



LEONARDO: painter (left)
to aircraft engineer (above)

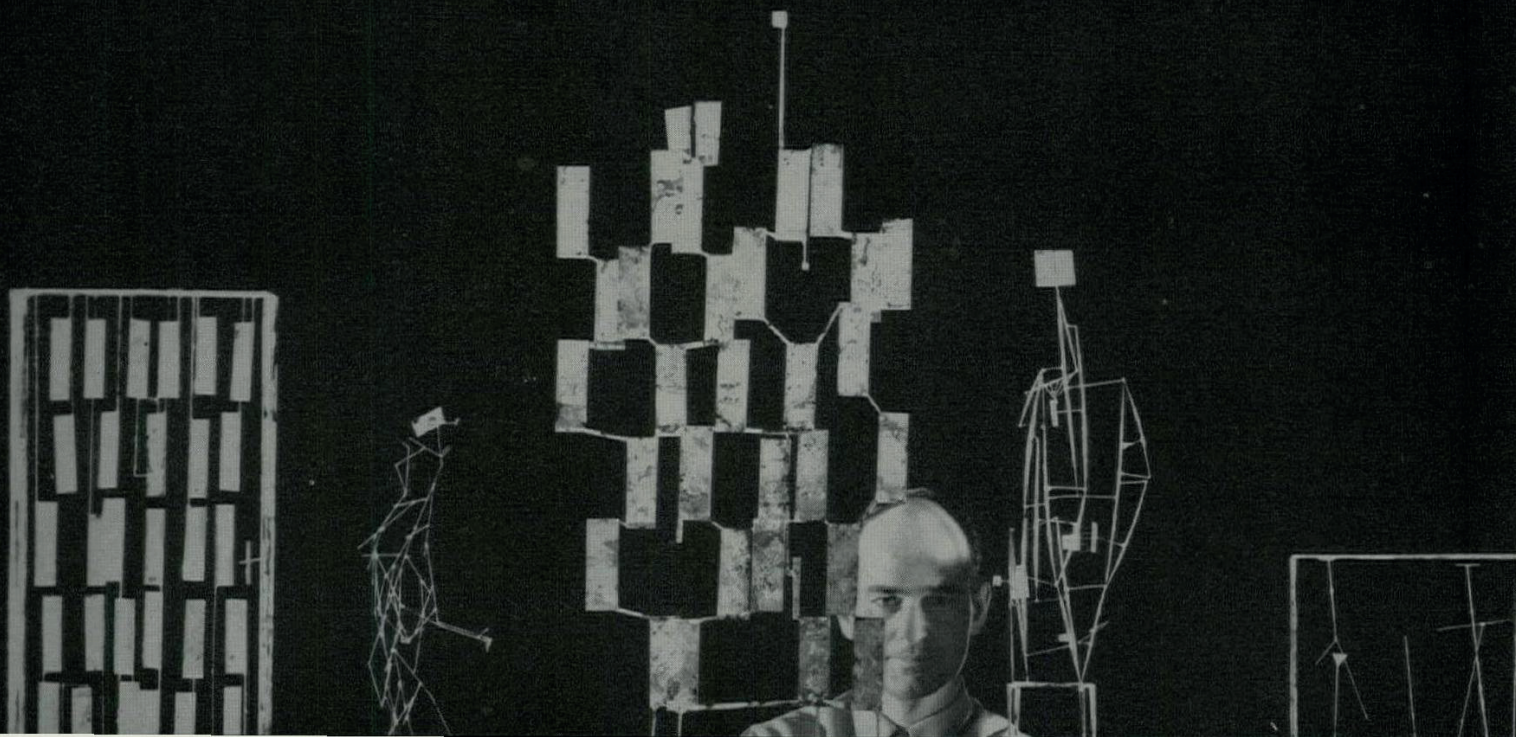
PURE DESIGN RESEARCH

transforms abstract sculpture into new forms for architecture and furniture

The intense young man peering at you through a maze of strange metallic contraptions is a 37-year-old, Italian-born painter, sculptor, designer called Harry Bertoia, who spends most of his time fastening small glittering snippets of sheet metal to pieces of wire, and then fastening these pieces of wire to other pieces of wire. When he has fastened enough of these together, he gets something that looks at first glance either like a garlanded radio pylon, or like a yard full of laundry lines on washday, or finally like a magnificent fish net spangled with strange objects dragged up from the bottom of the sea.

