



CHAPTER 4

Support and Administration Behind the Scenes

Keeping a vast industrial shop like GPO humming around the clock throughout its history has required a supporting staff as large and diverse as the skilled force who composed, printed, and bound the documents themselves. From machinists to carpenters to chemists to stock keepers, GPO's support units provided the infrastructure that made possible the production of high quality printed and bound documents with speed and efficiency.

Employees in the Engineering divisions kept machinery repaired, often made necessary parts, maintained and improved the buildings, and provided light, heat, and motive power. The Stores Division tallied and moved the vast stock of raw materials like paper and binding materials throughout GPO's plant. GPO carpenters and cabinetmakers produced specialized furniture and fixtures. GPO was for much of its history almost entirely self-sufficient.

Beginning in the early 20th century, the Tests and Technical Controls Division maintained the quality of type metal, tested the vast stocks of paper for

conformity to published standards, made ink, press rollers, and adhesives, and performed research to find new and better methods and materials to improve GPO's economy and efficiency. The Testing Division staff were nationally known experts in paper analysis, metallurgy, printing processes, inks, and adhesives.

With the growth of GPO after 1900, a program of apprentice training was started in the 1920s that provided trained journeypersons for the printing and binding ranks, as well as the skilled support areas. This chapter includes photos of apprentices at work throughout the plant. The apprentice school grew to be a "university of printing and binding," turning out generations of GPO printers, proofreaders, bookbinders, platemakers, compositors, and other skilled craftspeople.

In addition to operations that directly supported production, a host of clerks, typists, librarians, estimators, bookkeepers, accountants, designers, police officers, messengers, drivers, and administrative assistants contributed to making the Big Shop run.



Vast stocks of the raw materials of printing — paper, ink, type metal — had to be on hand at all times. Here workers in the Stores Division stack spools of paper for web presses in the late 1930s, prior to the construction of the new warehouse, Building 4, opened in 1938. This area was probably within the warren of old buildings that surrounded the original Wendell structure, which were demolished to make way for Building 3 in 1938.



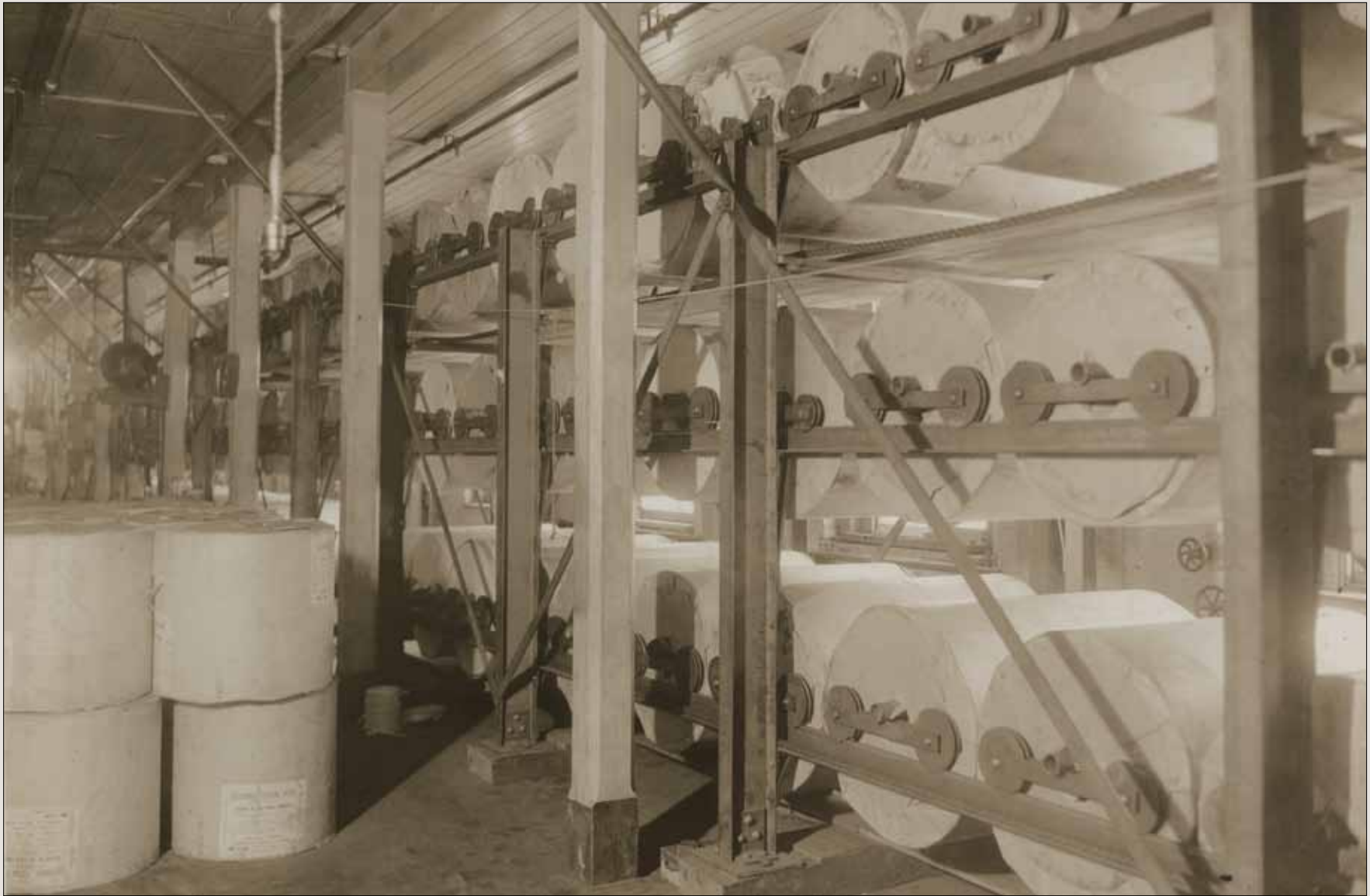
Before the construction of Building 4 in 1938, supplies of materials were stored across GPO's complex. In this photo from the 1930s, an electric tractor pulls a train of 10 trailers, probably loaded with paper.



