeteria and Recreation Association has assisted in the organization of two units of war veterans, each of which has been presented with a stand of handsome silk flags. The association also contributed several hundred dollars toward the war veterans' tablets erected in the main entrance to the building. Other funds for these tablets, that form the most beautiful memorial in any Government building in Washington, were contributed by individual employees, who altogether gave approximately \$2,000 for that purpose.

The Government Printing Office orchestra, a voluntary organization of 25 employees, has also been aided and encouraged by the association. In addition to providing music for the formal exercises during the year, the orchestra also entertains employees with music during the lunch periods on Fridays throughout the year, excepting in the summer time.

To satisfy further the fondness of employees for good music, the association has purchased an orthophonic Victrola and radio set at a cost of \$1,300; this equipment is available to employees whenever desired.

ASSOCIATION IS NONPROFIT SHARING

The Government Printing Office Cafeteria and Recreation Association, which has charge of the above-mentioned activities, is a strictly nonprofit-sharing organization. According to its constitution, the association was organized by employees—

to establish, operate, and maintain a cafeteria and recreation rooms on the eighth floor and roof garden of the Government Printing Office, where good and wholesome food shall be sold at the lowest possible cost and where clean and healthful recreation may be enjoyed by all, subject to the approval of the Public Printer.

The constitution of the association further provides that it is to be conducted "without purpose of profit" and that—

title to all property, goods, wares, and merchandise acquired by or with the funds of the association shall vest in said association during its existence, and on dissolution thereof shall pass to the Government Printing Office for the benefit of the employees, after all just and lawful claims against said association have been duly satisfied.

The association now has a modest surplus fund in reserve to insure the continued operation of the cafeteria and to provide for future repairs, replacements, and improvements. On separation from the service an employee is entitled to his subscription, and a total of \$1,138 of the original voluntary subscription by employees of \$4,738 has been returned to them. No other funds have been subscribed by employees or anyone else since the cafeteria was established, and its operations to date have been entirely self-supporting.

As far as known, no other cooperative endeavor of Government employees has ever continued so long or so successfully as has that of the Government Printing Office. With the proper management and support as at present, the association ought to be of permanent benefit and enjoyment to the employees of this office.

LIBERAL RED CROSS CONTRIBUTIONS

Besides their great liberality in all matters relating to the Government Printing Office, its employees are especially generous also in responding to calls for help of others. An outstanding contribution of the Government Printing Office is its annual Red Cross enrollment.

For the 1928 Red Cross enrollment the employees of this office subscribed the sum of \$1,502.25, which was the second largest amount contributed by any Government establishment in Washington and was exceeded only by the Treasury Department with its 13,000 employees, as compared with the 4,100 employees in the Government Printing Office. The Red Cross contribution for the 1928 enrollment is almost double the amount subscribed for that purpose in 1921.

In October, 1928, the employees of the Government Printing Office also contributed \$1,550 to the emergency call of the Red Cross for extra funds for relief of the southern hurricane sufferers.

These Red Cross contributions have been collected under the able leadership of the chief clerk of the Government Printing Office. Mr. H. H. Wright, to whom Miss Mabel T. Boardman, director of the volunteer service, addressed the following letter of thanks on December 10, 1928:

I am delighted to hear of the splendid support the employees of the Government Printing Office have given the American Red Cross in its twelfth annual roll call. It is inspiring to know of their interest in the great Red Cross work which their membership and many thousands of others make possible all over the United States in case of disaster, and also in the many other parts of the world. Without this aid there would be a very great amount of suffering among the poor victims of these serious disasters.

You have also helped to carry on the work of our disabled men, some 26,000 of whom are still in hospitals.

Thank you for your own interest and help in this great work.

LEGISLATION ENACTED IN EIGHT YEARS

More provisions for the benefit of the Government Printing Office and its employees have been enacted into laws by Congress during the last eight years than in all the time since the enactment of the general printing act of January 12, 1895. The following laws affecting the Government Printing Office were enacted by Congress during the fiscal years 1921-1928, inclusive, on the recommendations submitted by the Public Printer in his annual reports and statements to committees of Congress:

By the legislative appropriation acts of March 20, 1922, and each succeeding year—

1. Complete change in the system of appropriating funds for Government printing and binding so as to provide an annual and definite working capital for the Government Printing Office (\$2,000,000 for each of the fiscal years 1923-1925, inclusive), to which is chargeable the cost of printing for Congress. Other funds for printing are appropriated direct to the various establishments of the Government in place of making the entire appropriation for printing available to the Government Print-

ing Office as heretofore and allotting fixed amounts thereof to Congress and the various branches of the Government service.

The new financial system consolidated into the working capital three appropriations which theretofore had been made separately for wage, leave, and holiday pay. This consolidation into one appropriation item has ended the deficiency appropriations that formerly had to be made almost annually for additional leave and holiday pay, although sufficient other funds were at hand to pay employees but were unavailable on account of being in a separate appropriation item. Under the new system the working capital is available to pay employees for work, leave, and holidays, as may be required, without having to use separate appropriations for any of these purposes.

Another financial change relates to payments for printing and binding and authorizes the Public Printer to collect promptly from the executive departments and independent establishments of the Government, either in advance or upon completion of the work, all or part of the cost thereof. The law requires that money so collected shall be deposited in the Treasury to the credit of the working capital of the Government Printing Office so as to insure sufficient funds to complete the work ordered by various branches of the service, in addition to meeting the requirements of Congress for printing and binding.

This provision also authorizes reimbursement of the Government Printing Office for the cost of printing private congressional orders, the entire proceeds of which formerly had to be turned into the Treasury. Formerly no credit was given to the Government Printing Office for the expense of labor and material required in such printing, which amounted to approximately \$100,000 annually.

2. Limitation on appropriations for supplying books to depository libraries, providing that no part of such sums shall be used for any documents, books, or other printed matter not requested by the depository libraries.

This provision enabled the Public Printer to establish a selective plan for supplying Government publications to designated depository libraries throughout the country. Instead of sending copies of all Government publications to every depository library as heretofore, only 59 libraries out of a total of 477 depositories under the new selective plan have requested the entire annual list of Government publications. The privilege of selection has resulted in the saving of a vast number of copies of Government publications which heretofore had been discarded or returned by many libraries for lack of room or use.

3. An annual increase in the appropriation for machinery purchases from \$100,000 to \$200,000, so as adequately to equip the Government Printing Office with more efficient machinery and to replace the equipment worn out with war work.

By Public Resolution No. 57, approved May 11, 1922—

This resolution removed the restriction of one copy to a customer, which formerly had greatly limited the sales of Government documents by the Superintendent of Documents. His authority was extended to sell copies of any Government publication, not confidential in character. Heretofore, the law had authorized the Superintendent of Documents to sell only departmental documents, and there was no specific authority to sell congressional publications. Since the enactment of this legislation, the receipts from the sale of Government publications have increased from \$382,368.18 in the fiscal year 1923 to \$696,954.57 for the fiscal year 1928.

POWER PLANT CHANGE AUTHORIZED

By the deficiency act of July 1, 1922—

Authorization by Congress for the Capitol power plant to furnish heat, light, and power to the Government Printing Office and an appropriation of funds to the Capitol power plant for additional equipment and other facilities for that purpose. The Government Printing Office was authorized to pay the cost of reequipping its power substation, constructing necessary tunnels and conduits and laying of pipes and cables out of the unexpended balance of its funds for the preceding fiscal year, 1922.

The expenditure by the Government Printing Office amounted to approximately \$330,000, including the cost of three synchronous converters of 1,500 kilowatts capacity each, air compressors, pumps, and other equipment to function as a substation of the Capitol power plant.

A concreted tunnel 5 by 7 feet in size and one-half mile in length was constructed to connect at the Senate Office Building with the pipes and conduits which carry steam and electricity to that building from the Capitol power plant through another tunnel of somewhat greater length; in other words, the steam for heating and the electricity for light and power of the Government Printing Office and the city post office are conveyed through a tunnel about 1¼ miles long.

This service from the Capitol power plant has been a continuous and an economic success ever since it was started in October, 1923. The annual saving to the Government Printing Office has been approximately \$25,000, in addition to which there has been a reduction of approximately 1,000,000 gallons daily in the use of water taken from the District mains, as the Capitol power plant obtains its water direct from the Potomac River.

The water economy alone saves the Government the additional sum of about \$24,000 annually, which, with the other savings to the Government Printing Office and the city post office, brings the present saving to the Government by this change up to approximately \$87,900 annually.

In addition, the Government Printing Office has gained space formerly occupied by boilers that consumed 15,000 tons of coal annually, the dirt and smoke from which were a great annoyance in the operation of the Government Printing Office.

By the act for the printing, distribution, and sale of Supreme Court Reports by the Public Printer, approved July 1, 1922—

Under this law and with the approval of the United States Supreme Court the printing, distribution, and sale of its reports, formerly published by a private concern, were turned over to the Government Printing Office. The Government publication of the Supreme Court Reports began with volume 257 for the October, 1921, term. The selling price of the reports was considerably reduced, and the printing by the Government Printing Office of these highly important publications has been of great benefit to the public as well as better service to the Government.

LAW INCREASED NUMBER OF APPRENTICES

By the legislative appropriation act of February 20, 1923—

1. Increase in the number of apprentices which the Public Printer may employ at any one time from 25, as restricted by the printing act of 1895, to not to exceed 200 apprentices. The increased number made it possible for the Public Printer to restore the proper training of apprentices in the Government Printing Office, which for more than 35 years had abandoned that important duty of every large employer of labor. A further statement concerning the apprentice school will be found elsewhere in this report.
2. Provision for a disbursing clerk in the Government Printing Office to be charged hereafter with the receipt and disbursement of all moneys for that office in accordance with the law relating to the Public Printer and other disbursing officers of the Government, under such bond and rules as the Secretary of the Treasury shall prescribe. The Public Printer had been the only head of a large Government establishment required by law to act also as a disbursing officer. Relieved at his own request of this responsibility, the bond of the Public Printer was reduced from \$100,000 to \$25,000.
3. The working capital of the Government Printing Office was made available by this and succeeding appropriation acts to pay employees for holidays as well as half holidays granted by order of the President. The law heretofore had specified that the appropriation should be available only for half holidays, and the Comptroller General advised the Public Printer that he would not allow pay for any further full holidays granted by Executive order unless authorized by law. Therefore, the Public Printer obtained the enactment of the amendment so that per hour and per diem employees of the Government Printing Office may receive pay for Executive order holidays the same as annual salaried employees.

MANY PROVISIONS IN ACT OF JUNE 7, 1924

By the legislative appropriation act of June 7, 1924—

1. The Public Printer authorized to procure, under direction of the Joint Committee on Printing as provided for in the printing act of 1895, and to furnish paper and envelopes in common use by the departments and other branches of the Government in the District of Columbia.

This action by Congress centralized in the Government Printing Office the purchase and supply of all blank paper and envelopes (other than envelopes printed in course of manufacture) for all the Government establishments in the District of Columbia, which heretofore had obtained such supplies in a haphazard way, either separately or through the General Supply Committee, with little or no standardization or test of the supplies so purchased. The standards for all paper and envelopes furnished by the Government Printing Office are fixed upon by the Joint Committee on Printing, which also receives the bids and awards the contracts therefor.

The consolidated purchases by the Public Printer have greatly reduced the charges to departments for paper and envelopes, and the exacting tests of deliveries have insured paper and envelopes of much better quality than heretofore purchased by the departments. During the fiscal year 1928 the Government Printing Office furnished 5,138,386 pounds of blank paper and 4,507,385 envelopes to various establishments of the Government at a total charge of \$559,230.94.

2. On account of the special needs and requirements of the Government Printing Office as a manufacturing plant, the Public Printer has been authorized by this and succeeding acts to purchase supplies and materials under the provisions of the act of January 12, 1895, and without reference to section 4 of the act of June 17, 1910, concerning purchases for executive departments. This authorization was necessary to allow the Government Printing Office to function properly as a manufacturing establishment and to procure its materials and supplies under the direction of the Joint Committee on Printing as provided for in the printing act of 1895.
3. The Public Printer authorized to close a portion of Jackson Alley, a public thoroughfare which for years had separated the buildings of the Government Printing Office and greatly interfered with its operation and protection. Closing the alleyway between the Government buildings added 10,470 square feet of space to the Government Printing Office for its own use. A covering of steel and glass construction has been erected over the alley for a distance of 262½ feet, and this protected area has been of great service for the storage of building materials and motor trucks. Substantial iron gates safeguard each end of the alley as far as it has been taken over by the Public Printer.
4. Distribution of Geological publications and the Patent Office Gazette to libraries designated by law as special depositories of such publications was discontinued on account of the little use of and the great waste in the copies thus distributed.

The saving effected by this amendment amounts to approximately \$40,000 a year, and no one has been seriously inconvenienced thereby, as the Geological publications and Patent Office Gazette are still available for selection by the regular depository libraries.

5. The Public Printer authorized to print for sale by the Superintendent of Documents additional copies of approved Government blank forms, making them available to the public at a nominal price and facilitating the transaction of business with the Government in the more extended use of its approved forms.
6. The Superintendent of Documents allowed \$200 annually for traveling expenses, which will enable him to inspect depository libraries from time to time to ascertain their use of and facilities for handling the Government publications with which they are so liberally supplied.
7. To conform to the new organization plan adopted by the Public Printer, the duties provided by law for the foreman of printing and the foreman of binding were transferred by this act to the superintendent of printing and the superintendent of binding, respectively, and the foreman of presswork and the foreman of platemaking were also designated as superintendents, these titles being deemed more appropriate and descriptive of their duties in charge of large divisions of the Government Printing Office.

KIESS ACT FOR COLLECTIVE WAGE BARGAINING

By the act to regulate and fix rates of pay for employees and officers of the Government Printing Office, approved June 7, 1924—

The law generally known as the Kiess Act is the first legislation by Congress to adopt the principle of collective wage bargaining and arbitration with employees in a large Government establishment and also to fix a minimum wage for certain trades. The act provides that the rates of wages, including compensation for night and overtime work for more than 10 employees of the same occupation shall be determined by a conference between the Public Printer and a committee selected by the trades affected, and that the rates of wages so agreed upon shall become effective upon approval by the Joint Committee on Printing. The law also gives to either party the right of appeal to the Joint Committee for final decision in case of disagreement between the Public Printer and the committee of employees.

In accord with the Kiess Act, wage agreements were made in 1924 with all the trades employed in the Government Printing Office, and the wages and salaries of other employees correspondingly readjusted. The total increase in wages the first year under the new law amounted to approximately \$900,000.

Another increase of wages was agreed upon in 1926 for a period of not less than two years, and as a result of these negotiations, which were also approved by the Joint Com-

mittee on Printing, the employees of the Government Printing Office received a further increase of wages under the Kiess Act amounting to approximately \$542,000 annually.

The compensation of employees of the Government Printing Office has been increased 37 per cent in the last eight years, 1921-1928, as compared with the eight years 1913-1920, most of which they owe to the Kiess Act of 1924, as before that time the wages of the principal trades were fixed by Congress and readjusted at long and irregular intervals. For that reason employees of the Government Printing Office were compelled to work during the war at less wages than were paid anywhere else in their respective trades. Since the operation of the Kiess Act wages of the Government Printing Office compare very favorably with general trade conditions elsewhere.

By the legislative appropriation act of March 4, 1925—

1. Extra compensation for night, Sunday, holiday, and overtime work as granted under the Kiess Act of June 7, 1924, was also allowed to employees in the office of the Superintendent of Documents, whose rates of pay otherwise are fixed by the classification act of 1923.
2. The working capital of the Government Printing Office was increased to \$2,400,000 annually to meet the greater requirements and charges for printing and binding for Congress.

SALE OF PRINTING SUPPLIES AUTHORIZED

By the legislative appropriation act of May 13, 1926, and succeeding acts—

1. The salary appropriations for employees in the offices of the Public Printer and the Superintendent of Documents were declared to be separate appropriation units for consideration under the classification act so as to permit proper increases of salaries of clerks under the Public Printer and the Superintendent of Documents, respectively.
2. Public Printer authorized to sell to other departments and establishments of the Government inks, glues, and other supplies manufactured by the Government Printing Office in connection with its work, payment to be made from appropriations available therefor. Included in the materials furnished under this authorization in the fiscal year 1928 were 34,741 pounds of inks for mimeograph, multigraph, or other work, 9,000 quarts of writing inks, 2,450 pounds of glue, and 10,370 pounds of paste. It is estimated that the Government manufacture of these materials saved approximately \$32,000 for the year as compared with the former contract prices therefor.
3. Authority granted to make advance payments on subscriptions for directories and technical publications to conform to commercial requirements.
4. Specific authority given to pay employees for handling waste paper and condemned material for sale to comply with a decision of the Comptroller General in that regard.

RETIREMENT OF EMPLOYEES AS MECHANICS

By the amended retirement act of July 3, 1926—

Public Printer authorized to designate skilled-trade employees as "mechanics" for purpose of retirement at 65 instead of 70 years of age, thus nullifying an arbitrary decision by the Civil Service Commission, which had held that approximately 760 employees of the Government Printing Office, such as proof readers, bindery operatives, and other hand workers, were not entitled to retirement as mechanics although universally classed as such in commercial offices.

The following is the provision added to the retirement act of 1926 for the benefit of these employees, as recommended by the Public Printer:

Provided further, That the term "mechanics" as used in this act shall include all employees in the Government Printing Office whose duties are to supervise, perform, or assist in apprentice, helper, or journeyman work of a recognized trade or craft, as determined by the Public Printer.

By the legislative appropriation act of February 23, 1927, and succeeding acts—

Consolidation of appropriation items for Government Printing Office (other than Superintendent of Documents) into one paragraph under the heading "Public Printing and Binding," thus ending the separate appropriation of \$156,453 for salaries in the office of the Public Printer and providing therefor under the working capital with an increase of only \$100,000 in that fund. The working capital was therefore increased from \$2,400,000 to \$2,500,000 annually.

BENEFITS OF THE KIESS ACT EXTENDED

By the legislative appropriation act of May 14, 1928—

1. Benefits of the Kiess Wage Act of 1924 extended to all employees of the Government Printing Office (except office of Superintendent of Documents) by no longer requiring that the appropriation for salaries shall be used in accordance with the classification act of 1923. Thus was sustained the Public Printer's contention that the Kiess Act of 1924 had superseded the classification act of 1923 and that therefore the subsequent appropriation acts should conform to the Kiess Act. The change affected about 90 employees, whose salaries have since been fixed by the Public Printer under authority of the Kiess Act.
2. Benefits of the Kiess Wage Act of 1924 also extended to all per hour employees under the office of the Superintendent of Documents in the same manner and for the same reasons as stated above. Under this authority the Public Printer increased the wages of 75 skilled and unskilled laborers in the office of the Superintendent of Documents from 50 cents to 55 cents per hour, so as to equalize their pay with that of other laborers in the Government Printing Office who had been granted increases under the Kiess Act.

The only employees of the Government Printing Office whose rates of pay are now fixed in accordance with the

classification act are the clerks and supervisors in the office of the Superintendent of Documents, approximately 200 in number.

3. Government Printing Office authorized to offer its facilities to scientific investigators and qualified individuals for study research and the promotion of knowledge in the same manner as other branches of the Government service were authorized by section 91, title 20, of the Code of Laws, to engage in co-operative research work.

The new activity of the Government Printing Office is described more fully elsewhere in this report, where mention is made of the cooperative investigations with the American Newspaper Publishers Association and other organizations in the printing industry.

EMPLOYEES PROTECTED IN WELCH ACT

By the Welch amendment to the classification act of 1923, approved May 28, 1928—

The Welch amendment, as originally proposed, would have restored to the salary and wage rates of the classification act practically all the employees of the Government Printing Office except those in the skilled trades; and not only would have reduced their rates of pay in most instances, but also would have prevented their being paid the extra rates granted under the Kiess Act for night, Sunday, holiday, and overtime work.

It was evident that this was not the intention of the Welch bill, and on recommendation of the Public Printer the requirement both in classification act and in the original draft of the Welch amendment providing that all classes of positions not in a recognized trade or craft in the Government Printing Office were to be included under the classification act, was stricken from the Welch amendment.

As a further safeguard, the following amendment was enacted into law as part of the Welch Act to make clear and certain the status of the employees of the Government Printing Office:

SEC. 4. The provisions of this act shall not apply to employees in the Government Printing Office whose rates of pay are set under authority of the "Act to regulate and fix rates of pay for employees and officers of the Government Printing Office," approved June 7, 1924. (United States Code, p. 1417, sec. 40.)

By the act fixing the salaries of the Public Printer and the Deputy Public Printer, approved May 29, 1928—

Increases salary of the Public Printer from \$7,500 to \$10,000 per annum and that of the Deputy Public Printer from \$5,000 to \$7,500 per annum, effective on date of passage.

OTHER LEGISLATION BENEFITING THE OFFICE

In addition to proposing all the foregoing legislation, the present Public Printer, while serving as clerk of the Joint Committee on

Printing, drafted the following provisions of law that have been especially beneficial to the Government Printing Office and its employees:

By the legislative appropriation act of March 1, 1919—

A provision in section 11 of this act requires that all printing, binding, and blank-book work for every branch of the Government service shall be done at the Government Printing Office, with certain exceptions to be determined by the Joint Committee on Printing.

A similar requirement was made by section 87 of the printing act of January 12, 1895, but that provision had been rendered ineffective for a long time by a decision of the Comptroller of the Treasury permitting field services to have printing done elsewhere than at the Government Printing Office.

The new provision in the act of March 1, 1919, prevented further evasions of the law and has brought into the Government Printing Office annually more than a million dollars of Government printing and binding which formerly had been done elsewhere without regard to the facilities of this office to handle practically all of the Government printing and binding.

The new supply of work came at a time when the slump following the vast production during the war period was beginning to reduce employment in the Government Printing Office and made unnecessary further large decreases in its force. Moreover, the work always should have been done at the Government Printing Office, and the final placing of it there has benefited all branches of the Government service as well as the Printing Office.

The provision in the act of March 1, 1919, is as follows:

Provided further, That on and after July 1, 1919, all printing, binding, and blank-book work for Congress, the executive office, the judiciary, and every executive department, independent office, and establishment of the Government, shall be done at the Government Printing Office, except such classes of work as shall be deemed by the Joint Committee on Printing to be urgent or necessary to have done elsewhere than in the District of Columbia for the exclusive use of any field service outside of said District.

By the sundry civil appropriation act of July 19, 1919—

The following provision in section 3 of this act has enabled the Public Printer to acquire by free transfer from other departments of the Government in the last eight years approximately \$400,000 worth of surplus machinery, equipment, and supplies that have been put to good service in the Government Printing Office:

Provided further, That any officer of the Government having machinery, material, equipment, or supplies for printing, binding, and blank-book work, including lithography, photolithography, and other processes of reproduction, which are no longer required or authorized for his service, shall submit a detailed report of the same to the Public Printer, and the Public Printer is hereby authorized, with the approval of the Joint Committee on Printing, to requisition such articles of the character herein described as are serviceable in the Government Printing Office, and the same shall be promptly delivered to that office.

STATEMENT IN REGARD TO PRINTING TABULATING CARDS

For consideration by Congress, there is submitted herewith a statement in regard to the rental of tabulating machines and the purchase of printed tabulating cards by various establishments of the Government. The statement relates to contracts which discriminate against the Government Printing Office in violation of the Clayton Act prohibiting unfair trade agreements and ignore the act of March 1, 1919, requiring all Government printing to be done at the Government Printing Office. Although this office is not concerned in tabulating machines by themselves, their rental to the Government has been so tied to contracts for the supply of printed cards by the two tabulating machine companies that the right of this office to print tabulating cards has been seriously impaired.

The contracts in question either required the Government to use exclusively the printed cards furnished at exorbitant prices by the two tabulating machine companies, or exact a discriminatory and additional rental of 15 per cent by one company and \$10 per machine per month by the other company, for the use of Government-made cards. The purpose of these tying contracts is to compel the Government Printing Office to stop printing tabulating cards and to perfect the monopoly which the two tabulating machine companies are seeking to fasten on the Government.

CONTRACTORS PAID EXCESSIVE PRICES

Under their discriminatory contracts, the tabulating machine companies have charged certain departments of the Government for printed cards practically double the price at which the Government Printing Office has furnished similar cards to other departments. Compelled to modify its exclusive contracts when the Public Printer insisted on the right to furnish tabulating cards under the act of March 1, 1919, one tabulating machine company materially reduced the price of its cards, but at the same time raised another barrier against the supply of tabulating cards by the Government Printing Office in demanding higher rentals for its machines if used with Government-made cards. This company has practically a monopoly in the use of its machines and cards by all but two or three establishments of the Government.

Discriminations have also been made by the tabulating machine companies in the prices charged different departments of the Government for their cards, ranging from 74 cents to \$2 per thousand, the lower price being accorded to the General Accounting Office which has insisted on procuring its cards from a certain tabulating machine company rather than from the Government Printing Office. If permitted to furnish tabulating cards to all the Government establishments in Washington, as required by law, the Government Printing Office could provide them at a cost less than any price yet quoted by the tabulating machine companies. However, such a saving would be partly offset by the discriminatory rentals now exacted by the two companies for the use of their machines with Government-made cards.

In addition to the exclusive and discriminatory contracts which have prevented or handicapped the use of Government-made cards,

one tabulating machine company, through its agents, has sought to prejudice Government employees against the cards furnished by the Government Printing Office by unjust criticism and unfair statements concerning the quality of the Government-made cards. The agents of this company practically dominate the use of their machines in several Government establishments and have rendered it impossible for the Government-made cards to have a fair trial. In fact, the rental contracts vest in the company exclusive control of the machines while in the service of the Government. No alterations in or attachments to the machines can be made without written consent of the company, even if better service to the Government would result therefrom. Thus it is within the power of the company to so adjust its machines as to make them difficult to operate with Government-made cards.

REFUSED TO SUPPLY PAPER FOR CARDS

Furthermore, the paper manufacturer who supplies the tabulating machine companies with paper for the printing of cards has refused to furnish similar paper to the Government Printing Office, thereby making it even more difficult for this office to comply with the law requiring that all printing for the Government establishments in Washington shall be done at the Government Printing Office.

Confronted with this situation, the Public Printer filed with the Federal Trade Commission a complaint against the tabulating machine companies and the paper manufacturer charging violations of the Clayton Act by their exclusive contracts and discriminatory agreements in restraint of trade. The complaint was filed on August 15, 1927, but not until nearly ten months later, on June 5, 1928, was the Public Printer notified by the commission that the matter complained of did not call for "the exercise of those remedial powers granted by law to the commission," and dismissed the complaint "without further action."

