

THE MAKING OF MODERN ART GLASS

by April Kingsley

Two divergent tendencies emerged in glassmaking in the years between the wars and both led to the future. One put a new spin on the guild tradition to give us modern industrial design; the other drew on the holistic tradition of the independent craftsperson to provide the basis for what would become known as the Studio Glass movement. European modernism provided the initial impetus for change in the field and shaped the developmental course of both industrial glass design and studio glassmaking. While not a cohesive concept or “look” in Europe, where it encompassed everything from the late Cubist excesses of Picasso to the rigorous linear discipline of Piet Mondrian, once it made America its home, modernism found its identity in craft as it did in all of the arts.

Louis Comfort Tiffany’s studios epitomized the Arts and Crafts movement in America, while controverting its emphasis on the unique artist-crafted object. Indeed, the guild tradition of team-crafted production in a factorylike setting probably held on longest in glassmaking because the process necessitated handwork; and yet no single pair of hands could complete the entire process. The heavily embellished Art Nouveau look of the more luxurious Arts and Crafts objects, many of which were still produced by the Tiffany studios in the 1920s, was, however, on the wane. The curvilinear complexities of Art Nouveau simply did not speak to flappers in the fast lane, with their bobbed hair and streamlined sports coupes. Fine work was still being done in his factory, but Tiffany’s trademark iridescent glass was being challenged by that produced in other, more commercially viable companies such as Steuben Glass Works. In 1920 the Tiffany Foundation established a school at Laurelton Hall, Tiffany’s Long Island estate overlooking Oyster Bay.¹ The mandate of this “art institution,” as it was called, was “art education directed toward both art appreciation and production, within the scope of industrial as well as the fine arts.”² The school did not, however, make any significant inroads into educating craftspeople in innovative ways, or establish new criteria for the collaboration of art and industry.³ Rather, Tiffany continued to cater to the elite, breaking no new ground in design for mass production and therefore failing to reach a larger market. The firm was sold in 1928.

Frederick Carder of Steuben had been Tiffany’s strongest competitor since his arrival in the United States in 1903.⁴ Carder had been lured to Corning, New York, from a successful career at the Stevens and Williams glassworks in Stourbridge, England, by Steuben glass engraver Thomas G. Hawkes. Hawkes wanted

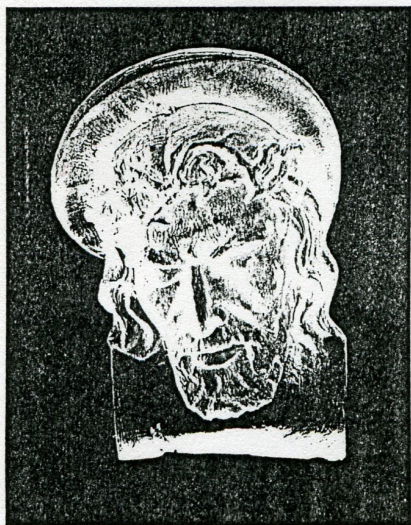
a glass manufacturer of his own to provide the necessary blanks for his engravers, and Carder managed this with ease.⁵ He quickly set about experimenting with colored and iridescent glass, patenting one of them, Aurene, by mid-1904.⁶ A scientist at heart, fondly mixing chemicals and powders in his lab, Carder drew inspiration from the entire history of glass, and the results were quite eclectic.⁷ His wholly experimental approach to colored glass enabled him to keep it commercially viable until the 1930s. From the Tiffany-like Aurene wares he moved on in the 1920s to the Intarsia series—color abstractions cased between two layers of clear crystal.⁸ Inspired by the Graal glassware developed at Orrefors in Sweden, the exquisite craftsmanship of one particular eighth-inch-thick Intarsia vase established it as a masterpiece in the history of glass.

Carder could design for, or work in, the entire panoply of glass techniques, from *pâte de verre* (glass paste fused and hardened by firing), *milleflore* (flower-like patterns formed by fused bundles of colored glass rods), and *cire perdue* (lost-wax casting), to the myriad possibilities of blown glass, including opalizing and marbelizing, acid etching, and the incorporation of mica and air bubbles within the glass.⁹ A sparkling Cintra cologne bottle (1927–31), with a bubbled core cased in colored heavy crystal with threadings and massive cutting, is a sculptural tour-de-force with jewel-like faceting and strong allusions to Art Deco and contemporary French glass. Carder ostensibly disdained Deco, yet in pieces like the *Six Prong Green Jade Vase* of 1930 he handled the style as if it were his own. Carder was among the members of trade organizations and art guilds who viewed the Paris Exposition Internationale des Arts Décoratifs et Industriels Modernes in 1925 at the behest of the Hoover Commission of the United States Department of Commerce. In his report to the commission he commented specifically on Maurice Marinot's thick-walled, bubble-permeated bottles, which may well have been the design source for Carder's Cintra cologne bottle and other heavily etched glass works of the late 1920s.¹⁰ In any event, he seems to have accepted the commercial viability of *art moderne*. In the late 1920s he also produced architectural glass panels with Art Deco designs.

Between 1903 and 1932, Carder introduced over 8,500 designs and 140 colors to glass. In the early 1930s, however, colored glass began to go out of favor. In 1932 Corning Glass Works, which had incorporated Steuben during World War I, brought in design consultant Walter Dorwin Teague, Sr., to test some new,



Frederick Carder designing engraved decoration for a goblet, c. 1930



Frederick Carder. *Head of Christ*. 1934. Lead crystal; *cire perdue*, height 15¼". The Rockwell Museum, Corning, New York

more modern-looking designs. The following year, in a successful "palace coup" staged by Arthur Amory Houghton, Jr., the new young director of Corning, Carder was relieved of his design duties, and Houghton proceeded to revolutionize industrial glass design in ways to be discussed later in this essay.

