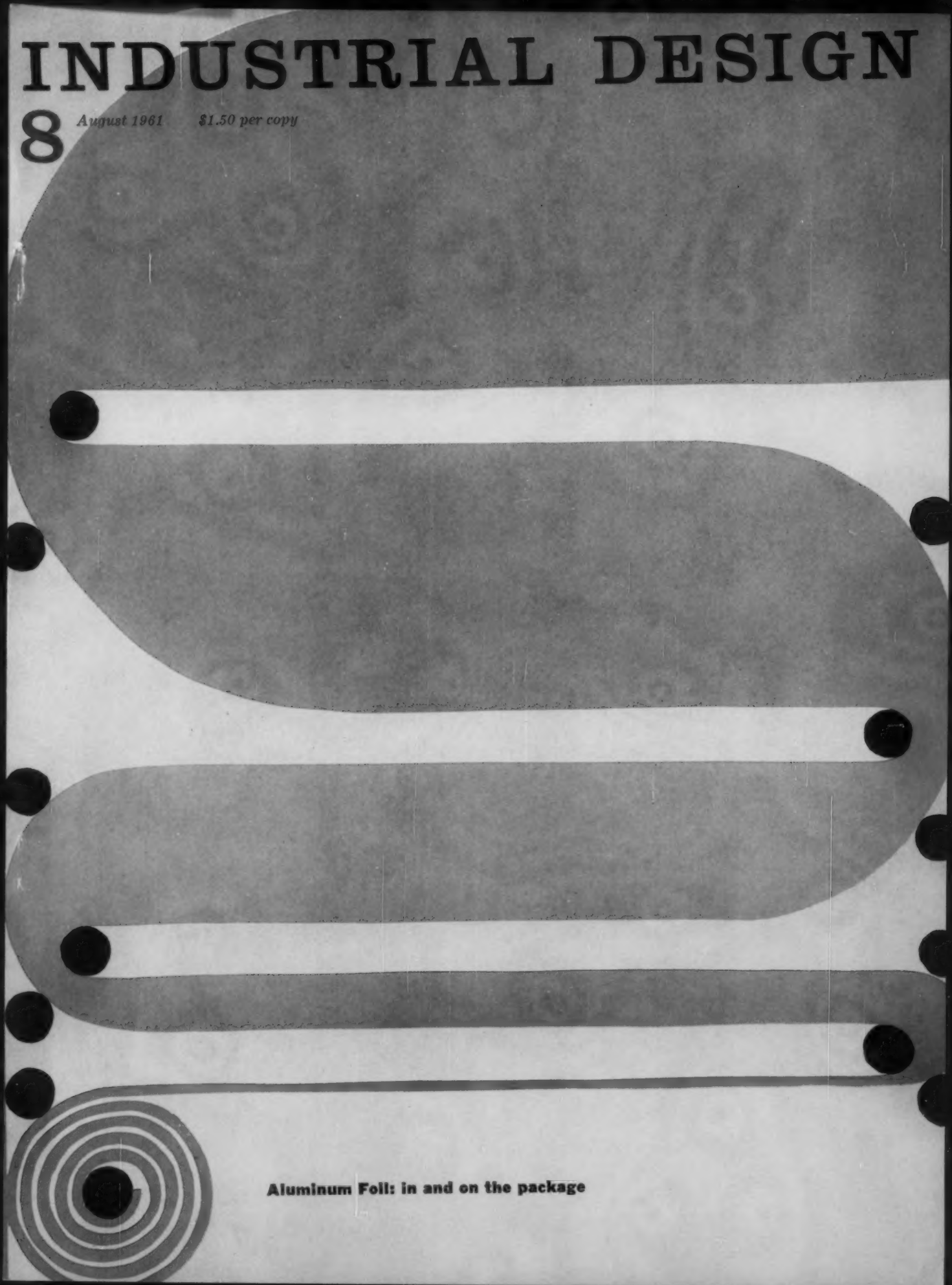
INDUSTRIAL DESIGN

8 *August 1961* *$1.50 per copy*



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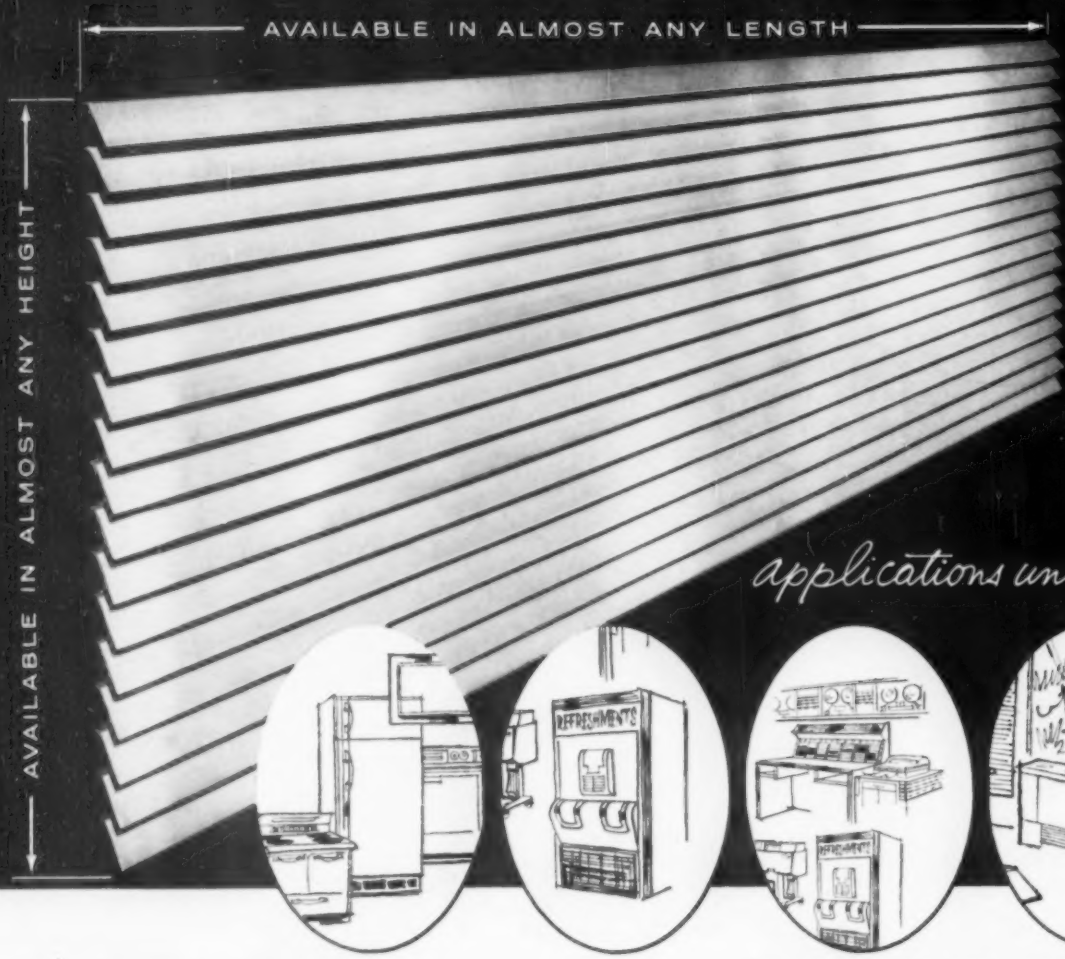

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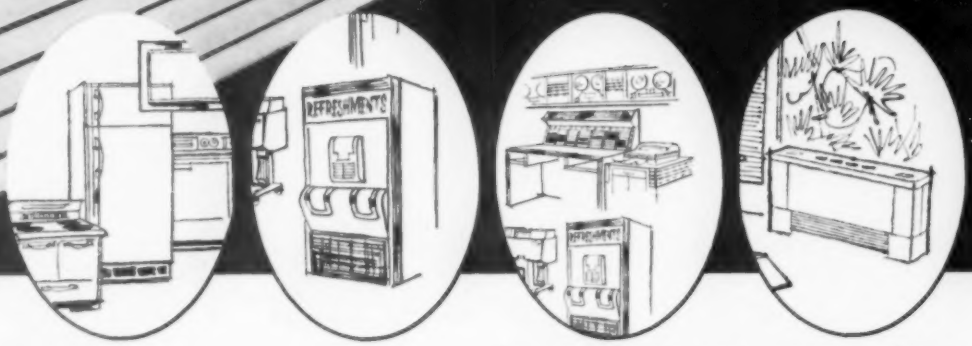

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*

** - See Overleaf

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HENRY DREYFUSS, Henry Dreyfuss

AUGUST, 1961 VOLUME 8 NUMBER 8

INDUSTRIAL DESIGN

Published for active industrial designers and the executives throughout industry who are concerned with product planning, design development, and marketing

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COMING

IN SEPTEMBER—*The designer and the engineer*

IN OCTOBER—*Packaging with films*

COVER: Peter Bradford's design shows how a pound of aluminum can be reduced until it is thin enough to cover nearly 30,000 square inches, at which point it's foil (page 41).

FRONTISPIECE: Robert Zeidman turned his camera upward in Turin's labor exhibition building (page 68) to photograph the mushroom structure of Pier Luigi and Antonio Nervi's massive concrete columns and metal ribbing.

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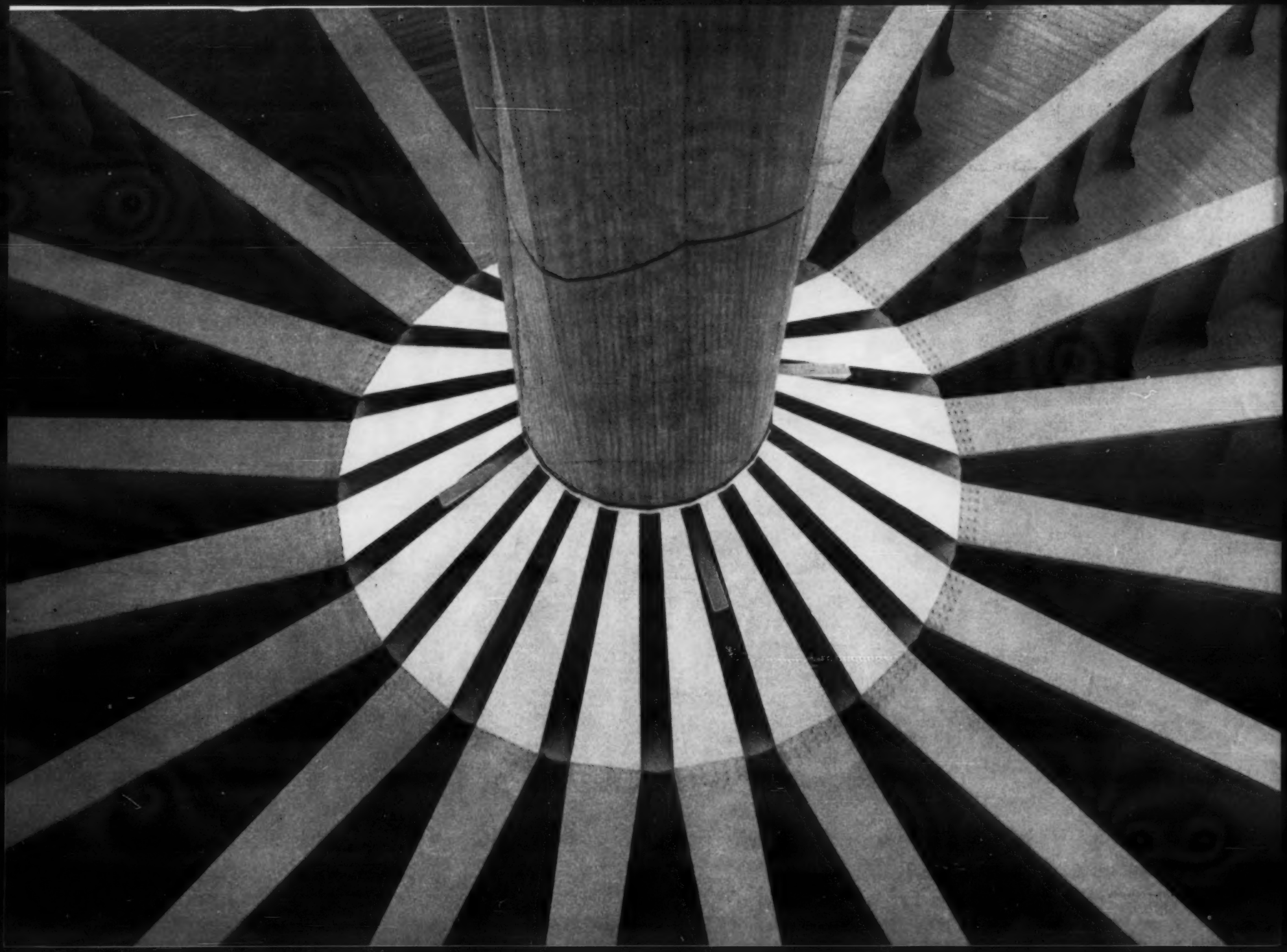

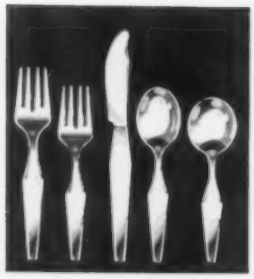

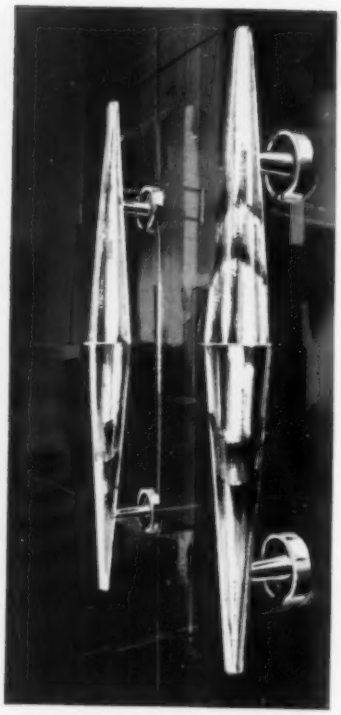

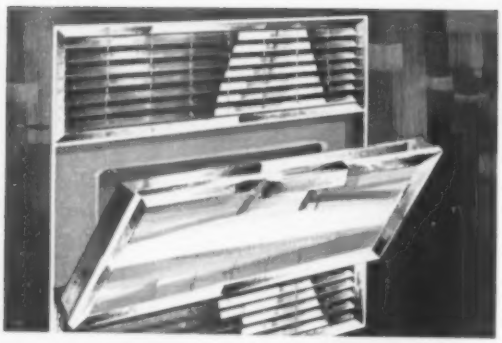

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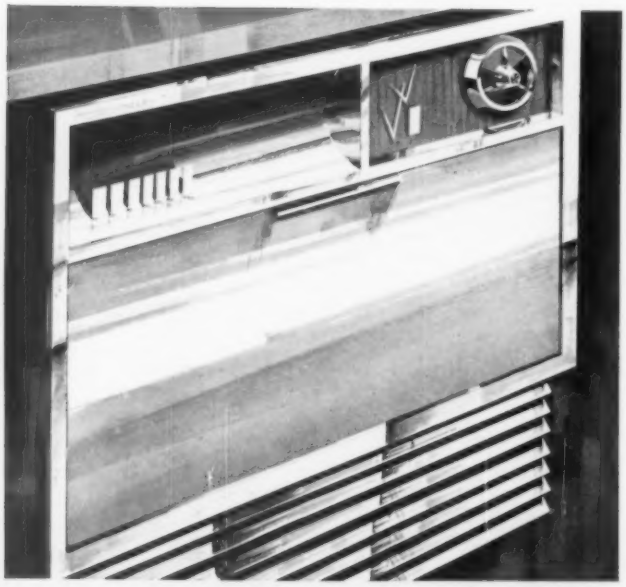

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NEW STEELS ARE BORN AT ARMCO

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IN THIS ISSUE

Raymond Spilman, president of the ASID, who sparked the controversy aired on page 62, has headed his own consultant design firm for 15 years. His particular interest in industrial design education has led him to serve as a consultant or lecturer at various design schools, including Pratt Institute, Philadelphia Museum College, Syracuse University, and Georgia Institute of Technology. His experience as a designer includes staff positions with General Motors, Walter Dorwin Teague Associates, and Johnson, Cushing & Nevell.

James M. Alexander, Jr., president of the IDEA, speaks for his organization in discussing the ASID's school approval plan (page 63). Professor of design and head of industrial design at the University of Cincinnati's College of Applied Arts, Alexander worked for a time at Raymond Loewy Associates after receiving his B.S. in architecture from Cincinnati. He carries on a limited architectural and design practice and a not-so-limited "hobby" —building his house with his own hands.

F. H. K. Henrion, who designed the traveling exhibit structure discussed on page 74, heads the London firm of Henrion Design Associates. A member of Great Britain's Society of Industrial Artists, Henrion is a visiting lecturer at the Royal College of Art. He studied at the Ecole Paul Colin in Paris and has worked on many fairs and exhibits (among them the New York World's Fair of 1939). He has also been art director of *Future* magazine, art editor of *The Compleat Imbiber* (house magazine of Messrs. W. & A. Gilbey Ltd.) and consultant designer for British Olivetti Ltd.

Robert Zeidman, whose impressions of the "Italia '61" fair at Turin (page 68) were collected during a recent business-and-pleasure trip to Europe, heads Robert Zeidman Associates, a New York firm of package and product designers. A "week end sculptor and painter," whose weekday interests center on packaging design, he is a director of the Package Designers Council and author of several articles on product and package design.

Robert Cumberford, who co-authored (with Mitchell Sayers) the taxi-cab story on page 52, is a writer-industrial designer who appeared in ID most recently last November, with an article on the 1961 cars. His interest in transportation extends to airplanes and he is now working on a book about them. Cumberford plans to leave soon for Brazil to teach new methods of making agricultural implements out of wood.

Mitchell Sayers, who co-authored (with Robert Cumberford) the taxi-cab story on page 52, is a designer of technical packaging at Walter Dorwin Teague Associates. Sayers received his degree in industrial design from Syracuse and also attended one of Professor John Arnold's "Creative Engineering" seminars at M.I.T. He has been involved in the design, building, and racing of sports cars as a hobby for over 10 years.

Spilman

Alexander

Henrion

Zeidman

Cumberford

Sayers

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LETTERS

Wash or wear

Sirs:

Four years ago I stood before this short, white, double-barreled cannon eyeing it doubtfully. "Is this the washing machine you want?"

"Yes," says the wife, "this is the very same one—it even looks the same—that Grace had for 15 years, and that does such a good job." So we buy it.

The first year, while the guarantee is still good, it had to be serviced twice: A bit of trouble with the electrical system. Paint that won't stay on.

Two years later, no more guarantee, the pump goes bad. This costs $25, because this is a machine that forbids the slightest attempt at repair by anybody but a professional. It is designed so ingeniously that special tools must be used to put it together again.

Two weeks ago, on the machine's fourth birthday, I hear these words: "The washer is on the fritz again. The spin-dryer tub works, but the paddle doesn't swish in the washing tub." So we call the repairman, who puts his hand on the plastic paddle, spins it once, and says, "It's the transmission. All the transmissions in this make are no good. The gears are made of fiber, not metal, like they used to be." We ask how come these machines used to last 15 years.

"They made them better. You think yours is bad? The new model is even worse. I've got six of them in the shop now with transmission trouble. What I don't understand is why the plastic paddle hasn't cracked in your machine yet. And have you any torn clothes? When the rubber under the paddle wears out, it grabs the clothes and rips them."

We have firmly resolved to get a new machine. We have our minds fixed on the simple, flat type with corrugations—the kind that you rub clothes up and down on.

Friend, if you are a manufacturer of appliances and have been joining the chorus of complaints about how slow business is, why not look into your own design department for the reason? That washer on the drawing board might well be the washout that people are wising up to in droves.

Andrew Certner
Waldwick, New Jersey

Designer as salesman

Sirs:

Any institution in our society must be sold in order to realize its own place in this society. This selling must be active rather than passive. Industrial design has been sold to management in a manner lacking inspiration and drive. There have been hundreds of meetings where the issue has been aired and re-aired. But management is not being sold. Designers are not attempting to build business, but, waiting for it to come in. This passive attitude has never worked even in creative endeavors, and it will not work with industrial design. Companies in increasing numbers are giving up their design programs in despair, because there seems to be no language in common.

An industrial designer is trained to be an artist, and, except in some rare cases, he is equipped for little else. This being the situation, it is only natural that the business man not recognize him as a practical, thinking individual who can help increase corporate profits.

It is time for an aggressive approach to selling design to industry by men who must possess qualifications other than sensitivity to form and color. They must also be men with knowledge of marketing, sales, advertising, and all other phases of a company's operation.

The approach to management by the salesman must be carefully planned and executed in the best interests of completing the sale and bringing more business to the industrial designer.

One idea is to have industrial design representatives in major industrial areas who would go into companies to get business and take it to the appropriate design firm. The representative would continue to act as liaison between the two on a specific contract.

Until there is some sort of direction in industrial design, it will flounder and never come to fruition. If it finds its channel, then the future is wide open, and it can move as a profession and command respect. When this happens the rewards will be great: the industrial designer will have a real part in shaping our environment in years to come.

William H. Whitney
New York, New York

Progress and fantasies

Sirs:

We have noted with interest your editorial in the May issue of INDUSTRIAL DESIGN in which you have said that: "It has already become absurd and unnecessary for designers to do . . . the brand of 'design for space' that is glittering down in the lower left-hand corner of this page." Our interest, of course, stems from the fact that your illustration is taken from U. S. Steel's book "Concepts."

If you are considering this illustration in the abstract, we would certainly agree that it might be compared to "ersatz prophesies" from the comic strips. On the other hand, if you are criticizing the kind of imagination and material that has gone into the book, perhaps it would be helpful were we to review the thinking underlying the book.

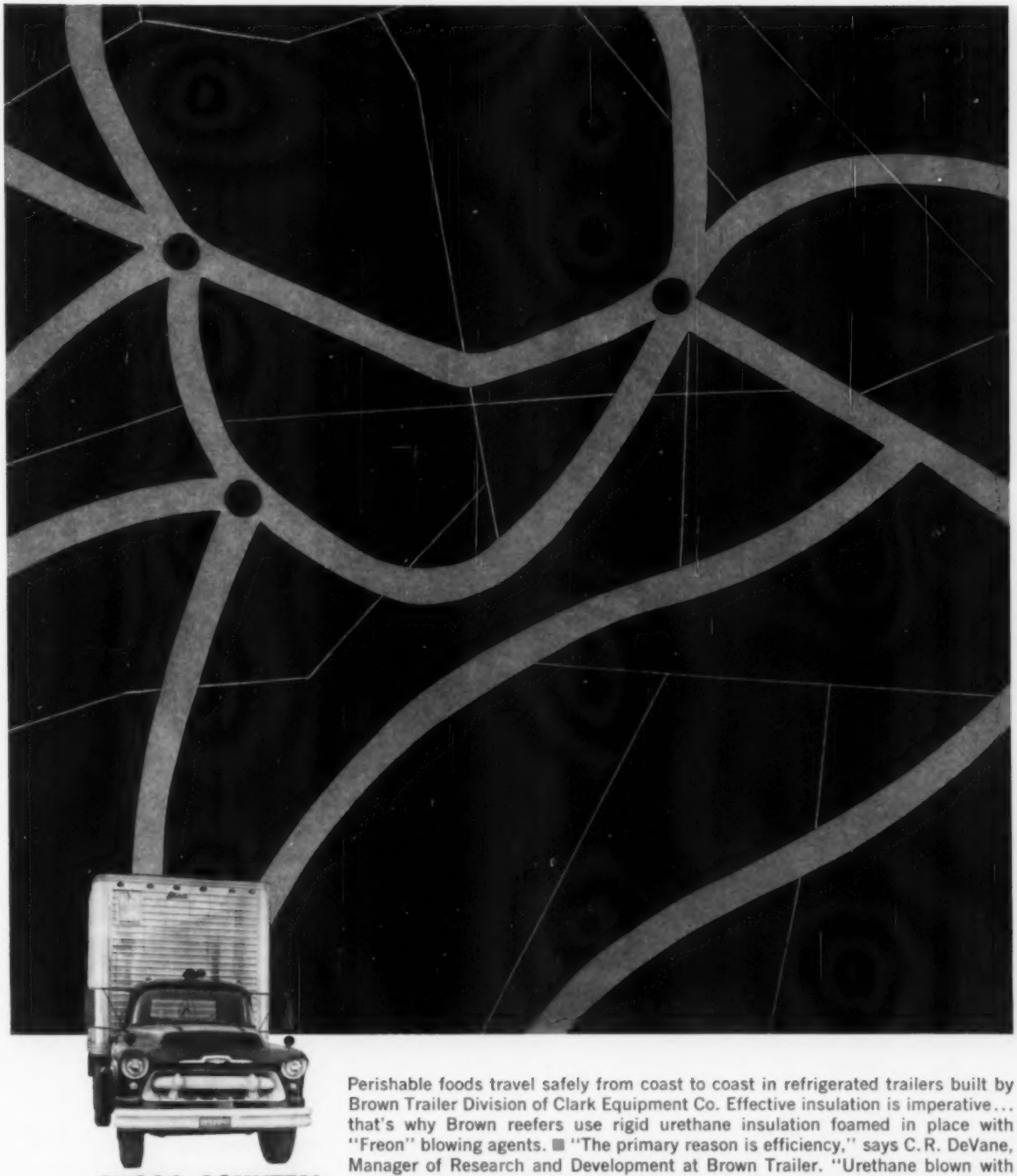
We yield to no one in the intensity of our conviction that designers contribute importantly to a "meaningful evolution of useful form." And, we yield to no one in our conviction that progress is made by those who dare to venture into the world of dreams and fantasies; for it is only by exploring the many possibilities conceivable that the chance of finding the "best" approach is maximized. In this way, we believe that design can exploit to the fullest degree both the performance and economics of a given material. This reasoning is basic to the approach we took in our book "Concepts." Incidentally, all of the ideas submitted in the brochure are today in use, or in test, or on drawing boards for future possibilities and can be considered for potential application on automobiles and trucks.

This reasoning and the availability of literally 10,000 steels are the basis of our contention that we in the steel industry are not merely meeting the future, we are making it; and that the steels available today are ready to meet the functional needs of tomorrow.

Here is what I mean by this: when Commander Alan Shepard vaulted upward 115 miles in man's first publicly documented flight into outer space, he was propelled by a Redstone Missile whose air frame was made of USS Cor-Ten Steel; this same steel was used for the conical section that mated the missile to the capsule which carried him. Now, this Cor-Ten Steel had been introduced in 1933—it was ready for the "future" long before the future arrived.

Robert C. Myers
Director of Market Development
United States Steel Corporation
Pittsburgh, Pennsylvania

There is a distinction between dreaming and "dreaming up." We submit that the design ID showed is not characterized by the kind of probing creative daring that produces a better steel.—Ed.



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REVIEW: BOOKS

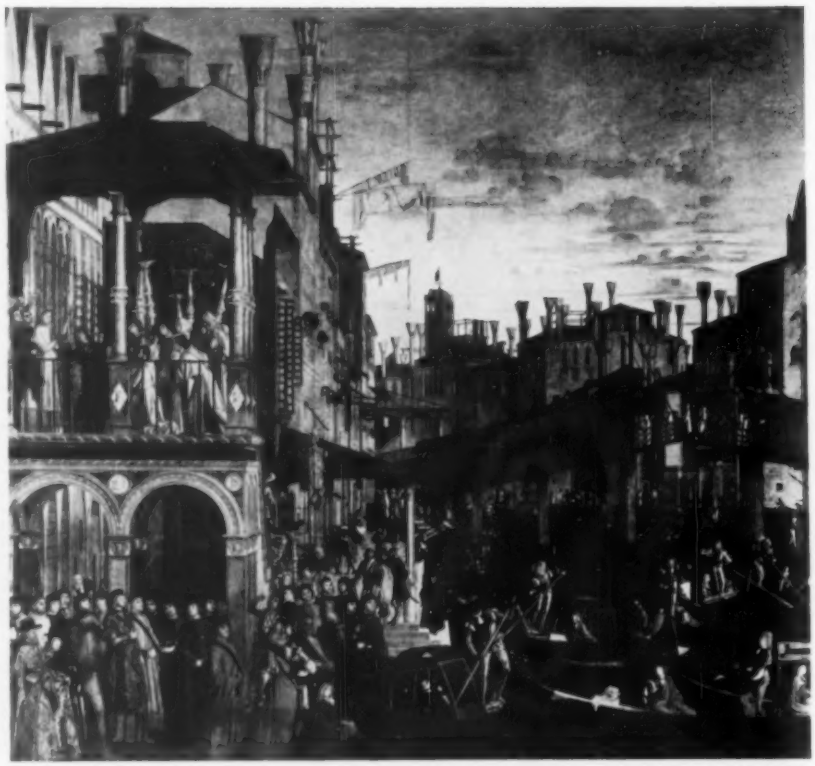
Man in the City

The City in History. *By Lewis Mumford. Harcourt, Brace & World, Inc., New York. 657 pages. Illustrated.* $11.50.
Reviewed by Gordon Chadwick

Hoping to find a replacement for a lost copy of Lewis Mumford's *The Culture of Cities* (1938), I was pleased to find *The City in History* an expanded work on the same subject. By this date there are those too young to appreciate how great a contribution Lewis Mumford has made to our thinking about architecture, planning, and design, but when I was in school he was a fresh and stimulating influence. Where other historians confined themselves to the development of historical styles, Mumford's concern was the development of Man, made evident by what men have produced. As the summing up of his reflections on urban life, *The City in History* is an important book. Nevertheless, I found it exasperating.

As most of us do, I began with the illustrations only to find several obvious inaccuracies. The commentary for the picture of the Piazza Navona, mentions "Bernini's church and fountains" whereas, in fact, the church is by Bernini's rival, Borromini. The same commentary asks us to "observe that the obelisk at the further end of the Piazza Navona serves as the equivalent of a tower in the middle distance." In actuality, the obelisk is in the *center* of the piazza near the church. In another commentary Mumford attributes two paintings to Giovanni Bellini. One of these is generally attributed to Gentile Bellini, the other (at right) to my hero, Carpaccio. While in themselves these errors are perhaps of no great consequence, one wonders whether elsewhere in the book important conclusions may not have been reached with a similar disregard of facts.

One wonders, too, whether Mumford has not painted a deliberately grim picture. "If I have duly emphasized the disintegrations of the metropolitan stage, it has been for but one reason: only those who are aware of them will be capable of directing our collective energies into more constructive processes." But the reader who has progressed this far has long since detected a partiality for gloom in the author's accounts of earlier civilizations. He consistently bears down on the failures and soft-pedals the achievements. Is this really the best technique for inspiring us to build a better city?



"Secretive tyranny . . . and festering hatreds"

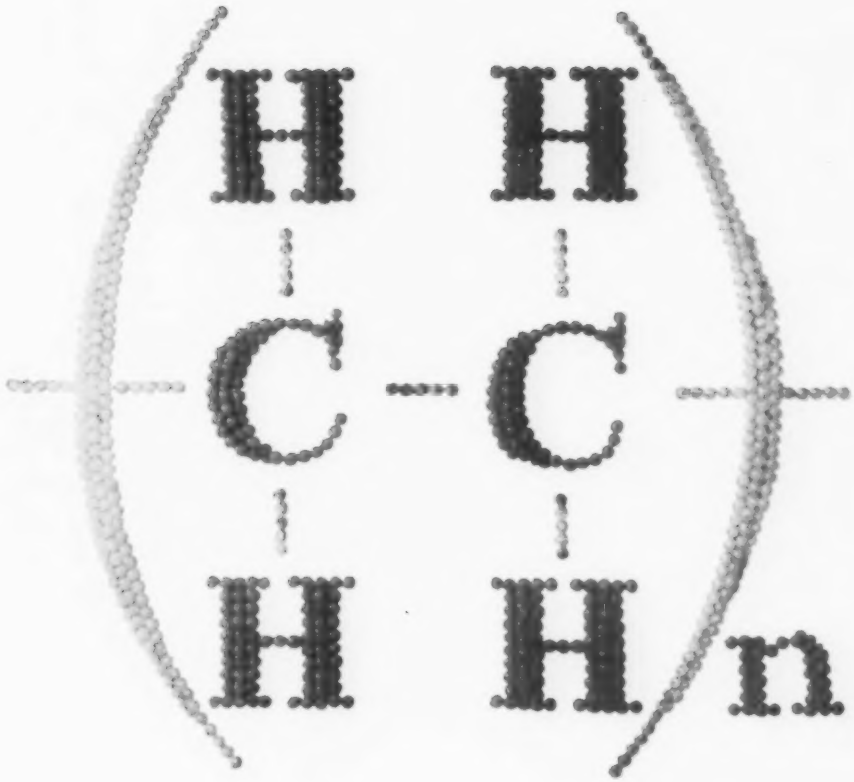
Occasionally, Mr. Mumford softens. Although he notes that its plan was arrived at "no doubt inadvertently," he gives the nod to Venice, extolling its functional zoning. Then he snatches the rug from under us by pointing to "the secretive tyranny, the festering suspicions and hatreds, the assassinations of character that underlay the prosperous trade and festive art." I don't suggest the ugly facts be glossed over, but why rub them in?

Once, under the influence of *The Culture of Cities*, I tried to follow Mumford in hating Versailles as the embodiment of totalitarianism. I couldn't make it. We don't always, or even occasionally, like what is best for us. Dealing with ancient Rome, Mr. Mumford comes to grips with this human failing. In sections called "Forum, Vomitorium, and Bath" and in "Death in the Afternoon" he lambastes the city, with graphic attention to its sewage system. Then he admits that "when the worst has been said about urban Rome, one further word must be added: to the end men loved her."

Well, when the worst has been said about this book, some further words must be added: It made me angry. Rasmussen can never do that and Giedion only occasionally. Nor do other books stir the imagination as this one does. The chapters on pre-history, for example, raise fascinating questions. Mumford proposes that the origins of the city were not in defense or commerce but in the ceremonial meeting place which gave meaning to life and death. His style is colorful, rich in unforgettable description and quotation.

Mr. Mumford sees the city as a mixed blessing. On the one hand it extends the capabilities and potentials of Man. It provides him with a variety of experiences and face-to-face contact with every kind of person. It is the repository of knowledge. On the other, it deprives him of his hereditary close relation with nature, makes him a target for exploitation, threatens him with automation. Mumford's concern throughout is with Man. His methods, like those of any propagandist, are sometimes infuriating, but at least his is a propaganda for Humanism.

GORDON CHADWICK, partner in the architectural firm of George Nelson-Gordon Chadwick, has a wide knowledge of cities through travel in Europe, Asia and Africa.



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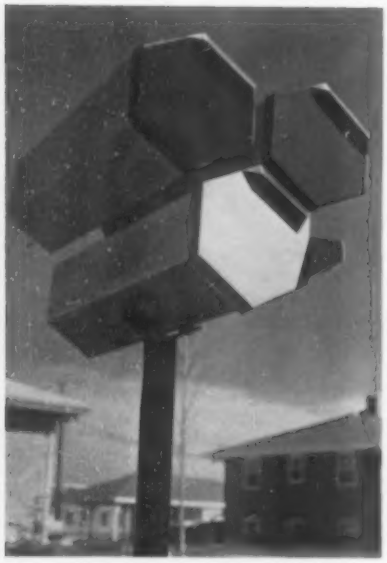

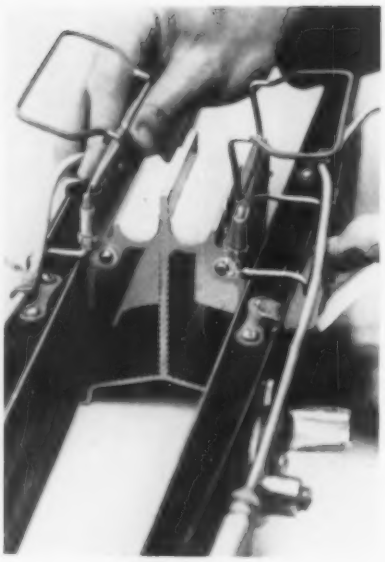

Alcoa award winners

Alcoa names student winners

Six students of industrial design from six design schools and departments have won the 1961 Alcoa Student Design Merit Awards for outstanding class projects employing aluminum. Selection was made by the industrial design faculties of the respective schools on the basis of their own criteria.

University of Illinois June graduate Robert Taylor won for his Mailagon mailbox (above), a stacking hexagonal aluminum shell mounted on a Y-shaped bracket atop an aluminum post. Colorfully anodized aluminum lid opens downward, has flip-up mail indicator. Fifth year Syracuse University student Charles Tipple won for his Tote carrier for skis and poles (above). Two pairs of pivoting clamps (one for skis, the other for poles) attach to an extruded aluminum body, with the pole clamps serving as the handle when in closed position. Clamp assembly is tightened by picking it up by the handles or hanging it from pegs for storage. It weighs only ten ounces. Andrew Oakes, Philadelphia Museum College June graduate won for his Sheet Metal Zipper (above) that joins two pieces of aluminum sheet without the use of tools. Device is a round tube of either polyethylene or aluminum which is slit logitudinally and slides over small flanges on the edges of aluminum sheets. University of Bridgeport June graduate David Haas won for his Multi-System concept of multiplying the functions of electric power transmission lines to carry a monorail vehicle and oil, gas, or vacuum delivery system. Marnie Averitt, graduate student at the Institute of Design, Illinois Institute of Technology won for his Sparky, an electric-powered urban runabout with room for two in the forward cabin, an 800-pound load in the rear, and two more in an emergency fold-out rumble seat in a rear deck. Pratt Institute June graduate John Bowers won for his Amphicamper, an amphibious camping vehicle which converts by means of a hydraulically operated double roof section to serve five persons as an overland vehicle, water vehicle, and living shelter. The winners will have their designs featured in an Alcoa national advertising program.