Although previously holding that tabulating cards are printing required by law to be done at the Government Printing Office, the Comptroller General has refused to sustain the claim of the Public Printer that the contracts for cards printed by the tabulating machine companies violate the act of March 1, 1919. The Comptroller General has also ignored the authority of the Joint Committee on Printing which empowered the Public Printer to contract for such cards as the Government Printing Office was not equipped to print for the time being.

COMPTROLLER GENERAL CAUSES HALT

Futhermore, the Comptroller General has caused a halt in the Government printing of tabulating cards, and has made complete the monopoly of the tabulating machine companies by upholding a complaint of the Shipping Board that the Government-made cards are unsatisfactory, and authorizing that board to procure cards from a tabulating machine company without regard for the law. The Comptroller General rendered this decision against the Government Printing Office without courtesy of notice or privilege of answer; and, in sustaining the complaint of the Shipping Board, he

claims the absolute right to set aside the act of Congress of March 1, 1919, on the ground that tabulating machines are essential to the work of the Government which, he asserts, can function only with the tabulating cards supplied by the machine companies.

As a matter of fact, well known to the Comptroller General, the Government Printing Office is equipped to furnish a large part of the tabulating cards used by the Government establishments in Washington, and this office has been empowered by the Joint Committee on Printing to procure by contract such additional cards as the Government may require from time to time, so that there never has been a moment when the Public Printer could not have met the needs of the Government for tabulating cards if he had been sustained by the Federal Trade Commission and the General Accounting Office in the performance of that duty.

GOVERNMENT STOPS PRINTING OF CARDS

Therefore, on account of the Comptroller General's decision relieving his own as well as other Government offices of their obligation under the law to procure tabulating cards from the Government Printing Office, and due also to the failure of the Federal Trade Commission to protect the Government against the exclusive and discriminatory contracts exacted by the tabulating machine companies, the Public Printer has been compelled to discontinue for the present the printing of tabulating cards. In the meantime, the Government will continue at the mercy of the tabulating machine companies in the prices they may charge for their machines and printed cards until Congress may determine whether the printing of tabulating cards shall be done at the Government Printing Office, as required by existing law, or whether the monopoly of the tabulating machine companies and the refusal of the paper manufacturer to sell his product to the Government shall be legalized and the administration of the Government Printing Office turned over to the Comptroller General.

Either the act of Congress in the law of March 1, 1919, should be complied with by the Comptroller General or it should be repealed and that officer given the legal right to order printing done elsewhere than at the Government Printing Office. If the Comptroller General is to be conceded the power to decide arbitrarily what class of work shall not be done by the Government Printing Office, as in the case of tabulating cards, there will be nothing to prevent his ordering any other printing or binding, including even the Congressional Record, to be done under contracts awarded by him.

LARGE SUMS SPENT FOR TABULATING

That use by the Government of tabulating machines and cards is no small matter is shown by the findings of a special committee which thoroughly investigated the subject in 1923 under direction of the Joint Committee on Printing. The committee ascertained that the cost to the Government of machine tabulations for statistical and accounting work, including rental of machines, purchase of cards, and compensation of employees, amounted to \$2,362,801.79 for the

year 1923. In the six years since then the cost has undoubtedly reached \$3,000,000 annually.

Rental of tabulating machines alone in the year 1923 cost the Government \$177,885.46, to which was added \$75,747.72 for the card punching and sorting machines. The machine companies were also paid \$370,809.67 for approximately 340,000,000 printed cards which they furnished during the year, making the total income to machine companies from the Government business in 1923 amount to \$624,442.83, which netted a handsome profit for each of the two companies. These figures cover the expenditures of about 34 Government establishments which leased tabulating machines in 1923 under the exclusive contracts then required by the machine companies.

Only 9,822,000 cards were ordered of the Government Printing Office in that year, and most of them were used on the 38 Government-owned tabulating machines of the Census Bureau.

ESTIMATED SAVING BY CONSOLIDATION

It is interesting to note that the committee which investigated the use of tabulating machines and cards by the Government in 1923 estimated that the Government could make an annual saving of approximately \$258,000 by consolidating in one place the work of machine tabulations, and by procuring all the cards therefor from the Government Printing Office. By such a consolidation, the excessive number of machines rented by the many separate units could be reduced by 20 per cent, and a similar decrease made, it was estimated, in the 692 employees of the separate tabulating units of the various Government establishments in Washington.

Based on the greatly increased use of tabulating machines since 1923, the saving that could be effected by a single tabulating unit would, of course, be much larger than the \$258,000 annual economy estimated in 1923.

The idea of a central tabulating unit in Washington was also proposed by the Director of the Census in 1921 in a communication which the Secretary of Commerce submitted to the Director of the Budget. It was proposed that during the interval between censuses the tabulating machines of the Census Bureau could be used very efficiently in tabulating work for other establishments of the Government. This suggestion of economy did not achieve much success, however, and the rental of commercial machines with the card monopoly contracts continued to increase.

CENSUS MACHINES MADE AVAILABLE

The statement of the Director of the Census, dated October 5, 1921, as transmitted to the heads of departments and establishments of the Government by the Director of the Budget, with a request for consideration, reads as follows:

For a number of years the Bureau of the Census has been developing punching, sorting, and tabulating machines for use in taking the decennial censuses of population and the annual censuses of births and deaths. The tabulating machines that have been developed have reached a high stage of efficiency. They are tallying machines and have a maximum capacity of 400 cards a minute.

60 items to each card. The bureau has a well-equipped mechanical laboratory in which these machines have been constructed and in which they are kept in repair. During the interval between the censuses the laboratory is engaged in developing improvements to the machines to be used for census work and in repair work on the machines that are employed for the annual investigations.

The tabulations for the Fourteenth Census are now approaching completion and by the first of the year there will be between 25 and 30 machines that will be available for tabulating work required by other branches of the Government. It seems to me it would be economy to concentrate as far as possible this kind of work in the Census Bureau and utilize this equipment. I understand that the Bureau of Immigration of the Department of Labor has considerable work of this kind, and it may be that the Department of Agriculture, the Post Office, Bureau of Education, and possibly other offices have tabulating work that can be done by use of the card system. We have, in addition to the tabulating and sorting machines, a large number of punching machines. I believe that if card tabulations of this character could be concentrated in the Bureau of the Census, it would be possible to develop a high degree of efficiency and result ultimately in quite a financial saving to the Government.

Leaving out of consideration the suggested consolidation of tabulating machines into one unit, which really is not a matter of concern to the Government Printing Office, a definite saving of at least \$75,000 annually could be made in the printing of cards for all the tabulating machines used by the Government, both in Washington and in the field service. This statement is based upon quantity production of approximately 300,000,000 cards annually at 61 cents per thousand cards, the price which the Public Printer quoted to the General Accounting Office for the fiscal year 1928.

MACHINE COMPANIES REDUCE CARD PRICES

Undoubtedly, on account of this proposal by the Public Printer, the Tabulating Machine Co. reduced its price per 1,000 cards from 95 cents in 1927 to 74 cents in 1928, for the General Accounting Office and the Post Office Department, which were benefited by a saving of approximately \$50,000 in their expenditures for cards in 1928 as compared with 1927. Several years ago the General Accounting Office paid the Tabulating Machine Co. \$1.10 per 1,000 for similar cards, and other Government offices even now are paying as high as \$1.40 per 1,000 for cards which the Government Printing Office furnished at 79 cents per 1,000 from June, 1927, to August 21, 1928, and at 72 cents per 1,000 since that date. Therefore, it is quite evident that the printing of tabulating cards by the Government Printing Office has been of some benefit to the Government in securing a reduction in the charges of the tabulating machine companies, even though the Comptroller General has decided that the Government-made cards are unsatisfactory and has, for the time being, forced the Government Printing Office to discontinue the printing of tabulating cards.

MACHINES DEVELOPED BY GOVERNMENT

Credit for the development of the tabulating machine is due primarily to the United States Government, inasmuch as these machines were first made and used in the Census Bureau for tabulation of the census of 1890. The machine was invented by an employee of the Census Bureau who, after being greatly helped by the Government in perfecting his electrical device for statistical tabulations, became

associated with the machine company that is now reaping much profit from the leasing of its machines to the Government.

Assisted with appropriations by Congress, the Census Bureau continued to improve the tabulating machine, and the first Government-made machines were used in tabulating the census of 1910.

For many years, up to 1925, the annual appropriations for the Census Bureau specifically authorized the use of its funds for experimental developing, improving, and constructing accounting machines for use in statistical work. The Census Bureau now has 38 tabulating and 26 sorting machines of its own construction.

A large number of cards used in the first Government-made machines were printed by the Government Printing Office, which has continued to supply the Census Bureau with cards up to the present time. The total number printed since 1910 exceeds 600,000,000 cards.

It is evident, therefore, that the Government, in the production of its own tabulating machines and the printing of tabulating cards, has not invaded the field of private industry, but that, on the other hand, private industry has profited greatly by taking over an activity which originated in the Government service.

GOVERNMENT-BUILT CENSUS MACHINES

The report of the Director of the Census, dated September 15, 1922, contains the following interesting information concerning the manufacture of tabulating machines by the Census Bureau and the prospective use of Government-built machines in statistical and accounting work by other branches of the service:

Negotiations are in progress with the Post Office Department, and with other departments and bureaus of the Government which are engaged to any considerable extent in statistical work, for the purpose of introducing the tabulating machinery which has been invented, developed, and manufactured in the bureau's mechanical laboratory. The representatives of the Post Office Department have arranged for a practical test of the tabulating machine.

This machine can also be used advantageously on cost accounting, and the bureau is already making such use of it, with highly satisfactory results. It makes possible the preparation, with a minimum of time, labor, and expense, of either general or detailed cost statements, in accordance with the "classification of objects of expenditure," adopted by the General Accounting Office, Office of the Comptroller General.

I feel very strongly that a material saving can be effected by the introduction of the bureau's tabulating machinery in other branches of the Government.

* * * there has been devised and constructed in the mechanical laboratory an adding tabulator which has passed through the testing stage in a highly satisfactory manner, developing a speed of 200 cards a minute, and is now regularly in operation on the routine work of the bureau, including cost accounting. * * *

Other machines of the same type are in process of construction. All these machines, of course, will be owned by the Government, and it is believed that through their use economies can be effected, not only in the census work but also in statistical work for other Government offices, which will materially reduce the annual charge for the use of equipment of this character.

In this regard, the Director of the Census wrote further to the chairman of the Joint Committee on Printing, Senator Moses, under date of February 12, 1923:

Of course you know that the bureau has, for a number of years, been using tabulating machines that were invented and constructed in the bureau and which are the property of the Federal Government. These machines have re-

cently been improved and I hope that it will be possible to use them in other branches of governmental work in which a card system of tabulation can be utilized.

Relying upon the foregoing statements of the Director of the Census that other establishments of the Government, particularly the Post Office Department which was then the largest user of tabulating machines, were preparing to install Government-made machines, the Public Printer began to consider the advisability of better equipping the Government Printing Office to produce cards for an increased use of Government-made tabulating machines. Up to that time the Government Printing Office had printed tabulating cards only for the Government-made machines in the Census Bureau, and for a small number of machines in several other establishments of the Government which were not bound to the exclusive card contracts in the use of their rented tabulating machines.

There had been a decision by the Comptroller of the Treasury on March 24, 1914, holding that, under the printing act of 1895, tabulating cards for the Treasury Department could be procured only from the Government Printing Office, and in compliance with that decision the Public Printer, under authority of the Joint Committee on Printing, supplied the Treasury Department with cards by contract instead of having them printed by the Government Printing Office. The decision did not apply to the field services in Washington, which were not required to have printing done at the Government Printing Office until the act of March 1, 1919. Thus, the preparations of the Public Printer to meet the increased requirement of cards for use in tabulating machines, whether Government-made or a commercial product, were in full accord with the law and its interpretation by the Comptroller of the Treasury.

EXCLUSIVE CONTRACTS FOR PRINTED CARDS

It was soon ascertained, however, that the Government establishments which leased a certain kind of tabulating machine were bound by contract to procure tabulating cards solely from the lessor company. That company also had intimidated Government officers into the exclusive use of its cards by threatening to remove its machines if used with Government-made cards. Evidence of this statement is a letter addressed to the Paymaster General of the Navy by C. E. Braitmeyer, assistant general manager of the Tabulating Machine Co. of New York, under date of April 12, 1922, in reply to a letter from the Paymaster General calling attention to the legal requirements for the procurement of tabulating cards from the Government Printing Office. In his letter, the assistant general manager of the Tabulating Machine Co. makes the following significant suggestion as to how the legal obstacles to an exclusive contract with his company might be "overcome" and adds that if his suggestion is not adopted the Tabulating Machine Co. would remove its machines from the navy yards, which, for the time being at least, would have been left without mechanical means of compiling statistics and accounts for the Navy:

Referring to the legal requirements to which you allude, we venture the suggestion that this difficulty is not a new one and might be overcome by your bureau as heretofore, or in the same way that it is overcome by a num-

ber of other departments, there being about 30 United States Government bureaus who use our equipment and purchase the cards from us in accordance with the standard conditions of our regular contracts. Or you might, as in fact one bureau did upon the showing of value to them, secure direct authority from Congress for the purchase from us of the necessary cards or operating elements.

Replying directly to the question raised in the first paragraph of your letter, if the condition of the purchase from us of all tabulating cards used in our machines can not be met by your bureau, we will most reluctantly be forced to remove the machines at the termination of the present lease. We trust, however, that the department will be able to make such arrangements that our service may be retained.

POST OFFICE AND TRADE COMMISSION CONTRACTS

In addition to the contracts themselves, evidence of the fact that they were entered into by Government officers as agreements to exclude the use of cards made by the Government Printing Office is contained in letters responding to the Public Printer's request in 1925 for information concerning the procurement of tabulating cards. In a letter of August 19, 1925, the Postmaster General wrote as follows:

Under the terms of the Hollerith contract with the Government, their machines are leased with the express stipulation that they be used only for the tabulation and assorting of cards of Hollerith manufacture.

The Federal Trade Commission also stated in its reply of August 4, 1925, that it had entered into a similar contract with one of the tabulating machine companies. Admission of this exclusive and tying contract, which appears to be a violation of the Clayton Act that the Federal Trade Commission is especially charged to enforce, was made in the following statement of a letter from its secretary:

The commission's existing contract with the company from which the tabulating machines are rented provides that the commission purchase all cards used on such machines for the fiscal year from the company in question.

GOVERNMENT PRINTED CARDS SINCE 1909

From the time the Government Printing Office began in 1909 to supply the Census Bureau with tabulating cards, they were printed on ordinary presses up to 1927. This period included the decennial censuses of 1910 and 1920 and the agricultural census of 1925, for which approximately 330,000,000 cards were printed by the Government Printing Office. The usual difficulties were encountered, but, as far as the records of this office show, most of the cards were printed with apparent satisfaction to the Census Bureau. In fact, less than one-fifth of 1 per cent of the entire number of cards furnished the Census Bureau since 1910 have been reprinted on account of rejections.

It was recognized, however, that to keep pace with the increasing complication of commercial tabulating machines, the Government Printing Office would have to be equipped with special presses for more accurate printing and exact die-cutting of the cards. Considerable time was required to obtain the proper equipment, but the negotiations were completed early in 1926, when the Joint Committee on Printing authorized the purchase of five special presses and a

precision slitter for the printing and die-cutting of tabulating cards by this office.

The new equipment was installed and ready for operation early in 1927. The presses and slitter are identical in design and operation with those used by one of the tabulating machine companies, so that there is now no difference in the printing and cutting of tabulating cards by the Government and those of the machine companies.

Under date of April 1, 1927, the Public Printer notified the heads of departments and independent establishments that "the Government Printing Office has recently installed the very latest presses for economically producing tabulating cards, accurately cut and punched, in large quantities."

ACCOUNTING OFFICE GETS LOWER PRICE

The General Accounting Office on April 18, 1927, acknowledged receipt of the Public Printer's notice and stated that the Comptroller General had already accepted a bid of the Tabulating Machine Co. for the rental of its machines and the furnishing of its cards for the fiscal year 1928. The contract price of tabulating cards for the General Accounting Office for the year which began on July 1, 1927, was 74 cents per thousand cards, or 21 cents per thousand less than for the preceding year. This reduction, which was granted by the Tabulating Machine Co. at the same time as the Public Printer announced that the Government Printing Office was equipped to produce large quantities of tabulating cards, effected a saving of fully \$50,000 in the purchase of tabulating cards by the General Accounting Office and the Post Office Department during the fiscal year 1928.

Although the letter of April 18, 1927, stated that the General Accounting Office would not procure cards from the Government Printing Office during the fiscal year 1928, a request was made in the same letter for the Public Printer to submit a quotation "guaranteed as to price" for furnishing the General Accounting Office with tabulating cards during the fiscal year ending June 30, 1929. Of course, the Public Printer could not make any proposal "guaranteed as to price" for cards that were to be printed and delivered in from one to two years after guaranteeing the price therefor.

PUBLIC PRINTER CHARGES ACTUAL COST

Officers of the General Accounting Office know full well that the Public Printer is required by the annual legislative appropriation acts of Congress to charge "actual cost" for all work done at the Government Printing Office, and that it is impossible to determine in advance what the actual cost of labor and material will be in the next year or two. Nor has the Public Printer the right to bid or contract for work at any fixed or guaranteed price. The estimates of the Government Printing Office are only tentative and the final charges must be based on actual cost as required by law.

The General Accounting Office had never required the Tabulating Machine Co. to guarantee its card prices, even during the contract year, until 1927. Heretofore the contracts had provided that cards

would be sold "in accordance with the prices prevailing at the time orders for same are received." Only after the Public Printer had questioned the legality of the exclusive and indefinite contracts for tabulating cards did the Comptroller General require the Tabulating Machine Co. to make separate contracts for the rental of its machines and the sale of its cards.

As shown also by the letter of April 18, 1927, the General Accounting Office awarded its card contract for the year beginning July 1, 1927, less than three months before it became effective. The contract for the year beginning July 1, 1928, for which the Public Printer was requested to guarantee his price a year in advance, was awarded to the Tabulating Machine Co. within a few weeks of the beginning of that contract year.

IMPOSSIBLE CONDITIONS PRESCRIBED

Demand on the Public Printer for a guaranteed price for two years in advance was only one of the impossible conditions prescribed by the General Accounting Office for the printing of tabulating cards by the Government Printing Office. The administrative assistant to the Comptroller General further specified that Government-made cards should be "of perfect quality and size" and "of absolutely correct size, thickness, etc." These impossible requirements are not included in the contracts with the Tabulating Machine Co.; indeed, no sane person could honestly guarantee "perfect" quality and "absolutely correct" size, thickness, etc.

In this connection, the Government Printing Office has been informed that many cards furnished by the Tabulating Machine Co. have been found defective, and the Public Printer frankly admits that the Government Printing Office likewise has been unable to produce "perfect" or "absolutely correct" cards at all times. It is a fact, however, that the Government Printing Office has produced large quantities of satisfactory tabulating cards for establishments of the Government that can not disregard the acts of Congress as nonchalantly as the Comptroller General.

In the last two years the Government Printing Office has printed tabulating cards for seven of the eight executive departments using tabulating machines, the one exception being the Post Office Department, and for seven of the independent establishments, including the Interstate Commerce Commission, which, along with the Census Bureau, has obtained cards from the Government Printing Office for many years.

PAPER MAKER BOOSTED HIS PRICE

There has, of course, been some difficulty in supplying satisfactory cards, owing chiefly to the handicaps that the Public Printer has experienced in obtaining paper suitable for tabulating machine work. After the new presses had started to produce cards properly cut and printed, the paper manufacturer, who up to that time had supplied both the Government Printing Office and the Tabulating Machine Co. with paper, arbitrarily increased his price to the Government Printing Office. If the higher price had been paid, the

Public Printer would have been unable to keep the cost of Government-made cards within the price charged by the Tabulating Machine Co. This paper manufacturer was at the time the only known source for the supply of suitable tabulating card stock.

In addition to increasing his price to the Government, the paper manufacturer also handicapped this office by refusing to furnish paper except through jobbers, notwithstanding the fact that at the same time he was selling and delivering paper direct to the printing plant of the Tabulating Machine Co. in Washington at a lower price.

The paper manufacturer in question finally refused to furnish any more paper to the Government Printing Office, either direct or through jobbers, and thus for the time being greatly delayed the work of this office for other establishments of the Government. The Public Printer therefore had to develop new sources of supply for tabulating paper. After an unavoidable delay, it is believed that satisfactory paper stock is now available. In fact, recent reports show that the paper now being made for the Government Printing Office is the most satisfactory that this office has received for printing tabulating cards.

COMPLAINT TO FEDERAL TRADE COMMISSION

In the meantime, the higher rentals for machines using Government-made cards and the boycott in the supply of paper so restricted the lawful right of this office to print tabulating cards that the Public Printer deemed it his duty to submit a complaint to the Federal Trade Commission. Accordingly, the following application of the Public Printer, dated August 15, 1927, was filed with the Federal Trade Commission for proceedings against the Tabulating Machine Co., of New York, the Powers Accounting Machine Corporation, of New York, and the Hollingsworth & Whitney Co., of Boston:

UNITED STATES GOVERNMENT PRINTING OFFICE,
Washington, August 15, 1927.

FEDERAL TRADE COMMISSION,
Washington, D. C.

SIRS: Application is hereby made to the Federal Trade Commission to institute a proceeding against the Tabulating Machine Co. Division of the International Business Machines Corporation, 50 Broad Street, New York, N. Y., and the Powers Accounting Machine Corporation, 115 Broadway, New York, N. Y., the latter being a corporation of the State of Delaware, for an order that these companies shall cease and desist from enforcing any condition, agreement, or understanding in connection with the sale or lease of their respective tabulating and accounting machines and equipment requiring the users to purchase or procure tabulating cards therefor exclusively of the company from which the machine or equipment may be leased, whereby competition has been substantially lessened and a monopoly created in violation of section 3 of the act of Congress approved October 15, 1914, and section 5 of the act of September 26, 1914.

As evidence of this alleged violation of law there are submitted herewith copies of leases and contracts, Exhibits A, B, C, and D,¹ which the Tabulating Machine Co. and the Powers Accounting Machine Corporation have exacted of several branches of the Government service for the use of their tabulating and accounting machines, large numbers of which are required in the transaction of the public business. Similar leases have been executed with other establishments of the Government.

¹ All exhibits filed with the Federal Trade Commission.

TYING AND RESTRICTIVE PROVISIONS OF LEASES

Your consideration is respectfully requested of the tying provisions of the leases that restrict the Government to the exclusive use of tabulating cards which these companies require shall be purchased for their respective machines at an arbitrary price and which prevent the Government Printing Office from supplying cards for such machines. The effect of these lease restrictions is to substantially lessen competition and create a monopoly for each company in the sale of tabulating cards for its machines. The restrictions have resulted in injury to the business which the Government Printing Office is authorized and directed by law to do and has compelled the other establishments of the Government to pay a discriminative rental for tabulating and accounting machines or to purchase cards exclusively from the respective machine companies at excessive prices. Therefore, in the public interest the commission is urged to issue an order forbidding the companies complained of from continuing to use such unfair methods of competition in commerce.

As a defense the machine companies may set up the alternative provisions of their leases which allow the use of Government-made cards in their machines on payment of higher rentals, and they may thus attempt to justify the use of the restrictive and tying provisions in their leases. The increased rentals required by the alternative clauses are so onerous, however, as to have compelled several lessees to choose the restricted form of lease in order to obtain the lower rental rate for the machines. In this connection your attention is invited to the opinion of the United States Supreme Court in the United Shoe Machinery Corporation case (258 U. S. 451, at p. 464), in which it was held that "the fact that a form of lease was offered which is not the subject of controversy is not a justification of the use of clauses in other leases which we find to be violative of the act."

For your further information and consideration of this complaint the following statement of facts is submitted:

By law (sec. 11, act of March 1, 1919 [40 Stat., 1270], and sec. 87, act of January 12, 1895 [28 Stat., 622]), all printing for the Government, except for certain field-service use, is required to be done at the Government Printing Office. In compliance with the law, the Public Printer has been printing tabulating cards and furnishing them to other establishments of the Government for many years. These cards have been used largely in tabulating machines made by the Government for the Census Office and a considerable number have been used in machines leased to other Government establishments by the Powers Accounting Machine Corporation, but, as the Government Printing Office was not equipped to print a sufficient number of suitable cards to supply all the tabulating and accounting machines used by the Government, the Joint Committee on Printing on June 15, 1920, authorized other establishments of the Government to procure tabulating cards elsewhere than at the Government Printing Office.

COMPANY REQUIRED EXCLUSIVE USE OF CARDS

The Tabulating Machine Co. in leasing its machines to the Government stipulated that the cards therefor should be purchased exclusively from that company. Note license restrictions in lease to the Department of Agriculture dated July 1, 1926, and submitted herewith as Exhibit E. The Powers Accounting Machine Corporation required a higher rate of rental for its machines if used without its own cards. Note rental rates in lease to Department of Agriculture dated July 1, 1925, and submitted herewith as Exhibit F. Both companies thus discriminated against and sought to prevent the use of Government-made cards by unfair and restrictive clauses in the leasing of their machines in violation of the Clayton Act. Note also in this connection an admission of this deliberate discrimination in rentals on account of the Government-card competition, which is made in a letter from the Powers Accounting Machine Corporation to the Director of the Budget dated June 4, 1924, and submitted herewith as Exhibit G.

Under these restrictive leases the machine companies charged the Government \$1.20 and \$1.35 per 1,000 for certain size tabulating cards, which the Government Printing Office found it could produce and did furnish to the Government establishments for \$0.725 and \$0.85 per 1,000 cards. Some idea of

the cost to the Government of the excessive charges for cards which the machine companies insisted should be purchased from them may be had from the fact that the various Government establishments use from 287,470,000 cards in a normal year to 731,000,000 cards in a census year. If this quantity of cards had been furnished at the prices quoted by the Government Printing Office, there would have been an average annual saving of approximately \$75,000 in the Government's expenditure for cards. As a matter of fact, due to the lower price which the Government Printing Office offered to furnish cards to the Post Office Department and the General Accounting Office, the Powers Corporation reduced its charge for cards from \$0.95 to \$0.74 per 1,000, which effected a saving to the Government of approximately \$50,000 for the year. The Government Printing Office had proposed to print the cards for \$0.61 per 1,000, but the Post Office Department could not afford to accept this offer on account of the increased rental which the Powers Corporation demanded for its machines if Government cards were used instead of the cards of the Powers Corporation.