In recognition of his three decades of service to the company, Carder was given space in a little-used Steuben factory building for his own experiments. Then age sixty-nine, but undaunted, he promptly installed a gas kiln and an electric oven for melting glass, establishing a one-person glassmaking studio. Here he would work happily for the next twenty-seven years, initially concentrating on a series of important cast-glass sculptures and reliefs. Among the first was a *Head of Christ* (1934), cast in uncolored glass from a plaster Carder created in 1933 upon hearing that Corning had purged its stockrooms of his now unfashionable colored glassware in a highly symbolic smashing session.¹¹ (While sculpting the head, Carder is said to have announced, with obvious double meaning, "This is a crucifixion."¹²) Carder also made portrait heads, bas-reliefs, and cast-glass sculptures such as the *Standing Glassblower* of 1937, with its echoes of Greek pipe-playing figures of Pan. Carder's works in *pâte de verre*—a technique that dates back to ancient Egyptian times—are likewise both modern in appearance and historically resonant. According to glass historian Paul Hollister, "Frederick Carder understood intuitively how *pâte de verre* could be applied to enhance *cire perdue* casting. His 1930s *Dancing Faun* panel shows the beautifully modelled figure, faun, and foreground in marble-white relief against a grainy green background like a hedge."¹³ Starting in the 1930s, Carder took *cire perdue* glass casting to previously unheard of degrees of complexity with his Diatrete "cage" cups.¹⁴ It wasn't until the 1950s, when he was in his nineties, that he perfected a method of casting double-walled glass cups like the Roman cut-glass beakers he was emulating.

Though their scale of ambition was quite a lot smaller, the precursors and role models of the Studio Glass movement in the United States were independents like Carder (after 1933), Maurice Heaton, Waylande DeSantis Gregory, and Frances and Michael Higgins, all of whom came to glassmaking through ceramics, enameling, or some other artform, and who melted glass at home in their studios.¹⁵

Heaton was the third generation in a family of glassmakers. His grandfather had been a manufacturer of Gothic Revival stained glass in England, and his father was a cloisonné enameler who had been swept up in the Arts and Crafts movement. Upon moving to New York, his father established a stained-glass studio, in which Maurice worked after briefly studying engineering. Maurice found his niche in 1928, when, at the suggestion of his friend, textile designer Ruth Reeves, he began creating glass lamp shades as well as laminated glass walls and window decorations. He and Reeves, Donald Deskey, Raymond Hood, and Joseph Urban were among the artists involved with the American Designers' Gallery, a Manhattan cooperative formed to promote its members' work in a midtown showroom. As a result of that exposure, the Lightolier company commissioned Heaton to design a special line of handcrafted fixtures for them that did not appear in their catalogues. Heaton often created lighting fixtures for friends and acquaintances in the New City-area artists' colony such as Maxwell Anderson, Burgess Meredith, Henry Varnum Poor, and Rube Goldberg.¹⁶ He later branched out into tableware with glazed and enameled undersurfaces, thereby bringing his grandfather's and his father's influences full circle.¹⁷

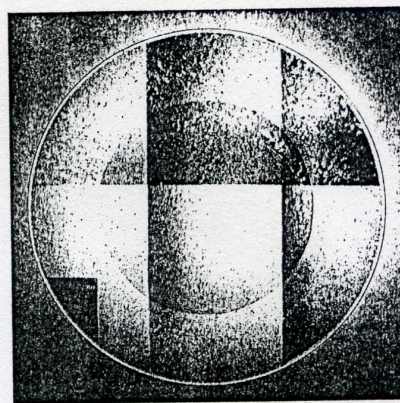
Heaton adapted his technique from stained glass and continued to use the flat sheets of bubbled glass called for in stained glass. For a work like the shallow bowl of 1930 in the collection of The Metropolitan Museum of Art, he would

apply vitreous glazes, fusing them to the glass sheet through firing. Then a white glaze was applied, which silhouetted the colors when the sheet was slumped over an inverted, and customarily convex, mold; when turned upright after cooling, the plate or bowl would be concave and the white would appear to be beneath the color. Powdered enamels, which he would sift through templates placed on the flat glass using tiny sieves, replaced the glazes sometime in the 1940s. Working on a see-through turntable, Heaton cut the glass and ground its edges before the colors were applied. Whereas the glazes changed color and flowed together when fired, creating a freer, more painterly look like that of the "plaid" plate in the collection of the Metropolitan, the enamels fired hard and unchanged in color. The steel molds over which he slumped the finished glass sheet were made by hand, and at least two shapings of the glass sheet and readjustments of the mold were required before he achieved the result he wanted.¹⁸ It was a complex process that yielded mysterious objects of deceptively simple appearance.

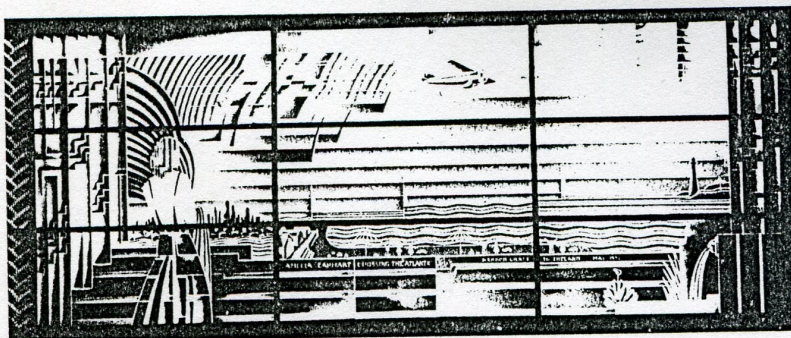
The working structure Heaton evolved has the labor-intensive, long-term continuity that became the archetype for the American Studio Craft movement. The lifestyle surrounding it was archetypal as well; other craftspeople of Heaton's time, including Henry Varnum Poor, Wharton Esherick, and Waylande Gregory, to name only a few, led lives similarly picture-perfect in their fusion of home life and career. A visitor to Heaton's studio in Valley Cottage, New York, later wrote: "Maurice Heaton believes that it is better to be happy in one's work, as a craftsman can, than to be regimented. Something of the good life he and his family lead shines through in the soft whites and delicate enamel tones of his glass. His eleven-acre farm just west of the Hudson River has meadows where sheep graze, a pine grove . . . , a weathered barn converted into a great studio with a tremendous cathedral-like window at one end. He built his house himself, a house that has brownstone masonry and a beautiful brick terrace . . . , a patriarchal dining table well-laden with home grown food and surrounded by a large family."¹⁹

Heaton's definition of his calling has a similar purity: "Craftmanship to me is the making and designing of a useful and beautiful object in one creative operation. Whether, in the making, machines are used as tools, or the hand is used with tools, is of no importance. Whether, in the duplication of objects, part or even all of the work is done by apprentices is of no importance. As one craftsman said to me, you 'borrow hands' and train them to do what your own hands would do. The important thing is to create in the material."²⁰ Despite his obvious preference for "hands on" craftwork, Heaton did complete several commissions for murals and windows. The largest of his commissions was the seven-by-fourteen-foot fused, laminated glass mural honoring the achievements of Amelia Earhart that was a prime attraction in Radio City's Center Theatre, until it vanished during preparations for the building's demolition.²¹

