COPPER PLATE PHOTOGRAVURE

DEMYSTIFYING THE PROCESS

DAVID MORRISH & MARLENE MACCALLUM

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Copper Plate Photogravure: Demystifying the Process

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Preface

The desire to write this book came out of our own experiences and struggles while learning photogravure. In the course of researching this wonderful process, we discovered that current comprehensive English language literature on the technique was scarce. It is our aim in producing this book to assist you in learning the complex process of photogravure, making it a little less mysterious and a little easier to master. We recommend that you read the entire text first. Then, before attempting each step, reread the appropriate chapter and have the outline of steps beside you in the studio.

As visual artists who also teach photography and printmaking in the visual arts program at Sir Wilfred Grenfell College, Memorial University's Corner Brook campus, we have always been interested in the printed image, especially one that uses the visual language of photography. We decided to learn the photogravure process for our own art practice. We are mainly interested in photogravure's unlimited potential for combining photographic fidelity with the surface quality and visual language of printmaking.

One of the things that we feel has helped us in our research is the fact that we have separate technical backgrounds—printmaking and photography. As artists we both have had some experience in each other's medium, but it is our collaboration that has made it possible for us to learn this complex process.

Living and working on the west coast of the island of Newfoundland is an experience that enriches our lifestyle and our art practice. In spite of our seemingly isolated location, we have made many connections with other artists from across Canada, the northeastern United States, and even Ireland and England. We really have no sense of isolation in that context, but we do feel alone in our practice as photogravure printers. In Canada you can count those who use this medium on your fingers and still have a few to spare. Luckily for us, there are many more practitioners in the United States and abroad, and the Canadian numbers are beginning to grow.

We decided to work with the traditional copper plate process because we found it malleable, responsive, and durable in nature. Therefore, in this book, we will limit the discussion to the traditional hand-pulled flat

plate photogravure on copper rather than the new photopolymergravure, which does not meet our personal requirements.

We started our technical research ten years ago. An early photogravure print distributed by *Aperture* (printed by Richard Benson) hangs on our wall: *Iris*, 1928, by Paul Strand. It has acted as our benchmark while we labored to match its subtle tonal variations and fine detail. We began to experiment but were soon frustrated by mysteriously insurmountable failures. At this point we realized that more historical research was needed. We sought out hard-to-find resources, the challenge being to weed out the useful from the misleading or vague, the obsolete from the classic. We compiled a bibliography of as many of the English and American manuals, treatises, and books on photogravure as we could still find. (See the Reference Bibliography.) After reading and comparing these sources, we were able to confirm our methodology to a point but were still stymied by inexplicable inconsistencies. The next step was to seek advice from current practitioners. But where were they? We contacted Jon Goodman, an expert photogravure printer who, amongst other things, prints portfolios for *Aperture* and *21st*. His telephone advice to two desperate novices was what was needed to make another leap forward.

A serendipitous discovery was that a symposium on photogravure was to be held at GraphicStudio at the University of South Florida in Tampa, Florida, in March of 1995. We felt that this opportunity should not be missed. David attended the symposium and witnessed first hand the working methods and actual prints of such accomplished senior gravure printers as Deli Sacilotto, Jon Goodman, Johan de Zoete, and Paul Taylor. There were many practitioners from all over the United States, with one or two each from Sweden, England, and Canada. This symposium provided first-hand information and helped us solve many of our problems. It was good to see that we were not alone. Above all else, it encouraged us by illustrating the dedication of those attending and the growth of interest in the medium. We resumed our testing and soon achieved even more successful prints. Encouraged, we arranged funding for an advanced, private workshop with Jon Goodman. He came to Newfoundland in the summer of 1995 and led us through the finer points of the process. This solidified our understanding of the etching process, the most crucial part of photogravure. When we resumed our research using this new understanding along with our own obsessive working methods, we were soon making successful prints with consistency and predictability. We had finally reached the point where we could call ourselves *photograveurs*. This book reflects the knowledge we have gathered from historical texts, contemporary practitioners in gravure and related fields, and our own testing and working methods. We wrote it in order to provide a clear and detailed methodology for the dedicated practitioner who wants to rediscover this wonderful image-making process.