PUBLIC PRINTER PREPARED TO PRINT CARDS

With the approval of the Joint Committee on Printing, the Public Printer early this year purchased additional and more suitable machinery for the printing of tabulating cards, and on April 1, 1927, notified the various departments and establishments of the Government that the Government Printing Office was prepared to furnish tabulating cards in large quantities. Thereupon the Secretary of the Navy requested a decision of the Comptroller General as to whether cards for use in connection with leased tabulating machines are required by the act of March 1, 1919, to be printed at the Government Printing Office. The Comptroller General, under date of May 28, 1927, held that "under such circumstances, the printing of these cards comes within the purview of the act of March 1, 1919, supra, and such work may not be performed elsewhere than at the Government Printing Office." A copy of the Comptroller General's decision is submitted herewith as Exhibit H.

Notwithstanding the decision of the Comptroller General the machine companies have continued to enforce their restrictive contracts, compelling the departments of the Government to purchase tabulating cards of them, or else pay a discriminative rental for the use of machines with Government-made cards. The Tabulating Machine Co., as will be observed in Exhibits A, B, and C, has modified its contracts to permit the use of Government-made cards with its machines at an increased rental of 15 per cent, and the Powers Corporation exacts \$10 additional rental per month for the use of Government cards with each machine. These increased rentals would substantially wipe out any saving that the Government could make in using the lower-priced cards printed at the Government Printing Office and would in effect create a monopoly for the machine companies in a supply of their higher-priced cards at greater expense to the Government.

HIGHER RENTALS WITH GOVERNMENT-MADE CARDS

It may be argued in answer that the decision of the Comptroller General requiring the cards to be printed at the Government Printing Office in compliance with the act of March 1, 1919, will end the monopoly of the machine companies and thus remove this complaint from the jurisdiction of the Federal Trade Commission. It should be observed, however, that the decision of the Comptroller General does not affect the discriminatory rentals which the two companies are unitedly exacting for the same service of their machines in the use of Government-made cards instead of their own higher-priced cards. The discriminatory demands for higher rentals under these conditions are clearly for the purpose of lessening competition and creating a monopoly in the supply of cards for the respective machines, and therefore constitutes a violation of the Clayton Act, subject to the jurisdiction of the Federal Trade Commission. Furthermore, the decision of the Comptroller General does not apply to printing that the Joint Committee on Printing under the act of March 1, 1919, may deem urgent or necessary to have done elsewhere than at the Government Printing Office for the exclusive use of any field service outside of the District of Columbia. The restrictions and the higher rentals included in the leases of tabulating and accounting machines to the Government will give the machine

companies a monopoly in the supply of tabulating cards to the field services of the Government outside of the District of Columbia if this class of printing is deemed by the Joint Committee on Printing as urgent or necessary to have done elsewhere than at the Government Printing Office.

The Trade Commission has held similar tying clauses and exclusive contracts to be in violation of the Clayton Act in the complaints brought against the A. B. Dick Co. (1 Decis. 20), the National Binding Machine Co. (1 Decis. 44), the Lubric Oil Co. (3 Decis. 68), the Standard Electric Manufacturing Co. (5 Decis. 376), and other cases, and it is requested that consistent with these decisions a similar order be issued against the Tabulating Machine Co. and the Powers Accounting Machine Corporation.

INVESTIGATION TO INCLUDE PAPER MAKERS

In connection with this complaint the commission is respectfully asked to investigate the business relations of the two tabulating machine companies, especially the Tabulating Machine Co., of New York, with the Hollingsworth & Whitney Co., paper manufacturers, 100 Milk Street, Boston, with a view to determining whether any other unfair methods of competition have been used against the Government Printing Office.

The Government Printing Office has had great difficulty in obtaining paper of the particular quality required for use in the intricate tabulating machines. After some time it was ascertained that the tabulating machine companies were obtaining satisfactory paper from the Hollingsworth & Whitney Co. Efforts were then made to have the Hollingsworth & Whitney Co. furnish similar paper to the Government Printing Office, but the Hollingsworth & Whitney Co., although amply able to take care of the Government's requirements, did not seem interested in supplying tabulating paper direct to the card-printing plant of the Tabulating Machine Co. in Washington, but the Boston and New York offices of the Hollingsworth & Whitney Co. have refrained from transacting business with the Government Printing Office, referring all our requests for proposals on their paper to local Washington and Baltimore jobbers.

This procedure would not have seemed unusual but for the fact that the Public Printer had been informed by a representative of the Barton, Duer & Koch Paper Co., of Washington, which subsequently submitted a proposal to the Government Printing Office for Hollingsworth & Whitney paper, that the Hollingsworth & Whitney Co. would not permit the local jobber to handle its orders from the Tabulating Machine Co. in Washington. The Government Printing Office does not object to buying through jobbers. In this matter, however, it would have been more convenient and economical to have bought paper of the particular quality and large quantity required direct from the manufacturer without having the trouble, delay, and extra expense of dealing indirectly through a third party.

CHARGED GOVERNMENT MORE FOR PAPER

Notwithstanding this discrimination, an order for Hollingsworth & Whitney paper was placed through the Barton, Duer & Koch Paper Co. last June and satisfactory delivery was made. In July the Public Printer requested bids for 150,000 pounds of tabulating card paper. The Barton, Duer & Koch Paper Co. then advised this office that the Hollingsworth & Whitney Co. had increased the price for tabulating card paper and that it would be necessary to advance their price to the Government Printing Office to \$0.0935 per pound from \$0.0799 per pound, which was paid for a smaller quantity of similar paper supplied by the Hollingsworth & Whitney Co. a few weeks before. This increase of \$0.0136 per pound in the price of the paper seemed exorbitant, especially in view of the quiet condition of the paper market at the time and no evidence of any advances in the cost of manufacture, wages, or materials which would justify the charge.

The Public Printer therefore wrote the office of the Hollingsworth & Whitney Co. in Boston asking for an explanation of the large increase in the price of its tabulating card paper and inquired whether a similar advance had been made to other users of its tabulating card paper. The Hollingsworth & Whitney Co.

was also asked the reason for its different method of transacting business with the Tabulating Machine Co. and the Government Printing Office. A copy of this letter to the Hollingsworth & Whitney Co., dated August 2, 1927, is submitted herewith as Exhibit I.

To this inquiry the Public Printer received a curt and unsatisfactory reply from the sales manager of the Hollingsworth & Whitney Co. (see Exhibit J), which utterly ignored the questions about the Tabulating Machine Co. and gave no understandable explanation of the sudden increase in the charge to the Government for tabulating card paper.

HIGHER PAPER PRICE HELPED MONOPOLY

It may be only an odd coincidence but it is interesting to note that the action of the Hollingsworth & Whitney Co. occurred about the same time that the Tabulating Machine Co. was exacting its exclusive contracts with several of the Government establishments in Washington for a monopoly of the supply of tabulating card paper with its machines. That monopoly would be secure if the Government Printing Office could be forced to stop printing tabulating cards on account of the excessive and discriminating cost of paper. The price as advanced by the Hollingsworth & Whitney Co. would have necessitated increasing the charges for Government-made cards from \$0.85 to \$0.94 per thousand, or nearer to the price demanded by the Tabulating Co. under its exclusive contracts and would have greatly strengthened the tight hold which the Tabulating Co. already has on the Government business.

This office has no other definite information as to the relations of the Hollingsworth & Whitney Co. with the Tabulating Machine Co., nor do I know whether they have any interlocking financial interests which might influence the attitude of either company against the Government Printing Office to the profit of both companies. The Tabulating Machine Co. is a division of the International Business Machines Corporation into which have been combined many former independent concerns and it has widespread ramifications which might easily include a control of the manufacture of tabulating card paper since the Tabulating Machine Co. attaches great value to that particular field of its operations. At any rate, I am of the opinion that it is of interest to the Government to ascertain the extent of the monopoly with which it is forced to deal in its large and continually growing requirements for tabulating and accounting machines and cards, and that it is important to the Government to determine whether fair methods of competition are being used in this line of commerce. Therefore, the entire matter is submitted to the Trade Commission for such investigation and procedure as the commission may deem appropriate to undertake.

Respectfully submitted.

GEORGE H. CARTER,
Public Printer.

COMPLAINT DOCKETED FOR INVESTIGATION

The Secretary of the Federal Trade Commission notified the Public Printer on August 19, 1927, that his complaint in regard to tabulating machines and cards had been "docketed for investigation and report." After repeated inquiries by telephone and letter advising the commission of the urgency for a prompt decision on account of the large interest that Government establishments had in the supply of tabulating cards, information was given on April 16, 1928, that the commission had scheduled a hearing for May 1. No more definite word came from the commission until May 15, 1928, when its secretary informally stated that permission to file a brief had been granted to the parties mentioned in the complaint of the Public Printer.

Under date of May 19, 1928, the Public Printer sent the following letter to the chairman of the Federal Trade Commission, making a further appeal for action on the complaint which had then been pending before the commission for nine months:

UNITED STATES GOVERNMENT PRINTING OFFICE,
Washington, D. C., May 19, 1928.

CHAIRMAN FEDERAL TRADE COMMISSION,
Washington, D. C.

DEAR SIR: The Joint Committee on Printing at its meeting on May 15 authorized and directed the Public Printer to proceed at once to contract for furnishing tabulating cards to various branches of the Government service in Washington. Such action will have to be taken promptly, as the existing contracts for tabulating cards expire on June 30, 1928, and it is most essential to the operation of various establishments of the Government, including particularly the Post Office Department and the General Accounting Office, that the source of their supply of tabulating cards after that date shall be determined without further delay.

In view of this situation, I again request early consideration of the complaint which I submitted to the Federal Trade Commission under date of August 15, 1927. I do not feel that it would be proper to undertake to contract for tabulating cards until the Federal Trade Commission shall have decided whether the existing contracts are in violation of the acts of Congress relating to unfair methods of competition in commerce. Therefore, I feel compelled to again ask that the commission decide this matter at as early a date as practicable so that the proper contracts may be awarded as soon as possible before June 30, 1928.

Respectfully,

GEORGE H. CARTER,
Public Printer.

DISMISSED "WITHOUT FURTHER ACTION"

Finally, under date of June 5, 1928, the secretary of the Federal Trade Commission formally notified the Public Printer that, after a preliminary inquiry, the commission had dismissed the complaint against the tabulating machine companies without further action. The letter reads as follows:

FEDERAL TRADE COMMISSION,
Washington, June 5, 1928.

Application No. 1-4541

UNITED STATES GOVERNMENT PRINTING OFFICE,
Washington, D. C.

GENTLEMEN: I am writing in response to your correspondence bringing to the attention of the Federal Trade Commission certain alleged practices of the International Business Machines Corporation et al.

The commission has conducted a preliminary inquiry, and upon the facts developed it does not appear that the situation calls for the exercise of those remedial powers granted by law to this commission, and the matter has therefore been dismissed without further action.

By direction of the commission.

OTIS B. JOHNSON, *Secretary*.

THE PUBLIC PRINTER FILES PROTEST

In concluding the matter with the Federal Trade Commission, the Public Printer wrote its chairman as follows, under date of June 9, 1928:

UNITED STATES GOVERNMENT PRINTING OFFICE,
Washington, D. C., June 9, 1928.
CHAIRMAN FEDERAL TRADE COMMISSION,
Washington, D. C.

SIR: I am this day in receipt of a letter dated June 5 and signed by the secretary of the Federal Trade Commission, stating that the commission has dismissed "without further action" the application which I filed with it under

date of August 15, 1927, to institute proceedings against the Tabulating Machine Company Division of the International Business Machines Corporation of New York, the Powers Accounting Machine Corporation of New York, and the Hollingsworth & Whitney Co., of New York and Boston, for alleged violations of section 3 of the act of Congress approved October 15, 1914, and section 5 of the act of September 26, 1914.

During the nine months that this matter has been before the commission, I have repeatedly urged its representatives to give it prompt consideration in view of the vital importance to this office of the contracts complained of in supplying large quantities of printed tabulating cards to the various departments and establishments of the Government for the year beginning July 1, 1928. The long delay, which appears inexcusable, has seriously hampered the operations of this office in making necessary preparations for such work.

During all the time since the complaint was filed on August 15, 1927, this office has not been called upon by the Federal Trade Commission to appear at any hearings that the commission may have held in regard to the complaint, nor has it been advised of any of the facts which the commission states it has developed in regard thereto. In my opinion, the evidence submitted by this office clearly showed that the contracts complained of are discriminatory and constitute unfair methods of competition in commerce in violation of the acts of Congress.

Inasmuch as the Federal Trade Commission, according to the statement of its secretary, has decided that from the facts developed it does not appear that the situation calls for the exercise of the remedial powers granted to the commission by Congress and has therefore dismissed the matter "without further action," I shall feel it my duty to lay all the facts in the case before Congress at its next session. I can not believe that Congress will approve the execution of such unfair and monopolistic contracts by any officer of the Government.

Respectfully,

GEORGE H. CARTER,
Public Printer.

COMPTROLLER BARS EXCLUSIVE CONTRACTS

However, the monopolistic grasp of the tabulating machine companies on Government business had been released somewhat by a decision which the Comptroller General had rendered to the Secretary of the Navy under date of May 28, 1927, holding that—

hereafter, in contracting for the use of tabulating machines, bids should be requested and agreements made for the rental of machines without including a provision prohibiting the use of any cards other than those purchased from the lessor, and thereafter the necessary cards should be purchased from the Public Printer, except in those cases, if any, in which it may be established that he can not furnish cards that can be satisfactorily used in the machines for which required.

Nevertheless, the tabulating machine companies, due to the inaction of the Federal Trade Commission, continued their discriminatory contracts exacting higher rentals of the Government for tabulating machines used with Government-made cards. These contracts, in effect, constitute restraint of trade and unfair competition in violation of the Clayton Act that the Federal Trade Commission had refused to enforce against the companies complained of by the Public Printer.

Owing to the long delay of the Federal Trade Commission in acting upon the complaint, it was necessary for the Public Printer to make tentative preparations in the meantime for supplying various establishments of the Government with tabulating cards for the year beginning July 1, 1928.

SUBMITTED TO JOINT PRINTING COMMITTEE

On May 2, 1928, the Public Printer addressed the following communication to the Joint Committee on Printing, setting forth the dilemma of the Government Printing Office owing to the inaction of the Federal Trade Commission and the decision of the Comptroller General, and requested authority either to buy additional presses to print all the tabulating cards required by the Government establishments in Washington or to contract for such tabulating cards as could not be made with the present equipment of the Government Printing Office:

UNITED STATES GOVERNMENT PRINTING OFFICE,
Washington, D. C., May 2, 1928.

HON. GEO. H. MOSES,

Chairman, Joint Committee on Printing, Washington.

MY DEAR SENATOR: In compliance with the law (40 Stat. 1270) requiring that all printing for the Government in the District of Columbia shall be done at the Government Printing Office, and with the regulations of the Joint Committee on Printing and the decisions of the Comptroller General holding that the law applies to statistical tabulating cards, this office has given serious consideration to methods of supplying all statistical tabulating cards to the various branches of the Government service in the District of Columbia.

For many years the Government Printing Office has printed tabulating cards for a number of the Government establishments, especially for the Census Office. Early in 1927, with the approval of the Joint Committee on Printing, the Public Printer purchased several new presses and a slitter specially designed to cut and print satisfactory tabulating cards, and, on April 1, 1927, the various departments were notified that the Government Printing Office was prepared to produce cards economically in large quantities. The new equipment is capable of printing all the tabulating cards for the Government in the District of Columbia with the exception of the cards used by the General Accounting Office and the Post Office Department, which will require special presses.

OPPOSITION HANDICAPS CARD PRINTING

The Government Printing Office has been handicapped, however, in printing all the cards it is now equipped to do and in proposing the purchase of additional presses to print all the cards as required by law, owing to opposition by several of the departments, the discriminatory contracts which they have made with the tabulating machine companies and the refusal of a certain manufacturer of tabulating card paper to sell direct to the Government Printing Office or quote a fair price for his paper.

In view of this situation I deemed it my duty to submit a complaint to the Federal Trade Commission for its determination of the legality of the tabulating card contracts before asking the Joint Committee on Printing for authority to purchase additional presses or permission to contract for cards for the various departments. A copy of the complaint is inclosed herewith for your information.

This complaint was sent to the Federal Trade Commission under date of August 15, 1927, but up to the present time no decision thereon has been announced by the commission, although this office has repeatedly urged the commission to expedite action so that proper steps might be taken to supply tabulating cards for the fiscal year beginning July 1, 1928, for which several departments have already requested proposals.

The contracts which several of the departments have with the tabulating machine companies provide either for the exclusive use of the machine company's cards at an excessive price or require the payment of an increased rental for tabulating machines when used with cards printed by the Government Printing Office. I am of the opinion that these contracts with their tying clauses and discriminatory rates constitute unfair methods of competition in violation of the acts of Congress relating thereto and that they ought not to be executed by any officer of the Government.

If, however, the Federal Trade Commission sustains the contracts in question, I shall hesitate still further to recommend the purchase of additional equipment for the Government Printing Office to print all the tabulating cards used by the Government in the District of Columbia unless a substantial saving can be effected notwithstanding the unfair contracts with the tabulating machine companies.

As a matter of fact, since the Public Printer notified the departments on April 1, 1927, that the Government Printing Office was equipped to print a large quantity of tabulating cards, the tabulating machine companies have reduced their charges for cards from \$0.95, \$1.10, \$1.20, and \$1.35 per thousand for various sizes to \$0.74 per thousand and are offering cards for the coming year at \$0.72 and \$0.74 per thousand, which is approximately the price charged by the Government Printing Office. With the purchase of faster and better presses the prices could be still further reduced by the Government Printing Office.

SAVING IN PRINTING BY GOVERNMENT

The present reduction in the price of cards, if applied to the entire annual requirement, would save the Government from \$50,000 to \$75,000 a year, which shows that there has been considerable benefit to the Government already from the work that this office has undertaken with the approval of the Joint Committee on Printing.

In event it is deemed not advisable at this time to purchase additional machinery for the printing of all tabulating cards at the Government Printing Office, I am of the opinion that at least all of the cards used in the District of Columbia should be contracted for by the Public Printer with the approval of the Joint Committee on Printing, as provided by law. Although the Comptroller General has held that tabulating cards for use in the District of Columbia are printing and must be procured from the Government Printing Office (Comptroller General's decision of May 28, 1927), he seems to be of the opinion that if this office can not do the work in its own plant, the printing may be contracted for by the departments themselves. I do not know of any authority of law for such procedure.

INTERPRETATION OF THE PRINTING LAW

The act of March 1, 1919 (40 Stat. 1270), requires that "all printing and binding shall be *done* at the Government Printing Office" except certain field work outside of the District of Columbia as authorized by the Joint Committee on Printing. The word "done," as defined by Webster, is not restricted merely to interpretation as "made" or "manufactured," but is also defined more broadly as "brought about," "effected," "executed," "transacted," "carried about," and "administered." It is in this broader sense I feel sure that Congress used the word "done" in the law, in the enactment of which I had some part. I am of the opinion, therefore, that whether printing and binding for the departments is "done" at the Government Printing Office in the sense of being manufactured there or is "done" in the sense of being transacted or administered, it is an administrative matter which is solely within the jurisdiction of the Public Printer, with the approval of the Joint Committee on Printing, having in view the capacity of the Government Printing Office and the best interests of the Government service.

As a matter of fact this has been the practice of the Public Printer for many years with the approval of the Joint Committee on Printing and the accounting officers of the Government. Many items of printing and binding have been procured elsewhere from time to time whenever the Government Printing Office was not able or it was not deemed economical to install equipment to produce such items in the Government Printing Office. For example, all illustration work was done for years by outside contractors and only in the last few years has the Government Printing Office undertaken to make its own line cuts and half tones. All plates produced by other processes and all lithographs and maps are still obtained by contract, as the Government Printing Office is not equipped for such work. Unusual foreign language composition has been purchased from other printers when this office did not deem it economical to maintain a stock of the rarely used types. Numerous items of bindery work such as loose-leaf binders, blank books, and special filing devices are also contracted for and likewise are large quantities of special printed forms required for the accounting and recording machines that have been so extensively

adopted by the various departments in recent years. When Congress a few years ago authorized the Public Printer to furnish blank paper to the various departments, paper was at first purchased from the manufacturers cut and wrapped in packages ready for delivery to the departments, but later the Public Printer decided, with the approval of the Joint Committee on Printing, to purchase additional machines for doing this work more economically in the Government Printing Office. This latter incident is in exact accord with the procedure proposed in regard to tabulating cards. Thus I assert that the universal and accepted rule has been for the Public Printer to determine as a matter of proper administration of the Government Printing Office whether to make or procure such printing and binding and other supplies as he is required by law to have "done" at the Government Printing Office.

MUST BE "PROCURED" OF PUBLIC PRINTER

In connection with this statement and as a further reason for submitting the matter to the committee at this time, I invite your attention to the decisions relating to tabulating cards which the Comptroller General submitted to the Secretary of the Treasury and the Postmaster General under date of April 21, 1928, which decisions have just come to my notice.

In his decision to the Secretary of the Treasury the Comptroller General holds that—

"the Joint Committee on Printing has no authority or jurisdiction to permit the *procuring* of tabulating or statistical cards involving printing, from any other source than the Government Printing Office, unless such cards are required for the exclusive use of a field service outside of the District of Columbia."

In his decision to the Postmaster General the Comptroller General reaffirms his former decisions to the effect that—

"all tabulating cards for use in the District of Columbia must be *procured* from the Government Printing Office and as to such cards any question as to a saving under a particular appropriation is not for consideration."

As to the purchase of tabulating cards for field services authorized by the Joint Committee on Printing, the Comptroller General advises the Postmaster General that such field service printing can not be procured "unless and until the Public Printer has submitted a bid." The Comptroller General also informed the Postmaster General that "an invitation to bid upon the cards should be sent to the Public Printer."

Permit me to advise the committee that the Public Printer does not know of any law requiring or authorizing him to submit a bid to any department for printing and binding work, nor has the present Public Printer ever submitted any such bids. Section 93 of the printing act of 1895 provides that when a department shall require printing or binding it shall submit a certificate to the Public Printer, who then shall furnish an estimate of cost, and that after requisition therefor the Public Printer shall place the cost to the debit of the department. In other words, the Public Printer is not required to determine the cost of a job until requisition therefor has been formally placed with the Government Printing Office, and he is not bound by his estimate, but on completion of the work must charge to the department the actual cost of the job. Therefore, a bid, even if permissible, would not be binding on the Public Printer and consequently of little value to the department, especially as the law requires that all printing and binding, except that which is urgent or necessary for field service, shall be done at the Government Printing Office, thus eliminating any competition with other bidders.

RECOMMENDATIONS MADE TO JOINT COMMITTEE

If the committee concurs in the foregoing statement, I respectfully submit the following alternative recommendations for its consideration:

"1. That the Public Printer be authorized and directed to purchase, as soon as possible, additional printing presses and equipment at an estimated cost of \$25,000 so as to be able to print all the tabulating cards required for the use of the various branches of the Government in the District of Columbia, or

"2. That the Public Printer be authorized and directed to contract from time to time for such tabulating cards as can not be made with his present equipment for the use of the various branches of the Government in the District of Columbia."

If the committee desires to include any or all of the field services in either of the above recommendations, the approval should so specify, and if the printing of tabulating cards for the field services is to be done by the presses of the Government Printing Office the additional new equipment provided for in the first recommendation will have to be increased proportionately.

If the recommendation for new presses is approved, authority should be given to the Public Printer or to the respective departments to contract elsewhere for cards until such time as the Government Printing Office is equipped to produce them, which, under the first recommendation, would require from three to six months from date the equipment is ordered.

Before any action is taken on these recommendations, I respectfully suggest that the committee request a decision from the Federal Trade Commission on the Public Printer's complaint as to whether the contracts of the departments made with the tabulating machine companies are in violation of the laws of Congress forbidding unfair competition in trade. If these contracts are held to be valid and the gross discrimination against Government-made cards is permitted to continue, I would not recommend the purchase of additional presses for the printing of tabulating cards by the Government Printing Office until the Government may develop a satisfactory tabulating machine for its own use, nor would I want to be a party to any such unfair contracts for the purchase of tabulating cards.

In submitting these recommendations to the committee I have in mind only to save the Government from the unfair contracts and exorbitant charges that have been demanded by the tabulating machine companies and to uphold the law requiring the printing of tabulating cards to be procured in such manner as the Joint Committee shall direct.

Respectfully yours,

GEORGE H. CARTER,
Public Printer.

PUBLIC PRINTER AUTHORIZED TO CONTRACT

The foregoing statement of the Public Printer was considered by the Joint Committee on Printing at its meeting on May 15, 1928, when the committee approved the recommendation that the Public Printer be authorized to contract for such cards that he was unable to print with his present equipment pending the development of tabulating machines by the Census Bureau. The Public Printer was informed of the committee's action by the following letter from its chairman, Senator Moses, under date of May 15, 1928:

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON PRINTING,
Washington, May 15, 1928.

The PUBLIC PRINTER,
Government Printing Office, Washington, D. C.

DEAR SIR: The Joint Committee on Printing at a meeting held this day considered your letter dated May 2, 1928, relative to supplying statistical tabulating cards to the various branches of the Government service in the District of Columbia.

In view of the opinion of the Comptroller General dated April 21, 1928, that "the Joint Committee on Printing has no authority or jurisdiction to permit" the procuring of any work involving printing "from any source other than the Government Printing Office," the committee directs that pending the development of the tabulating machine now being fabricated by the Census Bureau, and pending the installation of adequate machinery at the Government Printing Office, the Public Printer shall contract, with the approval of the Joint Committee on Printing, for the necessary tabulating cards required for the use of the General Accounting Office and the Post Office Department for the fiscal year 1928-29.

Respectfully,

GEO. H. MOSES, *Chairman.*

Subsequently, on May 28, 1928, the chairman of the Joint Committee on Printing informed the Public Printer that the committee, in further considering his letter of May 2, 1928, had decided to concur in his interpretation of the law requiring all printing to be "done" at the Government Printing Office, and held that the method by which printing is done is purely an administrative matter solely within the jurisdiction of the Public Printer. The decision of the Joint Committee on Printing authorizing the Public Printer to contract from time to time for such printing, binding, and blank-book work as the Government Printing Office is not equipped to do is recorded in the following communication from its chairman:

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON PRINTING,
Washington, May 28, 1928.