In the days of GPO's greatest output, every nook and cranny was utilized. Here paper is stored in the basement of Building 1 during the 1930s. Two of the massive pylons that support the building are visible at left.



Various kinds of trucks, tractors, cranes, and lifters were used to move and stack heavy materials around GPO's plant. These electric tractors were used for moving paper and product during the 1920s.



At any given moment GPO sought to have more than a month's supply of paper on hand in its storage areas. One challenge of working with paper is its great weight. Here heavy spools are mounted on mechanized racks to ease the transfer onto the feeders of web presses during the 1910s.



One of the most striking aspects of many of GPO's historic photographs is the intense amount of organization they reveal, along with the emphasis on cleanliness and tidiness. This view of the General Stores Division from the 1930s illustrates the massive amount of organization required to keep spare parts and supplies readily at hand. It also shows the extent to which early 20th century theories about workplace efficiency held sway: for example, having a step stool at the end of each range of shelving would produce a quantifiable saving of steps that translated to increased efficiency. It is worth noting how fastidiously clean everything appears. In printing, a lack of attention to cleanliness leads to spoilage and waste of materials and time. The attention to cleanliness extended across the organization.



Recordkeeping and accounting for materials was a massive clerical task. The clerks at the center in this photo from the 1930s are using a “Kardex” file, a system for “visible indexing” that paved the way conceptually for later machine assisted systems.



As GPO matured into a fully industrialized operation in the early 20th century, a key to its ability to produce vast amounts of work economically was the careful control of materials. The Division of Tests and Technical Controls was created in the 1920s to support efficiency. Paper, type metals, inks, adhesives, and chemicals were tested and improved. Every stage of the manufacture of ink, adhesives, press rollers, and type metal was monitored. Here a chemist analyses ink or solvents during the 1920s.



These analysts are testing paper during the 1940s.