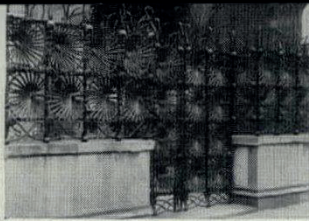
In actual fact—as many critics will testify—Harry Bertoia's work is among the finest in abstract sculpture produced in the US today.

This story, however, is not primarily about Harry Bertoia's sculpture. It is concerned with Harry Bertoia's research into the fundamental principles that unite all the visual arts—sculpture, painting, architecture, applied design. And the story is concerned, also, with the fact that this research for a *pure* art has produced many discoveries directly applicable to architecture and to furniture design.





MICHELANGELO: sculptor, painter, architect (left and above).



GAUDI: metal grilles (above, left), wooden chairs (left), sculptured architecture (above).



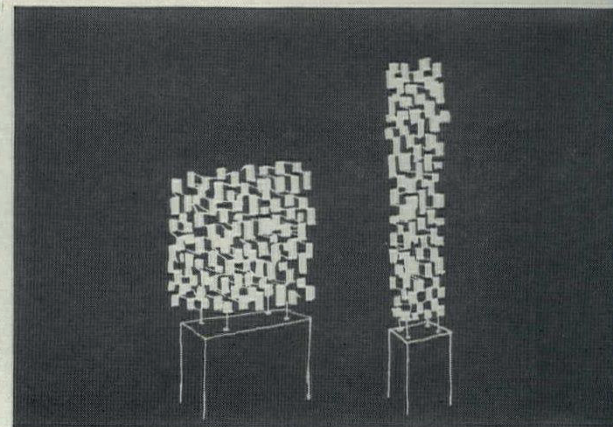
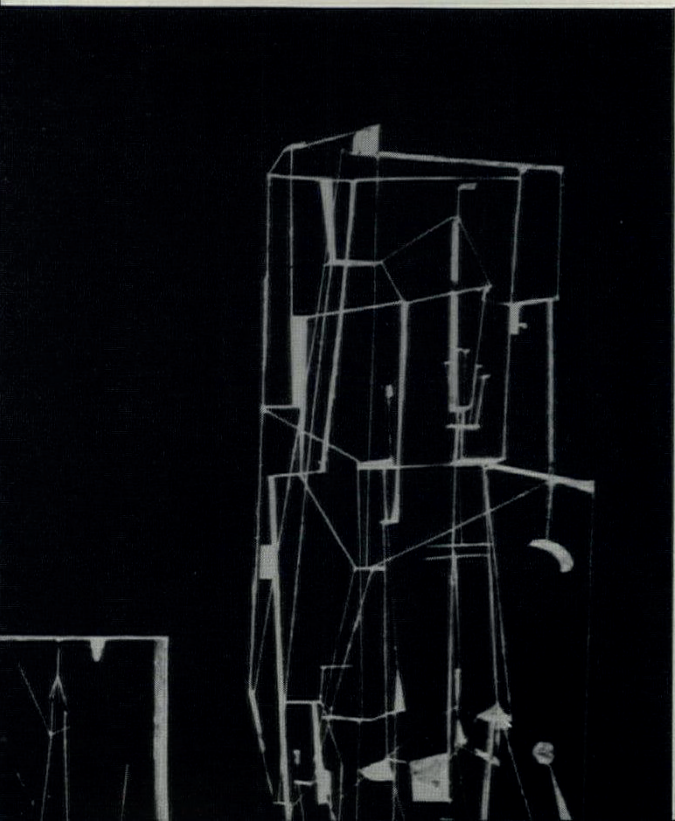
LE CORBUSIER: painter, sculptor, poet, pamphleteer—and architect-planner.