David Morrish and Marlene MacCallum, 2003

Acknowledgments

We would like to thank everyone who has helped us along the long and tortuous path to learning the beautiful photogravure process and the equally tortuous path of putting together this book. Those who helped us bring this book to a higher level of usefulness deserve our utmost thanks. We thank Jon Goodman for his patience and advice and for sharing his in-depth knowledge of the process. Sandy King deserves our gratitude for the enormous amount of work he did adjusting his carbon printing tissue for use as gravure tissue. His chapter on making one's own tissue is a valuable inclusion in this book. In a very short time Richard Benson, Dean of the Yale School of Art, enabled us to re-evaluate our technique and showed us how to see a photogravure print in a broader tonal scale, allowing us to see beyond the usually dark tonal scale we work with. To those artists who shared their wonderful images and allowed them to be included in this book, we are greatly appreciative: Jon Goodman, Steve Dixon, and Lothar Osterburg. We wish to thank Suzy Taraba, University Archivist and Head of Special Collections, for her generous assistance in providing access to the Special Collections at Wesleyan University. Closer to home, we have always appreciated the amazing library assistance we have been given by Elizabeth Behrens, Associate University Librarian at Sir Wilfred Grenfell College. The chemistry staff and faculty at Sir Wilfred Grenfell College have been generous in so many ways. In particular, Dr. Geoff Rayner-Canham, Professor, Environmental Science (Chemistry), helped us decipher the chemistry of etching. We thank Memorial University's Office of Research for a Subvention Grant for additional color images within the text. Dr. Holly Pike, Associate Professor, English, gave us important assistance with writing, structure, and clarity in earlier drafts. Thanks for advice and information over the years go to Jon Goodman; Kent Jones, Professor in Visual Arts; and Dr. Geoff Rayner-Canham. Mark Katzman, a true believer in the beauty of photogravure, was most generous with his time and collection. For additional image assistance and access to their collections, we thank Steven Albahari from *21st*, Vincent FitzGerald, and Grant Ball. Ted McLachlan, Associate Professor, Landscape Architecture, University of Manitoba, our proofreader and process guinea pig, deserves many thanks. We also greatly appreciate the support and encouragement given by Diane Wurzel, Associate Editor at Focal Press.

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Introduction

What is a photogravure print? If you can imagine a photo-real mezzotint or aquatint print with the finest grain possible, you can get a fair picture of what a photogravure print might look like. Photogravure is the only intaglio process, other than the Woodburytype, that gives an apparently continuous tone image. It should be made clear that photogravure is not photo-etching. This latter process is made up of dots of ink on paper—a halftone pattern. The photo-etching resist is made up of tiny areas that are totally protected from the etch and areas that are totally exposed to the etch. There is no half-way, no migration of ferric chloride through gelatin, no smooth tones. Although it gives the semblance of tone, it is not a continuous tone process. There is often confusion with the terminology, especially when discussing photogravure with a Francophone printmaker. In French, *gravure* is virtually any intaglio process, and *photogravure* is used to describe what we call photo-etching in English. When describing photogravures to a European audience, it is necessary to use the local terms. In France or Québec, for example, it is *héliogravure*, and in Germany, *fotogravüre* or simply *gravüre*.

Photogravure is a photo-imaging technique that remains one of the most satisfyingly beautiful image-making processes. The rich depths and detailed tonalities of a photogravure print are unparalleled. It gives a combination of the best traits of both intaglio and photography on one archival support. The range of possibilities of ink color and paper qualities is endless. Unlike most other photo-imaging processes, copper plate photogravure allows the print-artist the opportunity to rework, adjust, alter, and present the image in unique ways. The potential for the physical alteration of the copper plate provides yet another realm of expressive variation. Besides the advantage of unlimited possibilities for interpretation of the image, the photogravure plate can be absolutely faithful to the information on the original negative. The subject matter and its treatment are as variable and broad as photography itself. When manipulated it can be transformed by the artist's hand into something unattainable by any other means. The hand-pulled, flat plate photogravure process was virtually abandoned by the latter half of the twentieth century due to its difficulty, impracticality, and expense.

Photogravures are now being seen more often as artists recognize their unique visual and tactile qualities in this digital age. The revitalization of the traditional photogravure print has been slow and arduous and requires the dedication of modern practitioners who appreciate its unique qualities.

Artists who have used copper plate photogravure as the final presentation of their work look upon the gravure print as a singular work of art, not simply a reproduction. Images are made with the gravure print in mind as their final form. It is a translation of the information in the original negative in the same way that, most often, the silver gelatin or platinum print is considered the final translation of the negative.

Photogravures (most often rotogravures) used in publication are different things. They arose from a need for the mass production of photographic images that were archival, or at least longer lasting than nineteenth century salt and albumen prints. They made possible the inclusion of images and text on a single page and have allowed high quality images to appear in print beginning at a time in history when halftones were inferior or nonexistent. Two other main advantages of rotogravures are the speed of production and the durability of the rotogravure cylinder. Since the nineteenth century, many images have been published using rotogravure or sheet-fed mechanized gravure (also called *mezzogravure*). The quality of these publications varies from poor to excellent, but more often than not, they exceed what one would normally expect of black and white half tone reproductions.

Is the hand-pulled copper plate photogravure process as difficult as many make it out to be? This book is an exploration of the technical processes involved in making a photogravure using currently available materials. Its purpose is to demystify and clarify what is ultimately a complex but altogether *do-able* photomechanical process. Anyone with dedication and some basic knowledge of photography and printmaking can hope to achieve respectable results. The information that follows builds on many of the English language texts printed since the 1890s. Not a lot has changed over time; even many of the specialized materials tend to be the same. Through experimentation, research, and practice we have sought to find the most practical and effective procedures needed to achieve the finest results. The text that follows is by no means definitive, but we hope it provides a solid grounding and a clear explanation of a process that deserves to live on.

