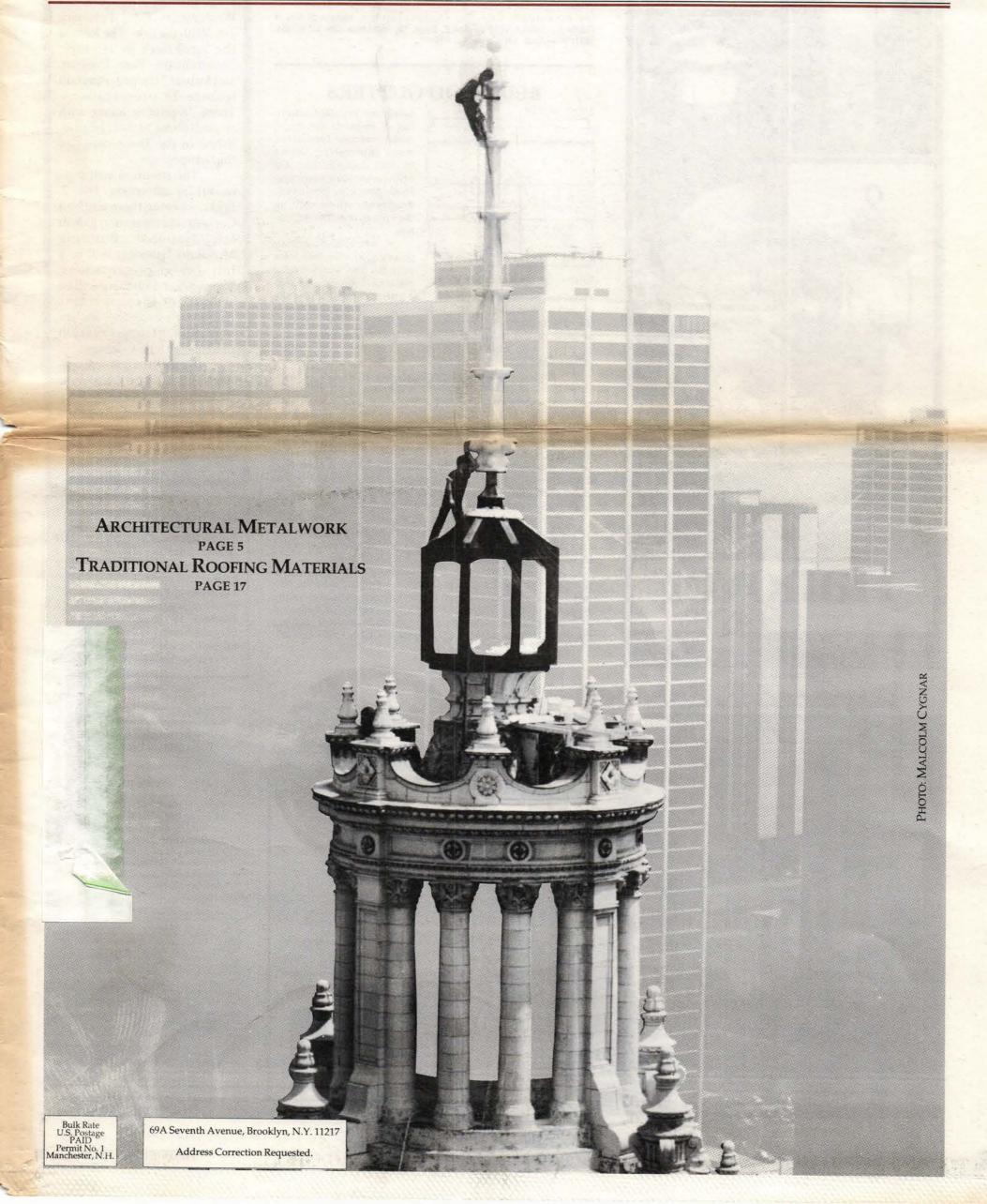
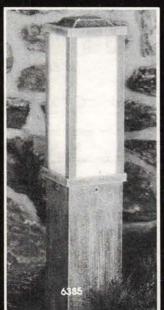
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## ON THE COVER:

original structure.

# **Topping The Wrigley Building**

Early in 1988, gale force winds toppled the beautiful but deteriorated copper-clad spire atop Chicago's Wrigley Building. Historical Arts & Casting Co. of Salt Lake City was asked to undertake its restoration.

After examining all alternatives, it was decided to replace the cast-iron and copper structure with cast aluminum. Using a CAD system, the Salt Lake City designers generated a complete set of drawings for each component to be replicated. Pattern makers, using the drawings and original pieces as guides, created new patterns for the foundry.

Over 150 aluminum components were cast at the foundry—along with a fabricated galvanized steel finial that would then be clad with the castings. All castings were cleaned and painted with an epoxy finish that matched the Wrigley Building's buff terra cotta. Finished components for lantern and spire were trucked to Chicago, then airlifted — in one piece — to the top of the Wrigley Building by helicopter, where the assembly was secured to the

For more details about the company, contact: Historical Arts & Casting, 4130 W. 1939 S., Unit F, Dept. TB, Salt Lake City, UT 84104. (801) 974-0242. Or Circle No. 121

# REDWOOD GUTTERS

SIDE VIEW TOP VIEW Rasped edges are filled with caulk.

Redwood Gutter Scarf Joint

Lately we've gotten a number of requests for wood gutter sources. One of the most interesting we've tracked down is Blue Ox Millworks. Proprietor Eric Hollenbeck is positively messianic when reciting the virtues of redwood gut-

Eric tells of a worker

wood gutter as he descended. The gutter cracked under the impact . . . but held . . . and probably saved the young man's life. The century-old gutter was in perfect condition, partially because of the nature of redwood, and partly because the carpenter who installed it knew how to make and caulk a proper scarf joint.

Eric says that few carpenters today know how to caulk joints in wood gutters. The secret to making a joint that won't leak and will last for years, Eric says, is bevelling both sides of splice on the inside of the gutter. Use a rasp to make a bevel that's about 1/4" deep at every joint, including the end cap (see illustration). After the joint has been nailed together, the depression made by the bevels is filled with a high-quality caulk, such as polybutyl. By making the bevel at least 1/4" deep, the caulk bed is thick enough to have the elasticity to move with the gutter's expansion and contraction. When the caulk fails, it can be dug out and new caulk applied.

reproduction and custom millwork - much of it in the Victorian mode. One of their exotic specialties is producing replica wooden trolley cars! For a free catalog on redwood gutters, contact: Blue Ox Millworks, Dept. TB, Foot of X St., Eureka, CA 95501 (707) 444-3437. CSI# 06400 — CL Or Circle No. 203

in his area who fell off a roof, but managed to grab a piece of 100-year-old red-

The cost for redwood gutters:  $4 \times 4 - $5.50 \text{ lin. ft.}$ ;  $4 \times$ \$7.50 lin. ft.; 6 x 6 — \$10.50 lin. ft. There's also a \$125 set-up charge. A gutter can be run to your profile, or you can select from one of the 16 patterns in the Blue Ox catalog.

Blue Ox Millworks also produces a wide variety of

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Circle No. 297

# Big Birthday Party For Architects in Preservation

year, American Institute of Architects is celebrating the 100th anniversary of the involvement of the architectural profession in historic preservation.

The major event of the year-long observance will be a 2-day symposium in Washington, D.C., February 2-3. With the title "The Role of the Architect in Historic Preservation: Past, Present, and Future," the program will feature 26 presentations. Those 26 papers, along with an additional 14, will be published in the Proceedings of the Symposium.

The program will start on Friday afternoon, Feb. 2. Friday evening there will be a Centennial celebration gala at the National Building Museum. Saturday will be a full day of presentations. Then on Sunday, there will be a tour of Pennsylvania Avenue to examine the integration of preservation projects with new design.

For registration information, contact: Bruce Kriviskey at AIA by calling: (202) 626-7452. Or drop him a line at: American Institute of Architects, 1735 York Ave. Washington, DC 20006. —CL

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# TRADITIONAL BUILDIN

**Historical Products** For Today's Professional

69A Seventh Avenue Brooklyn, NY 11217 (718) 636-0788

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A Note To Contributors: TRADITIONAL BUILDING solicits reviews of historical products from building and preservation professionals. A query letter to the editor describing the product and scope of the review is suggested. Photos of outstanding examples of Neo-Traditionalism and Architorture are also sought. While we will be careful of all materials submitted, we cannot be responsible for non-receipt or loss; please keep copies of all materials sent.

copies of all materials sent.

TRADITIONAL BUILDING (ISSN 0898-0284) is published bimonthly by Historical Trends Corporation, 69A Seventh Avenue, Brooklyn, NY 11217. Telephone: (718) 636-0788. Subscription rate to professionals in architecture, construction, and preservation in the U.S. and possessions: \$18/yr. (6 issues). Rate for nonprofessionals and subscribers outside U.S.: \$30/yr., U.S. funds.

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# The Yellins of Philadelphia KEEPERS OF THE IRON

The fortunes of the studio of Samuel Yellin, Metalworker, mirror the rise, decline, and revival of architectural metalwork in the U.S.

# \* By Claire Wood Labine



The work is full of life. The iron flows, surges, curves, falls back upon itself, segues into vegetation which becomes a presentation of grotesques, and is finally drawn into twisted points so fine that they pierce the airlike musical notes. The character and will of the creator are

so incorporated into the iron that in a roomful of his work his presence is palpable. The metalworker was Samuel Yellin, and the history of the firm and dynasty he founded is the story of ornamental metalwork in 20th century America.

Yellin was born in a small village in the province of Galicia in Poland in 1885. The men in his family were by tradition legal advisors to the Jewish community, and it was a surprise to everyone except Sam himself when, upon enrollment in school, he displayed a precocious ability in metalwork. He declared his intention to become a metalworker, and at age 11 was apprenticed to a Russian iron master who appreciated the talent entrusted to him.

Yellin completed his apprenticeship within five years. His father had died; his mother and sisters would emigrate to Philadelphia, and Sam opted to leave his master and explore for himself the incomparable legacy of European ironwork still intact prior to WWI. He travelled in Germany, Belgium, France, and England, and in 1906, at age 21, speaking a half-dozen languages, and proficient in English, joined his mother and sisters in Philadelphia.

He went to work making knobs for brass beds and tooling for lamps and was depressed because he missed work at the forge. He enrolled in an evening class in "History of Ornamental Design" at the Philadelphia Museum School of Industrial Art (now the Philadelphia University of the Arts). After a Yellin presentation in his first semester, his professor sat silent a moment, then said, "Sam, you teach the course; you know more about it than I do." In 1907,

# "Iron is a dead metal. The fun is bringing it to life."

Yellin was invited by the Museum School to conduct classes in "Wrought Iron," which he continued to teach until 1919. Although it imposed serious demands on his time, the formal course may have been as helpful to Yellin as it was to his students, because he had to organize, articulate, and communicate his theories on ironwork, thus clarifying them for himself. He remained an educator, at the anvil as well as in the classroom, during his entire career. The skills he taught his apprentices, fellow metalworkers, and students were an essential part of his own phenomenal success: meticulous craftsmanship, a knowledge of design, and sensitivity to the architect. Yellin, of course, possessed the additional quality of genius.

By 1909, Sam had managed to save \$150 and

with this capital opened a shop at 409 North 5th Street in South Philadelphia. On the low-ceilinged fourth floor, Sam worked with three assistants, turning out locks, hinges, doorknobs, and knockers, with growing concentration on a medieval style. His striker consistently hit the ceiling with his sledge on the backswing, and on a windy day, the building filled with smoke from the forge. OSHA would've been beside itself.

In 1911, Frank Miles Day provided Yellin with letters of introduction to architects and designers in New York. Sam's samples and drawings created a minor sensation in the office of C. Frank LaFarge, and at York and Sawyer, Yellin learned of an open competition "to fabricate a piece of wrought iron in a beautiful design, as done in Europe." Yellin hurried home to design and execute in his smokey garret the winning entry. (The piece, sadly, has been lost.) On the day the results were announced, J. P. Morgan was in the offices of York and Sawyer and on the spot grandly commissioned Samuel Yellin to create the gates for his summer home on Long Island. Yellin hired more men, worked day and night, and finished the gates on schedule, with two immediate results: other important commissions became his and, to mutual delight of landlord and tenant, Samuel Yellin, Metalworker, moved to larger quarters on Jefferson Street.

This address proved temporary, because such was the volume of work that Sam soon engaged the firm of Mellor, Meigs to design a shop and studio at 5520 Arch Street. Beginning in 1915, from this location (which is still operating today) came the most important and influential body of ornamental ironwork on this continent.

