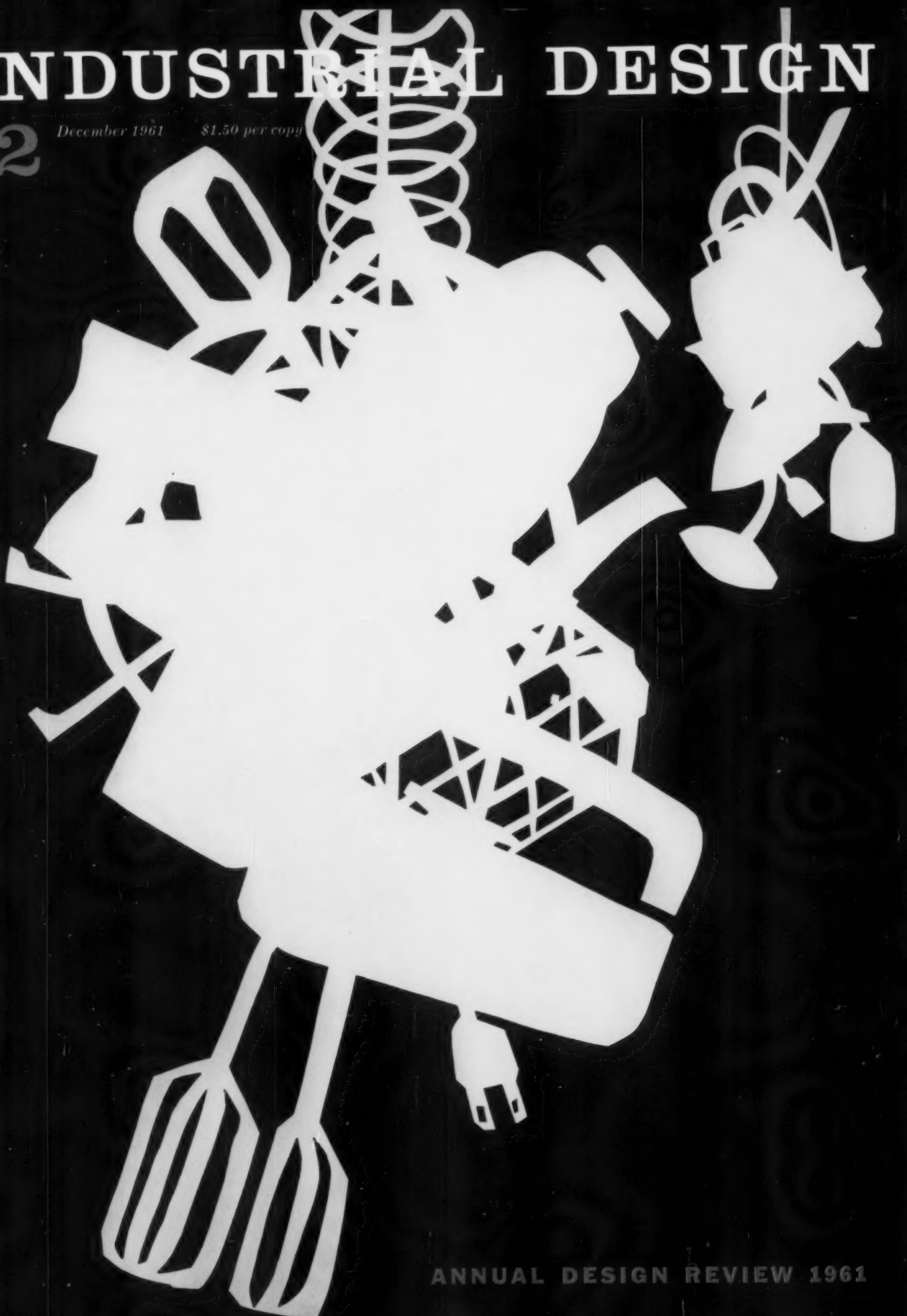
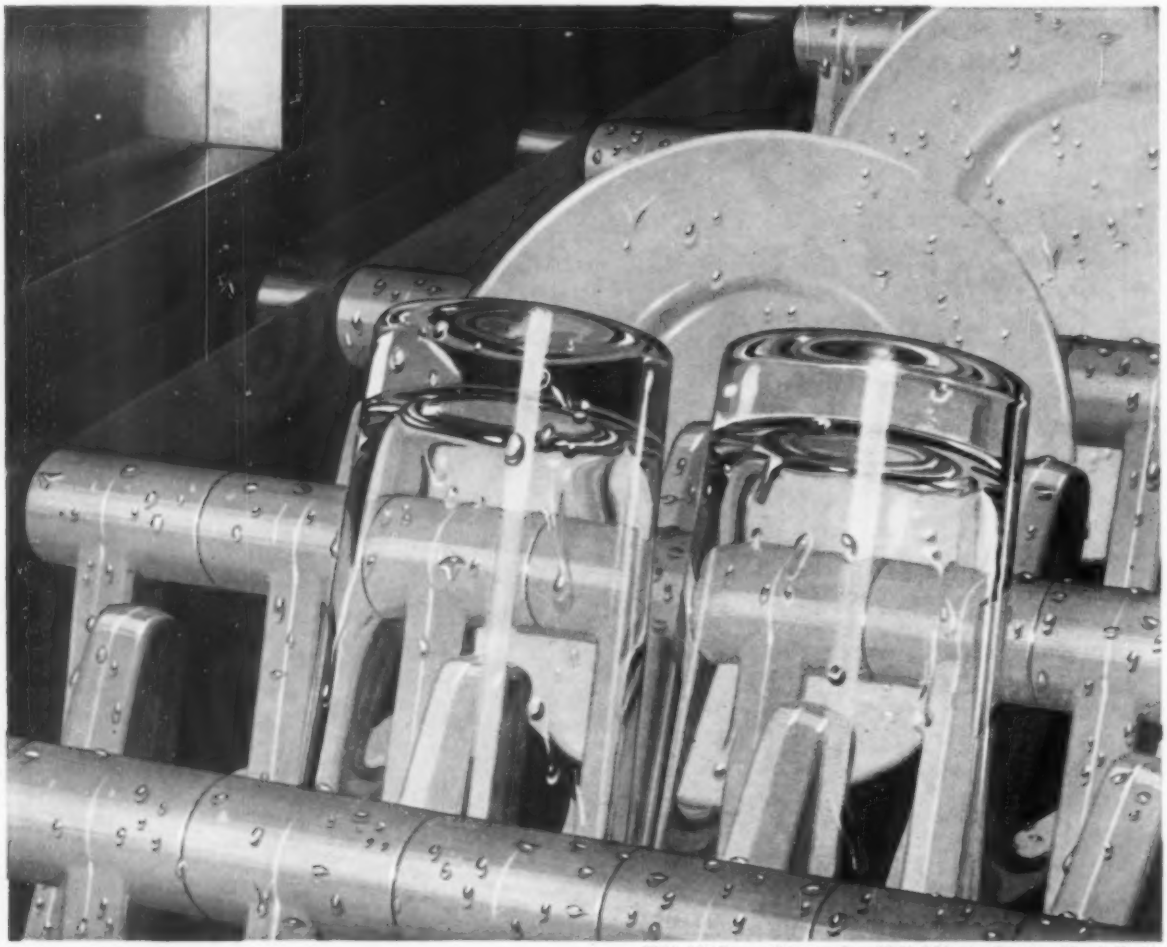
INDUSTRIAL DESIGN