A BRIEF DESCRIPTION OF THE PROCESS

Photogravure is a positive working photomechanical intaglio process. Making a photogravure can be described as a series of discrete stages: making the positive, sensitizing the gelatin tissue, making the gelatin resist, etching the copper plate, and, finally, printing the plate. Briefly, the steps are: A transparent continuous tone film positive—usually enlarged—is made from a camera negative, or, in the case of direct gravure, a drawing is made onto a translucent surface. To create an extremely fine pattern or texture, a hard-dot screen is exposed to a presensitized sheet of gelatin-coated paper (tissue), or an aquatint is applied to a polished copper plate. The positive is then exposed onto this gelatin tissue, which is then adhered onto the copper plate and developed

with warm water. After development, the gelatin resist is dried and the plate is etched in a series of ferric chloride baths, each bath being of a different density or Baumé. Once the etch is completed, the gelatin resist is removed from the plate. The plate is cleaned, inked, wiped, and printed on an intaglio press, transferring the image in ink onto paper.

From the original negative to the final print, there are five generations: negative, positive, gelatin tissue/resist, etched plate, and print. Each layer has its own subtle but distinct language by virtue of the materials and their handling. These layers can be used to transform the information on the negative (closer to a printmaking aesthetic) or used to create a true facsimile of the negative (closer to a photographic aesthetic or even photomechanical reproduction). The process is bracketed by stages that give the artist a range of aesthetic options: producing the negative and the positive, working the copper plate, and interpreting the image with ink on paper.

SAFETY ISSUES

The photogravure process involves various steps that can be harmful to those unaware of the potential hazard. The process as a whole, however, is relatively safe. The most dangerous toxic materials are: the sensitizing agent, potassium dichromate (which is required); powdered asphaltum; and powdered ferric chloride (both of which we suggest not using). Careful attention to safety is advised when working with any chemicals or solvents. Other substances used in photogravure and the printing of the plates are sometimes the cause of sensitivities and allergic reactions. Solvents and inks are commonly used by printmakers and have been discussed in manuals on printmaking safety. Ferric chloride is one of the least problematic mordants available when in solution. Nevertheless, all materials and equipment have their risks, especially when not used with caution and common sense.

See Appendix A for a list of safety considerations and advice. Please be aware that this advice does not pretend to be definitive and should always be researched further if you have concerns. The authors make no claims as to the safety or risk of using the materials and methods described in this book. We urge the reader to research these materials and practice appropriate caution when using any potentially harmful materials or equipment.

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1 A Brief History

ORIGINS

The medium of photography is evolving toward ever more immediate and ethereal images that often barely exist as digital data. The ease of reproducibility has increased and the scope of dissemination has become instantly global. It was not long ago, however, when photography was mainly a chemical process—an image formed on paper or, more recently, a plastic support. When photography was invented in the 1820s, the image-making process was even more physical. A unique image was etched onto a metal plate through an acid resistant layer. Joseph Nicéphore Niépce (French: 1765–1833) is credited with the first permanent photographic images using sensitized bitumen of Judea on a pewter plate—images that could ultimately be etched and reproduced as intaglio plates. He saw the potential of this process for quick, accurate reproduction of existing engravings (Figure 1-1). Niépce called these first successful photomechanical reproductions *heliogravures*. These prints, however, did not reproduce any of the smooth continuous tones we now associate with a photograph.

A partner of Niépce, Louis Jacques Mandé Daguerre (French: 1787–1851), developed his own version of the photographic process after Niépce's death. After the announcement of Daguerre's invention of the daguerreotype in 1839, the process was immediately tested in order to make the one-of-a-kind daguerreotype plate printable as photomechanical intaglio plates. Hippolyte Fizeau (French: 1819–1896) devised a method using aquatint, etching, and even electroplating to create a printable daguerreotype plate. Dr. Alfred Donné (French: 1801–1878) published details of his process in June of 1840 after patenting his method of etching daguerreotype plates. He displayed his pale prints from etched daguerreotypes to the French Academy of Science in the same year. His process utilized the natural grain and acid-resisting properties of the mercury amalgam that forms the highlights and light tones of the image to etch the silver plating from the open shadow areas on the surface of the plate. Dr. Joseph Berres of Vienna made darker and richer images from daguerreotypes. He attained a deeper etch by using solid silver plates and building up the highlights with varnish.

Figure 1-1 Niépce used a waxed line-engraving as a positive and exposed it onto a pewter plate so it could be etched and printed. (Drawn after an image of the original of 1826.)

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William Henry Fox Talbot (English: 1800–1877) is credited with the development of negative/positive photography. He made multiple positive prints from the paper negatives he produced in his "mouse-trap" cameras. In 1844, Talbot was the first to publish a book illustrated with photographs. *The Pencil of Nature* contained actual tipped-in salt prints, which, much to Talbot's dismay, proved to be impermanent. He sought another way of making a more stable photographic image. The well-established fact that ink on paper was permanent led him to explore the idea of photographically producing etched plates that could be printed. In 1852, Talbot found that normally soluble colloids such as gum arabic, albumen, and gelatin become insoluble when mixed with potassium dichromate and exposed to light. Utilizing this hardening or tanning effect, Talbot developed an etching resist over which he used a screen of black crepe to help