Yellin's originality, consummate craftmanship, organizational skills, physical energy, and salesmanship, were, by an accident of perfect timing, available to the designers who created the great revival architecture of the 20's and early 30's in the United States. In the Arch Street shop Yellin assembled an amazing cadre of metalworkers. Jack Andrews, Artist/Designer for Yellin Metalworkers today, calls it "...a United Nations shop, for those who worked there included: Konetsky, a Polish superintendent in charge of smithing; Boccanera, an Italian mastersmith, who worked in the shop for 45 years; Geitz, a German master locksmith; Wincze, an Austrian, in charge of all repousse work; Russo, an Italian in charge of the polishing department; and Machitti, Fatizzio, and Dezzie, Italian master smiths." (In his turn, Lou, son of the dapper Luigi Boccanera, came to Arch Street as a benchworker in July, 1959, and became shop manager shortly thereafter. Mr. Boccanera remains an indispensable element of the

Yellin tradition.) These men, captains of an army of workers and apprentices numbering 250 at its peak, worked side by side with Samuel Yellin fabricating his designs for ironwork on major buildings in 45 states.

Some of these treasures include all the memorial work, called "Yellin Gothic," for the National Cathdral in Washington, D.C.; in New York City, the Federal Reserve Bank, the J. P. Morgan Library, the Cathedral of St. John the Divine, Central Savings Bank, Chase National Bank, St. Thomas Church, and St. Vincent Ferrer Church. Yellin's work for colleges includes Northwestern University (including the McKinlock Memorial Gates); Yale University (including the Harkness Quadrangle and Sterling Memorial Library); Harvard University; Princeton University; the University of Pittsburgh; and Oberlin College. Other institutional work includes the Art Institute of Chicago; the Detroit Museum of Art; the Seattle Art Museum — and hundreds of other public buildings and private residences across the country . . . a staggering body of work. Every step of each commission was personally supervised, and in some cases executed, by Samuel Yellin.

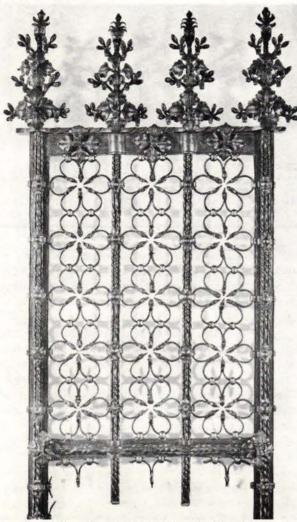
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The current management of Samuel Yellin Metalworks Co.: Clare Yellin (left) granddaughter of Samuel Yellin, and Marian Yellin, widow of Harvey Yellin and daughter-in-law of Samuel Yellin.

SAMUEL YELLIN, METALWORKER continued from previous page

In his excellent monograph, "Samuel Yellin in Context," Richard J. Wattenmaker, Director, Flint Institute of Arts, gives a vivid picture of the creative and intellectual stimulation on Arch Street. In ad-



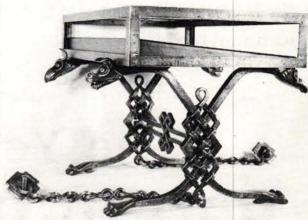
Sample grille section of the Children's Chapel Gates (c. 1933) made for the National Cathedral, Washington, D.C.

dressing Yellin as educator, he writes of numerous appointments Yellin received as lecturer, teacher, and Professor. "But," says Wattenmaker, "these formal appointments cannot but hint at the real school which Yellin constantly maintained at his workplace for craftsmen who came to apprentice under him for varying lengths of time. Apart from instruction at the anvil and discussions of architectural design - he also gave his draftsmen a practical course in blacksmithing — Yellin believed that the smiths derived inspiration and concrete benefit from contact with examples of the best ironwork of the past. Accordingly, Yellin formed what was to become the finest collection of antique ironwork ever to be assembled in this country. Objects of all periods and traditions, from keys to architectural grilles, were acquired on his frequent trips abroad. These were installed in a museum room at the workshop and Yellin constantly referred to this living repository, showing his

"Works of the old masters should ever be before the student of this craft, and examples in museums and documents in libraries should help him in securing the true kind of inspiration."

workers how their predecessors solved many of the problems they faced from day to day. In an adjacent room, Yellin gathered a comprehensive reference library of books and periodicals in many languages which served his design requirements and augmented his antique collection. The Yellin workshop was thus a self-contained university of ironwork."

In 1931, Samuel Yellin suffered a massive heart attack and never again worked at the anvil. But



Wrought iron display case fabricated for the University of Pittsburgh.

physical restriction served only to stimulate further his talent for design. He sketched constantly, often late into the night, and sent the results in the morning to the shop where his most trusted craftsmen executed the designs in iron. Many of these "sketches in iron," some of Yellin's most powerful designs, hang today in the Arch Street shop's museum, available for production.

Samuel Yellin married, on December 25, 1913, a lovely and devoted woman, Leah Josephs. Their daughter, Ethel, who would become a pianist and artist, was born in 1915. Their extraordinary son, Harvey, was born in 1918. Sam wanted the gifted Harvey to be an architect, and it was Sam's determination to hold the company together until Harvey could assume control that kept Samuel Yellin going during his physical debilitation and business collapse of the 30's. Harvey entered the five-year architectural course at the University of Pennsylvania in 1936. Sam died in 1940.

On the day after her husband's funeral, Leah brave and brilliant, with no business experience whatsoever, assumed responsibility for the company — which turned out to be a longer job than she'd bargained for: Harvey graduated in June, 1941,

continued on page 16



# Everything for the Traditional Building.

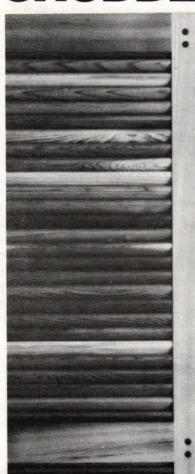
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# ARCHITECTURAL METALWORK \* BY EVE M. KAHN

The craft of ornamental metalwork, badly crippled by the "less is more" movement, is springing back.



rom the 18th century to the present day, American buildings have been showcases for ornamental metal: everything from whole facades to tiny grilles, made of everything from brass to iron to lead.

The earliest metals used on buildings in this country were lead, copper, and wrought iron. Lead and

copper rain conductors were applied to the sides of buildings, while copper weathervanes and finials were installed atop gables and towers. Wrought iron was used to build fences and balconies. A few cast-iron pieces were manufactured by the end of the 18th century and incorporated into larger wrought items. Very little of this ornamental metal appeared on modest homes; it was reserved for the wealthy and for large civic, commercial, or religious structures.

Technological developments after 1800 led to a greater variety of metals available at lower cost; at the same time, the public's taste for ornament was growing. Zinc sculpture and decorative elements were available in the U.S. as early as the 1830s. Lead was fashioned into cresting, finials, and spires for the many churches that sprang up as the country's population expanded. Bronze was first cast here after the Civil War and, because of its cost and its air of dignity, was deemed especially suitable for massive neoclassical structures like banks and courthouses. Sheet steel and zinc proved versatile and inexpensive, and in the second half of the 19th century they were embossed into lightweight cornices, brackets, and storefronts that were shipped everywhere.

By far the most common 19th-century ornamental metal was cast iron. Northern foundries predominated, shipping their more elaborate products south. Cast-iron items for exteriors included columns, railings, brackets, cresting, grilles, as well as full facades and storefronts. For interiors, stair railings were occasionally made of cast iron. Parks and lawns were full of cast-iron furniture, fences, and fountains. And technological developments like gas lighting and then electricity brought cast-iron lampposts and fire alarms to city sidewalks.

By the end of the 19th century, other metals began to supplant cast iron. Wrought iron, which had never completely disappeared, was revived, partly out of nostalgia for colonial times and partly because of a desire to retreat from industrialization via handcrafts. Bronze also proved popular, because its classical associations suited the prevailing Beaux-Arts and neoclassical architecture, and because its lighter color befit the reaction against the dark Victorian palette.

Lighter metals prevailed after World War I. Eager to experiment with untried alloys, Art Deco and Art Moderne architects often opted for monel (nickel and copper), aluminum, or stainless steel. They flaunted these machine-age materials on storefronts, skyscraper entrances and elevator doors, and even on the walls of modest streamlined diners.

After World War II, ornamental metal virtually disappeared from civic and commercial architecture — the exposed metal surrounding the windows of steel-and-glass office towers can hardly be considered decorative. It survived mainly on suburban homes, where Modern austerity never really took hold and where Mediterranean, Spanish, Plantation, Colonial, and other revival styles remained popular.

Ornamental metal did not experience a large-scale revival until the 1970's, when the preservation and postmodern movements arose. Today it is once again big business, in a wide variety of materials. Blacksmiths are building Colonial-style wrought iron security grilles and door grates for traditional homes. Metal interior stair railings are considered status symbols. Cast-iron foundries are turning out yards of fencing and benches for malls in search of neo-Victorian looks, while cast-aluminum finials rise from the roofs of skyscrapers. Million-dollar mansions impress visitors with cast-bronze entrances, and even some modest homes have elegant iron driveway gates. Restaurants old and new are installing tin ceilings, and sheet-steel ornament is reappearing on America's Main Streets.

To produce all this, manufacturers are using a combination of traditional and modern techniques and machinery. Such convergence of old and new seems to be the wave of the future. "I envision us integrating the design software and the production machinery," says Wayne Fuller, a designer at Robinson Iron. "Imagine sketching something with CAD/CAM and then feeding the sketch into a machine that can tool the die. That would be marvelous — and it's on the horizon."

Special thanks to Mark Quitno at W. F. Norman, Peter Cassidy at Cassidy Brothers Forge, and Wayne Fuller at Robinson Iron, who provided insights into the world of ornamental metal. For additional information, see "Metals in America's Historic Buildings" by the Preservation Assistance Division of the National Park Service, available for \$6 through the Government Printing Office in Washington, D.C. 20402 (202)783-3238.

# Who's On The SourceList

The SourceList on pages 9 & 10 includes 25 ornamental metal manufacturers who produce a wide variety of handsome, high-quality traditional metalwork. They range from one-man forges to large stock suppliers. A few have been around since ornamental metal's 19th-century heyday while most were born in response to the material's revival in the 1970's Some prefer to recreate old work based on drawings, samples, molds, or dies, while others would rather fabricate more contemporary designs in a traditional idiom; most are equipped to do both.

All the companies have different specialties, be it fences, stair railings, cornices, or ceiling panels. They work in almost every conceivable metal, from expensive bronze to less costly tin, from intractable steel to pliable copper, from historic iron to modern aluminum. The "x"s on the SourceList indicate what the company can make as either a stock or custom project.

A word about who's not on this list. We did not include any of the hundreds of local fabrication shops and foundries across the country. We did not include anyone who makes only garden ornament and furniture; everyone on the list offers at least a few items meant to be attached to buildings. And we did not include anyone who makes only lighting or hardware, since these products did not fit our definition of architectural metalwork.

If you need information immediately, call or write these companies directly. We've provided all contact information on the SourceList. (Please mention TRADITIONAL BUILDING.) If you simply need catalogs to update your files, it may be more convenient to use the enclosed Product Information Card or the coupon on page 29.

# NOWHERE ELSE IN THE WORLD...

Century-old W. F. Norman sends out its circa-1900 catalogs, not out of nostalgia but because the company still makes the same sheet metal products. Most of them are available nowhere else. There are intricate crestings for the tops of marquees and storefronts; modillions, brackets, and corbels for supporting sheet-metal cornices; sheet-metal siding; roof finials with and without weathervanes; and gutter tops decorated with garlands, rosettes, grapevines, gargoyles, shields, or lion's heads. There is also miscellaneous ornament, including wreaths,



festoons, and ribbons; capitals, urns, and finials; and lyres, caryatids, and even cupids playing trumpets. Almost any early 20th-century commercial facade, be it neoclassical, Art Deco, or neo-Tudor, could be restored or recreated with

these. A gutter top with lion's head, #912, costs \$127.40 in zinc; a large caryatid, #4903, \$498; a strip of 10-1/2-in.-tall Art Deco molding, #5084D, \$16.90 per lin. ft. Copper costs double.

In the unlikely event that something is required that is not in W. F. Norman's catalogs, the company also offers custom work. "And we're doing more and more of it, as word gets around," says vice president Mark Quitno. Copper, brass, aluminum, steel, and zinc are all available. For more information on W. F. Norman, see the SourceList in this section. — EMK

# METAL IN MANY GUISES



For a client who wanted an unobtrusive driveway opening, Hubbardton Forge recently built what looks like a weathered picket gate, complete with broken, uneven, and toppled pickets. "You can see every

grain in the wood — except it's made of solid steel, it weighs a ton and a half, and it's very secure," says co-owner George Chandler.