Plastics exhibit tours U.S.S.R.

"Plastics-USA," an exhibition illustrating the wide scope of plastics usage in the U.S. today, is now touring the Soviet Union as the first of a three-part exhibit exchange. The show, developed by the U.S. Information Agency for the government, was designed by Latham, Tyler, Jensen of Chicago and built by The Displayers, Inc., New York; a view of part of the layout is shown. It is divided into six sections: plastics from 1950 - 1960; what plastics are, their properties and how they are processed; plastics in science and industry; plastics in the home; plastics in recreation; and plastics in the arts. The exhibit covers 5,000 square feet and includes between 3,000 and 4,000 items, ranging from surgical products to kitchenwares, contributed by American firms. Two more exhibitions, on transportation (by George Nelson) and medicine (by Will Burtin), will follow and extend through the early part of 1962. Each show will be displayed in Moscow and two other cities for a period of about

Plastics exhibit

three weeks each. Three Soviet exhibits —on children's books, medicine, and children's creative activities—will be shown in New York and two other cities (still to be announced) as part of the exchange.

Hilton designers named

Six designers have been retained to execute the interior appointments and details of the New York Hilton hotel, scheduled to be completed in 1963. Architect for the 45-story structure is William B. Tabler, with David P. Dann as the associate in charge of the project. Lester Beall will

(*Continued on page* 16)

A TEXTURED FINISH THAT TAKES HARD KNOCKS ...M&T SPRAY-ON VINYLS

Beauty ... distinctiveness ... color ... you get all of these aesthetic qualities with the new vinyl finishes from M&T. But that's only half the story.

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You can spray M&T Vinyl Finishes on the most complex parts ... and produce a rich-looking texture on smooth surfaces. Or you can reproduce the most exact detail of finely patterned metal. Or you can put a smooth protective overcoat on smooth metal.

Business machine manufacturers will find M&T spray-on vinyls very well suited to their products. Not just for decorative texture and eye-appeal, but for long-term *durability*, too. There is hardly a finish that so economically offers so much resistance to scratching, scuffing, abrasion—and the encroachment of "age."

Write for more information on what M&T Vinyl Finishes can do for your products.

M&T COATINGS & FINISHES

METAL & THERMIT CORPORATION
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NEWS *continued*

design the graphics for some 130 items, ranging from stationery to soap wrappers, and has already completed an identifying crest. Joseph Huston, in collaboration with Statler-Hilton Studios vice-president Ernest Wottitz (who will do the coffee shop and executive offices), is in charge of the interior design of 2,165 guest rooms and suites. Stage designer Jo Mielziner is in charge of interior design for the grand ballroom and 31 private meeting and dining rooms; Leslie Wheel is lighting consultant. Sculptor Ibram Lassaw has been commissioned to execute a piece of sculpture which will be the first piece in a collection of original art to be housed in the hotel.

"Interplas" award to Braun

German manufacturer Max Braun's combination transistor radio and record player (below), housed in a polystyrene

Braun's radio/record player

case measuring 10"x6"x1½", was judged the best plastics product in the international display of plastic products at

"Interplas," the International Plastics Exhibition and Convention, held recently in London. The Braun unit was picked from among 200 products representing 11 countries. Judges were Professor R. Y. Goodden, head of the School of Silversmithing and Jewelry at London's Royal College of Art; Kunstakademiet professor Erik Herlow; Ake Huldt, head of Svenska Form, permanent Swedish design exhibition, and New York designer Alfons Bach.

RCA sponsors project

Graduating fifth-year industrial design students at Syracuse University took part in a project sponsored by RCA as a regular class assignment last semester. Entitled NASUDS (North American Submarine Defense System), the project called for the design and development of two consoles, one for surveillance and one for a fire control officer (plus a suitable environment in which they might be used) for a theoretical defense setup. The first prize (a television set) went to Jesse Horowitz for a basic modular console structure (above) which could be

RCA student project winners

adapted for a variety of uses by the installation of different components. Stanley V'Soske won second place (a transistorized radio) for his system (above) in which both consoles and cathode ray units could be mounted from a center post, permitting pantographic adjustment. George Miller, Frank Joyner, and Dr. Fred H. Ireland of RCA's Human Factors Group, and Arthur J. Pulos, head of Syracuse's Industrial Design Department, set up the project and conducted the final judging in cooperation with the Syracuse faculty.

"Eyes West"

Lewis Mumford, Louis Kahn, Ludwig Bemelmans and others will analyze the kinship of the arts in lectures, performances, panels, and conversation groups at "Eyes West," a conference to be held September 15-17 on the Monterey Peninsula in California. Aimed at artists, art directors, designers, illustrators, photographers, art teachers, and students, the program will be devoted to "an exploration of the creative process from a variety of viewpoints."

1

2

New Products

1. Risom swatch case has compartmented interior, Velcro-fastened drop lid. *Design: Jens Risom Design.*
2. GE's FM home stereo radio's cane-covered speaker-doors are electronically connected to amplifiers through hinges. *Design: R. Montmeat, W. Donnelly.*
3. General Foods' soluble coffee brewer is completely automatic, has 198-cup capacity, occupies 13 inches on counter. *Design: Walter Dorwin Teague Assoc.*

3

NEWS *continued*

Diamonds and staplers

A stapler which sells for $13.25 and an array of diamond jewelry retailing in the area of $40,000 were paired by display designer Gene Moore in the window of Tiffany & Company's Fifth Avenue store in New York recently. Moore selected the Bostitch T5 stapling tacker on the basis of its design—that it looked like what it was supposed to be and do. The window (right) was one of a group which featured the stapler with the jewels, and was meant to attract businessmen.

Tiffany window

New York World's Fair

Visitors to the New York World's Fair will be able to get around the 650 acres by means of motorized chairs driven by chauffeur-guides. The electrically powered vehicles, twice the size of the standard boardwalk variety, are part of the facilities Greyhound-at-the-World's-Fair will provide as part of their contract to handle all internal transportation. For those who can't afford the price (unannounced as yet, but unlikely to be low), tractor trains of small open cars which will carry from 20-50 persons will be available. Special buses in and out of the grounds will also be provided, as well as an extra-special bus for VIP's. Greyhound expects to spend about $5,000,000 on additional equipment, will man information booths, operate sightseeing and guided tours, and be an exhibitor.

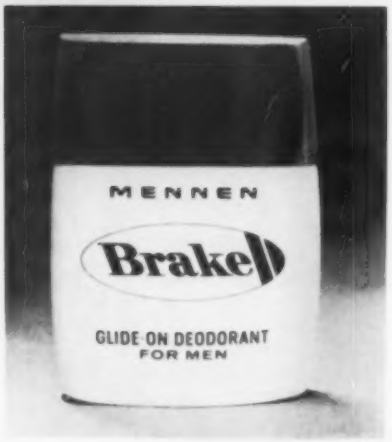
The State of Florida has selected a three-acre lake-front site for its exhibit, making it, next to New York, the largest state site at the Fair. In welcoming Florida as a participant, Fair president Robert Moses said, "We expect representation from all 50 states of the Union in our Fair. We are gratified by the recent resolution unanimously adopted by the Conference of Governors, meeting in Hawaii, urging all-out state participation." As of July 10th, 20 states (plus New York City) had signed up.

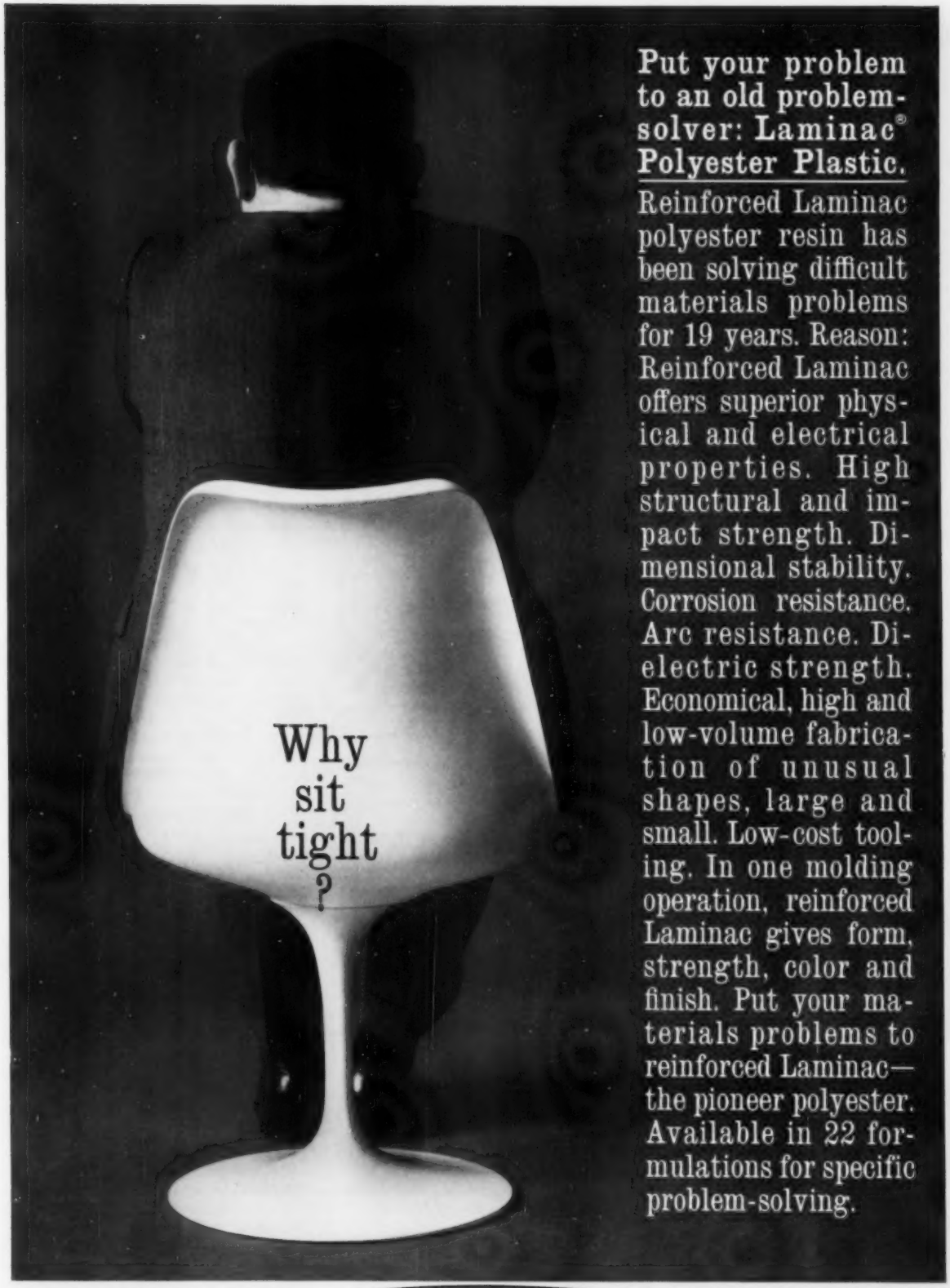
Design scholarships created

In an effort to attract design students of higher caliber, IIT's Institute of Design is offering six one-year scholarships of $1050 each to qualified freshmen, beginning with coming academic year. Students who graduate from high school in the upper half of their class, possess an aptitude for art studies, and pass the prescribed entrance examinations are eligible. Winners who successfully complete the first year will be eligible for subsequent renewal or partial scholarships.

New graphics

1. KVP Sutherland's egg carton, with appetizing motif, is example of how to bring gaiety to the usual. *Staff design.*
2. Electrosonic Laboratories tone arm box contrasts vermilion and black against white background. *Design: Mervin Gilbert, Arnold Shaw Associates.*
3. Mennen "Brake" men's deodorant in elliptical polyethylene container has green art and closure on white field. *Design: Francis Blod Design Assoc.*
4. Arrows dominate in McKesson & Robbins trademark and logo by *Lippincott & Margulies,* Seaboard Shipping symbol by *Eckstein-Stone,* and Sargent-Rayment mark by *Arnold Wolf Assoc.*





Put your problem to an old problem-solver: Laminac® Polyester Plastic.

Reinforced Laminac polyester resin has been solving difficult materials problems for 19 years. Reason: Reinforced Laminac offers superior physical and electrical properties. High structural and impact strength. Dimensional stability. Corrosion resistance. Arc resistance. Dielectric strength. Economical, high and low-volume fabrication of unusual shapes, large and small. Low-cost tooling. In one molding operation, reinforced Laminac gives form, strength, color and finish. Put your materials problems to reinforced Laminac—the pioneer polyester. Available in 22 formulations for specific problem-solving.

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NEWS *continued*

People

APPOINTED: **Michael R. Switzer** (below), formerly with Cushing & Nevell, as visual communications director at Raymond Loewy/William Snaith, New York, and **Dr. Joseph A. Precker**, formerly with J. Walter Thompson, as marketing research director of the same firm. . . . **Robert E. Munz** (below), previously manager of advanced industrial design at General Electric, as manager of industrial design at Elgin National Watch Company. . . . **Theodore S. Jones**, formerly design division director of the Boston Institute of Contemporary Art, as development director at Samuel Ayres Associates, Boston. . . . **Eleanor Landy** (below), formerly executive secretary of the Package Designers Council, as administrative director, and **Harry Sooy**, formerly with Frank Gianninoto Associates, as technical director at Robert Zeidman Associates, New York. . . . **John F. Halbeisen** (below), previously with Chrysler Corporation, as vice president and design director at Merchandise Displays, Dayton, Ohio. . . . **Charles P. Schock** as president of Design Associates, Philadelphia. Schock was formerly the firm's director of design. . . . **Van L. McNeel** as director of packaging at Olin Mathieson's International Division. . . . **William Haig** to the staff of Warren Furlonge Associates, New York. . . . **Del Coates**, formerly with General Electric's heavy military department, as project leader with the research division of Herman Miller, Ann Arbor, Michigan. . . . **J. R. Kearl**, previously design coordinator of Douglas Aircraft's DC-8 Jet transport program, as vice president of Dean Myers Associates, Newport Beach, California, and **Ed Smith**, previously head of design at Lightolier's Dorner Products Division, to the staff of the same firm. . . . **Richard H. Bloch** as director of product planning at Minneapolis-Honeywell's Electronic Data Processing Division. . . . **G. William Loveday** as manager of product planning at Flexible Tubing Corporation. . . . **Paul R. Smith**, senior vice president in charge of creative services at Ellington & Company, as special consultant to the department of advertising design, and **Pieter Brattinga, Jr.** as professor of art and chairman of the department of advertising design, at Pratt Institute, New York. . . . **Richard W. Moore** as vice president at Cawley-Neff Associates, Philadelphia. . . . **Henry P. Stockbridge**, formerly vice president at Young & Rubicam, as director of new product planning at B. F. Goodrich. . . . **Dr. Herbert E. Krugman**, formerly director of marketing research at Raymond Loewy/William Snaith, as vice president/associate research director at Ted Bates & Company, New York. . . . **Robert E. Lund** as director of marketing research at Flannery & Associates, Pittsburgh. . . . **William Stark**, formerly vice president and manager of the Raymond Loewy/William Snaith Chicago office, as director of design at Kimberly-Clark. . . . **Stephen Mucha** to RCA's graphic arts products department.

HONORED: By the Philadelphia Museum College of Art with citations "for the distinction they have brought to their professions," **Samuel L. Fahnestock**, manager of design at Alcoa; **Erik Nitsche**, graphic designer; **Arnold Newman**, photographer; **Isamu Noguchi**, sculptor; **Otto Storch**, art director of *McCall's* magazine; **Monroe Wheeler**, director of exhibitions and publications at the Museum of Modern Art; **Richard C. Bond**, president of John Wanamaker; and **Warner S. Shelly**, president of N. W. Ayer & Sons.

AWARDED: To **John Vassos**, IDI's new silver medal (which he had designed) in recognition of his "personal dedication to the industrial design profession." . . . To **Dale Fahnstrom**, University of Illinois industrial design student, the Motorola Corporation scholarship of $500.

ELECTED: **Walter P. Baermann**, of Walter P. Baermann Associates, Waynesville, North Carolina, as president of the Furniture Design Association, succeeding Hubert J. Rockwell.

Company news

RETAINED: **Robertson-Montgomery**, San Francisco, to conduct a corporate identity program for the Great Western Savings and Loan Association. R-M has already completed the preliminary study on this. . . . **Reinecke & Associates**, Chicago, by Encyclopedia Britannica Films, Brunswick Boats and F. L. Moseley. . . . **Samuel Ayres Associates**, Boston, by Smithcraft Lighting Corporation, State Street Bank and Trust Company and Aerosol Corporation of America. . . . **Zierhut/Vedder/Shimano**, Los Angeles, by Philco. . . . **Henry P. Glass Associates**, Chicago, by Tonk Manufacturing Company to design a group of occasional tables. . . . **Brooks Stevens Associates**, Milwaukee, as design consultants for Mirro Aluminum Company. . . . **Belle Kogan Associates**, New York, by Astro Lamps, and Kellen Company. . . . **International Telephone and Telegraph Federal Laboratories**, Nutley, New Jersey, by the United States Air Force to design a two-dimensional display which will achieve a three-dimensional effect without requiring special glasses.

ESTABLISHED: By **Dr. Myron J. Helfgott**, formerly vice president at Lippincott & Margulies, his own marketing and research firm at 8 Gramercy Park, New York. . . . By **Robert J. Hose** (below), formerly head of the New York office of Henry Dreyfuss, his own firm specializing in industrial design and consultation at 392 Springfield Avenue, Summit, New Jersey. . . . By **Brian Copping**, formerly chief engineer at Raymond Loewy / William Snaith, his own independent consulting service for industrial design and product development at 11 Riverside Drive, New York. . . . By **Dr. Herbert Kay**, formerly with Motivation Analysis, the Center for the Study of Audience Reactions, Elberon, New Jersey. The Center will also offer package research studies.

EXPANDING: **B. F. Goodrich**, with the opening of a design center in New York for the designing, styling, and packaging of Goodrich products. It will be headed by James Floria, the firm's design director.

GOING PLACES: **Geron Associates, Ltd.**, Montreal offices to 5064 Western Avenue, Montreal, Quebec, Canada. . . . **Rapier Design** to Rapier House, Eagle Street, London W.C. 1, England. . . . **American Federation of Arts** to 41 East 65th Street, New York.

TRANSFERRED: All Chicago accounts of **Raymond Loewy/William Snaith** to their New York office to centralize their operation. END.

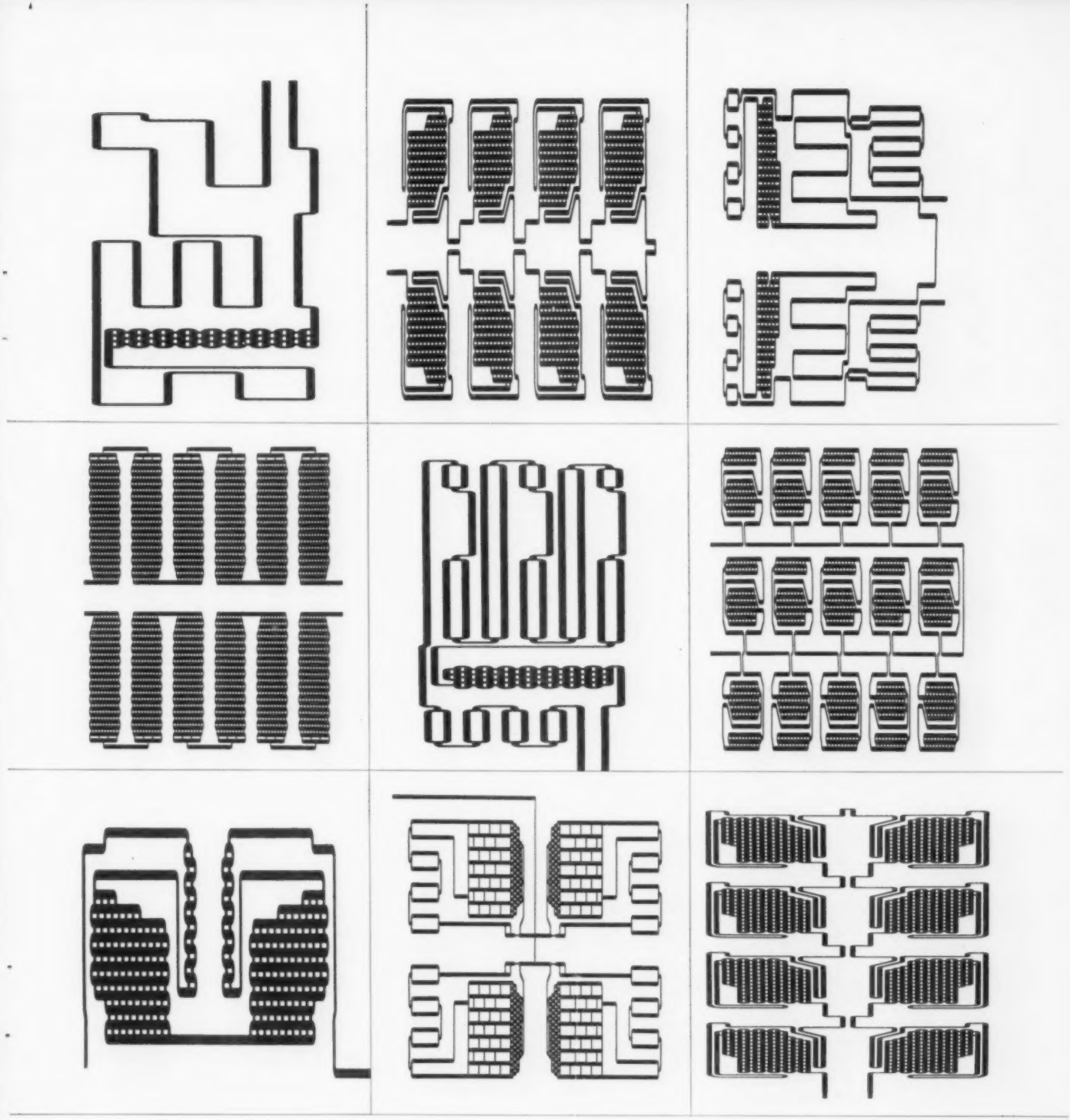
Switzer

Munz

Landy

Halbeisen

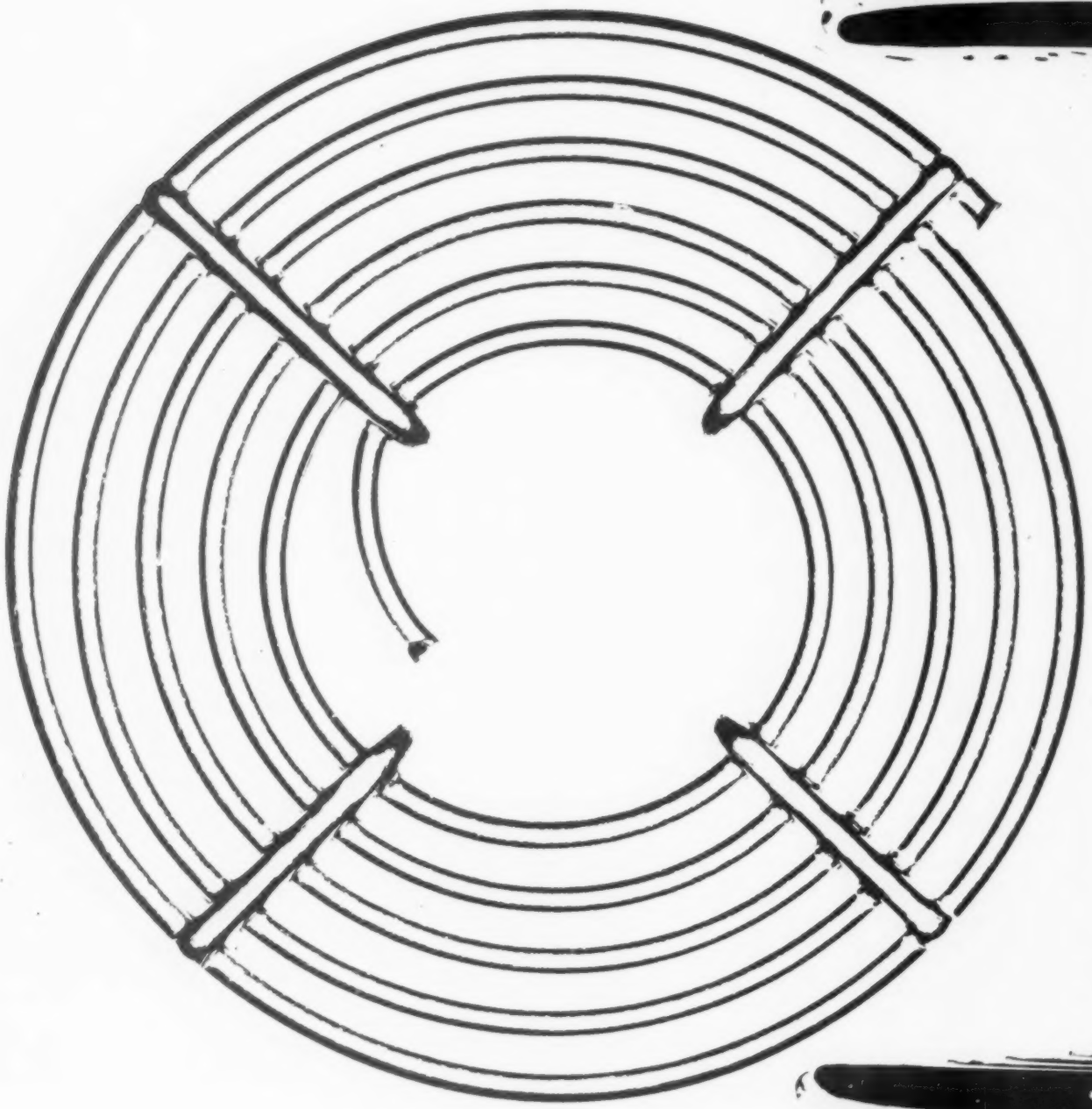
Hose



Any continuous tubing pattern you can create on paper can be put into a homogeneous aluminum or copper ROLL-BOND sheet.

For Brochure write Sales Manager, Roll-Bond Products, Olin Mathieson Chemical Corporation, East Alton, Illinois.

Olin
METALS DIVISION



Going round and round on product design? Do it with steel wire!

There is probably not a commercial photographer alive who is not familiar with the intriguing spiral object shown here. It's a developing reel that you load with exposed roll film for developing, fixing, and washing. The film spirals outward, and there is an even space between each layer to prevent uneven concentration of developer solution. ☐ This reel, designed and sold by the Nikor Corporation, Springfield, Mass., approaches perfect design: like a fine machine, it has absolutely no unnecessary parts. It is the most compact reel ever made. It is made from **the** best material to resist corrosive chemical attack: stainless steel. It is made from the strongest, most useful form of steel for this purpose: wire. ☐ Wire is cold drawn in successive passes through dies. This cold working imparts such a smooth surface finish that there is no danger of snagging the film on a tiny imperfection. The reel can be fabricated in jig time on high speed automatic wire forming machines, and because it's made from steel wire it can be permanently joined with one jolt from an automatic welder. There are dozens of film processing reels on the market but professionals continually buy this one because it has no equal. ☐ There are thousands of products that desperately need to be redesigned to retain their place in the market, and an untold number of these products could be drastically improved through the imaginative use of steel wire. Welded wire assemblies, for instance, are amazingly stiff and strong for their weight; and although this is a functional consideration, it has great meaning for the new aesthetics of design that is replacing ponderous and bulky products with those that are airy and graceful. ☐ Wire is manufactured to over 300 billet specifications, from low carbon through alloy to stainless steel grades. It is available in a vast range of hardness and sizes, as rounds, squares, or hexagons . . . in fact, more than **10,000** mill production specifications are available from American Steel and Wire. More than that, we can ship wire in carbon grades in 1,000 pound coils that do not contain a single weld, if required. American Steel and Wire, Rockefeller Building, Cleveland 13, Ohio.

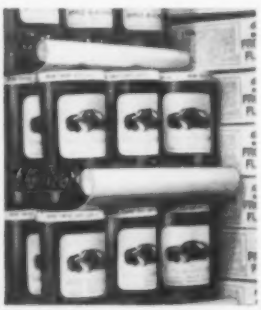
USS TRADEMARK

American Steel and Wire Division of United States Steel

Tough, durable Mylar® cuts costs... improves product performance

1. Conveyor belts of "Mylar" are easy to install, need fewer replacements, are easy to keep clean . . . cut "downtime," reduce costs.

2. Age-resistant recording tapes of "Mylar" won't ever dry out or get brittle . . . are highly stretch- and break-resistant . . . assure lasting fidelity.



3. Roll-back shelving of "Mylar" gets rid of retail stacking and stocking headaches. As shoppers remove items, "Mylar" rolls back.

For example, "Mylar"* polyester film gives many products extra resistance to chemicals, moisture and aging . . . lengthens their life. Today, "Mylar", with its high tensile strength in thin gauges, is improving the performance of products as different as wire and cable tapes and loose-leaf-sheet protectors.

Can this unique plastic film and products made with it help you? For more information on "Mylar", write the Du Pont Company, Film Dept., Room S-8, Wilmington 98, Delaware.

DU PONT

*"Mylar" is Du Pont's registered trademark for its brand of polyester film.

Better Things for Better Living . . . through Chemistry

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MYLAR®
POLYESTER FILM

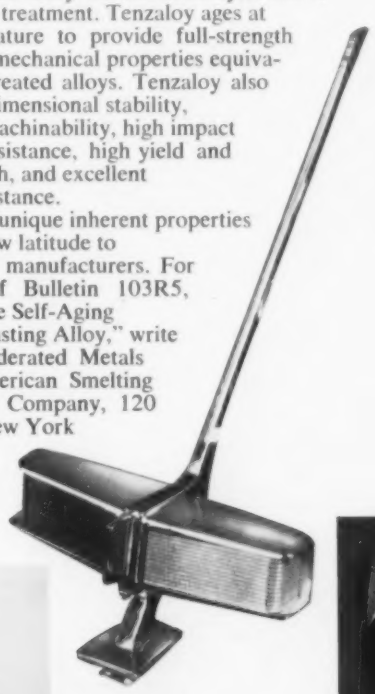
SPECIFY TENZALOY FOR:

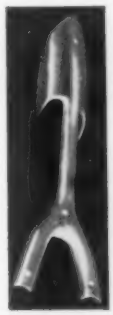
BRILLIANT FINISH AND SHARP DETAIL IN HIGH STRENGTH CASTINGS

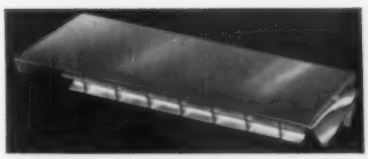
Tenzaloy aluminum castings take a brilliant polish, anodize clear white and can be dyed in a wide range of decorative colors. Tenzaloy casts easily for sharp detail and complex shapes. Its great strength in thin cross section makes possible an extremely wide variety of products combining beauty and utility.

Special techniques are not required for handling this high grade alloy in the foundry... and it needs no heat treatment. Tenzaloy ages at room temperature to provide full-strength castings with mechanical properties equivalent to heat-treated alloys. Tenzaloy also has unusual dimensional stability, exceptional machinability, high impact and shock resistance, high yield and tensile strength, and excellent corrosion resistance.

Tenzaloy's unique inherent properties offer wide, new latitude to designers and manufacturers. For your copy of Bulletin 103R5, "Tenzaloy, the Self-Aging Aluminum Casting Alloy," write today to: Federated Metals Division, American Smelting and Refining Company, 120 Broadway, New York 5, N. Y.







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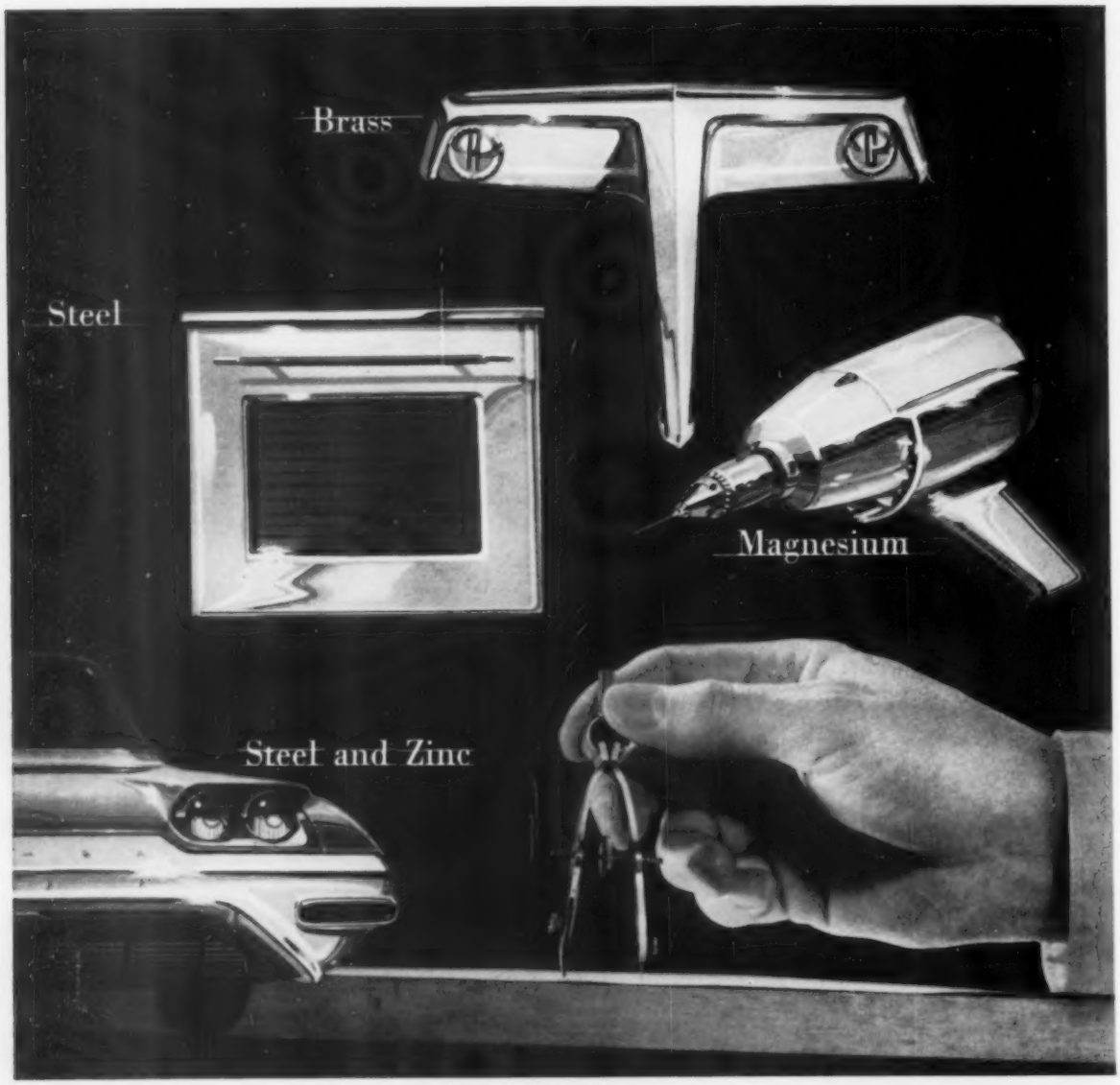

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a lustrous, lasting finish of Nickel-Chrome Plating

Nickel-Chrome Plating provides a practical way to combine the beauty and protection of Nickel and chromium with the special properties of other metals:

- formability of brass
- strength of steel
- lightness of magnesium
- conductivity of copper
- design flexibility of zinc-base die castings

Today's adaptable Nickel-Chrome Plating gives you the freedom to use a wide variety of basis materials to achieve the most desirable combination of performance, fabricability *and* practical cost.

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That's because Nickel-Chrome Plating not only provides shining sales appeal, but also protects basis metals from rust and corrosion. Protects basis materials from nicks and scratches. Makes the lustrous beauty *lasting* beauty.

For more information on decorative plating, write for our booklet, *The Contribution of Nickel and Chromium to the Durability of Decorative Plating.*

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SALES MAKERS...

Blister Packages of Butyrate Sheet

Shoppers for tools are like shoppers for most things... they reach for merchandise that's quality-packaged to stay factory-new, and clearly displayed for a close look—important factors in self-service. With this thought in mind, Fuller Tool Company began blister-packaging its pliers in sheet extruded of Tenite Butyrate... and sales almost doubled.

Tough and resilient, blisters formed from sheet of Butyrate protect as they display. They are easily assembled to cardboard or other backing by flange-fit, as in the "Slideplax" package for pliers, or by heat-sealing or stapling.