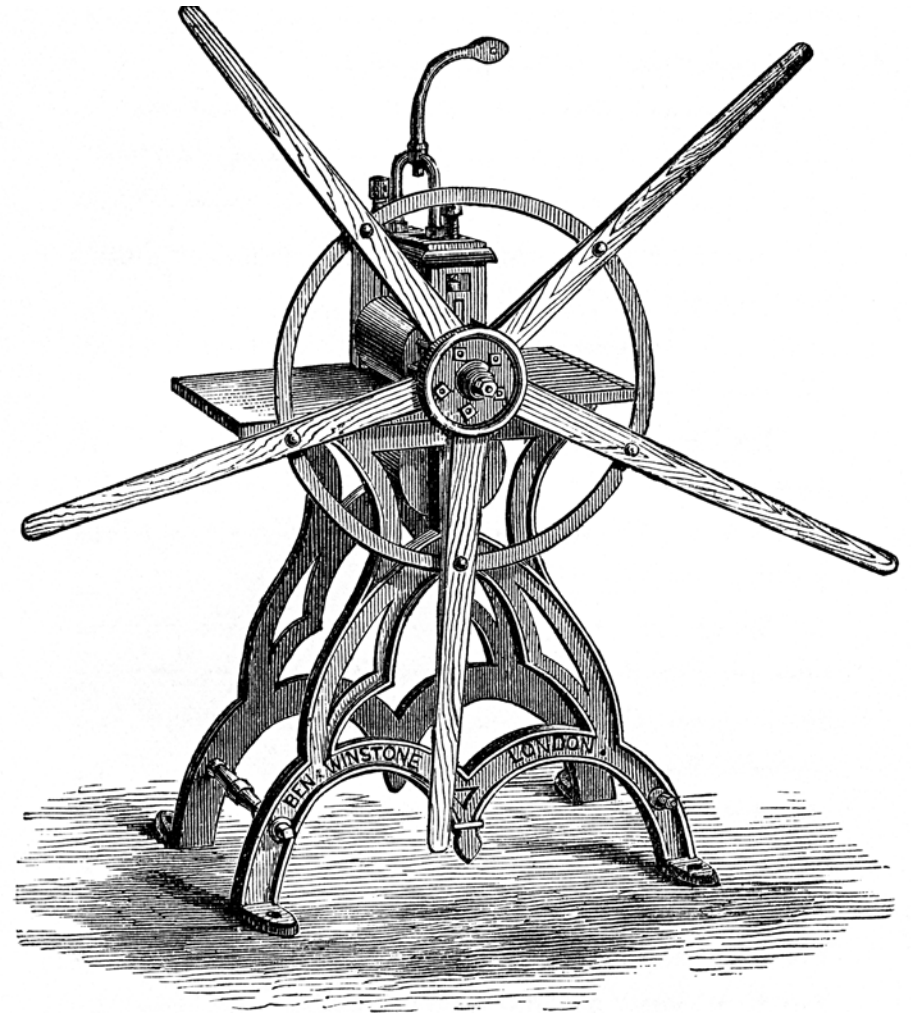

Figure 1-2 Henry Fox Talbot used an intaglio press very much like this late 19th century press.

Illustration by W. L. Colls, © Iliffe & Son, London, 1890.

with the translation of tonal values in the etched plate. This negative screen (a network of crossed lines) is the forebear to the positive screen used in modern rotogravure. Talbot's *photoglyphic engravings* are sharp and detailed but lack the smooth gradation of tone associated with other photographic representations, including his own calotypes (Figure 1-2). He continued to improve on his technique as he moved from iron plates to copper and etched with ferric chloride instead of platinum chloride. He also etched with three baths and greatly improved the tonal scale on later tests. He felt the resulting prints were well suited to book illustration and had good commercial value (Buckland 1980, p. 114).

In 1855, Alphonse Louis Poitevin (French: 1819–1882) patented the first carbon process, in which he added carbon black to the colloid (gelatin) and dichromate mixture and coated it on paper. Again, the image left on the paper was formed by the insolubility of the exposed gelatin (Crawford 1979, p. 70). By 1856, eight different carbon processes were announced, but none were capable of capturing a full and gradual tonal scale. After numerous failed attempts, Joseph W. Swan (English: 1828–1914) solved the tone

reproduction problem in 1864 when he and John W. Sawyer patented their version of carbon-gelatin tissue and the carbon transfer process. Adolphe Braun of Dornach (Alsace) bought the rights to this patent and began publishing carbon transfer reproductions of paintings and Old Master drawings (Crawford 1979, p. 72). In 1858, Talbot changed his process by adding a rosin aquatint to the surface of the exposed gelatin prior to etching the plate. This was then etched with ferric chloride through the underlying bichromated gelatin layer. He was able to obtain richer plates with more tonal graduation due to the delicate grain (Mertle and Monsen 1957, p. 325).

Early printers were driven to search for a more permanent image-making process due to the impermanence of silver-based images such as salt and albumen prints. There was also a need to reproduce photographic images, either as independent entities or as integral parts of publications. The fact that printing ink on rag paper was archival was key to those who tried to perfect the photogravure process.