Other recent commissions, mainly in steel and iron, include everything from tables, chairs, and fences to baronial neo-Tudor chandeliers, reproductions of Giacometti sculptures, and steel lamp bases textured and twisted to resemble climbing vines. The eight-person, 15-year-old-company also manufactures stock colonial lighting, and so they are equipped to fill large custom orders. "We can do what the smaller shops can do, we just cost less," Chandler says.

Free brochure: Hubbardton Forge, Box 827, Dept. TB, Castleton, VT 05735. (802) 468-3090. CSI# 05700— EMK

# Iron From Massive to Miscellaneous

The crane on Architectural Iron's | Mack truck can lift almost five tons,

handy. The company has made many massive custom pieces, including a 23ft.-tall fountain for a cemetery in Rochester, New York, as well as 4-ft.wide planters for New York City's Gramercy Park.

Not all company's work is so large New York City's Green-29-1/2-in. tall and 17-3/4recreates them from drawings or photos.

tural Iron, see the SourceList in this section. - EMK

# and it often comes in

or so specialized. The 16 employees also create stock finials in dozens of styles, plus roof cresting, fences, gates, plaques, and miscellaneous ornament. Highstyle Victoriana is a specialty. Shown is AIC-202, a fence panel which costs \$40 per piece; it was created for a backyard in wich Village, and measures in. wide. The company also repairs old pieces or

For more on Architec-

# Ornamental Metalsmiths



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Major commissions include restoration of historic ironwork at Iolani Palace and Royal Mausoleum in Honolulu, copper and brass architectural weathervane for Connecticut College and Boldt Castle, restoration of metalwork at Key West Lighthouse, copper railings for historic Kauai County Building, and monumental chandeliers in iron for Walt Disney World.

We invite the opportunity to serve your creative metal needs. Color portfolio available.

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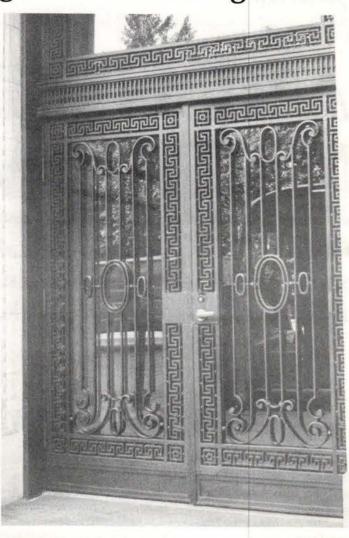
2151 Old Jacksonville Road Ocala, Florida 32670 (904) 622-6565



# Having Fun With Wrought Iron

Joel Schwartz founded the four-man Schwartz's Forge and Metalworks 12 years ago. His favorite projects, he says, "are when somebody says, 'Design me a ... and lets me have fun." He also likes recreating old pieces, and can even reproduce designs barely visible in fuzzy photos. old Most of his projects so far have been residential, and he will travel to install.

For more on Schwartz's Forge and Metalworks, see the spepullout SourceList in this section. - EMK



# "A" FOR CEILINGS

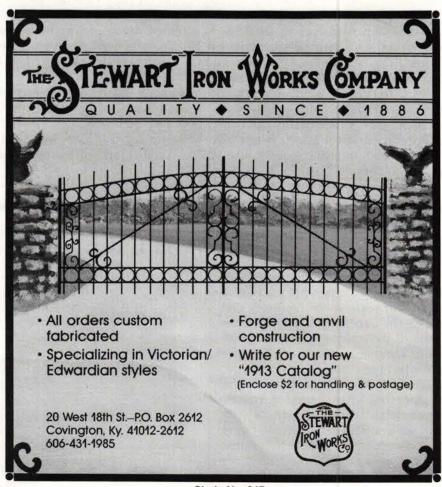
A. A. Abbingdon Affiliates has been supplying metal ceilings and cornices since the turn of the century. Back then the company was called East Side Metal Ceilings; the name was changed over the years, reports president Bernice Gruber, partly because "we wanted to be first in the phone book."

Abbingdon sells 2-x-2, 2-x-4, and 2-x-8-ft. ceiling panels in 22 patterns. The 2-x-2 size costs \$9 per panel (lay-in for a T-bar grid system only); 2-x-4 panels cost \$17.25 (lay-in or nail-up, brass and copper plating available), and the 2-x-8 size costs \$34.35 (nail-up only). There are also ten cornice styles,



which cost between \$5.50 and \$16.70 per 4-ft. piece. Sample kits are available: a selection of 3 foot-wide cornice pieces and 3 foot-square ceiling panels for \$25, or 3 two-foot-wide cornice sections and 3 two-foot-square ceiling panels for \$35. The kit fees can be applied to orders of \$500 or more. Discounts for large orders are available, and Abbingdon has access to installers and repairmen in the New York

For more information on A. A. Abbingdon Affiliates, see the pullout SourceList in this section. — EMK



Circle No. 267

# THE BUSINESS (& ART) OF WEATHERVANES

Travis Tuck, now a resident metal sculptor on Martha's Vineyard, learned quickly that promoting, selling, and following through on his commitments was as important as creating the art itself.



Tuck's weathervanes, art which displays in rooftop galleries, are hand crafted in copper using the repousse method; chiseling enables him to achieve fine details. The pieces come with brass cardinal points of the compass, stainless steel shaft, and heavy bronze adjustable mounting bracket; each weathervane is numbered and signed by the artist.

Custom design is a specialty. (Commissions are as varied as a moose, a Cessna 182, and the Great Seal.) Prices range from \$1,900 for a humpback whale to \$3,200 for an osprey; call for custom prices. 23K gold leaf finish also available.

For a free brochure, contact: Travis Tuck, Box 1832T, Martha's Vineyard, MA 02568 (508) 693-3914. CSI# 05500 — JL Circle No. 287

# Brass from A to W



Conant Custom Brass lists some of its current activities on the back of its brochure: everything from "abrasive blasting" to "welding," with a lot of soldering, sawing, shearing, sheetmetal fabricating, stamping, and spinning in between. "I don't think there's any job, large or small, we can't do," says founder Steve Conant.

The small 10-year-old shop contains a brass hardware retail division, a brass restoration division, and a custom architectural metalwork division. Along with brass the custom division also works with copper, aluminum, and stainless steel. The canopy shown, which hangs over the shop's front door, features a steel framework, a solid copper dome, and cold-leafed brass finials. Write or call free brochure.

ore information on Conant the special pullout tion.— EMK

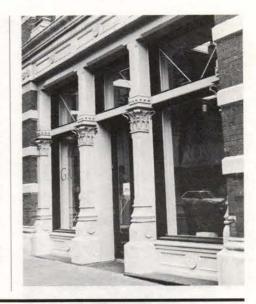
# State-Of-The-Art Castings

When Robert Baird, vice president of Historical Arts & Casting, calls their 50-pg. catalog "a quick effort to show what we can do," he's being modest. Detailed drawings fill its pages, depicting the state-of-the-art castings the company has made for major commercial buildings and the highest of high-end homes. There are 32-ft.-tall fountains, thick Gothic railings, and Moorish columns with grillage, among other things. Prices are hefty: railings cost between \$400 and \$1,600 per linear ft., chandeliers can run as much as \$54,000, and cornices cost be-

tween \$150 and \$400 per linear ft.

A less expensive cornice alternative is in the works. Baird and his staff are patenting a modular system of cornice pieces. "The main pieces will be extruded, and there will be cast brackets, rosettes, dentils, and modillions," Baird says. "You can combine them into any size or dimension you want. Until now there's been no way to get economical, richly ornamented cornices that meet fire regulations."

For more information on Historical Arts & Castings, see the pullout SourceList in this section. — EMK



# WROUGHT- AND CAST-IRON EMPORIUM



Tennessee Fabricating Company doesn't actually fabricate anything, but they do wholesale a wide variety of cast- and wrought-metal parts and accessories. Along with latticework railings, columns, and brackets they offer finials, posts, furniture, hardware, metal paint, and serious metalworking tools such as an automatic bar twister, a bender, an iron cutter, and cutting and grinding wheels. Shown is

one of the more unusual decorative items: a foot-square panel designed as a window grille for House Beautiful's 1960 "Pace Setter Home" (\$33.60, trade only).

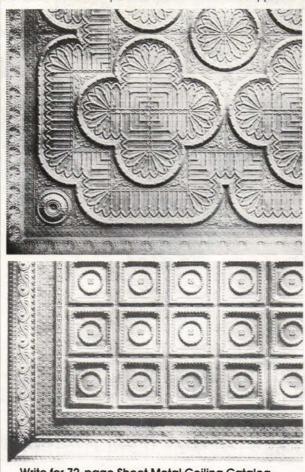
For more about Tennessee Fabricating Company, see the pullout SourceList in this special section. — EMK

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# GLORIOUS FOUNTAINS



Robinson Iron's forte is fabricating large cast-iron fountains. "Almost every town in America had one, made by either J. L. Mott Ironworks or J. W. Fiske Ironworks," says designer Wayne Fuller. "Those companies no

longer exist, but we have most of their patterns." The company recreates and restores fountains. "I love to see something come in a shambles, then we make it wonderful and glorious again," Fuller says.

Joseph A. Robinson founded the company in 1946 as a pipe foundry. In the '60s he bought an old pattern collection from a defunct foundry. "He loved the look of the old pieces, so he started casting from them," says Fuller. The company now employs 150 and ships throughout the country.

Custom projects range from benches, planters, and bollards to complete cast-iron facades and rebuilt park fences. Stock includes garden ornament and furniture and a line of interior chairs, benches, urns, and tables (\$250 for small urn, \$11,060 for a complete "atrium fountain," 40% discount). Their line of cast-iron columns includes a 62-1/2-in.-tall Italianate base with acanthus-leaf capital and plain shaft (\$1,250 base, \$170 column).

For more on Robinson Ironworks, see the SourceList in this section. - EMK

# Well Heads and Bear Claws

Stewart Iron Works has been around, in one form or another, since 1862. Their specialty is fences and gates, both custom and stock. The old engravings in their catalog depict the 19th-century stock designs they still make. Some of the fences have hairpin hoops, some have pickets, and some combine the two. One has its pickets bent down like claws; it was designed for a zoo's bear pit. There are also ornate arches to hang above gates, with room for lettering, as well as railings, Victorian newel posts (shown; prices start at \$150), and charming well heads (Victorian, Edwardian, and even Art Deco styles are available; prices begin at \$350).

For more on Stewart Iron Works, see the SourceList. — EMK

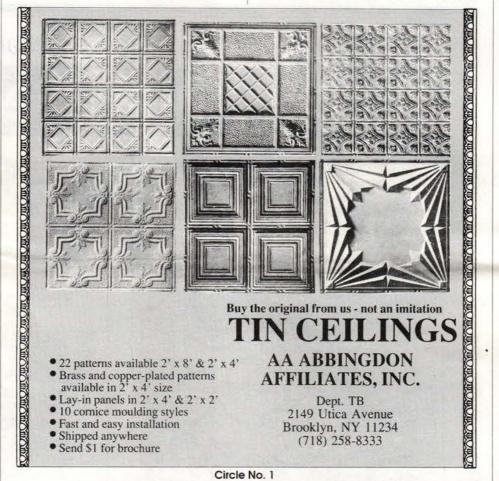
# Specializing In The **Traditional** Valerius Blacksmithing made the

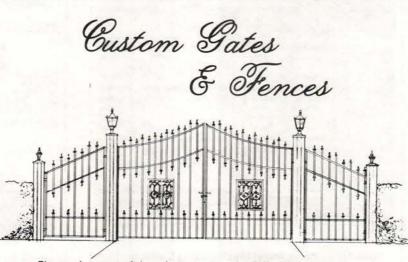
parapet rail (shown) around 1940, before William Valerius, the current owner, took over the company from his stepfather. "We can still make it," William says. "We try to stick to traditional styles."



The four-man all-custom shop works primarily on residences; interior gates and stair railings are a specialty. They also serve as subcontractors for churches and other large projects. Wrought iron and forged bronze are their main materials, and they can design or work

For more on Valerius Blacksmithing, see the SourceList. - EMK





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Moultrie Manufacturing Company 1-800-841-8674 P.O. Drawer 1179 Moultrie, GA 31776-1179 Dept. TB

Circle No. 263

# **Making Good** Looks Affordable

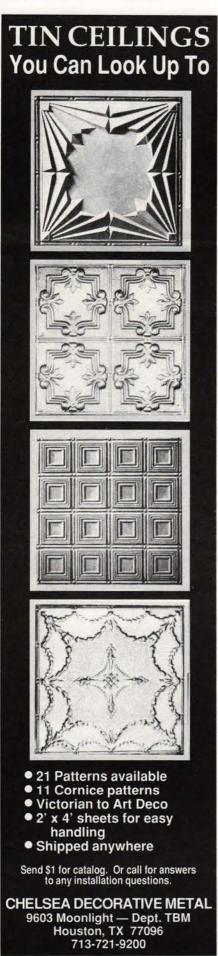


More than half of Klahm & Sons' designs come from the co-owners, Alex and Jack Klahm. "Architects bring us a highly complicated drawing and ask, 'How can you make something that looks like this but costs 20% less?" says Alex. "We give suggestions from there."