The PUBLIC PRINTER,
Government Printing Office, Washington, D. C.

DEAR SIR: The Joint Committee on Printing at its meeting held May 15, 1928, considered your letter dated May 2, 1928, in regard to the act of March 1, 1919 (40 Stat. 1270), requiring that "all printing and binding shall be done at the Government Printing Office," and decided that whether printing and binding for the departments is "done" at the Government Printing Office in the sense of being manufactured at the plant or is "done" in the sense of being transacted or administered, it is purely an administrative function which is solely within the jurisdiction and judgment of the Public Printer, with the approval of the Joint Committee on Printing, having in view the capacity of the Government Printing Office and the best interests of the Government service.

The committee therefore authorizes and directs the Public Printer to contract, from time to time, for such printing and binding, and blank-book work as the Government Printing Office is not equipped to do, and that such contracts shall be submitted to the committee for its approval as required by law and the regulations governing such procedure.

Respectfully,

GEO. H. MOSES, *Chairman.*

The Comptroller General was advised on May 22, 1928, of the decision of the Joint Committee on Printing directing the Public Printer to contract for tabulating cards for the use of the General Accounting Office and the Post Office Department for the fiscal year beginning July 1, 1928.

COMPTROLLER GENERAL REFUSES TO COMPLY

The following is the reply of the Comptroller General under date of May 31, 1928, declining to comply with the order of the Joint Committee on Printing and stating that until the Government Printing Office is equipped to print tabulating cards the General Accounting Office would obtain them directly from the contractor:

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, D. C., May 31, 1928.

The PUBLIC PRINTER,
Washington, D. C.

SIR: There has been received your letter of May 22, 1928, as follows:

"Your attention is invited to a communication received by this office from the chairman of the Joint Committee on Printing under date of May 15, relative to the furnishing of tabulating cards to the various branches of the Government service in the District of Columbia, which reads in part as follows:

"In view of the opinion of the Comptroller General dated April 21, 1928, that "the Joint Committee on Printing has no authority or jurisdiction to permit" the procuring of any work involving printing "from any source other

than the Government Printing Office," the committee directs that pending the development of the tabulating machine now being fabricated by the Census Bureau, and pending the installation of adequate machinery at the Government Printing Office, the Public Printer shall contract, with the approval of the Joint Committee on Printing, for the necessary tabulating cards required for the use of the General Accounting Office and the Post Office Department for the fiscal year 1928-29."

"In view of the above decision, this office would be pleased to receive at your earliest convenience a list of your requirements for tabulating cards for the fiscal year beginning July 1, 1928, together with any information or suggestions which you may have to offer relative to the procurement of these cards."

Your letter is understood as meaning that you have not the equipment necessary to produce tabulating cards which can be satisfactorily used in the machines now in use by the Post Office Department and by this office, and that you propose to supply the cards desired by contracting with others for their production.

DECISION BASED ON MATTER OF EQUIPMENT

On June 28, 1922, the Secretary of War requested a decision concerning the purchase of tabulating cards and called attention to the resolution of the Joint Committee on Printing, dated June 15, 1920, authorizing the procurement of such tabulating cards elsewhere than at the Government Printing Office due to the fact that that office did not have the equipment necessary to do such work. Upon such representations it was stated in the decision of this office of July 11, 1922, A. D. 6878, that no objection would be made at that time to having the cards furnished in connection with the lease of the machine. On the authority of said decision, such cards were procured by the various services requiring them without reference to the Government Printing Office until after April 1, 1927, the date of your notification to the various departments and establishments that there had been "recently installed the very latest process for economically producing tabulating cards accurately cut and punched in large quantities," and that prices would be furnished on request.

As a result of such notification this office held, in decision of May 28, 1927, 6 Comp. Gen. 772, that tabulating cards printed in order to meet the needs of a particular office in which used must be procured from the Public Printer "except in those cases, if any, in which it can be established that he can not furnish cards that can be satisfactorily used in the machines for which required." See also 7 Comp. Gen. 464, in which it was held that tabulating cards for use in the District of Columbia must be procured from the Government Printing Office, but that "if it can be established as a fact that the Government Printing Office can not furnish cards that can be satisfactorily used in the particular kind of machine for which the cards are required, the necessary cards for the satisfactory operation of such machines may be obtained otherwise."

HOLDS COMMITTEE HAD NO AUTHORITY

In the decision of April 21, 1928, 7 Comp. Gen. 680, which is referred to by the Joint Committee on Printing, in the communication quoted in your submission, and which decision was rendered upon submission by the Secretary of the Treasury pursuant to the suggestion of the Joint Committee on Printing, the previous decisions as published in 6 Comp. Gen. 772, and 7 *id.* 464, were cited, and, upon the assumption that the Government Printing Office possessed the necessary equipment to produce the tabulating cards desired, as represented in your communication of April 1, 1927, to the various Government services, it was held that the Joint Committee on Printing had no authority or jurisdiction to permit the procuring of tabulating cards involving printing from any source other than the Government Printing Office unless they were for the exclusive use of a field service outside of the District of Columbia.

As it now appears from your letter that the printing of the tabulating cards necessary for the satisfactory operation of the machines in the Post Office Department and in this office can not "be done at the Government Printing Office" as contemplated under section 11 of the act of March 1, 1919 (40 Stat. 1270), due to the lack of proper equipment, it follows that the decisions in 6 Comp. Gen. 772, and 7 *id.* 464, are for application.

In other words, the situation with respect to these particular cards is the same as before the issuance of your circular of April 1, 1927, and the procedure to be followed is that authorized in the decision of July 11, 1922, and, accordingly, until the Government Printing Office is equipped to do this printing the tabulating cards necessary for the operation of the machines in this office will be obtained by this office directly from the contractors after competition as required by section 3709, Revised Statutes.

Respectfully,

J. R. McCARL,
Comptroller General of the United States.

PUBLIC PRINTER ANSWERS COMPTROLLER

The Public Printer in his answer of June 1, 1928, again expressed the opinion that tabulating cards should be procured through the Government Printing Office and that the Public Printer was authorized by law and by the order of the Joint Committee on Printing either to make the cards or to obtain them by contract. The attention of the Comptroller General was called to his decision as recent as April 21, 1928, holding that "all tabulating cards for use in the District of Columbia must be procured from the Government Printing Office." The Public Printer's letter of June 1, 1928, reads as follows:

UNITED STATES GOVERNMENT PRINTING OFFICE,
Washington, D. C., June 1, 1928.

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, D. C.

SIR: The Public Printer is in receipt of your decision of May 31, 1928, holding that inasmuch as it appears that "the printing of the tabulating cards necessary for the satisfactory operation of the machines in the Post Office Department and in this office, can not 'be done at the Government Printing Office' as contemplated under section 11 of the act of March 1, 1919 (40 Stat. 1270), due to the lack of proper equipment, it follows that the decisions in 6 Comp. Gen. 772, and 7 *id.* 464, are for application," that accordingly until the Government Printing Office is equipped to do this printing, the tabulating cards necessary for the operation of the machines in the General Accounting Office will be obtained by that office directly from the contractors after competition as required by section 3709, Revised Statutes.

QUOTES FROM LETTER TO COMMITTEE

In reply I respectfully invite your attention to the following communication, dated May 28, which the Public Printer received from the chairman of the Joint Committee on Printing:

"The Joint Committee on Printing, at its meeting held May 15, 1928, considered your letter dated May 2, 1928, in regard to the act of March 1, 1919 (40 Stat. 1270), requiring that 'all printing and binding shall be done at the Government Printing Office,' and decided that whether printing and binding for the departments is 'done' at the Government Printing Office in the sense of being manufactured at the plant or is 'done' in the sense of being transacted or administered, it is purely an administrative function which is solely within the jurisdiction and judgment of the Public Printer, with the approval of the Joint Committee on Printing, having in view the capacity of the Government Printing Office and the best interests of the Government service.

"The committee therefore authorizes and directs the Public Printer to contract, from time to time, for such printing and binding and blank-book work as the Government Printing Office is not equipped to do, and that such contracts shall be submitted to the committee for its approval as required by law and the regulations governing such procedure."

The Joint Committee on Printing took the action as stated above in response to a statement which the Public Printer submitted to that committee under date of May 2, 1928. The views of the Public Printer as approved by the Joint

Committee on Printing in regard to the question now raised by the Comptroller General are restated herewith for your further consideration of the action of the Joint Committee on Printing at its meeting on May 15, 1928.

"The act of March 1, 1919 (40 Stat. 1270), requires that 'all printing, binding and blank book work * * * shall be *done* at the Government Printing Office' except certain field work outside of the District of Columbia as authorized by the Joint Committee on Printing. The word '*done*,' as defined by Webster, is not restricted merely to interpretation as '*made*' or '*manufactured*,' but is also defined more broadly as '*brought about*,' '*effected*,' '*executed*,' '*transacted*,' '*carried about*,' and '*administered*.' It is in this broader sense I feel sure that Congress used the word '*done*' in the law, in the enactment of which I had some part. I am of the opinion, therefore, that whether printing and binding for the departments is '*done*' at the Government Printing Office in the sense of being manufactured there or is '*done*' in the sense of being transacted or administered, it is an administrative matter which is solely within the jurisdiction of the Public Printer, with the approval of the Joint Committee on Printing, having in view the capacity of the Government Printing Office and the best interests of the Government service.

INTERPRETATION CONFORMS TO LONG PRACTICE

"As a matter of fact this has been the practice of the Public Printer for many years, with the approval of the Joint Committee on Printing and the accounting officers of the Government. Many items of printing and binding have been procured elsewhere from time to time whenever the Government Printing Office was not able or it was not deemed economical to install equipment to produce such items in the Government Printing Office. For example, all illustration work was done for years by outside contractors, and only in the last few years has the Government Printing Office undertaken to make its own line cuts and half tones. All plates produced by other processes and all lithographs and maps are still obtained by contract, as the Government Printing Office is not equipped for such work. Unusual foreign-language composition has been purchased from other printers when this office did not deem it economical to maintain a stock of the rarely used types. Numerous items of bindery work, such as loose-leaf binders, blank books and special filing devices, are also contracted for, and likewise are large quantities of special printed forms required for the accounting and recording machines that have been so extensively adopted by the various departments in recent years.

"When Congress a few years ago authorized the Public Printer to furnish blank paper to the various departments, paper was at first purchased from the manufacturers cut and wrapped in packages ready for delivery to the departments, but later the Public Printer decided, with the approval of the Joint Committee on Printing, to purchase additional machines for doing this work more economically in the Government Printing Office. This latter incident is in exact accord with the procedure proposed in regard to tabulating cards. Thus I assert that the universal and accepted rule has been for the Public Printer to determine as a matter of proper administration of the Government Printing Office whether to make or procure such printing and binding and other supplies as he is required by law to have '*done*' at the Government Printing Office.

"In connection with this statement and as a further reason for submitting the matter to the committee at this time, I invite your attention to the decisions relating to tabulating cards which the Comptroller General submitted to the Secretary of the Treasury and the Postmaster General under date of April 21, 1928, which decisions have just come to my notice.

HOLDS MUST "PROCURE" OF THE PUBLIC PRINTER

"In his decision to the Secretary of the Treasury the Comptroller General holds that 'the Joint Committee on Printing has no authority or jurisdiction to permit the *procuring* of tabulating or statistical cards involving printing, from any other source than the Government Printing Office, unless such cards are required for the exclusive use of a field service outside of the District of Columbia.'

"In his decision to the Postmaster General the Comptroller General reaffirms his former decisions to the effect that 'all tabulating cards for use in the

District of Columbia must be *procured* from the Government Printing Office and as to such cards any question as to a saving under a particular appropriation is not for consideration.'

"As to the purchase of tabulating cards for field services authorized by the Joint Committee on Printing, the Comptroller General advises the Postmaster General that such field service printing can not be procured 'unless and until the Public Printer has submitted a bid.' The Comptroller General also informed the Postmaster General that 'an invitation to bid upon the cards should be sent to the Public Printer.'

"Permit me to advise the committee that the Public Printer does not know of any law requiring or authorizing him to submit a bid to any department for printing and binding work, nor has the present Public Printer ever submitted any such bids. Section 93 of the printing act of 1895 provides that when a department shall require printing or binding it shall submit a certificate to the Public Printer who then shall furnish an estimate of cost, and that after requisition therefor the Public Printer shall place the cost to the debit of the department. In other words, the Public Printer is not required to determine the cost of a job until requisition therefor has been formally placed with the Government Printing Office and he is not bound by his estimate, but on completion of the work must charge to the department the actual cost of the job. Therefore a bid, even if permissible, would not be binding on the Public Printer and consequently of little value to the department, especially as the law requires that all printing and binding, except that which is urgent or necessary for field service, shall be done at the Government Printing Office, thus eliminating any competition with other bidders."

PUBLIC PRINTER CLAIMS AUTHORITY

In accordance with the above statement and the action of the Joint Committee on Printing, I am of the opinion that the tabulating cards in question should be procured through the Government Printing Office and that the Public Printer is authorized by law to either make the cards in the Government Printing Office or obtain them elsewhere by contract as he may be equipped to do and may deem for the best interests of the Government.

In this connection I invite your attention to the complaint which the Public Printer filed with the Federal Trade Commission under date of August 15, 1927, against the Tabulating Machine Company Division of the International Business Machines Corporation, the Powers Accounting Machine Corporation, and the Hollingsworth & Whitney Company, a copy of which was recently handed to the assistant to the Comptroller General. Until the Federal Trade Commission renders a decision on this complaint, I do not believe that any officer of the Government is justified in making similar contracts with the companies involved in the complaint.

Respectfully yours,

GEORGE H. CARTER,
Public Printer.

COMPTROLLER GENERAL STANDS PAT

A prompt response came from the Comptroller General under date of June 2, 1928, stating that there appeared to be no legal reason why the General Accounting Office could not continue to contract for tabulating cards until such time as the Government Printing Office may be equipped to make and print such cards. The letter follows:

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, June 2, 1928.

The PUBLIC PRINTER,
Washington, D. C.

SIR: I have your letter of June 1, 1928, in which you state you are of the opinion that the tabulating cards necessary to the work of this office and of the Post Office Department, and which can not be made and printed at the Government Printing Office, should be procured through the Government Printing Office, and that you are authorized by law to obtain such printed cards by contract.

You refer to no statute giving you the authority suggested, and there appears nothing in your letter to require or authorize any change in my decision of May 31, 1928, to you, with reference to the purchase of the cards in question.

I understand that cards such as are required for the two services here involved have never been made and printed at the Government Printing Office nor contracted for by the Public Printer, but uniformly have been contracted for by the services requiring them. There would appear to be no legal reason why that procedure should not continue until such time as the Government Printing Office may be equipped to make and print such cards.

Respectfully,

J. R. McCARL,

Comptroller General of the United States.

PUBLIC PRINTER CITES AUTHORITY OF LAW

This phase of the controversy was closed with the following communication which the Public Printer addressed to the Comptroller General on June 8, 1928, citing the authority of law for the Public Printer and the Joint Committee on Printing to determine how the work of the Government Printing Office shall be done, and further maintaining that the General Accounting Office had no right to contract for the printing of tabulating cards:

UNITED STATES GOVERNMENT PRINTING OFFICE,

Washington, D. C., June 8, 1928.

COMPTROLLER GENERAL OF THE UNITED STATES,

Washington.

SIR: I have your letter of June 2, 1928, in which you state that in my communications to you of May 22 and June 1, relative to the furnishing of tabulating cards, I made no reference to the statute giving the Public Printer authority to obtain such printed cards by contract.

In both communications to you I cited as authority for undertaking to contract for tabulating cards the action of the Joint Committee on Printing at its meeting on May 15, 1928, authorizing and directing the Public Printer to contract for such printing, specifically including tabulating cards, binding, and blank-book work, as the Government Printing Office may not be able to produce with its own equipment. If you are disposed to question further the authority of the committee to issue such an order, I would respectfully suggest that you raise the issue with the committee itself. In view of the broad control that the Joint Committee on Printing has over the Government Printing Office by authority of law, I feel it my duty to comply with its order in this matter. The Comptroller General has also recognized the validity of the orders of the Joint Committee on Printing in regard to the printing of tabulating cards, as evidenced in his decision of February 6, 1928, to the Secretary of Commerce (7 Comp Gen. 464).

"SHALL BE DONE AT THE GOVERNMENT PRINTING OFFICE"

My letter of June 1, 1928, calls specific attention to the act of March 1, 1919 (40 Stat. 1270), requiring "all printing, binding, and blank book work * * * shall be done at the Government Printing Office." The Comptroller General in several decisions, particularly in 6 Comptroller General 772, 7 Comptroller General 464, and manuscript decisions of April 21, 1928, to the Secretary of the Treasury and the Postmaster General, has held that tabulating cards are printing within the scope of the act of March 1, 1919, and therefore must be procured from the Government Printing Office.

I particularly invite your attention to the following statement in your decision of May 28, 1927 (6 Comp. Gen. 773), " * * * the necessary cards should be purchased from the Public Printer except in those cases, if any, in which it may be established that he can not furnish cards that can be satisfactorily used in the machines for which required," and to the following statement in your decision of February 6, 1928 (7 Comp. Gen. 466), "the requirements of the act of March 1, 1919, as to printing for use within the District of Columbia, are, however, absolute and permit of no exception based upon questions of economy only. If, therefore, the Government Printing Office

can supply satisfactory tabulating cards upon requisition of the respective departments or establishments, there is no alternative under existing law but to procure them from the Government Printing Office, notwithstanding that said procurement may result in a higher rental for the tabulating machine." These statements are reiterated in your manuscript decisions of April 21, 1923, to the Secretary of the Treasury and the Postmaster General. Therefore, it seems clear and positive, both from the law and your decisions, that tabulating cards must be procured from the Government Printing Office.

As stated in my letter of May 2, 1928, copy of which is attached hereto, to the Joint Committee on Printing, which was also quoted from at length in my letter to you of June 1, 1928, the question of how printing, binding, and blank-book work is to be done at the Government Printing Office is an administrative matter for the Public Printer to determine, with the approval of the Joint Committee on Printing. Whether the work is actually done at the Government Printing Office or procured by contract is in my opinion an administrative matter over which the Comptroller General has no control. As indicated by its action of May 15, 1928, the Joint Committee on Printing concurs in this opinion of the Public Printer.

DISCRETION OF JOINT PRINTING COMMITTEE

Although, as I have already pointed out, the question of its authority should be raised with the Joint Committee on Printing itself, I venture the opinion that it was amply justified in issuing the order of May 15, under the power given the committee by section 11 of the act approved March 1, 1919 (40 Stat. 1270), which provides "that the Joint Committee on Printing shall have the power to adopt and employ such measures as, *in its discretion*, may be necessary to remedy any neglect, *delay*, duplication, or waste in the public printing and binding."

You will observe from my letter of May 2, 1928, to the committee (copy attached) that I reported to the committee that the Government Printing Office was unable to equip itself to produce all of the tabulating cards required by the various establishments of the Government in Washington, the Post Office Department and the General Accounting Office in particular, owing to the fact that the Public Printer had felt compelled to await the decision of the Federal Trade Commission on the complaint which I had submitted to it on August 15, 1927, alleging certain discriminations and unfair trade practices by the tabulating machine companies that seriously affected the economical furnishing of tabulating cards by the Government Printing Office. In view of this unavoidable delay, the question was submitted to the Joint Committee on Printing as to whether the Public Printer should proceed to purchase the necessary equipment or to contract for printed tabulating cards until such time as it might be deemed proper to provide this office with sufficient equipment to print all of the cards. Therefore, in authorizing the Public Printer to contract for printed tabulating cards, I am of the opinion that the Joint Committee on Printing was well within its power under the law to employ such means as in its discretion it deemed necessary to remedy the delay reported to the committee by the Public Printer.

ADMINISTRATIVE DUTY OF PUBLIC PRINTER

In view of the order of the Joint Committee on Printing authorizing and directing the Public Printer to contract, from time to time, for such printing, binding, and blank-book work as the Government Printing Office is not equipped to do, I do not believe it is necessary to answer further your letters of April 27, and June 1, requesting certain information in regard to the facilities of the Government Printing Office to furnish forms for the Veterans' Bureau by the roll-printing process. As to whether this office now has facilities or contemplates installing equipment to print such forms, and the percentage of overhead that might be added to the cost if the forms were purchased from commercial firms, are matters of administration for the determination of the Public Printer and not subject to review or supervision by the General Accounting Office.

Therefore, in compliance with the orders of the Joint Committee on Printing, copies of which are attached hereto, I believe it is my duty to contract for such printing, binding, and blank-book work as can not be produced in the Government Printing Office in order to meet the requisitions of the various depart-

ments and establishments of the Government. The authority of the Public Printer to purchase all paper, materials, machinery, and supplies necessary to fulfill his duties under the law is contained in the Printing Act of January 12, 1895, and acts amendatory thereof.

Respectfully yours,

GEORGE H. CARTER,
Public Printer.

COMPTROLLER GENERAL APPROVES CONTRACTS

The Comptroller General proceeded without further discussion to award a contract to the Tabulating Machine Co. for the printing of tabulating cards for the General Accounting Office for the fiscal year beginning July 1, 1928, and approved of a similar award by the Post Office Department, the two contracts calling for the supply of approximately 250,000,000 cards during the year.

For the time being, other establishments of the Government in Washington continued to order tabulating cards from the Government Printing Office, which up to December 27, 1928, had printed and delivered approximately 700,000,000 cards for the use of seven executive departments and as many independent establishments in Washington. On December 27, 1928, the Public Printer had on hand uncompleted orders for 10,514,500 additional cards, which were in course of production. A more suitable stock of tabulating card paper was being furnished, fewer complaints were coming in from the users of the Government-made cards, and it was believed that the Government Printing Office was well on the way to producing satisfactory tabulating cards for all of the Government establishments in Washington except the General Accounting Office and the Post Office Department.

SHIPPING BOARD TO BUY PRINTED CARDS

On November 30, 1928, without notice and without hearing, the Comptroller General authorized the United States Shipping Board to procure its tabulating cards elsewhere than at the Government Printing Office, accepting the statement as submitted to him by the chairman of the Shipping Board on November 21, 1928, that the Government Printing Office could not furnish satisfactory cards.

As a matter of fact and of record, the Shipping Board had not ordered any tabulating cards from the Government Printing Office except a small lot, since April 26, 1928, and the chairman of the Shipping Board had no knowledge of the quality of cards that the Government Printing Office had been furnishing during the seven months prior to his complaint to the Comptroller General. Furthermore, the Shipping Board had never returned on account of unsatisfactory paper stock a single card out of the 1,260,000 printed for it by this office. In fact, the only replacement was in May, 1928, for inaccurate cutting, and the final delivery to the Shipping Board by this office was cards printed on paper from the same mill as supplies the Tabulating Machine Co.

ANOTHER PROTEST BY THE PUBLIC PRINTER

The first information that the Public Printer had of the Comptroller General's decision so seriously affecting the administration of

this office was its publication in a Washington newspaper on December 6, 1928, as a "rap" and "sharp criticism" of the Government Printing Office. As soon thereafter as the facts could be ascertained, the Public Printer transmitted the following protest to the Comptroller General under date of December 12, 1928:

UNITED STATES GOVERNMENT PRINTING OFFICE,
Washington, D. C., December 12, 1928.

Hon. J. R. McCARL,
Comptroller General of the United States, Washington.

My DEAR MR. McCARL: In the Washington Times of December 6, 1928, there is conspicuously printed the following statement:

"Sharp criticism of the Government Printing Office contained in a letter from Chairman O'Connor, of the Shipping Board, to Comptroller General J. R. McCarl was made public to-day when the latter handed down a decision confirming the chairman's opinion that Uncle Sam's printshop is unable to furnish satisfactory work to the board."

The foregoing publication was the first information this office had of the complaint filed with you by the chairman of the Shipping Board and of your decision sustaining his ex parte statement. Although your decision is dated November 30, and, as I have been informed, copies of it were sent to other departments of the Government before the newspaper publication of December 6, no copy thereof was transmitted to this office until after it was made public in the press. Even then a copy of the decision, which vitally affects this office, was furnished to us through an indirect source. Heretofore, copies of your decisions have been regularly and promptly transmitted to this office in an official manner.

WORST CRIMINAL GRANTED BETTER TREATMENT

The worst criminal is granted better treatment in any court of justice than your office has accorded me in the present case, wherein all the rules of orderly court procedure were ignored and no notice given of the charges seriously reflecting upon my administration of this office until your decision was proclaimed in the press as a "rap" and "sharp criticism" on the Government Printing Office. Such procedure, in my opinion, was most discourteous and unfair to this office.

If the Government Printing Office had been advised of the complaint filed by the Shipping Board and had been permitted to answer the same before your decision, I believe we could have convinced you that the chairman of the Shipping Board had no just ground for his charge that, "after an experience of nearly a year, during which period every effort has been made to obtain satisfactory service from cards furnished by the Government Printing Office," he had been "forced to the conclusion as a fact that the Government Printing Office can not furnish cards that can be satisfactorily used in machines operated by the Shipping Board."

The records of this office show that, except for one lot of 10,000 cards, the Shipping Board has not ordered any tabulating cards from the Government Printing Office since April 26, 1928. Prior to that date, 1,260,000 tabulating cards were printed for the Shipping Board, and of this number, 280,000 were printed on paper furnished by the Hollingsworth & Whitney Co., which also supplies paper to the Tabulating Machine Co. for its cards; so that, if there is complaint against the Hollingsworth & Whitney paper used by the Government Printing Office, it will apply equally to cards printed by the Tabulating Machine Co. The last lot of 10,000 cards delivered to the Shipping Board on August 10, was printed on Hollingsworth & Whitney paper identical with that used by the Tabulating Machine Co.

RECORD OF COMPLAINTS BY SHIPPING BOARD

As a matter of fact and record, the Shipping Board has never returned a single card to this office as unsatisfactory on account of the paper stock used. The only replacement of Shipping Board cards ever made for any cause was on account of the inaccurate cutting of 8,000 cards out of a delivery

of 480,000 on May 1. But two formal complaints have ever been transmitted to this office by officials of the Shipping Board, one dated February 20, and the other October 17, 1928. The last letter from the Shipping Board evidently was preparatory to filing its complaint with your office and could not have been based on any cards printed by the Government Printing Office since April, 1928. In replying to the Shipping Board's letter of October 17, the Acting Public Printer stated, under date of October 29, that "We believe the Government Printing Office can deliver a satisfactory stock and can not therefore approve the purchase of these cards elsewhere."