Charles Nègre (French: 1820–1880) produced the first published reproduction of a small "proto-photogravure" within a page of text in 1854 in *La Lumière*. From 1856 to 1867, Nègre was competing in a drawn-out competition sponsored by Honoré d'Albert, duc de Luynes for the best way to reproduce an image in a totally mechanical way. Nègre had to submit a sampler showing a range of textures and tonalities. His gravure submission came in second to Poitevin's winning planographic entry because the jury suspected Nègre used hand-work on his plate and because his process was slow and complicated. Nevertheless, the Duc de Luynes appreciated Nègre's work and commissioned him to produce a large work called *La Mer Morte* (started in 1865 and completed in 1868). Nègre also produced large-scale architectural studies of the restoration of Chartres cathedral using his gravure-based process. Although very detailed and richly printed, these images were not like modern photogravures in their technique nor their tonal range. They lacked the smooth transitions from one tone to another. Some examples seem almost posterized. They were also heavily retouched. Façades were lightened, shadows were opened up with hand work, and skies were added in a painterly fashion. A key difference in the technique was that the images were printed from steel plates rather than copper. Steel plates have a self-graining effect when etched, eliminating the need for an aquatint. In contrast, the copper plates used for classic photogravure require the application of a dust-grain aquatint in order to maintain tone.

Although these developments formed the foundation of modern photogravure printing, the process as we know it today was actually devised in 1879 by Karl Wenzel Klič (Karel Václav Klitsch) (Czech Republic then Arnau: 1841–1926). Utilizing an asphaltum aquatint under the sensitized and developed gelatin-coated pigment paper resist, he combined Talbot's etching procedure with these new materials to produce a true photogravure print. Klič's procedure differed from Talbot's in that the resinous powder was applied directly to a copper plate and then covered with the sensitized carbon tissue. The Talbot-Klič process of photogravure was born. After this point, the production of hand-pulled, flat plate photogravures continued to improve slightly using a technology that has not appreciably changed since its invention.

The main commercial development was the advent of rotogravure, a mechanized commercial process invented by Klič and mastered as early as 1890. Rotogravure is still used today by the printing industry. For the

purposes of this text, and the discussion of photogravure as an artist's medium, we will not address the particulars of rotogravure.

ARTIST-PRACTITIONERS

Historically, the photogravure process as used by printers and publishers was determined by the balance between image quality and production economy. Meanwhile, artists wanted to reproduce their work by capitalizing on photogravure's inherent aesthetic qualities. Most had previously worked with platinum, albumen, or silver-gelatin. The photogravure print more closely resembled a mezzotint than a halftone and therefore had more cachet as a fine print when included in a publication. It was clear that no other reproductive medium could come as close to the artists' aesthetic vision. The appreciation of the malleability of the medium superceded its amazing verisimilitude and soon artists were using photogravure to express themselves in ways that traditional photographic means could not. Many photographers became printmakers when they realized this potential.

Peter Henry Emerson (American working in Britain: 1856–1936), the preeminent figure of the *naturalistic school* of nineteenth-century photography, created many publications that utilized photogravure to echo his atmospheric platinum prints. His pale, low-contrast, but fully toned images were reproduced with photogravure more and more successfully from one publication to the next. *On English Lagoons* (1893) was printed by Emerson from plates he etched himself. *Marsh Leaves* (1895) was his last self-produced album of gravure prints. In his book *Naturalistic Photography* (1889), Emerson states his preference for photogravure over other photographic media, including platinum prints. He states that it is the ideal medium with which to present pure photography because of the flexibility of choice in ink and the range of available papers (Coe and Haworth-Booth 1983, p. 100). *The Compleat Angler, or the Contemplative Man's Recreation. Being a discourse of Rivers, Fish Ponds, Fish and Fishing written by Izaac Walton, and Instructions How to Angle for a Trout or Grayling in a Clear Stream by Charles Cotton*, was reprinted in its 100th edition in 1888 by the publisher/editor R. B. Marston. This two-volume publication contained 54 photogravure illustrations on special India paper, of which 27 were by Emerson. Emerson made the original negatives along the Lea River in the spring of 1887. The resulting publication was an outstanding example of Emerson's aesthetic and skill (Figure 1-3 and Color Plate 1).

In 1968 and again in 1877, before *Pictorialism* became the dominant aesthetic posture of artist-photographers, Thomas Annan (Scottish: 1829–1887) was commissioned by the Glasgow Improvement Trust to photograph the closes, wynds and buildings slated for demolition in the city center. *The Old Closes and Streets of Glasgow* was first published as carbon prints but was republished in 1900 as *Old Closes and Streets, a Series of Photogravures, 1868–1899*, in two editions of 100, each containing 50 photogravures, some of which were heavily manipulated (Figure 1-4). Annan's work stands out for its rich clarity and skillful printing by James Craig Annan (1864–1946), Thomas Annan's son. James Craig was the printing firm's expert on photogravure, having been tutored in the process by Klič himself (Crawford 1979, p. 250). J. C. Annan's own work appeared in a portfolio entitled *Venice and Lombardy: A Series of Original Photogravures*, published in 1898 in an edition of 75 copies (Figure 1-5).

Figure 1-3 Peter Henry Emerson. *The Old Rye House Inn*, Plate XV (12.7 × 19.5 cm) from Volume One of the 100th edition of Izaak Walton's *The Compleat Angler*, 1888.

Photo by Mark Katzman, Ferguson and Katzman. From private collection.

He is also credited with the reappearance of many of David O. Hill and Robert Adamson's calotypes in both gravure and carbon. J. C. Annan was a member of the Linked Ring in Britain and a friend of Alfred Stieglitz (American: 1864–1946). Annan's work was featured in Stieglitz's *Camera Work*, some of the photogravures being of Annan's own images.