The principle is not exactly new: Michelangelo was known best as a sculptor, next as a painter, finally as a first-rate architect. Leonardo's work in all the so-called fine arts led him to an increasingly active interest in *all* forms and *all* structures—and helped to make him one of the greatest engineers of all times. More recently, the Spanish surrealist sculptor Gaudí produced architecture whose influence upon men like Le Corbusier has been important. And even today Le Corbusier himself spends more time on painting, sculpture and even poetry than he does on architecture itself—for the research into pure form, pure space, pure color, pure rhythm, proves to have a very distinct bearing upon the design of multi-story apartment structures.

But in recent US art history Bertoia is a rare phenomenon. His counterpart in the sciences has long been a familiar sight in big corporations such as DuPont—which employs scientists to engage solely in pure research at the company's expense, on the theory that the by-product of such pure research may well prove practically applicable.

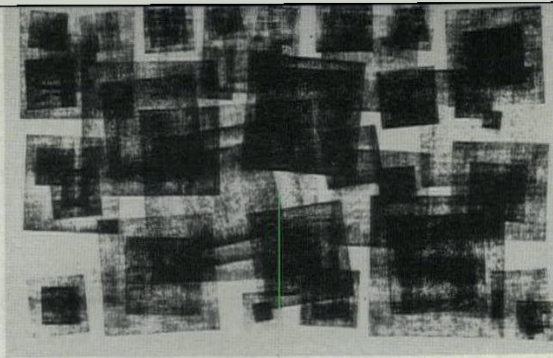
It now turns out that the by-product of pure art may be equally practical. Just as the Duke of Milan realized that a captive Leonardo, doing painting and sculpture, might also hit upon some wonderful new gadgets equally useful in peace or war, so American architects and producers of modern furniture have found that Harry Bertoia is no esthetic recluse, but a man who can give them something they badly need. Two years ago Hans Knoll, who produces the furniture designs of a whole series of artists, architects and designers, set up Bertoia in a barn and workshop in Pennsylvania. There Bertoia pursued experiments in pure art (especially metal sculpture) in the hope that the by-product might some day prove useful in architecture and interior design, and marketable. This month much of that hope was realized: Bertoia's wire chairs are in production, and his architectural screens and grilles have been specified for use—not as decoration *but as integral architectural elements*—in the staff restaurant of a giant US corporation, and in the cocktail lounge of architect Minoru Yamasaki's new St. Louis airport building.

Below: Bertoia's sketches suggest use of spangled screens as light-diffusers in modern chandeliers: pedestals contain light source; beam is directed upward to illuminate metal clusters, give them soft, emberlike glow.

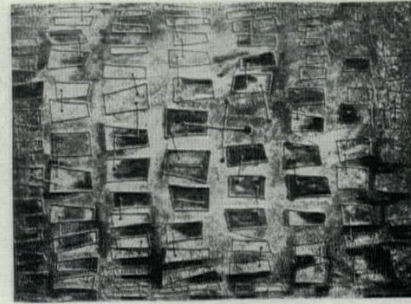


Photos above: Acme Wide World; Pix; Arvix Mas; Nicholé Muller; LIFE-Nina Leen; Herbert Matter





Abstract lithograph shows how Bertoia plays with simple, related forms in space.



Similar lithograph technique produces patterns intended for use in printed fabrics.

The effect architecturally of Bertoia's screens, which will set up a scintillating kind of interior arbor around the activities which they enclose, hardly needs to be explained. But the new Bertoia chairs shown on these pages may at first seem to have very little in common with the abstract construction pictured next to them. FORUM consequently got Bertoia to talk about them, answer questions about them.

To Bertoia, as this conversation revealed, the chairs and the sculpture are just about the same thing. Said he, "In the sculpture I am concerned primarily with space, form and the characteristics of metal. In the chairs many functional problems have been satisfied first—while the sculptural element is quite nonfunctional. But when you get right down to it the chairs are studies in space, form and metal, too."

Question: Did Bertoia think the chairs ought to look like sculpture?