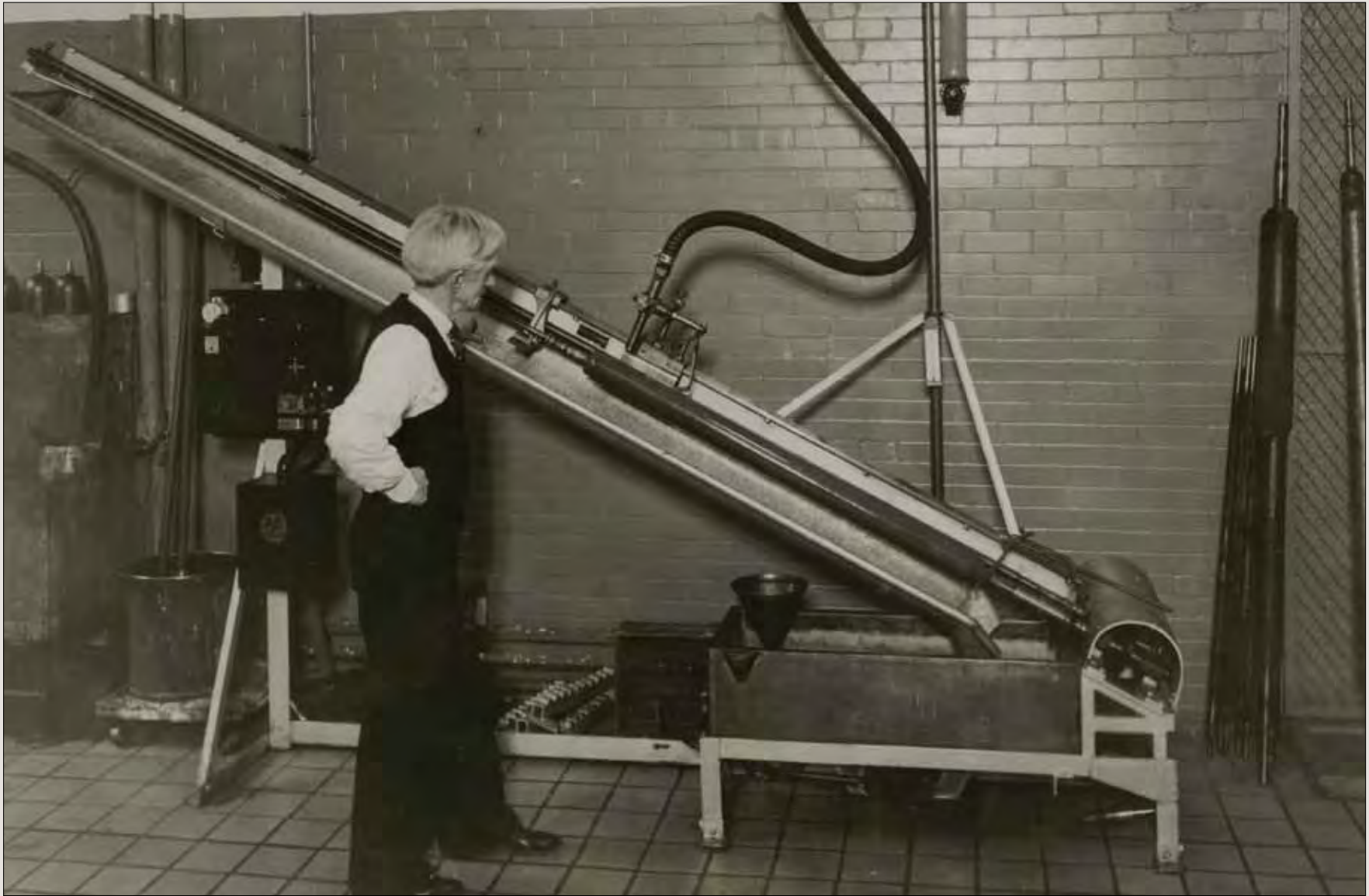
One of GPO's paper experts assesses the chemical properties of paper during the 1960s.



Analysis of metals used for typecasting and platemaking was performed in the Testing Section in this photo from the 1930s.



Among its varied responsibilities, the Testing Division was responsible for the manufacture of printing inks. In this photo from the 1930s, pigment is mixed with solvents piped by gravity to the 5th floor from tanks on the 6th. The machine at right is a mixer.



In addition to making ink, GPO formed its own ink rollers for the presses. These futuristic-looking machines dates from the 1930s.



