American carousels, estimated to have been made by the thousands and once found at beaches, resorts and even the smallest park at the end of the trolley line, are rapidly becoming one of America's rare and endangered species.

Between the years 1880 and 1930, the United States had 16 carousel and carving shops—six in Brooklyn, three in Philadelphia, five in North Tonawanda, N.Y., and one each in Kansas and California. Each produced from three to forty carousels a year. Today hand-carved wooden carousels are no longer made. Two firms, west of the Mississippi, are supplying newer styles in fiberglass and aluminum.

The National Carousel Association, an organization formed in 1973 to "promote conservation, appreciation, knowledge and enjoyment of the art of the classic wooden carousel, and especially the preservation of complete operating carousels," lists but 323 wooden carousels remaining in the United States. Of these, few are of the large park variety most remembered by Americans, with carved and painted panels, glorious chariots and spectacularly carved and decorated animals. The smaller, two and three row machines, some made for carnivals to be erected and dismantled almost daily, carry little ornamentation.

Early American carousels were probably made by wheelwrights; the earliest recorded was made in New England in 1800. It had crudely carved horse forms suspended by chains from arms projecting from a center pole. With the addition of horsehair tails and manes, and later of glass eyes, carved mane and saddle, carousel figures began to look lifelike. After the Civil War animals besides horses were used, and menageries were found on carousels in the last quarter of
could produce mouldings of quite complex profile.

The bodies of all these planes were made from wood, usually beech but occasionally boxwood or other fine cabinet woods. Craftsmen made their own planes when they needed something special but more often purchased them from manufacturers or tool dealers. Throughout most of the 18th century the majority of the planes and other tools in any American carpenter's kit were imported from England. While Sheffield steel remained standard for plane irons well into the 19th century, wooden plane bodies made in this country began to supplant imported ones early in the century. Names of American makers such as H. Chapin are stamped on the front end of many of the wooden planes surviving today. These survivors are found not only in museums or enshrined in private collections but also on shelves over the benches of many present-day carpenters, ready to produce a bead or ogee on demand. Of course modern electric machinery far outstrips the old hand tools in productivity, but to make a few feet of moulding or produce a shape in figured wood without tearing the grain the old ways are often more efficient. Besides, it is good for the artisan's soul occasionally to hear and feel a good sharp blade slicing away long curls of wood under the guidance of his hand.

The fanciest and most complex portable tool the preindustrial woodworker was likely to own was a plough plane. Used for grooving, it was arranged with an adjustable fence and depth stop to produce grooves either with or across the grain of the stock. The modern electric router does the same job but the tool is not nearly so sculptural. In the mid-19th century a carpenter could buy a simple plough with 8 irons of different sizes for about $3.00. However, for those who wished to put on the dog, these tools were available wrought in rosewood and boxwood for $8.00. I suppose that ownership of one of these glowing beauties with their richly grained wood accented by brass and polished steel parts was one way of indicating that here, indeed, walked a master of the carpenter's craft.

Most of this article has to do with things. But we should not lose sight of the man who owned them. Most likely he gained his skill by serving an apprenticeship of five to seven years under a master who had done likewise in a tradition handed on from the guilds of medieval times. That even the most humble country wood-butcher had more than a rudimentary education is obvious since he had to do his sums and read his rule to function at all. If he wished to rise in his craft, he had to be able to read the stylebooks. More often than not, our man was house builder, furniture maker and general handyman in his territory. Since so many things in common use were made of wood, it is not surprising that he spent as much time fixing as he did making. Account books of the 18th and 19th centuries are full of such entries as "to mend a table" or "to mending a cart." When he was not working at the bench or in the shop yard, his time was taken by such chores as "cradleing ½ acre of oats and Banding" for he was likely to be a farmer as well as a carpenter unless he worked in a large city. He took an active part in his local government. He owned property both real and otherwise as is evident from the many wills that have come down to us. Most of all, this man cared about what he produced. Of course there were uncaring persons in the trade then as now, but since one man combined the roles of boss, salesman, designer, worker, bookkeeper and deliveryman, he was likely to feel responsible for the quality of his products. Besides, his customers knew good craftsmanship from bad and would not, in general, put up with slovenly work. He had to produce the best that was in him or move on.