Waylande Gregory, well known for ceramic sculptures such as *The Fountain of the Atom* created for the 1939–40 New York World's Fair, had his studio in a



Maurice Heaton. *Plate*. c. 1930. Glass, diameter 9 $\frac{1}{2}$ ". The Metropolitan Museum of Art, New York. Gift of Maurice Heaton, 1979 (1979.194)



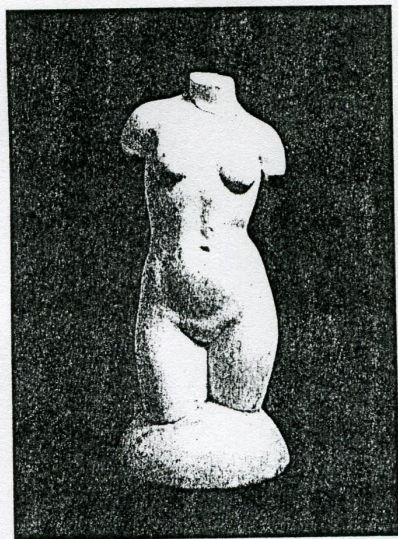
Maurice Heaton. Amelia Earhart mural (now lost), Radio Center Theatre, New York, 1932

bucolic setting on the side of a New Jersey hill overlooking a beautiful, undeveloped valley. It was there in the early 1940s that he developed and patented a method of binding glass to clay. In these utilitarian bowls and ashtrays, thickly pooled glazes and sharp, light-refracting shards lie beneath a perfectly smooth glass surface, which Gregory termed "internally fractured glass."²² Pieces of glass are actually embedded in the underlying clay of the *Mermaid Crystal Bowl* and *The Airman*, both made about 1942. The large *Mermaid Bowl* (c. 1940) in the collection of the New Jersey State Museum in Trenton, however, is all glass and was painted before firing. As these varied techniques indicate, Gregory took a highly experimental approach to glazing, even using uranium to achieve unusual color effects.²³

After their marriage in 1948, Frances and Michael Higgins left the academic world to work independently "in a medium then barely touched anywhere."²⁴ Except for a later-regretted stint of adapting their designs to utilitarian tableware for Haeger Potteries, they have been creating glass art objects, jewelry, and architectural commissions ever since. It was "a precarious living, producing and selling fused, enameled glass in all forms from earrings to screens and church windows,"²⁵ but it provided one of the earliest models for the incipient Studio Craft movement in America. Georgia-born Frances taught craft and design at the University of Georgia in Athens, where she began heat-shaping glass in 1942. She has re-created the first piece she ever made in this medium for the current exhibition, using the original mold. Michael had emigrated from England in 1938 and was teaching visual design at the Institute of Design in Chicago in 1947 when Frances went there to study. After their marriage, their joint experiments with laminating metals and glass in intricate overlays introduced wholly new techniques and types of glass to the craft world.²⁶

Makers of paperweights and other "lampworkers"—glasscrafters using gas burners or blowtorches to work glass—also had been busy in their studios for decades before Paul Perrot directed public attention to them in his 1960 *Craft Horizons* article "New Directions in Glassmaking." The situation he described then was actually that of Carder, Heaton, the Higginses, and other glassmakers in the 1930s and 1940s: "Contemporary technology, which has made easily available pure and consistent raw materials and dependable, inexpensive sources of fuel, has for the first time permitted the craftsman to go it alone, or almost so. Fuel is as far as the nearest gas jet, materials as close as the nearest wholesaler. Furnaces can be built with standard refractories; molds and pots can be thrown from readily available clays; and the total investment need be little more than for a good pottery kiln."²⁷

Harvey K. Littleton was a member of the Corning "family."²⁸ His father, Jesse Littleton, was director of research and the developer of Pyrex, and young Harvey worked in different areas of the factory during his summer vacations. As an adult he remained attached to Carder in particular, visiting him whenever he returned to the area, though by the 1940s he was primarily a ceramist and remained one until the 1960s. Although Littleton used the facilities at Corning to cast his first multiform glass *Torso* in 1942, and again in 1946, when he cast a second torso, he became more and more anxious to prove that a glass artist could work independently of a factory. None of Frederick Carder's procedures involved working with hot glass, blowing it, adding to it, or shaping it outside the oven. This is probably the reason Littleton modeled his idea of a personal glass studio on the small workshops established in Paris by Jean Sala, and in Murano, Italy, by a number of Venetian glass artists, rather than on Carder's studio. Littleton did not melt glass in his own ceramics kiln until 1958 and did not blow "hot" glass until March 1962, during a week-long workshop sponsored by The Toledo Museum of Art that is



Harvey K. Littleton. *Torso*. 1942. Slip-cast Vycor multiform glass; fused, height 11¼". The Corning Museum of Glass, Corning, New York. Gift of Mr. and Mrs. Fred A. Bickford

now famous as the beginning of “solo” hot glass. Michael and Frances Higgins were the only other glassworkers at the seminar, the rest of the attendees being ceramists like Littleton. Dominick Labino, director of research at Johns Manville, set up Littleton’s small pot furnace and provided special low-melting, long-working glass marbles he had developed. These two factors were essential to the project’s success. Glassblowing instruction was provided by Harvey Leafgreen of the Libbey Glass Company.

Littleton shared with his colleagues the desire “to show that the individual craftsman working alone could melt decent glass and handle the technical aspects of blowing it and annealing it without being born in the industry and without going through an arduous apprenticeship”²⁹ Yet in a certain sense glass can only be a one-person product if it is relatively small and technically uncomplicated in the hot phase. Even the European models he used were two-man demonstration set-ups, and everyone needs assistance working hot glass of any considerable size or high level of ambition.

Simultaneous with these beginnings of the studio glass movement, a glorious, final efflorescence of factory art glass occurred in the 1930s. Following the successful “palace coup” of 1933 and the ouster of Frederick Carder, Steuben Glass entered a new phase of streamlined industrial design geared toward a broader, but discriminating, market. This “revolution of industrial design”³⁰—its beginnings symbolized by the smashing of Carder’s outmoded glassware—would ultimately result in the association of modernism with things American in the world’s mind.