Among the many materials and supplies that GPO required, the appetite for type metal was voracious. In the 1920s and 1930s more than 5 million pounds of type-metal (an alloy of tin, lead, and antimony) were used annually. Only a fraction of the metal was “new.” In these large furnaces, shown in the 1950s, previously cast type was remelted, dross (waste) was removed, and percentages of the three components were restored or “corrected.” The molten metal was then poured into the molds...



...from which came “pigs” which were suspended into the pots of Linotype, Monotype, and Ludlow machines. The fans visible in the previous photograph remind us that air conditioning was not introduced until the late 1930s, and before then the heat in the Metal Room on a Washington summer day must have been astonishing. Photo circa 1950.



Printing called for a variety of solvents and lubricants. In this photo from the 1930s, these pumps delivered gasoline, kerosene, and other solvents.



From 1861 until the 1910s, GPO's deliveries to the Capitol, the White House, and other agencies were made by horse-drawn wagon. The original Wendell property in 1861 had a stable, but by the turn of the 20th century the stable had been moved to leased space nearby. In this photo from the 1890s, delivery wagons are lined up at the right and the Public Printer's carriage is at the center.



Automobiles came to GPO in 1912 in the form of Baker Electric trucks, manufactured in Cleveland, Ohio. The chain-driven trucks ran on large, heavy batteries and had more in common with the wagons they replaced than with later automotive design.



This photo from 1915 reveals three generations of Washington transportation: the GPO Baker Electric truck is sitting on top of the tracks of the North Capitol Street streetcar, amid the residue of horse drawn transport.



The fleet of GPO electric trucks in front of the east face of the Capitol, about 1915.



By the 1920s GPO was using Mack diesel-powered trucks, although the Baker Electrics are still visible in the line. The fleet is parked in front of Building 1 and the old building.



GPO's delivery drivers and messengers in a photo from the 1960s. The green GPO trucks and uniforms of the Delivery Section were familiar across the District. The employee at the right, in the black uniform, was the Public Printer's driver, Nelson Washington.



Electricity came to GPO in 1882. These electricians, in photo from about 1910, are at work on a variety of electrical devices.



These switchboards controlled the distribution of electrical power to circuits throughout the buildings. Photo circa 1930.

In this photo from the 1940s, a pneumatic tube system moved messages and copy swiftly between divisions. Documents were placed in the canisters visible at the lower left and whisked through the appropriate tube by pneumatic pressure to their destination. Parts of the system remained in use into the 1990s.





Because of the size and complexity of its operations, and the demanding requirements for quick delivery, GPO developed a culture of “making it here,” which stretched from inks and adhesives to furniture and crates. Here carpenters are using special machines for making shipping boxes. Photo circa 1930.



Mimeograph ink, manufactured at GPO, is packaged for shipment to agencies, in this photo from the 1950s.



Production of printed documents inevitably generates paper waste. In this photo from the 1940s, waste paper is forked into a baling machine in preparation for being shipped to a mill to be pulped and (in modern terms) recycled.



Many machine parts and repairs could be economically made by GPO's blacksmiths in the Metal and Pipe Section. In an earlier day, blacksmiths also kept GPO's delivery fleet working, shoeing the horses that pulled delivery wagons. Photo circa 1930.



Public Printer George Carter established a separate department for job planning which made the writing of specifications more systematic and consistent, thus improving service to agencies and improving efficiency and economy in the plant. Photo circa 1930.



In this photo of GPO's Planning Division from the 1960s, GPO jackets — printed envelopes which bring together all information about a particular job order, and which originate with planners — are visible.



GPO installed its first telephones in the 1890s, and the first known telephone directory was a tiny folder measuring 3" x 4". Here operators run GPO's main switchboard in Building 1 during the 1930s.



Type metal ready for recasting went to this loft above the metal furnaces in this photo from the 1970s. After the closeout of hot metal composing, this space became a meeting room, Hasse Hall, named for one of GPO's first librarians.



Like many large printing shops, GPO produced many products that were distributed by mail to individual subscribers, either on Capitol Hill, in Federal agencies, or elsewhere. In this photo taken during the 1930s, machines using Addressograph plates are used for direct-mail addressing.



The Accounts (later Finance) Division used IBM tabulating machines for keeping track of agency accounts. This photo shows operators entering information on punch cards during the 1940s.