But these are all pragmatic considerations. I think preindustrial carpenters produced so much beautiful workmanship because they were men in touch with themselves, their tools and their raw materials. As far as I can see, it is not possible to put hand to tool and shape wood without being so.

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Interior of author's tool box.

(Robert Sutter)
virtually unchanged in form since Roman times are ample testimony to the fact that these tools have reached the only configuration possible to fit their function.

Carpentry tools can be divided into categories for pounding, gripping, drilling holes and measuring, but by far the largest group is edged tools. This includes planes, chisels, drawknives, shaves, knives, axes, adzes and saws, all used for cutting to size and smoothing, for incising and shaping. The saw is included in this category because it is really a series of chisels arranged in a line to cut the fibers of wood in an expeditious manner. The ax and adz were used for squaring house timbers in the pre-power-planer days, and a brief workout with an eight-inch-wide broadax or an adz will prove that considerable skill and energy is required to produce a square timber that does not look as if it were wrought by a beaver missing front teeth. Whenever possible such work was done by water-powered sawmills; however, hand tools still were used when the sawmill was unavailable.

Wooden planes were by far the most numerous tools in the carpenter’s kit. Amasa Thompson listed more than 30 planes in his inventory. Aside from cleaning up and smoothing rough planks or trying edges of planks so that they fit snugly together, there were dozens of other woodworking chores for mitre planes, tooth planes, shoulder planes, rabbet planes, moving fillisters, circular planes, plank match planes and panel planes, to name a few. Every time the carpenter wanted to cut a moulding or be an edge he had to select the plane appropriate to the shape he wished to make. Hermon Chapin, who manufactured planes in Pine Meadow, Conn., listed more than 100 different shapes and sizes of moulding planes in his 1853 catalogue. Even the names sound decorative: ogees, back ogees, bolections, cock and center beads, Grecian ovolo, Gothic beads, quirk ogees and scotias. By combining shapes, the skillful woodworker
as I am universally acquainted with the same, and I shall endeavor to use all Gentlemen that will employ me with the utmost veracity: I shall say no more, but I hope my Work and Performances will bear me witness of the Truth of the above asserted; I am to be found at the House of John Tarry's near the Scotch Meeting House." Note the offer to build in the most elegant and newest style, for it was from style manuals such as Amasa Thompson's $6.25 book that local carpenters boned up on the latest building fashions and took inspiration for the design of their buildings. In the same vein, Thomas Sheraton's *Cabinet Dictionary* (1803) and Thomas Chippendale's *The Gentleman and Cabinet-Maker's Dictionary* (first edition 1754) provided designs for furniture. Since carpenter and cabinetmaker were often one and the same, it is likely that many carpenters were well acquainted with furniture stylebooks of the period.

Another facet of the carpenter's skill was his ability to make drawings. In his *Cabinet Dictionary*, Sheraton devotes considerable space to instruction in "Geometrical" and perspective drawing. After all, it was of small value to have the skill-of-hand to create buildings and their contents without corresponding fluency in the language of design to illustrate one's ideas for one's client. Therefore it seems natural and right to find that expensive set of drawing instruments listed in Thompson's tool inventory.

Now what else would commonly be found in the tool chest of 1830 or so? A wide array of tools, many of which look as much like their ancestors as like their successors. Tools with names such as snipe bill shouldering plane, panel gauge, try square, spoke shave, awl, gimlet, cramping screws, strike block plane, and corner chisel keep company with jack and smoothing planes, plough planes, crosscut and rip saws, screwdrivers and other devices commonplace today. If form follows function, then planes, saws and other tools

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**The Plow Plane.** Made a groove along the end of a board. The Plow Plane. Simplest Plow: with thin iron plate. But the Adjustable Fence Plow (first wedged, later screwed) are best known types. (Shown head on)

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**The Adjustable Plow.** As seen from below. Notice how slide, gams slide through the stock (x) wedge, wedge, wedge. Fence: a Plowing Iron bit.