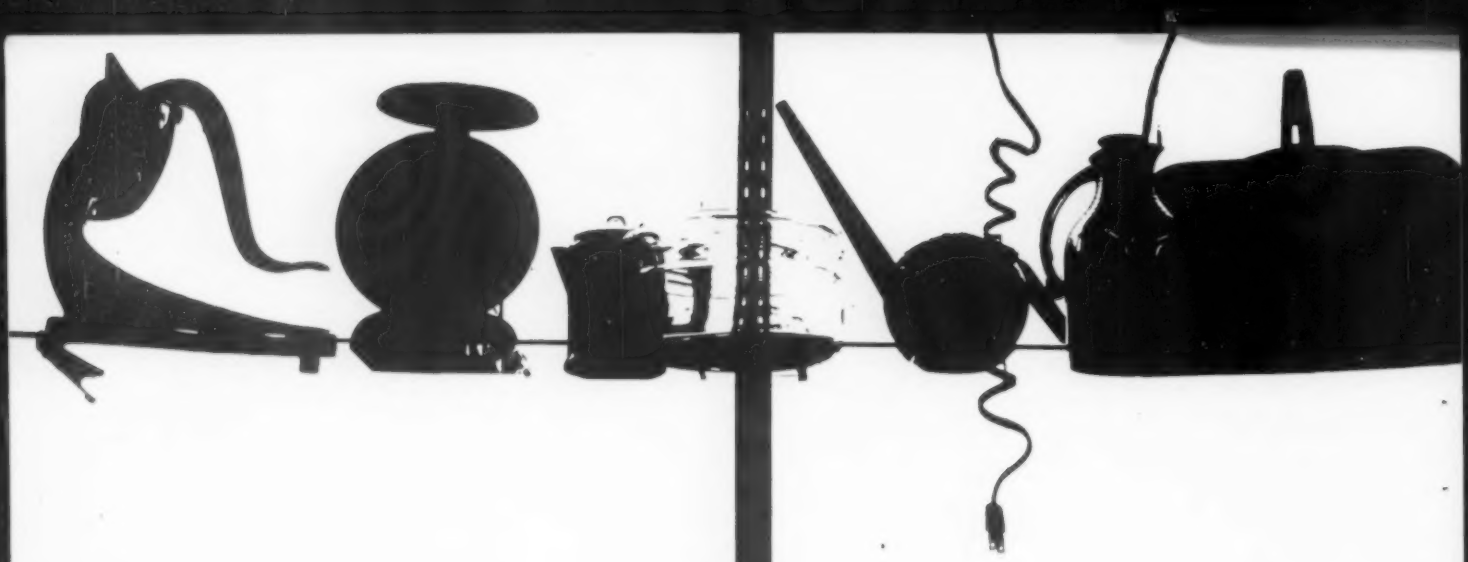
In use, sheet made from Tenite Butyrate has exceptional resistance to impact and its gleaming luster stands up under repeated handling. Butyrate in special formulations also has excellent weather resistance—a factor in the expanding use of the sheet for outdoor signs.

With this array of service properties, sheet extruded from Tenite Butyrate can often be used in thinner gauges than other materials. Economical thermoforming will shape it to intricate detail. And more than 42,000 colors and color effects in Eastman's plastics color laboratory are ready to add extra eye-appeal.

You can get valuable aid in applying Butyrate sheet to your product ideas from an Eastman technical representative. Or, for some helpful literature on the uses of sheet made from Tenite Butyrate, write EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

TENITE®
BUTYRATE
an Eastman plastic

Pliers manufactured by Fuller Tool Co., New York 67, N. Y.; blister-packaged in sheet of Tenite Butyrate extruded by Joseph Davis Plastics Co., Kearny, N. J., and thermoformed by Plaxall Inc., Long Island City, N.Y.

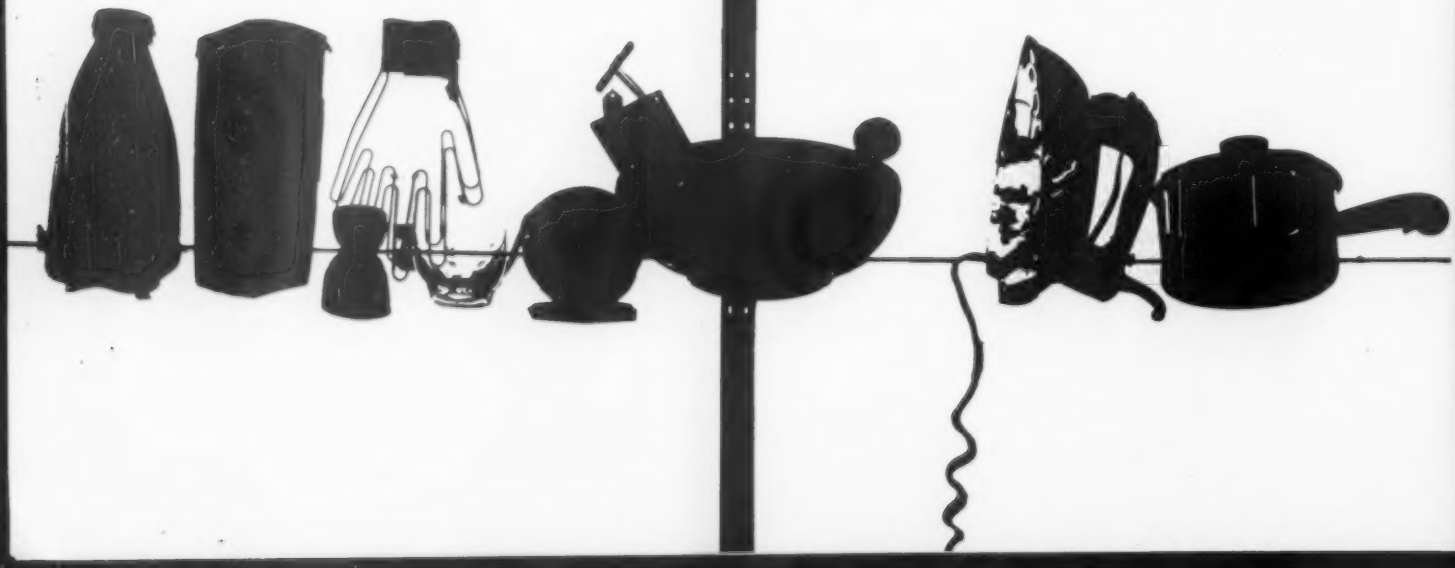


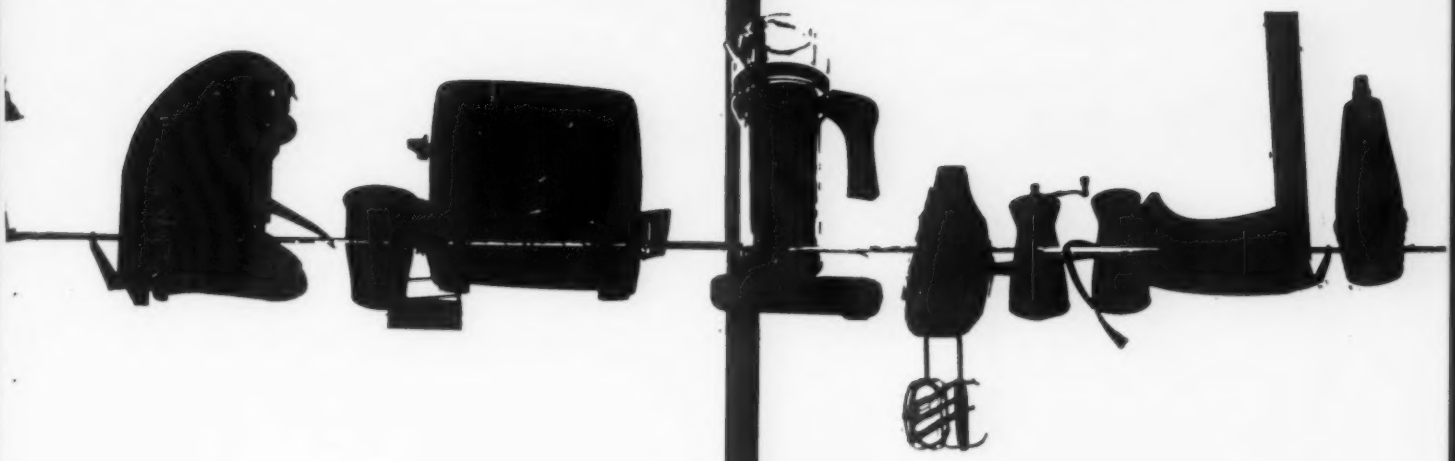
INDUSTRIAL DESIGN

invites entries for the

8th ANNUAL DESIGN REVIEW

The Annual Design Review, to be published in December, is a portfolio of the year's major design achievements in consumer products, packaging, professional and industrial equipment, materials, architectural components, and programs and devices for selling and corporate identity.





An informative review of the year's production, and a valuable permanent reference, it will feature products that are outstanding because of:

new functional improvements
notable solutions to familiar problems
solutions to new and unique problems
engineering developments
apt use of materials, components, finishes
effective merchandising ideas
innovations in product form

From designs placed on the market since September, 1960, choose those which you believe deserve inclusion in the Annual Design Review. Send us one or more unretouched photos of each product, labeling each photograph with the name of the product, the designer, staff member, or department in charge, and the manufacturer and suppliers. Also tell us briefly where we can see the product, what specifically you regard as noteworthy about it, and in what respects you believe it represents an unusual use of materials, components, and manufacturing techniques.

The closing date is extended to September 1.
Address all material to:

ADR
Industrial Design
18 E. 50th Street
New York 22, N. Y.

INDUSTRIAL DESIGN

18 East 50th Street, N. Y. 22, N. Y.

COMING NEXT MONTH

The Designer and the Engineer

Next month ID will explore the work of the industrial designer as it relates to that of the engineer, in product development.

As product technology becomes increasingly complicated, the industrial designer's contribution inevitably becomes more involved with technology. In an effort to keep abreast of this burgeoning technology, many design offices have staff engineers who help with technical problems. Other industrial designers use consultant engineering firms. And some designers are equipped, through training and experience, to handle some engineering problems. To what extent does the average design office work with interior components? With manufacturing systems? What are the sources of engineering knowledge available to the designer? These are some of the questions to be discussed. The report will cover:

Designer-engineer communication. *One of the major problems of industrial designers in working with engineers is establishing and maintaining rapport: the designer must sell both himself and his service. Case studies will show designer-engineer collaboration, and what some design firms do to promote good working relations with engineers.*

Engineering in design education. *Some designers believe that an industrial designer must have engineering training, and many designers, of course, do have it. Others feel it can actually be detrimental. The article will discuss how much engineering training a designer should have and what form it should take.*

Designers who began as engineers *often feel they can contribute more to a product than a designer more conventionally trained. ID will examine the validity of their contention and their reasons for becoming industrial designers.*

Designer and engineer in the same company. *Case studies will illustrate the working methods of staff designers and engineers.*

Engineers in design offices. *Some design offices have engineers on the staff. This full-length feature article will discuss why they need them and how they use them.*

ALMOST ANYTHING CAN BE IMPROVED... IN PLASTICS MOLDED BY GENERAL AMERICAN

AMF wanted a durable, lightweight, inexpensive child's car body. General American helped provide the answer.

Every youngster can now drive around in style—and the Junior Toy Division of AMF Industries has an exceptionally marketable entry in the truly compact car field. By replacing metals with molded plastics in the body and steering column, General American helped AMF save over two-thirds on tooling costs alone. What's more, there are fewer assembly operations and the color is molded right in. Even silk screening on the sides is done by General American before these components are delivered to AMF. The lighter weight cuts shipping costs, too.

Resourceful solutions to plastics problems are to be expected at General American, where plastics specialists are backed by the largest and most varied molding facilities in the world. For the Space Scout, General American specialists helped engineer the components, made and tested the prototype, developed the method of silk screening, and then molded the parts of high density polyethylene.

If you'd like to move more profitably into plastics, you'll certainly find it pays to plan with General American.

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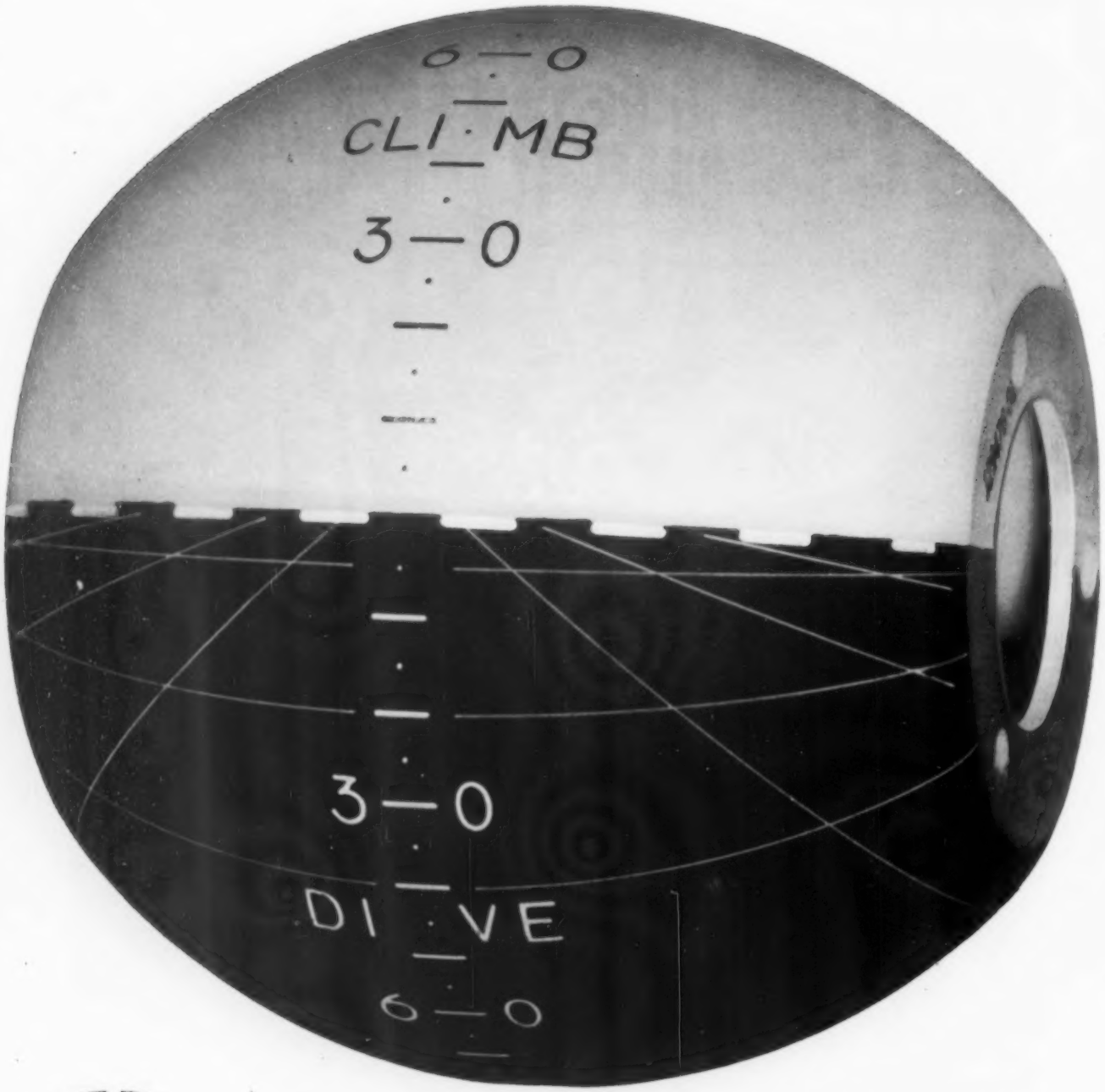

Lexan resin provides dimensional stability in close-tolerance parts

Maximum change allowable in the overall dimensions of this five-inch attitude indicator component is only 5 mils over a temperature range of –65° to 300°F! Moreover, the aircraft instrument part must maintain these tolerances under conditions of high humidity. To meet these severe requirements for dimensional stability, Lear, Inc. selected LEXAN polycarbonate resin.

In addition to high performance, LEXAN offers easy and versatile fabrication. Thermoplastic, it is injection molded in half spheres which are joined by solvent cementing. After lathe turning to insure complete accuracy, the spheres are painted three different colors. Maximum visibility is obtained by lighting from the inside. With their high temperature resistance and high impact strength, these polycarbonate spheres are both rugged and precise design elements. They are fabricated for the Instrument Division of Lear, Inc. by Monroe Industries — both of Grand Rapids, Mich.

This component is an example of what high-performance LEXAN polycarbonate resin can do for your designs. The price of the resin has gone down, too, as production has gone up. Can *you* afford to overlook the major advantages of this new, major design material? Send for design literature.

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Chemical Materials Dept., Section ID-41, Pittsfield, Mass.

THE GREAT NICKEL ADVENTURE

The fare has tripled since Joyce Kilmer referred to the Manhattan subway system as "the great nickel adventure," but the epithet still applies. For a nickel one can, before boarding, buy a fresh daily adventure called *The New York Times*. Although the *Times* publishes all the news that's fit to print, we sometimes manage to read only the headlines, containing all the news that's fit to read while hanging from a car strap during the rush hour. Some days, that's enough.

Take June 15th for example. That was the day we were disheartened to learn that:

ATTORNEY GENERAL LINKS CRIME
TO MATERIALISTIC VIEW BY PUBLIC

That's the trouble with a democracy, no criminal elite. The public takes crime into its own hands, and botches the job. We were dreaming of cleaner pastures when our eyes drifted to the article directly below, headed:

SENATOR ASSAILS
PACKAGING FRAUD

End of subway ride. End of dream.

On June 29th the man over whose shoulder we were reading opened his paper to a page that said:

ROCK SALT PRICES
BRING INDICTMENT

Since it was carried over from a previous page, the article began in the middle of a sentence. "000 in 1960," it said. That was the way we felt about it too, but there wasn't enough see-through space to read the rest of the item, so we crossed the hairline into the article next door, labeled:

FOOD PACKERS ACCUSED OF USING
FALSE LABELS AND EMPTY SPACES

On the IRT at that hot and crowded hour we were not so much concerned with how packers were using empty spaces, as enviously wondering where they were finding them. But we were beginning to see the pattern of crime in these United States.

We were headline reading again on July 1, when we noted:

U. S. INDICTS FOUR MAJOR MOVERS
FOR A CONSPIRACY TO FIX PRICES

Automatically we checked the adjacent article, and were not surprised to see:

FOOD PACKAGERS
FACE TRUTH TEST

We should hope so. For the fact is that food packagers and package designers face a truth test every time they get a package off the drawing board and onto the shelf. They don't always pass, and that is to be deplored and corrected. And we hope that the congressional hearings will show as much interest in the correcting as they do in the deploring. But, in the light of past hearings, that is optimistic. We will have something to say about the hearings if they develop something more than headlines. In the meantime, the headlines are great for perspective.—*R.C.*

UNDER THE TENT AT ASPEN

"Man the Problem Solver" was the theme of last month's International Design Conference, as members gathered in Aspen, Colorado to discuss human survival, general semantics, ophthalmology and, as the occasion arose, design

In retrospect the Eleventh International Design Conference in Aspen seems somber and disquieting. The conferees voiced, almost without relief, those old-fashioned statesman's concerns that have become fogged-in by technological advances in the communications field. It ended, as Harold Taylor began it, in "absolute uncertainty." Oddly enough, the almost total absence of the bantamy panelists and argumentative audience participants of other years turned out to be a real loss, for pugnacity is generally bolstered by optimism. Perhaps unjustifiable, but still, optimism.

A genuinely cosmopolitan and broadly informed group accepted without outward reaction a number of variations on an unhappy truth: Communications is obviously for the birds, or for some other society that knows what to do with it. "No animal other than man can tell lies to its children" (Rapoport). "As values become more verbalized and visualized they become universal and become more vague and less real" (Reuel Denney). "The price of mass media: vulgarization" (Rapoport). "In situations dependent on mass media, change, once started, becomes irreversible" (Denney). "Communications systems may even be used to cover the truth . . ." (Taylor). "The verbal picture is only a map, in most cases a distorted one" (Rapoport). "People have always been manipulated socially, culturally, and economically . . . a perpetual human slavery" (Maldonado). "All progress is advertised as the achievement of noble aims, yet we have more problems than we had before . . ." (Rudovsky).

Two of the papers were bitterly witty. Richard Morris' comments seem droll until you realize their seriousness: Observe that which the designer giveth, but consider also that which he taketh away. Having pointed out to us the central position of the designer as a problem-solving value-transformer, Dr. Morris cautiously, but abruptly, signs off. Bernard Rudovsky questions man's status as a problem-solver by asking, "Can we even recognize a problem when we meet one?" By "we" he means us Americans who refer to "any country without eroded soil and steaming dumps, without polluted rivers and polluted air as an underprivileged country." Going a step further than Dr. Morris, he points out the folly of burying our heads in the atmosphere of the moon and the stars.

The panelists described problem-solving itself: A never-ending effort to adjust to an irritation, an effort reinforced by curiosity. The gift of mankind, the intelligence of a generalized nature which permits man to adapt to a variety of environments and transmit accumulated knowledge by symbolic language rather than by genes. It is protected by doubt—the classic example of productive confusion; benignly influenced by "seren-

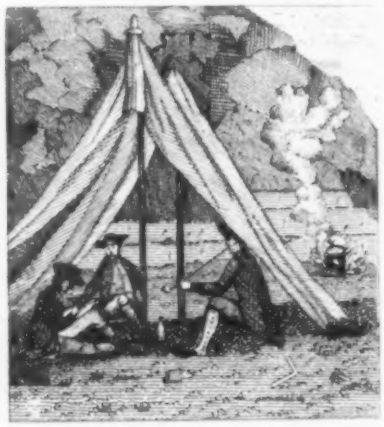
dipity"—the occurrence and observation of a desirable side-effect of experiment; dependent on information and skills gathered in advance of the time of the problem plus the ability to recognize relevance; guided by perception, i.e. "the prediction of what to expect"; limited in every instance by the question posed—the major problem being to ask the right question, which includes the question, "Why solve *this* problem?"

No matter which path the discussion followed, it always arrived at the problem of communications either as a topic or as an obstacle. A prime communications pitfall is the assumption that the first, second, and third persons are all referring to the same thing when using the same or similar terms. Anatol Rapoport warned the conference during the first cycle, "Ambiguity is not a bad thing unless taken for precision. To a Comanche, virtue meant something different than to a Puritan, still different to a Franciscan monk. *Misplaced precision* is the problem, not the vagueness of the terms themselves. If terms have different references, it is best not to use them; use the reference instead." Yet, warned and wary, the communicators fell into the trap time and time again. Bernard Benson used the word *scum* quite logically to mean exploitation and manipulation. Miss Brooks and others took the term to mean the dull, the disinherited, the dependent, the "lower classes." Richard Morris spoke ironically of "such trivial concerns as the muscles of the eye, poetry, et cetera." Others, including more than one panelist, took his irony literally. During one afternoon session with guitarist Richard Pick everyone talked freely of "discipline," referring glibly and interchangeably to at least a half-dozen meanings of the word. There was sharp disagreement over its importance, place, method of achievement, and the amount needed, but no question as to what each speaker meant by the word.

Perhaps the most exciting panelist was Dr. Kronfeld, the ophthalmologist. It is not that he is a more devoted or more clinical problem-solver than the others — certainly not more so than Maldonado or Rapoport— but that he spoke with intimate objectivity of the eye and seeing, about which most of us know nothing.

If there was a major weakness in the organization of the conference, it was that the crispness of its structure prevented a natural platform exchange among the panelists and certainly cut audience participation down to almost nothing. There are probably good and valid reasons for this situation, particularly when one remembers long-winded lectures presented as "questions," but nonetheless, the spontaneity of former conferences was not there. Part of the problem is caused, I believe, by the fact that articulate old-timers no longer ask questions, feeling that they have had their turns. Additionally, the practice of having two or more panelists in each conference room in the afternoon (now discontinued) created a more comfortable scene for the panelist than the present one which pits him all alone before a multitude and denies him the priming action of verbal ping-pong with another "expert."

A tally of the roster of panelists revealed that almost all of them are officially listed as "teachers" — either now or in the past. Certainly all of them had the zeal and impact of good teachers, and although the lessons were old, they seemed new.—*Judith Ransom Miller*



Tomas Maldonado, of the Hochschule für Gestaltung in Ulm, Germany, sees one important kind of problem solving for the industrial designer as necessarily beginning with a theory of classification.

The necessity as well as the possibility of arriving at a particular methodology for industrial design has recently become—above all in Europe—a polemical object found quite often among industrial designers and educators dedicated to the training of industrial designers. On the one hand, there are those who believe that methods are more important than results, and on the other hand, there are those who maintain that the results are always more important than the methods. The first group tends to believe that formalizing a problem mathematically is tantamount (or almost so) to solving it. The second group assumes that all problems in this field can only be solved with common sense.

Evidently this polemic, at least in its present state, cannot be fruitful. The designers of the first category seem to have more intransigent opinions on methods than the scientists themselves. The scientists sometimes have doubts about scientific methods, but the designer, never. The partisans of common sense, for their part, cannot resign themselves to accept the fact that in-

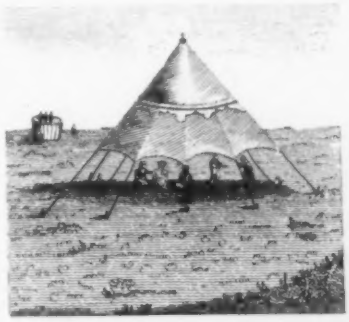
dustrial design involves certain types of tasks which no longer may be solved only with common sense.

Both positions suffer from a very alarming lack of realism, and I believe that this results from the fact that both groups understand industrial design to be radically different things. The main problem today is that we constantly use the expression "industrial design" as if it were one, and only one, reality. There exists not one, but many realities of industrial design. There are as many realities as there are degrees of structural and functional complexity in industrially produced objects. A coffee cup, an infra-red grill, a lawn mower, a tractor, a helicopter and an electronic data processing machine do not constitute design problems of the same nature, problems which could be set and solved in the same way. In fact, there are tasks for which common sense can be sufficient, and even more than sufficient. Scientific methods are sometimes applied to such tasks but often they only serve to show that the designer knows scientific methods. Yet there are other problems with so many variables, and such rich and subtle mutual relations, that utilizing a more objective methodology is not only desirable, but indispensable. If it is not done in this way, the designer may not master his problem; just the reverse may happen. As you can see, very practical considerations have obliged the designer to ascribe—in certain fields—great importance to the use of scientific methods. But the fetishism of methods in the field of industrial design, i.e. the assumption that the methods have an absolute value independent of results, is not justified. In any field, methods are not more important than the results achieved by their application. Even though, at a certain phase, the methods may appear more important than the results, the ultimate objective of a method—as indicated by its etymology—is always to be the way to an end. Sometimes we can say that the methods are as important as the results, but never *more* important.

The debate between rationalism and intuitionalism in industrial design—for in the end it is nothing but this—would cease to be, if one were able to offer a plural rather than singular definition of industrial design.

This will be possible only with a new classification of industrial products. Commercial and industrial exhibitions classify products according to purely economic criteria (production goods, consumer goods, investment goods, etc.). The new classification would use criteria based on the different degrees of structural and functional complexity of the products. Such a classification of technical and industrial objects could reach the same operative meaning as Linné's "Philosophia Botanica" did, for more than two centuries, in the classification of natural objects. However, while the Linné work is one of the most brilliant examples in the history of analogical classification, the classification of technical and industrial objects will necessarily have to be homological, i.e. analyzed according to structure, rather than function. Even so, the quantitative relationship will be less important than the qualitative relationship. The appearance of objects will be less interesting than what they are really like, i.e. how they are fabricated and how they work. The similarities of their external forms will be less important than the relationship of their construction and their behavior. This new systemism of industrial products will open not only new perspectives for the definition—or definitions—of industrial design, but also for the way of setting and solving problems in this field. With this systemism it would be possible to state with relative exactness at what degree of structural and functional complexity a particular methodology will begin to be indispensable. And it would also help to judge at what degree of structural and functional complexity the industrial designer should begin to use, for example, the methodological contributions of the human sciences, and at what degree the contributions of the engineering sciences.

But I must state here that I do not believe that such a methodological elucidation can, by itself, overcome all the difficulties which industrial design has to face as an activity and as a profession. Besides the question of how the industrial designer can better set and solve his problems, there is another much more dramatic question: the responsibility of the industrial designer as problem solver in our society. If the industrial designer is in fact a problem solver, he is seldom a problem solver who is free to decide which problems should be set and how they should be solved. In truth, the problems are frequently set to him from outside, and no less frequently the solutions as well. In most cases the industrial designer *wants* to set and solve problems for human use, but in most cases he *feels* obliged to set and solve problems for human abuse. This is, without doubt, the problem of all problems.



Richard T. Morris, UCLA associate professor of sociology, regards the designer as giver and taker away.

A recent two-page spread in *Time* magazine (May 26, 1961), in a section called "Modern Living," will serve as an illustration of the society's dependence upon the designer, and as a focus for some preliminary remarks upon the design implications of value problem-solving.

The first article discusses a renewal plan for Welfare Island (to be renamed East Island, in a blinding burst of creative neology), designed by Victor Gruen. The "new kind of big-city better living" involves building a concrete platform 22 feet off the ground over some 160 acres of land. On top of the platform are service areas, shops, schools. All motor vehicles are banned on the island, except for fire and police. Gardens and recreational facilities are on the tops of the lower apartment buildings. The air-conditioned pedestrian concourse below the platform would be lit by glassed holes in the roof and made undulating to kill the monotony of long, straight corridors. Says Gruen, "It's the first 20th century city — it would mean unscrambling the melee of flesh and machine." Some 70,000 people will live on the island, if the plan goes through, and will be the most direct beneficiaries of this design decision.

Individual responsibility and freedom, or group responsibility and dependence? Can a man cut his own grass, raise his own flowers on the roof? Can he see it from the window even if he could raise it? Can he walk through a park by himself, look at the moon or the sun, except through a porthole over his head—16 feet over his head? Can he even get into his car and go for a ride when he wants to get out of the place? At least his child might have fun, for a while, playing coal miner as he walks to school.

The designer giveth, but he also taketh away alternatives. He makes it possible to have a martini 15,000 feet in the air; he makes it impossible to drive slowly on a freeway. He makes it possible for a whole family to get away from it all in a home on wheels; he makes it impossible in a permanent house to get away from that family except in the bathroom. He makes it possible to wash dishes and clothes in a machine; he makes it impossible to make a bed in any other way than it has been done for the last 2,000 years. He makes it possible to bring the world's greatest music into the living room; he makes it impossible to eat, and often to work, without music. He makes it possible to make doughnuts at home without mixing the dough; he makes it impossible to buy a string of figs, or a salami, or a pickle, or even a

lamb chop, without a plastic sheath.

The designer already is, and will become even more so, a very central figure in the processes of value transformation and value problem-solving in our society. His choices affect the possibilities of choice for all the rest of us, perhaps more than he realizes.

Bernard Rudofsky, engineer, architect, and author, putting first things first, insists that our basic problems have neither been solved nor understood.

I am perfectly aware that our incompetence to solve, or even lay bare, the basic problems of food, clothes, and shelter, and our willingness to accept whatever the market offers, assure the normal functioning of our economy. This would not be so bad if we did not advertise our conceits abroad. Today, we have the spectacle of a world overrun by millions of tourists who insist on eating the food of *their* country; who clamor for hotels indistinguishable from hotels *at home;* who sport the sort of clothes *they* see fit to be worn, contemptuous of the protests of their host countries. Tourism, the idiot's delight, avoids the direct collision with a foreign culture that once made travel such an incomparable experience.

Our notorious insecurity stems, I suspect, in good part from a lack of critical faculties. Dissatisfaction, if any, is construed as a symptom of disloyalty; criticism relegated to frivolous subjects such as books and the arts. By tacit agreement, food, clothes and shelter are immune from criticism — an unfriendly word may precipitate a libel suit. While one may condemn with impunity a play, a poem, a painting, one may land in jail for poking fun at a Butterick dress pattern or a New York State Neapolitan Rhine wine.

Anatol Rapoport, operational philosopher and semanticist, is past president of the International Society for General Semantics, associate editor of ETC, and Professor in the Mental Health Research Institute at the Univerity of Michigan.

Like every subsequent human invention, language has tremendous potentialities in both directions, i.e., in the direction of both adaptation and maladaptation. Language and its works are the basis of our claim to the title of crowns of creation, and are also the mechanism for generating our fears of self-extinction. Language gave us science, the great religions, and the potentiality of universal human brotherhood; and language divides us into strongly organized groups with seemingly irreconcilable conflicting loyalties. Preoccupation with words and their meanings makes members of our species poets and thinkers, and also makes them hopeless neurotics. As semanticists often say, we live in an ocean of words, just as a goldfish lives in a bowl of water. The analogy goes far, for we are as crucially dependent on that ocean as the fish is on his bowl. But just as the medium in which we (and the fish) are bathed contains the stuff that nurtures us, so it may contain the poisons we secrete. Leave the goldfish alone in his bowl, and he will soon die from his own excretions. The fish in the ocean fares better—he can escape the polluted region. We in our semantic ocean, like the goldfish, cannot escape. Unless we invent a language hygiene, some means of disinfecting the semantic medium we live in or of developing immunities towards its poisons, our great biological invention which permits us to live in an ocean of common experience may make this ocean our common grave.

These are strong words, but I invite you to examine the evidence which has led semanticists to such conclusions. Consider an earthworm learning by a conditioning process that the right turn in the T-tube, in which he is confined to crawl, leads to a reward (a comfortable moist chamber), while the left turn leads to a punishment of some sort. The worm's education is a slow, painful process. He truly learns by direct experience, which takes hundreds of repetitions to become fixated. But if the worm had a language, if "right" and "left" were in his stock of ideas, he could have come to the right conclusion in just two trials and could have transmitted his knowledge to future generations of worms. Language makes possible the by-passing of experience. Language is a *map* of experience, a "collapsing" of experience upon symbols, a code which enables the language user to transmit and receive *knowledge* of experience without the actual *experience* of experience.

Milner Gray is a senior partner in London's Design Research Unit, and the author of Package Design.

How and for what ends shall the designer's problem-solving abilities be utilized? In the final analysis of his problem the designer must forget commercial requirements, materials and techniques, capital equipment, the implications of automation or of operational research, all the things which surround the product he is called upon to design—the product's great panoply—and must ask himself simply, "What is this thing?" Saints have asked similar questions about the nature of God; and when they knew, then there was no problem remaining for them. The designer's exercise is easier, for no metaphysic is involved, but he has a great social responsi-

bility, for no one else is likely to be so much concerned with the total value of the product to its ultimate user.

What part can the designer play in achieving the ends we have been discussing? After all, this *is* a design conference! The designer's province is to go back to find out what a product or service is really for. Designers must find answers to a very simple question: *What is it supposed to do?* You have to develop a psychology for persuading people to buy what is designed for their own betterment. Depending on the point of view, this is called manipulation, propaganda, or education.

RECAPITULATION: Anatol Rapoport sums up, goes on

Several themes have emerged from the conference. There was general agreement that solving problems was as characteristic of man as any other crucial survival mechanism is of the species which depends upon it for survival. There was a range of opinion, however, as to what constitutes problem-solving, about the relation of problem-solving to that elusive, prestige-laden character trait we call "creativity," and, above all, about what the important problems are.

The last question pertains, of course, to values. The participants showed much concern for values: how to choose them, how to decide their relative importance, and how to realize them. This is as it should be, because problem-solving is meaningless unless problems are posed, and problems cannot be posed without values.

So much is obvious, but it is by no means true that a problem solver, faced with a specific problem, always examines the values involved. Typically, the problem-solver simply goes on to solve the problem, because that is his job or, which is more important, because problem-solving comes natural to him. When people are trained as problem solvers, the solving of problems, whatever their import, whatever the impact the solutions may have on individuals, on societies, on humanity itself, becomes an end in itself, the meaning of life.