The hiring of Walter Dorwin Teague by Steuben’s parent company, Corning Glass Works, in 1932, was among the opening salvos of the revolution. During his one-year consultancy Teague designed over thirty sleek, modern-looking glassware patterns, among them, the elegant, stepped *Lens Bowl* of clear crystal. He also offered solutions to the division’s production and sales problems, outlining advertising and image strategies calculated, as he put it, “to establish Steuben as the finest glassware in America, worth all we ask for it. I believe we can make the ownership of Steuben glass one of those evidences of solvency—like the ownership of a Cadillac . . . or a house in the right neighborhood.”³¹ In a policy memo of 1932 Teague outlined what would become Steuben’s motto, the “Steuben Trilogy”: material, workmanship, and design.³²

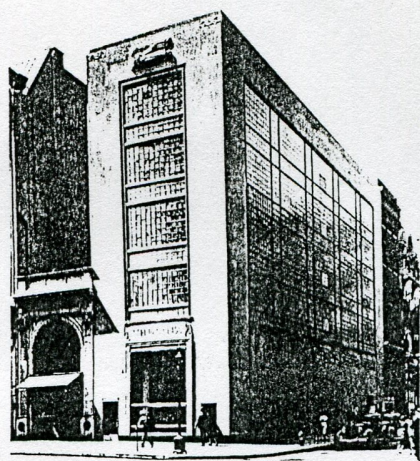
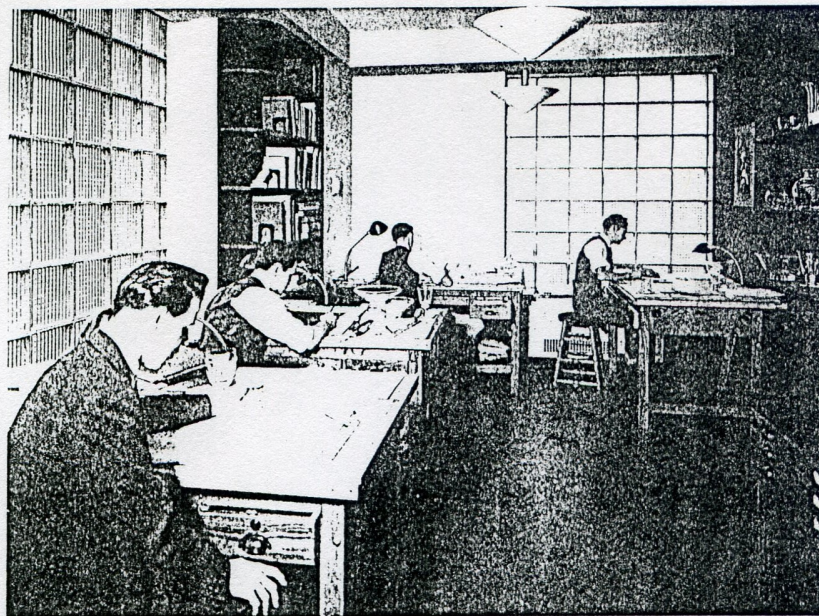
These three elements came together in 1933. First, Steuben’s researchers developed a perfectly clear crystal, with no mineral tinting of any kind, so they had the finest glass material to work with. Second, Arthur Amory Houghton, Jr., at twenty-four one of the youngest Houghton family members to be named a director of Corning, proposed taking over the Steuben division and devoting its best glassblowers and engravers to working with the new crystal. Third, Houghton brought in a close friend, John Montieth Gates, a successful young architect, to restructure Steuben’s approach to design. Gates in turn hired the New York sculptor Sidney Biehler Waugh to design for the new crystal. All three men were under thirty and full of ambition.³³

One of Waugh’s first designs was for a massive, double-walled (the fusion of two separately blown units), cut-crystal vase that was decidedly sculptural in feeling. Its somewhat stepped, rectilinear projections give it a *moderne*, architectural look as well. Waugh’s *Gazelle Bowl* of 1935 is also a sculptural mass, but single-walled, and is supported on a chunky rectangular crossbrace, the simplicity of which probably was inherited from Swedish glass coming out of the factories of Orrefors, Kosta, and Boda. The gazelles leaping through the bowl’s limpid space would have looked quite at home in any exhibition of contemporary sculpture, yet they, too, reflect the classicism of contemporaneous Swedish wheel engraving.



Sidney Biehler Waugh. *Vase*. 1935. Glass, 11¼ x 10½ x 10½". The Metropolitan Museum of Art, New York. Purchase, Edward C. Moore, Jr. Gift, 1935 (35.94.2)

Steuben staff designers at work in the Corning-Steuben Building, 718 Fifth Avenue, New York, c. 1937. Known as "The House of Glass," the building was the site of Steuben's New York shop from 1937 to 1959.



The Corning-Steuben Building, 718 Fifth Avenue, New York, late 1930s

Waugh exercised his innate tendency toward the three-dimensional when he created a glass gazelle for the top of an illuminated crystal fountain comprised of a column of concentric glass cylinders. This fountain was installed in the elegant Steuben shop, designed by Gates, that opened in 1934 at 748 Fifth Avenue near the Plaza Hotel. Instead of the network of small retail outlets favored during the Carder era, Houghton exhibited Steuben's new crystal only in New York, and only in the most dignified, gallerylike setting, with dramatically subdued lighting and gray and white surfaces.¹⁴

Houghton's next move was even more important than, though not nearly as dramatic as, the glass-smashing episode: He hired six graduates of architectural schools to design glass for Steuben. There were no trained glass designers then; traditionally, the blowers themselves (or their superior, as was the case during Carder's tenure at Steuben) were responsible for the final look of the piece, which often veered toward the overelaborate—a look out of favor in the 1930s. Houghton oriented his designers to the glassmaking process and insisted they spend several days each month at the factory to work out design problems with the glassblowers and engravers. But Houghton based his design team in New York rather than in Corning, so that they would be exposed to the latest cultural influences. The tendency toward artisanal niceties and the pull of the familiar were thus minimized for Steuben's designers, leaving them free to explore the new and untried.¹⁵

Houghton then fashioned a radical publicity campaign to establish Steuben glass as among the finest glass in the world. With a great deal of showmanship, he arranged for its exhibition, first in the elite Knoedler Gallery in Manhattan, then in London, where Waugh's *Zodiac Bowl* (1935) was presented to the Victoria and Albert Museum with much fanfare in the press.¹⁶ Everything Houghton did created the impression that Steuben glass was a status symbol—exactly Teague's marketing concept. Houghton continued in this vein in the following years, arranging exhibitions at prestigious American museums and opening expensive retail shops in the best locations, culminating in 1937 in the opening of the Corning-Steuben Building at 718 Fifth Avenue. With its Pyrex-block walls, the building became known as "The House of Glass"; the designers worked on the upper floors, and the objects they created were sold amid bouquets of fresh flowers on the mezzanine and ground floors.¹⁷