It may interest you that, since this office has undertaken to furnish tabulating cards in larger quantities, the Hollingsworth & Whitney Co. has refused absolutely to continue supplying us with its paper. I believe that this gross discrimination against the Government Printing Office was due to a desire of the Tabulating Machine Co. to prevent this office from printing tabulating cards and that the action of the two companies is an unfair restraint of trade in violation of law. Forced to seek a new source of supply, the Government Printing Office has been developing the manufacture of suitable tabulating-card stock by other paper makers, and present reports indicate that these efforts are proving successful.

HANDICAPPED BY TRADE COMMISSION DELAY

Another serious handicap to this office in the furnishing of tabulating cards was the long delay and the final refusal of the Federal Trade Commission to act on the application which I submitted to it under date of August 15, 1927, asking the commission to institute proceedings against the tabulating machine companies and the Hollingsworth & Whitney Co. for alleged violations of the laws against monopolies, tying contracts, and other restraints of trade. I handed a copy of the complaint to Mr. Baity, an executive of your office, last April and you were directly informed of the matter in my letter of June 1. On June 5 the Trade Commission notified me that the case had been dismissed, stating that "it does not appear that the situation calls for the exercise of those remedial powers granted by law to the commission." Just what induced the Trade Commission to so quickly dismiss the case after your office had been notified of my complaint against the tabulating machine companies, I am not aware. However, I have been unofficially advised that the Trade Commission had set a hearing date on the matter, indicating that there was merit in the complaint, but that the proceedings, which had been under way for nearly 10 months, stopped suddenly after your office had been informed of my complaint. The Trade Commission soon afterwards, on June 5, 1928, for the first time since the complaint was filed on August 15, 1927, officially advised me that the commission had conducted a preliminary inquiry and had decided to dismiss the matter "without further action." During all of this time the Government Printing Office was not asked for any further evidence to support its charges or advised as to the progress of the proceedings until the abrupt notice of dismissal.

In the meantime, put to the necessity of making definite preparations for the furnishing of tabulating cards for the fiscal year beginning July 1, 1928, I appealed to the Joint Committee on Printing for authority either to buy additional equipment or to contract for such tabulating cards as could not be produced by this office with its present presses and source of paper supply. The Joint Committee, on May 15, 1928, authorized the Public Printer to contract for tabulating cards for the General Accounting Office, holding that, whether the cards were actually produced in the Government Printing Office or contracted for by that office, was an administrative function solely within the jurisdiction and judgment of the Public Printer. Your office was advised of the committee's decision by my letter of May 22, 1928, but declined to recognize the right of the Joint Committee and the Public Printer to contract for tabulating cards under the act of March 1, 1919. In a letter dated May 31, 1928, your office stated that it would proceed to authorize itself and the Post Office Department to procure tabulating cards elsewhere than through the Government Printing Office, notwithstanding the action of the Joint Committee on Printing. This precedent, as set for your own office, has undoubtedly encouraged the Shipping Board to request similar permission, and I understand that like requests for authority to obtain tabulating cards from the machine companies will be presented to you by other branches of the Government service.

SAYS COMPTROLLER EXCEEDED AUTHORITY

I am of the opinion that your office has exceeded the scope of its legal jurisdiction in authorizing the Shipping Board to procure tabulating cards for use in the District of Columbia elsewhere than of the Government Printing Office, and that your office has no right to empower the Shipping Board to use its appropriation for printing and binding for that purpose. In prior decisions of the General Accounting Office, notably that of May 28, 1927, it has been held that "the printing of these cards comes within the purview of the act of March 1, 1919, and such work may not be performed elsewhere than at the Government Printing Office." Even prior to the act of 1919 the Comptroller of the Treasury had held in a decision to the Secretary of the Treasury, under date of March 24, 1914, that tabulating cards for the Treasury Department could be procured only from the Government Printing Office. The act of March 1, 1919, requires that all printing shall be done at the Government Printing Office, except certain field printing as authorized by the Joint Committee on Printing. This is the only exception granted by Congress, and I know of no law that authorizes the Comptroller General or anyone else to grant any other exception to the act of March 1, 1919.

The proper and the legal tribunal authorized by law to pass upon questions affecting the administration of this office, such as the complaint of the Shipping Board, is the Joint Committee on Printing, which, under authority of March 1, 1919 (40 Stat. 1270), has "the power to adopt and employ such measures as, in its discretion, may be deemed necessary to remedy any neglect, delay, duplication, or waste in the public printing and binding." This authority was granted to the Joint Committee on Printing by Congress in the same section of the act of March 1, 1919, as it was provided that all printing shall be done at the Government Printing Office with the single exception of field printing, over which the Joint Committee on Printing was also given jurisdiction. Therefore, your decision of May 28, 1927, and again of November 30, 1928, authorizing the departments and the Shipping Board to procure tabulating cards elsewhere "if it should be established as a fact that the Government Printing Office can not furnish cards that can satisfactorily be used in a particular kind of machine" violates the act of March 1, 1919, and contradicts your decision of April 21, 1928, requiring that "all tabulating cards for use in the District of Columbia must be procured from the Government Printing Office."

SAVING DUE TO PUBLIC PRINTER'S EFFORT

Notwithstanding all the obstacles that have been put in the way of printing tabulating cards by the Government Printing Office, our efforts have at least profited other departments of the Government, including the General Accounting Office, to the extent of more than \$50,000 a year in the reduction of the price formerly charged by the tabulating machine companies. That saving alone should have prompted your office to aid us in carrying on the work which by law we are required to do, rather than to brand us as incompetent, with no opportunity until now to offer a defense.

If your decisions are to stand, this office may have to junk the \$20,000 worth of new machinery that the Joint Committee on Printing has authorized it to install for the printing of tabulating cards, and thus abandon the various departments of the Government to the mercy of the tabulating machine companies, which are gradually but surely fastening their unlawful monopoly on the business of the Government. Their agents, particularly those of the Tabulating Machine Company Division of the International Business Machines Corporation, are now infesting various Government departments and by unfair tactics are inciting employees of the Government to prevent the printing of tabulating cards by the Government Printing Office.

ARBITRARY ACTION OF MACHINE COMPANIES

I invite your attention to the fact that tabulating machines were first developed and used in the Government service and that the printing of cards for these machines has been a function of the Government Printing Office for many years. In recent years, however, the commercial tabulating machine companies have grown in power and profit and have become more arbitrary in exacting illegal and discriminatory contracts of the Government for the use of their machines and cards. This domination has become more bold since the Government Printing Office began to improve its facilities to furnish tabulating

cards and thus compelled the tabulating machine companies to reduce their exorbitant charges for cards.

It is an odd coincidence, if nothing else, that about the same time as the attacks began on the printing of tabulating cards by the Government Printing Office there was omitted from the appropriations for the Bureau of the Census the annual authorization to use its funds for experimental work in developing, improving, and constructing Government-made and Government-owned tabulating machines. Thus the strangle hold of the tabulating machine companies on the Government became stronger and stronger.

Once more I ask your help to rescue the Government service from this outrageous situation, which, in view of the vast expenditures now being made for tabulating machines, may soon become a national scandal. I recognize that there is no appeal from your decisions except to Congress, but before taking any further steps to remedy the gross wrong that has been done to this office by the violations of law as complained of herein I hope that there may be some other satisfactory solution of the matter.

Respectfully yours,

GEORGE H. CARTER,
Public Printer.

COMPTROLLER GENERAL REAFFIRMS HIS DECISION

In reply to the foregoing protest, which the Public Printer feels he was fully justified in making, the Comptroller General on December 22, 1928, wrote as follows:

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, December 22, 1928.

The PUBLIC PRINTER.

SIR: I have your letter of December 12, 1928, with reference to the decision rendered by this office November 30, 1928, to the chairman of the United States Shipping Board, in the matter of procuring tabulating cards elsewhere than from the Government Printing Office.

You complain because a copy of the decision was not sent to you at the time it was rendered and state that you have been informed copies of it were sent to other departments of the Government. With reference to this, I have to advise, that as the decision stated no new principle or rule of procedure, and was predicated solely upon the facts as presented by the United States Shipping Board in that particular case, it was not considered of general application. For that reason, in accordance with the uniform practice in such cases, the decision was not distributed generally by this office, the only copy sent out of the office at the time the decision was promulgated being the original thereof to the United States Shipping Board. However, there is kept in the office of the chief clerk of this office, open to public inspection, a folder in which copies of decisions are placed four days after being rendered, and it was, presumably, from this source that the newspapers received their information.

You suggest, also, that this office should have given you notice and a hearing before rendering the decision of November 30, 1928. But the established procedure that has maintained for more than 30 years is that when a request for decision in advance of the incurring of an obligation is submitted by the head of an Executive department or independent establishment, decision is rendered upon the basis of the statement of facts *as submitted*. And a decision so rendered is authority for the incurring of the proposed obligation only if and when the facts with reference thereto are as so represented. The responsibility for a correct statement of facts is upon the head of the department or establishment submitting the request for decision. Not only was the procedure followed in the matter of the decision of November 30, 1928, in strict accordance with the established procedure as above outlined, but it merely quoted the submission and stated:

"If, as stated, it has been determined, after a proper trial, that the Government Printing Office can not furnish tabulating cards that can be satisfactorily used in the particular machines for which the cards are required by your board, the necessary cards may be procured elsewhere after due compliance with section 3709, Revised Statutes. 6 Comp. Gen. 772."

SAYS PUBLIC PRINTER MADE NO SHOWING

I may state, however, there is nothing in your letter of December 12 which would have warranted any different conclusion than that reached in the

decision of November 30, 1928, even if said letter had been before this office at that time.

Your letter sets forth that the Government Printing Office is now unable to procure the necessary stock from the company that furnishes such stock to the tabulating machine companies and that you have been "forced to seek a new source of supply" and have been "developing the manufacture of suitable tabulating card stock by other paper makers." You have made no showing that the Government Printing Office is prepared to furnish satisfactory cards for use in the particular machines referred to in the Shipping Board's letter of November 21, 1928, on which the decision of November 30, 1928, was based.

This office is not unmindful of your efforts to furnish satisfactory tabulating cards nor of the difficulties which you may have encountered. But tabulating machines are of no use whatever if satisfactory cards are not available therefor, and the work performed by such machines is such that the interests of the Government will not permit the departments to delay or retard the work by using unsatisfactory cards while experiments are being conducted in the development of satisfactory ones. The work of the Government must go on, and the act of March 1, 1919 (40 Stat. 1270), may not be construed as requiring that authorized Government activities must cease because the Government Printing Office is not prepared to cut, print, and furnish cards that may be used satisfactorily.

Respectfully,

J. R. McCARL,

Comptroller General of the United States.

Passing over the Comptroller General's admission in the foregoing letter that his decision was rendered without notice to the Public Printer and was based entirely on the ex parte statement of the Shipping Board chairman, without giving this office a chance to reply, it is equally astonishing to note the Comptroller General's assertion that there was no showing in the Public Printer's letter of December 12, 1928, that the Government Printing Office is prepared to furnish satisfactory cards for the use of the Shipping Board, and that nothing in the Public Printer's letter would have warranted any different conclusion than was reached in the Comptroller General's decision of November 30, 1928.

PUBLIC PRINTER REASSURES COMPTROLLER

The letter of the Public Printer speaks for itself. The Government Printing Office is not only prepared to furnish suitable tabulating cards of its own printing, but is also duly authorized by law and by order of the Joint Committee on Printing to procure cards printed elsewhere whenever the occasion requires. This assurance should calm the fear of the Comptroller General that the Government will go to wrack and ruin if he does not take the law into his own hands and provide tabulating cards for his own as well as other establishments of the Government. No Government activity has as yet ceased to function because of unsatisfactory tabulating cards, and it is quite certain that the work of the Government will go on in any event.

Nevertheless, the decision of the Comptroller General has made it impossible for the Government Printing Office to continue printing tabulating cards, owing to the uncertainty of the requirements. The decision is an open invitation to every Government establishment to obtain similar authority from the Comptroller General to procure cards direct from the tabulating machine companies. It also encourages the petty and unfair complaints against the Government-made cards which the agents of the tabulating machine companies have not hesitated to incite.

GOVERNMENT DISCONTINUES PRINTING OF CARDS

Under such adverse conditions, the Public Printer has concluded that it is not practical or economical to maintain a force of employees and stock of paper or procure additional equipment for the printing of tabulating cards which the Comptroller General has condemned in advance as unsatisfactory. Therefore, the Public Printer issued the following notice to the heads of departments and establishments of the Government on January 3, 1929, notifying them that, on account of the decision of the Comptroller General, the Government Printing Office for the time being will not accept orders for tabulating cards:

UNITED STATES GOVERNMENT PRINTING OFFICE,
Washington, D. C., January 3, 1929.

To the Heads of Executive Departments and Independent Establishments:

Notice is hereby given that, effective immediately and for the time being, the Government Printing Office will not accept orders for tabulating cards.

This course is deemed necessary on account of a decision by the Comptroller General of November 30, 1928, addressed to the United States Shipping Board, and a letter by the Comptroller General of December 22, 1928, to the Public Printer, holding that the Government Printing Office is unable to furnish suitable tabulating cards and refusing to recognize the right of the Public Printer to contract for such cards as authorized by law and by the Joint Committee on Printing.

The printing of tabulating cards by the Government Printing Office has been further handicapped by the refusal of the Federal Trade Commission to take action in regard to the complaint which the Public Printer filed with the commission on August 15, 1927, alleging unlawful practices on the part of certain tabulating machine companies and a paper manufacturer by tying contracts and restraints of trade in the use of tabulating machines and cards by the Government.

This office has on hand orders for approximately 10,000,000 cards in the course of manufacture, which will be completed with paper stock now on hand if the various departments so desire. These orders may be canceled and the departments will be billed for work performed.

The Public Printer should be advised immediately what action to take in regard to the uncompleted orders.

GEORGE H. CARTER,
Public Printer.

PROPAGANDA OF TABULATING MACHINE CO.

The Public Printer is of the opinion that the complaints against the quality of Government-made cards are largely camouflage to conceal the real purpose of the Tabulating Machine Co. to prevent the printing of tabulating cards by the Government Printing Office and to secure a permanent monopoly of such printing by that company.

As part of its propaganda, the Tabulating Machine Co. contends that tabulating cards are an integral operating element of the tabulating machine system. If that claim is admitted, then paper used in a typewriter is an integral operating element of the typewriting-machine system, but printed letterheads have always been classed as the product of a printing office and so, in fact, should printed tabulating cards.

Inasmuch as tabulating machines were invented and developed in the Census Office before any private industry began to profit from this legitimate undertaking of the Government, the Government Printing Office has as much right to print tabulating cards as the Census Bureau has to build tabulating machines, even if printed cards are to be considered only as an integral part of the machine.

Congress long ago recognized and approved the construction of tabulating machines by the Government and made appropriations therefor in the same manner as funds are provided for Government printing. Therefore, in the printing of tabulating cards the Public Printer has not invaded the field of private industry, but, on the other hand, the tabulating machine companies have invaded the field which the Government itself first developed and has continued to occupy for its own service, both as to tabulating machines and tabulating cards.

TABULATING CARDS CLASSED AS PRINTING

Another issue raised by the Tabulating Machine Co. to prevent the printing of tabulating cards by the Government Printing Office is the claim of that company that cards are not properly classified as printing and, therefore, are not such work as the Government Printing Office is authorized by law to do. That absurd claim does not appear to have received any support in the Government service. The Comptroller General, the Public Printer, and the Joint Committee on Printing are at least in accord in the opinion that tabulating cards constitute such printing as the act of Congress of March 1, 1919, requires shall be done at the Government Printing Office. In support of this statement, the following extracts from the decisions of the Comptroller General and his predecessor are again cited:

They [tabulating cards] must be regarded as "printing" within the meaning of section 87 of the act of January 12, 1895 (28 Stat. 662), * * * they can be procured only from the Government Printing Office.—Decision, Comptroller of the Treasury, March 24, 1914.

The printing of these cards comes within the purview of the act of March 1, 1919 (40 Stat. 1270), and such work may not be performed elsewhere than at the Government Printing Office.—Decision, Comptroller General, May 28, 1927 (6 Comp. Gen. 772).

The requirements of the act of March 1, 1919 (40 Stat. 1270), as to printing for use within the District of Columbia are, however, absolute and permit of no exception based upon questions of economy only. If, therefore, the Government Printing Office can supply satisfactory tabulating cards upon requisition of the respective departments or establishments, there is no alternative under existing law but to procure them from the Government Printing Office, notwithstanding that said procurement may result in a higher rental for the tabulating machines. As pointed out in my decision of May 28, 1927, if it can be established as a fact that the Government Printing Office can not furnish cards that can be satisfactorily used in the particular kind of machine for which the cards are required, the necessary cards for the satisfactory operation of such machines may be obtained otherwise.—Decision Comptroller General, February 6, 1928 (7 Comp. Gen. 464).

The Joint Committee on Printing has no authority or jurisdiction to permit the procuring of tabulating or statistical cards, involving printing, from any source other than the Government Printing Office, unless such cards are required for the exclusive use of a field service outside of the District of Columbia.—Decision, Comptroller General, April 21, 1928, to the Secretary of the Treasury (7 Comp. Gen. 680).

All tabulating cards for use in the District of Columbia must be procured from the Government Printing Office, and as to such cards, any question as to a saving under a particular appropriation is not for consideration.—Decision, Comptroller General, April 21, 1928, to the Postmaster General.

COMPTROLLER OVERRIDES ACT OF CONGRESS

Notwithstanding his own decisions, the Comptroller General has overridden the act of Congress of March 1, 1919 (40 Stat. 1270),

providing that all printing for Government establishments in Washington shall be done at the Government Printing Office, and has assumed the absolute power to order the printing of tabulating cards done elsewhere than at the Government Printing Office; that is, by the tabulating machine companies.

The Comptroller General has also taken upon himself the right to determine whether the Government Printing Office is equipped to do satisfactory printing and, if he decides otherwise, to authorize printing to be done elsewhere, notwithstanding the act of March 1, 1919.

The Public Printer is of the opinion that the Comptroller General is thus attempting to exercise administrative jurisdiction over the Government Printing Office, which he has no legal right to do, and that the question of how work shall be done by the Government Printing Office, whether by its own or another's equipment, is purely an administrative function solely within the jurisdiction of the Public Printer as the head of an independent establishment of the Government.

The Joint Committee on Printing, which is empowered by Congress "to adopt and employ such measures, as in its discretion, may be necessary to remedy any neglect, delay, duplication, or waste in the public printing," formally approved and sustained the opinion of the Public Printer at its meeting of May 15, 1928, and of this the Comptroller General was duly informed.

However, his decision of November 30, 1928, shows that the Comptroller General still intends to ignore the act of March 1, 1919, and the measures adopted in support thereof by the Joint Committee on Printing.

CONGRESS ASKED TO DEFINE ITS ACT

Accordingly, the whole matter is submitted to Congress for a further definition of the class of work that shall be done or procured by the Government Printing Office in compliance with the act in question. Unless and until Congress directs the Public Printer to proceed with the printing of tabulating cards, this office has no other alternative than to accede to the decision of the Comptroller General that such work shall be done elsewhere than at the Government Printing Office.

Under authority of the act approved May 14, 1928 (Public No. 386), the Public Printer has discontinued the printing of such other and additional reports for the fiscal year ended June 30, 1928, as have usually been submitted to Congress concerning the business of the Government Printing Office. The original copies of such reports will be kept on file in the office of the Public Printer for public inspection, as provided for in said act.

Respectfully submitted.

George H. Carter.
Public Printer.

DIVISION OF ACCOUNTS

STATISTICAL TABLES



STATISTICAL TABLES

COMPILED BY SUPERINTENDENT OF ACCOUNTS AND BUDGET OFFICER

TABLE 1.—*Resources and liabilities under appropriations for the fiscal year ended June 30, 1928*

RESOURCES		
Appropriation for working capital.....	\$2,500,000.00	
Deficiency act Dec. 22, 1927.....	3,600.00	
Deficiency act May 29, 1928.....	3,600.00	
Payments from all sources for printing and binding.....	9,200,562.64	
Refunds and receipts from various sources.....	513.84	
Bills receivable July 1, 1928, for printing and binding furnished.....	708,967.91	
		\$12,417,244.39
Appropriation for salaries, office of Superintendent of Documents.....	420,000.00	
Appropriation for general expenses, office of Superintendent of Documents.....	180,000.00	
Total resources available for fiscal year 1928.....		<u>\$13,017,244.39</u>
LIABILITIES		
Working capital and repayments for printing and binding:		
Disbursed to June 30, 1928.....	\$10,704,314.26	
Outstanding obligations July 1, 1928.....	1,115,130.15	
Total disbursed and outstanding obligations.....		\$11,819,444.41
Salaries, office of Superintendent of Documents:		
Disbursed to June 30.....	386,277.67	
Outstanding obligations July 1, 1928.....	18,868.33	
Total disbursed and outstanding obligations.....		405,146.00
General expenses, office of Superintendent of Documents:		
Disbursed to June 30.....	105,287.50	
Outstanding obligations July 1, 1928.....	64,712.50	
Total disbursed and outstanding obligations.....		170,000.00
Total disbursed to June 30.....	11,195,879.43	
Total outstanding obligations July 1, 1928.....	1,198,710.98	
Total disbursed and outstanding obligations.....		12,394,590.41
Unobligated balance (subject to 10 per cent over or under on outstanding orders).....		622,653.98
		<u>13,017,244.39</u>

TABLE 2.—*Summary of financial transactions in fiscal year ended June 30, 1928, covering appropriations for fiscal years 1926, 1927, and 1928*

APPROPRIATION FOR 1926			
	Resources	Disbursements	Unexpended balance July 1, 1928
Salaries, office of Public Printer: Unexpended balance July 1, 1927.....	\$15,289.28		\$15,289.28
Printing presses, Government Printing Office: Unexpended balance July 1, 1927.....	6,731.23		6,731.23
Public printing and binding:			
Unexpended balance July 1, 1927.....	464,170.32		
Credits to appropriation by payments from all sources for printing and binding and other receipts from miscellaneous sources.....	17.90		
Disbursed for material and supplies.....		\$15,363.28	
Total.....	464,188.22	15,363.28	448,824.94
Salaries, office of Superintendent of Documents:			
Unexpended balance July 1, 1927.....	10,841.67		
Disbursed.....		94.35	
Total.....	10,841.67	94.35	10,747.32
General expenses, office of Superintendent of Documents:			
Unexpended balance July 1, 1927.....	.96		.96
Grand total appropriation.....	497,051.36	15,457.63	481,593.73
Unobligated balance of 1926 appropriations on June 30, 1928.....			481,593.73

TABLE 2.—Summary of financial transactions in fiscal year ended June 30, 1928, covering appropriations for fiscal years 1926, 1927, and 1928—Continued

APPROPRIATION FOR 1927

	Resources	Disbursements	Unexpended balance July 1, 1928
Salaries, office of Public Printer:			
Unexpended balance July 1, 1927.....	\$15,284.88		
Disbursed.....		\$6,119.89	
Total.....	15,284.88	6,119.89	\$9,164.99
Public printing and binding:			
Unexpended balance July 1, 1927.....	1,597,570.88		
Credits to appropriation by payments from all sources for printing and binding and other receipts from miscellaneous sources.....	764,797.73		
Disbursed for labor.....		379,629.04	
Disbursed for paper.....		740,410.63	
Disbursed for lithographing and engraving.....		39,889.92	
Disbursed for material and supplies.....		162,966.22	
Total.....	2,362,368.61	1,322,895.81	1,039,472.80
Salaries, office of Superintendent of Documents:			
Unexpended balance July 1, 1927.....	23,741.81		
Disbursed.....		16,581.90	
Total.....	23,741.81	16,581.90	7,159.91
General expenses, office of Superintendent of Documents:			
Unexpended balance July 1, 1927.....	81,323.63		
Disbursed.....		60,063.34	
Total.....	81,323.63	60,063.34	21,260.29
Grand total appropriation.....	2,482,718.93	1,405,660.94	1,077,057.99
Deduct for outstanding obligations.....			22,000.00
Unobligated balance of 1927 appropriations on June 30, 1928.....			1,055,057.99

APPROPRIATION FOR 1928

Public printing and binding			
Legislative act Feb. 23, 1927.....	\$2,500,000.00		
Deficiency act Dec. 22, 1927.....	3,600.00		
Deficiency act May 29, 1928.....	3,600.00		
Credits to appropriations by payments from all sources for printing and binding and other receipts from miscellaneous sources.....	9,201,076.48		
Disbursed for labor.....		\$7,752,901.96	
Disbursed for paper.....		2,222,798.67	
Disbursed for lithographing and engraving.....		75,719.58	
Disbursed for material and supplies.....		652,894.05	
Total.....	11,708,276.48	10,704,314.26	\$1,003,962.22
Salaries, office of Superintendent of Documents:			
Legislative act Feb. 23, 1927.....	420,000.00		
Disbursed.....		386,277.67	
Total.....	420,000.00	386,277.67	33,722.33
General expenses, office of Superintendent of Documents:			
Legislative act Feb. 23, 1927.....	180,000.00		
Disbursed.....		105,287.50	
Total.....	180,000.00	105,287.50	74,712.50
Grand total appropriation 1928.....	12,308,276.48	11,195,879.43	1,112,397.05
Bills receivable.....			708,967.91
Deduct for outstanding obligations.....			1,821,364.96
Unobligated balance of 1928 appropriations on June 30, 1928.....			1,198,710.98
Total unobligated balances (subject to change by 10 per cent over or under on outstanding obligations):			
1926.....			481,593.73
1927.....			1,057,057.59
1928.....			622,653.98
Total.....			2,161,305.30

TABLE 2.—Summary of financial transactions in fiscal year ended June 30, 1928, covering appropriations for fiscal years 1926, 1927, and 1928—Continued