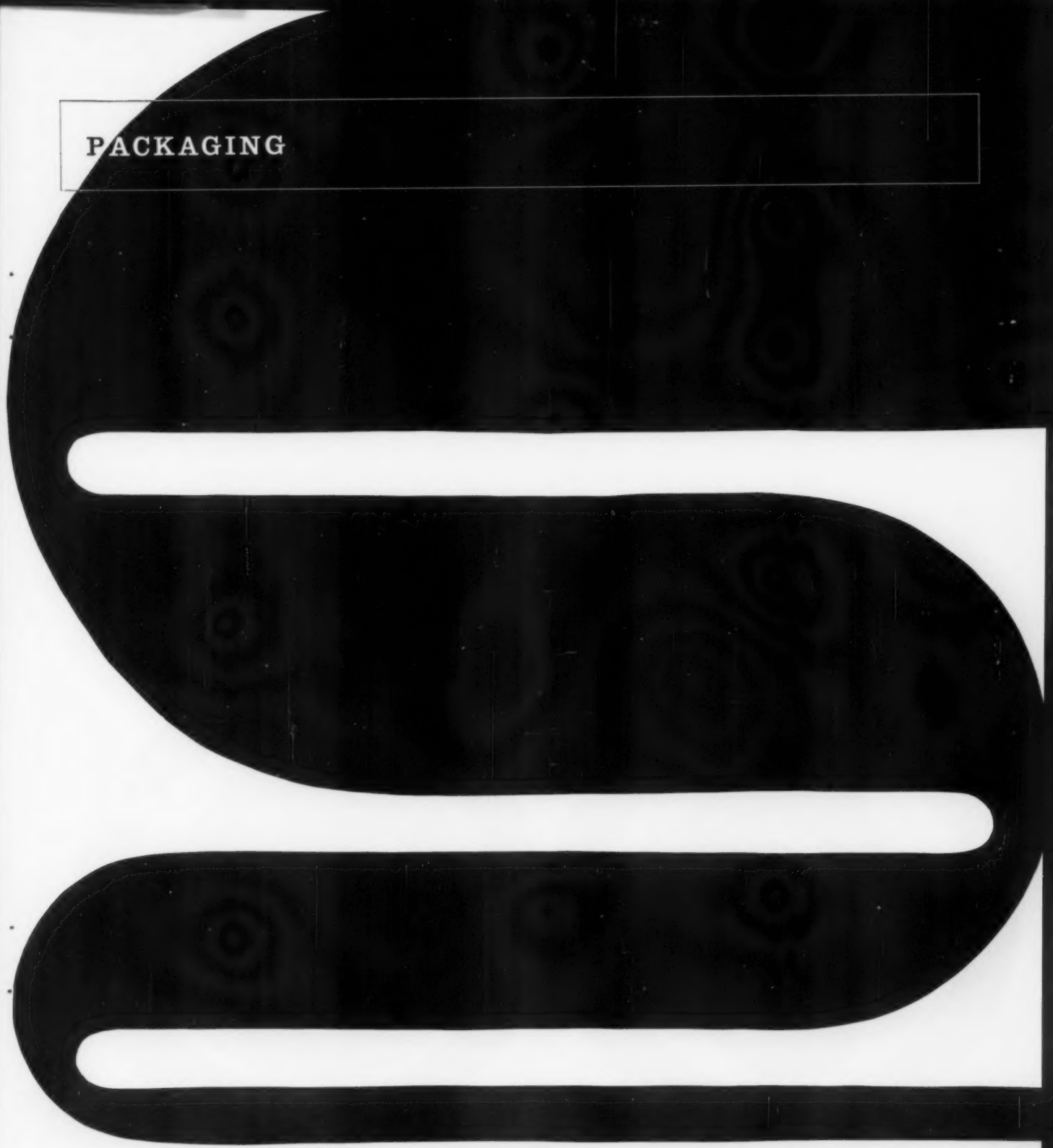
I believe that one of the greatest social problems of our age is precisely this dual role of the problem-solving process. On the one hand, problem-solving is instrumental: problems are solved in order to achieve certain ends. On the other hand, problem-solving is an end in itself, an activity richly rewarding to the human psyche.

In practice, however, the first role obscures the second, and the second subverts the first. Let us see how this comes about:

The emphasis on the instrumentality of problem-solving reduces science to technology, turns art into propaganda or advertising, demotes education to training and character-building to brain-washing. Whenever *anything* which is done must be justified in terms of ends to be achieved, the ends tend to become simplified. Since the simplest ends are those which can be expressed quantitatively and since man is most easily motivated by appetites, the result of a hypertrophied utilitarian component of problem-solving is the vulgar materialism of which American civilization has been so frequently and sometimes justifiably accused.

Let us look further at how our creative activity is channeled. Whenever business people meet with professors or with artists, they are quick to point out the "creative" aspects of competitive business, probably because professors and artists tend to ignore those aspects and to cling to their stereotyped image of the philistine businessman. I, for one, am deeply impressed with the businessman's argument that there is ample opportunity for creative problem-solving and hence for self-realization, in competitive business. However, when I look at some of the ends served by this expenditure of creative talent, I am appalled. Need I remind the designers of the crimes perpetrated against their ideals, because doodads cater to infantile fantasies, which themselves had been created by the adman in his pursuit of the "distinctive features" that give a product a competitive edge?

PACKAGING



In less than a decade, aluminum foil for packaging has come a long way on dash, dazzle, and other impressive properties.

BY RICHARD BURTON

PACKAGING WITH FOIL

But al thing which that shyneth as the gold
Nis nat gold, as that I have herd it told.
GEOFFREY CHAUCER, The Chanouns Yemannes Tale

There are two reasons for putting something into a package: first, to protect the product if it is perishable or subject to damage en route from the maker to the consumer; second, to enhance the product's appearance or to attract attention in a display environment.

In satisfying these criteria—or trying to—package designers and packagers (including householders and institutions using wrap) specified and consumed nearly 85 per cent of all the aluminum foil shipped in 1960. This fraction—212 million pounds—appeared as bare foil (45 million as rigid containers; 75 million as wrap) and in laminations (92 million pounds) with cellophane, polyethylene, paper and other strata for labels, wraps, and containers.

These figures are fairly astonishing when one realizes that the total packaging poundage of aluminum foil in 1954 was only 120 million pounds. At that time, the

1—Foil keeps *moisture* in or out of packages. In a sealed chipboard box, dried products, such as prunes, gain up to 33.5 grams if stored for six weeks at 100 degrees F., 85 per cent humidity. In aluminum foil the same products show a gain of less than 1.5 grams.

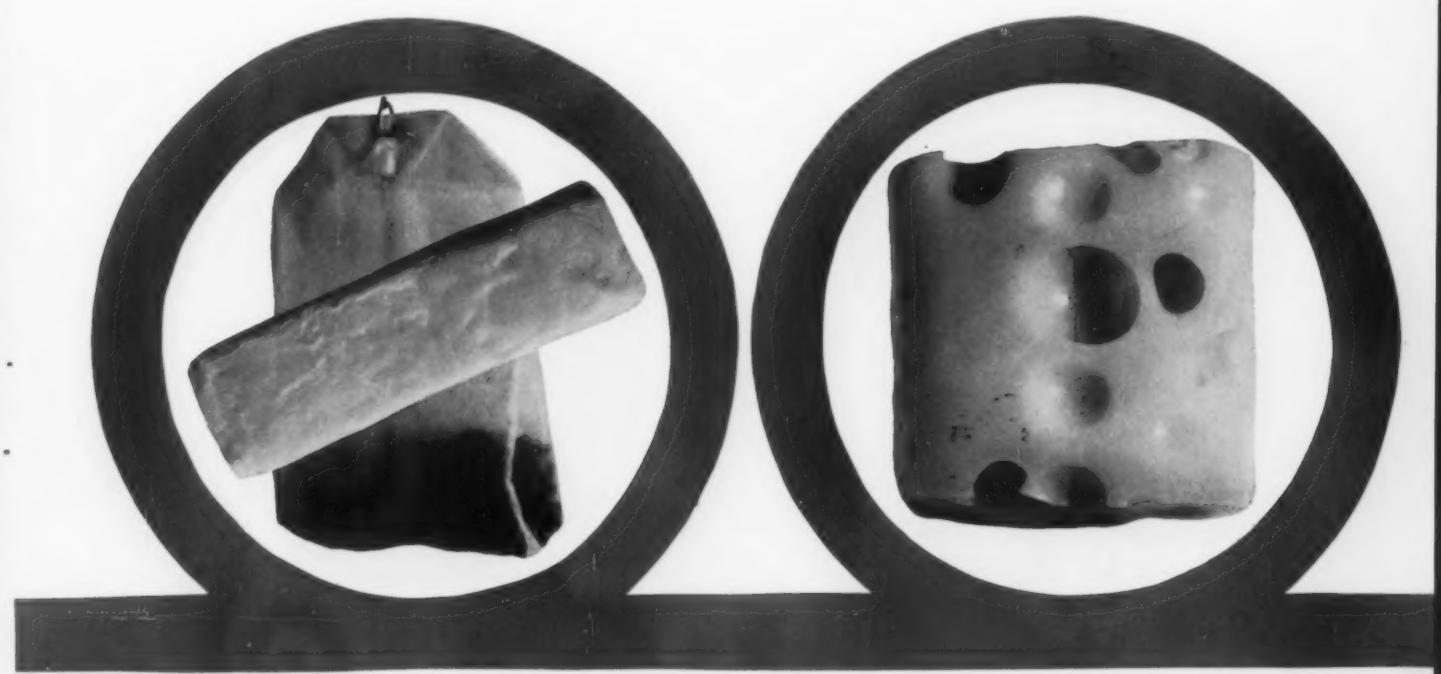
2—Foil is *hygienic;* will not deform or deteriorate under temperature extremes, thus permits sterilization of package and product during production runs. It will not support growth of bacteria; they are destroyed by annealing process.

aluminum industry was freshly out of two wars, during which it had experienced something of a capacity explosion (from 133,000 tons in 1936 to more than a million tons in 1954). And the aluminum producers were viewing with considerable alarm the prospects of empty factories and mills, idle mines and undisposable stockpiles. Cigarette manufacturers and candy producers (usually those making mints) were almost the only packaging clients the foil makers had, and neither of these industries took advantage of foil's excellence as a medium for graphic art. But coincidentally with the war's end, supermarkets appeared, the shopping list began its long slope toward obsolescence and the concept of selling and packaging for "impulse buyers" came into being. All things being equal (and often when they were not), the ginger snap in the most eye-catching package was the best seller among all the ginger snaps. At the same time, the hazards of mass display and self-service were demonstrating to food producers the need for packages that would stand up to rough handling. The functional assets of foil as a packaging material had been thoroughly explored by various military suppliers who found that it made a great deal of sense, particularly for foods such as field rations, which needed protection from extreme climates, battle conditions, and haphazard storage and handling.

The properties

Aluminum foil is *impermeable* and will not transmit water vapor. In extremely thin gages, it is vulnerable to microscopic breaks or punctures which will permit some water vapor leakage, but even at thicknesses as low as 0.00035-inch, transmission is negligible. Foil's impermeability makes it highly desirable as protection for frozen foods (where the admission of moisture can cause discoloration of the food) and for maintaining the condition of dried or dehydrated foods.

Aluminum foil is *hygienic*. Micro-organisms are destroyed during the annealing process, and foil offers nothing upon which such colonies can thrive. Whenever necessary, foil can be sterilized with no change in its



3—*Odors* drift in and out of packages. Many products like tea and butter must be protected from outside odors and also retain their own characteristics of flavor and smell. Foil packages have been developed to hold partial vacuums for more than a year.

4—Both *grease and oil* present packaging problems. When either is permitted to leak out, both package and surroundings are stained and discolored. Also, if oils oxidize, the product can become rancid. Foil is a complete grease-oil barrier and is non-absorptive.

5—Loss of *flavor* can be caused by: chemical changes; absorption of foreign odors from the package or through it; direct loss of flavorings through the packaging material; bacteria and mold. Aluminum foil inhibits each of these four threats better than cellophane, polyethylene or glassine.

appearance or properties. Hence it is widely used for surgical and medical products.

Aluminum foil's *gas resistance* is absolute in heavier gages (0.0015 and up). Even light gages of foil will impart to paper and plastic film laminates an extremely low degree of gas permeability, reducing the tendency of a packaged product to oxidize or become rancid. It also prevents the loss of gases from the inside out: it will preserve the aroma of delicately flavored products, such as mints or tea.

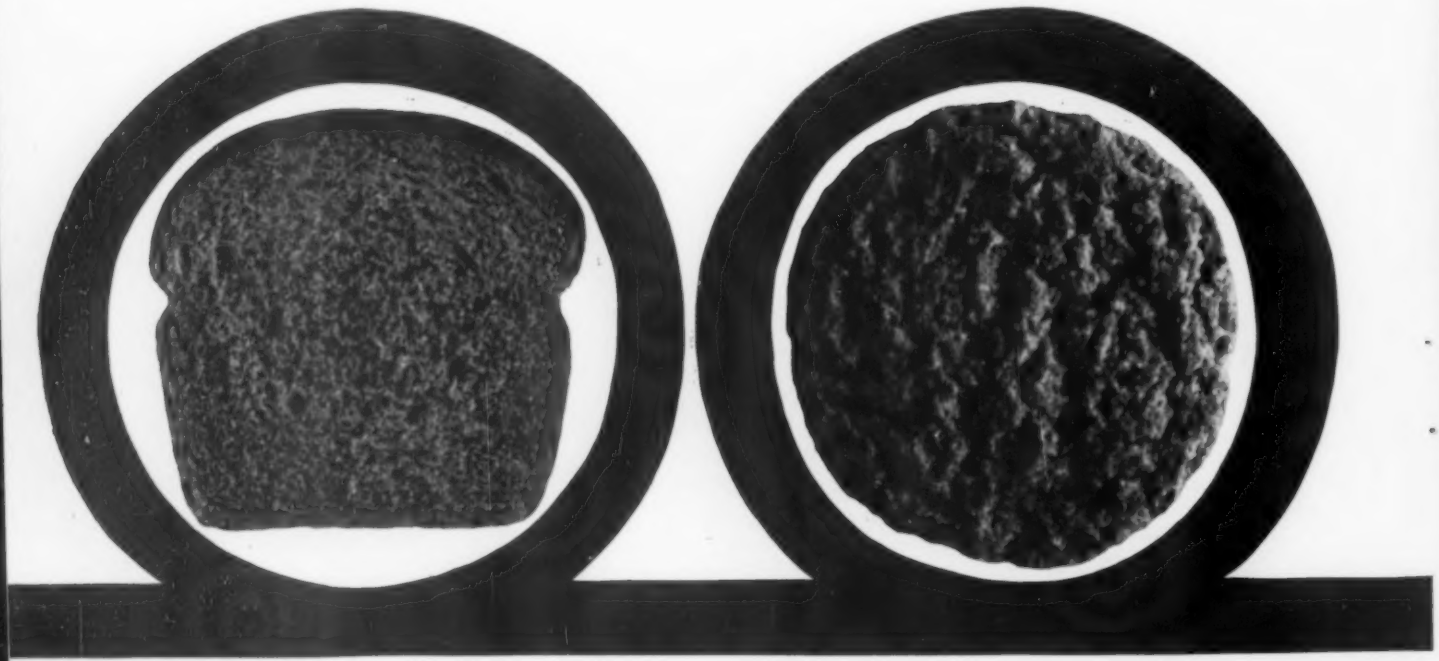
It is *greaseproof and oilproof* as well as being non-absorptive to liquids of all types. It will not stain on contact with oils and fats—even at oven temperatures—and it does not swell, shrink or soften in contact with moist contents, hot or cold. Foil has been used successfully to package butter and margarine, bacon and hams, and in laminations for boil-in-bag applications.

It is *odor resistant*. There is no taste or odor migration from aluminum foil to delicate foods such as butter, cheese, dehydrated foods or chocolate. On the contrary, foil protects such foods from absorbing undesirable tastes and odors from their surroundings.

Pliability in aluminum foil results from the heat-treating or annealing process used in nearly all packaging applications. Annealing produces dead soft foils. The softer foils thus can be molded, crimped and formed with ease, and will conform to irregular surfaces with modest pressures (as in the linings for bottle caps on carbonated beverages). Foil remains flexible throughout a temperature range far exceeding that called for in almost any packaging application.

As a *light barrier*, foil provides adequate protection for many chemicals harmed by prolonged exposure. In nuts, chocolates, potato chips, cookies, butter, and cheese, ultraviolet rays can cause oxidation, rancidity, loss of natural flavor, vitamin loss, discoloration, and staleness. Aluminum foil decreases product spoilage and returns by blocking these rays. On the other hand, opacity is not an unmixed blessing, since supermarket customers tend to want to see what they're buying.

It is *dimensionally stable*. Foil has no volatile components and will not dry out or shrink upon aging. Its



6—Foil's *pliability* and ability to "take a set" recommends it for rewrap purposes. While it is not so resistant to fatigue as some polymer films, it is tough enough to permit frequent wrapping and rewrapping of most consumer products.

7—Foil's *shelf-life* is at least equal to that of cellophane and polyethylene, and is superior to that of waxed paper or glassine. It is dimensionally stable, in addition; will not deform after aging or under temperature extremes.

flexibility after aging also remains unimpaired. These characteristics enhance shelf life, thus are valuable with respect to products with a slow turnover — vending machine items, for example — and on import-export items which have to travel extensively.

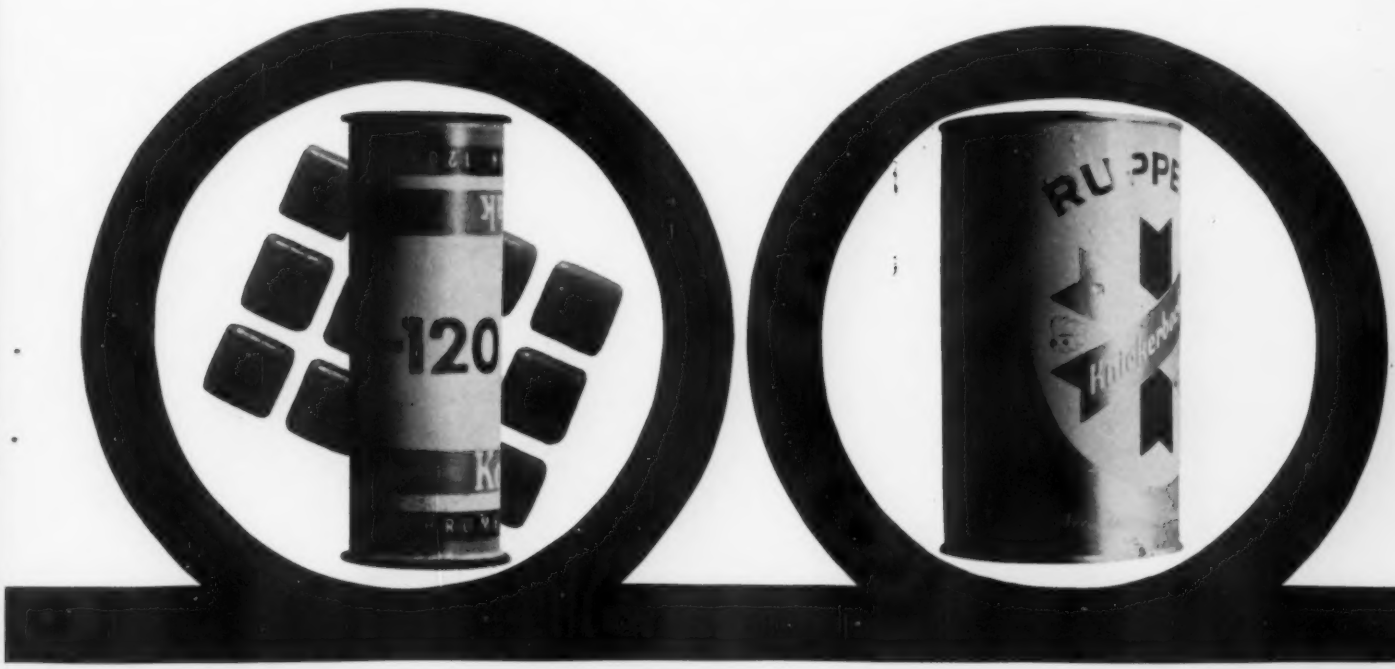
As a *contamination barrier*, foil is effective against dust, dirt, grease, air-borne organisms and nearly all insects.

The *thermal properties* of foil are high conductivity and high reflectivity. Foil cools quickly and heats rapidly because of high conductivity, thus is suitable for packaging applications which involve both freezing and baking. At the same time, up to 96 per cent of radiant heat is reflected by aluminum foil, and as little as four per cent is emitted. This makes foil desirable as a heat insulator in packages where product protection and maintenance of high or low temperatures is critical.

This fairly impressive property profile, however, is crowned with a garland of caveats. First of all, foil is not cheap. Take a loaf of bread. No matter what material is being used, the baker needs about 285 square inches of package. Apart from printing costs, the baker will have a materials cost of $5.99 per thousand loaves in wax paper; $6.44 in polyethylene (1¼ mils thick); $7.35 in polypropylene (1¼ mils thick); $8.04 in cellophane; $15.00 in foil. Also, foil tears somewhat more easily than other packaging materials and is accordingly rather vulnerable to damage in transit or on the shelf. And finally, foil sticks; and although it is non-toxic, a piece of aluminum foil stuck to the bottom of a piece of cheese is not exactly a taste thrill.

The forms

The bright finish on aluminum foil is a point-of-sale asset in most packaging end uses, and is available in all gages from the thinnest to the thickest (0.00025 to 0.0055 inch). Usually foil which is less than 0.001 inch thick is produced with one bright and one satin finish, because two layers of foil are commonly rolled together when lighter gages are produced. The mirror-like surface of each sheet results from the contact with polished-steel mill rolls; the inner, satin-like surface comes from



8—As a *light barrier*, foil is superior to brown glass or wax paper cartons. Under fluorescent lighting conditions, it is significantly more effective than boxboard, waxed paper, or plastic films.

9—*Contamination* by insects through foil was tested against unlined wooden containers which ultimately showed infestation to a depth of 10 to 11 inches. Product loss was six per cent. With a foil lining, penetration was zero; product loss, zero.

10—*Thermal properties* of foil include high conductivity and reflectivity. The first permits quick cooling or heating; the second guarantees a better maintenance of internal temperatures than competitive materials.

1—2
3—4

Foil is not always functionally appropriate, but here are ten cases in which it is: these packages admirably serve both consumer and manufacturer. In each of these citations, a specific foil property has solved a product problem because the material is: 1—moisture-proof; 2—hygienic; 3—an odor barrier; 4—grease-proof; 5—a flavor barrier; 6—pliable; 7—light-proof; 8—durable; 9—contamination-proof, and 10—reflective and conductive of heat.

5—6

the aluminum to aluminum contact of the two sheets. Foil gages heavier than 0.001 inch are bright on both sides unless otherwise specified.

For most converting and packaging applications aluminum foil comes in roll stock with a thin interleaved tissue sheet (particularly when the metal is dead soft), to facilitate cutting and to prevent scratching of the foil surface during shipment and handling.

Most modern automatic forming and wrapping machines will operate smoothly at high production speeds with foil sheets or roll stock; however, in certain operations, lubricating coatings which leave a transparent, semi-dry film are applied to the foil to extend machine performances. While these coatings may be applied to plain foil, it is more practical to apply them after the foil has been printed or otherwise decorated. If unprinted foil is being used, the residual lubrication from the rolling mill is sufficient for maximum packaging machine efficiency.

Flexible foils can be used satisfactorily in wraps and labels, bags, pouches and envelopes, and as liners. As wrap or label stock, foil appears as a carton wrap in sheets which are overwrapped on various stiff boxes, or as setup box wraps which are made of die-cut board to which the foil has already been laminated. Flexible foil is also used as a label for bottles, jars, cans, and drums, and on a wide range of soft goods.

As a carton and wrap label, foil has been used on transparent and opaque materials and on nearly every type of packaged product, large or small.

In addition to wrap and label applications, foil is, of course, widely used in bags, pouches and envelopes. The single-serving pouch, constructed with two or more sides sealed, is one of the commonest applications.

Aluminum foil boxes, pans, cups, pots, and trays are almost without exception made with die-forming and creasing or folding equipment. They withstand normal extremes of handling and temperature variation, including sub-zero and oven heats for various prepared foods. They are designed primarily as one-way containers, but many householders re-use them for a variety of purposes from cooking to gardening. *Rigid, all-*

7—8

9—10

foil package end uses include pie and cake pans, frozen fruit and vegetable boxes, frozen dinner trays, cheese cups and others.

Aluminum foil is used functionally or decoratively as an integral component of rigid packages which are made of other materials, chiefly paperboard. In corrugated or solid fiber shipping containers, the foil is usually laminated to the board or liner sheet while it is being fabricated. Then the foil-board stock is sheeted and used in conventional forms to make packages. In winding fiber drums and tubes the liner may be a foil-board, foil-paper, or foil-film combination. Or it may be plain foil in a medium to heavy weight gage. It is wound from roll stock, the same as the other plies, at the same time that the container body is being made. Conventional wood box manufacturing techniques are used to make containers for shipping fresh iced seafood and employ plywood stock with a foil lamination. Rigid packages also use foil in corrugated and solid fiber shipping containers, in setup paper boxes, and in heavy folded cartons.

Aluminum foil has been adopted for a wide range of package forms. In flexible gages it is used for wraps and labels; in bags, pouches and liners. In semi-rigid form it is used for lightweight folding cartons, boxes, pans, cups, pots and trays. Heavier foil is used (often in laminations with paper, fiberboard and other materials) in bottle caps, corrugated cartons and solid shipping containers and also as a liner for wound fiber tubes in foil-board, foil-paper or foil-film combinations.

Design with foil

In graphics, three factors apply to the use of foil: reflectivity, receptivity and reproduction. Since package designers have to think of the environment in which their designs will work, they will remember that foil reflects the ugly as well as the attractive. A foil package presents a dynamic surface of considerable versatility and reproduces detail with fidelity whether the design is good or bad. Large reflective areas on a package, for example, will cancel out graphic elements at many angles, and the impact of reflectivity may be best suited to package design as an accent rather than as the dominant element. The most important fact in connection with foil's receptivity is that, although it is, indeed, solid metal, practically none of its metallic characteristics has any effect on the application of ink or paint. This is particularly true of light gages of foil laminated to paper. In fact, the design, in nearly all cases, is not applied to the foil at all. Rather, it is applied to a thin, transparent protective coating which was applied to the entire surface of the foil at the time it was laminated. The designer and the printer using aluminum foil stock are usually working with a surface similar to that of many coated papers, and plates are prepared just as they are for coated stock. Foil printing inks for all processes are obtainable in both transparent and opaque colors. Definition of the halftone dots can be as good as or better than those for a similar image reproduced on a fine coated paper.

However, since it will not absorb ink, foil must be coated with special varnishes before it is printed. And it can be run at only about 75 per cent of the speeds employed to print coated papers. Furthermore, it requires a longer drying time between colors. Commonly, printed aluminum foil is run on web-fed gravure and flexographic presses, because of the quick-drying solvents used in gravure and flexographic printing inks.

No significant modifications are necessary in presses, whether the designer specifies gravure, flexography, letter press, lithography, or silk screen printing. But all methods call for specific foil inks. Gravure plates must

be prepared with a shallower etch (to limit the amount of ink transferred); drying times are greater for foil than for most other materials on any but silk screen operations; the impressions have to be adjusted, and letterpress techniques tend to punch a slight embossment into the foil.

All conventional printing effects can be obtained through printing solid opaque white wherever it is desirable to print subsequent colors, but the effects of color on aluminum foil can extend the designer's range far beyond that possible with white paper.

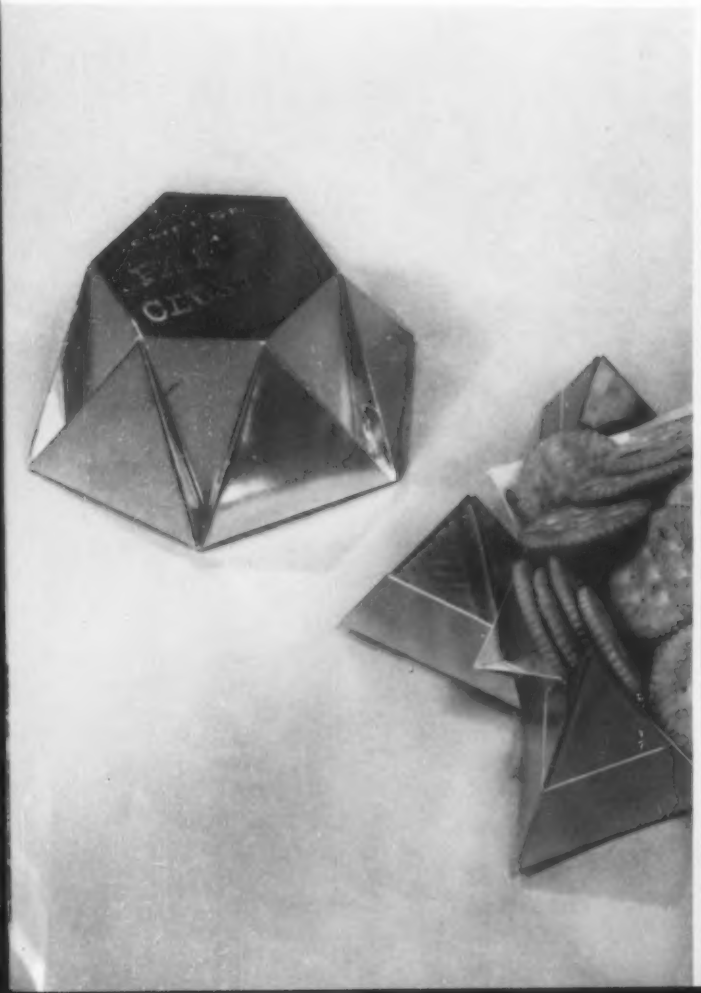
Foil offers all the effects made possible by its reflectivity. In addition to the bright or satin sheen, foil may be finished so as to change the actual as well as the apparent finish of the printed piece, by embossing with stippled, screened, and other multi-faceted surface treatments.

Foil is a valuable packaging material from the standpoint of both protective and appearance advantages. But sometimes, for reasons of marketing strategy, one is sacrificed to the other. For example, toilet soap sells better in foil, partly because of the graphic possibilities and partly because of a general belief that "foil protects." It does protect, but protection is not always desired. Foil's maintenance of high moisture content extends shelf life, but causes the soap to disappear faster when in use. There is some tendency for designers to use foil as doctors use wonder drugs: it works, and requires no great skill in specification. But, as with penicillin, promiscuity of use can lead to immunity. Overexposure could cut into the sales appeal of foil, a danger that converters are trying to circumvent by research into new techniques for using it.

In the meantime, the brilliance emitted from any supermarket aisle is evidence of aluminum foil's acceptance among designers, their clients, and consumers. END

Sources: Aluminum Company of America, Anaconda Aluminum Company, Kaiser Aluminum, Olin Mathieson Chemical Corp., and the Reynolds Metals Company.

1



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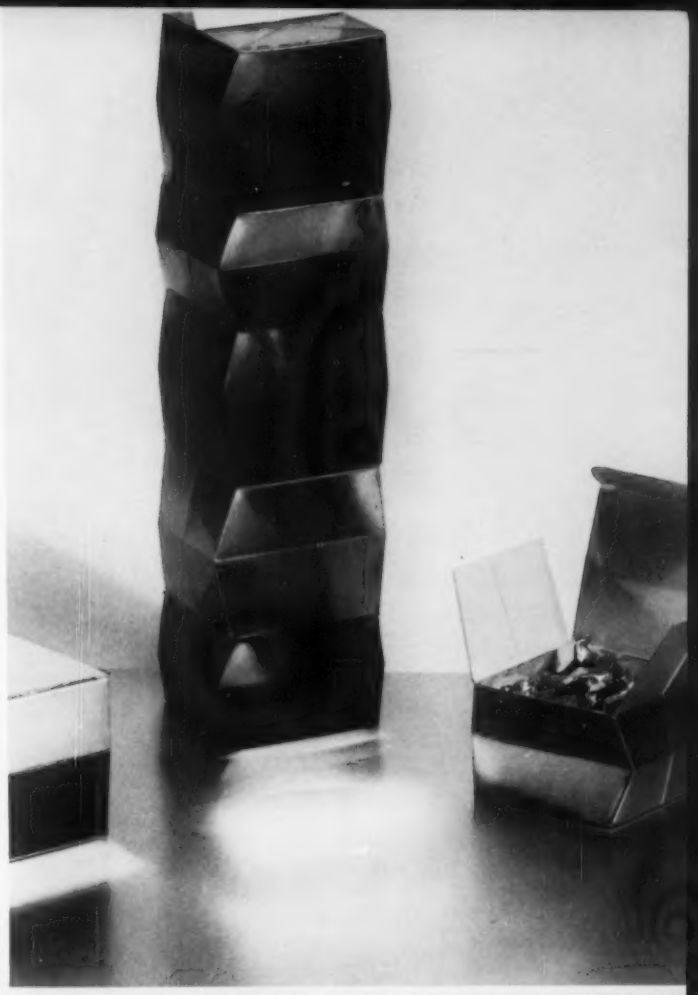


Foil-wrapped packages on a supermarket shelf used to be the eye-catching exception—now they are more like the rule, thus losing some of their early marketing advantage. In an attempt to recapture competitive distinction, Reynolds Metals Company designers, under design director James Birnie, are building new forms to draw consumer attention, as in: 1—cheese package which opens to hors d'oeuvre tray; 2—containers which permit use without commercial identification; 3—multi-pack of assorted spices suitable for table use; 4—small candy packages overwrapped and stacked totem-pole-fashion; 5—holiday liquor wrap which opens in cornucopia style.

HAILING THE IDEAL CAB

Top: the driver's most important requirement is good visibility; this one hasn't got it. Center: for a woman, getting in and out of a cab is awkward, dangerous, and revealing. Bottom: maintenance is the owner's problem; quick repairability could help solve it. Photo page 52 by Saul Bass; photos page 53 by Mitchell Sayers.

At the heart of the taxi problem is the taxi itself, which does not satisfy owner, driver, or passenger

BY ROBERT CUMBERFORD AND MITCHELL SAYERS

Taxicabs are vital in the modern city. They provide transportation service which is more flexible than public mass-transit systems, and more efficient than private automobiles. To the individual citizen, it is the flexibility of taxi service that has the greatest appeal. By hiring a taxicab, he is able to go from one specific place to another without delay or detour, transfer or turmoil. To the urban planner, who has in mind the needs of all the people in a city, it is the efficiency of taxicabs that recommends them. By remaining in circulation constantly, stopping only to pick up and discharge passengers, the taxicab relieves the congestion of private vehicles parked in public space. Private transport inside a city is no longer considered necessary or desirable, and it is likely that private automobiles will soon have to be prohibited in some cities. If that should happen, taxi service will become even more important than it is today, and its shortcomings even more pronounced.

The most serious problem, however, is not the service, but the equipment: the cabs themselves Only one

moderately satisfactory taxicab, the Checker, is made in the United States today. The attempt to have one design serve both as a taxicab and as a private passenger car seriously compromises the vehicle's suitability for either purpose. But even so, the Checker is far better for taxi service than the converted Detroit passenger cars which make up the largest part of the U.S. taxi fleet. Several years ago, when Detroit styling ideas were less fanciful, the use of standard cars in taxi service was practical and reasonable. Today such cars are woefully inadequate. The low silhouettes make the unwarranted demand that paying passengers stoop, squat, twist and contort in order to enter one of them. It is also unreasonable and unfair to provide the paying customer with so little room inside a taxicab that he can neither wear a hat nor stretch his legs. Furthermore, the long, low cab is wasteful of road space, difficult to see in a stream of traffic, and difficult to drive. A standard four-door sedan is cheaper than a Checker, but savings in first cost are soon lost in higher maintenance costs.

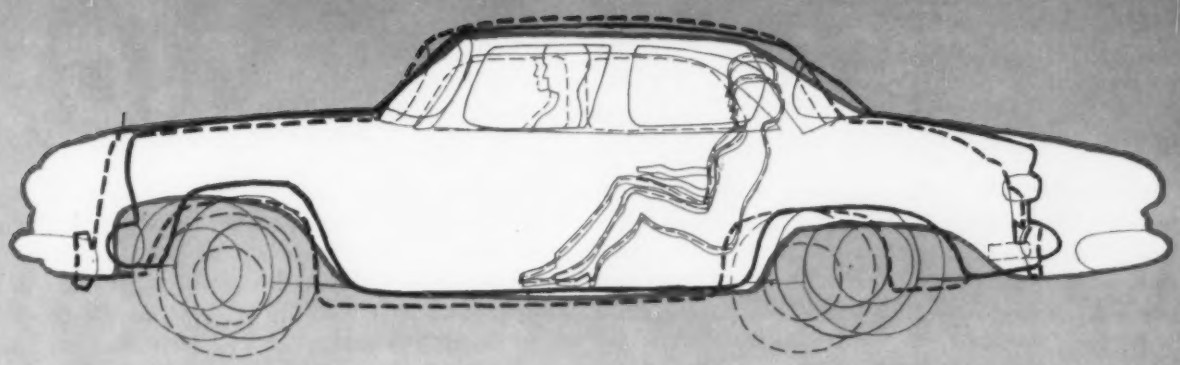
On the following pages we will discuss the conflicting design requirements of taxicab passengers, drivers, and owners, and will propose some ways to alleviate their problems within the limiting framework of available components. Finally, we will offer a proposal for an "ideal" taxicab, one which would incorporate the characteristics discussed, and which would satisfy the requirements of each of the special-interest groups.

The passenger: Basically, the customer has only one desire: personal transportation. But he wants it at as low a cost as possible, and he expects certain standards of performance. He expects to travel quickly, quietly, and safely. He expects to enjoy a reasonable degree of comfort, and some privacy. As befits the commander of a special, personal service, he wants to retain his personal dignity. More thoughtful design of the vehicles he hires would give him more of the service he is paying for.