The six-person shop has been based in Florida since 1984, and before that, in Hawaii; in both places they have worked on some impressive commissions. They built 22-ft.-tall chandeliers for Disney World, they restored the metal railings on the Key West Lighthouse, and they recreated a gold-leaf-trimmed fence for the Royal Burial Crypt in Honolulu. The brothers, third-generation blacksmiths, have won dozens of metalwork awards, and they have permanently loaned the door grille shown to the National Ornamental Metal Museum in Memphis.

"It was meant for the house in Hawaii that my fiancee and I were moving into," Alex says. "I got talked into giving it to a museum, and we ended up with a plain aluminum screen door instead." Fortunately, he reports, he has found the time to ma an equally elaborate grille Florida front door

For more in Sons, see the pulle section. — EMK



CSI# 05700

# IETALWORK SourceList

♦ BY EVE M. KAHN		72													
COMPANY	LITERATURE	Metal(s) Worked	Technique(s)	Pressed- Metal Ceiling Panels	Pressed- Metal Siding	Grates/ Grilles	Fences/ Gates	Cresting	Garden Ornament/ Furniture	Canopies	Columns	Cast-Metal Facades	Sheet-Metal Cornices	Sheet-Metal Ornament	% Custom
AA Abbingdon Affiliates 2149 Utica Ave., Dept. TB Brooklyn, NY 11234 (718) 258-8333	Send \$1 for catalog. Circle No. 1	steel, copper & brass plate	pessoque	×									*		%0
Architectural Iron Co. Box 126, Schocopee Rd., Dept. TB Milford, PA 18337 (717) 296-7722	Send \$4 for catalog.	iron	wrought, cast			×	×	×	*						%06
Bradley Metal Design 2645 Garfield Ave., Dept. TB Silver Spring, MD 20910 (301) 589-7828	Free Circle No. 258	iron, copper, brass, steel	wrought		n =723	*	×		*					*	100%
Campbellsville Industries Taylor Blvd., Dept. TB Campbellsville, KY 42718 (800) 626-0350	Free	aluminum, cop- per, steel, micro- zinc	cast, extruded, formed-sheet, spun	*	10-				*	×	×		*	*	80%
Cassidy Bros. Forge US Rte. 1, Dept. TB Rowley, MA 01969 (508) 948-7303	Free Circle No. 259	iron, bronze, brass, copper, steel, aluminum	wrought, cast			×	×	×	*	×	*				100%
Chelsea Decorative Metal Co. 9603 Moonlight, Dept. TBM Houston, TX 77096 (713) 721-9200	Free Circle No. 19	tin-plated steel	pessoque	*	my nest								×		2%
Conant Custom Brass Box 1523, Dept. TB Burlington, VT 05402 (802) 658-4482	Free Circle No. 62	brass, copper,	wrought, machined			×			*	*		4			%09
Custom Ironworks Box 99, Dept. TB Union, KY 41091 (606) 384-4486	Free Circle No. 24	iron	wrought, cast				×	*			4				%06
Elm Industries 1539 Race St., Dept. TB Cincinnati, OH 45210 (513) 241-7927	Free Circle No. 262	iron	wrought			*	*		*		*	*	16.		%06
Greensboro Art Foundry & Machine Co. 2101 Park Terr., Dept. TB Greensboro, NC 27403 (919) 299-0106	Free	brass, bronze, stainless, iron	wrought, cast			*	*			*	*	*			%06
Historical Arts & Casting 4130 W. 1939 S., Unit F, Dept. TB Salt Lake City, UT 84104 (801) 974-0242	Free brochure, \$5 for catalog. Circle No. 121	iron, aluminum, bronze, copper, alloys	cast			*	*	×	*	×	*	*	34	*	%06
Klahm & Sons 2151 Old Jacksonville Rd., Dept. TB Ocala, FL 32670 (904) 622-6565	Free Circle No. 261	iron, steel, brass, bronze, copper	wrought, cast			*	*	*		×		8 8			100%
Lawler Machine & Foundry Box 320069, Dept. TB Birmingham, AL 35232 (205) 595-0596	Free brochure. \$5 for catalog. Circle No. 257	iron, aluminum, steel	wrought, cast			*	×	×	*		*	*		3	10%

CSI# 05700

# ARCHITECTURAL METALWORK SourceList

COMPANY	LMC Corp. 118 2nd Ave., Dept. TB Paterson, NJ 07514 (201) 279-3573	Moultrie Manufacturing Quitman Hwy., Drawer 1179, Dept. TB Moultrie, GA 31776 (800) 841-8674 or (912) 985-1312	New England Tool Box 30, Dept. TB Chester, NY 10918 (914) 782-5332	Otto Wendt & Co. 417-A Gentry, Dept. TB Spring, TX 77373 (713) 288-8295	Robinson Iron Drawer 1235, Dept. TB Alexander City, AL 35010 (205) 329-8486	Samuel Yellin Metalworkers Co. 5520 Arch St., Dept. TB Philadelphia, PA 19139 (215) 472-3122	Schwartz's Forge & Metalworks Forge Hollow Rd., Box 205, Dept. TB Deansboro, NY 13328 (315) 841-4477	Shanker Steel Ceiling Box 3116, Dept. TB Secaucus, NJ 07096 (201) 865-5990	Stewart Iron Works 20 W. 18th St., Box 2612, Dept. TB Covington, KY 41012 (606) 431-1985	Tennessee Fabricating 1822 Latham, Dept. TB Memphis, TN 38106 (901) 948-3354	Valerius Blacksmithing 605 Jefferson St., Dept. TB Bensenville, IL 60106 (312) 860-2741	W. F. Norman 214 N. Cedar, Box 323, Dept. TB Nevada, MO 64772-0323
LITERATURE	Free	Free Circle No. 263	Free Circle No. 264	Free Circle No. 269	Free Circle No. 265	Free	Free Circle No. 266	Free	Free Circle No. 267	Free Circle No. 268	Send \$4 for catalog.	Free Circle No. 52
Metal(s) Worked	iron, steel, cop- per, brass, bronze	aluminum	iron, aluminum, bronze, steel, copper, brass	aluminum	iron, aluminum, bronze	iron, bronze, aluminum, steel, monel	steel, brass, bronze	steel, copper & brass plate	iron, aluminum	lion	as specified, especially iron & bronze	steel, brass, copper, zinc
Technique(s)	wrought, cast, embossed	cast	wrought, formed-sheet	cast	wrought, cast	wrought	wrought	pessoque	wrought, cast	wrought, cast	wrought	embossed, spun
Pressed- Metal Ceiling Panels								*			W.	*
Pressed- Metal Siding									1000			×
Grates/ Grilles	×		*		×	×	×		*	*	×	
Fences/ Gates	×	×	×	3	×	×	×		×	com- ponents only	×	
Cresting	*				×	×	×		*	*		¥-
Garden Ornament/ Furniture	*	×	×	×	×		×		×	*	×	
Canopies	*				×							8
Columns		×		×	×			8	×	com- ponents only		
Cast-Metal Facades					×			7-	×		. 1	
Sheet-Metal Cornices	*		×			*		×			2 1	×
Sheet-Metal Ornament	*		*									*
% Custom	100%	%01	85%	%0	75%	%001	. 100%	%0	100%	%9	100%	%8

# Casting For The Details



Greensboro Art Foundry and Machine Co. is owned and staffed by Bill Keen, a sculptor who specializes in fine work. "The bigger foundries come to me when they want something really well done," he says. "They're not that good at holding details or finishing joinery cleanly."

Since he founded the company 15 years ago, he has built objects both large — such as bronze crosses and brass handrails for churches — and small, including tiny ornament for cast-iron projects. His work appears throughout the eastern seaboard and is all custom, but he's currently developing some stock products, such as stainless-steel and brass gates, rails, and door handles.

For more information on Greensboro Art Foundry and Machine, see the special pullout SourceList in this section. — EMK

# SPEEDY CASTINGS

Sharon Keeton founded a castaluminum supply company nine years ago and named it after her grandfather, Otto Wendt. "His name is much more interesting than mine," she explains. She remains a one-person operation, working with foundries that manufacture reproduc-

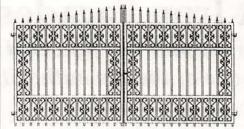


tions of old statuary, fountains, mailboxes, urns, lampposts, and furniture. Not pictured in the catalog but also available are Victorian daybeds and classical columns.

Sharon sells to everyone from homeowners to municipalities. She promises delivery in four to six weeks and usually comes through in two to three.

For more information on Otto Wendt & Co., see the pullout SourceList in this section. — EMK

# IRON PATTERNS CAST IN ALUMINUM



Moultrie Manufacturing sells mainly stock cast-aluminum furniture and extruded aluminum columns. The furniture line includes lounges, chairs, tables, urns, planters, tea carts, benches, fountains, and gazebos. A tree bench that fits up to a 17-in. dia. tree costs \$308; a 17-1/2-in.-wide urn with long graceful handles on a pedestal costs \$258. Columns come in five colors; round, fluted, or square styles, with a variety of caps and bases. A 5-in.-wide, 8-ft.-tall column costs \$60.97; a 24-in.-wide, 30-ft.-tall column costs \$2,876.25 with standard cap and base.

The company also makes custom gates, fences, and railings. A \$3 "Planning and Design Kit for Architects and Builders" illustrates some past designs and suggests future ones. All gate and fence panels are custom-designed to the customer's specifications and are finished in off-white, pure white, or dull or satin black, and are shipped ready to install.

For more on Moultrie Manufacturing, see the SourceList. — EMK

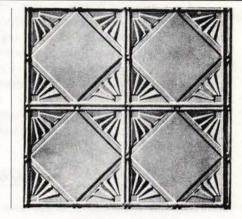
# Metal Ceilings With That Personal Touch

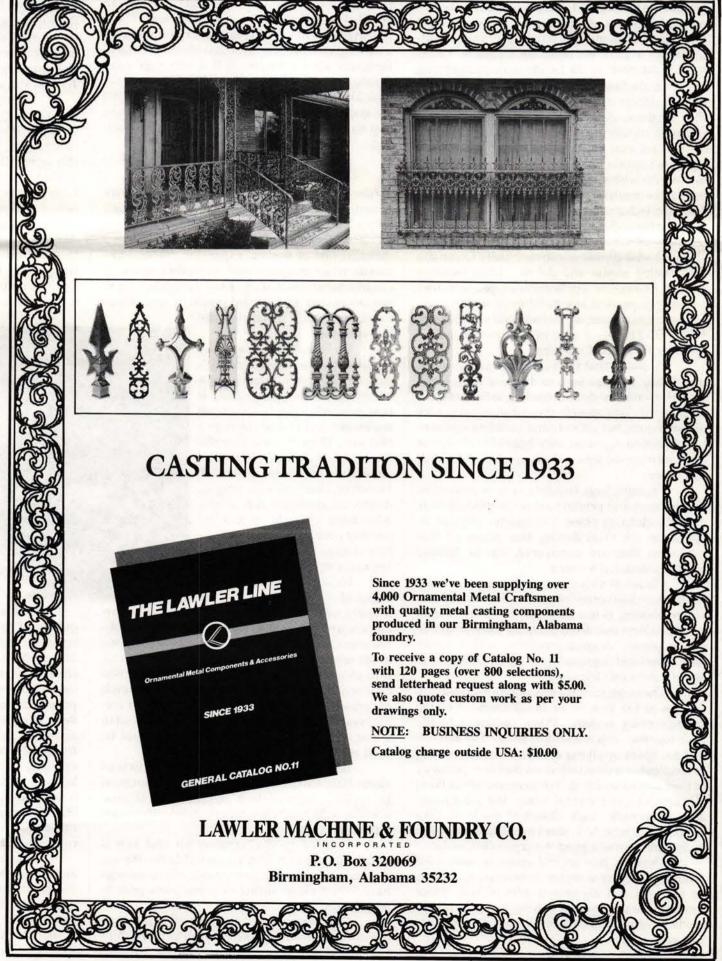
Glenn Eldridge owns Chelsea Decorative Metal, a source of pressed-tin ceilings and cornices. He's a 20-year veteran of the ornamental sheet-metal business who started out as an apprentice when his father ran the company. He usually answers the phone and, he says, "I'm happy to give people installation instructions when they call."