12 December 1961 $1.50 per copy



ANNUAL DESIGN REVIEW 1961

What's News in Plastics...



Molded by Pearce-Simpson, Inc., Molded Plastics Division, Miami, Florida

Dishwasher cradles of Escon® polypropylene defy high heat and detergents

The Jackson Products Company of Tampa, Florida, chose Escon polypropylene for the conveyor-belt cradles on its new flight-type dishwasher. Resistance to high heat and detergents was the overriding reason. Of all materials considered (including metals and other plastics), Escon best withstood the punishing chemical attack of wetting agents found in commercial dishwashing compounds.

The resilience of Escon creates a cushioning effect which minimizes breakage, while its negligible water absorption contributes to long life. And with Escon, cradles can be made in a variety of contrasting colors.

Properties like these point to Escon polypropylene as the ideal choice for many demanding applications. To find out more about this versatile material, write to Enjay, 15 West 51st Street, New York 19, New York.

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ID

INDUSTRIAL DESIGN

. . the magazine for the men whose designs today are the products of tomorrow

The ever-increasing activity of industrial designers in both point of sale and heavy-duty packaging will be strongly reflected in our editorial program for 1962. Editorial features now on the boards include:

THE PACKAGING CONSULTANTS: A report on the growing number of technical consultants now performing such typical design functions as advising companies on packaging materials, machinery, and systems, and sometimes even designing the packages for them. This will include coverage of Inpak, which calls itself "the world's first packaging agency."

PRINTING TECHNIQUES FOR PACKAGING: A feature report on the new inks and machinery in the fast-changing field of package printing. A guide to the most recent uses of various processes including lithography, gravure, letterpress, flexography, and silk screen printing, the article will discuss the graphic advantages and disadvantages of each system and its suitability for foil, film, and paper.

A REVIEW IN DEPTH OF THE PACKAGING MATERIALS, machines, and applications that will affect the packages designed in 1963.