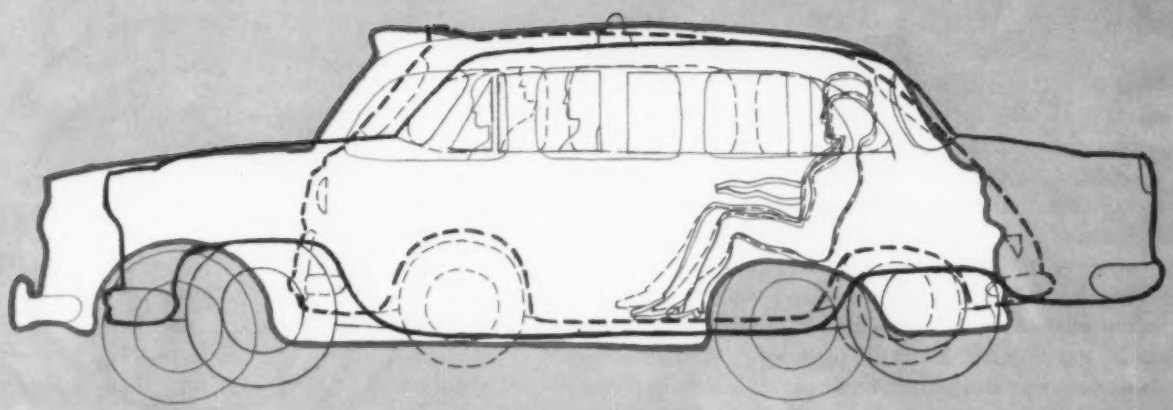
The passenger's first design requirement is for more space than is available in any of today's cabs. Most contemporary taxis are less than five feet high, overall. In an ideal taxicab, five feet would be the reasonable minimum distance between floor and roof. This would allow passengers to enter a cab without crouching and to get out the opposite side without sliding across the seat. Each passenger should have a comfortable individually adjustable seat, rather like adjustable airplane and bus seats, but without their intrusive arm rests. It would be easy to arrange safety belts which could be used by the passengers at their own discretion. For the benefit of those passengers who choose not to do so, the entire compartment should be fully padded with energy-absorbing material for protection in accidents.

The passenger should be able to communicate with the driver without having to share the driver's ventilation system, and without having to be a captive audience for the driver's homely wit. An electronic communication system could be used for this, or there might simply be a sliding window, controlled by the passenger, which would separate the two compartments.

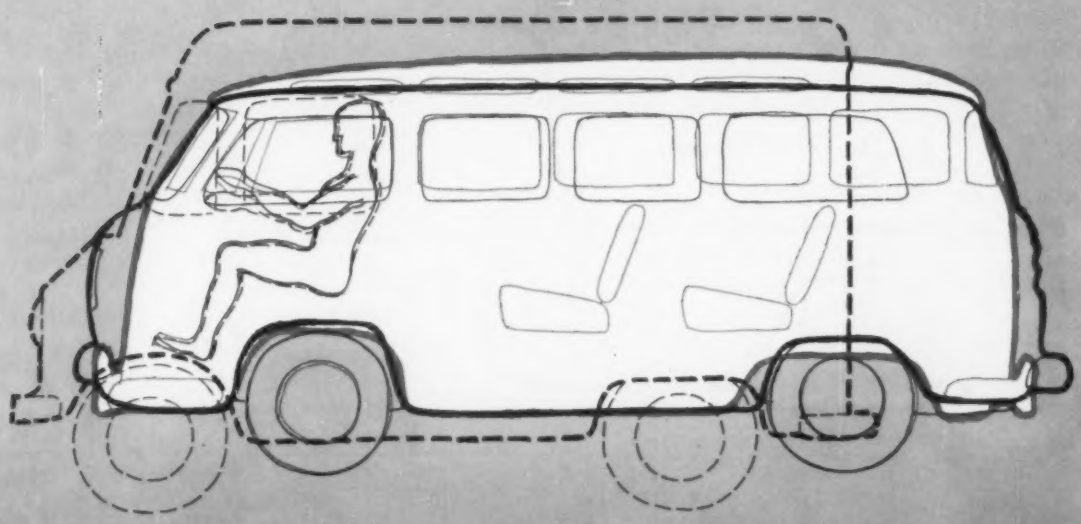
The taximeter should be located so that it can easily be read and understood by both passenger and driver.



Above: Three standard sedans commonly used for taxi service: Dodge (blue line), Mercedes 180 (dotted line) and Studebaker Lark (solid line). Despite large variation in car size, passenger space is cramped in each of these.
Below: Checker (solid line), Austin (blue line) and Fiat 600 Multipla (dotted) are used for taxi service regularly in their respective countries. The Checker is too big, the Fiat too small. Austin is best, but still big.



Below: Three utility vehicles not regularly used as taxis are better suited to cab requirements than any of above because they use interior space sensibly. Chevrolet Greenbriar (solid line) and VW (blue line) lack power, adequate doors; International Metro-Mite (dotted line) rides like the truck it is.



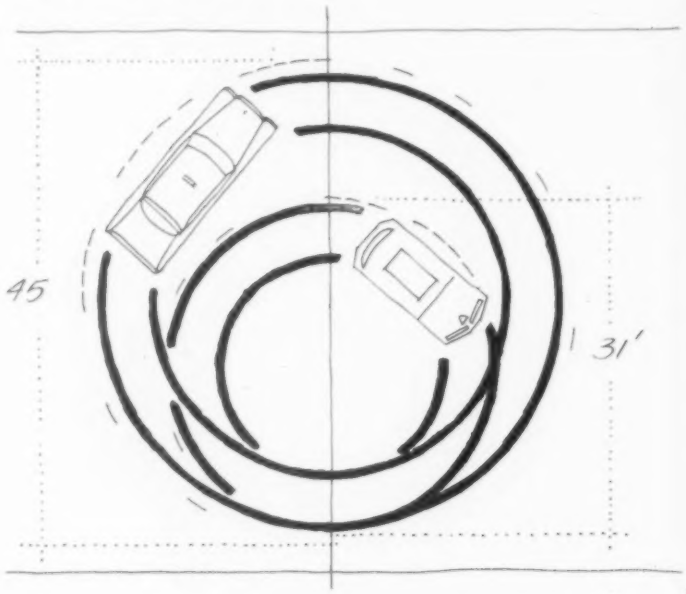
The driver: The driver seems to be the forgotten man of taxicab design. If the passenger in an ultra-low cab is cramped and uncomfortable during a ten minute ride, what of the driver, who sits behind the steering wheel for hours on end? He is not only immobilized in a space too small for comfort, but must keep his cab moving in dense traffic without damaging it, his passengers, or himself. It is no mean task. Psychological studies have shown that the occupation group with the highest incidence of ulcers and acute nervous anxiety in the United States is not advertising men, as might be expected, but taxi drivers. Obviously, giving the cabbie a better working environment will not only improve his efficiency, but will prolong his life as well.

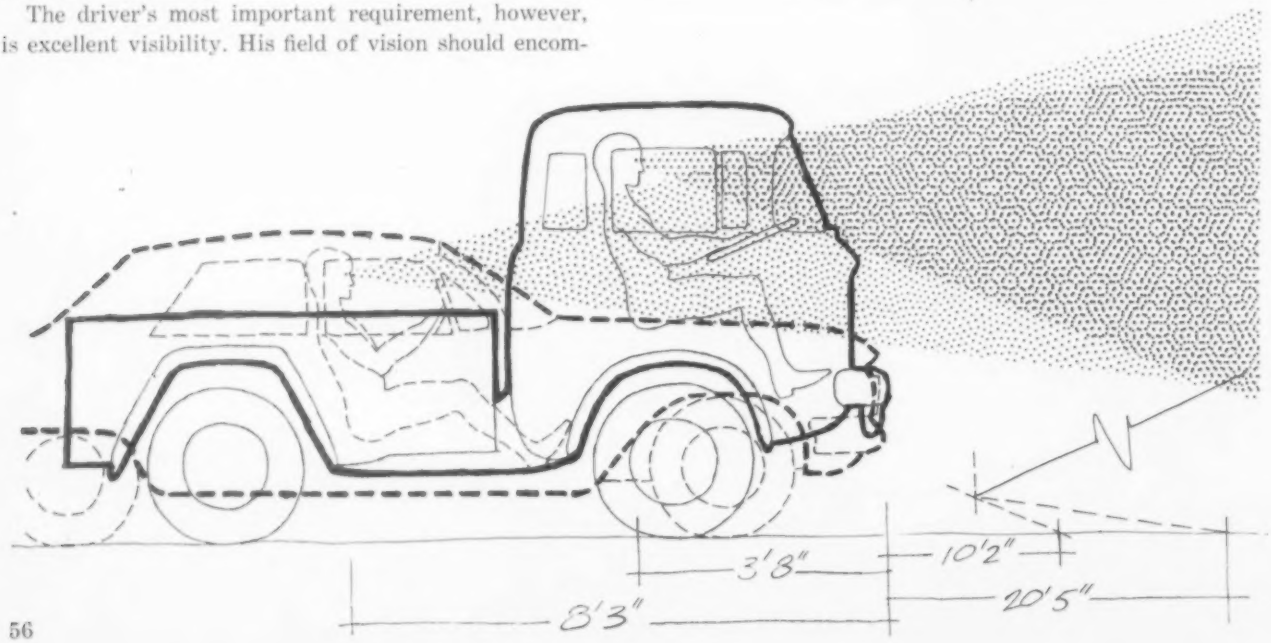
This environment should be as carefully planned as that of a lathe operator in a well-designed factory. He should have a fully-adjustable, form-fitting, posture-control seat. All controls should be conveniently arranged, with no distracting elements to take his mind off traffic. The driver's compartment should have a separate ventilating system, so that he can smoke without disturbing his customers. He should be protected from dangerous passengers, and should have a fool-proof means of attracting police assistance in an emergency, probably a warning light system.

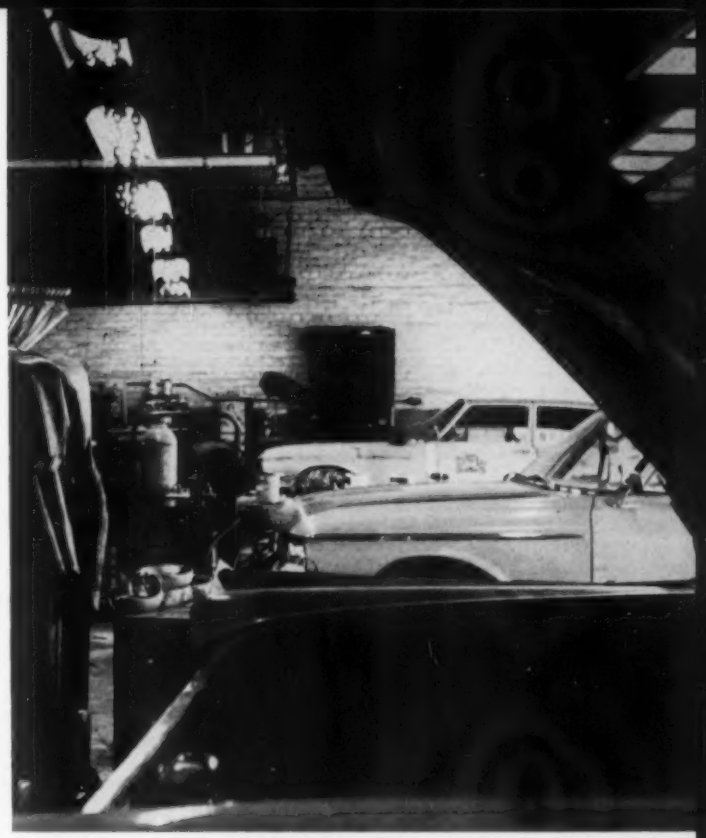
To ease the driver's worries about his passengers' safety when they are entering or leaving the cab, he could use another warning light system, similar to those now commonly seen on school buses to let other motorists know that the vehicle is loading or unloading. These could perhaps be controlled by the doors, so that when the right door is opened, lights would flash the message, "Pass Left."

The driver's most important requirement, however, is excellent visibility. His field of vision should encompass 360 degrees, and he should be able to see the ground ten feet in front of the vehicle. Ideally, he would be able to see the front bumper from his seat, so that he would have less trouble positioning the car in tight quarters. Better visibility will give him a better chance to see hailing customers, to find destinations, and to get through heavy traffic.

Below: Tighter turning radius makes the driver's job easier by decreasing effort required to maneuver in traffic.
Bottom: Importance of having driver high and forward in the car is clearly shown by comparison of vision cones. Jeep truck driver is able to see ground twice as close to him as Chevrolet driver. But a tall child could be hidden from sight if too close to front.







Garage time means lost revenue time; bad.

The owner: Going into the taxi business calls for a substantial capital investment. The owner not only buys an expensive vehicle, he must also arrange for storage, maintenance, and repair facilities. If he does not drive his own cab, he must hire and supervise someone to do it for him. In a city like New York, the cost of all this is only a small fraction of the total investment. The license to operate a public hack can run to six figures, and there are compulsory insurance and vehicle inspection expenses to be met. To make money, he must keep his cabs running most of the time, and it is not uncommon for a fleet of cabs to be on the street 24 hours a day, with three shifts of drivers.

The owner is interested in the design of a cab only in relation to its operating cost; at least that is the position taken by most of them when they are questioned about design requirements. Obviously, though, it is important to the owner that his cars be attractive to customers. On the basis of operating costs alone, the ideal cab would be a Volkswagen sedan. But passengers would resist it, even if it were possible to license two-door cars as cabs.

Most cab owners who run standard sedans admit freely that the Checker is a better car than anything else readily available on the U.S. market, but go on to say that they would not buy Checkers under any circumstances. The reason is fairly obvious, once it is understood that Checker not only makes taxicabs, but also operates the largest fleet of cabs in the country. When an independent operator buys a spare part for a Checker cab, he is indirectly subsidizing his competitor on the streets.

With the increased clamor for more comfortable cabs, a great deal of interest has been stirred up among the operators by the few English taxicabs in service in this country. These are built to elaborate specifications laid down by the London police, and are very convenient for passengers. However, the possibility of an expensive cab's being kept out of service while waiting for an obscure part to come from England is frightening to most operators. The only other foreign cars used in any numbers here for taxi service are the Mercedes-Benz 180 and 190 diesels. They have an advantage in being represented in this country by Studebaker, and in being diesel-powered, but since they are really only German passenger cars, smaller than our compacts and big enough for only two passengers, there is not much reason for an operator to choose them over American passenger cars.

Diesel engines, as used in the Austin, Rootes, and Beardmore cabs from England, and in the Mercedes, have several attractions for the taxi owner. They use cheap oil as fuel, and although taxation raises actual fuel cost, diesels are cheaper to run than gasoline engines. The life of a diesel engine is usually greater than that of a gasoline engine because the diesel must be built to higher strength values. Diesel exhaust is noxious, but it is not toxic, which constitutes a minor public safety factor in its favor. Some U.S. taxicab owners have installed British Perkins diesel engines in American cars, using a "taxi kit" made in Belgium. Cars so equipped have been noticeably slower and noisier than their gasoline-engined counterparts. Both these disadvantages can be overcome, the first through the use of lighter cabs, the second through better sound insulation.

Light weight is important to the taxicab owner in several ways. A light car uses less fuel than a heavy one; is easier on tires, brakes, and springs; and in many cases costs less to license. Many taxi owners lease their tires, so that rates of wear are not very important to them. However, time lost in more frequent changes *is* important.

Under present tax regulations, owners are allowed to depreciate the cost of taxicabs at 50 per cent per annum. Given this tax advantage, taxi owners need not be too concerned with durability. However, this situation is under review by the government, and there is some indication that a 20 per cent year rate will be imposed, as is already done for company cars and other capital equipment. Since Detroit cars cannot hold up for five years in taxi service, many owners now using passenger cars may soon be in the market for more substantial vehicles.

The ideal cab: There are a number of special-purpose vehicles which are not used for taxicab service, but which would seem to lend themselves very well to modifications for such use. Among them are the Volkswagen Microbus and its many derivatives, including the Ford Econoline and the Chevrolet Corvair Greenbriar; the International-Harvester Metro-Mite and several other small delivery trucks which it inspired; and of course, large, old-fashioned cars, like the Rolls-Royce.

Unfortunately, most of the small buses are underpowered, and have very awkwardly arranged doors. They could be adapted, but would probably not prove very satisfactory as taxicabs. A multi-stop delivery truck would be almost ideal for taxi service, *if* taxi passengers were as insensitive to rough-riding suspension as bags of laundry are. The sliding doors commonly used on these trucks point out one feature that the ideal cab would have: completely unobstructed entrance conditions. Sliding doors could be powered, and operated by the driver for the benefit of customers whose arms are full of packages.

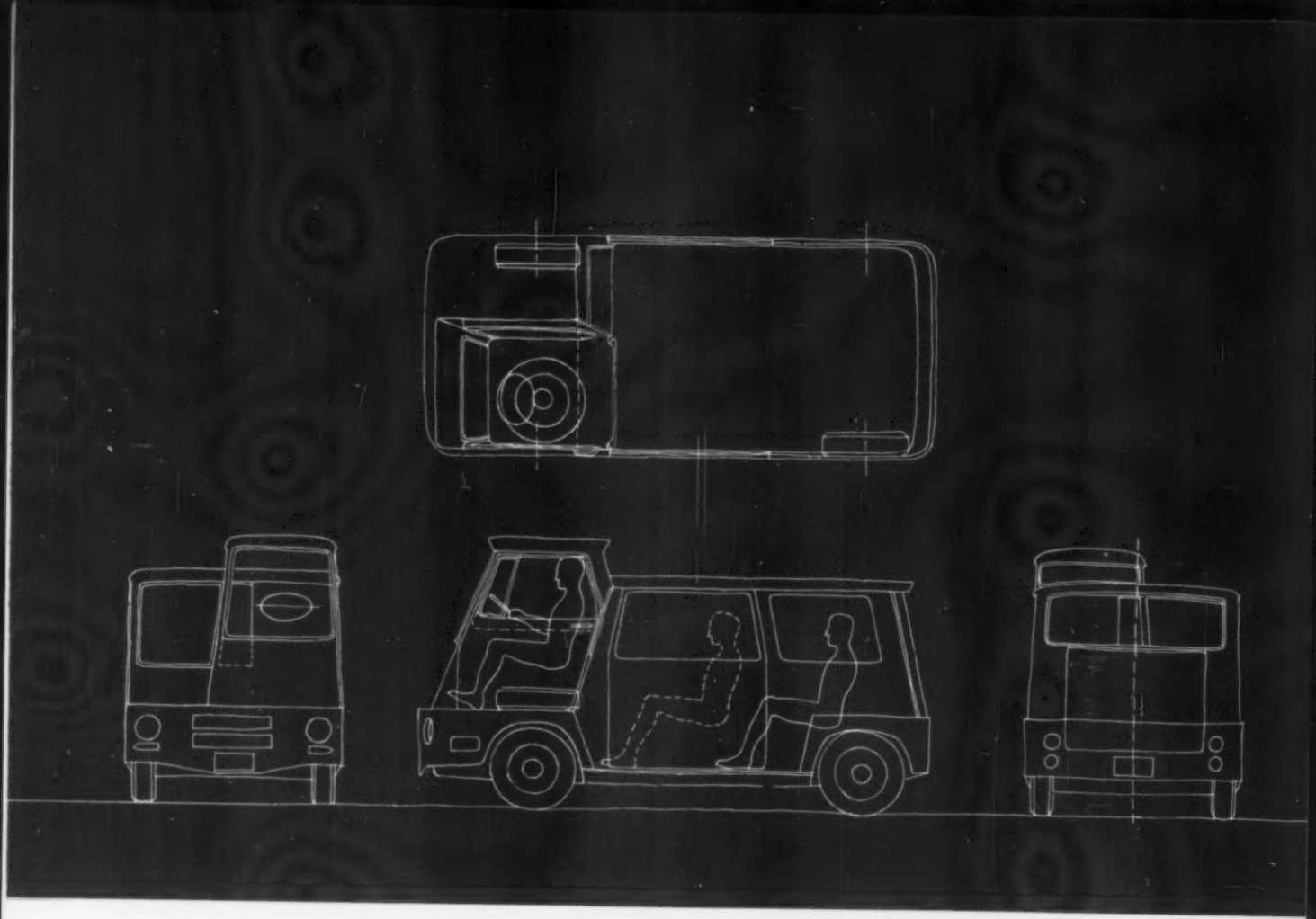
The Rolls-Royce would give passengers the ride of their dreams, but would be too expensive for day-to-day hacking. But the highly desirable silence of the Rolls interior *could* be obtained with proper attention to sound insulation.

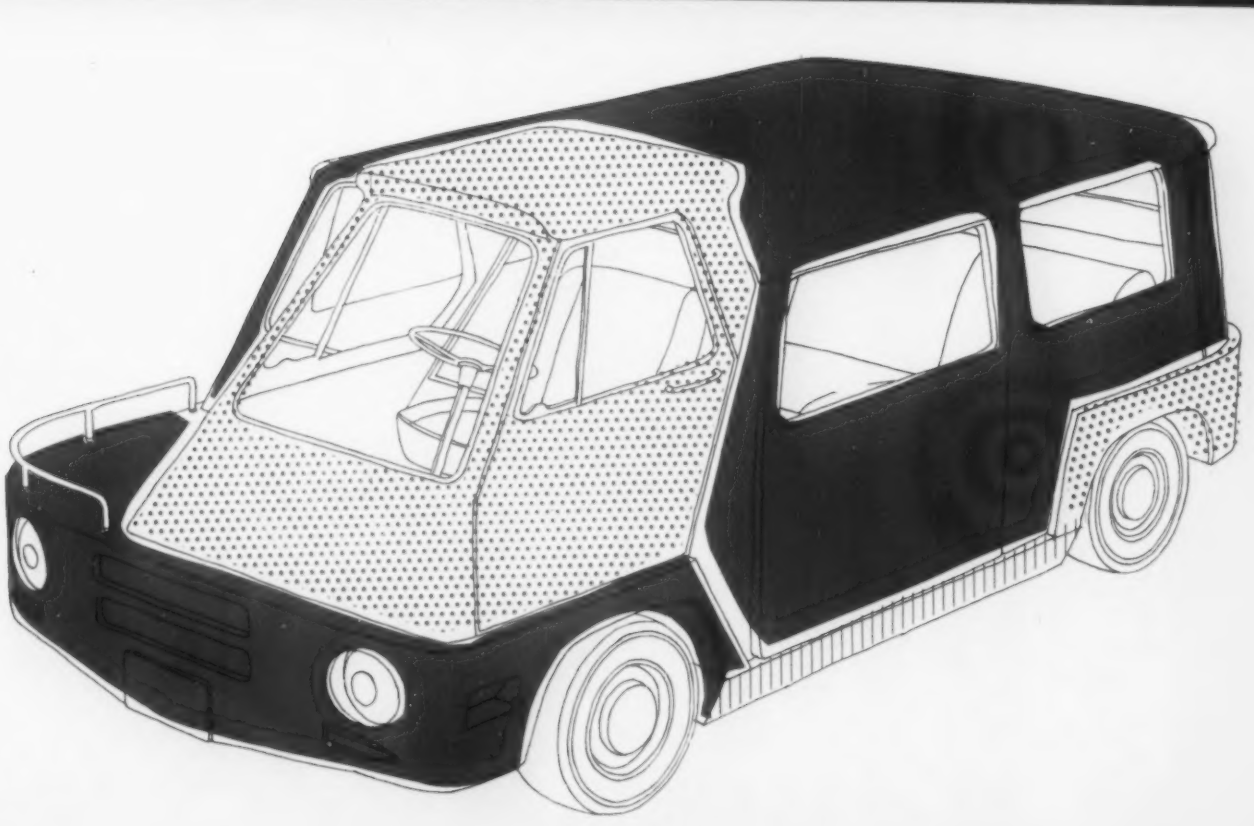
The schematic on page 59 is for a modular cab, in which each separate function is self-contained, removable, and replaceable. If the engine needs repair or the passenger cabin needs cleaning, they can be replaced with other engine or cabin modules, with a minimum of down time. The engine and front-wheel drive transmission package bolts to the front of a flat platform, on which the passengers' cabin is set. The rear wheels are integrated with a luggage compartment, which bolts to the back of the flat platform. The driver's cab is set on top of the power unit, and slightly above the passenger cabin. The windshield of the passenger box slides sideways so that passengers can talk to the driver, and can pay him without getting out of the car.

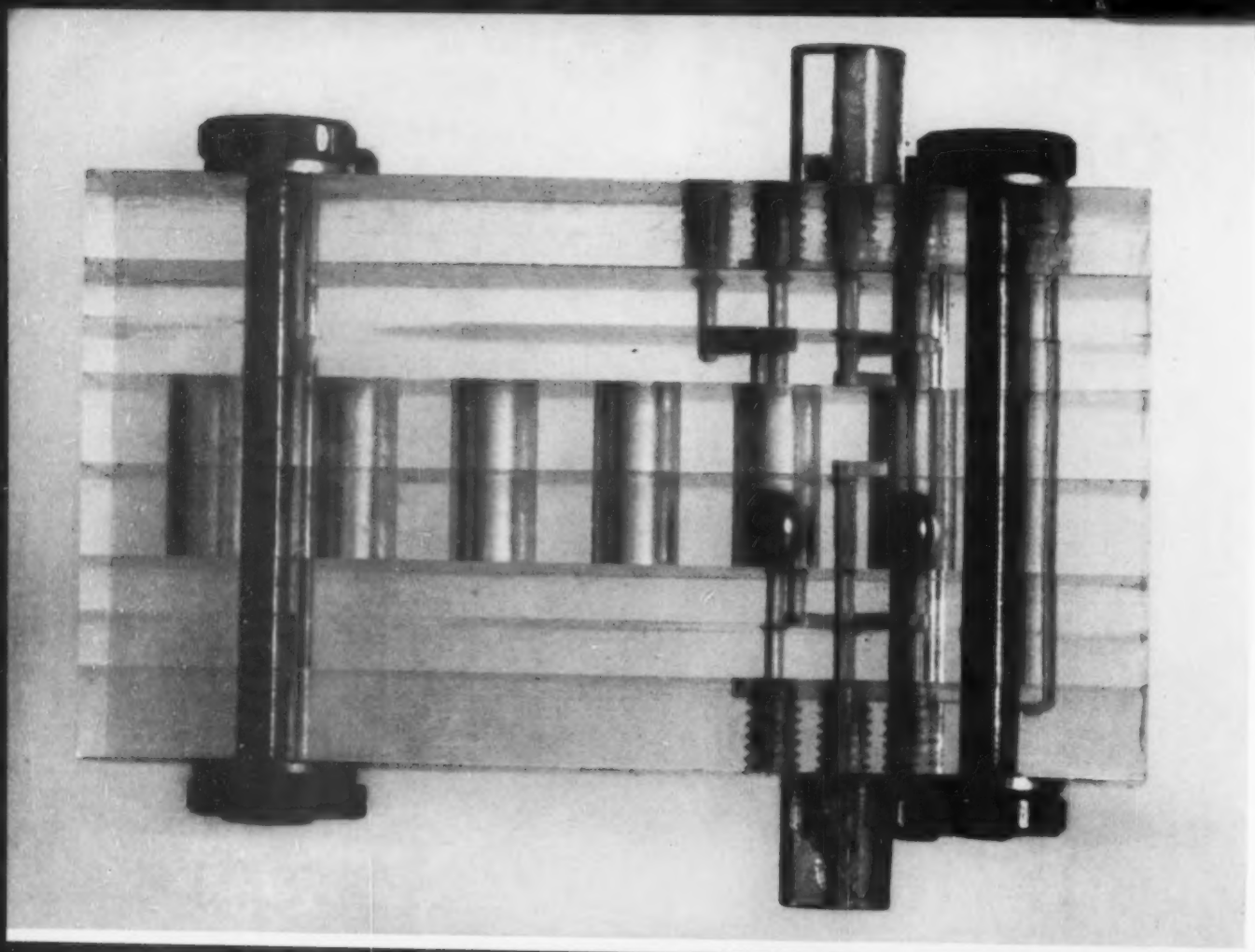
Four-foot doors slide back along the outside of the body, making it easy for the passengers to walk right in. Three seats are provided in the back of this compartment, and three more can be pulled down individually from the front bulkhead. When the front seats are left folded, there is ample floor space for a wheelchair, completely unfolded. Small ramps are mounted inside the flat platform underneath the body, and can be extended to the curb for wheelchairs, baby buggies, and shopping carts. This feature makes the cab an excellent emergency vehicle.

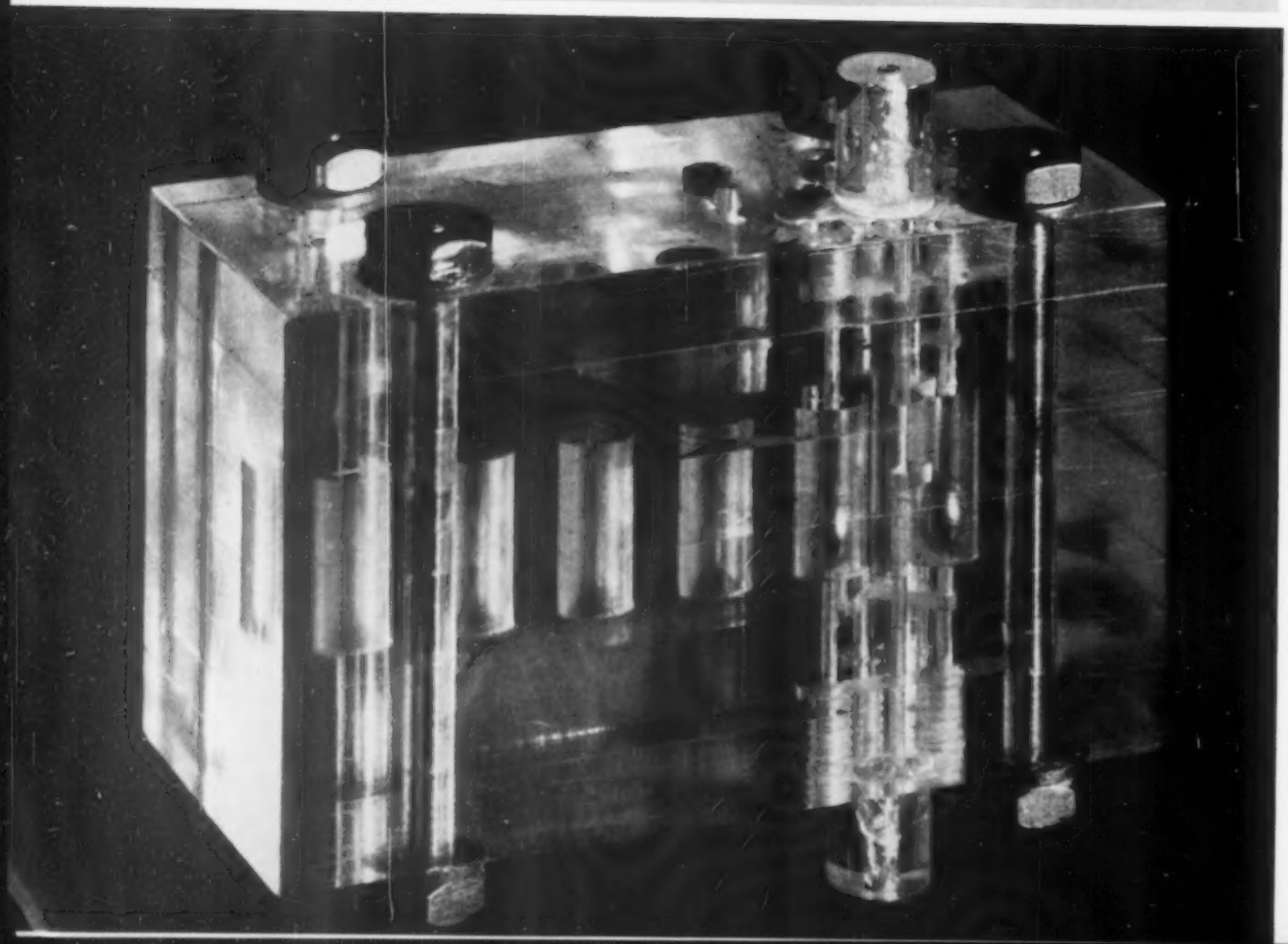
The modular concept means that different kinds of body-packages could be accommodated. For example, a city could maintain complete ambulance-body packs for mounting on taxicab chassis in times of need. A cargo box could be used on the same chassis, making this design attractive to truckers as well as taxi operators, and increasing the market base for the design. This vehicle, with removable cargo modules, could do the work of several pickup or panel trucks, could be fitted with passenger or camping bodies for private owners, and would, we feel, provide really superior taxicab service.

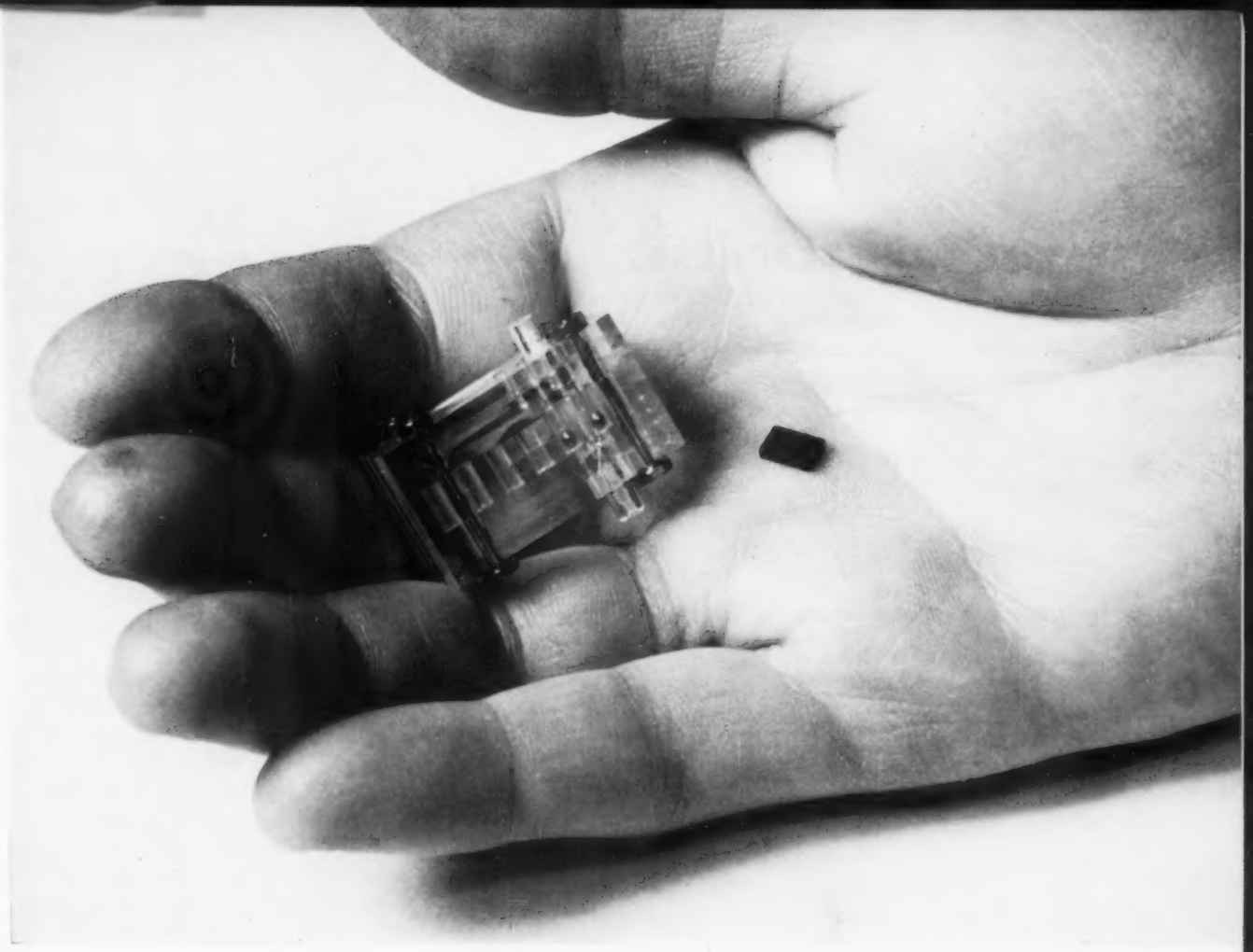
Sikorsky's giant people-pod, below, suggests the most logical system of design for utility vehicles: separable modules. The 13-foot "ideal" cab shown schematically at on the next page is built up of five basic units: driver's cab, passenger cabin, power-drive unit, floor pan-chassis, and rear wheel-luggage pack. Length of car could be extended simply by using a longer floor-chassis, which would lend this design to exploitation for other uses. For example, truckers could use removable cargo container packs. Distinctive shape and lack of consciously- stated styling would serve several useful purposes. The cab would be easy to recognize in traffic, and would remain in style for longer periods than current models. Use of small compartment for driver allows trunks to be carried on front decking, inside rails.











COMPUTER RUNS ON AIR

Tiny black box (above) indicates eventual size of air-powered computer switch module that will perform same functions as laboratory model shown with it. Side and perspective views of model (opposite page) show its basic simplicity; only two of its potential six switches are connected.

At a time when most of the startling innovations in applied science involve electronics, Kearfott Division of General Precision Company is developing a computer that works on compressed air and uses no electronic or solid-state components. It will be able to do everything a conventional computer does, but will be astonishingly smaller, cheaper, more reliable, and easier to service and test. Equally important, it will operate in temperatures from minus 100 to 2000 degrees F. without need for heating or cooling, and will have absolute immunity to ionizing radiation, important for outer space applications. What makes all this possible is a switch (the laboratory prototype module shown here provides for six switches), with a minute ball inside, small enough to be packaged 3000 to the cubic inch. The switch is thrown by a jet of compressed air that moves the ball from one position to another in ten-millionths of a second to produce a yes-no response, as in conventional computers. The switch module is a stack of plates with holes drilled in them to form circuit connections. They are so compact that a complete, medium-sized general-purpose digital computer will occupy a slab only 5½ inches square and one inch thick.—*L.D.G.*

TEST FOR THE TEACHERS?