The first notable 20th century publication to use photogravure at the highest artistic standard was Alfred Stieglitz's periodical, *Camera Work*, which was introduced in 1903 and was published until 1917 (Figure 1-6). Of the 544 illustrations published in the complete run of *Camera Work*, 416 were printed using copper plate photogravure. Many of the images were atmospheric and, in early issues, quite pictorial in the treatment and technical application of the medium. This seemed in contradiction to the photo-secessionist mandate. Later issues were increasingly *straight*, with a sharper formal emphasis. From the start, each issue was complex and multi-layered. The gravure images were often printed on thin Japan paper and backed with colored papers that showed through (see Color Plate 2). Few of the featured photographers were skilled practitioners of the photogravure process, with some exceptions. Alvin Langdon Coburn's (American, Naturalized British: 1882–1966) own photogravure work was featured in Stieglitz's *Camera Work*. Coburn also presented his work in all forms of gravure, from the 83 plates he personally etched and steel-faced from 1909–1914 to a rotogravure supplement in *Pall Mall* (Weaver 1986,

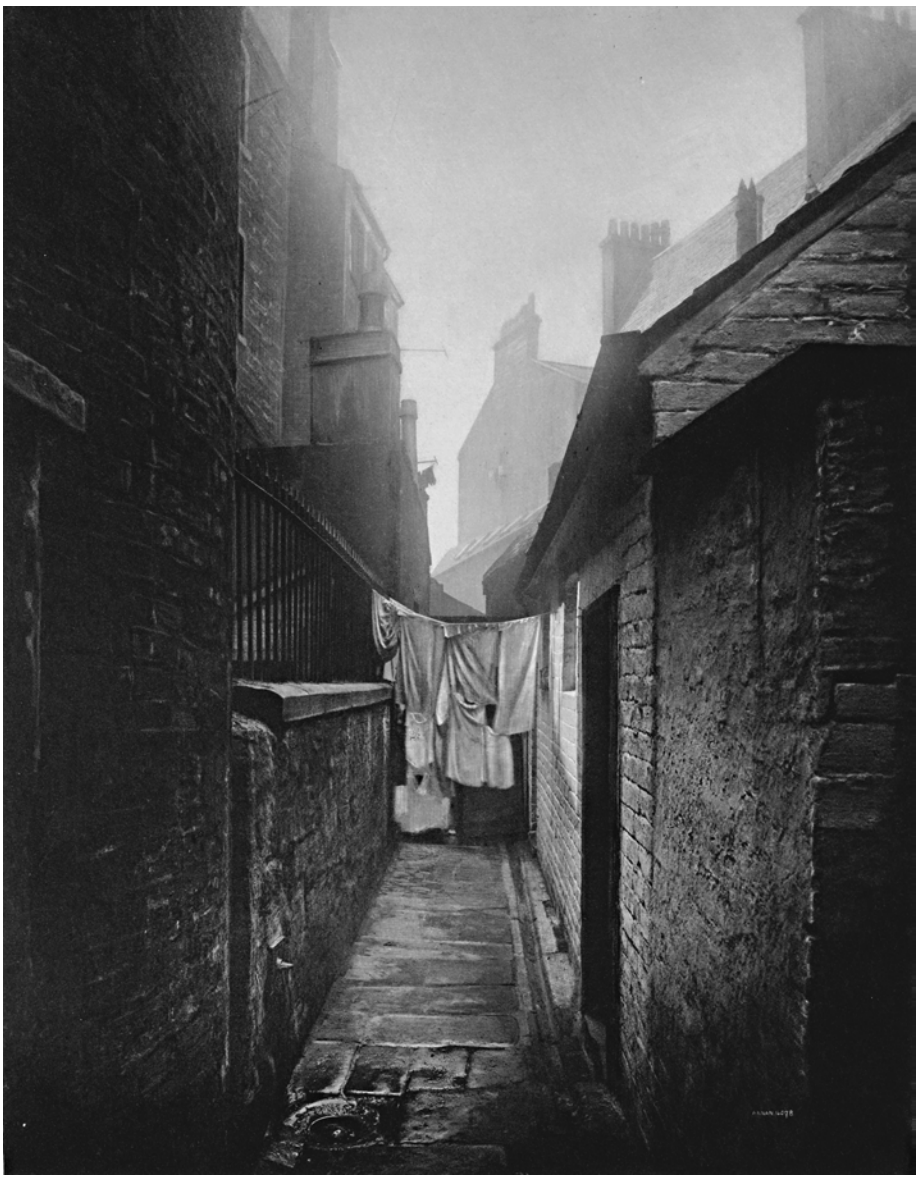

Figure 1-4 *Close No. 11 Bridgegate, 1897* (21.6 × 17.1 cm). Plate from *Old Closes and Streets, a Series of Photogravures, 1868–1899 by Thomas Annan.* Note the evidence of retouching.