IMPACT ABSORPTION. This article will treat mechanical shock as an industrial problem. It will cover cushioning materials, mechanical suspensions, spring design, as they affect packaging, transportation, equipment, furniture, industrial machinery, etc.

COLOR: Perception studies, industrial color coding, color as a marketing tool -- all of these as they influence the paints, inks, applied and integral finishes, flotation techniques, etc., used in the design of consumer products, capital equipment, signage, and packaging.

CLOSURES -- One of the greatest of all packaging problems is the device that permits the pack to be opened and closed. This feature will treat the material, structural, and economic problems in closure design, and methods for solving them.

PACKAGING FOR THE MILITARY: A survey of the peculiar demands of military packaging, with case studies of unusual technical problems solved by design, and a rundown of the Quartermaster Corps Container Laboratory.

PACKAGING SECTION: Annual Design Review

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DECEMBER, 1961 VOLUME 8, NUMBER 12

INDUSTRIAL DESIGN

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

CONTENTS

COMING

IN JANUARY—*The exhibit as message*

IN FEBRUARY—*Product graphics, II*

COVER: Art assistant Margot Steven's paper cut-outs of kitchen appliances (on loan from Bloomingdale's store) became a collage which in turn became a silhouette, symbolizing our annual review of products—kitchen and otherwise.

FRONTISPIECE: A photostat of an exploded drawing of stairs from an old carpentry manual is one of the items in the New York Museum of Modern Art's circulating exhibit, "Stairs," designed by Bernard Rudofsky.