These machines read and tallied the punched tabulating cards during the 1940s. Although used throughout the Government and the business world, the first extensive use of tabulating machines was for the U.S. Census. GPO produced the tabulating cards.



Beginning in 1883, GPO employees were assigned a set payday on which they would line up at the paymaster's window to be paid in cash. This photo shows the Paymaster's Office in 1913.



Clerks and messengers in the Public Printer's office, about 1915.



The Personnel Division was located on the first floor of Building 3, in the area now occupied by GPO's 150th Anniversary History Exhibit. This photo is from about 1960. Generations of GPO employees were sworn into Government service in this office.



One of the many responsibilities of GPO apprentices in the 1920s and 1930s was to lead tours of the plant. When Building 4 opened in 1940, this room, immediately adjacent to the main lobby, was designated for greeting visitors and forming tours. Tours were discontinued during World War II, and the room was eventually turned over to the Personnel Division. It returned to being a Visitor's Center under the new security arrangements instituted following the attacks of September 11, 2001.



The first recorded security force at GPO was during the Civil War, when the two companies of the so-called Interior Dept. Regiment, Co. F and Co. G, guarded the buildings at night. By the 1930s, a large guard or watchman force protected the buildings and employees.



The Captain of Watch, 1930s.



In 1970, Congress enacted legislation creating a force of “special policemen” at GPO, with authority to enforce the law, make arrests, and carry firearms to protect GPO property and employees.



Apprentice Program

In 1939, Public Printer A.E. Giegengack commissioned one of GPO's contractor photographers, probably Tenschert, to document the Apprentice School by photographing members of the class of 1940 on the job. Those photos are a remarkable view of GPO: virtually every stage of production is depicted in sharp detail. The photos themselves are some of the most artistic photography in the entire collection. This book is the first time all the photos from this series have been published together.

These photos are remarkable for what they explicitly depict, but also display rather starkly other realities of the workplace of that time: only two women graduated in the class of 1940, and no African Americans appear. Although the apprenticeship was not barred to women or minorities at the time, it is clear that their participation was far below what we expect today.



Apprentice life began with classroom instruction. Apprentices were taught not only about the basics of printing and binding but English grammar and usage. Here students are drilled on sentence diagramming.



Apprentices learn hand composing. At left is one of the women who entered the class of 1940, but who did not finish, Beulah Farrell.



At this period hot metal typesetting was at its peak. Apprentices learned both Linotype . . .



... and Monotype operation. This photo is of one of the women in the Class of 1940, Blanche Boisvert. Women were trained on the Monotype keyboards, but not Linotype.



Apprentices were given a thorough grounding in absolutely all aspects of the printing and binding trades. Here an apprentice is studying the formation of letters, part of instruction in typography



Although GPO did not cast its own foundry type, apprentices learned the process to gain an understanding of all branches of the printing trades. This apprentice is pouring molten type metal into a casting box which contains a type matrix or mold.



Apprentices learn proofreading, working in the standard GPO practice of the time: teams of two readers, one with manuscript, the other with proof copy.



In the 1930s GPO was still primarily a letterpress shop, but a variety of platemaking techniques were employed for various classes of work. Here an apprentice adjusts a chase of type for height before taking an impression for the casting of an electrotype plate