Bertoia: "Well, I am really in sympathy with the Japanese idea of interior design—that the best furniture is no furniture at all. But

if you will look at these chairs you will find that they are mostly made of air, just like the sculpture. Space passes right through them." He made an expressive gesture suggesting space passing through a chair. "Besides, we don't have the Japanese tradition in the West. We need more comfort. The human form can't be redesigned, and chairs that really fit the human form are going to look a little sculptural."

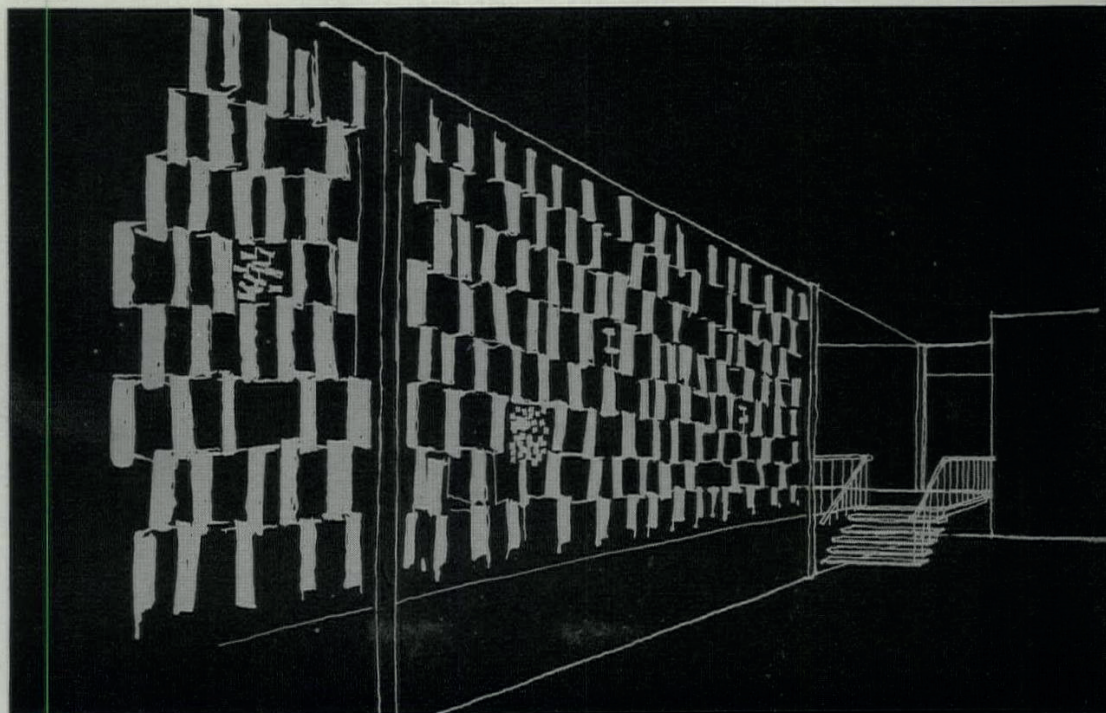
Question: What was the relationship between his abstract sculpture and his furniture design—for example, the chair pictured to the left?

Bertoia: "You'll see that the sculpture is made up of a lot of little units—" pointing to a hexagonal wire frame decorated with pieces of sheet metal—"and these rectangles or triangles or hexagons are added together and produce one large rectangular (or hexagonal) sculpture. The same with the chairs. This chair has a lot of little diamond shapes in its wire cage and they all add up to one very large diamond shape, and this is the shape of the whole chair. It is a really organic principle, like a cellular structure."

Metal screen (right), similar in construction to abstraction in color plate (left), serves as space-divider between related, open areas in a modern building. Bertoia feels that natural light will bounce around within screen and right through it. Result: a screen that provides some visual privacy but does not shut out all light.

New Bertoia chair (left) is shown beside Bertoia sculpture. Chair seat has pivot with rubber "brake" designed to permit movement of an inch or two backward and forward.

←
Herbert Matter



Question: What about his principles of support?

Bertoia: "Everything should be separated according to function. In the sculpture you have one kind of metal rod, or nails welded and braised together, and that is the horizontal support. It is very clear, there is no confusion. The sheet metal pieces act only vertically—they are held in place by the rods.