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**The Drawknife.** First called Draft Shave. Ranged from the 2½" Mast Drawknife. Drawknife work was done on the Shaving Horse, the piece worked on clamped by the Cow. Or done on a Shaving Block, the piece held by a block hook (and the worker's body x). . . . or for bench work, a Screw clamp.
knife, level, plumb bob, hammer, crowbar, jack and some other miscellany. That such a battery of equipment was considered requisite 300 years ago tends to support my thesis.

When John Lowerre, a Flushing, N.Y., carpenter and cabinetmaker, died in 1831, the inventory of his equipment comprised 165 items not counting supplies, paint, lumber and nails. About the same time, Amasa W. Thompson recorded an inventory of the tools in his carpenter shop in Middleborough, Mass. His list gives $138.94 as the total value of 144 tools. Worth special note are Thompson’s tenoning machine, a mortising machine, “1 case mathematical instruments,” drafting board and T square and “Architect Book.” The two machines were undoubtedly hand or foot powered, but they saved labor and time and it is clear that they were worth the $4.50 and $10.75 each cost when a back saw that would also cut tenons was valued at $1.25 and a mortising chisel at 25 cents. Thompson also spent $6.25 for his book and $3.62 ½ for his drawing instruments. That these last two items are included in the inventory at all indicates the continuation of the medieval tradition of the master builder. Indeed, the first rule in The Carpenters' Company of the City and County of Philadelphia 1786 Rule Book reads as follows: “Drawing Designs, making out Bills of Scantlings, collecting materials, and sticking up stuff are to be charged by the carpenter in proportion to the trouble.” Before the days of specialization, the carpenter was often architect, contractor and supplier of sash, doors and the other odds and ends of millwork necessary for a building.

The New York Gazette of February 2, 1768, ran the following: “House Carpenter.—This is to acquaint all Gentlemen that have any Buildings to undertake, or carry on that I John Glover, House-Carpenter from Edinburgh, will endeavor, if applied to, to accomplish the same in the most elegant, substantial and newest fashion, that is at present in Great Britain,
with wood and humanity. Chisels are placed carefully in compartmented drawers or wrapped in cloth so that their fragile edges remain unimpaired by accidental contact with the hard steel of their mates. Most of the tools in the chest are stamped with the owner's name; in fact, some show the imprints of several owners, for good tools were handed on from one workman to another. An aura of pride of possession and of mastery of the skills to use any tool in the chest is a palpable presence that makes itself known, almost as a sachet does in a drawer of linens, when one throws up the iron-bound lid of this portable carpenter shop.

Back in the days when the local carpenter was a sort of rural Renaissance man his trade was wide and varied. So too was his collection of tools. There is a myth that the fine workmanship evident in preindustrial houses and furniture was accomplished with few and crude implements. Nonsense! Tools of considerable sophistication commensurate with the state of the art of toolmaking at the time were available. And I believe that then, as now, craftsmen were receptive to using equipment that would do the best job with the least effort. Although a working day may have lasted from sunup to sundown, time was still money and the aim of a business-wise tradesman was to make the most of hours and skill.

A 17th-century manual of instruction in "Joyner's Work" lists the necessary equipment as a workbench, seven planes, six different varieties of chisel (assume several sizes of each), a square, a bevel, a marking gauge, a brace and bits to go with it, several kinds of saws, as well as a sharpening stone and other tools including a mitre box and an "engine" for making fancy mouldings: A separate list of tools not used in "joynery" tallies an ax, adz, draw

A big wooden box squats in a corner of my living room, all 250 pounds of it. Two feet wide, two and a half feet high and four long, it is made of strips of cherry and oak put together like logs in a log cabin. Two sturdy iron handles at each end attest to its heft when loaded with its full freight of tools. It must have been a prominent fixture in its original owner's shop, where he did most of his work back in the 1880s, making friends of his customers and customers of his neighbors; for the local carpenter was a man of many skills, and the big wooden box held the tools of his trade.