A meeting between Gates and Henri Matisse in 1937 resulted in the collab-

oration of twenty-seven world-famous artists with Steuben's engravers on limited editions of their designs for glass. Isamu Noguchi's simple line drawing of a cat, Paulanship's *Woman and Centaur* (1939), and Pavel Tchelitchev's *Acrobats Vase* (1939) were among the most successful translations of drawing into carved glass. All of the designs were displayed together in the Steuben gallery on Fifth Avenue in the 1940 exhibition "Twenty-seven Artists in Crystal."³⁸

Steuben's representation at the New York World's Fair occupied much of Houghton's, Gates's, and Waugh's attention beginning in 1937. Gates designed a World's Fair Cup (1939), a large commemorative vessel crowned by a trylon and perisphere, while Waugh created a three-foot-high, three-hundred-pound mermaid in cast glass, titled *Atlantica* (1939), as a symbol of glassmaking—the first industry to cross the Atlantic to America in the seventeenth century. Monumental, muscularly articulated, with hair and lower limbs rolled up in huge waves, *Atlantica* took five men to pour and three to polish over the course of many months.³⁹

Houghton readily admitted that the reason Steuben's new crystal generally took simple shapes was that they did not yet know how to make more complex forms in the new crystal,⁴⁰ but the influence of Scandinavian glass should not be discounted, nor the more modern glass being produced by Steuben's competitors in lines intended for a broader market. Among the latter were Libbey Glass's Modern American and Syncopation lines in particular, as well as the high-end production glassware of Phoenix and Consolidated, the Fostoria Glass Specialty Company, the Heisy Glass Company, and the Cambridge Glass Company.

Libbey (formerly the New England Glass Company), which is credited with introducing lead crystal to the United States, became internationally renowned after its spun and cut glass was shown at the 1893 World's Columbian Exposition in Chicago. Its deeply cut crystal of the Brilliant Period (1880–1915) lost its popular appeal during the 1920s; efforts to revive it in the following decade, with new designs by A. Douglas Nash, were not successful, largely because they were too elaborate to be cost-efficient.⁴¹ The repeal of Prohibition in 1933 loosed a flood of cocktail glassware, none so unusual as Syncopation, the novelty cocktail glass Nash designed for Libbey—one must imagine with humorous intent. Bulky cubes surround its stem above a pyramidal base, combining references both to Cubist sculpture and ice cubes.

Nash's designs, extravagantly expensive to produce, came out at a time when American consumers were least able to afford them, and Libbey soon began to founder. In 1936 the company became a division of the Owens-Illinois Glass Company, which focused its energies on the mass production of its Safedge tumblers. A promotional tie-in with Walt Disney's animated *Snow White and the Seven Dwarfs* brought Owens-Illinois "carload customers," with sales in the millions. As a result, the company decided it could afford to try to regain a top position in the field of fine art glass, hiring Edwin W. Fuerst to design modern, if somewhat conservative, prestige glassware. Libbey's streamlined Modern American cut crystal of 1940, the last of its handcrafted glassware lines, was discontinued in 1942, when the exigencies of war compelled most of the industry to adopt more efficient modes of mass production.⁴²

Two other colorful attempts to introduce Cubist modernism into the low-income American home were made by Fostoria Glass of Moundsville, West Virginia, and Consolidated Lamp & Glass Company of Coraopolis, Pennsylvania. Fostoria had patented its extremely popular clear-glass American pattern (no. 2056) in 1915. Its advertising stressed the line's appeal to "up-to-date" buyers in Europe and the United States, and noted how different its cubic faceting looked in reproduction, "where the 'cube' is brought out prominently," yet on close



John Monteith Gates. *The World's Fair Cup*. 1939 (now lost). Crystal, 28 x 10½ x 10½". Steuben Glass. This one-of-a-kind piece, inscribed "Building the World of Tomorrow," was created to commemorate the 1939–40 New York World's Fair. The figure of the goddess Mithra adorned the fair's Administration Building.



Sidney Biehler Waugh. *Atlantica*. 1939. Crystal, height 36". The Corning Museum of Glass, Corning, New York. *Atlantica* was designed to symbolize the arrival of glassmaking in America in the early seventeenth century. Weighing 300 pounds, it was the largest casting of clear crystal to date.



Advertisement for Ruba Rombic glassware.
From *The Gift and Art Shop* (February 1928)

examination "this cube effect is almost entirely obliterated by the prismatic brilliancy of the pattern."⁴³ Amber, blue, green, and canary were added to its color range in the mid-1920s. The line remained in production until the 1970s, and is the look one associates with the company.

Fostoria also brought in the well-known designer George Sakier to create fine, modern-looking dinnerware for large-scale production. Stemware with square bases, elegant, vertically ribbed vases, and the company's Mayfair line (no. 2419) resulted. The Mayfair dishes, made in rose, green, amber, and topaz, are characterized by stepped, seemingly Deco-inspired corners and handles. Introduced in 1930, it was discontinued in 1944.⁴⁴ Sakier's design for an amber vase has the elegant simplicity that characterizes Eliel Saarinen's Cranbrook furnishings.

Instead of regimenting Cubism, as Fostoria seemed to have done, designer Reuben Haley's Ruba Rombic line for Consolidated Lamp & Glass is more playful, its facets at odd angles, its edges jagged. The zigzagging motion of a decanter set seems to celebrate the effects of inebriation. When looking at the tall, stately French crystal vase in the collection of The Toledo Museum of Art, one is reminded of John Marin's fractured skyscrapers painted during the same period. Frosty white, the edges of its facets catch the light like quartz crystals. The sculptural feel of Ruba Rombic may derive from Haley's practice of modeling his designs in clay (he was also a sculptor and metalworker). Uncertain how to market its new giftware line, Consolidated hired Howard G. Selden as its factory sales representative for art merchandise.⁴⁵ Selden started off the Ruba Rombic advertising campaign with an unprecedented seven-page spread in a widely circulated gift-shop magazine. Original labels for the line called it "An Epic in Modern Art," and its perceived parallels to modern poetry were part of the sales pitch: "ruba," from "Rubaiy (meaning epic or poem) Rombic (meaning irregular in shape)."⁴⁶ There were thirty-seven items in this highly popular line, which was discontinued in 1932, when Consolidated merged with the Phoenix Glass Company.