Photo by Mark Katzman, Ferguson and Katzman. From private collection.

pp. 48–49). Publications such as *London* (1909), *New York* (1910), *The Door in the Wall and Other Stories* by H. G. Wells with gravure images by Alvin Langdon Coburn (1911), and *Men of Mark* (1913) are fine examples of his talent and skill (Figures 1-7 and 1-8). Both the contrast and somewhat coarse grain of his images are evident in his photographs and in his gravures and are typical of his evolving aesthetic at the time. The photogravures within these publications and in *Camera Work* are often surrounded by a dark gray aquatint band about 5 mm wide (much wider on the bottom). They are bleed-trimmed to this edge and tipped onto heavy paper of various shades and hues of marbled gray (see Color Plate 3).

A magnificent example of twentieth century photogravure and bookbinding, especially in its elegance and scope, was produced by Edward

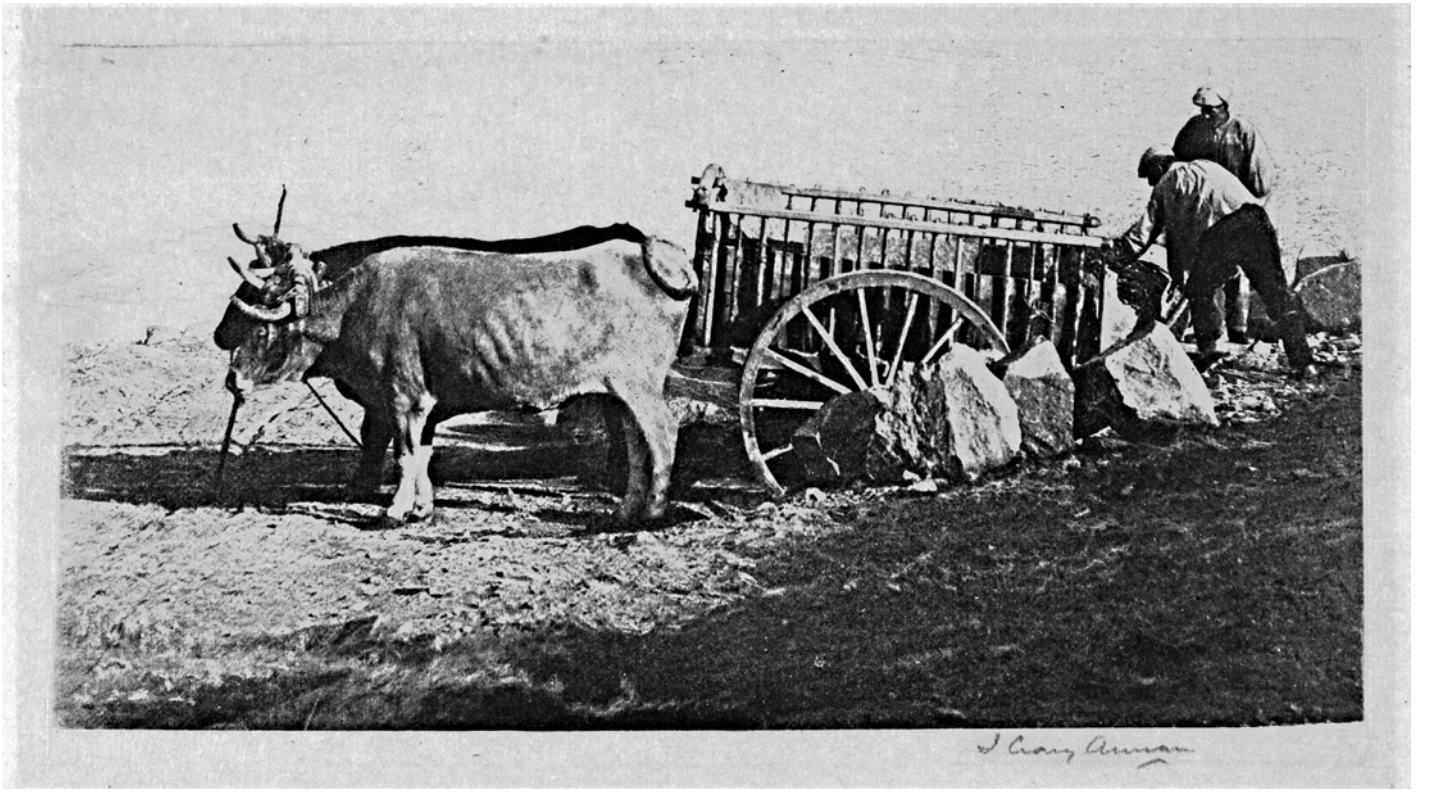

Figure 1-5 James Craig Annan. *Bullock Cart, Toledo*, n.d. (11.5 × 20.4 cm).
Photo by Mark Katzman, Ferguson and Katzman. From private collection.

Sheriff Curtis (American: 1868–1952). His treatise entitled *The North American Indian* was printed in an edition of 500 leather-bound, 20-volume sets with 1500 photogravure plates bound in (see Color Plates 4 and 5). Each volume is made up of an equal number of pages of text and full page photogravures. Each gravure is just under 20 cm × 25 cm (8″ × 10″) and is printed in sepia or a rich chocolate brown. Volume I was introduced in 1907, Volume X was published in 1915, and Volume XX finally appeared in 1930. Along with these bound volumes were companion portfolios of larger, loose gravures of 722 supplemental images in the same volume divisions. These larger photogravures were up to 46 cm × 56 cm (18″ × 22″). The subject matter is often treated in a pictorial style in spite of the sociological or anthropological tone of the text. This style appears to evolve from one volume to another as pictorialism gained and then lost favor between 1907 and 1930.