"Now in the chairs we have done the same thing. In the chairs there is a strong supporting structure made of rods. Then there is the thing that is supported—a diamond-shaped form or something like it. There is a very clear direction. I like things to be very, very clear in that respect."

Question: Bertoia was known also as a painter. Had his painting influenced his chair design to any extent?

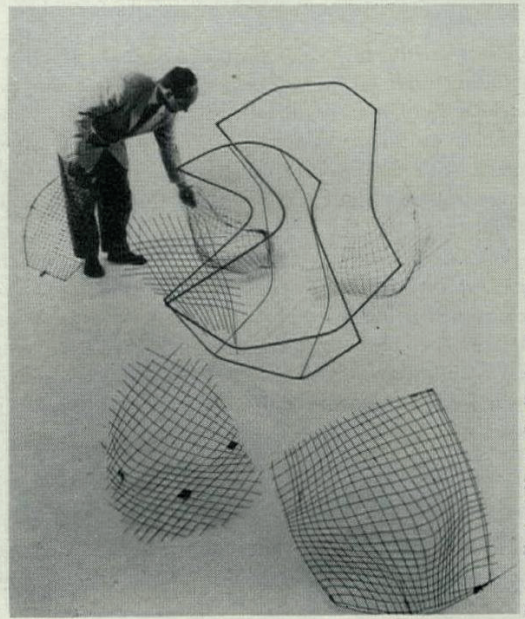
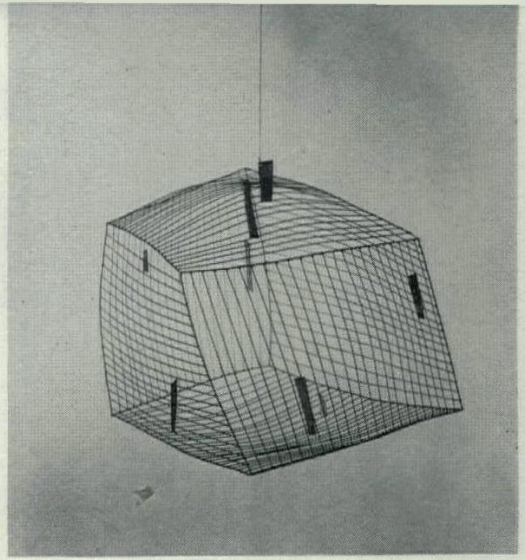
Bertoia: "Only indirectly. I used to make paintings on the most transparent paper I could find—paint just a shape here, leave a lot of space around it, and then another shape and another color there. Then I would stretch the paper on a frame and hang it up against the light. The colors would float in the air, some closer, some farther back. I started to get interested in all these space experiments long ago—at Cranbrook after I had been there a little while—and the floating-in-space idea is now in the chairs too."

Question: Did Bertoia have more to say about the peculiar occupation of doing abstract sculpture on the one hand and very practical objects on the other?

Bertoia: "Everybody is a specialist now," said he. "I am trying to take in as much of the world as I can. There are many points of contact with other people. A week ago I met a man who did research in cosmic rays. After we talked for a while we found many things in common. This sculpture, especially—" he pointed to a metal frame filled with needlelike objects—"was something we found we both had in common. . . .

"The cosmic-ray specialist could explain it better than I," he smiled cryptically. "But anyway we understood one another perfectly. And at any rate I try to find out as much as possible about anything I do—and sometimes the thing I think has no purpose at all, like this sculpture, turns out to be actually very useful."

Bertoia is a very busy man. The Knoll workshop has several assistants and they are very hard at work solving practical details for architectural screens no less than furniture. At the same time, Harry Bertoia will continue his researches in pure abstract art for these have paid off handsomely and in design—as well as in the business world—nothing succeeds like success.



Photos: Herbert Matter Studio Associates Inc.

Pictures on this page show several variations on the basic line of Bertoia chairs. All are made of formed wire supported on a rod frame. Picture at top of page shows typical Bertoia "birdcage" sculpture, very close in spirit to wire chairs now being produced.