Among the less expensive glassware produced in huge quantities in the 1930s, those that were modernistically stylized include the Manhattan series produced by Anchor Hocking, and Tea Room and Pyramid by the Indiana Glass Company. This was really modernism for the masses, but the rays, steppings, and concentricities that signified newness remain satisfying to the contemporary eye.

In 1939, Russel Wright designed a line of glassware (manufactured after the war by Century Metalcraft of New York and Morgantown, West Virginia) to accompany his American Modern tableware, but few of the other industrial



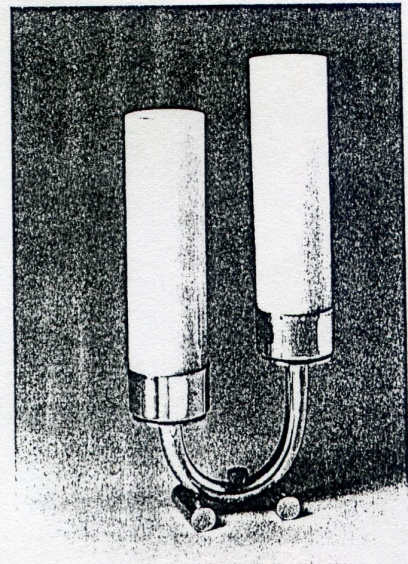
Indiana Glass Company. *Depression Glass*.
1930s. Glass; Tea Room pitcher: 10 x 9 x
6¼"; Pyramid candy and condiment dishes;
Manhattan sugar and creamer. Collection
William Straus

designers who had changed the look of the American home in the preceding decades made similar forays into glassware. Even more than his dinnerware, Wright's glassware expressed the gentle humanity of his Quaker background in its subdued grays and smoky earth tones. The satisfyingly simple, rounded shapes are so right for the hand that they, and variations on them, remain popular to the present day. Pipsan Saarinen Swanson, daughter of Finnish architect-designer Eliel Saarinen, was one of the few women who designed for glass, creating vases and ashtrays for U.S. Glass in Tiffin, Ohio, and lamps for the Mutual Sunset Lamp Company of New York and Trenton, New Jersey. In collaboration with her husband, J. Robert F. Swanson, and other Cranbrook craftspeople and designers, she introduced Flexible Home Arrangements (F.H.A.) through the Johnson Furniture Company of Grand Rapids, Michigan. By 1945, the Saarinen-Swanson Group, as it became known, included sixteen manufacturers of modern home furnishings.⁴⁷

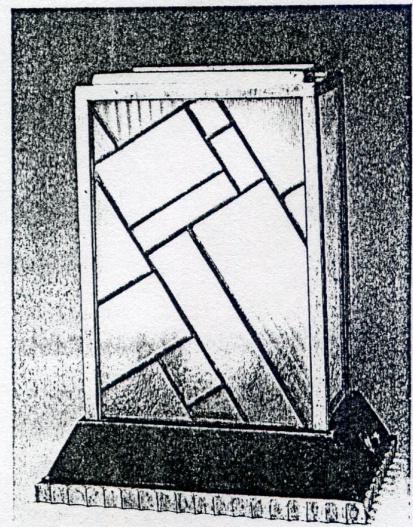
Many of the best American designers became involved in lighting design or experimented with the use of glass in furniture. Leading designers of modern lighting fixtures include Donald Deskey, Ilonka Karasz, Walter von Nessen, and Gilbert Rohde. Von Nessen used frosted-glass lampshades in fixtures noted for their "brazen modernity,"⁴⁸ and combined the newly invented material Bakelite with crystal in a curved chevron vase for Heisy Glass of Newark, Ohio. Rohde designed a number of lamps, probably including a plumbinglike chrome fixture with inset candle-shaped opaque glass cylinders. Deskey used glass sheeting in zigzag configurations reminiscent of French designer Jean Perzel's lamps.⁴⁹ Another lamp designed for and manufactured by Deskey-Vollmer, New York, resembles a miniature building in its four-square rectilinearity; diagonal lines divide the front glass panel into geometric planes in the manner of a Dutch de Stijl painting.

Clear glass characterized the modern look in lighting fixtures, as it had art glass in general. It might be etched or sandblasted when used for architectural purposes, as were Paul V. Gardner's glass panels for the Empire State Building, or otherwise textured to diffuse the light. The architectural element is prevalent in the furniture designed with glass during this period, such as Kem Weber's three-tiered circular table with square columnar supports fastened to the glass by stepped Deco clamps. A black-glass table by architect Raymond Hood, who designed some of the quintessential buildings of this period, including the American Radiator, Daily News, and McGraw-Hill buildings in New York, epitomizes machined modernity with its radio antenna-like legs, and it does so with an exquisite elegance. The most startling piece of glass furniture, however, is the chair believed to have been designed in 1939 by Louis Dierra for the Pittsburgh Plate Glass Company's display at the New York World's Fair. The soft seat floats in a semicircular column of clear, molded glass, its edges rounded like the upholstery. The tubular metal supports are minimally articulated, creating a sensation of the cushion floating, cloudlike, in the air.

It was the development of a perfectly clear, pure crystal in the first years of the 1930s at Steuben/Corning that sent Carder, the master of colored glass, into the studio to work independently and become a model for the nascent Studio Glass movement. And it was the team concept structured around that same transparent crystal at Steuben, where high-level material, craftsmanship, and promotion joined forces to establish a model for art in industry, which put American glass at the forefront of modernism in that medium. The effects of both are still being felt today.