His patterns include 20 ceiling

panels and 11 cornices. Victoriana predominates. Cornices cost from \$1 to \$3.60 per lin. ft. and ceiling sections, which come in 2 x 4 ft. pieces, cost \$2 per sq.ft. The tin-plate finish is greasefree — it need not be washed before painting. Chelsea ships anywhere and can fabricate custom orders.

For more on Chelsea Decorative Metal, see the SourceList. — EMK





# **Restoring Cast Iron Facades**

Restoration of architectural cast iron is an art that has flowered within the past 10 years. Here are some trade secrets from one of the top authorities on cast iron.

BY ROBERT A. BAIRD, HISTORICAL ARTS & CASTING CO.

In our preservation projects, we have spent countless hours discussing restoration practices for cast iron ornament with architects and contractors. I thought it might be helpful to answer (in brief) some of the most frequently asked questions.

Cast iron is a brittle, porous, high-carbon metal. From an engineering standpoint, it has tremendous compression-loading capacity, but very poor tensile strength. Its high carbon content makes it extremely difficult to weld. Consequently, most cast iron ornament is mechanically fastened.

Reviewing the restoration of a typical cast iron facade is a good way to discuss various ways to stabilize and repair cast iron.

# A TYPICAL FACADE RESTORATION

The first step is to remove deteriorated, loose or broken elements, and cleaning. Most cast iron facades are a composed of repetitive elements connected by a series of clips, angles, and mechanical fasteners. Disassembly is handled by using a cutting torch to burn the heads off fasteners. Ornament is attached to the facade with countersunk flat-head machine bolts. It can be tricky to locate these fasteners under several layers of paint, but they are there. After removing the fasteners, iron elements are lifted or hoisted from the facade.

Cast iron can be cleaned on site or at a separate location. For the most part, we have had best results with sandblasting. Although the job is messy, the result is superior to chemical stripping. The high-tech coatings we specify require that the metal be blast-cleaned to an SSPC-SP6 finish.

A cast iron facade can be scaffolded and enclosed with plastic or canvas barrier to contain the blasting media and debris. Manufacturers specify immediate application of primers after blasting to prevent any buildup of surface rust. For an initial primer, we've had good success with TNEMEC-Zinc — a zinc-rich primer manufactured by TNEMEC Company.

Be aware that the paint you are removing most likely contains lead, so disposal of the blasting debris must be done according to Federal EPA regulations. Attention to this detail requires a lot of paperwork, but we've found local Environmental Protection Agencies very helpful with lists of certified disposal sites and transporters of hazardous waste.

Cleaning large facades can be sequenced so that blasting and priming are accomplished daily until the cleaning phase is complete. Regular inspections are vital during this phase so that problems that are uncovered can be treated and/or scheduled for repair.

Chemical strippers have their place; they are the only answer for interior and exterior spaces where blasting is not feasible. There are several good products that do an adequate job with a little elbow grease. A good scrubbing with a power wire wheel and degreasing are recommended following chemical stripping.

The major cause of deterioration in cast iron facades is the lack — or breakdown — of the waterproofing system. When putting a facade back together, this is a critical issue. The amount of time spent applying correct weatherproofing principles has a direct effect on the life expectancy of the restored building. We recommend caulking all horizontal and vertical joints. We use a paintable elastomeric caulk (Sikaflex) made by Sika Corp., Lyndhurst, N. J. Sheet metal flashing is also an integral part of a good waterproofing system.

Over the past several years we have used fluid-applied polyurethane undercoating systems on the back and unexposed sides of iron. More recently, we're using expanding foams to fill the voids in hollow cast elements to eliminate condensation.

# REPAIRING CAST IRON

You've got several options when repairing cast iron. Replacement is the highest level of treatment — and the most expensive. Other options are to remove the material and repair it in the shop, or make repairs in place. We recommend that the latter be limited to minor repairs only. Generally, shop repairs can be much more extensive because of the controlled environment and the more sophisticated equipment available.

Some architects have asked if they can fill hollow castings with concrete or mortar. We don't recommend it. It was done historically on some projects that we have restored and has created all sorts of problems. I have seen splits in 1-in.-thick columns caused by the pressure of interior rust created by iron in contact with concrete that's been subject to moisture penetration.

You frequently find imperfections in cast iron after it is blasted. Cold runs and shrinkage can be filled with Bondo and sanded smooth. Those imperfections that could possibly hold water from a driving rain are the ones that should be filled. Restorers should be aware that although good castings have a smooth uniform finish, they do not look like extrusions. I have always believed that the texture of cast iron adds to its character and that too much filling is unnecessary and distracting.

# ALTERNATIVE MATERIALS

During a restoration, the question of alternative materials always comes up. There are a few basic points to remember. First, if you're going to use an alternative, don't forget that each metal has a different rate of thermal expansion. Also, some metals, when in contact with each other, create an electrolytic action that can have tremendous consequences over an extended period of time. These two limitations, if anticipated, can

We use aluminum as an alternative for cast iron because it's easy to work with. Aluminum is one-third the weight of iron, is easy to work-weld, is somewhat malleable, and can be cut with a Skil saw. There is no visible difference between iron and aluminum after they are painted. However, aluminum has roughly double the expansion rate of iron. Aluminum expands up to 3/16" per foot over a 100-deg. temperature change, while iron expands approximately 3/32" per foot.

Using aluminum as a stand-alone system works ex-

tremely well. Aluminum also works well for ornament applied to iron, such as brackets, dentils, column capitals and bases, etc. However, we avoid using aluminum sandwiched between cast iron elements where expansion and contraction could create a problem. For example, if one length of cornice needs to be replaced in a cast iron cornice system, or if one jamb needs to be replaced in a cast iron window system, cast iron should be used as the replacement material.

A good coat of paint is a sufficient electrolytic barrier between iron and aluminum for applied ornamentation. Fequently, we also use silicone caulk and Teflon tapes as barriers between different materials.

Another good alternative for cast iron is ductile iron, an iron alloy that is weldable. We use this material on facade restorations where castings have to be welded during prefabrication, prior to installation.

Cast aluminum costs about 20% more than iron for a fabricated element on the foundry ship-

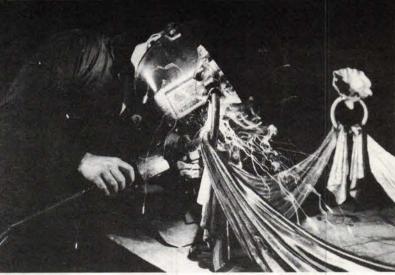
ping dock. However, by the time you ship and install the aluminum, its cost is roughly the same as cast iron.

Historically, cast iron was used to replicate stone and it is common to find in a paint analysis that the earliest coats of paint were light stone colors impregnated with sand and applied in very heavy coats. Coating systems that we use today are extremely high tech; some even have to be applied by licensed applicators. The best system for iron that we have worked with is manufactured by TNEMEC. First, zinc-rich primers are applied. Next, an intermediate epoxy primer is applied. Finally, it's finished off with polyurethane topcoats. Because of the complex nature of these products, I would recommend discussing your project with a manufacturer's representative.

Cast aluminum requires a different coating process from iron. There are two systems we use for aluminum; one is an epoxy system manufactured by TNEMEC, and the other is a fluoropolymer system.

With the TNEMEC system, aluminum castings are cleaned, degreased and then coated with an epoxy primer. A polyurethane topcoat is then applied and air-cured.

The rage of today's building industry are the fluoropolymer coatings such as PPG's Duranar. It is not uncommon to see product literature touting a 20-year guarantee for coatings of this type. They have to be applied by licensed applicators and sample castings from each batch have to pass a 4000-hr. test before warranties are issued. Steps in applying this paint system include first cleaning the casting and then an Aladine wash. Castings are then baked at 400° F to evaporate all moisture and burn off gases trapped in the metal. After degassing, the fluoropolymer coating is then applied and baked in an industrial oven.



One essential for fine cast detail is the quality of the pattern or tooling that is used to create the component during the foundry process. Because both cast iron and aluminum shrink when changing from a fluid to a solid, patterns are made oversized. Sometimes an original cast iron component can be used as the pattern to replicate an item. However, one should expect a loss of detail and slight shrinkage in size from the original. We frequently replicate small details from original castings, such as capital leaves, moldings, and brackets. If large quantities are to be reproduced, it is more cost-effective to create a new pattern. Patterns are always made when an item has to be fitted next to original pieces, such as a cornice, columns, or other major facade elements.

Iron and aluminum both have their place and can work in harmony to breathe life back into old buildings. Just use each material within its limits. If you have additional questions on a project that involves restoration of iron, don't hesitate to call an expert.

# Copper Skylights Cheaper Than Acrylic Domes

The fourth generation of Wagners is now working in the sheet metal contracting firm of Albert J. Wagner & Son. The firm does a lot of restoration metalwork in both copper and ferrous materials: Cornices, gutters, flashing, facades, skylights, roofing, and custom fabrication.

The 10-employee firm does most of its work within a 25-mile radius of its Chicago headquarters. However, they have a national market for their traditional glass and copper skylights. "Over the years, we've perfected the design so it'll last 100 years," says president Al Wagner. "And we've improved production methods to a point where, for anything bigger than 4 ft. x 4 ft., our copper and glass gabled skylight is cheaper than an acrylic dome." They'll ship skylights anywhere in the U.S.

Contact: Albert J. Wagner & Son, 3762 N. Clark St., Dept. TB, Chicago, IL 60613 (312) 935-1414. CSI#5700 — CL Or Circle No. 292

# Why Today's Wrought Iron Isn't Wrought Iron

When you specify wrought iron today, you're getting a material (mild steel, actually) that's dramatically different metallurgically from the wrought iron that was used for centuries. True wrought iron has disappeared from the commercial market; the last known mill making the material went out of business in England about two decades ago. Traditional wrought iron was essentially pure iron containing, by weight, about 3% slag. True wrought iron has superior properties for forge welding, because at high temperatures the slag particles spread into a film that protects the iron from atmospheric oxygen. Traditional wrought iron is quite tough and remarkably corrosion resistant.

The mild steel used for hand-formed ironwork today, easy to shape and bend, lacks some of the grain and character of true wrought iron. It also rusts much more easily and must be protected by paint or other finish. — CL

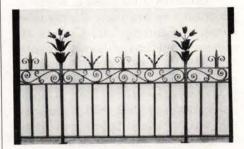
# SMALL SHOP, BIG IDEAS

David Maurice, who runs a small metalworking shop called Star Metal, doesn't advertise or do much work outside of New York City, but in his own way he's tackling a big issue: the revival of ornamental metalwork. "People should know it's not necessarily a thing of the past," he says. His specialty, he adds, is "anything that involves forming, forging, and bending — the more blacksmithing the better." Recent projects include stair rails and window grilles. His portfolio shows many pieces that have a handsome Arts-and-Crafts look, but he also works to spec.

For more information on Star Metal, write or call for a free brochure: Star Metal Co., 974 Grand St., Dept. TB, Brooklyn, NY 11211 (718) 384-2766. CSI# 05700 — EMK



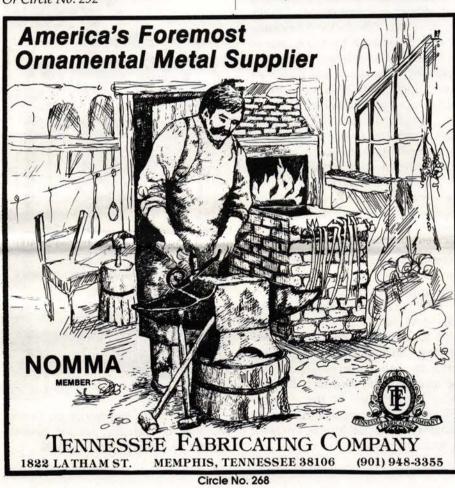
# **COLLARED IRON**



If asked to restore or recreate old ironwork, Cassidy Brothers Forge can revive antique methods like riveting, collaring, and fire welding. "We'll even use old iron, if it's required," says general manager Peter Cassidy. "We've got some set aside for that purpose."

The company has been around for about 30 years, and they tend to work on commercial projects and large residences. Fences are a specialty; their current line is all custom, but they are developing 30 stock gates and six standard fences.

For more information on Cassidy Brothers Forge, see the pullout SourceList in this section. — EMK









# Hand-Hammered Frieze Panels

The stove-hood business is hopping, according to Matthew Richardson, owner of Contemporary Copper. He custom-builds unique hoods. Recently he created a copper hood with brass applique and openings for stained glass, which cost \$3,500; simpler hoods begin at \$300. Stock and custom pieces include lighting, planters, weathervanes, and birdbaths.