RECAPITULATION—ALL APPROPRIATIONS

Total paid for labor.....	¹ \$8, 132, 531. 00
Total paid for material and supplies.....	831, 223. 55
Total paid for lithographing and engraving.....	115, 609. 50
Total paid for paper.....	2, 963, 209. 30
Total paid for printing and binding.....	12, 042, 573. 35
Total paid for salaries, office of Public Printer.....	² 6, 119. 89
Total paid for salaries, office of Superintendent of Documents.....	³ 402, 953. 92
Total paid for general expenses, office of Superintendent of Documents.....	165, 350. 84
Grand total.....	12, 616, 998. 00
¹ Includes amount paid to retirement fund.....	\$266, 442. 78
² Includes amount paid to retirement fund.....	384. 66
³ Includes amount paid to retirement fund.....	13, 060. 99
Total paid to retirement fund.....	279, 888. 43

TABLE 3.—Moneys received during fiscal year 1928, the source, and Treasury deposit

1926

Deposited to the credit of appropriation for public printing and binding: For miscellaneous printing and binding.....	\$17. 90
---	----------

1927

Deposited to the credit of appropriation for public printing and binding:	
For printing and binding for departments and bureaus.....	\$761, 685. 09
For miscellaneous printing and binding.....	2, 946. 46
Refunds.....	161. 88
Auditor's disallowance.....	4. 30
Total.....	764, 797. 73

1928

Deposited to the credit of appropriation for public printing and binding:	
For printing and binding for departments and bureaus.....	9, 127, 273. 55
For miscellaneous printing and binding.....	73, 289. 09
Refunds.....	492. 54
Repairs to automobile.....	20. 75
Auditor's disallowance.....	. 55
Total.....	9, 201, 076. 48
Deposited to the credit of miscellaneous receipts:	
Sale of waste paper.....	46, 716. 49
Sale of waste metal.....	5, 924. 80
Sale of waste wood.....	1, 389. 90
Sale of waste gold.....	2, 266. 23
Sale of condemned material.....	609. 52
Sale of leather scraps.....	19. 30
Sale of documents.....	221, 103. 92
Total.....	278, 030. 16
Grand total.....	10, 243, 922. 27

TABLE 4.—*Production of principal items entering into printing and binding in fiscal years 1926, 1927, and 1928*

Item	1926	1927	1928
Main office and Congressional Library branch:			
Total charges for printing and binding.....dollars..	11, 769, 074. 87	12, 692, 314. 49	¹ 13, 170, 146. 63
Jackets written.....number..	54, 074	54, 168	58, 900
Estimates made.....do.....	45, 309	47, 452	52, 149
Bills computed.....do.....	67, 991	72, 545	74, 489
Total ems set.....do.....	2, 158, 890, 100	2, 060, 248, 100	2, 101, 301, 000
Time work in composing sections.....hours.....	257, 288	242, 836	248, 765
Electrotypes and stereotypes.....square inches..	10, 948, 121	11, 356, 708	10, 345, 015
Postal cards printed.....number..	1, 596, 862, 880	1, 950, 508, 300	1, 726, 524, 392
Money-order books shipped.....do.....	1, 100, 827	1, 002, 354	1, 005, 265
Forms sent to press.....do.....	160, 345	145, 831	161, 615
Actual impressions.....do.....	465, 549, 492	484, 678, 679	496, 693, 620
Chargeable impressions.....do.....	2, 056, 808, 214	1, 960, 834, 989	1, 936, 225, 940
Sheets folded by machine.....do.....	221, 987, 941	226, 008, 387	239, 985, 255
Signatures gathered by machine.....do.....	130, 285, 798	155, 233, 669	152, 695, 966
Tips made by machine.....do.....	9, 535, 440	8, 250, 587	9, 007, 694
Copies wire stitched.....do.....	47, 442, 436	45, 115, 690	42, 219, 931
Copies paper covered.....do.....	5, 367, 364	8, 574, 395	10, 593, 833
Books and pamphlets trimmed.....do.....	58, 392, 663	53, 913, 955	47, 548, 337
Books rounded and backed.....do.....	1, 121, 799	1, 160, 085	1, 357, 951
Books marbled and edged.....do.....	184, 385	163, 477	294, 394
Stamping impressions.....do.....	2, 573, 041	2, 736, 425	2, 861, 897
Books cased in.....do.....	1, 272, 999	1, 436, 213	1, 626, 978
Indexes cut.....do.....	129, 872	140, 359	130, 011
Sheets passed through ruling machine.....do.....	21, 657, 309	22, 589, 915	22, 867, 419
Signatures sewed.....do.....	71, 877, 215	76, 210, 279	61, 087, 869
Copies punched and drilled.....do.....	100, 661, 589	95, 356, 979	114, 559, 178
Sheets and lines perforated.....do.....	7, 569, 351	6, 861, 125	8, 111, 287
Tablets made.....do.....	2, 903, 111	2, 889, 402	2, 928, 330
Miscellaneous rebindings, etc.....do.....	92, 538	102, 519	90, 221

¹Includes \$800,000 estimated labor and material on uncompleted jobs.

TABLE 5.—Charges for work and to whom delivered during the fiscal year ended June 30, 1928

Congress.....	\$2,460,616.08
Work ordered by Members of Congress:	
Miscellaneous charges.....	613.99
Documents, reports, bills, etc.....	11,972.46
Speeches.....	68,266.19
Private orders for electrotypes.....	767.02
Superintendent of Documents.....	619,027.71
State.....	164,257.28
Treasury.....	967,803.77
War.....	654,509.55
Navy.....	614,388.04
Interior.....	205,592.61
Geological Survey.....	125,596.14
Smithsonian Institution.....	97,430.04
Justice.....	186,214.48
Post Office.....	2,031,595.71
Agriculture.....	884,886.23
Commerce.....	792,465.21
Patent Office.....	977,209.41
Labor.....	206,912.50
Library of Congress.....	343,853.75
White House.....	4,362.33
Pan American Union.....	38,282.20
Supreme Court:	
District of Columbia.....	5,485.45
United States.....	3,632.25
Arlington Memorial Bridge Commission.....	934.68
American Battle Monuments Commission.....	5,265.85
Bureau of Efficiency.....	634.21
Commission of Fine Arts.....	219.96
Federal Power Commission.....	4,123.73
National Forest Reservation Commission.....	321.41
National Home for Disabled Volunteer Soldiers.....	677.16
Special counsel, oil leases, etc.....	19.59
Board of Tax Appeals.....	36,343.24
National Capital Park and Planning Commission.....	212.74
Inland Waterways Commission.....	600.72
Two Hundredth Anniversary of George Washington's Birthday.....	441.46
Federal Radio Commission.....	896.70
Pan American Sanitary Bureau.....	10,838.15
War Claims Arbitrator.....	315.55
Memorial to Women of the World War.....	1,016.11
Court of Claims.....	41,331.52
Interstate Commerce Commission.....	207,450.36
Civil Service Commission.....	58,417.56
Geographic Board.....	\$475.18
General Accounting Office.....	29,968.28
Alien Property Custodian.....	2,492.15
Bureau of the Budget.....	22,643.53
District of Columbia.....	73,008.38
Employees' Compensation Commission.....	12,325.56
Federal Reserve Board.....	53,988.58
Federal Board for Vocational Education.....	10,462.38
Federal Trade Commission.....	20,266.79
National Advisory Committee for Aeronautics.....	15,351.99
Panama Canal.....	53,684.34
Railroad Administration.....	1,485.04
Board of Mediation.....	1,462.49
Shipping Board.....	76,653.95
Tariff Commission.....	14,737.16
Veterans' Bureau.....	140,045.42
War Finance Corporation.....	924.01
Office of Public Buildings and Public Parks.....	4,370.29
Total.....	12,370,146.63

TABLE 6.—Cost of production for the fiscal year 1928

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.....	\$228,923.83	\$1,809.68	\$29,386.38	\$86,322.52	\$4,674.04	\$18,440.67			\$369,557.12	\$30,574.80	\$338,982.32
Patents.....	224,768.33	3,647.43	32,686.66	261,963.87	4,714.41	18,598.86			546,379.56	76,929.67	469,449.89
Lithotype.....	581,385.72	4,860.10	87,674.76	667,403.37	12,120.80	47,831.94			1,400,676.69	116,500.70	1,284,175.99
Monotype.....	905,661.41	15,825.64	133,163.63	1,058,023.44	19,120.52	74,834.01			2,206,628.79	292,608.04	1,914,020.75
Hand.....	298,242.28	3,980.93	41,664.76	373,888.77	6,270.22	24,744.67			448,761.63	291,809.32	156,952.31
Proof.....	836,790.02	713.02	119,516.21	13,012.33	12,966.98	77,372.62			1,160,401.18	160,401.18	
Apprentice.....	233,116.11	327.04	29,907.09	21,430.48	4,711.09	19,148.67			1,308,640.48	235,994.72	72,645.76
Platemaking.....	224,903.91	13,689.87	41,866.51	33,600.45	4,977.00	19,624.40			338,662.14	87,810.82	250,851.32
Photo-engraving.....	73,182.89	10,276.93	12,798.90	12,710.12	1,771.84	6,987.86			117,738.24	8,492.39	109,245.85
Press.....	1,014,769.23	58,394.51	183,751.75	112,196.29	22,400.37	77,887.18			1,469,399.33	184,581.06	1,284,818.27
Pamphlet binding.....	572,500.53	3,759.48	85,396.95	189,714.93	7,866.83	44,679.30	\$11,530.11		915,448.13	427.00	915,021.13
Ruling and sewing.....	358,325.81	5,475.81	54,354.30	10,965.96	5,000.76	31,833.98	72,263.04		538,219.66	12,261.00	525,958.66
Forwarding and finishing.....	517,406.74	6,618.44	83,847.28	26,661.79	7,234.92	47,265.11	144,178.63		833,212.91	27,962.61	805,250.30
Money order.....	43,504.72	7,343.76	7,343.76	804.40	635.72	3,244.54	65,338.78		122,589.62	122,298.01	
Postal card.....	102,793.05	34,244.96	45,355.06	1,476.15	1,985.85	10,171.22	522,284.84		718,312.13	718,312.13	
Library printing branch.....	57,457.09	317.42	2,987.90	8,294.77	1,218.74	3,757.21	17,292.36		91,955.49		91,955.49
Library binding branch.....	127,108.92	300.73	6,146.73	362.26	1,739.58	8,478.67	9,306.90		153,444.09	6,778.90	146,665.19
Cutting and packing.....	87,297.41	5,015.58	13,166.37	375.24	1,292.80	6,777.32	502,490.37		628,586.69	6,644.81	627,951.88
Metal.....	12,053.12	18,352.61	9,379.79	235.30	464.92	2,171.78	+\$10,181.60		42,687.52	42,687.52	
Details chargeable.....	23,835.08	7.58			1,981.32		71.87		25,597.57		25,597.57
Stores.....	137,701.04	2,100.49	29,417.85	69.78	1,941.46	10,179.60			181,410.22	16.45	181,393.77
Ink.....	12,135.42	21,708.42	5,039.26	31.15	518.04	2,414.01			41,846.30	41,846.30	
Roller and glue.....	5,545.29	9,378.61	1,795.87		224.11	1,046.22			17,990.10	17,990.10	
Paper stock—Press division.....							1,746,842.02	+3,825.54	1,750,667.56		1,750,667.56
Illustrations.....							132,984.78	-9,683.28	123,301.50		123,301.50
Outside purchases.....							22,083.59	-2,878.76	19,204.83		19,204.83
Work for stock returned to stores.....											
Light and power for city post office.....											
Miscellaneous service for Superintendent of Documents—other than printing and binding.....											
Total.....	6,779,478.29	228,455.02	1,109,934.69	2,657,337.24	125,613.96	558,572.16	3,246,667.29	-75,407.07	14,630,651.58	2,636,609.00	11,994,042.58

1 Grand total expense of all apprentices.

TABLE 7.—Itemized statement of the classes and cost of work delivered during the fiscal year ended June 30, 1928

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 electro-typing or stereo-typing	Charge for pressroom work	Charge for bindery work	Charge for illustrations or engravings	Charge for paper	Charge for rush and overtime work	Charge for mis-cellaneous and contract items	Total charges
Letterheads, noteheads, and envelopes	117,994, 291			\$22,806.78	\$64.08	\$1,470.50	\$61,740.07	\$14,439.40	\$7.97	\$116,573.42	\$116.12	\$504.91	\$217,723.25
Embossed letterheads, noteheads, and envelopes	909, 550			46.49	1.25		3,504.15	271.20		3,525.20	15.64	58.09	7,422.02
Blanks, notices, schedules, cards, etc.	3,102,049, 707			402,215.32	16,089.06	30,768.51	388,368.27	313,588.98	17,698.59	1,314,846.72	3,254.69	428,470.28	2,915,300.42
Blank books with patent backs, etc.	1, 208			3,035.73	28.65	51.00	1,288.61	13,411.92		2,013.71	37.85	1.55	19,869.62
Blank books without patent backs	2,461,024			15,177.73	213.50	3,229.63	57,559.61	283,743.93	0.00	96,552.83	46.24	616.31	457,145.78
Binding newspapers, documents, reports, etc.	85,551							342,498.14			16.74		342,514.88
Loose-leaf and other patent binders, etc.	4,177							6,682.73		88.58		3,064.76	9,836.07
Publications smaller than octavo	3,628,886	28,589	132,213	47,930.44	5,063.48	6,664.85	13,985.82	65,022.46	3,483.10	16,620.94	64.57	410.44	159,246.10
Octavo publications	73,257,863	633,999	754,973	1,590,892.64	108,946.59	126,195.09	309,745.30	691,576.11	1102,604.90	431,479.40	133,781.02	1,608.96	3,565,825.10
Royal octavo publications	3,183,536	61,248	44,664	182,747.30	29,375.03	18,273.41	40,188.51	57,889.86	18,183.88	40,315.48	12,008.92	1,680.20	400,671.59
Quarto publications	6,511,083	161,566	28,812	345,690.35	18,090.65	16,017.87	35,018.85	69,553.35	47,080.81	75,575.03	9,370.57	28	636,397.96
Miscellaneous publications	10,180,220	878,433	313,062	22,216.57	515.66	878.54	75,002.45	231,949.24	22,085.71	142,562.81	741.10	67,058.49	563,010.57
General miscellaneous charges				29,886.71	3,698.15	14,841.98	14,256.79	84,404.54	11,608.25	169,072.86	972.66	195,287.97	524,069.91
Congressional Record for year	4,912,300	19,162	28,980	151,283.74	183.32	34,596.17	55,375.32	147,426.93	46.70	70,067.88	101,010.99		559,991.05
Bills, resolutions, and amendments (as introduced, and reprints on requisitions)	10,880,681	102,433	834	273,365.06	194.18	4.44	93,957.83	21,648.79		13,941.57	129,722.00		532,833.87
Specifications of patents, trademarks, etc.	5,355,084	142,073		635,752.49	10,210.54	20.07	59,490.43	3,491.14	3.34	10,981.09			719,958.10
Patent Office Gazette	270,136	12,806		121,420.15	144.80	5.29	18,618.83	16,700.65	14,124.76	20,472.88			191,487.33
Blank paper and supplies										512,654.35		94,188.66	606,843.01
Total	3,341,094, 303, 2,040, 459	1,303,538, 3,853,467, 50	192,818, 94	253,017.95	1,248,109.93	2,304,299.57	236,994.01	3,037,344.72	391,159.11	702,934.90	12,370,146.63		

TABLE 8.—*Inventory of quantity and cost of paper and envelopes, material and supplies, and machinery and equipment on hand June 30, 1928*

Description	Sheets	Pounds	Cost
Paper and envelopes:			
Printing.....	10,862,000		\$131,628.84
Do.....		1,349,900	34,354.50
Mimeograph.....	7,098,000		38,416.35
United States money-order writing.....		131,100	13,195.30
Safety writing.....	134,000		1,115.32
Writing.....	7,901,000		42,393.60
Do.....		273,000	15,587.46
Map.....	452,000		10,446.41
Manifold.....	6,998,000		38,060.22
Do.....		4,000	729.20
Bond.....	15,314,000		141,206.64
Ledger.....	3,465,000		65,320.41
Index.....	554,000		26,283.71
Cover.....	1,393,000		27,098.37
Manila.....	1,726,000		10,205.94
Do.....		134,000	5,745.00
Kraft.....	1,444,000		10,705.14
Do.....		131,000	6,059.30
Manila tag board.....	337,000		5,477.32
Do.....		144,000	10,693.70
Cardboard.....	221,000		5,832.35
Bristol board.....	239,000		2,235.95
Do.....		320,000	15,406.60
Miscellaneous.....	856,000		9,482.65
Do.....		15,000	1,959.20
Binders boards.....		501,650	17,660.76
Envelopes.....			24,404.60
Total, paper and envelopes.....			711,704.84
Other material and supplies:			
Miscellaneous supplies.....			212,495.28
Book cloth.....			20,730.96
Ink ingredients.....			5,524.93
Leather.....			3,334.73
Ink (made in Government Printing Office).....			2,745.05
Total, material and supplies.....			244,830.95
Total, material and supplies, paper and envelopes.....			956,535.77
Machinery and equipment.....			4,223,731.07
Grand total.....			5,180,266.84

TABLE 9.—*Publications, including annual reports and documents, printed on requisition during the fiscal year ended June 30, 1928, for Government departments and independent establishments (Congress not included)*

	Copies
State.....	475,872
Treasury.....	5,120,200
War.....	10,638,412
Navy.....	2,006,840
Interior.....	1,954,722
Justice.....	43,532
Post Office.....	1,631,594
Agriculture.....	31,823,869
Commerce.....	4,941,856
Labor.....	1,674,022
Smithsonian Institution.....	153,485
Library of Congress.....	153,919
White House.....	58,028
Pan American Union.....	245,561
Supreme Court:	
District of Columbia.....	1,316
United States.....	215
Court of Claims.....	2,286
Bureau of Efficiency.....	1,013
Federal Power Commission.....	6,261
Interstate Commerce Commission.....	1,849,694
Civil Service Commission.....	144,098
Geographic Board.....	5,500
General Accounting Office.....	12,945
Alien Property Custodian.....	6,761
District of Columbia.....	125,406
Employees' Compensation Commission.....	91,028
Veterans' Bureau.....	64,434
Federal Board for Vocational Education.....	72,037
Federal Reserve Board.....	447,967
Federal Trade Commission.....	140,844
National Advisory Committee for Aeronautics.....	30,690
Panama Canal.....	2,402
Railroad Administration.....	1,595
Shipping Board.....	618,037
Tariff Commission.....	13,212
Board of Mediation.....	5,002
National Forest Reservation Commission.....	1,500
War Finance Corporation.....	1,250
Bureau of the Budget.....	41,822
Public Buildings and Public Parks.....	2,058
Board of Tax Appeals.....	16,103
Pan American Sanitary Bureau.....	48,600
Federal Radio Commission.....	5,000
Miscellaneous.....	5,656
Total.....	64,696,644

TABLE 10.—*Receipts from miscellaneous sales during the fiscal year ended June 30, 1928*

Condemned material, machinery, etc.....	\$609.52
Waste wood.....	1,339.90
Waste metal.....	5,924.80
Waste paper.....	46,716.49
Leather scraps.....	19.30
Waste gold.....	2,266.23
Total.....	156,926.24



DIVISION OF TESTS AND TECHNICAL CONTROL

REPORT OF THE TECHNICAL DIRECTOR



REPORT OF THE TECHNICAL DIRECTOR

To the PUBLIC PRINTER:

I have the honor to submit the following report concerning the work of the division of tests and technical control of the Government Printing Office for the fiscal year ended June 30, 1928.

NUMBER OF SAMPLES TESTED

The total number of samples analyzed during the year was 8,138, compared with 7,336 for the preceding year, an increase of 802, or approximately 11 per cent. This includes all samples tested in connection with the technical inspection of delivered material, the testing of samples offered by bidders, technical control samples of type metals, inks, glues, etc., and samples tested in connection with investigational problems.

The following is a detailed tabulation of the various materials tested during the fiscal years 1927 and 1928:

Material	1927	1928
Paper and paper products, including bid, delivery, and investigational samples.....	4,768	5,376
Textiles, including bookbinding cloths and cordage.....	692	767
Book binding leathers.....	142	94
Metals, including technical control and investigational samples of type-metal alloys.....	899	1,139
Glue.....	37	47
Ink-making materials.....	323	288
Lubricating oils and greases.....	39	43
Gasoline.....	123	66
Chemicals.....	115	91
Miscellaneous, including soaps, waxes, turpentine, etc.....	198	227
Total.....	7,336	8,138

The foregoing tabulation shows the greatest increase in number of samples tested were paper and type metals. However, during the year a large number of samples have been tested in connection with research and cooperative investigational work. Of the 8,138 samples tested in the year, 6,906 represent routine testing work, which includes samples from deliveries of various materials, samples offered by bidders, and technical control samples of type metals, inks, glues, etc. In connection with the investigational work of the laboratory there were 1,232 samples tested.

The investigational samples included 272 of linotype and stereotype metals analyzed in connection with the cooperative work on type metals being conducted with the American Newspaper Publishers Association, which were submitted by the five newspapers cooperating in this investigation.

There were 255 samples of newsprint submitted by members of the American Newspaper Publishers Association in connection with the cooperative investigation on newsprint paper and printing ink.

For the investigation on printing papers now under way 97 samples were received from paper manufacturers.

There were 175 samples of paper, type metals, glues, bookbinding cloths, bookbinding leathers, and ink tested in connection with the cooperative investigations with commercial printing and bookbinding concerns.

A total of 433 samples submitted by prospective bidders were tested in order to furnish information as to the requirements of the Government specifications for paper, glue, bookbinding cloth, etc.

REJECTION OF PAPER AND OTHER MATERIALS

As a result of the technical inspection and testing of all deliveries of materials purchased by the office, 261 deliveries were rejected, of which 160 were paper, 29 envelopes, and 72 miscellaneous materials.

The following is a tabulation of the causes for rejections of paper for the fiscal years 1927 and 1928, all causes being listed, but some deliveries were rejected for more than one deficiency:

Cause for rejection	1927	1928	Cause for rejection	1927	1928
Not within weight tolerance.....	39	27	Deficient in folding endurance.....	68	25
General appearance.....	19	13	Deficient in bursting strength.....	80	37
Unsatisfactory finish.....	1	18	Excessive ash.....	2	8
Unsatisfactory opacity.....	2	3	Deficient in absorption.....	1	0
Unsatisfactory color.....	6	2	Deficient in thickness.....	6	6
Deficient in stock.....	21	26			

There is also submitted a detailed tabulation of the inspection and testing of all deliveries of paper received during the fiscal year ended June 30, 1928, and a comparison with the figures for the previous year, giving the total number of pounds delivered, the total number of pounds rejected, the number of deliveries of each kind of paper received, and the number of deliveries rejected. In certain instances, due to variation in the quality of paper in a single delivery, parts of deliveries were rejected and the remainder accepted. In such cases the accepted part and also the rejected part are listed as deliveries.

Report of the Technical Director

105

Kind of paper	Delivered			Accepted			Rejected		Deliveries			
	1927		1928	1927		1928	1927		Accepted		Rejected	
	Pounds		Pounds	Pounds		Pounds	Pounds		Number		Number	Number
Newsprint.....	1,480,340		2,100,020	1,397,968		2,070,089	82,373		39		60	2
Machine-finish book.....	10,372,514		9,070,857	9,607,221		8,589,985	765,293		416		393	29
Supercalendered and halftone book.....	3,947,005		4,383,695	3,922,382		4,206,101	24,623		175		142	5
Coated book.....	720,981		718,973	716,723		558,801	4,238		33		35	9
Mimeograph.....	1,915,197		2,727,369	1,766,323		2,311,169	148,874		85		103	16
United States money order safety and writing.....	612,859		610,887	612,859		610,887			28		26	0
Map.....	224,614		357,448	146,093		296,457	78,521		34		55	10
Chart.....	218,910		200,081	218,910		200,081			32		34	0
Manifold.....	573,100		712,709	564,190		685,103			66		71	4
Sulphite writing.....	2,099,432		2,546,415	1,756,016		2,468,734	343,416		114		160	5
Bond.....	4,582,184		5,379,047	4,032,440		5,183,143	540,744		369		435	21
Ledger.....	703,352		686,987	693,136		622,161	40,216		116		110	8
Index.....	216,501		292,909	209,313		291,370	7,188		37		42	4
Tissue.....	11,236		3,024	11,236		3,024			10		7	0
Cover.....	384,297		323,189	362,136		303,005	22,161		52		41	3
Wrapping.....	1,583,975		1,523,621	1,259,980		1,259,685	273,995		100		96	19
Tag board.....	583,090		598,183	576,448		542,940	6,582		43		37	2
Manila card board.....	37,675		39,026	31,257		34,256	6,418		6		7	1
Railroad board.....	91,841		124,765	87,877		124,765	3,964		17		17	0
Wood bristle.....	627,994		595,630	504,394		519,926	123,000		34		18	2
U. S. postal-card Bristol.....	11,751,348		10,396,824	11,613,593		10,180,222	137,755		216		692	10
Miscellaneous.....	36,845		128,469	33,212		86,069	3,633		23		43	6
Blotting.....	139,317		157,320	130,839		147,648	8,478		15		17	3
News, chip and box board.....	699,060		317,640	699,060		316,890			27		13	0
Pressboard.....	21,532		42,671	21,532		42,671			8		11	0
Binders board.....	861,620		1,159,153	861,620		1,143,527			23		43	0
Total.....	44,446,819		45,196,912	41,806,918		42,796,220	2,639,901		2,220		2,288	160

Frequently paper complying with the specifications in quality is rejected for noncompliance with the weight tolerance of 5 per cent above or below the ordered weight. There were 27 such rejections this year, representing 271,094 pounds, or 11.3 per cent of the total amount of paper rejected. On a total purchase for the year of 45,196,912 pounds of paper, the total quantity rejected amounted to 2,400,692 pounds, or approximately 5.3 per cent compared with 5.5 per cent for the previous year.