Gilbert Rohde. *Lamp*. c. 1933. Designed for Mutual Sunset Lamp Company. Opaque glass, chrome, 14 x 6½ x 2½". Collection William Straus



Donald Deskey. *Table Lamp*. c. 1926–27. Glass, wood, chromeplated brass, 11 x 8¾ x 5¾". The Metropolitan Museum of Art, New York. Purchase, Theodore R. Gamble, Jr. Gift, in honor of his mother, Mrs. Theodore R. Gamble, 1982 (1982.33)

- Modern Art successfully launched the Eameses' furniture designs into an eager postwar market—but The Museum of Modern Art's Eames exhibition proved to be both the apogee and the dead-end of interest in innovative wood furniture for mass production. Soon all the molding and sculptural ambitions were transferred to the new fiberglass and plastic materials.
45. For further discussion, see Harold E. Dickson and Richard Porter, *Henry Varnum Poor 1887–1970: A Retrospective Exhibition* (University Park, Penn.: Museum of Art, Pennsylvania State University, 1983).
 46. According to stepdaughter Annie Poor, this table was made about 1933–35 (interview with the author, August 1994).
 47. *The Furniture and Sculpture of Wharton Esherick* (New York: Museum of Contemporary Craft, 1958).
 48. Ibid.
 49. Michael Stone, "Wharton Esherick, Work of the Hand, the Heart and the Head," *Fine Wood Working* (November–December 1979): 52. Esherick was physically involved with every work produced in his studio, and generally signed and dated each piece. On the other hand, he rejected impractical notions about handcraft, and made use of any machinery he found necessary. Finding joinery and finishing wearisome, he assigned this work to his shop assistants (all professional cabinetmakers) so that he could concentrate on the shaping of his material.
 50. Isamu Noguchi, *A Sculptor's World* (New York: Harper & Row, 1968), 26.
 51. Ibid.
 52. George Nakashima, "A Feeling for Material," *California Art & Architecture* (November 1941): 30–31.
 53. Derek Ostergard, *George Nakashima: Full Circle* (New York: American Craft Museum, 1989), 50.
 54. According to Ostergard, the date of 1945–46 is based on a Brogen family photograph of 1946 in which this table can be seen; *ibid.*, 116.
 55. This dramatic change of direction was seen in their installation "La Maison du Jeune Homme" at the 1935 International Exposition, Brussels.
 56. Ostergard, *George Nakashima*, 38–40.
 57. The metal decorations and the first of the spun-aluminum accessories were retailed first at the Rena Rosenthal shop on Fifth Avenue.
 58. This chair was also used at the time to furnish the Museum's Members and Board of Directors rooms. Though handmade, it was the only chair designed by an American to be included in the industrial design section of The Museum of Modern Art's Tenth Anniversary exhibition "Art in Our Time," on view during the time of the New York World's Fair in 1939.
 59. "Eavesdropping on Russel Wright," *Craft Horizons* 2 (November 1943): 6.
 60. Ann Kerr, *The Collector's Encyclopedia of Russel Wright Designs* (Paducah, Ky.: Collector Books, 1990), 70.
 61. In 1937, on the recommendation of Gropius, The Association of Arts and Industries in Chicago offered the directorship of its newly formed design school to Moholy-Nagy. The school was to embody the principles and traditions of the first Bauhaus—an integration of art, craft, and technology. Moholy-Nagy transferred much of the playful and experimental Bauhaus program to the United States, and was instrumental in shaping a generation of American artists and industrial designers sensitive to matters of form and trained to understand the technical requirements of industry.
 62. Rosamund Frost, "Form and Function = a U.S. Bauhaus," *Art News* 64 (August 1945): 23. The object was then studied in terms of its feasibility for mass production, especially the much neglected sense of touch. In turn the form was photographed, the camera revealing further aspects about the object in terms of light and shadow; and finally, the student prepared a meticulous rendering of the object.
 63. David A. Hanks, biography of James Prestini, in Martin Eidelberg, ed., *Design 1935–1965: What Modern Was, Selections from the Liliane and David M. Stewart Collection*, (New York: Harry N. Abrams, 1991), 393.
 64. Edgar Kaufmann, Jr., *Prestini's Art in Wood* (New York: The Pocahontas Press, 1950).
- KINGSLEY
The Making of Modern Art Glass
1. I am grateful to William Warmus for this and other informative material provided in the early stages of preparing for the exhibition.
 2. Robert Koch, *Louis C. Tiffany, Rebel in Glass* (New York: Crown Publishers, 1978), 153.
 3. Laurelton Hall was destroyed by fire in 1957. The Foundation now restricts itself to giving grants to deserving younger artists.
 4. Paul V. Gardner, *Frederick Carder: Portrait of a Glassmaker* (Corning, N.Y.: The Corning Museum of Glass; Rockwell Museum, 1985). Gardner was Carder's assistant for ten years.
 5. Gardner quotes Carder as boasting that he "bought the materials, built the furnace, and retired 40 percent of the \$50,000 indebtedness in the first year of operation" (*ibid.*, 22).
 6. Tiffany's legal challenge to Carder's approximation of his own golden Favrite glass collapsed when it was learned that its chemical make-up differed greatly from his own.
 7. Carder's sources ranged from ancient Egyptian and Roman glass, through the Renaissance, to modern French, Scandinavian, English, and Italian glass. He even drew on eighteenth-century American lily-pod and threaded glass for his Colonial Revival glassware designs of the 1920s.
 8. Casing is a process whereby two or more layers of glass are formed one inside the other. Often, though not in this case, the outer layer is cut away to reveal the color or colors beneath it.
 9. Robert J. Charleston, *Masterpieces of Glass: A World History from The Corning Museum of Glass* (New York: Harry N. Abrams, 1980), 211.
 10. Paul Hollister, "Frederick Carder and Sculpted Glass," in *Brilliance in Glass: The Lost Wax Sculpture of Frederick Carder* (Corning, N.Y.: Rockwell Museum, 1993), 5.
 11. Apparently, the destruction was not extensive. Examples of each line were preserved, and later entered the Corning Museum of Glass in Corning, New York.
 12. Gardner, *Frederick Carder*, 34.
 13. Hollister, "Frederick Carder and Sculpted Glass," in *Brilliance in Glass*, 8.
 14. *Ibid.*, 6–8.
 15. Paul Hollister, "USA Studio Glass Before 1962. Maurice Heaton, Frances and Michael Higgins, Edris Eckhardt: Four Pioneers and True Originals," *Neue Glas/New Glass* 4 (October 1985): 232–40. The well-known ceramist Edris Eckhardt, whose astonishingly inventive cast-glass sculptures, laminations, and fusions with materials such as gold and bronze lie outside of our period, also belongs in this group. She began researching her own colored glass formulas and melting the glass in her kitchen in 1952.
 16. Karen Davies, "Maurice Heaton: American Pioneer in Studio Glass," *American Craft* 44 (August–September 1984): 52.
 17. Hollister, "USA Studio Glass Before 1962": 232–34.
 18. Eleanor Bittermann, "Heaton's Wizardry

with Glass," *Craft Horizons* 14 (May-June 1954): 10-14.