"I like to use traditonal techniques with designs appropriate to 20thcentury needs," he says. His hand-hammered frieze panels cost only a little more than mass-produced sheet-metal ornament — an 8-in.-tall fleur-de-lis goes for \$15, a 10-in.-wide scallop shell costs \$38 — and offer an attractive hand-hammered texture.

Write or call for a free brochure: Contemporary Copper, Dept. TB, Box 69, Greenfield, MA 01302. (413) 773-9242. CSI# 05700 - EMK



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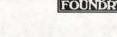


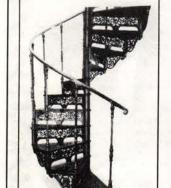
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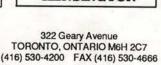
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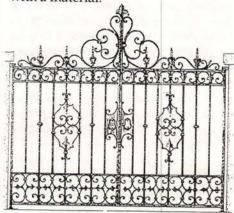
Circle No. 47

# THE JOY OF POUNDING IRON

Rhoda and Ed Mack, founders and owners of New England Tool, love metalworking so much that they give classes in it. "People have become so far removed from it in modern life," says Mrs. Mack. "They find that actually heating the steel, pounding it, making it into something graceful feels great."

Their work is mainly custom, although their catalog illustrates some stock fences, gates, railings, grates, pergolas, planters, tables, benches, and brackets that "give an idea of what we can do," Mrs. Mack says. There's also a handsome line of roof finials, with prices beginning at \$188. The shop is unusual because it contains tools for forging and for working with sheet metal. Period reproductions and new designs are both part of their

repertoire. "We like to keep bouncing around," Mrs. Mack says, "to keep conversant with the architecture of the past and to explore what can be done with a material.'



For more information on New England Tool, see the SourceList. — EMK

# From Foundry To Front Porch

Lawler Machine & Foundry began as an industrial castings shop in the '30s, boomed with wartime demand in the '40s, and in the '50s started fabricating decorative ironwork for the homes of the returned soldiers. With 100 employees, it is one of the country's largest suppliers of ornamental metal components and accessories.

The line of over 1,000 items includes porch and facade components for columns, brackets, gates, railings, and valances in floral patterns: "magnolia," "wisteria," and "passion flower" are a few of the options. There is also a large selection of lawn furniture and accessories, such as wickets and fountains. Many parts, including over 100 different types of finials/spears, plus humbler objects like barbell plates, hardware, and tools are also available.

Recent additions to the line include steel forgings with a handforged look and the English Crown Mailbox (shown), which is cast aluminum and features a pedestal base and country hunting scenes. Lawler doesn't sell to the general public; it deals only with fabricators of ornamental metal, architects, contractors, and designers.

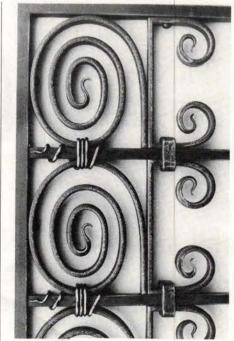


For more information on Lawler Machine & Foundry, see the pullout SourceList in this section. — EMK

# **UPSET IRON**

Brad Silberberg, president of Bradley Metal Design, emphasizes that his company can do what ordinary fabricators won't. "We can split metal, we can 'upset' it — which means make it shorter and fatter; we can draw it out, and we can do all different types of twists," he says. "The other guys just take the regular 20-ft. sections, cut them, and weld them together." He and his assistant also make scrolls with all types of endings, including jelly rolls, tapered chisels, and leafs. "And we bend the scroll while the metal's hot, so there are no kinks," he adds.

Mr. Silberberg has been in business for about ten years, and works mainly in the Washington, D.C. area. Stair railings are a specialty, and begin at \$350 per linear ft. Trained as a sculptor, he is happiest when architects consult him while projects are still the design stages. "The architects tend to know a little less about materials and techniques than we do; for instance, that we can create dif-



ferent natural finishes from dead black to pewter," he says. "We like to make suggestions."

For more on Bradley Metal Design, see the SourceList. — EMK

# Different Yards, Different Fences

Roger Scott, a third-generation blacksmith, founded Custom Ironworks in 1980. Since then, he and his crews have traveled from Maine to California installing the company's creations.

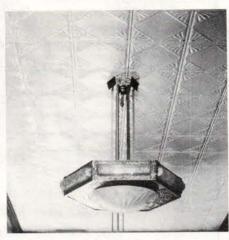
Fences and gates are a specialty. Designs are part stock and part custom; the catalog depicts 14 fences and 12 gates, but "a lot of customers mix and match — everybody's got a different yard, with different terrain," says Scott.



Fences cost between \$8.50 and \$31 per running ft. and consist of hoops, hairpin hoops, or spear-topped posts linked by scrolls and rails. Newel posts cost \$225 to \$265; line posts, \$13 to \$95; and matching gates, \$225 to \$275. Large estate gates cost between \$540 and \$3,200.

For more on Custom Ironworks, see the SourceList in this section. — EMK

# Steel Ceilings, Old Yet New



Shanker Steel Ceiling has been around since 1912, and they make their original patterns on a circa-1928 power press that weighs 65 tons and delivers 800 tons of pressure. The machine and designs may be old, but according to vice president Fran Shanker, wife of the founder's grandson, steel ceilings are finding new uses all the time, especially in restaurants and commercial installations.

The company offers many new finishes for its cornices and ceilings: they come pre-painted, to save on-site work; brass or copper plated, to obviate painting altogether; or perforated, to reduce noise. The panels cost \$2 per sq.ft. 10% trade discount.

For more information on Shanker Steel Ceiling, see the SourceList. — EMK

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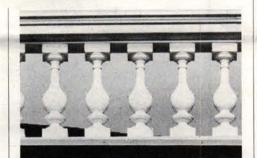


Circle No. 292

# **BEYOND THE STEEPLE**

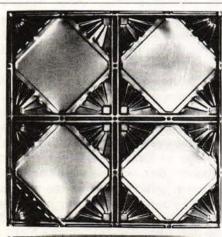
Campbellsville Industries calls themselves "the steeple people," but their line of aluminum ornament is actually quite varied. Along with custom cupolas and spires they also manufacture stock balusters, urns, and columns.

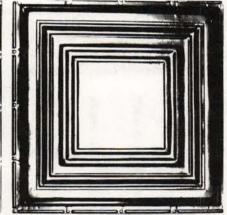
The spun-aluminum balusters range from 14 to 30 in. tall. An average complete balustrade, with rail cap and base, costs \$90 per running foot. The urns stand between 18 and 48 in. tall and cost between \$150 and \$500 apiece. Columns can be square or round and measure between six and 18 in. in diameter; prices start at \$75.

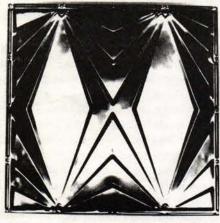


Most of Campbellsville's work appears on civic and commercial buildings, but they also take on residential projects.

For more on Campbellsville Industries, see the SourceList. — EMK







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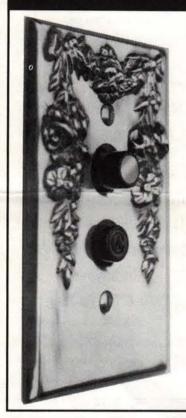
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SAMUEL YELLIN, METALWORKER continued from page 4

and three weeks later, found himself in the Army. Leah kept the business going during the war with Navy contracts, until Harvey returned home in 1945, to an economy on the upswing ... but in an ornamental desert.

The architectural trend to which Harvey Yellin returned had moved through Art Deco and into simplified forms reflecting the Bauhaus style. The era of ornamental ironwork appeared to be over. With determination and dedication, Harvey set about to preserve the business and the legacy of his father's art and craft.

A popular nickname for Harvey Yellin was "Keeper of the Iron," an adaptation of the ancient English title. But Harvey's contribution to American metalwork was much more than that of conservator. His first major commission after the war was the design and execution of a gate for the Shriner's Hospital in Philadelphia. Among other outstanding commissions were the carillon tower in Valley Forge for the D.A.R., and the continuation of Samuel Yellin's work on the

National Cathedral in Washington. He began a lifelong association with eminent church architect Harold Wagoner, for whom he designed and executed metalwork in over 150 churches across the country, including the Air Force Academy Chapel, Washington's National Presbyterian Church and the Catholic National Cathedral. In the meantime, fabrication jobs such as restoration of the doors at the 30th Street station in Philadelphia, were bread and butter for the Arch Street shop.

Harvey's premature death in 1985 was a desperate blow to his wife and children and extended family of craftsmen on Arch Street. In 1946, Harvey had married Marian Cruikshank, whose charm and energy equalled his own. Upon Harvey's death, with the same kind of courage and determination displayed by Leah Yellin a generation earlier, Marian shouldered responsibility for the business and the Yellin legacy and became President of Yellin Metalworkers.

Marian and Harvey had two children, Alex and Clare. Clare, a graduate of Denison University in Ohio, has assumed a highly significant



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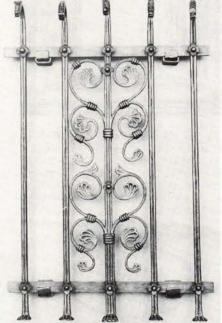
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place in the history of these Keepers of the Iron. In June, 1987, she became Vice President and General Manager of the firm. Under the spirited management of Marian and Clare, the company is currently completing jobs



One of Samuel Yellin's "sketches in iron": A sample grille section with Gothic style drop-forged foliate motifs.

in Pennsylvania, New Jersey, Delaware, and Florida: gates, grilles, lanterns, and an interesting assortment of hardware. The firm works in iron, monel, bronze, stainless steel, and aluminum. The original Samuel and Harvey Yellin designs are available, as well as new designs by Artist/Designer Jack Andrews. Andrews, for many years Professor of Industrial Design at University of the Arts in Philadelphia, was an organizer with Harvey Yellin in 1976 of the Samuel Yellin Foundation, which preserves the Yellin works and archives. In 1982 he became curator of the Yellin Travelling Exhibit, currently at the National Building Museum in Washington.

In this nation of immigrants, the experience of Samuel Yellin is surely the ideal: a young man bringing with him to America a craft, knowledge, and talent illuminated by other cultures, and with enormous energy and generosity teaching and producing things that will exert an influence over generations. His descendents preserve his art and craft, and exercise their own artistry to adapt it to contemporary usage. It doesn't get

any better than that.

# traditional roofing roundup

# ROOFS WITH CHARACTER

People are getting bored with the flat, monotonous look of asphalt shingles. Whether for restoration or new construction, there's a big swing to traditional slates, shingles, and tiles.

# **& BY CLEM LABINE**

roofer I know complains that his favorite slate supplier is back-ordered for four months. Rather astonishing news, since a slate roof runs anywhere from \$8 to \$11 per sq. ft. installed. But it reflects the resurgent interest in traditional roofing materials - and new materials that look old.

Most of the traditional materials are much more durable than asphalt shingles — and much more expensive. Thus, they are finding favor with building owners who have a long-range view and/or who care about aesthetics and durability. This boils down to three basic market areas:

(1) Restorations and additions to old buildings; (2) institutional, government, and commercial structures; (3) high-ticket residences. When you're spending over a million dollars for a house, for example, a roof that costs \$10 per sq. ft. doesn't add much percentagewise to the cost. But premium-quality materials can add durability, provide an unmistakably distinctive look, protect the market value, and offer low maintenance costs.

In this Special Report, we're looking only at roofing that comes in small units: Slates, shingles, and tiles. We're not covering, for example, standing-seam metal roofs. And we're not including wood shingles, since they run afoul of building codes in many areas.

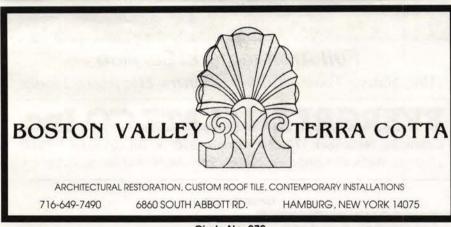
In the table on page 18, we've summarized the pros and cons of the basic traditional roofing types. But the chart is only a start. Within each roofing type, there are major variations. For example with concrete roofing tiles, some tiles have coloring throughout the body; others just have a layer of color on top. Concrete tiles with color all the way through weather better. Another factor: Size of the roofing units. Some suppliers make a bigger concrete tile than others. While the large tiles may look fine on bigger buildings, the smaller tiles are more in scale with residences.

Within clay tiles, there is a wide quality range, since clay varies widely in nature. How the clay is fired also affects its permeability and water absorption. The bottom line: If you're specifying clay tile in a climate with freeze/thaw cycles, make sure you get a written guarantee on longevity along with written results from an independent testing agency on water absorption. (Ask for results on the ASTM C-67 test. It's designed to test water absorption in brick; there is not yet an industry-wide water absorption test specifically for clay and concrete tile.) Of course, a written guarantee is worthless if the company you got it from has gone out of business. So a company's reputation and business longevity count.