As the ASID inaugurates its school approval program, educators respond with caution, with protests and with cheers

On the opening day of the Industrial Design Education Association's annual meeting last April, **Raymond Spilman,** *ASID president, made a controversial speech. His topic was the joint responsibility of the educator and the practitioner toward industrial design students, and the background for his speech was the ASID's new School Approval Program. He reconstructs a portion of his address as follows:*

Industrial design leadership—both staff and consultant—is losing ground with companies. The position it once held is being taken over by the market researcher and the engineer. One of the problems that brings this lack of leadership and decision in design to a critical point is the lack of consistent educational objectives in the area of training. There is a major diffusion of objectives in the schools teaching industrial design and this diffusion of objectives is inevitably reflected in the students who ultimately go into the field of practice. This diffusion is healthy if its movements are based upon a healthy intellectual and emotional foundation. Otherwise, the resulting confusion can, first, destroy the student, then, little by little, destroy us all.

I would like to assume that we are putting together a profession and, while there is room for differences of opinion and approach in professions, there are certain basic requirements which must be met or we will not achieve a profession but will revert to a trade school technical level service. Professions require foundations and directions. Professions require believers and leaders. Professions require intelligent, dedicated teachers, and professions, to survive, require top level students.

Much of the success of American industrial design lies in the fact that the American founders determined on a *professional* approach to offering their services to industry. This was a decision of paramount importance. Frankly, if Teague, Loewy, and Dreyfuss had decided to treat industrial design like advertising or exhibition design, we wouldn't be here today.

Today, however, there are enormous differences among the schools who profess to be teaching the single profession of industrial design. Broadly speaking, we can distinguish four different kinds of schools awarding degrees in industrial design. These are:

1. Styling

This is the stuff that appears in *Esquire* magazine, ads showing autos of the future, etc. These are the hotshot pencil boys and there are some of these schools which even advertise "trade style" in trade magazines. The products of these schools are proficient in the art of superficial decoration and woefully deficient in the ability to think.

2. Esoteric school of thought

This school is sort of the Mount Olympus group and the teacher is the great "I Am." Their scholastic background bears little resemblance to the factual details of relating design to people and is more concerned with relating the emotions of the designer to his creativity and with the possibility of what he can create from man-made materials. There is undoubtedly a place for this kind of school and possibly a place for its students in the field of practice, but there will be large gaps in their educational background when matched against the requirements of any professional type of education in any field. They are simply not being rounded out into educated people.

3. Problem-Solving Group

This group becomes closely allied with product engineering in its approach to design thinking. Frequently it harbors a number of gadgeteers in its midst. However, it is sound in the sense that it is analytically based on a precise method of arriving at a conclusion and the conclusions are usually economically and physically sound. The problem here is that the group itself as a philosophy may ultimately be absorbed by mechanical engineering, since the majority of schools teaching this approach to the subject do not include such other areas of broad creative design as exhibition, architecture, and graphic art.

4. Balanced Type of Design Education

This approach is taught in too small a group of schools. Here all the elements of design as it relates to man and his environment are touched upon and related to their common denominator of the designer's approach to understanding people in relation to their environment, and how to control that environment through a knowledge of design as applied to materials, manufacturing and all the other elements that go into creating a total design solution. I submit that these schools and their students will be the leaders in tomorrow's practice of industrial design.

The result of this teaching diffusion is that too many teachers have glorified their own point of view to the point of so training a student in an "ism" that he cannot possibly hold a job as a professional. When they do this, they are betraying first the student, second the profession, and, finally and perhaps most of all, themselves. They should not be teaching industrial design—they should be teaching some specialized fine arts course. There *must* be a foundation and it *must* be adhered to at least for the rudiments by all teachers who are professing to teach industrial design.

A major reason for the ASID's interest in promoting the School Approval Program is to help teachers sincerely attempting to teach industrial design as a fully balanced professional approach to people and their problems, as opposed to those teachers who are happily wallowing around in the belief that because there are no standards there are no means of calling them to task for their approach and finding out whether it is good.

Some one simply must do this so that we can attract good students and build a firm foundation and a firm future for our profession. We cannot go on the way we are now going and survive.

The following day, **Bernard McDermott,** *Education Chairman of the ASID, described the School Approval Program more specifically. It originated early in 1960, and was, as Spilman put it, "an effort to find out how the professional designers represented by the ASID could best assume their professional responsibility for student guidance and intimate liaison with schools teaching the profession of industrial design."*

After studying questionnaires furnished by the Middle States Association of Colleges and Secondary Schools, the ASID put together its own questionnaire, asking for information on such diverse topics as a statement of the objectives of the school's industrial design department and the average teaching load of its faculty members. The questionnaire contains no reference to accreditation, and the ASID is careful to distinguish between "accreditation" (which it does not wish to give) and "approval" (which it does).

Under the ASID's plan, the questionnaire would serve as a guide for teams of designers paying informal visits to the schools. According to Spilman, the plan originally called for an educator on each team, but this was vetoed by the educators within the ASID.

While this plan has been in operation for some time, the IDEA meeting offered the first occasion for a general debate on the subject. Since then, a number of teachers have amplified their statements for ID.

James Alexander, *Head of Industrial Design and Professor of Design at the University of Cincinnati and president of the IDEA, has this to say:*

At the IDEA annual conference in Pittsburgh in April of this year many members were first introduced to the ASID's School Approval Plan—presented not as an exploratory proposal but as an accomplished fact—"a going concern." The injection of the word "approval" (with its implied reverse side of "disap-

proval"—if only implied by omission from an "approved list") has put this matter of designer-educator relationship in a different light for many people. At the outset, I think most educators would agree on several points:

1. The professional societies have a responsibility to improve standards within the profession.
2. The schools teaching industrial design have a responsibility to improve standards in their respective curricula.
3. The professional societies have an obligation to know as much as possible about the existing education for the profession so as to (a) be better equipped to work with educators for the improvement of education for the profession, and (b) intelligently answer inquiries about professional training that are naturally directed to them.

In agreeing on these points, we all realize that all of this improving, cooperating, and communicating isn't going to happen just because we agree it would be good if it did. The ASID, in its School Approval Program, feels it is doing something positive toward achieving these objectives. Though they make a distinction between a somewhat informal "approval" and formal "accreditation" (a right granted by the National Commission on Accrediting to the National Association of Schools of Art for the broad area including industrial design), the distinction is probably lost on the general public, and the two terms are often considered interchangeable.

Speaking as one educator, I believe that the views of these new *three* organizations (once we admit the possible confusion between "accreditation" and "approval") would seem to be roughly this:

1. NASA

The National Commission on Accreditation includes an institutional membership of approximately 1100 colleges and universities. It has designated a single professional association as the accrediting agency for each of some 20 or 25 professional areas represented in American higher education, and Industrial Design is within the province of the NASA. Accreditation is on an institution-wide basis, involves a very systematic, detailed, and objective procedure, and is based primarily on assessing how well an institution achieves its own stated purposes (so long as those purposes demonstrably fall within the definition of general quality established by the accrediting agency). One of the pressing reasons for establishment of the NCA was to reduce the ever-increasing number of self-appointed accrediting groups that were creating chaotic conditions in the field of accreditation.

2. ASID

The ASID is devoted to improving standards in the industrial design profession and in preparation for the profession. It probably feels the grouping of all art and design accreditation under one agency is too broad and unwieldy to give a clear indication of the effectiveness of any one part (i.e. industrial design). Though the profession is relatively young and small, to those in it (and to those training for it), it is of paramount importance. The Society feels a responsibility to those schools it can commend for their work with the hope that the net result of the program will be the raising of the calibre of education for the profession.

3. IDEA

IDEA is an organization of people actively engaged in the teaching of industrial design. The members are not spokesmen for the administrations of their various schools. Being most personally involved with design education, they have the most intense conviction about the education of the designers of tomorrow.

Reservations about the ASID School Approval Program have centered principally around the "self-appointed" aspects of the program. Such remarks as "membership in a professional society does not constitute a credential for passing judgment on an educational program" have been voiced. Others have raised questions on the criteria to be used by the Society. Aware of the changing nature of the field, the youth and vigor of it, and the fundamental qualities of individual creativity and initiative inherent in any design activity, they foresaw hazards in plunging into a hastily conceived program culminating in an "approved" list.

When the program was briefly summarized for us at our last national meeting, many educators, aware as they were of the many ramifications and facets of evaluation goals and procedures, favored a "trial run" program of visits and consultation. This apparently was impossible as the program had already been launched. It has been followed through aggressively in the remaining months of the school year with many schools receiving visitations. The visitations *per se* have been very stimulating and welcome experiences—designers and educators often expressing the mutually beneficial nature of the visits. Even after the visits, however, some of us are still a little vague as to the final criteria to be used. The visiting designers were careful not to make snap judgment or sweeping declarations and, in some cases, spoke of the evolutionary nature of the profession and, consequently, of any criteria they could apply.

In all fairness, we are aware of the fact that the professional societies are not trying to mold all curricula

into one form—that these variables of philosophy and curriculum are not the ones with which they are most concerned. Rather, it is in the areas of (1) the variations in "quality" of professional training and (2) the possible misrepresentation to the public of the breadth and depth of programs being offered that concerns them most. These are crucial—and sensitive—areas and certainly deserve the most thoughtful and objective attention by all concerned.

Most important to me is that this not develop into a controversy between designers and educators at a time when our combined cooperative efforts can ill afford being siphoned off into jurisdictional wrangling. Closer cooperation and open-minded exchanges of viewpoints are always welcome. Everyone profits from this intercommunication and the resulting exposure to valid, though different, approaches to the problems of industrial design education. IDEA was formed for just such exchange among educators, and we jealously desire to stick to our aim of centering our activities on continuing our own education by sharing our experiences and convictions about design and the teaching of it.

We know that the student profits little from a teacher who is overly preoccupied with administrative, jurisdictional, and procedural matters — and it is to the student we owe our prime responsibility. He is the reason we are teachers, and in our sensing of his development, we gain our satisfactions.

In general, we are proud of our work, convinced of the importance of the designer as a key person in the future, alert to the ever-changing needs of society and the profession, and receptive to all serious suggestions for improving our job.

Howard Brown, *Head of Design at Cranbrook Academy of Art and IDEA's Regional Chairman for the Midwest, expressed some reservations:*

Facing the ASID in its effort to evaluate programs of industrial design in the schools are two very difficult tasks. First comes the difficult job of collecting information which is accurate and enlightening. Next, of understanding and evaluating the material.

More and more, colleges and their faculties have subjected themselves to accrediting boards. In the process there has been bending and unbending, matching, giving and taking. Consequently, uniqueness in schools is already on the wane. The ASID may be surprised to find the curricula of many schools so similar and so well matched. Are the schools becoming overly clever at the game of "Play for Approval?" Moreover, perhaps educational success lies more with the qualities of the teaching personnel rather than with impressive curricula, fancy course outlines, or elaborate shop facilities. Can the ASID, as a visiting body and outside agent, ably equip itself to discover where lie the roots to grow intelligent young designers?

For the ASID School Approval Program, I believe it to be extremely advantageous to have only a few national committees operating as visitors to the schools. Local designers taking on the job of visiting nearby schools would surely hamper continuity in any given program. Each national team would become acquainted with a relatively large number of schools; thus giving a good number of points of reference for comparative measure, analysis, and evaluation.

Next I believe it to be a fair advantage for any evaluating team to be made up of both professional industrial designers and experienced design educators. Conclusions about education versus training may better be brought into equilibrium by teams made up of two factions, practitioners and educators.

Above all, I think it most important to keep questionnaires and examining boards free of preconceived ideas as to what constitutes a good industrial design school. Now is the time to look, to learn, to reflect, and to evaluate. Both the industrial design profession and industrial design education are historically too young and tender to take any chances on binding themselves by quick and expedient study.

Finally, however, some IDEA members reacted more enthusiastically to the program. One of them was **Edward Zagorski,** *of the Department of Art in the College of Fine and Applied Arts at the University of Illinois:*

Fortunately it was the ASID which stepped forward in a giant stride to initiate a program of approval of industrial design curriculums. It is almost impossible for the teachers themselves to do this job since almost every school feels its program is unique (for what purpose, I'm not sure). It is time for evaluation when it becomes fashionable to avoid the term industrial design (present designers included) and substitute some esoteric or obscure title to a program or courses or business—and when skilled drawing becomes an anathema and is awarded the dubious accolade of being 'slick.' Even style is frowned upon and final solutions must resemble a new-born camel constructed of four-bar linkages to be considered creative. Every school is training chiefs for some obscure battle yet to happen.

It's about time the profession states its purpose (a monumental task!) and then its demands. END

OLD WINES UNDER NEW LABELS

The Taylor Wine Company of Hammondsport, New York, markets 18 different wines and, until recently, each of them carried a distinctively different label. Suspecting that this was making it impossible to capitalize on the quality reputation it had earned with a few of its better known wines, Taylor retained the New York firm of Lippincott & Margulies to do something about it. After a marketing analysis, L & M created a new logo to attempt to give the line the family and quality look missing in the old labels. The redesigned symbol, which appears at the top of each label, features a stylized grape leaf worked into the "O" in Taylor, a concept furthered by a second leaf embossed on the gold-foil covered bottle caps. All 18 labels have been redesigned, with various colors, patterns, and type styles used to give individuality to each wine or group of wines. The logo changes colors to match the overall scheme: brown-red on muscatel; gray on claret; light red on sauterne; dark green on white Tokay; black on Rhine wine; gold on pale dry sherry; white on several dark-background labels. Except in the case of the Rhine wine, which strives to be Germanic in tone, all labels emphasize U.S. origin, make no attempt to look like substitutes for imported wine. —*S.B.R.*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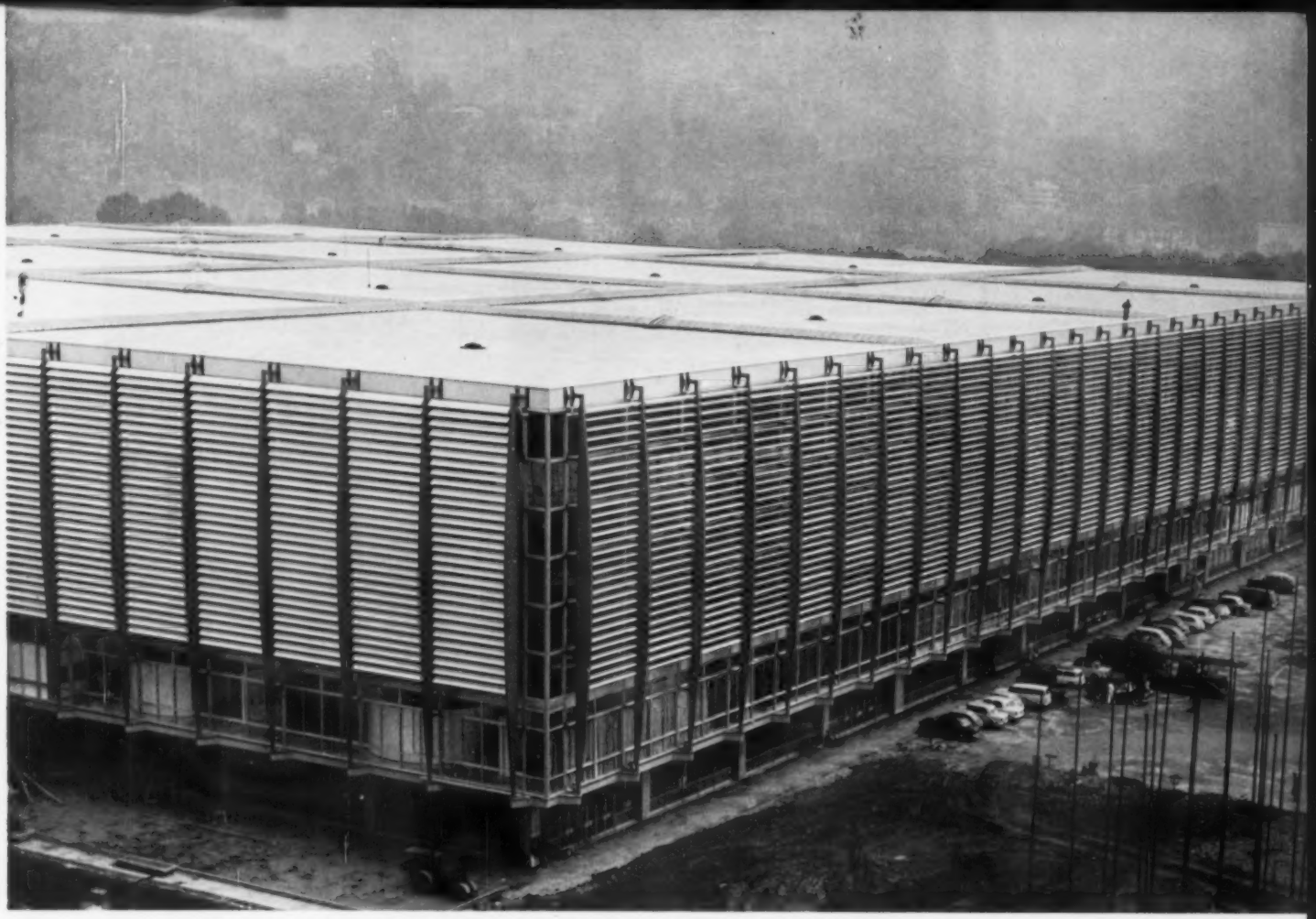
WINE
ALCOHOL 19% BY VOLUME
PRODUCED AND BOTTLED BY
THE TAYLOR WINE COMPANY, INC
EST. 1880, HAMMONDSPORT, N.Y., U.S.A.
TAYLOR
ROYAL
QUALITY
TAYLOR
New York State
CHAMPAGNE
FERMENTED IN THIS BOTTLE
TAYLOR
TAYLOR
NEW YORK STATE
CLARET
A DELICATELY DRY
TABLE WINE
TAYLOR
Extra Dry
VERMOUTH
THE TAYLOR WINE COMPANY, INC
TAYLOR
NEW YORK STATE
SHERRY
WINE
THE TAYLOR WINE COMPANY
TAYLOR
NEW YORK STATE
SAUTERNE
WINE
TAYLOR
NEW YORK STATE
Tawny
Port
WINE
TAYLOR
NEW YORK STATE
Rosé
WINE

Italia 61

Italy celebrates its 100th birthday as a unified nation this year with an exposition in Turin, and the United States is an exhibitor in the largest of the buildings: Nervi's new "Palace of Labor." The Departments of State and Commerce, and the USIA were co-sponsors and Harley Earl Associates handled the design. One touring American designer reports his personal impressions, and sums them up with critical comments on this country's favorite image-for-export: Business & Machines. BY ROBERT ZEIDMAN



1—Turin exposition grounds: The structure in the foreground is Nervi's labor building; the Rigotti's domed fashion building is to the left.

Wherever one travels in Italy this summer there are signs displaying the handsome Italia '61 logo and the equally handsome green, white, and red "Torino Vi Chiama" (Turin Calls You) posters. Italia '61 is the exposition celebrating the first centenary of the unification of Italy. Turin, home of the Fiat factory, is where the papers of unification were signed. This summer it is also famous for being the site of the newest Nervi building, and the prospect of seeing this was too hard to resist: we rearranged our itinerary and answered the Turin call.

Nervi's huge building **(1)**, housing the International Labor Exhibition, encloses some 18 million cubic feet of space, is the largest of the exposition buildings, and is a fantastic engineering feat. Its roof rests on 16 concrete pillars, 82 feet high, each supporting a square "mushroom" in metal carpentry **(7)** and joined only by glass. The columns took only eight days to construct. The interior partitioning system is designed by Gio Ponti. It is a scaffolding of metal tubing forming a rectangular grid that is filled in with translucent plastic panels. The whole thing is demountable and can be adapted to variously shaped exhibit areas. This is one of several buildings that will remain on the site after the exposition closes.

From an architectural standpoint Italia '61's second most interesting building is the Palace of Exhibitions (far left in **1**), which will also be a permanent structure. Designed by architects Amibale and Giorgio Rigotti, its roofspan is a concrete shell supported only at the three points where it sweeps down to touch the ground. It had not yet been opened when we were there, but it was scheduled to contain an exhibition of Italy's fashion and apparel industries.

The third permanent building is a beautiful small chapel with a tent-like peaked roof that is anchored to the ground at two points by concrete stanchions in which the metal roof beams terminate.

In contrast to the two very large permanent buildings, the exhibitions of the 19 Italian provinces are housed in individual square pavilions **(2)** of more modest size. Each portrays the history, culture, industries and crafts, people, and geography peculiar to the province—and the interior design and display techniques used by the designers of these exhibits are superb, particularly in their imaginative use of materials native to each province. For example, the province of Veneto, which is known for its craftsmanship in glass and ceramics, exhibits these skills by incorporating them into the structure **(4)** instead of simply

showing glass and ceramic products. Similarly the province of Trentino displays its woods (3) by treating rough-hewn sections as sculptural compositions.

The International Labor Exhibition building houses the exhibits of 17 countries and several labor, political, and religious organizations around its perimeter. A central zone is assigned primarily to Italy. The two zones are separated by a zigzag promenade and Ponti has contrasted the two against each other by using horizontal lines in the perimeter areas, vertical lines in the center (7). Among the devices used to delineate these spaces are vast walls, 39 feet high, and the placing of stairways, ramps, bridges, and balconies at different heights to give a variety of perspectives.

The theme of the Labor Exhibition is "Man at Work" and each foreign country was asked to pick a subtheme demonstrating its own special achievement in the technical and scientific, economic, or social aspects of work. In the center, Italy sums up all these developments over the past hundred years and examines the prospects for the future. The themes of the participating counties are: Argentina, Mechanization in Agriculture; Czechoslovakia, The Problem of Housing; Finland, Leisure; France, Intellectual Work; Germany, Orientation and Professional Development; Great Britain, Scientific Research; Hungary, Craftsmanship; Japan, Shipbuilding and Seaman's Life; Mexico, Social Town Planning; Poland, Social Security; Rumania, Technological and Social Development in the Oil Industry; Switzerland, Working Conditions; USSR, Occupational Health, Safety, and Working Environment; USA, Technological Progress in Industry: Man and Communications; Yugoslavia, Man in his Working Environment.

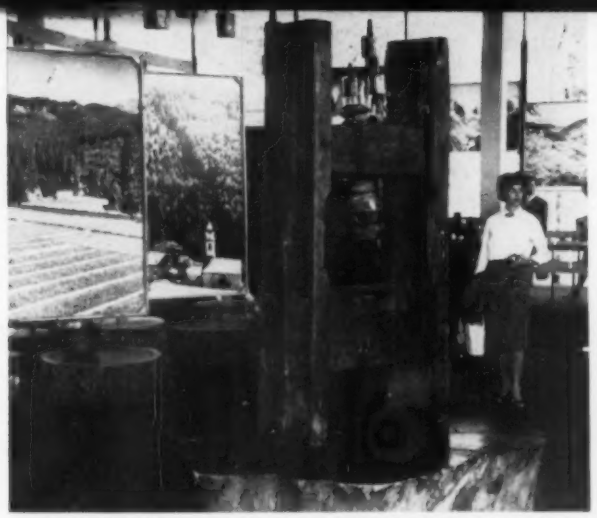
Naturally I was interested in comparing our exhibit with the others. But, after two weeks of touring Italy, I was also interested in the impression each country would make upon the Italians (at the time, all the Italian newspapers were carrying front page stories on the Freedom Riders and it was apparent that our prestige rises and falls with our every action). I felt, for example, that the USSR exhibit was making a considerable impression on the average Italian even though, to a designer's eyes, it is very badly, almost crudely, designed. They seemed to respond favorably to the well-built dioramas of hospitals, recreation spas, and other elaborate facilities for Russian workers—appreciating the workmanship and also, apparently, the social implications of the message.

Among other exhibits that were effective as design and/or communication was that of Yugoslavia, which was the only Iron Curtain country exhibit that showed some evidence of having been designed by designers.

2—Regional pavilions, 19 in all, are identical in architecture.

It had a series of imaginative scalloped roofs (9) and a colorful abstract sculpture in the center of its space. Denmark did a good job of displaying its well-designed home products in the natural setting of a Danish home. But Finland was my favorite. It had neither printed nor spoken words, and it was obviously built at a fraction of the cost of most of the other exhibits. From entrance to exit it was a continuous field of various-sized vertical panels (10) mounted with beautiful black-and-white photographs of the daily life of the Finns. The profusion of the material, coupled with the interplay of mood in its arrangement, evoked a response similar to that of a piece of music. You sensed the nature of the people, their industriousness, their pleasures. No matter how fast or slow you moved through it, or what language you spoke, this was 100 per cent communication.

Britain's exhibit is primarily a well-told tale of that country's scientific research in medicine, food, nuclear energy, and aeronautics, with the emphasis on the necessity for regarding science as the servant of man rather than his master. It has, however, two especially interesting elements. One is a chamber of the horrors of war, in which mirrors, pictures, and twisted sculptures of rusted scrap iron are dimly illuminated by flashing red lights and accompanied by eerie music. As a reminder of what *could* happen, it is extraordinarily



3—Trentino, known for wood, uses timber sculpture, log platforms.

4—Veneto, famous for glass, uses multi-colored crystals in chandelier.

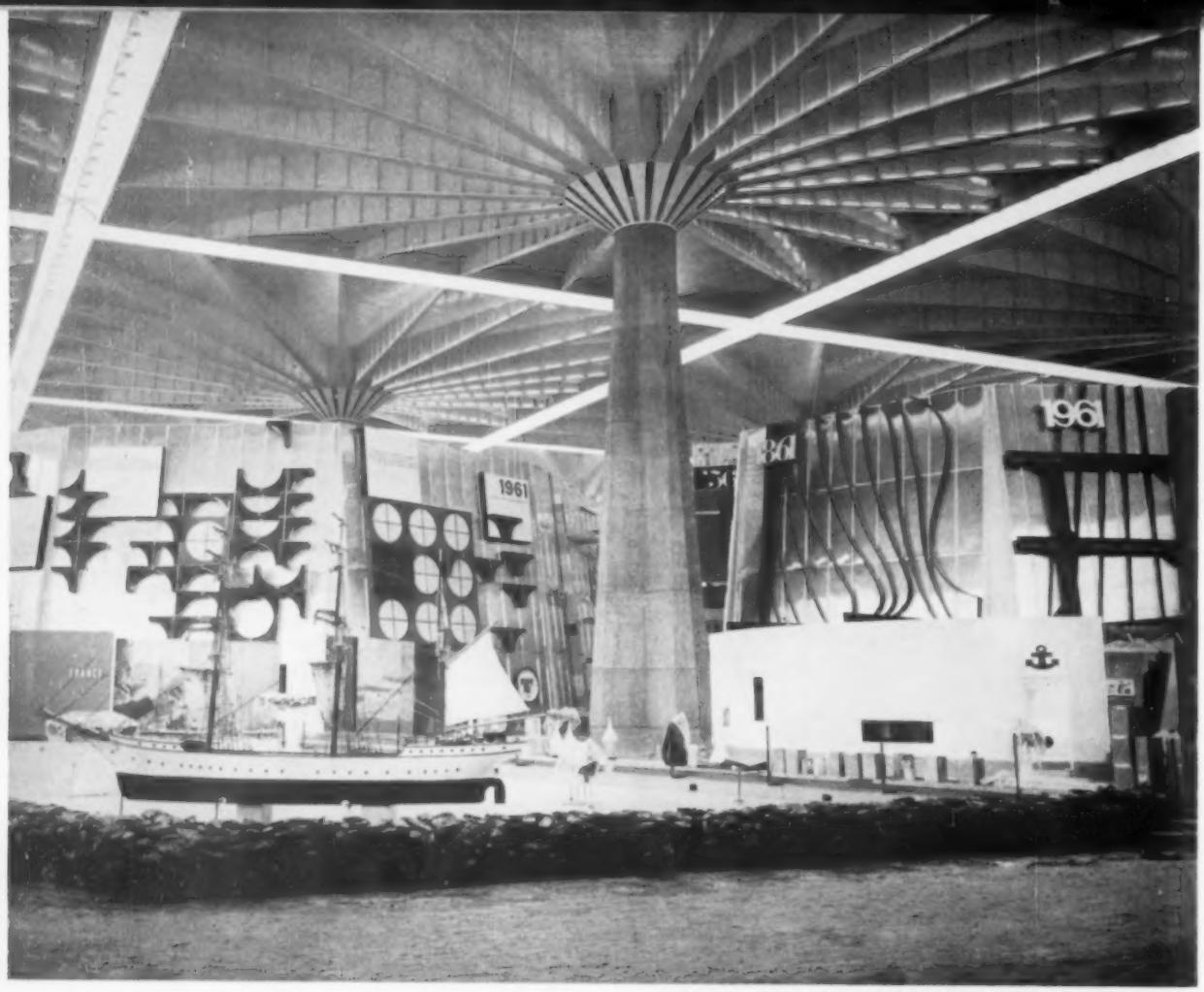
5—Piedmont shows its industries on 3-dimensional photo-montages.

powerful. The second is Britain's inclusion, at the entrance to its exhibit (8), of three superb pieces of sculpture by Henry Moore, Barbara Hepworth, and Kenneth Armitage. This struck me as a remarkably perceptive thing to do for an Italian audience, since every Italian seems to know the names of his country's great artists, sculptors, and architects, and to take great pride in their work.

Concern for audience is precisely what is lacking in the materials of the U. S. exhibit. No one could quarrel with it as a design: it is intelligently planned, it uses excellent display techniques, and in keeping with its theme it employs or deals with every form of modern communication. But after completing my second trip through it, the question I asked myself was: What is the lasting impression of this material upon the average Italian working man to whom this fair is dedicated? Compared to other countries, do we offer him a better answer to his hopes and aspirations? Does this exhibit reach him, communicate with him? My one man's opinion is that it does not.

6—Mining region uses pipe-and-rigging sculpture in pebble garden.

Upon entering the American exhibit you are asked the language you speak, and handed a Lectour—a radio receiving device—which describes the exhibit in that language. It is a fine idea in theory, but in practice it has some flaws. The visitor is forced to match his pace to that of the discussion (which in this case is lengthy); he must find the near center of each display in order to catch the voice correctly (in between he catches bits of other languages); and if he moves into



7—Massive wedge-like walls divide exhibit areas in labor building.

a display area in the middle of the discussion, he cannot re-start it but must wait until it is finished and begins again. It is no wonder that guests frequently become impatient with the Lectour and abandon it.

The first U. S. exhibit is on "Man's Communication Center", the human brain, and is a duplicate (made in Europe especially for the Turin fair) of Will Burtin's huge model for Upjohn. It is a fine thing for a medical show or for the Smithsonian, but it seems entirely out of character here (and frankly its blinking lights left this viewer more confused and less knowledgeable than ever).

Next there is a cheerful modern schoolroom furnished with Dave Chapman's school furniture for Brunswick. Directly opposite is a display of closed circuit tv equipment for education, and the brochure (purchased for 100 lire after we gave up on the Lectour) explains that "teachers using television may have a 'class' consisting of hundreds of thousands of pupils. Since they usually teach only one class a day, they have much more time for preparation and research." What a shame to imply that this is wholly desirable, and that one of the most important human relationships—that of teacher to pupil—has been reduced in the U. S. to turning a knob and watching a tv screen!

8—Great Britain's entrance features Barbara Hepworth sculpture.

Right after educational tv comes the IBM Ramac, programmed, as at the Moscow fair, to answer thousands of questions about the exhibit and the U. S. As equipment, Ramac is handsome, clean, and functional (11), but the visual elements of its communications function are certainly undramatic: an attendant pushes a button, an electric typewriter types out a message.

The next display, on the "Printed Word", is composed of high-speed multigraph and printing machines

9—Yugoslavia's roof is a series of scalloped plywood parasols.

10—Finland's exhibit is purely photographic, has no words.

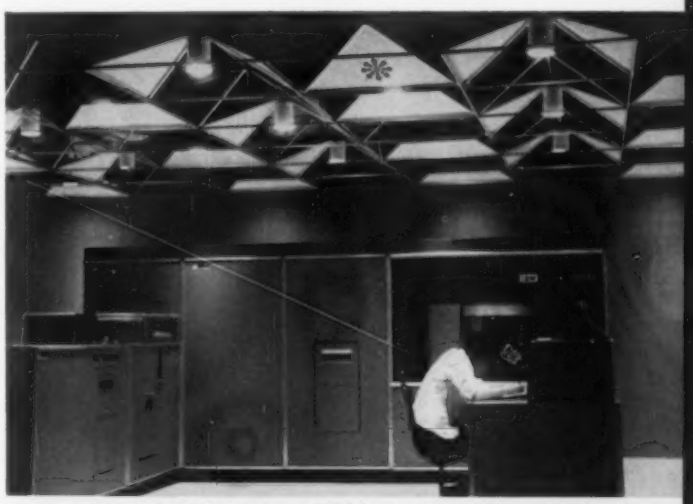
which are impressive as machinery, but are so noisy that it is difficult to hear the Lectour. Following this, another closed-circuit tv display explains how tv is used in industry.

The section on "Communications in the Home" features the familiar Westinghouse kitchen of the future, creating the impression that homemaking in America is just so much push-buttoning. Also, after sampling Italian cooking for two weeks, and watching it being prepared with such care and pride, I could not help but wonder what effect these scientific marvels would have upon a people who consider food preparation a form of art.

The second brightest spot in the exhibition (the schoolroom was the first) is a lounge area wired for words. It is obviously popular, and it communicates a good deal about us at a very personal level. By contrast, the displays immediately before and after deal with extra-planetary signals: a handsome revolving model of the world with a satellite overhead explains "Satellite Communications" and a model of the Navy's Ozma project explains how the huge radio telescope will attempt to pick up messages from outer space. This is the note on which the exhibit ends.

What does it add up to? To me it seems well designed and installed, efficient, full of machines—and cold. It would be perfect for a scientific, business, or technical exhibit here in this country, but Turin is an international labor exposition, dedicated to the ordinary working-class man. Many visitors to Italia '61 will form their impressions of the U.S. from this exhibit. Do we present a true picture of ourselves, and the promise of our way of life, by suggesting that thousands of our children are taught at one time by a figure on a tv screen? That we are spending billions of dollars to contact distant stars, but haven't money to staff our schools with skillful teachers? That "printed word" means to us a mechanical act, the machine that does the printing? That our homes are run by pushbuttons and that we can reduce the activities of the human brain to patterns of blinking lights? All these things may be true, but they are not the whole truth. Why do we persist in implying that they are? We have a far more important story to tell in the growth of our economy and culture, and the hope it offers to countries that are just now very much concerned with improving their own economic conditions.

Italia '61 was intended as an expression of "undeniable progress in the conditions of human life . . . the dignity of work . . . a higher sense of social justice . . . a marked rise in the intellectual and social level of humanity . . . the realization of age-old dreams of man nourished, up to now, by the poetic imagination." I think our contribution to this expression is a message which says that this nation is dominated and run by machines. I hope I am wrong.



11—U. S. exhibit features IBM Ramac answering questions.

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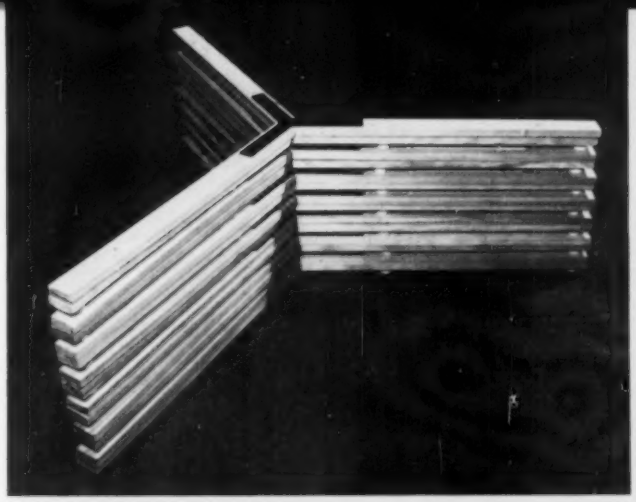
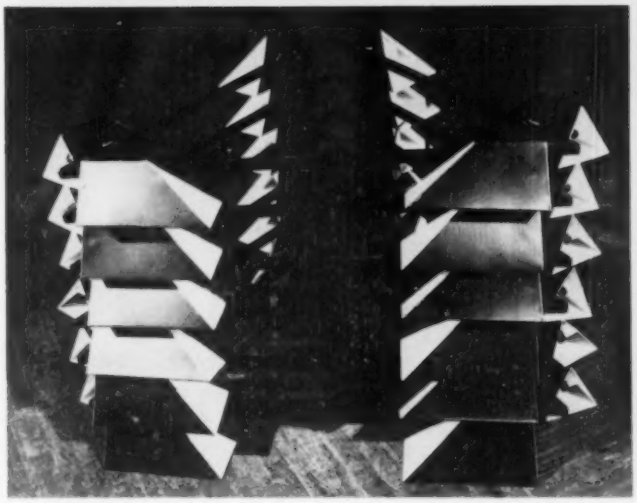
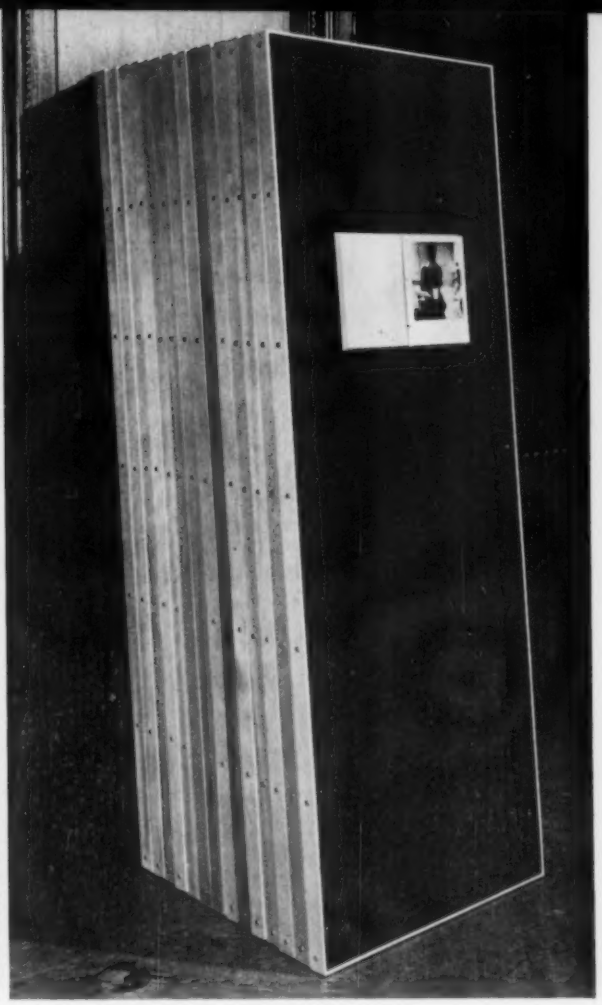






TRIANGULATED EXHIBIT

When the sponsors of the 1961 Layton Annual Awards, Great Britain's advertising art competition, called on Henrion Design Associates of London to organize their top 350 entries into a traveling exhibition, the result illustrated what designer F. H. K. Henrion considers three basic principles of design. These are: creation of order out of chaos, achievement of maximum effect with minimum effort, and combination of the logical work of an engineer with the more emotional expression of a graphic artist.