During the year 494 deliveries of envelopes were received covering a total of 45,824,674 envelopes of paper qualities, varying from wood manila to the highest grades of bond and ledger. Although there were 74 deliveries less than in 1927, a total of 4,712,712 more envelopes were purchased. The following tabulation gives the total of each kind of envelope purchased for the fiscal years 1927 and 1928:

Kind of envelopes	Envelopes		Deliveries	
	1927	1928	1927	1928
	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
Wood manila	1, 459, 721	1, 741, 919	21	22
Kraft	33, 535, 885	38, 693, 550	439	364
Rope manila	306, 364	480, 500	17	7
Sulphite manila	76, 525	115, 700	4	5
White writing	4, 888, 840	3, 675, 572	43	45
Fine white writing	89, 900	61, 000	10	8
Ledger	127, 400	256, 039	10	11
Fine white bond	624, 072	793, 884	20	29
Cloth-lined	4, 275	6, 500	4	3
Total	41, 112, 962	45, 824, 674	568	494
Total rejected	5, 264, 719	1, 503, 250	31	29

The following is a tabulation of the causes for rejection of deliveries of envelopes, and the quantities rejected, for the fiscal year 1928:

Cause for rejection	Deliveries	Envelopes
	<i>Number</i>	<i>Number</i>
Paper not within weight tolerance	7	92, 000
Deficient in bursting strength	13	1, 142, 500
Deficient in stock	3	85, 000
Unsatisfactory in color	1	20, 000
Unsatisfactory gumming	5	163, 750
Total	29	1, 503, 250

In order that reliable information may be obtained by contractors and prospective bidders on materials used by the Government Printing Office, especially paper, the division of tests and technical control has offered to test preliminary samples before shipment, or any other samples which may be submitted, to determine whether such material would comply with Government specifications. Copies of the test results are furnished the manufacturers submitting these samples for their own information and guidance. This policy of co-operation with Government contractors and bidders has proved to be of mutual advantage and has brought about a better understanding between the Government and the manufacturers furnishing

paper and other material. During the year approximately 600 samples of materials were tested in this connection, of which approximately 425 were on paper.

In addition to the technical inspection of all materials purchased and the technical control work in connection with the materials manufactured by the Government Printing Office, the division of tests and technical control is engaged in investigational problems that are of the utmost importance to the office. The results of these investigations have also proved to be of considerable value and interest to commercial printing, bookbinding, and allied industries.

The annual report for 1927, which was published about January 1, 1928, contained a report on the various investigations conducted by the laboratory and covered some of the results of work during this fiscal year.

INVESTIGATIONS ON PAPER DURABILITY

The investigational work relative to the durability of paper has been continued during the year. This work includes the technical inspection and analysis of the paper in books that have shown deterioration in service and also those that have satisfactorily withstood service over a considerable period of time. The books are obtained from the stock of Government publications in the office, the library of the Superintendent of Documents, the Library of Congress, and other libraries throughout the country. The investigation will not be restricted to Government publications, but will include also commercial and foreign publications.

This investigation is also conducted in contact with the sections of the Government bindery having in charge the preservation of Government records and the rebinding of books from various Government libraries. The Government annually expends large sums in the preservation of documents and record books, which have failed to withstand the service required. This offers an excellent opportunity for inspection and analysis of the paper in these records and books.

Specifications have been prepared for 100 per cent rag book paper for use in Government publications where maximum serviceability and permanency are essential. These specifications require new white or unbleached rags only, and in this respect are a departure from the commercial practice of using old rags in the manufacture of high-quality book papers. The specifications also require a paper of good folding endurance and bursting strength. Most high-grade book papers usually have a soft texture and possess low bursting strength and folding endurance.

As the result of inspection and testing of paper in various publications requiring both durability and service, it is indicated that paper made of old rags may not stand up satisfactorily and frequently gives way at the binding edge due to the thread tearing away from the paper.

Specifications for an all-rag book paper of highest and most durable quality, recommended by this office to be included in the Government paper schedule for the fiscal year beginning March 1, 1929, are as follows:

100 PER CENT RAG BOOK, WOVE—HIGHEST QUALITY FOR PERMANENT RECORDS

This paper must be made with every precaution to insure the maximum serviceability and permanency. Care must be taken to use minimum of bleach, rosin size, and alum. The finished paper must not show the presence of any injurious residual chemicals which will interfere in any way with the permanency of color or the serviceability and durability of the paper.

Specifications

Stock: 100 per cent new rags, white, cream, or unbleached.

Ash: Not to exceed 3 per cent.

Acidity: pH value not less than 5.0 nor more than 7.0.

Sizing: Rosin not to exceed 1.2 per cent.

Weight: 25 by 38, 1,000-----pounds-- 90 140

Folding endurance: Average, each direction, not less than
-----double folds-- 75 150

Bursting strength: Average not less than-----points-- 25 40

Thickness: Average -----inch-- .0040 .0060

Opacity: Not less than-----per cent-- 84 88

Color: White, natural shade.

General appearance: Deliveries must be No. 1 quality, free from dirt and specks.

Finish and texture: Deliveries must conform to the standard sample.

Although the Government Printing Office has purchased high-grade book papers in the past, the specifications did not require the use of all-new rags and were not as rigid as now proposed.

The specifications for 100 per cent rag ledger paper, which is used in the production of many valuable Government record books and forms, were modified last year to require the use of only new rags which, together with the physical requirements for folding endurance and strength, should insure the highest quality of this grade of paper.

Present data have shown the importance of using the minimum of rosin, bleach, and alum in all paper in which durability is essential. Therefore the specifications for 100 per cent rag book and 100 per cent rag ledger contain strict requirements as to rosin sizing and acidity.

RELATION OF PAPER TO PRINTING INKS

The development of methods for measuring the relation of paper to printing ink has been continued. This work is being conducted in cooperation with the members of a subcommittee of the paper-testing committee of the Technical Association of the Pulp and Paper Industry. A report was submitted at the meeting of the Technical Association of the Pulp and Paper Industry in February, 1928, and published in the Paper Trade Journal for March 22, 1928. Further work is being conducted, and a more complete report will be made in the future. This work is of importance in connection with the investigations relative to book papers and newsprint.

INVESTIGATION ON PRINTING PAPERS

An investigation on book papers was started last year, but no report is submitted at this time. This investigation will cover all qualities of machine-finish, supercalendered, and coated book papers and will require considerable time to complete. A total of 97 samples have been submitted by 15 paper manufacturers.

An important investigation has been started on newsprint paper. This investigation is being conducted in cooperation with the mechanical department of the American Newspaper Publishers Association.

In reply to a letter sent to members of the American Newspaper Publishers Association by Mr. W. E. Wines, manager of the mechanical department, 255 samples of newsprint were submitted by 150 newspaper publishers. These samples include paper from practically every source of supply in North America and a few of foreign manufacture. They represent a satisfactory basis for starting the investigation.

The samples submitted will be tested for fiber content, basic weight, loading or filler, thickness, bursting and tensile strengths, stretch, tear resistance, finish, opacity, and oil penetration. Particular attention will be given to determining the relation of newsprint paper to various types of news ink. This work will prove of value to the paper and ink manufacturers, and the users of newsprint paper.

Tests on the samples submitted have been completed as to weight, thickness, bursting and tensile strengths, stretch, fiber content, and ash or loading. However, considerable time will be required to complete the remainder of the investigation, as methods of test must be developed in order to obtain satisfactory data on finish and printing-ink resistance. It is planned to conduct test runs with various types of news ink for comparison with laboratory tests.

It is hoped to determine definitely the most satisfactory tests for newsprint paper as to the strength and printing quality necessary to secure maximum production of good newspaper printing. This investigation should also develop reliable methods for testing the quality of newsprint inks, the relation of these inks to newsprint paper, and the relative covering power of various qualities of newsprint printing inks.

INVESTIGATION ON BOND AND LEDGER PAPERS

The final report on the cooperative work conducted with the United Typothetæ of America and paper manufacturers for the purpose of jointly working out a technical standardization of bond and ledger papers was published in February, 1928. Copies of the report, entitled "Proposed Specifications for Bond and Ledger Papers," will be furnished upon request to anyone interested.

This report was formally presented by the Public Printer and the technical director at the meeting of the standardization committee of the United Typothetæ of America in Quebec, Canada, October 1, 1928. At this meeting it was agreed to hold a conference of representatives of the paper manufacturers and the standardization committee of the United Typothetæ of America in the near future for the purpose of securing recognition of the proposed specifications by paper manufacturers and consumers of paper.

The present Government specifications for six grades of bond and five grades of ledger papers were adopted as a result of this cooperative investigation and have been in use during the last four years in the purchase of paper by the Government Printing Office.

The Joint Committee on Printing has also adopted the recommendation that all rag-content bond and ledger papers purchased by the Government be watermarked with a symbol indicating the grade of

paper, beginning March 1, 1929. This watermark will be in the four grades of rag-content bond and rag ledger papers and will consist of the seal of the United States with four stars ($\begin{smallmatrix} \star & \star \\ \star & \star \end{smallmatrix}$) for 100 per cent rag, three stars ($\begin{smallmatrix} \star \\ \star & \star \end{smallmatrix}$) for 75 per cent rag, two stars ($\star\star$) for 50 per cent rag, and one star ($\star$) for 30 per cent rag.

INVESTIGATIONS ON KRAFT PAPER

Many requests have been received during the year from kraft paper manufacturers and kraft paper convertors, such as gummed tape and envelope manufacturers, relative to the Government specifications for kraft paper and the merits of various physical tests for measuring the quality of kraft paper. General dissatisfaction with the bursting-strength test was noted.

These requests have referred to the previous investigation conducted in 1925 by the technical division of the Government Printing Office. As a result of the investigation conducted in 1925 Government specifications for two grades of kraft paper were adopted and have been in use during the last three years with good results. The physical requirements in these specifications are based on the folding-endurance and bursting-strength tests.

However, after more careful consideration it was deemed inadvisable to publish the results of this investigation, owing to the fact that during the last three years considerable change had taken place in the manufacture of kraft paper. It has been particularly noted that the bursting strength has decreased and the folding endurance increased considerably. For this reason it was felt that another complete investigation on kraft paper should be conducted in order to secure more reliable and up-to-date data. The cooperation of the kraft-paper manufacturers has been requested in carrying out this investigation by furnishing samples of their standard grades of kraft paper. Samples of kraft paper for wrapping, envelope, and bag uses will be included in this investigation.

This investigation is now under way and it is hoped to complete it early in the year 1929. All samples submitted will be tested for fiber content, ash, weight, thickness, tensile strength, stretch, folding endurance, bursting strength, tear resistance, and porosity. A copy of the test report on the samples submitted by each manufacturer will be furnished to him for his own information, and upon completion of the investigation a tabulation of the results on all samples will be published under cipher letters.

TYPE-METAL ALLOYS

During the fiscal year 1928 a total of 6,915,750 pounds of type metal for use of the Government Printing Office were standardized by the division of tests and technical control. This included 4,569,855 pounds of linotype, 1,781,210 pounds of monotype, 367,265 pounds of stereotype, and 197,420 pounds of electrotype backing metals. Since the technical control of type-metal alloys has been in effect, 19,948,579 pounds have been analyzed and standardized to the respective formulas. This work was started in April, 1925, and now includes all kinds of type metal, stereotype and electrotype backing alloys used by the Government Printing Office.

The following tabulation gives complete data on the correction of linotype, monotype, and stereotype metals for each month between July 1, 1927, and June 30, 1928. The tabulation includes quantities of metal returned for remelting, correction metals used, amount of dross, and the percentage increase due to correction and percentage loss due to drossing, calculated on quantity of metal remelted. The weight of metal returned for remelting reported in the following tabulations also includes the dross removed from the metal after melting:

Linotype metal

Month	Returned for remelting	Correction metal used		Total correction metal used	Total corrected metal	Total dross	Increase due to correction	Dross
		Lead-antimony alloy ¹	Lead					
1927	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Per cent</i>	<i>Per cent</i>
July.....	338,676	940	5,110	6,050	342,100	2,626	1.78	0.78
August.....	313,182	985	5,365	6,350	316,750	2,782	2.02	.89
September.....	294,584	1,840	6,385	8,225	300,225	2,584	2.79	.88
October.....	360,356	700	4,150	4,850	361,850	3,356	1.35	.93
November.....	364,198	625	3,305	3,930	365,070	3,058	1.07	.84
December.....	379,201	945	3,545	4,490	380,740	2,951	1.18	.78
1928								
January.....	384,689				381,750	2,939		.78
February.....	421,938				418,400	3,538		.84
March.....	472,203	1,175	5,025	6,200	474,600	3,803	1.32	.81
April.....	396,320	445	4,255	4,700	397,450	3,570	1.19	.90
May.....	414,225	1,940	5,630	7,570	418,045	3,750	1.83	.90
June.....	407,691	1,290	7,085	8,375	412,875	3,191	2.05	.78
Total.....	4,547,263	10,885	49,855	60,740	4,569,855	38,148		
Average.....							1.34	.84

¹ Lead-antimony alloy consists of approximately 60 per cent lead and 40 per cent antimony.

Monotype metal

Month	Returned for remelting	Correction metal used			Total correction metal used	Total corrected metal	Total dross ²	Increase due to correction	Dross
		Lead-antimony alloy ¹	Tin-antimony alloy ¹	Tin					
1927	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Per cent</i>	<i>Per cent</i>
July.....	106,057		1,455		1,455	105,055	2,457	1.37	2.31
August.....	136,289		1,890	10	1,900	134,450	3,739	1.39	2.74
September.....	113,514		800		800	111,150	3,164	.70	2.79
October.....	113,946		2,010	124	2,134	113,234	2,846	1.87	2.50
November.....	131,754		1,635	25	1,660	129,610	3,804	1.26	2.89
December.....	148,812		2,145	90	2,235	147,085	3,962	1.50	2.68
1928									
January.....	126,323		1,700	160	1,860	124,710	3,473	1.47	2.75
February.....	209,032	420	2,881	95	3,396	206,546	5,882	1.62	2.81
March.....	186,564	1,500	1,865	200	3,565	184,765	5,364	1.91	2.88
April.....	187,088		2,005	120	2,125	184,075	5,138	1.14	2.74
May.....	178,362	50	2,055	20	2,125	175,475	5,012	1.19	2.81
June.....	165,585	600	2,460	345	3,405	165,055	3,935	2.06	2.37
Total.....	1,803,316	2,570	22,901	1,189	26,660	1,781,210	48,766		
Average.....								1.48	2.70

¹ Lead-antimony alloy consists of approximately 60 per cent lead and 40 per cent antimony.

² Tin-antimony alloy consists of approximately 33 per cent tin and 67 per cent antimony.

³ This includes all dross from the 129 casting machines, as the skimmings from these are added to the metal returned for remelting.

Stereotype metal

Month	Returned for remelting	Correction metal used			Total correction metal used	Total corrected metal	Total dross ³	Increase due to correction	Dross
		Lead-antimony alloy ¹	Tin-antimony alloy ²	Tin					
1927	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Per cent	Per cent
July.....	9,565		200	20	220	9,720	65	2.4	0.68
August.....	9,681	100			100	9,600	181	1.03	1.87
September.....	40,720	550			550	40,950	320	1.35	.79
October.....	50,853	100	370		470	50,970	353	.93	.70
November.....	39,720		450	15	465	39,965	220	1.17	.56
December ⁴									
1928									
January ⁴									
February.....	51,966	230			230	51,930	266	.44	.51
March.....	41,406	380	90	20	490	41,640	256	1.19	.62
April.....	59,869		395	45	440	59,990	319	.73	.53
May.....	30,628	600	100	40	740	31,190	178	2.42	.58
June.....	31,046	170	195	45	410	31,310	146	1.32	.47
Total.....	365,454	2,130	1,800	185	4,115	367,265	2,304		
Average.....								1.13	.63

¹ Lead-antimony alloy consists of approximately 60 per cent lead and 40 per cent antimony.

² Tin-antimony alloy consists of approximately 33 per cent tin and 67 per cent antimony.

³ The dross reported is from the remelting and standardization of the old plates and does not include the dross from the casting pot.

⁴ None corrected this month.

STANDARD FORMULAS FOR TYPE METALS

No change has been made during the year in the formulas for linotype, monotype, and stereotype metals previously adopted. The following are the Government Printing Office standard formulas:

	Per cent
Standard linotype:	
Tin.....	4 to 4.5
Antimony.....	11.5
Copper, not to exceed.....	.05
Lead.....	Remainder.
Standard monotype:	
Tin.....	7 to 7.3
Antimony.....	16.5 to 16.8
Copper, not to exceed.....	.4
Lead.....	Remainder.
Special monotype for hand composition:	
Tin.....	9
Antimony.....	19
Copper, not to exceed.....	1
Lead.....	Remainder.
Standard stereotype:	
Tin.....	8
Antimony.....	15.5
Copper, not to exceed.....	.2
Lead.....	Remainder.

These standard formulas were adopted as a result of laboratory and practical tests with each kind of metal. The formulas are giving excellent results in the work of the office and difficulties formerly experienced with metal before technical control was started have been ended.

Previous to technical control, the linotype metal was in poor condition, due to high tin content (averaging approximately 6 per cent) and contamination with copper. Practical tests with alloys containing 4 and 4.5 per cent tin, 11.5 per cent antimony, remainder lead, indicated that no apparent difference could be noted between the two

alloys; both gave good results. All linotype metal has therefore been standardized at 4.5 per cent tin, since it was more economical to reduce it to 4.5 per cent than to 4 per cent.

The analysis of a large number of samples of linotype metal from commercial printing and newspaper plants showed the composition of the metal used to vary from 3.5 to 4.2 per cent tin and from 11.5 to 12 per cent antimony.

Previous to technical control, considerable difficulty had been experienced with monotype metal, due to insufficient hardness to withstand the molding process in electroplating and to give satisfactory press runs. The formula adopted for standard monotype metal for the last three years is giving excellent results, and previous difficulties have been overcome. For monotype casting of type for hand composition, a somewhat harder metal is used, designated "special monotype metal."

The formula for stereotype metal has given satisfactory results for the character of work handled by the office, which is chiefly bookwork. Analyses of numerous samples of stereotype metal from commercial printing and newspaper plants show the composition of stereotype metal used in those plants to vary from 4.75 to 7 per cent tin and 13 to 14.5 per cent antimony.

LINOTYPE METAL

The linotype metal returned for remelting still shows a tin content averaging approximately 4.7 per cent and it is therefore necessary to reduce the tin content of a considerable amount of the metal. In fact no tin has been added to any linotype metal in the Government Printing Office since technical control has been in effect, and approximately 12,500,000 pounds has been analyzed and standardized to date.

The stock of linotype metal in the office shows an increase of approximately 22,000 pounds for the fiscal year over the quantity on hand July 1, 1927. This has been due to addition of correction metals and the conversion of 12,000 pounds of stereotype and slug metals into linotype metal.

The total dross on linotype metal for the year amounted to 38,148 pounds, which was exchanged as part payment for correction metals.

MONOTYPE METAL

The stock of monotype metal shows a loss of approximately 22,000 pounds for the fiscal year over the quantity on hand July 1, 1927. This is due to the fact that only the tin and antimony loss by drossing were replaced by correction metal. The total dross on monotype metal for the year amounted to 48,670 pounds, which was exchanged as part payment for correction metals. Fourteen thousand pounds of slug metal were also converted into monotype metal during the year.

STEREOTYPE METAL

Practically all stereotype metal remelted for standardization had previously been corrected, and therefore required but a small quantity of correction alloy, the actual increase being only 1,811 pounds.

The dross given in the tabulation is only from the remelting of stereotype plates for standardization and does not include the skimings from the stereotype casting pot.

ELECTROTYPE BACKING METAL

Investigational work was started during this fiscal year to develop a standard formula for the composition of electrotpe backing alloy and to standardize this metal in the same manner as has been done with linotype, monotype, and stereotype alloys.

The Government Printing Office has approximately 1,800,000 pounds of electrotpe backing alloy, the composition of which had heretofore been adjusted without chemical analysis or technical control.

Analyses of several samples of the alloy used in the office indicated considerable variation in composition, the tin content varying from 7.8 to 9.8 per cent, the antimony from 2.8 to 4.25 per cent, and the copper from 0.05 to 0.15 per cent, and the remainder lead.

Inquiry of commercial electrotypers, metal supply companies, and other sources failed to develop any uniform standard composition for electrotpe backing alloys and indicates that there is but limited data available as to the most suitable alloy for this purpose. However, analyses of several samples of commercial alloys and data from metal supply companies indicated that the metal in use by the Government plant was much higher in tin than commercial alloys. This information, however, had to be considered carefully, since commercial electrotypers furnish to the printer the copper shell with this backing metal, and the cost of such metal is a consideration.

In case of the Government Printing Office all electrotypes are used in the plant and the backing metal is recovered and reused. Since the Government metal was high in tin, it was not advisable to lower the tin content unless better or more economical results were to be obtained.

INVESTIGATION ON ALLOYS

The investigational work so far has developed the fact that alloys containing different percentages of lead, tin, and antimony require varying lengths of time to reach their maximum hardness. Preliminary tests on metal containing approximately 9 per cent tin and 3 per cent antimony, and on other alloys containing 3 to 4 per cent tin and 3 per cent antimony, showed the former, containing the higher amount of tin, is practically at its maximum hardness within two hours after having been cast. Alloys containing the lesser amount of tin were much softer than the other metal for a considerable period of time. However, 48 hours after casting, the low-tin alloys become as hard as the one containing more tin.

The investigation now under way by the laboratory will definitely determine the time rate of hardening for various lead-tin-antimony alloys after being cast. The results will be of considerable value in determining a standard composition for electrotpe backing metal. A metal that is relatively soft during the finishing process and yet attains a hardness sufficient for satisfactory service on the press would be considerably more economical than a metal which attains its maximum hardness before the plates can be finished.

As a result of preliminary investigations, including analyses of commercial samples of electrotype backing metal and practical tests, a formula for electrotype backing alloy of 4 per cent tin, 3 per cent antimony, and the remainder lead was tentatively adopted. This formula has since been changed to 3 per cent tin, 3 per cent antimony and the remainder lead. All metal standardized during this fiscal year has been corrected to the first tentative formula of 4 per cent tin and 3 per cent antimony.

No limit has been placed on the copper since the amount in the metal before correction was seldom over 0.10 per cent, the maximum being 0.15 per cent. This percentage will be considerably reduced by the addition of copper-free correction metals, since the old metal requires between 50 and 120 per cent of its weight in lead and lead antimony alloy to change it to the new tentative formula.

No standard formula for electrotype backing metal will be adopted until the present investigation is completed. A decided benefit has resulted from the work so far conducted, and alloys containing 4 and 3 per cent tin, respectively, are giving good results. Owing to the large increase in quantity of this metal due to standardization, a considerable quantity of old electrotype metal will be released to be converted into other type-metal alloys.

Since December 1, 1927, all electrotype backing metal used in the office has been analyzed and standardized, a total of 197,920 pounds being handled through June 30, 1928.

The following tabulation gives the quantities standardized monthly, with details as to correction metals added, total corrected metal, total dross, and percentage increase in quantity and percentage dross, based on metal returned for remelting:

Electrotype backing metal

Month	Returned for re- melting ¹	Correction metal used		Total cor- rection metal used	Total cor- rected metal	Increase due to correction
		Lead- antimony alloy ²	Lead			
1927	Pounds	Pounds	Pounds	Pounds	Pounds	Per cent
December.....	36,855	1,140	16,530	17,670	54,525	47.7
1928						
January.....	30,850	615	12,260	12,875	43,725	41.5
February.....	12,900	430	8,670	9,100	22,000	70.5
March.....	10,200	730	11,670	12,400	22,600	121.0
April.....	5,000	370	4,330	4,700	9,700	92.5
May.....	9,750	715	10,505	11,220	20,970	113.8
June.....	14,200	650	9,050	9,700	23,900	68.0
Total.....	119,755	4,650	73,015	77,665	197,420	Av. 65.0

¹ The weight of old metal reported was determined after the copper shells and dross were removed.

² Lead-antimony alloy consists of approximately 60 per cent lead and 40 per cent antimony.

The effect of copper in electrotype backing metal will also be studied to determine the maximum allowable percentage of copper, and the extent to which the copper electrotype shell becomes alloyed in the metal when the backing metal is melted to remove the shell. Statements have been published stating that electrotype backing

metal becomes contaminated with copper in this manner. However, several tests made by this office do not confirm the theory.

It is hoped to complete the investigation during the year, establish a standard formula and to furnish reliable data as to rate of hardening of these alloys and the effect of remelting the metal in presence of the copper shell.

INVESTIGATION ON TYPE-METAL DROSS

An investigation has been started relative to type-metal dross, but only an outline of the proposed work can be given at this time. The skimmings from type-metal remelting pots or stereotype casting pots contain considerable unoxidized or "shotted" metal which becomes mixed with the oxidized metal and impurities on the surface of the molten metal and is removed in the skimming process. Laboratory tests made on a sample of stereotype skimmings from a newspaper plant showed a recovery of 40 per cent unoxidized metal, which could be returned to the stereotype casting pot. Tests on mixed linotype and monotype skimmings from the remelting pots in the Government Printing Office showed a recovery of only 10 per cent unoxidized metal.

The results of handling type-metal alloys in the office and in contact with commercial printing plants, indicate that the loss in linotype metal due to drossing occurs almost entirely in the remelting process. The melted metal on the linotype machine has only a small surface exposed to the air and is seldom heated to a temperature where any appreciable dross would be produced.

Actual tests on remelting pots not equipped with automatic temperature control and operated by an unskilled laborer, indicate that temperatures as high as 900° and 950° Fahrenheit were not unusual, and that the average temperature was nearer 700° than 600° Fahrenheit. The higher the temperature of type metal, the longer it is kept at this temperature, and the more it is agitated to expose a greater surface to the air, the more dross will be produced.

Linotype metal should not be heated above 600° Fahrenheit unless necessary on account of the addition of a considerable quantity of correction metals. The temperature should be automatically controlled and the remelting pot equipped with an indicating pyrometer.

The preferable pouring temperature for linotype metal is from 550° to 600° Fahrenheit, and in order to remove the minimum of shotted metal with the dross, should be skimmed at 600° Fahrenheit.

Monotype metal contains a higher percentage of tin and antimony than linotype metal. This necessitates a much higher temperature on the monotype casting machines than on linotype machines, which will produce some dross on the casting-machine pots. However, in remelting monotype metal the same precautions in the control of the temperature should be taken as for linotype metal. For monotype metal the remelting temperature should not exceed 750° Fahrenheit and it should be skimmed and poured between 700° and 750° Fahrenheit.

In the skimmings from stereotype casting pots there will be more unoxidized metal than in the skimmings from the linotype or mono-

type remelting pots. This is due to the fact that stereotype metal is used at a temperature near the "freezing" point, which results in a slushy condition on the surface of the pot.

Temperature control on stereotype pots is advocated the same as on linotype and monotype remelting pots in order to prevent unnecessary overheating of the metal.