19. Ibid., 11.
20. Maurice Heaton, "Who Is the Craftsman?," *Art Education Today*, annual publication of Teachers College, Columbia University (1938): 1-7.
21. Joseph Kaye, "A Look at New York: Vanished Mural Adds a Poignant Mystery to Memory of the Missing Amelia Earhart," *The Kansas City Star*, July 2, 1961, sec. A: 13. Artist's file, American Craft Council Library, New York.
22. Crystal, "Jewels Imprisoned in Potter's Clay," *China and Glass* 65 (November 1945): 20.
23. The use of uranium was common in glass factories. Its studio use is what is remarkable. Gregory even built a cyclotron in 1932 at the University of California to try to split atoms, but only succeeded in chipping particles off the nucleus; *ibid.*: 10.
24. In 1990, when they were made fellows of the American Craft Council (ACC) at an awards dinner in Atlanta, the Higginses prepared a two-page joint résumé with a one-page handwritten narrative of their life together, which is the source for this information. It is on file in the ACC library.
25. Hollister, "USA Studio Glass Before 1962": 235.
26. Paul Perrot, "New Directions in Glass-making," *Craft Horizons* 20 (November-December 1960): 24.
27. Ibid.
28. See Joan Falconer Byrd, "Harvey Littleton and Studio Glass," in *Harvey K. Littleton: A Retrospective Exhibition* (Atlanta: High Museum of Art, 1984), 5.
29. Littleton, in letter to Michael Higgins, May 11, 1959; quoted in Susanne K. Krantz, *Contemporary Glass* (New York: Harry N. Abrams, 1989), 46.
30. In 1945 the President of the British Board of Trade, Hugh Dalton, told a meeting of British glassmakers that, "Something like an industrial revolution has taken place in the United States in the last 15 years—a revolution of industrial design. It has made many of our exports old-fashioned and less acceptable." Dalton was talking about Steuben for the most part, but Libbey and some of the smaller glassworks were also part of this development. See "A Review of Varying Glass Techniques," *Craft Horizons* 4 (May 1945): 9.
31. Mary Jean Smith Madigan, *Steuben Glass: An American Tradition in Crystal* (New York: Harry N. Abrams, 1982), 70.
32. Walter Dorwin Teague, Sr., in memoran-

dum to Arthur Amory Houghton, Jr., October 7, 1932; quoted in *ibid.*

33. Ibid., 73-75.
 34. Ibid., 75.
 35. Ibid., 76.
 36. Ibid.
 37. Ibid., 81.
 38. Ibid., 91.
 39. Ibid., 88-89.
 40. Ibid., 84.
 41. See John Webster Keefe, *Libbey Glass: A Tradition of 150 Years, 1818-1968* (Toledo: The Toledo Museum of Art, 1968).
 42. Carl U. Fauster, *Libbey Glass Since 1818: Pictorial History & Collector's Guide* (Toledo: Len Beach Press, 1979), 97-99. As happened during World War I, production of lead crystal was halted by the government, which needed the lead for bullets and other purposes.
 43. Hazel M. Weatherman, *Fostoria: Its First Fifty Years* (Springfield, Mo.: The Weathermans, 1972), 85.
 44. Ibid., 223.
 45. Jack D. Wilson, *Phoenix & Consolidated Art Glass, 1926-1980* (Marietta, Ohio: Antique Publications, 1989), 15.
 46. Ibid., 40.
 47. Christa C. Mayer Thurman, "Textiles," in Robert Judson Clarke et al., *Design in America: The Cranbrook Vision, 1925-1950* (New York: Harry N. Abrams in association with the Detroit Institute of Arts and The Metropolitan Museum of Art, 1983), 189.
 48. Alastair Duncan, *Art Deco* (New York: Thames and Hudson, 1988), 69.
 49. Ibid.
- PERRY
- Modernism and American Ceramics*
1. Marlene S. Hamann, *The Ceramic Sculptures of Viktor Schreckengost*, Master's thesis, Syracuse University, Syracuse, New York, 1993, 21.
 2. The Cleveland School was first recognized by James Stubblebine and Martin Eidelberg in "Viktor Schreckengost and the Cleveland School," *Craft Horizons* (June 1975), 52.
 3. For a study of American clay sculpture during this period, particularly that of the

Cleveland school, see Ross Anderson and Barbara Perry, *The Diversions of Keramos: American Clay Sculpture 1925-1950* (Syracuse: Everson Museum of Art, 1983).

4. The "International Exhibition of Ceramic Art," organized by the American Federation of Arts, traveled throughout the United States in 1928-29. It was shown at the Cleveland Museum of Art February 21-March 21, 1929.
5. Viktor Schreckengost, telephone conversation with the author, Summer 1983.
6. Vally Wieselthier, "Ceramics," *Design* 31 (November 1929): 101-02.
7. Quoted in *Time*, May 13, 1935: 34.
8. Quoted in Ernest W. Watson, "The Ceramic Sculpture of Thelma Frazier Winter," *American Artist* 16 (May 1958): 23.
9. That Olmstead undertook this monumental project in the midst of the Depression is an indication of the strength and determination of this remarkable woman. The exhibitions were a grand success and continue, with brief respites during the war and during the 1970s, to this day.
10. Quoted in Hans M. Wingler, *The Bauhaus* (Cambridge, Mass., and London: MIT Press, 1986), 31.
11. Frank Whitford, *Bauhaus* (London: Thames and Hudson, 1984), 73.
12. Wingler, *The Bauhaus*, 323-24.
13. Whitford, *Bauhaus*, 73.
14. Quoted in Paul Heyer, *Architects on Architecture: New Directions in America* (1966; reprint New York: Walker and Company, 1978), 202.

SCHOESER *Textiles*

1. Norma K. Stahle, "Applied Arts Exhibition Cheers the Soul of Industry," *Arts & Decoration* 16 (November 1921): 33, 47.
2. "Art Moderne Rugs to the Fore: Hooked, Hand-Tufted and Machine Loomed," *Good Furniture Magazine* 31 (September 1928): 141-43. Wolfgang was the son of Josef Hoffmann.
3. See Werner J. Schweiger, *Wiener Werkstätte: Design in Vienna, 1903-1932* (New York: Abbeville Press, 1984); and Vally Wieselthier, "Modern Fabric Designing," *Design* 31 (January 1930): 145-47.
4. See *American Magazine of Art* 11 (1919-20) and 14 (1923) for articles by Bach, Associate Curator in Industrial Arts at The Metropolitan Museum of Art,