His solution is ingeniously simple. The basic exhibit unit consists of three-armed "spiders" which hold the top and bottom of three felt-covered, soft wood panels (to which exhibits can be pinned repeatedly without leaving scars). On top of the panels rests a triangular light frame, which provides an individual light for each side of each panel. Compact and light enough to ease the burden of traveling to each of the major cities of Western Europe, an entire unit can be set up in less than five minutes. And careful arrangements of units (opposite page) achieve an infinite variety of layouts, giving the exhibit the flexibility to fit attractively into almost any adequate space—the box-like lobby of a modern office building or, if necessary, the multi-coved reception hall of a castle.—*E.C.*

Spiders, light frames, and wood panels (above) are constructed simply and stack easily, facilitating storage and shipment. Individual lights rotate on ball joints to allow for variations in lighting focus.

1

THE ROMANCE AND THE GLORY

A West Coast designer's "packaging museum" evokes color of past eras and provides practical research material

2

3

One blissfully unresearched way to consumer acceptance of packaging is the patriotic device, such as the screaming eagle glowering on Fine Old Ripy (below) and on the Union Leader plug tobacco tin (page 78). What these packages have that so many of our latest chromos don't is vigor, unselfconsciousness and—for the ultimate consumer—pleasure. This is exactly why designer Walter Landor has collected them, and more than 1,000 other old packages, over the past 10 years. Besides dressing up his wharfside San Francisco office, the packages are both a reference source and a stimulus for the Landor staff.

Some of these museum pieces, like the East Bay Gazzos bottle (left), are mechanically clever. No need for stoppers: a glass marble in the neck of this carbonated drink takes care of reclosure. Stylistically these packages recall the romance and color of a time gone by. Current package queens are hardly a match for the demure Lillian Russell on the package of Elite toilet pins (good for defending one's honor as well as holding on to one's hat). And the ferocious imp of the liqueur bottle (left) is too tough a customer to share shelf space with the bland likes of Mr. Clean.—*A.F.*

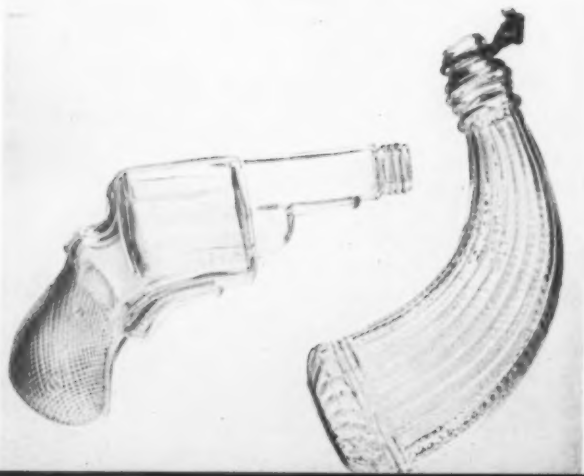
1—Two-faced European liqueur bottle is blown in the mold, then etched. The neck of the bottle and the eyes and mouth remain clear.
2—Glass marble in lower neck of this 19th century East Bay Gazzosa bottle permits reclosure of partly filled bottle.
3—The Lincoln bank bottle was probably sold originally with candy in it, then reused as a bank. It is blown, with a metal cap.
4—Flamboyant Tablet hat pin package is extravagant even to size—it holds only six pins.
5—Eagle and flag design on the label of Fine Old Ripy is typical of patriotic devices dating back to the Revolutionary era.

6

7--8

9--10

6—Buffalo Lithia Water was a "solvent for stone in the bladder." The mold-maker himself probably devised the glass embossed design.
7—Union Leader still retains eagle, red and gold from this pack.
8—Colgate's Concrete face powder package, scarcely an inch wide, is delicately feminine in size if not in product name.
9—Pressed glass lid of Pond's elegant package simulates cut glass.
10—Pistol and powder horn are blown glass candy bottles.
11—The lithographed metal technique of the Peerless Maid candy package has been revived recently by package designers.
12—Sea Shell bottle (for medicine?) is brown-painted blown glass with metal cap.
13—Pressed glass head of bull dog candy bottle formed a cap. The body is blown and then etched.
14—One of America's oldest snuff packages is still in use. Die-cut red and black label attaches to crock-like glass jar.

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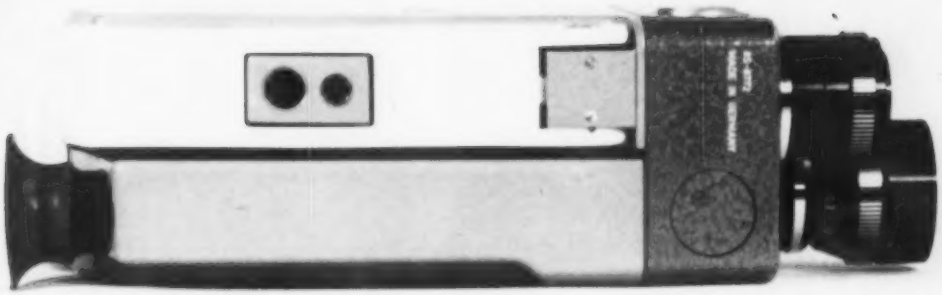
14

DESIGN REVIEW *Photographic equipment*

In amateur photography ready mixes are the order of the day. Automation, motorization, and light-sensitive cells can adjust the aperture of the camera, wind the film, and make most of the decisions. The result may not be artful, but at least a standard product can be had under most conditions. If the photographer's task is but to aim and shoot, the designer's problem is to express how easy it all is. The new Polaroid, the most extreme case of magic wand photography, reduces the entire process to a series of plastic buttons—anonymously labeled 1, 2, 3, 4, and develops a picture in 10 seconds. In the same mythical span of time, a new instant-print device, Rollaprint, will make a picture from a regular negative. Instant-negative film will soon be marketed. Lighting is also easier due to more efficient, portable units. Projectors cater to armchair operators with remote controls and self-loading devices. Often the simplicity is gimmickal. However, the remarkably simple and efficient Leicina, below, is a synthesis of the most appropriate technology.

1—Leicina 8-mm movie camera, E. Leitz, Inc.



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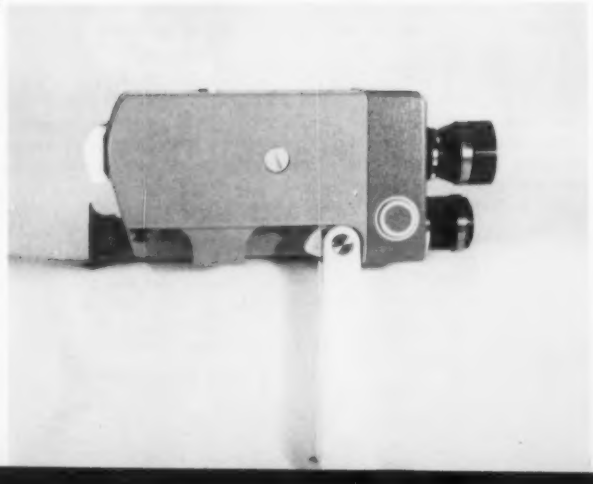
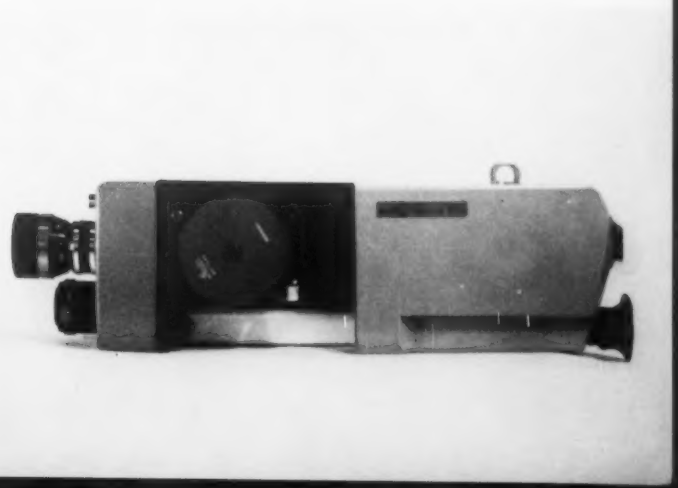




Leicina: an 8-mm movie camera

1-5—The compact Leicina (1) is designed to increase steadiness of hand-held shooting: slim handle, which folds up into camera body (2), has film release button located at joint, in easy reach of thumb (5). Film gate is as far away as possible from viewer with handle grip directly below it to minimize extraneous movement. Viewfinder eyepiece (3), adjustable for eyeglass wearers, is near *bottom* of camera so forehead can brace upper part. Bracing bar (3) swivels out for right eye viewers. The mechanics are precise and efficient. Automatic aperture control (4) uses tiny and accurate photoresistive method. Two focal lengths are provided with a built-in 15-mm and interchangeable 9-mm Dygon f/2 lenses. Film footage and aperture scales appear in reflex viewfinder. $267.
Designer: Wilhelm Schaefer.

1—M-4 8-mm zoom, Argus Cameras
2—8-mm Director Reflex, Bell & Howell

3—Nikkorex-8 Nippon Kogaku

8-mm movie cameras and projectors

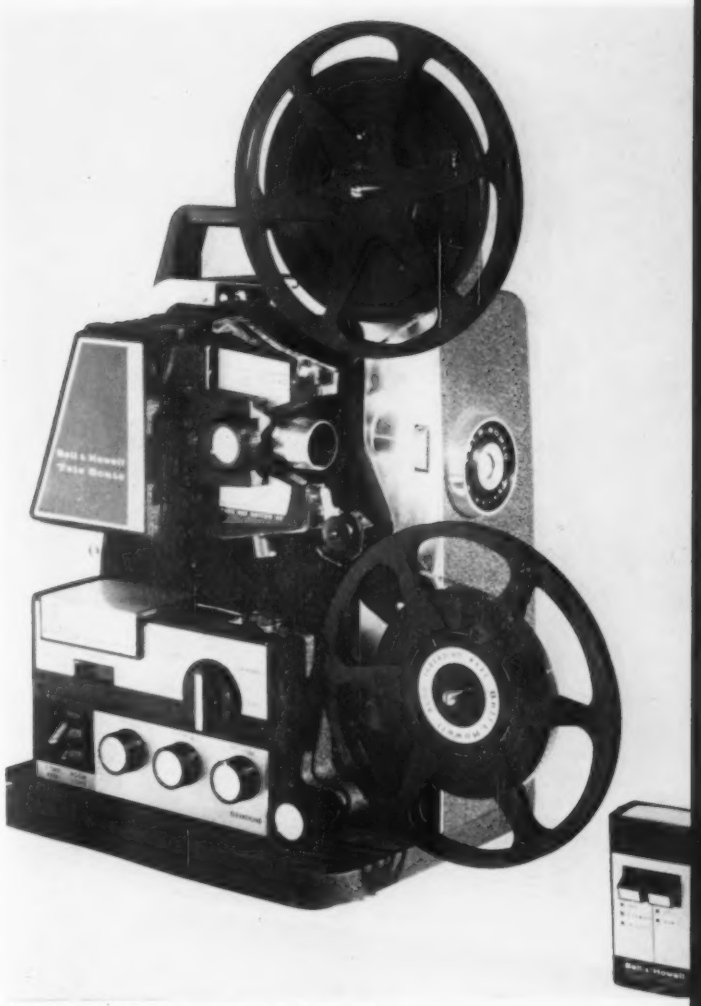
1—Argus M-4 camera uses battery power to zoom the lenses and wind film. The design accentuates simplicity: die-cast aluminum housing is left plain, and cumbersome (selenium cell) light meter grid is masked by a glass plate which covers the front of camera. The glass excludes extraneous light from meter. $180.00.
Design: Harley Earl Associates.

2—Bell & Howell Director Reflex has electric eye (tiny cadmium sulphide photoresistive cell) located behind the lens so it reads only the light that enters the camera. Lens is a fast Bell & Howell Angenuieux f/1.8 with a zooming range from 9-mm to 36-mm. Batteries are located at the side. Housing is die-cast aluminum covered with black leather-grained vinyl. Roll-film model $349.95, magazine version $369.95.
Design: Staff design; Robert Smith, project head.

3—Nikkorex-8, measuring 5¾" by 3¾" by 1¼", is a good example of Japanese miniaturization. It is a single lens reflex camera with a Nikkor 10-mm f/1.8 fixed focus lens with apertures to f/16. Using standard double 8-mm film, it has electric winding and an automatic exposure meter. $79.95.
Design: Nippon Kogaku.

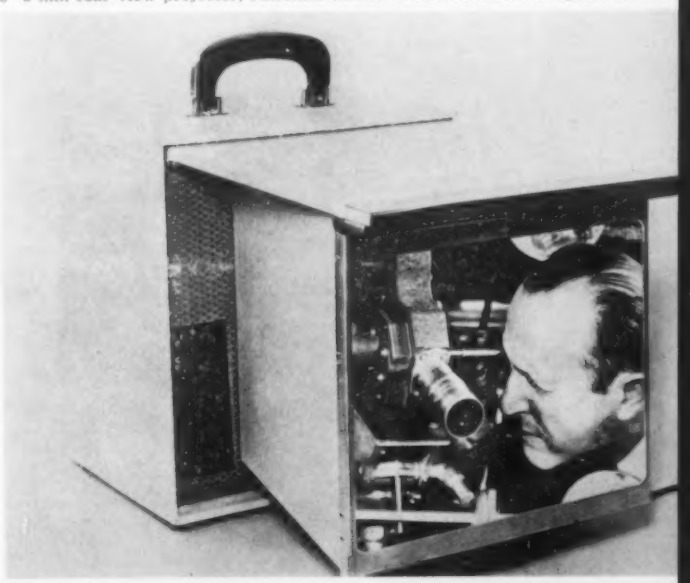
4—Bell & Howell Zoomatic with Duo power, features push button zooming with simultaneous and even change from normal to slow motion. Although compact, the design accentuates various parts: overhanging hood in front, chrome grid over light meter, and grooves and fluting on lens barrel. $239.95.
Design: Staff design; Robert Smith, project head.

4—8-mm Zoomatic, Bell & Howell



5—Tele-sonic 8-mm projector, Bell & Howell

6—8-mm rear-view projector, Fairchild Camera and Instrument Corporation



5—Bell & Howell Wireless Tele-sonic 8-mm motion projector has remote control, automatic threading, and built-in splicer. Design makes operation appear more complicated than it is. Each section of the machine is outlined with black trim, then framed again with gray; types are different kinds, sizes and colors; one word is circled, another underlined and some dropped out of the background. Case is die-cast aluminum with black wrinkle finish. $299.95.
Design: Staff design; Robert Smith, project head.

6—Fairchild rear view projector for 8-mm sound movies is designed for salesmen and teachers. Roughly the size of a portable typewriter, it weighs 15 lbs. There is a supplementary lens for normal screen projection. Less than $400.
Design: Lippincott & Margulies.

1—Super Wide C, Victor Hasselblad, A.B.
2—Polaroid J 66, Polaroid Corporation

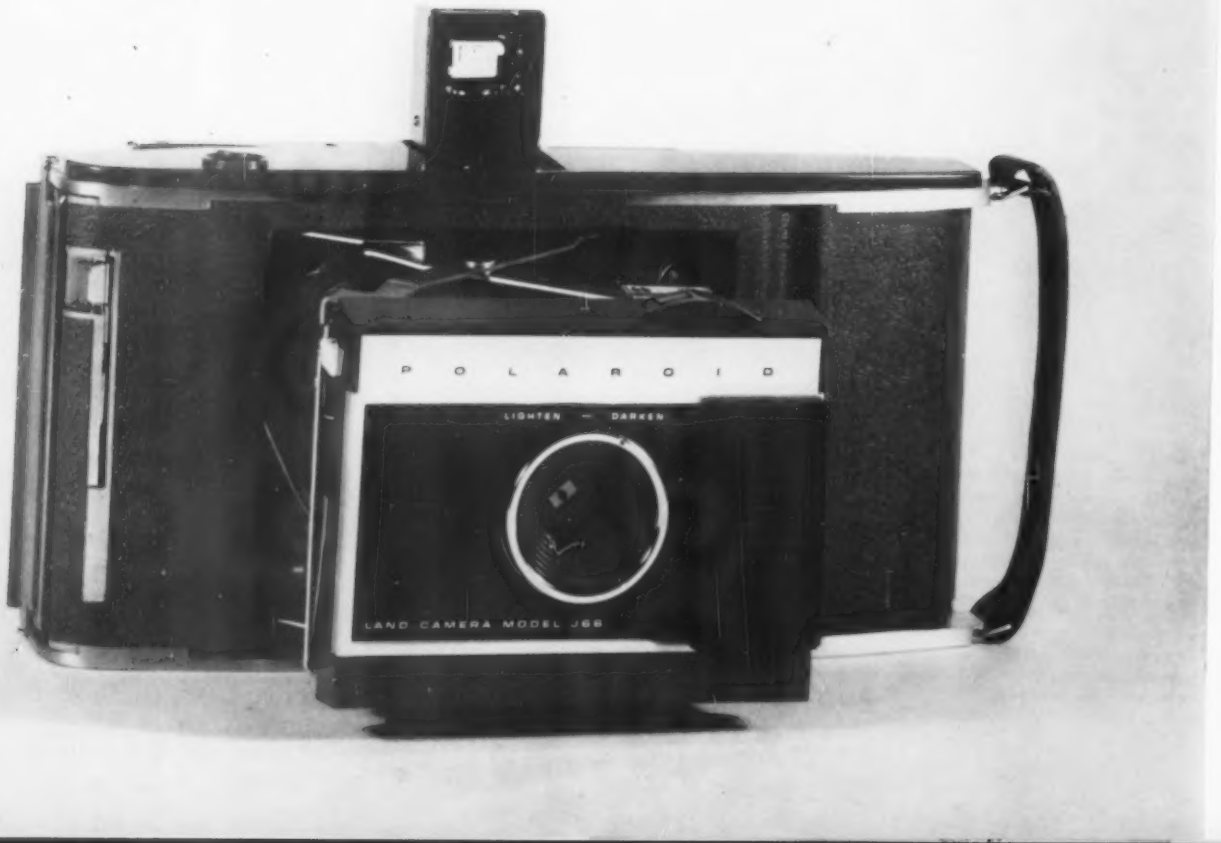
Still cameras and slide projectors

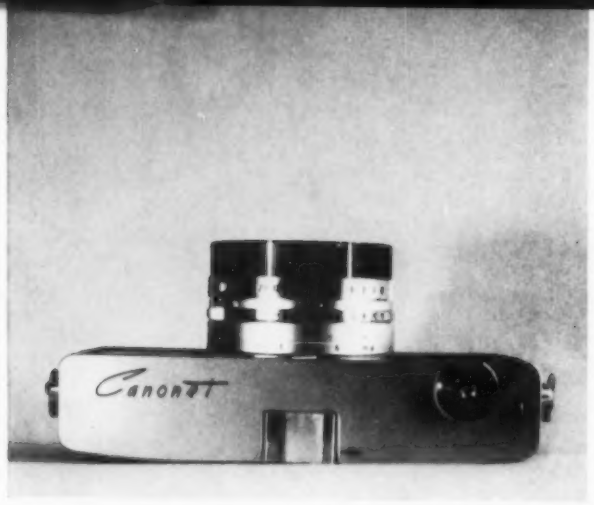
1—Hasselblad Super Wide C is a professional camera designed for police, newspaper, or sports photography. The Zeiss Biogon 38-mm f 4.5 lens has a 90° picture angle and when stopped down to f 22 has a depth of field from 26" to infinity. Since design is strictly functional, the lens is the single salient feature. Magazine back is interchangeable for varying types and sizes of film. Interior is stainless steel; exterior is cast aluminum with black leather. $640.00 with viewfinder.
Design: Victor Hasselblad, A.B.

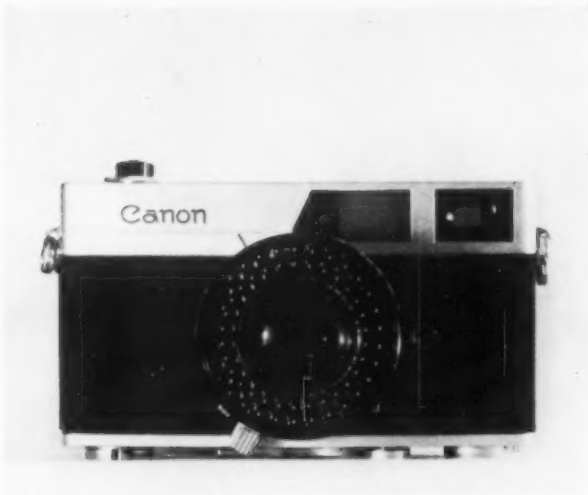
2—Polaroid J 66 has same housing as old models except that front closure has been eliminated and lens is always exposed. New face is neatly designed and electric eye has been attractively subordinated into general color scheme. Normal aperture of f 32 (due to high film speed of 3000) provides enormous depth of field—4½ ft. to infinity. By extending camera front another notch, focus is down to 30". It also has built-in flash unit. $89.95.
Design: Albrecht Goertz

3—Canonet, a quality automatic camera, has an exposure system which can be manually operated if desired. Electric eye, arranged around lens, takes more accurate readings and compensates for filters. Semi-wide angle lens 45-mm f 1.9 is not interchangeable. $119.50.
Design: Canon Camera Co., Inc.

4—Kodak Motormatic is a gimmick camera with automatic film advance, automatic exposure control, and automatic aperture adjustment with flash. Quality of basic elements hardly warrants the special-purpose features, however. It has an f 2.8 lens, with shutter speeds up to 1/250 of a second. $109.95.
Design: Eastman Kodak's Apparatus and Optical Division





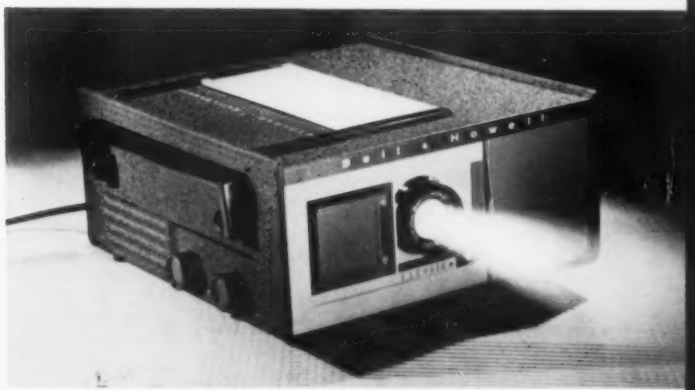


3—Canonet, Canon Camera Co., Inc.
4—Kodak Motormatic 35, Eastman Kodak Co.

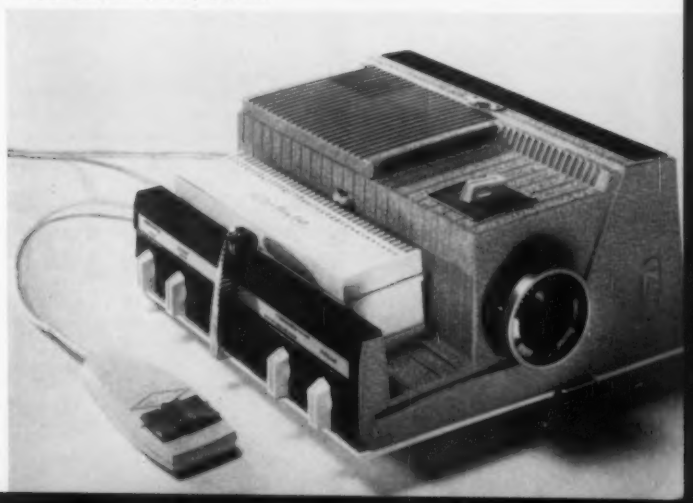
5—Bell & Howell's slide projector is a simple box with no cover. A luminous panel on top permits the projectionist to check the position of slides before loading. Case has wrinkle black finish, and three shades of blue on sliding panels in front and back. $79.95.
Design: Norman Kubnick, Bell & Howell staff.

6—Sawyer's 500 EE projector has a photoelectric cell built into lens to adjust the light intensity for each slide. If the slide is light the diaphragm automatically closes down to prevent colors from bleaching. $150.00.
Design: Staff design

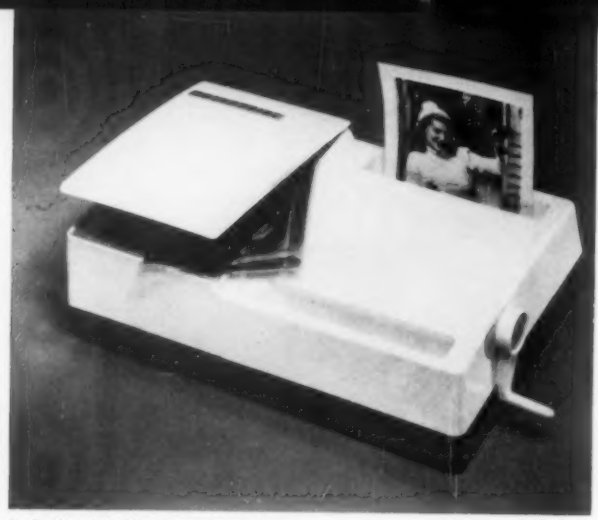
5—Slide projector, Bell & Howell



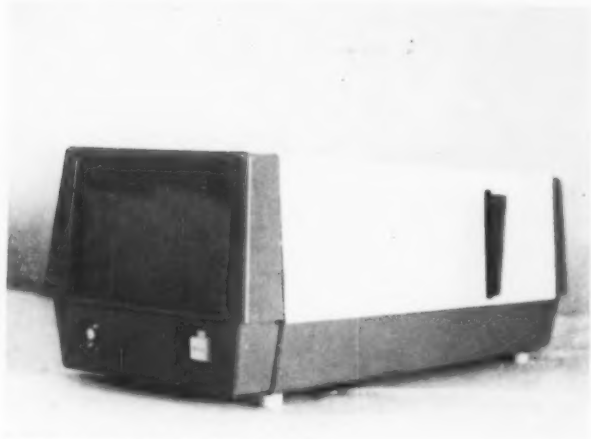
6—Slide projector, Sawyer's, Inc.



1—Light meter, Gossen Co.



2—Rollaprint, Ets Bauchet et Cie



3—35-mm enlarger, Ets Bauchet et Cie

4—Sun Gun, Sylvania Electric Products Inc.

Accessories

1—Gossen Lunasix, ultra-sensitive light meter, takes readings in moonlight. Computer ring indicates exposures from 1/4000 sec. to 8 hrs., apertures from f/1 to f/90, ASA ratings from 6 to 12,000. Has built-in converter slide for reflected or incident light measurement. $63.00.
Design: Gossen Co.

2-3—Rollaprint products, manufactured by Ets Bauchet et Cie, eliminate the dark room. Daylight contact printer for regular negatives contains exposing light on one side, and printer with developer and stabilizer solutions on the other. Enlarger converts 35-mm negatives into $3\frac{1}{4}$" by $4\frac{1}{4}$" prints. Units are plastic. Printer, $19.95; enlarger, $37.50.
Design: Paul Durand.

4—Sylvania Sun Gun portable movie lamp with special halogen light and aluminum reflector is as effective as an 18" bar with four R-30 photo-flood lamps. Head tilts 90° for bounce lighting. Gaudy textured surface surrounding reflector is non-functional. Complete unit, $24.95; replaceable lamp, $7.95.
Design: Howard Briggs and Dave Dayton.

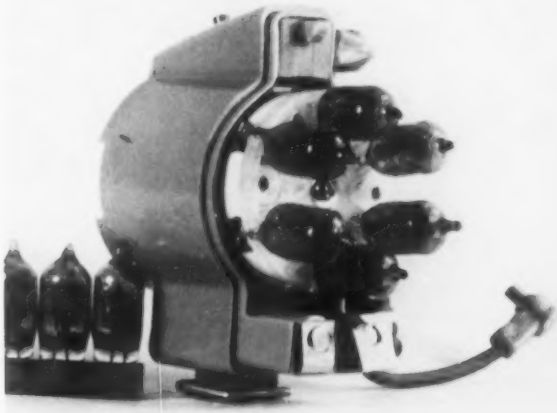
5—Heiland Futuramic Strobonar II is more compact than earlier model. Head size reduced by more effective components, improved glass (similar to automobile lights). Parabolic curve counteracts smallness. Metal handle has been eliminated; case is of Implex-A. $59.95.
Design: Henry Dreyfuss.

6—Walz electric eye flash can be used as a secondary light source. Any flash at the camera sets off a photosensitive element that fires its own light simultaneously. $14.95.
Design: Walz Co. staff.

7-8—Accura-Six Gun Automat is an ingenious design for repeated flash shots with AG 1 or AG 1B bulbs. Six bulbs can be loaded at a time and rotated into position. $8.95.
Design: Accura Industry staff.

5—Futuramic Strobonar II, Minneapolis Honeywell Regulator Co.
6—Electric Eye flash, Walz Co.

7-8—Six Gun Automat, Accura Industry



Computer-controlled machining

Automated machining

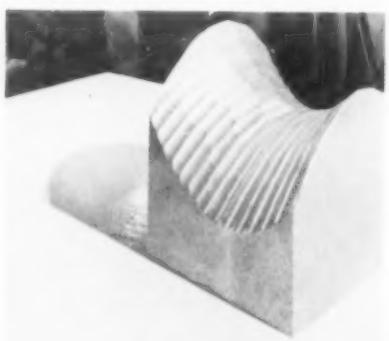
New advance in numerical control automates factory production of complex three-dimensional parts

A powerful new computer language, designed to broaden the use of numerically-controlled machine tools, enables its user to describe the surface of a complex part without having to write a lengthy and laborious program of each individual tool path. Designated AUTOPROMT (Automatic Programming of Machine Tools), the system leaves to the computer the task of generating these tool paths.

All the user has to provide is a description in AUTOPROMT language (which closely follows English usage) of the part to be milled, tool sizes, tolerance required, and general machining modes. The computer, operating under control of the master program, generates from this input a complete series of detailed numerical instructions covering every operation the machine tool must perform.

Thus, the new computer program is expected to offer designers much greater freedom in realizing the full design intent of a product. Designers will no longer have to compromise their efforts to avoid expensive hand-tooling or loss of tolerance.

By simplifying and reducing the human effort required to program a numerically-controlled machine tool, the system makes numerical control automation feasible in applications where it previously was impractical, such as short-run production of very complex three-dimensional development models and dies or matrices for use in large-volume production.



Part machined by new program

The first part milled using the new program was a gear box cover for a Sikorsky helicopter. Only 180 one-line statements in the AUTOPROMT language were required to describe the part completely. These statements were fed into an IBM 7090 computer—controlled by the master program containing over 30,000 instructions — which generated more than 8,000 tool path instructions. Converted into perforated tape for use by the machine tool, the simplified program enabled the milling job to be completed in about one-fourth the machining time previously required. The saving in lead time was even greater. Conventional methods required three months from blueprint to production whereas with AUTOPROMT the part was put into production in two weeks.

The AUTOPROMT language is made up of 110 English words of two types: those that describe shapes and surfaces like cone, cylinder, hyperbolic paraboloid, and sphere; and those that describe the relationships between surfaces like angle, axis point, intersection of, and surface point. By breaking down a shape into its constituent surfaces, the programmer can quickly and simply describe the most complex three-dimensional shape. *Manufacturer: International Business Machines Corporation, White Plains, N. Y.*

Perforated metal application

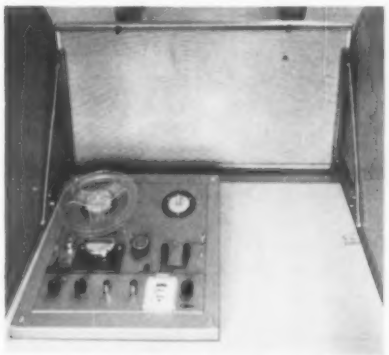
Perforated metal protects acoustic panels in listening booths; increased open area offers improved sound-absorbing abilities

Perforated metal has been introduced as a splinter-proof, non-combustible protection for acoustic panels for listening booths in the recently opened Wichita public high school language laboratories.

The metal was chosen for the panel facings because it offers up to 10 times greater open area than other available materials, thus increasing the sound-absorbing ability of the panels. In addition, the metal promises better protection

against students who are prone to poke and splinter the surface of perforated acoustic materials.

Perforated metal also provides manufacturing economies that bring the final cost of panels below that of alternate materials. The panels can be spot welded to give greater durability than adhesive, nail, or screw fastenings which must be used with non-metal materials. Right-angle bends can be made in the metal to form stiffening members integral with



Listening booth with acoustic panels

panel surfaces to eliminate separate spars and reinforcing members. Bending and shearing can be accomplished with simple shears and press brakes. And the strength of the perforated metal permits using a sheet stock only 0.04 inch thick, so the panel thickness is almost entirely basic sound absorbing material.

The acoustic panels are formed from two ¾-inch fiberglass batts separated by a polyethylene sheet, with the perforated metal added as the outside protecting layer. A steel channel is wrapped around the sides of the panel and spot welded to the perforated sheet. The panels make up three sides of the listening booth; the panel facing the student is a convertible desk top, backed with Formica, that can be dropped to form a working-surface, and at the same time provide forward visibility for group class work. *Manufacturer: Booths are made by Advance Furnace Company, Wichita, Kansas; perforated metal is supplied by Cross Perforated Metals, division of National Standard Company, Carbondale, Pa.*

Hollow structural tubing

Tubular steel sections can reduce building's weight up to 30 and 40 per cent with no decrease in strength

Hot-rolled carbon steel hollow tubing is now available for structural purposes. According to the manufacturer, the weight-saving factors of tubular sections mean that a building can be erected which is 30 to 40 per cent lighter, but just as strong as the same design using conventional structural sections. Lighter frameworks mean lighter footings and foundations, reduced construction costs, lower freight charges, lower handling costs, and easier and faster field erection. In addition to home and general building construction, the hollow structural sections may prove useful for movable and portable structures such as ships, trucks, trailers, and gantry towers.

The tubing can be used with standard fabricating techniques. It has good ductility, bends well, and can be easily welded.

Supplied in both square and rectangular shapes, the steel also offers design potential as an exposed member. It can be buffed to a smooth finish, painted and left exposed, and need not be boxed in or otherwise covered up. The sections can also be used as conduits for carrying plumbing, wiring, air conditioning, etc. It is said to be priced comparably with other structural members. *Manufacturer: U. S. Steel Corporation, Pittsburgh, Pa.*

Resilient sealer

Sealer for building blocks and panels adjusts to expansion and contraction of these materials

A new sealing material, likely to be of special interest to the building industry, combines urethane foam with asphalt to make an asphalt-impregnated stripping for sealing the joints between concrete blocks, curtain wall panels, window frames, glazing, corrugated sheets, and similar construction materials. Called Compriband, the new sealer is installed under compression and its noteworthy

Urethane and asphalt sealer

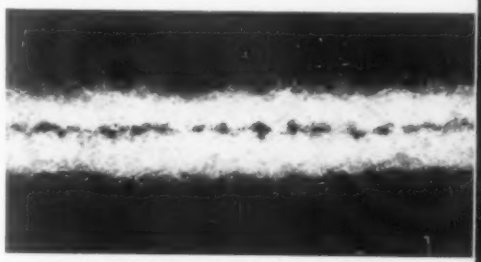
feature is its claimed ability to return to its original size and shape when pressure is removed, no matter how concentrated the load. It is also said to be a completely dustproof, draftproof, watertight seal.