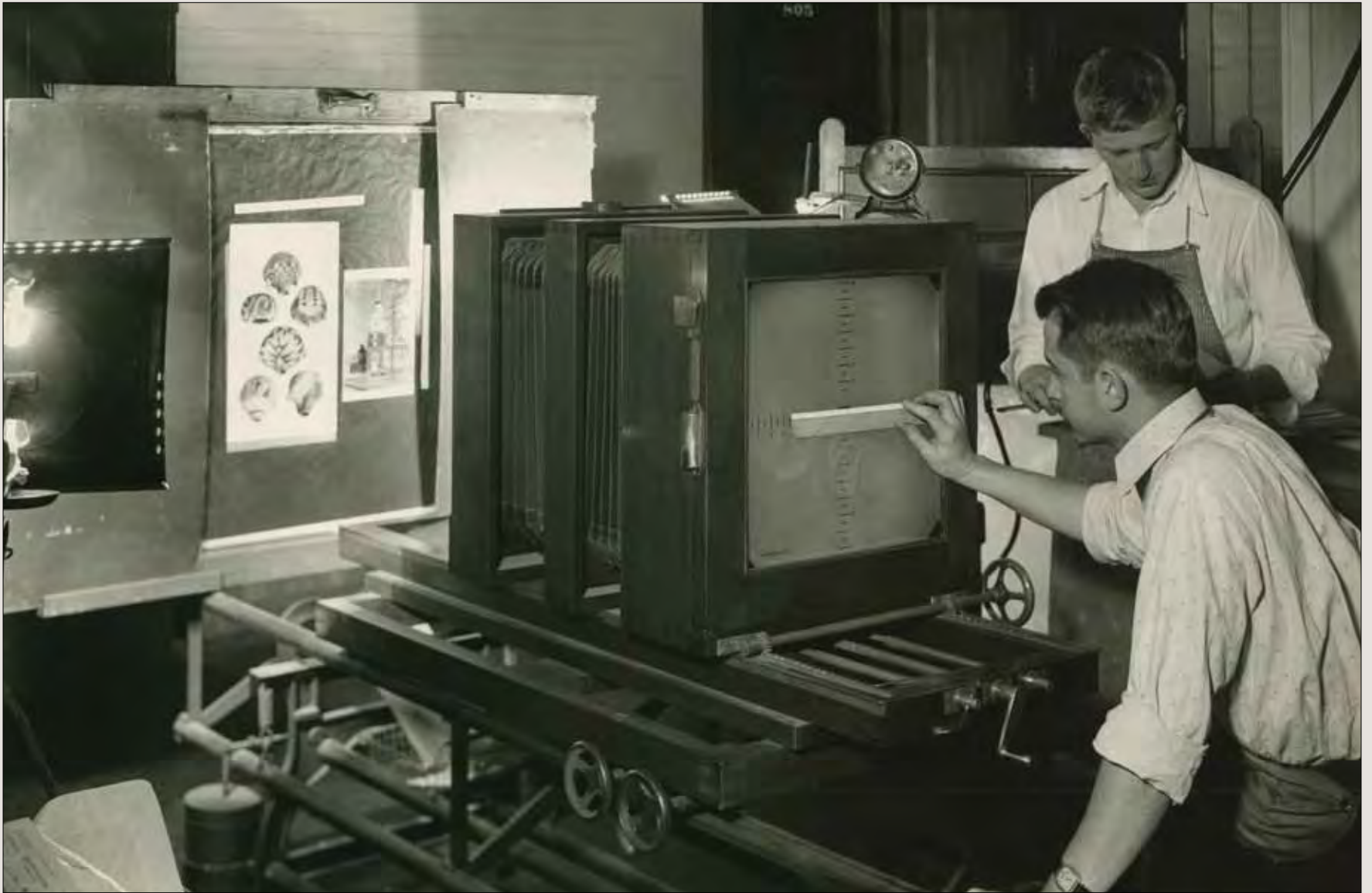
Apprentices inspect a plate which has been immersed in the etching tank.



Electrotype plates are imposed into page forms.



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At the time of these photos in the late 1930s, photoengraving was a relatively recent addition to GPO's capabilities. Apprentices work with a large format camera to photograph artwork.