SWEATING PROCESS FREQUENTLY USED

Owing to the presence of a considerable quantity of unoxidized metal in the skimmings from stereotype casting pots (probably from 25 to 50 per cent of the total skimmings) it is important to recover as much as possible of this metal before disposing of the dross. A sweating process is frequently used for heating these skimmings and recovering the major portion of the unoxidized metal. This process consists in heating the skimmings at a temperature just sufficient to melt the "shot" metal and by agitation against the heated surface, separating it from the oxidized metal and impurities. The process is purely mechanical, no chemical action being involved.

Pots for this purpose are constructed so that the molten metal which flows downward under the action of gravity can be drawn off at the bottom of the pot. This process will be investigated further in connection with work on dross.

The dross which remains after the sweating process is composed of the oxides of lead, tin, and antimony, foreign matter such as brass rules, slugs, sweepings from the floor, and other impurities. It is not practicable to reduce the metallic oxides which constitute a large part of the dross by any method other than a reduction furnace, which recovers not only the lead, tin, and antimony, but also copper and any other metals present in the dross. Metal so recovered should not be used for type metal until its purity is assured by analysis.

It is the custom in many plants to "burn off" the dross by igniting such materials as animal fats or oil, mineral oils, vegetable oils, gums, or mixtures of these with other materials on the surface of the remelting pots. Carbonaceous material such as molasses residues is sometimes present in mixtures used for this purpose and may prevent to some extent the oxidation of the surface metals. The heat from the burning oils probably aids in separating the unoxidized metal from the dross.

An investigation is now under way to determine materials best suited for this purpose. Among the materials to be tested are beef tallow, mutton tallow, molasses residues, lard oil, light lubricating oil, and palm oil. Each of these is to be used on the remelting pots for a period of two weeks, and a record kept of the amount of dross in each case. The temperatures are kept uniform and it should therefore be possible to draw definite conclusions as to the relative value of the various materials in eliminating "shot" metal and preventing surface oxidization, thereby aiding in reducing the dross.

The amounts and percentages of dross from the various type-metal alloys will be found in the tabulations on another page of this report. Attention is called to the footnotes relative to dross in the monotype, stereotype, and electrotype tabulations.

ELECTRICALLY HEATED CASTING MACHINES

A record has been obtained of the temperature range on 10 electrically heated linotype pots, by the use of a recording pyrometer for two days on each pot. This data shows the maximum variation in temperature to occur when the machine is idle and to be 30° Fahrenheit on any one machine. The range while in operation on each of the machines was found to be within 25° Fahrenheit. The automatic temperature controls on the linotype pots are set to operate between 500° and 535° Fahrenheit.

Monotype machines, which operate at a temperature of approximately 750° Fahrenheit, show a somewhat wider variation. A similar record on 10 monotype machines electrically heated shows the maximum variation on any one pot to be 60° Fahrenheit. The minimum range was 30° Fahrenheit, but in most cases the operating range was practically 60° Fahrenheit. Further data will be obtained on both linotype and monotype machines.

The percentage of copper, nickel, chromium, and electrotype backing metal in the following printing plates used in the office was obtained by analysis and calculated to ounces per square inch: Copper electrotype, nickel-plated copper electrotype, nickel electrotype, chromium-plated electrotype, stereotype, and nickel-plated stereotype.

This work was done in cooperation with the division of accounts and platemaking division for the purpose of obtaining cost data on the various printing plates.

NEW EQUIPMENT FOR TYPE-METAL RESEARCH

A complete micrometallurgical and photomicrographic apparatus was added to the laboratory equipment during the year. This equipment is adapted to metal work and also to the photographing of paper fibers, surfaces of paper, etc. It will be of considerable value in the type-alloy research work.

A hardness tester has also been procured. This tester is equipped with several sizes of penetrators, varying from a diamond point to a one-half inch steel ball. These, in conjunction with a variable system of weights, make the apparatus of value in testing the hardness of all metals, from lead to the hardest steel. It is now being used in a study of the hardness of electrotype metal.

TYPE-METAL COOPERATION WITH NEWSPAPERS

In connection with the research program of the Government Printing Office an investigation was planned to determine the normal rate of deterioration in composition and quality, of linotype, monotype, and stereotype metal alloys in continued use. Also to determine the most suitable compositions for alloys for the respective uses, the most economical and satisfactory method of handling type-metal alloys in order to maintain uniform quality, and methods for reducing dross losses to a minimum. In this connection the cooperation of commercial plants was desired in order to obtain a comparison of the results in such plants with those secured on these metals in the Government Printing Office.

This proposed investigation was of considerable interest to the mechanical department of the American Newspaper Publishers Association and it was therefore suggested that the association cooperate by having several of the newspapers furnish at regular intervals samples of their metals in service.

Five newspapers have cooperated in this type-metal investigation during this fiscal year by furnishing regular samples of their linotype and stereotype metals—the Minneapolis Tribune, Chicago Tribune, New York Times, New York Herald Tribune, and Washington Evening Star.

Since linotype and stereotype alloys are the chief metals used by newspaper publishers, the work so far carried out has been confined to these alloys. Standard monotype metal is used to a more limited extent by newspapers.

A letter was sent to each newspaper by Mr. W. E. Wines, manager of the mechanical department of the American Newspaper Publishers Association, requesting their cooperation by furnishing to the Government laboratory weekly samples of their linotype and stereotype metals. Specific directions relative to the taking of samples were given, and a questionnaire was submitted, requesting certain information which was necessary in order that the results could be properly interpreted.

Following is a statement of the number of samples, including toning metals, submitted by the cooperating newspapers between October, 1927, and June 30, 1928.

Newspaper	Date started	Samples submitted	
		Linotype	Stereotype
		Number	Number
Minneapolis Tribune.....	Oct. 10, 1927	40	42
New York Times.....	Dec. 10, 1927	24	23
Chicago Tribune.....	Dec. 21, 1927	22	21
Washington Evening Star.....	Feb. 1, 1928	31	22
New York Herald-Tribune.....	Dec. 10, 1927	19	22
Total		136	130

Curves were prepared showing graphically the composition of the samples of linotype and stereotype metals submitted by the cooperating newspapers. The additions of correction alloys or new metal were indicated on these graphs, in so far as the information was furnished. These curves are interesting, but owing to the fact that the data submitted by the newspapers in connection with this investigation is somewhat indefinite and not complete, it is inadvisable to publish the same in this report or to draw any definite conclusions as to the deterioration of these metals in service.

Research work on type metals shows that dross losses on linotype metal take place chiefly in the remelting process. No definite data were furnished by the newspapers as to the temperature of their remelting pots, and it is doubtful if any of these pots were under strict temperature control.

Likewise, on stereotype metal a variation in the temperature will affect the amount of dross formed. Without definite information as to the maximum and minimum temperature range throughout the

period of this work, it is not possible to draw any conclusions as to the deterioration of these metals in service.

The copper content of practically all samples of linotype and stereotype metals submitted by the cooperating newspapers was less than 0.05 per cent. Some samples showed only a slight trace of copper.

This cooperative work will be continued and it is hoped during the next year to furnish reliable data as to the normal deterioration of linotype and stereotype metals in use, and accompany these data with full information as to the temperatures of the stereotype and type metal remelting pots of the cooperating newspapers.

A progress report of the investigation being conducted by the Government Printing Office in cooperation with the American Newspaper Publishers Association, was presented at the Second Mechanical Conference in Cleveland in June, 1928, and was published in Bulletin 13 of the mechanical department of the American Newspaper Publishers Association.

WORK OF GLUE AND PRESS ROLLER SECTION

During the fiscal year 78,759 pounds of molded glues for bindery uses were manufactured as compared with 74,640 pounds in the previous year. The following tabulation gives the amounts of each kind of molded glue manufactured for each year:

Kind of glue composition	Quantities produced	
	1927	1928
	<i>Pounds</i>	<i>Pounds</i>
Formula A (flexible glue for hand work).....	24, 000	29, 500
Formula B (flexible glue for quick-setting machine work).....	12, 780	12, 280
Formula C (flexible glue for perfect binder).....	1, 850	2, 125
Formula D (tablet composition).....	4, 670	7, 500
Formula E (for reducing the flexibility of flexible glues).....	11, 520	6, 120
Formula F (for use on case-making machines).....	19, 780	19, 620
Formula G (for cabinetmaking).....		504
Canceling stamp composition for Post Office Department.....		1, 110
Total.....	74, 640	78, 759

The figures for the fiscal year 1928 include 2,450 pounds of molded glues supplied to the various Government agencies, which includes 1,110 pounds of canceling stamp composition supplied to the Post Office Department. A total of 1,422 pounds were furnished the Government agencies in the fiscal year 1927.

The following quantities of glue and glycerin were used in the manufacture of molded glues for the fiscal years 1927 and 1928:

Material	1927	1928
	<i>Pounds</i>	<i>Pounds</i>
Glue No. 1.....	15, 185	14, 650
Glue No. 2.....	12, 155	13, 052
Glue No. 3.....	3, 600	4, 518
Glycerin.....	6, 664	6, 776
Waste roller composition.....	7, 560	9, 950

Beta naphthol is the most efficient material for use in molded glues to prevent mold and bacterial action. This material together with

terpineol were included in the formulas for various qualities of molded glues published in the report last year.

PRESS-ROLLER PRODUCTION

The adoption of definite specifications for glue has shown a decided improvement in the results obtained with press rollers. Since July 1, 1928, all glue used for the manufacture of press rollers has been purchased upon specifications stating minimum viscosity and jell strength, and limiting the acidity. Only deliveries of glue complying with these specifications are accepted. Previous to the adoption of these specifications all glue was purchased on samples only, and no reliable methods of testing had been developed. Tests made on glue purchased previous to the adoption of the specifications indicate that the glue formerly used was not of as high quality as that now specified for use in the manufacture of press rollers.

Since the manufacture of press rollers has been under technical control and all materials purchased on definite specifications for quality, more uniform-quality press rollers and longer service on the presses have been obtained.

The following tabulation, by years, gives the number of rollers actually on the presses, the number of rollers produced, and the number of rollers made for each roller on the presses:

Fiscal year	Rollers on presses	Rollers manufactured	Number of rollers made per roller on presses
1923.....	1,375	3,453	2.5
1924.....	1,371	3,348	2.4
1925.....	1,355	3,741	2.8
1926.....	1,528	3,942	2.6
1927.....	1,529	3,457	2.3
1928.....	1,561	3,109	1.9

It will be noted that the number of rollers produced for each roller on the presses has shown a decided decrease during the last two years. This is evidence of longer life of the rollers manufactured. The number of rollers produced during the fiscal year 1928 was much lower than in any previous year, although more rollers were in use on account of increased press equipment.

An investigation is under way to determine the comparative life of rollers made from different qualities of glue, the effect of using part reclaimed material in rollers, and the value of various glue-hardening agents in roller manufacture.

BOOKBINDING MATERIALS

The annual report of the technical director for the fiscal year 1927 included a statement of all the technical research work relative to various materials used in bookbinding that has been conducted in the Government Printing Office. Further investigations are under way, but none has been sufficiently completed for reports at this time.

The formulas for the various qualities of molded glues for use in various types of bookbinding work were published in the report last year. These formulas have been used without change during this

year. However, an investigation is now under way relative to the formula for flexible glue for use on the Perfect binder in order to determine the most satisfactory quality of glue and percentage of glycerin to obtain the best results. The present formula has not proved to be satisfactory for certain work.

This study is being conducted in cooperation with commercial bookbinderies using Perfect binders. Information from commercial plants indicates that they have also experienced difficulty with books produced on these machines, due to the quality of the glue compositions. Analyses of commercial flexible glues offered for use on this type of machine show a wide variation in quality of the glue and the glue-glycerin ratio of the composition.

The specifications for best-quality and No. 2 binders' boards adopted by the paper specifications committee for the year beginning March 1, 1928, have been modified slightly for the fiscal year beginning March 1, 1929. These specifications have proved satisfactory to the Government and the binders'-board manufacturers during the present year. The Government Printing Office is now cooperating with the binders'-board manufacturers in order to standardize the specifications for binders' board.

An investigation is under way relative to linen and cotton book-sewing threads in order to develop standard specifications for these materials. Tentative specifications for bookbinding threads were included in the proposal for these supplies for the fiscal year beginning July 1, 1928, for the Government Printing Office.

WORK OF THE INK SECTION

The production of printing ink for the fiscal year 1928 was 149,630 pounds as compared with 148,324 pounds for the previous year. The production of mimeograph ink for the use of the various establishments of the Government showed an increase of 71.2 per cent, with 30,357 pounds manufactured this year, compared with 17,732 pounds last year. Writing inks also showed a large increase in production, 7,200 quarts of blue-black writing inks being produced, compared with 4,000 quarts the previous year, and 3,600 pints of red ink, compared with 1,800 pints the previous years.

The increase in the quantity of inks furnished the Government services was practically offset by the decrease in the quantity of printing inks manufactured for the Government Printing Office. During the year 34,741 pounds of ink were delivered to the different Government establishments in accordance with Public Act 222, of the Sixty-ninth Congress, compared with 22,256 pounds in 1927. This leaves a net amount of printing ink manufactured for use by the Government Printing Office of 114,889 pounds for 1928, compared with 125,333 pounds for 1927.

As a result of the technical standardization program being carried out by the division the number of different inks manufactured in the office is being reduced as the formulas are standardized.

Formulas for the following inks have been standardized: Job black, bond black, rotary halftone black, three halftone blacks for use on supercalendered, dull-coated, and enamel-coated paper, book, proof press, mimeograph, postal-card green, halftone bronze blue, bond bronze blue, three shades of job red, purple poster, tampa yellow, and cover white.

This standardization in printing inks has resulted in simpler formulas, yielding better inks at the same or lower cost. An example is postal-card green, the number of ingredients being reduced from nine to four. The cost of the materials used in the new formula is less than in the old one, and grinding time has been reduced.

The new standard job black has replaced the following black inks, the manufacture of which was therefore discontinued: Stationery job, money order, eulogy, and multigraph A. The savings for the year in the cost of manufacture of the ink in this one item amounts to approximately \$1,500.

In addition to being more economical, there has been a decided improvement in the quality of the printed work.

It was found necessary, however, to develop formulas for some new inks in order to obtain more satisfactory inks for certain work. The new inks are bond black, one halftone black, and a bond bronze blue. Several compounds for use in offset and process printing have also been developed and are now in use.

Investigational work has been conducted on offset inks and formulas for red, black, and blue offset printing inks developed. These inks will be produced by the Government Printing Office.

The number of different kinds of inks manufactured was reduced from 55 to 39 during the year. During the fiscal year 1926, 75 different kinds of ink were produced. The following tabulation gives the amounts of the principal inks manufactured for the fiscal years 1927 and 1928:

Ink production for 1927 and 1928

Kind of ink	1927	1928	Kind of ink	1927	1928
Black:	<i>Pounds</i>	<i>Pounds</i>	Blue—Continued.	<i>Pounds</i>	<i>Pounds</i>
Book.....	33,342	31,254	Money order ¹	254	125
Book, from waste ink.....	5,520	5,606	Shipping Board ¹	256	65
Job.....	21,444	26,128	Stamp pad.....	101	209
Rotary halftone.....	14,495	12,548	Numbering machine.....	85	64
Halftone ¹	12,914	14,351	Miscellaneous.....	225	232
Record.....	13,309	14,292	Embossing.....	93	185
Stationery job ²	6,136	(³)	Green:		
Bond ⁴		279	Postal card.....	6,555	5,468
Money order ²	1,955	(³)	French medium.....	543	310
Proof press.....	783	759	Slate sensitive.....	126	100
Eulogy ¹	412	(³)	Miscellaneous.....	76	273
Canceling.....	1,210	603	Red:		
Bookcloth.....	33	26	Job.....	634	552
Multigraph, Grade A ¹	842	(³)	Toluidine poster.....	193	
Multigraph, Grade B.....	456	(³)	Marble paper ¹	179	
Mimeograph, open-cylinder type ⁵	11,677	⁴ 30,357	Stamp pad.....	211	425
Mimeograph, closed-cylinder type ⁵	6,065	(³)	Numbering machine.....	162	
Addressograph.....	365	330	Postal card.....		122
Carbon coating.....	1,534	1,798	Miscellaneous.....	75	176
Spot carbonizing.....	84	202	Yellow:		
Stamp pad.....	547	249	Tampa.....	1,141	247
Numbering machine.....	115	63	Orange.....	796	
Miscellaneous.....	330	396	Lemon.....	614	204
Blue:			Miscellaneous.....	126	219
Bronze ⁶	490	(³)	Brown:		
Bond bronze ⁴		328	Snuff.....	599	101
Halftone bronze ⁴		497	Bismarck.....	276	
Stationery ⁶	346	(³)	Miscellaneous.....	15	106
			White.....	400	249
			Reducer.....	180	132

¹ Under this designation "halftone" are included two inks for 1927 and three for 1928. Different inks are made for use on supercalendered, dull-coated, and enamel-coated papers.

² Discontinued and replaced with standard job black.

³ Discontinued.

⁴ New inks developed during this year.

⁵ Discontinued and replaced with one standard ink.

⁶ Discontinued and replaced with bond and halftone bronze-blue inks.

⁷ These inks will be discontinued when the present stock is exhausted.

HANDLING OF WASTE PRINTING INKS

The waste ink returned by the press division was 5,606 pounds or 3.7 per cent, the same percentage of the total production as last year. In September, 1928, a new method of taking care of waste ink was started. Formerly all waste ink was returned to the ink section, including scrapings from fountains, dirty ink, etc. The best of this was reclaimed for use in the production of book ink. However, this resulted in variations in the quality of book ink, due to the mixing of various qualities and kinds of ink, and caused difficulties in the press division. Under the new system all ink containing skins, paper lint, dirt, etc., which is unsuitable for reclamation is put in metal containers in the various sections of the press division. These containers are emptied and the contents thrown away at intervals, but a record kept of the quantities. Ink returned to the ink section must be clean and accompanied by a report stating the reason for such return.

A considerable amount of work has been done during the year on the standardization of the raw materials entering into the manufacture of printing inks. The specifications for many of the materials have been revised and several new materials added, and some pigments formerly used have been discontinued.

A standard production form for use in the manufacture of ink has been developed. The new form facilitates the checking of the ingredients used in an ink and gives full details as to the number of times ground, the labor required, as well as data as to laboratory tests, and also greatly facilitates the computing of costs.

Laboratory methods have been adopted for controlling the consistency of mimeograph ink. Every lot of this ink is passed on by the chemist in charge before it is canned. One grade of standard mimeograph ink suitable for either open or closed types of machines was developed and replaced the two inks previously furnished.

Three of the regular stock printing inks are furnished the various Government agencies for multigraph work. These are job black, or multigraph heavy; halftone black, or multigraph medium; and rotary halftone, or multigraph light.

Owing to the variation in speed of operation and different kinds of paper used by the Government agencies it was not possible to furnish one grade of ink for multigraph work.

Considerable new equipment was added during the year to take care of the increased production of ink and to allow for more grinding of the ink for use in this office. The following new equipment was installed during the year:

One 12'' by 30'' 3-roll mill.

One large change can mixer, replacing a smaller one which was worn out.

One 2-gang 18-inch plate mill.

Portable dial platform scale.

One 5'' by 12'' 3-roll mill for experimental laboratory work on inks.

DETERGENTS CONTINUED IN USE

The solvent and alkali detergents adopted for various uses have been continued throughout the year without change. The results of this investigation were published in the annual report for the fiscal

year 1925 and reprinted in the report for the fiscal year 1926. The investigation covered both solvent and alkali detergents for use in removing printing ink from type, removing wax from copper shells, cleaning press rollers, and washing ink containers.

In cooperation with the chief type machinist, a formula has been developed for a detergent for cleaning linotype matrices. This material is used in a matrix washing machine developed by the type machine section and the solvent removes all tarnish, grease, and stain from the matrices without injury, and its use over a considerable period of time has proved to be very satisfactory. The formula for this detergent is as follows:

Ortho-dichlorobenzene	8 ounces.
Trisodium phosphate	6 ounces.
Hot water	7 gallons.

SUPPLIES TO OTHER GOVERNMENT AGENCIES

The quantities of miscellaneous supplies such as inks, glues, paste, and other materials manufactured by the Government Printing Office furnished to the various departments and independent establishments of the Government during the fiscal year in accordance with Public Act 222, Sixty-ninth Congress, show considerable increase over the quantities furnished last year. The following tabulation gives the quantities of the different supplies furnished to the various Government agencies for the fiscal years 1927 and 1928:

Kind of material	Quantities supplied	
	1927	1928
Mimeograph ink, black	17, 198	29, 783
Multigraph ink, black and colored	1, 119	1, 494
Addressograph ink, blue and black	320	326
Printing inks, black and colored	2, 460	2, 312
Blue-black writing ink	4, 114	7, 261
Red writing ink	2, 122	3, 319
Stamp pad inks, blue, black, and red	980	666
Numbering machine inks, blue, black, and red	189	160
Molded glue, including canceling stamp composition for the Post Office Department	1, 422	2, 450
Paste	4, 070	10, 370

The total charge to the various Government agencies by the Government Printing Office for the supplies furnished this year was approximately \$22,400. The same quantity of materials, if purchased through the General Supply Committee or former sources of supply, based on contract awards made for the fiscal year 1927, would have cost the Government approximately \$54,500.

A saving to the Government for the fiscal year 1928 of approximately \$32,100 was therefore effected in the manufacture of these supplies by the Government Printing Office, compared with prices formerly paid for similar materials when purchased from commercial sources of supply. The saving to the Government for the fiscal year 1927 in this connection \$20,100.

Considerable technical work has been conducted by the chemists of the Government Printing Office in connection with the manufacture of these supplies of inks, glues, paste, etc., in order to develop

the most satisfactory formulas and test methods for insuring uniform and standard quality. The quality of the various inks, glues, paste, and other supplies furnished by the Government Printing Office is fully equal and in most cases superior to that formerly obtained from commercial sources. All of these supplies are manufactured in the ink and the roller and glue sections of the division of tests and technical control.

Helpful technical service has been rendered to the various Government agencies in connection with these supplies by the chemists of the Government Printing Office. All complaints relative to inks, glues, paper, or other materials supplied by the Government Printing Office are personally investigated by the technical experts. This information has aided materially the production of more satisfactory materials for the various uses of the Government service. Frequently materials which could not be satisfactorily obtained from commercial sources for special uses of certain branches of the service have been developed by the laboratory of the Government Printing Office.

During the last two years mimeograph cylinders have been cleaned for the various Government agencies without charge, provided they are delivered to the Government Printing Office and called for when finished. A special cleaning solution is used for this purpose, which has proved very satisfactory. There were 12 mimeograph cylinders washed during the year.

Important technical research is now being conducted relative to the acidity of writing inks and the effect of the ink on paper. In the future the acidity of all blue-black writing inks will be under technical control to prevent deteriorating effect on paper.

COOPERATION WITH MANUFACTURERS

The division of tests and technical control has continued to work in cooperation with manufacturers furnishing materials for use of the Government Printing Office for the purpose of developing standard specifications for the various materials and to supply reliable information to bidders and contractors as to the requirements of the Government.

During the year considerable cooperative investigational work has been conducted with paper manufacturers, especially manufacturers of bond, ledger, book, and kraft paper, as before mentioned in this report. Cooperative work has also been conducted with manufacturers of glue, book cloth, bookbinding leathers, binders' board, book-sewing threads, and other supplies. The manufacturers of type-metal alloys have kept in touch with the type-metal investigations conducted by the office.

The technical investigations conducted by the Government Printing Office during the last six years have attracted considerable interest in the commercial printing, publishing, bookbinding, and allied industries. Many requests have been received for information of the investigations and for assistance in connection with technical problems in these industries. The annual reports published by the office have in many cases furnished the information desired. However, many inquiries have required special replies and even minor technical tests

and investigation. A second reprint of the annual report for 1926 was necessary to meet the requests for it.

The correspondence handled by the division has been heavy during the year and has increased each year since the technical division was established. Approximately 2,500 letters were received during the year. These letters were from commercial printing and bookbinding concerns and manufacturers of various materials used by the printing industry. Many requests were received from manufacturers for further information as to the technical requirements of the Government specifications for materials purchased by the Government Printing Office.

CONGRESS AUTHORIZES COOPERATIVE RESEARCH WORK

An amendment to the legislative appropriation bill for the fiscal year 1929 extended to the Government Printing Office the privilege of cooperation with commercial manufacturers for the purpose of developing standard specifications for various materials of the printing industry and for conducting research on various printing and bookbinding processes. This privilege of cooperating with commercial industries had been previously enjoyed by other scientific and technical branches of the Government service. The law will permit associations of the printing, bookbinding, and allied industries to cooperate in the technical research conducted by the Government Printing Office on problems of mutual interest.

The American Newspaper Publishers Association has been granted the privilege of conducting cooperative investigational work with this office and has employed a chemist to work in cooperation with the technical experts of the Government Printing Office on investigational work on newsprint paper and newsprint ink. Most of the work up to date has been relative to the deterioration of linotype and stereotype metal alloys.

Negotiations are now under way with other associations of the printing and bookbinding industries for the extension of this technical research work. The results of technical research work under this plan will be published for the benefit of all concerned and should prove of value to the various branches of the commercial printing industry.

BEST LABORATORY IN PRINTING INDUSTRY

The technical division of the Government Printing Office has become recognized as a research laboratory for the various branches of the printing, bookbinding, and allied industries. It is the most complete laboratory in the United States confining its work exclusively to the problems of the various branches of the printing industry.

The equipment of the laboratory is quite complete and includes the latest types of chemical, physical, and microscopical testing apparatus for use in testing paper, textiles, glue, type metals, etc.

The personnel of the laboratory consists of 20 employees, exclusive of the research associate chemist representing the American Newspaper Publishers Association. Besides the technical director, who

is in charge of the division of tests and technical control, there are 7 chemists, technical experts along various lines covered by the printing industry, 7 experienced chemist aids, and 5 other employees handling the sampling of materials and office work. In addition, the metal, ink, and roller and glue sections, which are part of the division of tests and technical control, are in charge of men who have had practical experience in their respective lines.

The technical director is a member of the following committees and devotes considerable time to the work of these technical committees:

Paper specifications committee of the Joint Committee on Printing.

The following Federal specifications committees: Paper, inks and typewriter ribbons, color, shipping containers, lubricants and liquid fuels, and glue.

The research and survey and the pulp and paper divisional committees of the printing industries division of the American Society of Mechanical Engineers.

The committee on paper testing of the Technical Association of the Pulp and Paper Industry.

Respectfully submitted.

EDWARD O. REED,
Technical Director.