Examples of the finest publications of photography are found in Andrew Roth's *The Book of 101 Books: Photographic Books of the Twentieth Century* (PPP Editions with Roth Horowitz, LIC: New York, 2001). It notes how some of the featured publications from Coburn, Curtis, and Doris Ullman were printed in hand-pulled grain gravure, whereas others by Brassaï, Man Ray, Eugène Atget, Karl Blossfeldt, Henri Cartier-Bresson, William Klein, Helen Levit, Eikoh Hosoe, Robert Frank, Bill Brandt, and many more were printed in rotogravure. This text catalogues the most important photography books of this century and it is

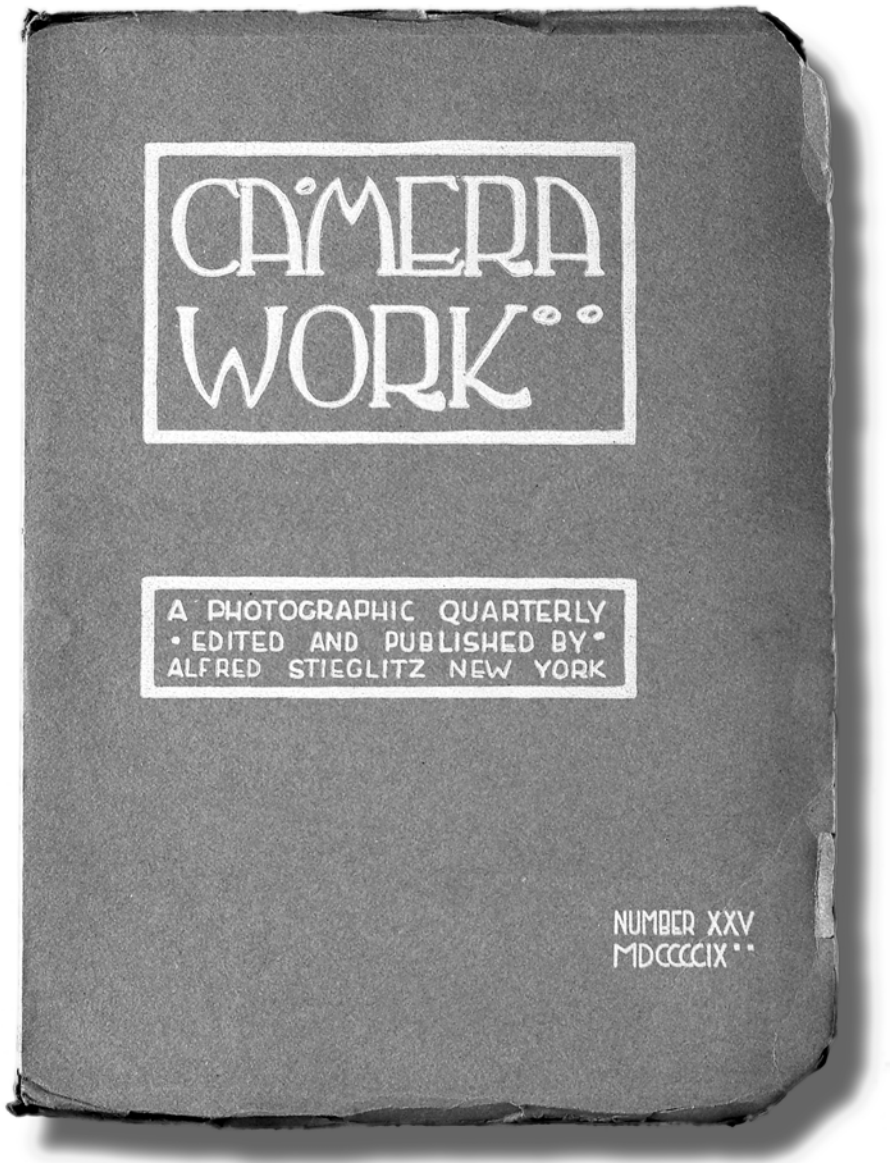

Figure 1-6 Cover of *Camera Work* (30.5 × 21.6 cm).
Photo by Mark Katzman, Ferguson and Katzman. From private collection.

no surprise that photogravure played an important role in the production of so many high quality publications.

Paul Strand's (American, Naturalized French: 1890–1976) *The Mexican Portfolio* is one of the most powerful mid-century collections of fine photogravure. It was first published by Virginia Stevens in an edition of 250 as *Photographs of Mexico* in 1940. It was printed by Charles Furth of the Photogravure and Color Company. The second edition was reissued as *The Mexican Portfolio* by DeCapo Press in 1967 in an edition of 1000. It was hand printed with great skill by Albert DeLong of the Anderson Lamb Company of Brooklyn, New York. Strand thought that this second edition was superior to the first even though both were printed by the most skilled gravure printers alive at the time (Crawford 1979, p. 251). The flawless images are rich and extremely detailed (see Color Plate 6).