Metal tiles come in a range of materials and sizes that make it impossible to quote a meaningful average price for this product category. At the high end are individual copper shingles, which can make an attractive, maintenance-free roof . . . and which can run up to \$10 per sq. ft. installed. At the low end of the metal scale are simulated tiles that come in prepainted galvanized steel panels as big as 2 ft. x 20 ft., and which can be installed for as little as \$2 per

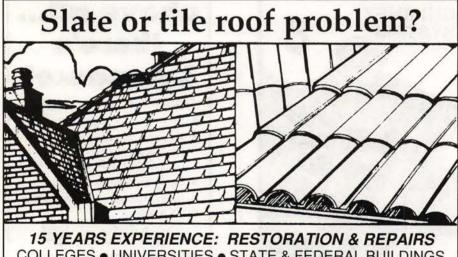
Cement/fiber roofing shingles have been popular as a lightweight slate lookalike. Heretofore, most cement/fiber products have used asbestos as the fiber filler. But Environmental Protection Agency regulations will phase out these cement-asbestos products out by 1997. Companies such as FibreCem are already in the market with a non-asbestos cement shingle. Supradur, a longtime player in the market, is readying a non-asbestos product. The big question: How will the new non-asbestos products hold up in climates subject to freeze-thaw cycles? Specifiers should ask for results of water absorption tests on any cement-fiber product being considered for areas with severe winter weather; something not higher than 15% water absorption is what you're looking for.

In the roofing business, salvage materials are more important than in other areas of building products. Occasionally, you need only a few square feet of tile to repair an old roof . . . and you can't find new tile that will match. Or maybe you're planning an addition to a building that already has a slate or clay tile roof. Sometimes recycled materials will give you the best match. That's why we included the salvage notations for Vande Hey-Raleigh and Raleigh, Inc. on the SourceList. These companies have large inventories of salvaged tiles (concrete and clay) plus natural slates. And they will ship any quantity—small or large—anywhere in the U.S.\*



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Concrete Tile	Basic look of tile or slate at lower cost. Durability.	Color will eventually fade, especially if tile isn't colored throughout. Heavy.	\$3-5
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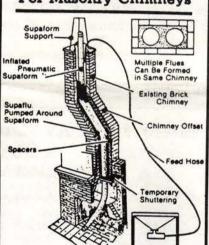


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Bowildon Mic. C.			Slate	Tiles & Slates	Clay	Concrete	Metal	Clay	Concrete	Metal	Material
Definings Mrg. Co. 1720 Maury Street, Dept. TB Houston, TX 77026 (713) 223-4971	Major manufacturer of metal roofing makes many varieties of metal shingles, as well flat roofing. Steel shingles are available with aluminum-zinc coating, galvanized, or Kynar coating in 16 standard colors. Several traditional patterns.	Free Circle No. 271	No. of the least o				,			7	
Boston Valley Terra Cotta 6860 South Abbott Rd., Dept. TB Hamburg, NY 14075 (716) 649-7490	Manufactures custom-made roof tiles and architectural terra cotta for like kind replacement. Has capabilities to analyze existing terra cotta bodies and glazes. Specialize in restoration projects; will match color, texture, and detail.	Free Circle No. 272			7			7	4		14
Buckingham-Virginia Slate Corp. 4110 Fitzhugh Ave., Dept. TB Richmond, VA 23230 (804) 355-4351	Quarries a lustrous, hand-fashioned, unfading blueblack (sometimes called Oxford grey) roofing slate of proven durability. Some roofs of Buckingham slate have lasted over 150 years without signs of failure. Highly resistant to acids.	Free Circle No. 273	<b>1</b>								
Conklin Metal Industries P.O. Box 1858, Dept. TB Atlanta, GA 30301 (404) 688-4510	Traditional metal roofing shingles are stamped with a side lock that permits quick installation. Comes in 5 finishes: Galvanized, Paintgrip primer, copper, terne, and terne-coated stainless.	Free			- 12		>				
Details P.O. Box 309, Dept. TB Mill Valley, CA 94942 (415) 568-5590	Specialist in bringing together skilled artisans and sources of unusual high-quality building materials (much of it recycled), including roofing. Slate from Vermont, Africa, and China. Recycled domestic clay tile as well as imported Mexican tile.	Letterhead inquiries	and the same								2
Eternit, Inc. Village Center Dr., Dept. TB Reading, PA 19607 (215) 777-0100	Fiber-reinforced cement roofing shingles (without asbestos) are noncombustible and have a slate-like appearance. Gray, plus other colors are available.	Free Circle No. 275		,							
Evergreen Slate Co. 68 East Potter Ave., Dept. TB Granville, NY 12832 (518) 642-2530	Vermont roofing slate in all colors and thicknesses, including red, unfading green, and Vermont black. Vermont slate is non-absorptive and durable — many installations last over a century. Also sells slate cutters, hammers, rippers, and slate hooks.	Free Circle No. 276	, ,								
FibreCem Corp. 7 Woodlawn Green, #212, Dept. TB Charlotte, NC 28217 (704) 527-2727	Non-asbestos fiber-cement roofing shingles in three tradi- tional shapes: EuroSlate, southern slate, and beaver-tail. Standard color is charcoal slate; wide selection of op- tional colors also available. 50-year track record on in- stallations worldwide.	Free Circle No. 277		7							
Gerard Roofing Technologies 955 Columbia St., Dept. TB Brea, CA 92622 (714) 529-0407	Metal roofing tiles produced from 26 gauge galvalume steel with proprietary acrylic resin that binds stone coating to the surface. Several styles, including shake and Mission tile,	Free Circle No. 278					,			,	
Gladding, McBean P.O. Box 97, Dept. TB Lincoln, CA 95648 (916) 645-3341	Supplies custom and specialty clay roof tiles in six standard shapes, plus custom work. Red, variegated, and custom glazed colors.	Free Circle No. 279			7			7			
Lifetile 3511 No. Riverside Ave, Dept. TB Rialto, CA 92376 (714) 822-4407	Extruded concrete roof tile in several shapes, including Mission tile and simulated cedar shake. Also supplies a new "LighTile" line that has about half the weight of regular tiles.	Free	1.594		8	7	- Number	8	,	18	
Ludowici Celadon P.O. Box 69, Dept. TB New Lexington, OH 43764 (614) 342-1995	Offers clay roofing tiles in more patterns, finishes, and colors than any other company. 10 major tile patterns — with many color possibilities — plus restoration and custom manufacturing. Company produces replacement and new tiles in virtually any pattern, color, or finish.	Free Circle No. 280			,			2			

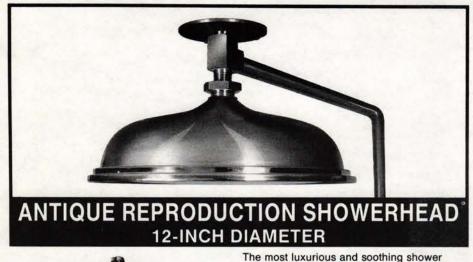
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# ES SourceList

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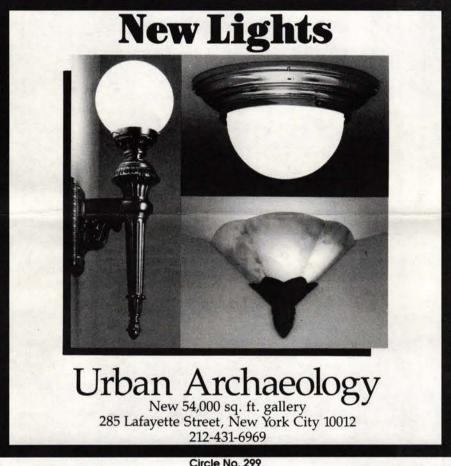
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# Windows That Withstand North Sea Storms

Tischler und Sohn has been making top-of-the-line mahogany windows in Germany since 1888. While they've maintained a U.S. office for four years, and promise 12-week delivery in the U.S. (15 weeks for the West Coast), they remain a very European enterprise. Flachglas, a 402-year-old German manufacturer, supplies their glass. The windows are designed to withstand North Sea storms and to meet German Federal Standards for windows 700 feet in the air on 60-story buildings. And when Tischler tests its bullet-proof glazing, they use standard caliber bullets for NATO rifles.

Double glazing is standard. "Single glazing makes for such an ugly window, with our system," says president Detlef Stroeh. Muntins cannot be thinner than 7/8-in., because of the double glazing. Burglar-proof glass is one of the many options. "There's

never been a successful break-in on houses equipped with it," Stroeh says.

This year the company began producing its first aluminum clad windows, for a hospital designed by Richard Meier and Robert A. M. Stern. "Usually clad windows are good in theory and bad in practice," says Stroeh. "The moisture gets in, it can't get out, and the wood rots in there. But ours have a considerable air space, so the window can breathe." The cladding comes in any color.

Tischler's wood windows come primed, painted with one coat (so that the finish coat isn't damaged during installation), or lacquered with one of six shades of pigmented lac-

For more information, contact: Tischler und Sohn, 51 Weaver St., Dept. TB, Greenwich, CT 06830 (800) 282-9911. CSI# 08610 - EMK

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The brick can be used inside or out, and application is frequently decorative; for example, on a front elevation or framing a fireplace.

For more information on Butterly Brick, contact the U.S. distributor: Coloroc Materials, Inc., 5603 Anderson Road, Dept. TB, Tampa, FL 33614 (813) 886-7761. CSI# 04200 - JL



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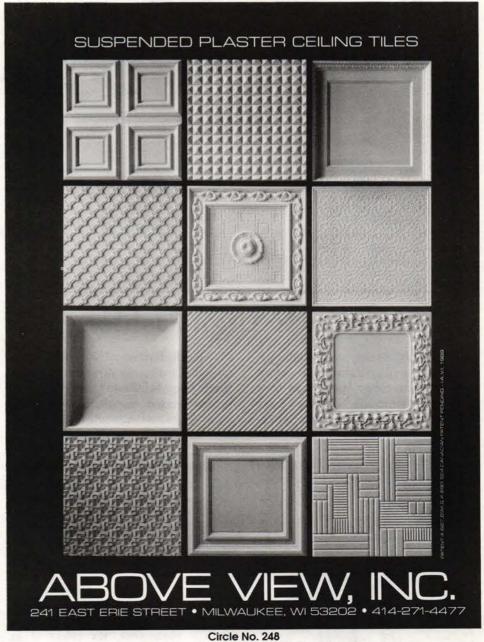
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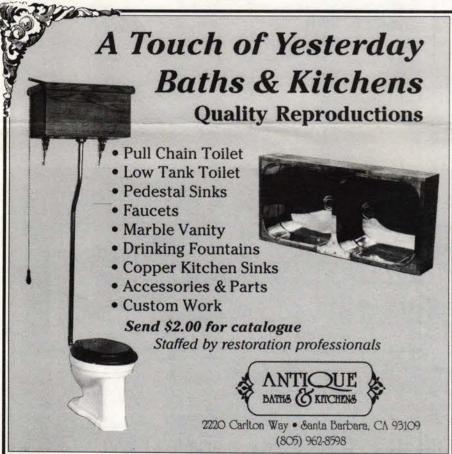
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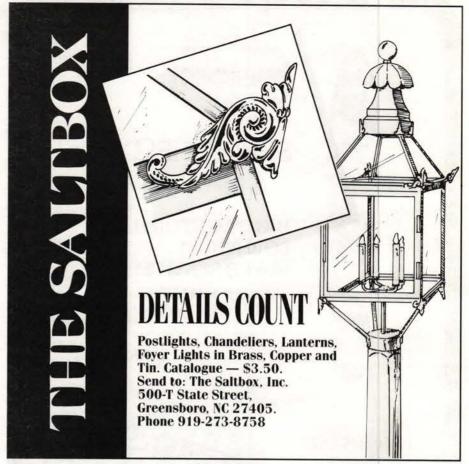
# Sconces in High Fashion

This photo shows only one variation of one style in a huge lighting inventory Urban Archaeology houses on four floors of showroom in New York City. Originally designed by Judith Stockman for the Barbizon Hotel in Manhattan, the sconce is now available in three heights, 9", 11", and 17", two recommended transluscent marbles, rose aurora and pure white (but others

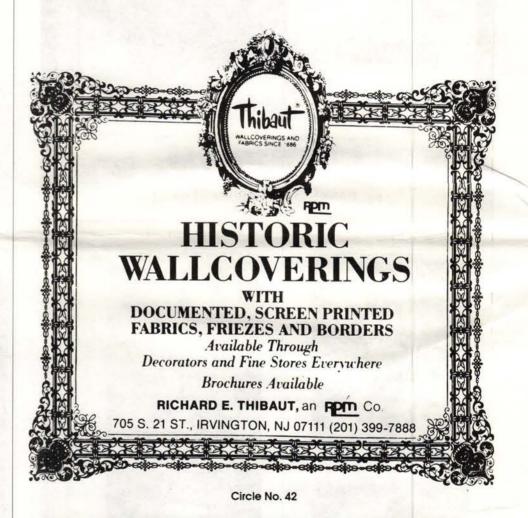
can be used as well), and either polished bronze or plated chrome, copper, or nickel. The sconce is flush mounted and ranges in price from \$850 to \$900.