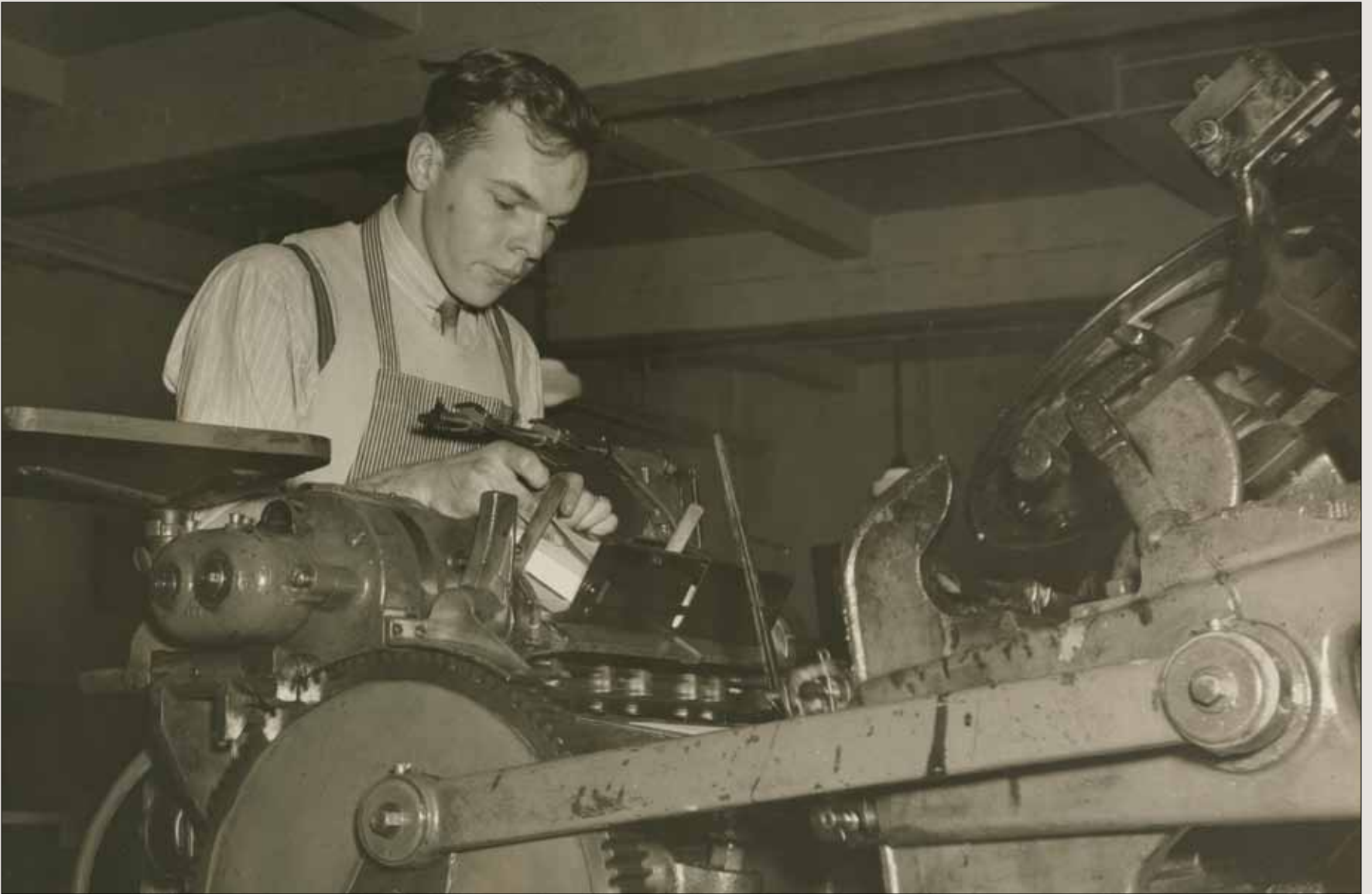
An apprentice guides a router over a photoengraved plate.



These apprentice pressmen are checking color match and density of printing ink in the apprentice job press room.



Apprentices eventually were cleared to operate all types of presses, like these platen presses in the job shop.



Many of GPO's internal jobs, including cafeteria menus, announcement sheets, and programs for events, were printed in the apprentice job room.



The apprentice job press room.



Feeding paper on a flatbed cylinder press.



Press check on one of the offset presses.



Apprentices were also trained as bookbinders. Here an apprentice operates a Cleveland folding machine.



An apprentice works at rounding and backing a sewn and glued bookblock, prior to its being secured in hardback covers.



GPO began marbling paper as a wartime expedient during World War I and has continued to this day. Here a bindery apprentice marbles the edge of a large volume.



Apprentices at work finishing fine leather bindings.



An apprentice stamps gold leaf lettering on the spine of a leatherbound book.



GPO produced a wide variety of lined and ruled paper and record books, as well as lined and ruled forms. Here an apprentice adjusts the pens of a ruling machine which applied the pale red and blue lines.



This group photo from the 1920s gives an idea of the number of apprentices in the program after Public Printer Carter's expansions.