The meticulous care taken in building this tool chest and fitting its drawers and compartments in "the best manner" are indexes of the affinity of artisan and tool that existed before the days of mass production. In the top of the chest is a row of wooden moulding planes neatly arranged and set on end so that the carpenter could easily select a shape suited to the job at hand. In the spacious top center compartment the bench planes, plough planes and other special planes are stored in an orderly row. Saws of best quality steel with handles of cherry fastened to the blades with big brass screws are racked so that their blades are held straight and far enough apart to protect their teeth. Each tool in the chest is selected for its ability to perform a specific job and is just right for the man who used it. The wooden handles of the planes shine from use. Brass and steel keep a bright burnish from contact.
area insisted on redevelopment. Bergeron instead proposed renovation of the old town hall (1903) in Collinsville. With only 2,000 of Canton’s 9,000 residents living in the village, and some of the other 7,000 unaware that the old town hall existed, Bergeron went out on a limb to save what he saw as an anchor to the revival of the village center. He won, but the restoration plan called for breaking up the plate glass windows at street level into small “Connecticut colonial-style” panes. Clarke was able to dissuade the township from making that alteration, but could not stop the installation of new lampposts that are out-of-scale compared to the original fixtures and made of turned wood unlike the austere, straight posts used by the Collins Company. Reeducation will take time.

At another level, Clarke along with Bergeron is attempting to secure the economic future of the village. Working on contract to the town, Canton Six has formed a plan for adaptive use of some buildings in the proposed historic district. Clarke has also attracted architecture students from Cornell University to study Collinsville to make other similar proposals, and he is at the core of a group of holdovers from the town Bicentennial Commission who, he says, are “looking beyond the historic district.”

A cornerstone of Clarke’s plan is adaptive use of the factory itself, with an emphasis on restaurants, shops and apartments similar to but less expensive than those in the Long Wharf area of Boston. Clarke believes the commercial success of Collinsville depends on increased population and that, in any event, a factory would accommodate the change within the confines of some buildings in the proposed historic district. Clarke has also attracted architecture students from Cornell University to study Collinsville to make other similar proposals, and he is at the core of a group of holdovers from the town Bicentennial Commission who, he says, are “looking beyond the historic district.”

Perry, then, differs from Clarke on the question of whether the sprawling plant should support remunerative employment or apartments and less labor-intensive restaurant and shop space. Clarke recognizes that “low-income industrial space is very rare,” but he argues for a mixed-use approach to the space, pointing out that many locations in the factory with startling views of the river spilling over the Collins Company dam and the rapids below would be more desirable for housing. He adds that new factory space, if needed could be built and integrated into the plant yard more readily than new houses or apartments could fit into the residential areas.

But Perry is reluctant to endorse the transition. He grants that “some people may like to come out here and look at these buildings,” but he remains a spokesman for the durability of the factory in structure and traditional function. Perry foresees a day when the principle of Collinsville design—the proximity of workplace, residence and commercial center, the concept of an enlightened industrial town—will again become valid. New building and capital costs will have become so exorbitant that the labor-intensive structures of preautomated industry will be more attractive to manufacturers. At the same time, a pedestrian labor pool will take on new economic appeal.

However accurate his prediction, Perry nurses a great deal of empty space in anticipation of that new day. At last count, 56 small concerns had located in the plant—ranging from such light industry as metal stamping and toy making to glassblowing, mill supply retailing, warehousing and auto repair. They employ 160 workers, or about one-quarter of the Collins Company’s post–World War II peak.

Perry says he appreciates Clarke’s plan but that an important first step is to have more jobs in town and not more people. He says he would allow a knowledgeable restaurateur to try locating in the plant, but he warns that a failure of adaptive use now might set the clock back.

Clark Strickland of the Connecticut Historical Commission sees pressures to suburbanize Collinsville. In his view, a young, freer spending generation has discovered the village. Strickland thinks that Canton Six and the Collinsville Artworks are in the vanguard of a commercial resurgence that will focus on artists and young professionals—people who would value the existing complexion of the town. But he says that preservation regulations must be strong to assure that the changes made are desirable.

Looking ahead, one young resident, himself an engineer, commented, “The day it gets cutesy and artsy around here, when people lose sight of what this town was and is about, is the day I move out.”

The Collinsville preservationists want to avoid developments that destroy the town’s industrial character. While Tom Perry appears to confound the plans of other preservationists, he may in the long run represent their strongest ally.

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