Originally developed in Holland, Compriband is porous, non-sticky, and similar in appearance to foam rubber. It weighs nine pounds per cubic foot, and withstands temperatures ranging from 160 to minus 55 degrees F. It is used with a primer which adheres it to all dry, clean surfaces; because of its resiliency the surface need not be even. *Manufacturer: Asbiton Western, Inc., Long Beach, Calif.*

Non-woven fabrics

New process produces non-woven cloth with appearance, hand, and texture of woven fabrics

A new low-cost non-woven cloth offers the appearance, hand, and texture of woven fabrics and is superior to existing non-wovens in some performance characteristics, among them wash-and-



Photomicrograph of non-woven cloth

wear. The manufacturer claims that the fabric, trademarked Dorron, can be used for anything conventional non-wovens are used for, and will compete with woven fabrics in many areas where non-wovens have not been usable because of structural and property deficiencies. Aside from general clothing and interlining applications, Dorron has been suggested as a filler for plastic laminates, and as a filtration and insulation medium.

It is manufactured by a combination of chemical and mechanical bonding. Unlike non-woven fabrics which are chemically bonded and have a resiny surface that feels like paper, Dorron has a soft fiber surface on both sides. And unlike mechanically bonded fabrics which are needle-punched onto a scrim backing, Dorron has pure non-woven characteristics.

To make Dorron, a base web or fleece, formed of any natural or man-made fiber, is sprayed with a binder liquid and then put through a needle-punching machine which forces additional fiber through the bonded web. As a result, both sides of the finished fabric have all-fiber surfaces and the adhesive binder is concealed between them.

Porosity can be exactly controlled and, for industrial applications, the material can be made as thick and rigid as required. Strength and dimensional stability can also be pre-determined within

wide limits. For clothing purposes, the fabric can be dyed in multi-colors and patterns, and is said to resemble woven fabrics. *Manufacturer: Dorron Industries, Inc., New York, N. Y.*

Molded fabric package liners

Flocked rayon fabric with Dynel backing now contour-molded; has wide uses in packaging, novelties

Soft-surfaced (flocked) rayon fabrics with a Dynel fabric backing can now be molded with permanent three-dimensional contours for applications in packaging, apparel, and novelties. The molding process involves simple heating, shaping and cooling techniques that take advantage of the thermoplastic properties of Dynel fibers, which soften under heat and retain any newly impressed shape. The flocked top surface remains soft.

The liners are suitable for musical instrument cases or for decorative boxes for such products as watches, jewelry, and drawing instruments. The composite material might also be molded for hat bodies, children's shoes and slippers, and specialty items. *Manufacturer: Multi-Fabrics Corporation, Warwick, R. I.*

Redesigned tank car

Railroad car without underframe is shorter but holds the same amount of cargo as standard tank car.

A redesigned railroad tank car offers the same capacity as a standard tank car but is 19 feet shorter. The new 66 foot car achieves this substantial length reduction by eliminating the standard underframe, and making the tank itself structurally self-supporting.

The design is said to offer flexibility in capacity since the center section of the tank can be varied in length. The existing example of the new car, which holds 30,300 gallons, is level across the top except for the conventional pressure dome; underneath, it swells gently from a diameter of 99 inches at each end to 118 inches at the midriff.

According to the manufacturer, its size is the largest that can be built on four-wheel sections. However, with six-wheel sections, even larger cars could be built. *Manufacturer: General American Transportation Company, Chicago, Ill.*

New railroad tank car

Smog detector

Anti-air-pollution machine forms fog around invisible particles in order to detect them with light waves

An electronic device has been developed that is so sensitive it can detect a single airborne speck among 1,000 trillion other specks. This is like spotting a solitary grain of white sand on a yellow beach.

The device will be used in the battle against air pollution because it can detect "condensation nuclei"—the submicroscopic specks around which raindrops are formed, and a major factor in smog formation. It might also be used to forecast weather conditions by spotting nuclei concentrations which are likely to produce rain or other precipitation. Detecting radioactive particles would be another application.

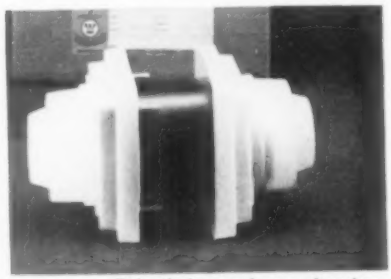
The condensation nuclei are less than four millionths of an inch in diameter. Wafted about in the air, they sometimes take weeks to land and lose their identity among billions of other tiny specks.

The device works by causing droplets to be formed artificially around each tiny nucleus. The nuclei then grow to microscopic size and are large enough to cause scattering of a light beam directed into their midst. Measured electronically, the light scattering indicates their concentration. The whole operation takes but five thousandths of a second. *Manufacturer: General Electric Company, Schenectady, N. Y.*

Polyethylene cushioning

New packaging technique uses molded polyethylene end caps to protectively suspend product in carton

A molded polyethylene cap, shaped like a stack of concentric circles and squares, takes the place of protective paper wadding in the packaging of a fragile switchboard instrument. The cap is designed to fit either end of the instrument (one end of which is round, the other, square) and to extend several inches beyond the instrument's lengthwise and sideways dimensions. These



Polyethylene end-capped package

extensions butt into the walls of the corrugated shipping container, holding the instrument in suspension inside the container. As a cushioning and protective device, the cap cuts packaging cost 50 per cent, and packaging size 80 per cent. *Manufacturer: Westinghouse Electric Company, Pittsburgh, Pa.*

Repair compound

Bronze and plastic mixture permanently repairs imperfections in bronze and brass castings

A new repair compound, trademarked Devcon BR, has been used successfully to repair large blow holes and other imperfections in bronze and brass castings. The compound consists of 80 per cent powdered bronze and 20 per cent epoxy plastic, and is mixed with a hardening agent before application. It hardens in approximately two hours, without heat or pressure, and can be drilled, ground, or machined like metal. Its appearance is said to be very similar to bronze. Devcon BR can be bonded to iron, bronze, steel, aluminum, brass, wood, glass, and many other materials. Because of its high bronze content, the compound expands and contracts like bronze itself and effects a permanent

repair. Tensile strength is 9,000 psi and compression strength, 20,000 psi. Shrinkage during hardening is only 0.0005 of an inch per inch. It is supplied in one-, four- and 15-pound packages. *Manufacturer: Devcon Corp., Danvers, Mass.*

Conveyor belt with a twist

Conveyor belt automatically twists itself, reversing top and bottom surfaces; increases durability

A belt that automatically twists itself, reversing top and bottom surfaces, has been installed in a rubber conveyor system for transporting coal. The turnover design helps keep idlers and pulleys free of sticky materials which often tend to clog the belts and the idling equipment.

The 4,480-foot belt delivers its load, then makes a 180-degree twist to present a clean face to the idlers, returns to the loading point and makes another 180-degree twist before accepting the new load. The turnover system is recommended by the manufacturer for use wherever a conveyor belt handles moist, wet, or sticky materials such as coal, iron, shale or wet sand. *Manufacturer: B. F. Goodrich Industrial Products Company, Akron, Ohio.*

Controlled free flight

Personal rocket belt thrusts man into air and provides controlled free flight over the ground

For the first time man has used a rocket carried on his back to achieve controlled free flight over the ground. In experimental flights, the test pilot has flown to the top of 30-foot hills and at speeds estimated at 20 miles per hour.

The personal rocket belt system might be used to transport foot soldiers over surface obstacles such as streams, ravines, barbed wire, and mine fields. It might also be employed during amphibious operations to fly assault troops from ship to shore.

A twin-jet hydrogen peroxide system propels the rocket. It is mounted on a fiberglass corset moulded to fit the back and hips of the operator. The operator slips his arms through padded lift rings attached to the corset, and then secures the unit with two quick-release safety belts.

Metal controls extend forward on each side of the operator, one to permit changes in flight direction, the other to regulate rocket thrust, thus controlling rate of climb and descent. According to the manufacturer, the device has proven so stable in flight that the operator can easily control pitch and roll by moving his body.

Flying with rockets

When activated by the operator's controls, hydrogen peroxide is forced under pressure into a gas generator where it contacts a catalyst and decomposes into steam. The steam, escaping through two rocket nozzles, provides the thrust. The nozzles are so positioned that special protective garments are not required to shield the operator. *Manufacturer: Bell Aerosystems Company, Buffalo, N. Y.*

Heat-shrinkable tubing

Tubing that forms mechanical bond after being heated has application in electrical connections

Plastic tubing that shrinks to form a tight mechanical bond seven seconds after application of heat is being used to connect electrical wires, cables, terminals, and conduits. Called Alphlex Shrinkable Tubing, the product is manufactured in expanded form so that it easily slips over a wire and terminal. When heated to approximately 135 degrees C., the tubing shrinks to a predetermined diameter, forming a secure, tight-fitting bond. Longitudinal shrinkage is said to be less than 10 per cent.

The tubing may also be used as thermal insulation material between minus 55 degrees C. and 135 degrees C. Within this temperature range, it is reporetd not to melt, harden, run, crack, or blister. Other applications include mending or joining shafts, insulating tool handles, marking cables, and color coding. *Manufacturer: Alpha Wire Company, New York, N. Y.*

Plastic plates

Insulated, disposable plastic plates serve both hot and wet foods for outdoor and indoor use

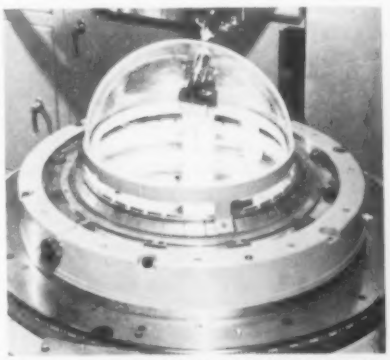
Insulated and disposable plastic plates for outdoor and informal use have been introduced. They can be used for hot and wet foods, and are formed of Lustrex high-impact polystyrene laminated to Santofome flexible styrene foam film, both products of Monsanto Chemical Company. Non-absorbent and leakproof, twelve of the plates retail for 49 cents, are thus competitive with paper plates. *Manufacturer: Guild Plastics, Division of Maryland Cup Corporation, Cambridge, Mass.*

Ultra-precise measuring

Tape-controlled machine measures nose cones to an accuracy of 50 one-millionths of an inch

A tape-controlled, 16-ton measuring system can be used to calculate the inside, outside, and thickness dimensions of critical missile parts to accuracies of 50 one-millionths of an inch—one-eightieth the thickness of a dollar bill. The machine computes almost 1,000 of these precise measurements in only two hours whereas nearly a month would be needed to take the same measurements by any other means. The system tells not only where a missile nose cone may be out of tolerance, but also provides visual readings as well as a typed copy of the measurements.

The electronic gages, or fingerers, which do the measuring can be positioned



Tape-controlled measuring

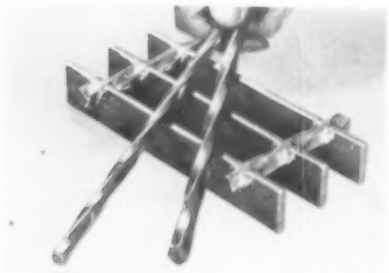
at any point within 1/10,000 of an inch in a gaging range of 20 inches in length and height. *Manufacturer: Sheffield Corporation, division of Bendix Corporation, Dayton, Ohio.*

TECHNICS *continued*

Briefs

A quick sampling of new materials, products, and processes

Pre-formed spiralled wire is available for use in grilles, railings, appliances, and furniture. Unlike conventional wire which must be annealed before delivery and then twisted by the fabricator, the new product, trademarked Ardox, is cold



Spiralled wire

drawn at the mill to a uniform spiralled shape and delivered ready for use. It is said to possess greater uniform strength than conventionally fabricated spiralled wire. *Manufacturer: Pittsburgh Steel Company, Pittsburgh, Pa.*

New forms of silicone are now available as ultra-thin-wall large diameter tubing. Although this form of the material was developed for separating carbon dioxide and oxygen in oxygen regeneration systems for manned space vehicles, the manufacturer expects that it will have numerous applications in other fields. The silicone tubing is extruded with wall thicknesses between 0.004 to 0.006 inches, and inside diameters of up to three inches. *Manufacturer: Materials Testing Company, Bethesda, Md.*

A new epoxy adhesive has been developed that is said to provide bonds to aluminum exceeding 5000 pounds per square inch. It also offers strong adhesion to steel, copper, glass and porcelain. Trademarked Conap 1222, it cures in one hour at 300 degrees F. *Manufacturer: Conap, Inc., Allegany, N. Y.*

Oak flooring only ⅛ inch thick has been produced and is said to be as tough as heavy oak planks. Its strength derives from a lamination process. The unusually thin board, compatible to that of kitchens and bathroom linoleum or tile, simplifies laying and fitting and eliminates the extra cost of underlaying needed to bring standard linoleum or tile up to the thickness of ordinary hardwood flooring. Supplied as 9 by 9 inch tiles, the new oak flooring is attached with an adhesive poured directly onto the floor. The tiles are flexible enough to cover minor subfloor contour variations. *Manufacturer: Georgia-Pacific Corporation, Franklin Park, Ill.*

A retrieving tool has been introduced which goes around corners and through small openings to snag articles dropped in hard-to-get-at places. Called the Burroughs Dual Manual-Magnetic Retriever, the device consists of a 13-inch flexible shaft (¼-inch in diameter) made of closely coiled steel wire. Running through the shaft is a plunger, with a handle at one end and four steel wire claws at the retrieving end. When the handle, operated like a hypodermic needle, is compressed, the claws close. If the object to be retrieved is made of a ferrous metal, a magnet can be attached to the claws to simplify the job even further. *Manufacturer: Burroughs Tool and Equipment Company, Kalamazoo, Mich.*

A vinyl-coated nylon fabric has been developed that features ten times the tear resistance normally obtained with other fabrics of the same cost and weight. Designated Mark X, the new fabric will permit manufacture of air-supported structures in sizes hitherto im-

Thin-walled silicone tubing

possible. *Manufacturer: Farrington Manufacturing Company, Needham Heights, Mass.*

Translucent panels of glass-reinforced acrylic for outdoor architectural applications are reported to offer high resistance to weathering and fading. Suitable for church windows, luminous ceilings, and light-transmitting curtain walls, doors, partitions, and privacy panels for patios and terraces, they are marketed in flat and sandwich forms in white and 20 colors. *Manufacturer: Russell Reinforced Plastics Corporation, Lindenhurst, N. Y. Distributed by Naugatuck Chemical Division, U. S. Rubber Company, New York, N. Y.*

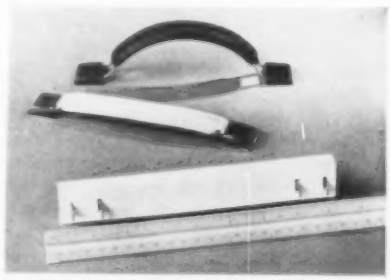
A polished stainless steel strip for decorative applications, which is buffed on both sides directly on the production line, has been introduced. Called Unibrite, the strip is said to be brighter and more corrosion-resistant than standard stainless strip which is buffed after parts fabrication. The new buffing process produces uniform finish, color and re-

Stainless steel strip

flectivity, reducing finishing costs. *Manufacturer: Universal-Cyclops Steel Corporation, Bridgeville, Pa.*

New acrylic sheeting, with its molecules aligned along the plane of the sheet, shows a significant improvement in resistance to cracking and crazing. Trademarked Tuffak, the semi-rigid sheet can be nailed or punched without cracking. As a glazing, Tuffak can be installed by conventional calking methods, or it can be riveted or nailed to a frame. For curved areas, it can be cold-formed to the curvature of the opening as it is attached to the frame. The material is currently offered as colorless sheet in two sizes—42 inches square and 84 inches square—in 0.05-inch thickness. *Manufacturer: Rohm and Haas Company, Philadelphia, Pa.*

A vinyl handle assembly for carrying portable equipment and instruments has a chamber of air sealed inside to provide suppleness and hand comfort. Strength is furnished by a concealed steel core double-riveted to end rings. Trademarked Vinylux, the handle has a simulated leather texture and matching debossed stitching. It is supplied with steel, brass, or nickel hardware in any of 20 finishes. *Manufacturer: Philadelphia Handle Company, Camden, N. J.*



Vinyl handle assembly

FREE LITERATURE *available from manufacturers, on materials, components, processes, machines*

Materials — Plastics

Urethane foam packaging. Mobay Chemical Company, Pittsburgh 5, Pa. 20 pp. Ill. Brochure describes the packaging properties of urethane foam which include in-place and contouring advantages, good vibration damping, light weight, and resistance to chemicals over a wide temperature range.

Polypropylene. Eastman Chemical Products, Inc., Kingsport, Tenn. 7 pp. Bulletin No. 9 discusses the properties of Tenite polypropylene with particular reference to various processing applications.

Protective overlay fabrics. Union Carbide Chemicals Company, Textile Fibers Department, 270 Park Ave., New York 17, N. Y. 8 pp. Ill. Booklet presents information on the use of Dynel modacrylic fabrics as protective overlays to overcome problems of wear, weathering, and chemical attack on glass-reinforced plastic laminates.

ABS plastics for automobiles. Marbon Chemical Division, Borg-Warner Corporation, Washington, W. Va. Illustrated brochure tells how Cycolac ABS polymers can be used in automotive interiors for such components as steering wheel, dash panel, center console, ceiling headliner, seat shells, door panel, tail light reflector unit, and trunk liner.

Vinyl and rubber molded parts. Geauga Industries Company, Middlefield, Ohio. 16 pp. Ill. Brochure describes advances in molding procedures that make possible new applications of molded vinyl and rubber. Also featured are various unusual extruded cross-sections of vinyl.

Polycarbonate film. General Electric Company, Materials Department, Pittsfield, Mass. 13 pp. Technical Report CDC-396 details the physical and electrical properties of Lexan polycarbonate films, and suggests a number of applications.

Silicone rubber. Hewitt-Robins, Stamford, Conn. 12 pp. Ill. Bulletin S901 details the properties and applications of various silicone rubber products including sponge, sheet, conveyor belting, hose, tubing, rods, and extruded shapes.

Self-bonding silicone rubber. General Electric Company, Silicone Products Department, Waterford, N. Y. 4 pp. Ill. Technical bulletin SE-5504U describes the first of a series of new self-bonding silicone rubber compounds that develop primerless bonds to metals.

Materials — Metals

Designing with steel. United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa. 59 pp. Ill. Brochure presents four papers that discuss steel in various aspects. The papers are entitled: The Fourth Dimension in Design; Lighter Weight and Lower Cost Achieved with Stronger Steels; Column Strength of Construction Steels; and New Steels and Products for Advanced Engineering Design.

New aluminum casting alloy. William F. Jobbins, Inc., Aurora, Ill. 8 pp. Bulletin describes features and applications of Precedent 71, a new aluminum casting alloy that is said to develop a combination of physical and mechanical properties with extremely high yield strengths.

Methods

Die casting. Newton-New Haven Company, 680 Third Ave., West Haven, Conn. 6 pp. Ill. Folder describes how prototype die castings are used in product planning.

Maintaining and repairing machinery. La Salle Steel Company, 1420 150 St., Hammond, Ind. 16 pp. Ill. Booklet presents a variety of solutions to the problem of getting machinery repaired and back into production. It offers ideas on how to save time in machining parts and in eliminating heat treating, quench cracks and last-minute parts rejections.

Machining laminated plastics. Synthane Corporation, Oaks, Pa. 8 pp. Ill. Brochure describes techniques for machining laminated plastics. Operations covered include circular sawing, band sawing, turning and boring, threading, automatic screw machining, drilling, milling, punching, and machining of hard-grade laminates.

Noise control. Owens-Corning Fiberglas Corporation, Appliance and Equipment Sales, Toledo 1, Ohio. 14 pp. Ill. Technical brochure outlines approaches to solving acoustical problems in appliances and equipment with Fiberglas products.

Automation. Jered Equipment Company, 1300 S. Coolidge Rd., Birmingham, Mich. 12 pp. Ill. Booklet presents an approach to automation based on automating specific work functions rather than an entire production line.

Components and Machines

Electric assembly tools. Black and Webster, Inc., 570 Pleasant St., Watertown 72, Mass. 16 pp. Ill. Catalog offers information on company's line of electric assembly tools and how they may be used for staking, swaging, riveting, punching, marking, and terminal setting.

Industrial fans. Westinghouse Electric Corporation, Sturtevant Division, Department T-293, Hyde Park, Mass. 4 pp. Ill. Catalog 1122 discusses operating features and construction details of a new series of industrial airfoil centrifugal fans for heavy-duty applications. They are rated at capacities from 15,000 to 450,000 cubic feet per minute.

Flexible metal hose. Atlantic Metal Hose Company, 308 Dyckman St., New York 34, N. Y. 32 pp. Ill. Catalog 600 describes flexible metal hose and details how to select the correct hose for particular applications.

Ultrasonic tape cleaner. General Kinetics Corporation, 2611 Shirlington Road, Arlington 6, Va. 4 pp. Ill. Folder describes the model CT-2 Kinesonic magnetic tape cleaner that uses ultrasonics to clean computer tapes.

Industrial push buttons. General Electric Company, Schenectady 5, N. Y. 12 pp. Ill. Bulletin 7127A shows company's complete line of miniature industrial push buttons. Many color combinations are available.

Spray cleaning. Cobehn, Inc., 226 Passaic Ave., Caldwell, N. J. Catalog describes products and systems for spray cleaning of small parts such as ball bearings, jewel bearings, contact points, and electronic components.

FREE LITERATURE *continued*

Temperature regulators. OPW-Jordan Corporation, 6013 Wiehe Road, Cincinnati 13, Ohio. 8 pp. Ill. Catalog TCV-1 contains complete data and application information on line of temperature regulators which are normally used in storage heaters, cooling jackets, steam jackets, and diesel engine and compressor cooling.

Protective caps. Protective Closures Company, 2207 Elmwood Ave., Buffalo 23, N. Y. 2 pp. Ill. Bulletin announces the availability of large size protective polyethylene caps and sleeves to safeguard threaded shafts, drill pipe and other products of large diameter or odd shape.

Pilot lights. Dialight Corporation, 60 Stewart Ave., Brooklyn 37, N. Y. 24 pp. Ill. Brochure L-161C offers condensed technical information on a wide range of Dialco pilot lights and the lamps for which they were designed. Categories include indicator lights, dimmers, press-to-test indicator lights, etc.

Optical and physical test instruments. Gardner Laboratory, Inc. Box 5728, Bethesda 14, Md. 28 pp. Ill. Catalog describes optical and physical test instruments manufactured by the company. These include glossmeters, hazemeters, impact testers, permeability cups, precision reflectometers, etc.

Casters. Hamilton Caster & Manufacturing Company, Hamilton, Ohio. 48 pp. Ill. Catalog 150 describes features of hundreds of casters and wheels in various styles. A glossary of caster terminology is also included.

Self-sealing couplings. Aeroquip Corporation, Jackson, Mich. 20 pp. Ill. Bulletin 629 discusses the applications of self-sealing couplings in fluid piping systems. The advantages of the coupling are said to be prevention of fluid contamination and leakage, and ease of making connections and disconnections.

Disc grinding machines. Besly-Welles Corporation, South Beloit, Ill. 28 pp. Ill. Catalog describes company's high-production, precision disc grinding machines which are used for grinding everything from gage blocks to coil springs.

Cam locks. Corbin Cabinet Lock Division, American Hardware Corporation, New Britain, Conn. 12 pp. Ill. Brochure presents line of Corbin cam locks for use in metal, wood or plastic panel, drawer and cabinet installations.

Light fixtures. Architectural Lighting Corporation, 351 East 61 St., New York 21, N. Y. 4 pp. Ill. Folder describes a series of fluorescent surface and recessed fixtures in all standard sizes. They are available in brass, nickel and copper, all satin-finished and lacquer-protected.

Industrial lighting. Fostoria Corporation, 1200 N. Main St., Fostoria, Ohio. 4 pp. Ill. Brochure describes industrial lighting equipment designed to meet illumination needs in critical work areas.

Scientific instruments. Labline, Inc., 3070 W. Grand Ave., Chicago 22, Ill. 200 pp. Ill. Catalog lists a complete line of scientific instruments and apparatus for clinical, medical, bio-chemical, research, and industrial control laboratories.

Fasteners. Standard Pressed Steel Company, Box 883, Jenkintown, Pa. 8 pp. Ill. Booklet describes 16 different applications of the Sel-Lok spring pin fastener. It can be used to replace cotter pins, keys, solid pins, taper pins, wrist pins, and pivots and can substitute for many other types of fasteners in hinge, laminating, positioning or axle applications.

Plastics weighing equipment. Exact Weight Scale Company, 541 East Town St., Columbus 15, Ohio. 32 pp. Ill. Catalog describes precision scales and weighing equipment specifically designed for the plastics industry. Scales included are automatic weighers for mounting on injection molders, basic weight classifiers for sampling and process control, and sacking and bagging scales.

High-vacuum pumps. Consolidated Vacuum Corporation, 1775 Mt. Read Blvd., Rochester 3, N. Y. 56 pp. Ill. Brochure describes high vacuum technology and the pumps that make it possible.

Miscellaneous

Sewage works. Master Builders Company, Cleveland 18, Ohio. 20 pp. Ill. Brochure presents 35 performance reports of sewage and water works installations that used Pozzolith concrete in their construction.

Photocells. Photomation, Inc., 96 S. Washington Ave., Bergenfield, N. J. 4 pp. Ill. Leaflet contains reports of typical production problems solved with photoelectric eyes.

Cellulose acetate packages. Acetate Box Corporation, 259 Green St., Brooklyn 22, N. Y. 22 pp. Ill. Booklet describes specifications and applications of semi-rigid cellulose acetate boxes and includes descriptions of a variety of decorations, covers, lids, closures, handles, and other plastic accessories.

Roller chains. Atlas Chain & Mfg. Company, West Pittston, Pa. Folder contains a number of new design ideas in motion, conveying and coupling devices that use roller chain.

Felt. American Felt Company, Glenville, Conn. Brochure 2-61 describes the composition, properties and suggested applications of Feltan, a microporous neoprene rubber sheeting particularly used in non-skid applications.

Plastic glazing. Swedlow, Inc., 6986 Bandini Blvd., Los Angeles 22, Calif. Bulletin 200-61 presents recent developments in production and application of plastic glazing particularly for military and commercial aircraft. Discussed are the properties of stretched acrylic materials, optical refinishing, and forming of transparent enclosures.

Missiles. General Electric Company, Missile and Space Vehicle Department, 3198 Chestnut St., Philadelphia 1, Pa. 33 pp. Ill. Brochure PIB-A11A presents a history of the company's re-entry vehicle development program, including the ICBM, IRBM, and various satellite re-entry and recovery activities.

Noise control. E. F. Hauserman Company, 5711 Grand Ave., Cleveland 5, Ohio. 43 pp. Booklet presents a detailed discussion of the current theories of sound transmission and reduction in all types of walls.

Landscaping. Ford Motor Company, Tractor and Implement Division, Birmingham, Mich. 16 pp. Ill. Brochure depicts the step-by-step operations in landscaping a suburban housing development.

Numerical control. Friden, Inc., 97 Humbolt St., Rochester 2, N. Y. 32 pp. Ill. Booklet relates the history and development of the machine tool-numerical control field and explains the use of punched tape in machine tool applications. Also presented is the Flexowriter automatic writing machine that punches and vertifies 8-channel tapes for numerical control applications.

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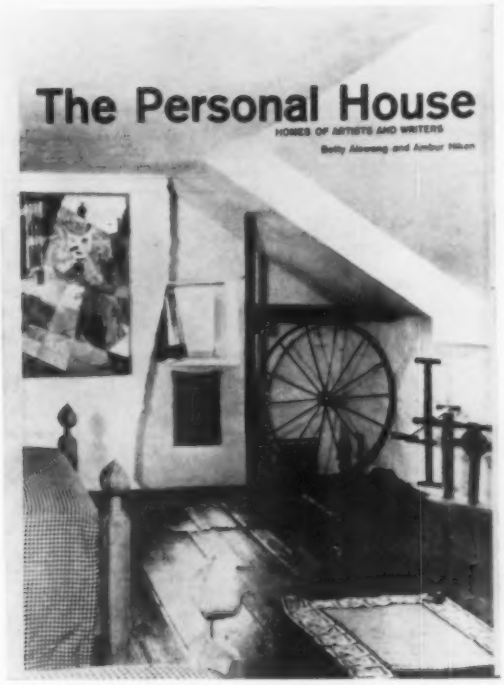
Away Cliché

The Personal House: Homes of Artists & Writers
by Betty Alswang and Ambur Hiken



Whether the design you are working on is for offices, hotels, homes, or anything else, this book can be of great help to you. These 17 houses, located in five art colonies surrounding New York, are worth any designer's attention because as design entities they defy classification. The interiors, naturally, are the most fascinating from a design point of view because it is here that the owners have been able to 'show their stuff.' With two notable exceptions, the houses of Henry Varnum Poor and the Bourneufs, the exteriors were already there. Originally in various guises: children's camp, icehouse, schoolhouse, church, farmhouse, builder monstrosity, all are there.

The methods of conversion are intriguing enough in themselves; but they have also involved unusual use of space and design techniques. Possessions both modest and expensive abound in these interiors but it is not their cost which is important, it is the fantastically original and inventive design uses to which they have been put. Some of these possessions are to be found in many places, a few of them are common within this group of houses, but many are to be found nowhere else at all.

The lessons to be derived from **The Personal House** are many. Amongst others, the book demonstrates that it is possible to humanize almost any space—however anonymous in itself—designed for people to occupy. And because of the uncommonly fresh and untrammeled approach displayed in these houses the book can provide a springboard for new and independent ideas for the designer.

The Personal House contains in its 80 large pages over 100 beautiful photographs by the photographer half of the author team, Ambur Hiken. The size of the book, 12 x 15½, has meant photographs of exhibition size so that every detail can clearly be seen. It also means that the book itself is excellent for display purposes. Two of the photographs are in full color and all are reproduced on heavyweight ivory stock. The idea for the book was Betty Alswang's and she has written a text to accompany the pictures and to give, as much as possible, the backgrounds of the people whose houses are shown as well as the broad sources of their vastly different approaches to the design of their homes. She herself is an interior designer of 14 years' standing (a profession well within her family's tradition). She is married to Ralph Alswang, the Broadway scene designer, and they live with their two daughters near Westport, Connecticut. Ambur Hiken, the photographer, has done much of her professional work in the fashion fields as well as on commissions from the Brooklyn Museum and the Astor Theatre. She lives in Manhattan with her husband Nat Hiken, the TV writer-producer-director, and their two daughters.

Price: $12.50

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Through August 30. "Sutnar: visual design in action." An exhibition presented by the American Institute of Graphic Arts. The Pepsi-Cola Exhibition Gallery, New York.

Through September 3. "The Architectural Structures of Pier Luigi Nervi." A photographic survey of the Italian architect-engineer's work. Walker Art Center, Minneapolis, Minnesota.

Through September 4. "Color in Prints" from the 15th century to the present. Metropolitan Museum of Art, New York.

Through September 5. "New York Crafts — 1961." Munson-Williams-Proctor Institute, Utica, New York.

Through September 10. Exhibit of work of European artist-craftsmen. Museum of Contemporary Crafts, New York.

Through September 11. "Musical Instruments of the Five Continents." Metropolitan Museum of Art, New York.

Through September 12. "Futurism." A comprehensive survey commemorating the 50th anniversary of the movement. Museum of Modern Art, New York.

Through October 31. "Italia '61," a fair commemorating Italy's centennial, includes the International Labor Exposition with pavilions from 25 nations, including the U.S. Turin, Italy.

August 14-25. Special course on the science of precise measurement sponsored by George Washington University's Center for Measurement Science. George Washington University, Washington, D.C.

August 16-18. Annual hydraulics conference, sponsored by the hydraulics division of the American Society of Civil Engineers. University of Illinois, Urbana, Illinois.

August 18-27. Health exposition sponsored by the New York City Department of Health and the Medical Society of New York State. New York Coliseum.

August 20-25. New York gift show. Hotel New Yorker and Trade Show Building, New York.

August 22-25. Western electronic show and convention. Exhibits and technical sessions. Cow Palace, San Francisco.

September 5-8. Annual convention of the Association for Computing Machinery. Statler Hilton Hotel, Los Angeles.

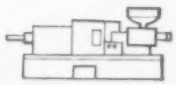
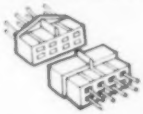
September 6-8. Annual new product exhibit conference sponsored by the Los Angeles Chamber of Commerce. Ambassador Hotel, Los Angeles.

September 6-8. Joint nuclear instrumentation symposium sponsored by the Instrument Society of America, the American Institute of Electrical Engineers, and the Institute of Radio Engineers. North Carolina State College, Raleigh, N. C.

September 11-15. Annual instrument-automation conference and exhibit sponsored by the Instrument Society of America. Biltmore Hotel and Memorial Sports Arena, Los Angeles.

September 14-16. Second general assembly of the International Council of Societies of Industrial Designers. Venice, Italy.

What's News In Plastics...

Escon® polypropylene  offers molders  a balanced  combination of properties for a wide range of molding applications such as high strength and impact resistance in automobile dash boards  ...excellent electrical  properties for cable connectors  ...high heat distortion temperature in vaporizers  ...low water pick-up in distributor caps  ... outstanding dynamic fatigue resistance for "living hinge" in accelerator pedals  and snap-fit closures  for containers...outstanding chemical  resistance plus high gloss, surface hardness, and quality "feel" in dinnerware  . All available for volume production at low  cost.

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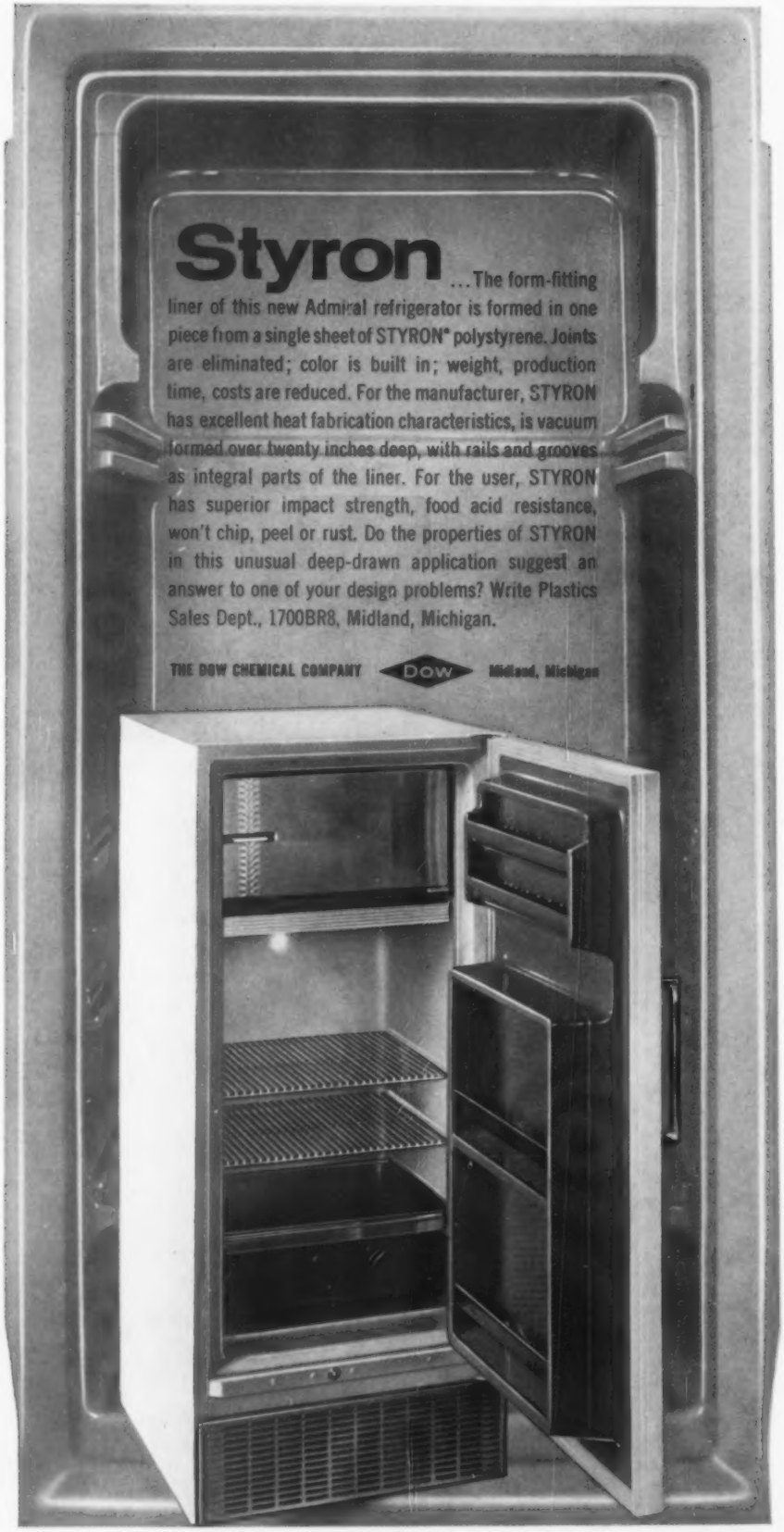
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