Urban Archaeology sells both antique and new fixtures - primarily to the

For more information, contact: Urban Archaeology, 285 Lafayette Street, Dept. TB, New York, NY 10012 (212) 431-6969. CSI# 16500. - JL Or Circle No. 299



Circle No. 298



# NOW YOU SEE IT, NOW YOU DON'T

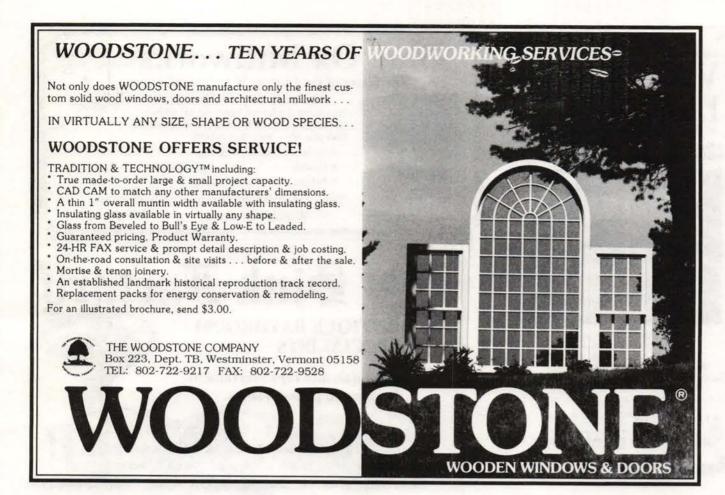
Self-concealed screens are not new — | as well as all hardware; parts are they used to be part of a window re- guaranteed for one year. placement package available from one of the large window manufacturers. However, Walsh Screen and Window makes "Roll-Away" screen kits, particularly for use on casement (and oddshaped) windows. The unit works the same way a window shade does: When not in use, the screen is concealed in an overhead housing, which contains a spring and roller assembly. When the window needs to be open, the screen is pulled down along metal guides and locked in place on the window sill. Weatherstripping on the bottom of the draw bar insures a tight seal.

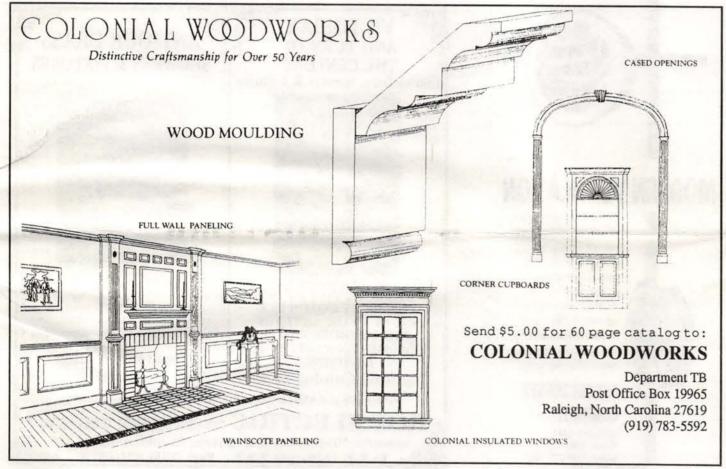
The screens are made of aluminum, custom cut to 1/16", and come in three colors: bronze, white, and satin finish. Sample prices are: \$77.30 for an 18" x 48" panel, \$97.90 for a 36" x 48" panel. A simple 4-step installation guide is included in the kit,

Walsh also manufactures an interior magnetic storm panel in vinyl with acrylic or aluminum with glass. Standard colors; custom can also be accommodated. Call for prices.



For free brochure, price list, and measuring guide, contact: Walsh Screen & Window, Inc., 554 East Third St., Dept. TB, Mount Vernon, NY 10553 (914) 668-7811. CSI# 08500 — JL







available in Birch, Oak, and knot free imported Kaudamu, in finished or unfinished form.

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The ceiling bead pattern

is well over a century old, yet it remains a popular

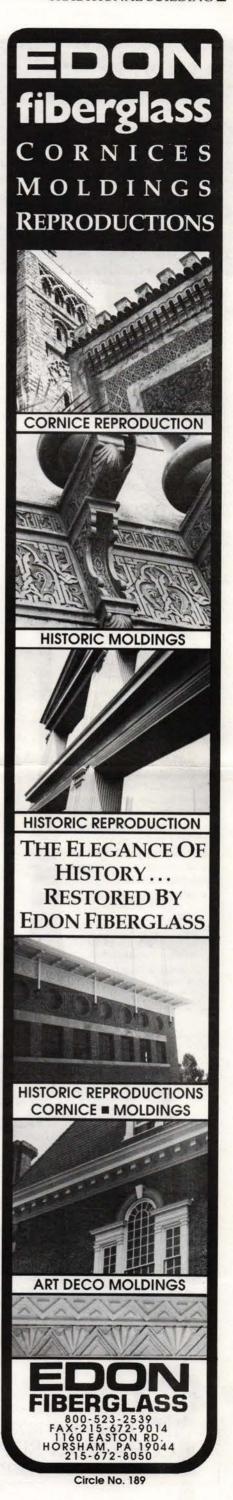
choice for remodeling

and restoration. States

Industries has repro-

duced this pattern in panel form, reducing the cost of material and the

labor required to install it. Hardwood contruction throughout maintains the look and texture of the original lumber product. These panels are





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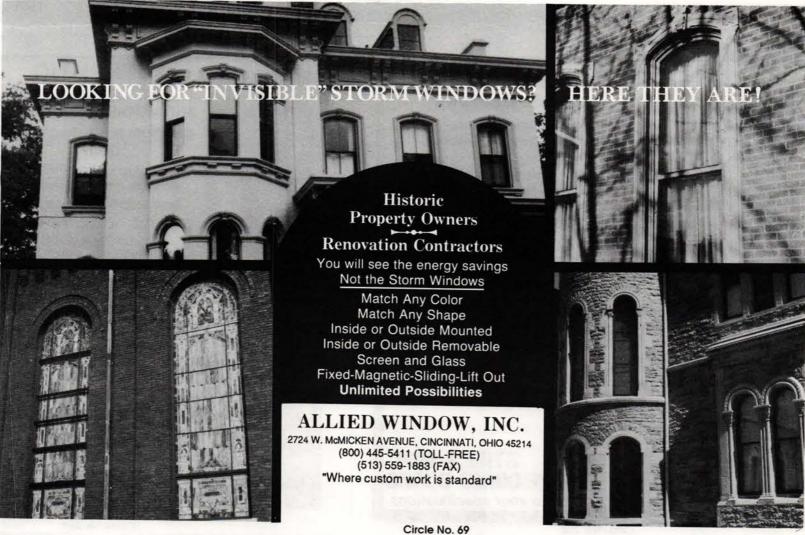


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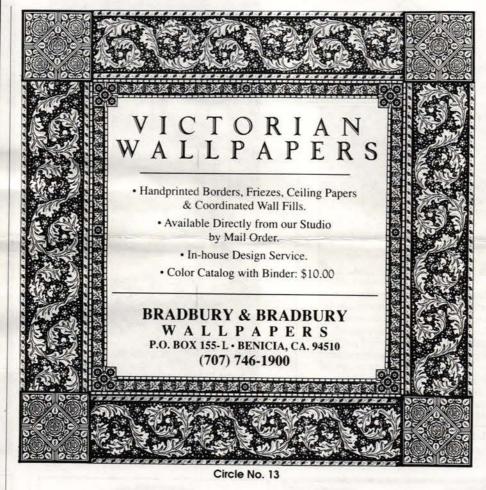
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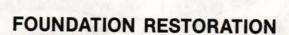
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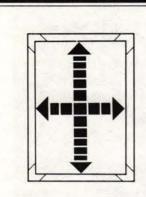
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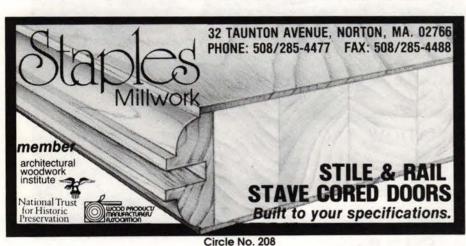
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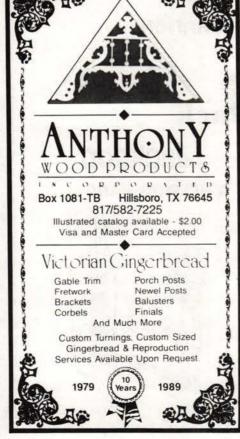


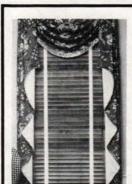
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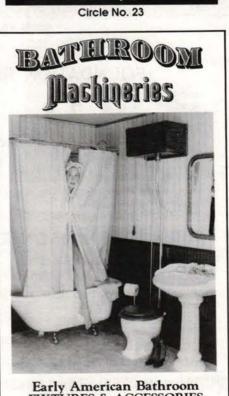
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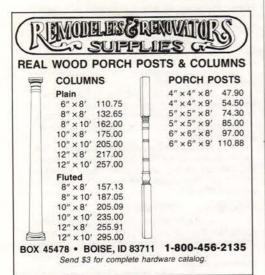


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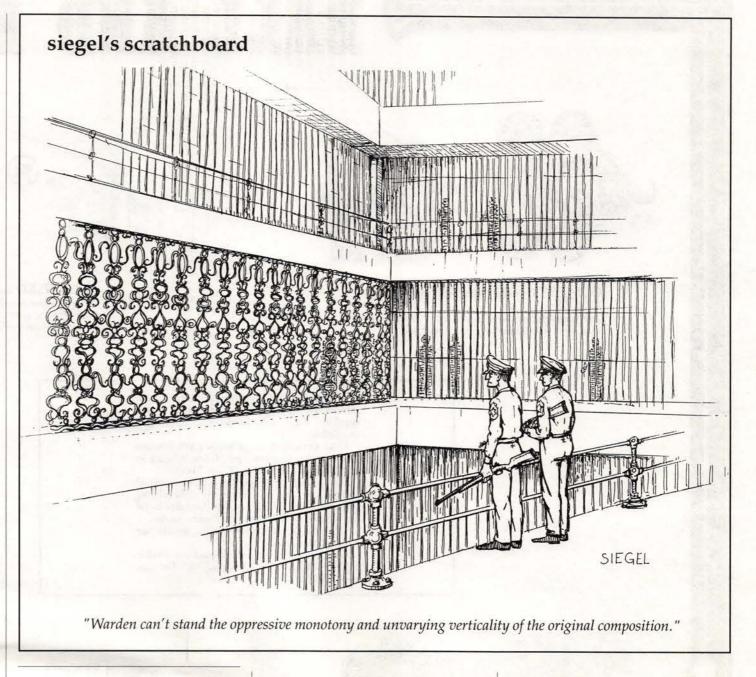
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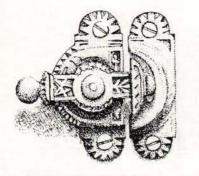
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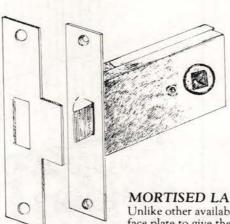
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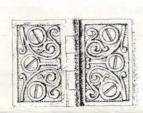
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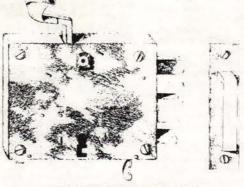
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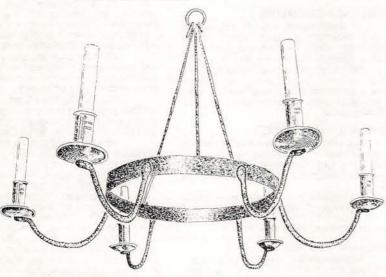
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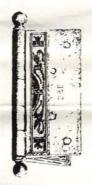
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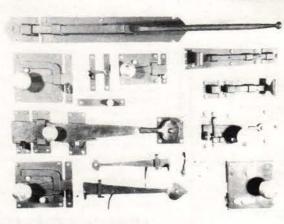
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