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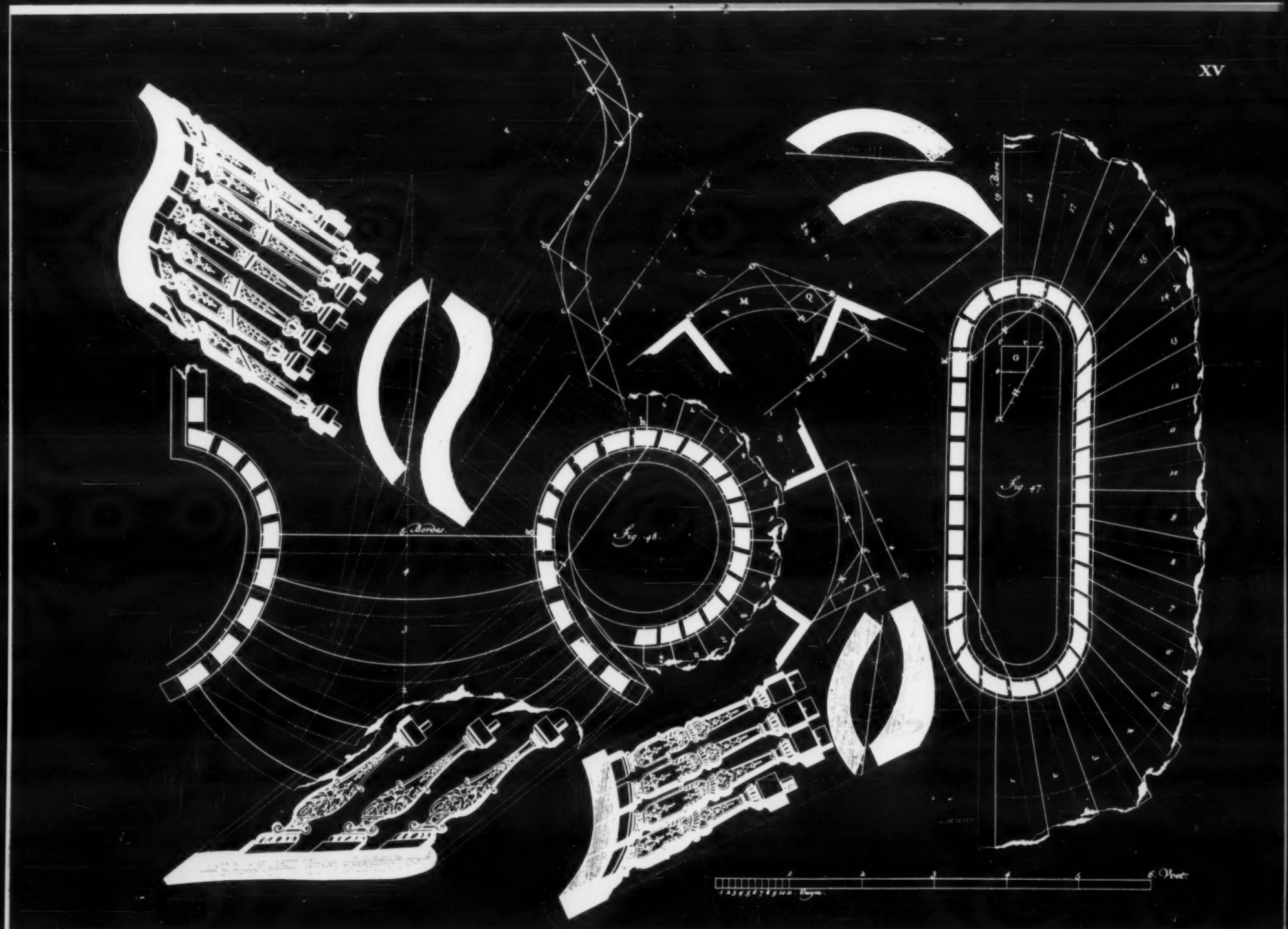
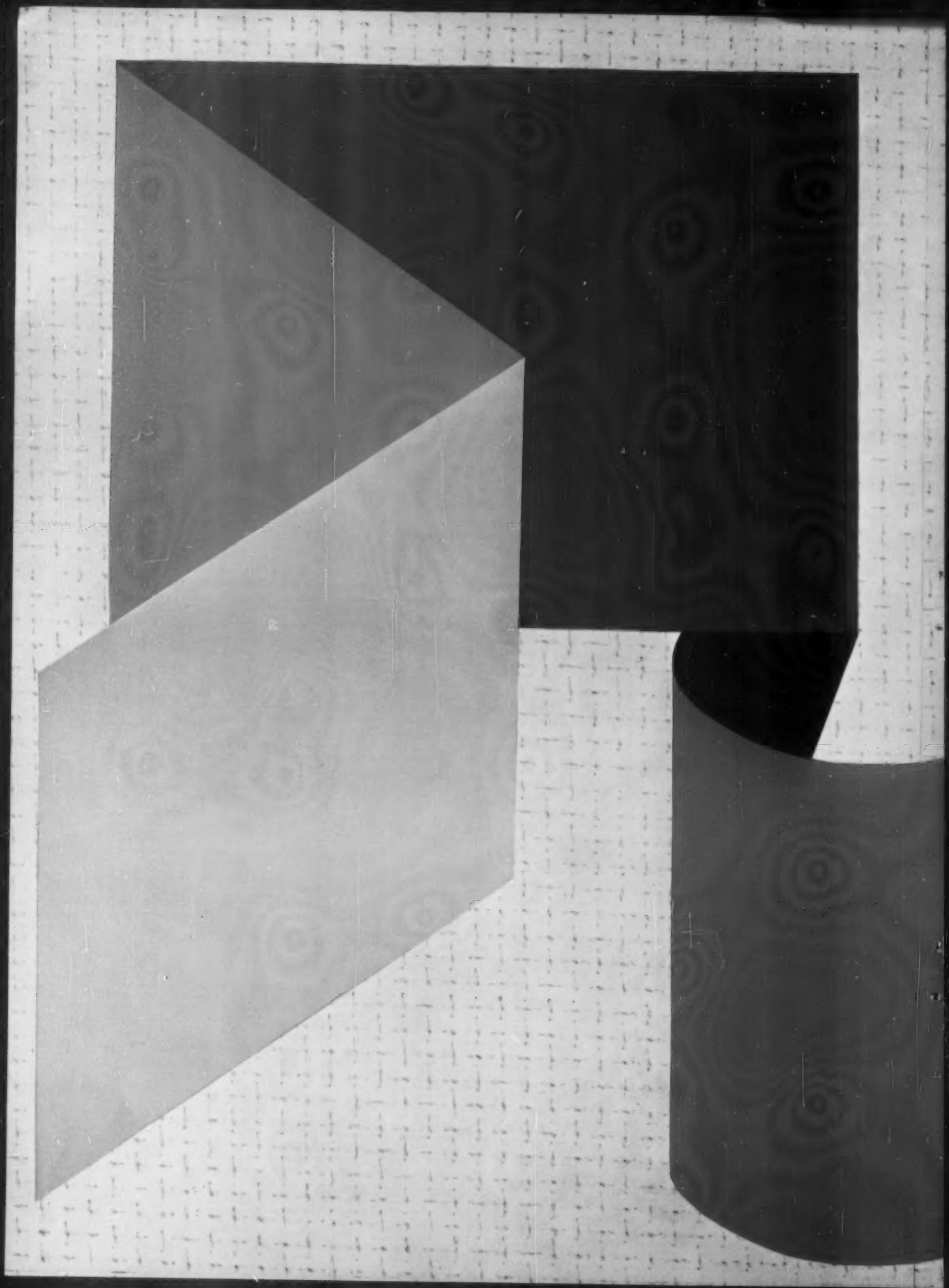
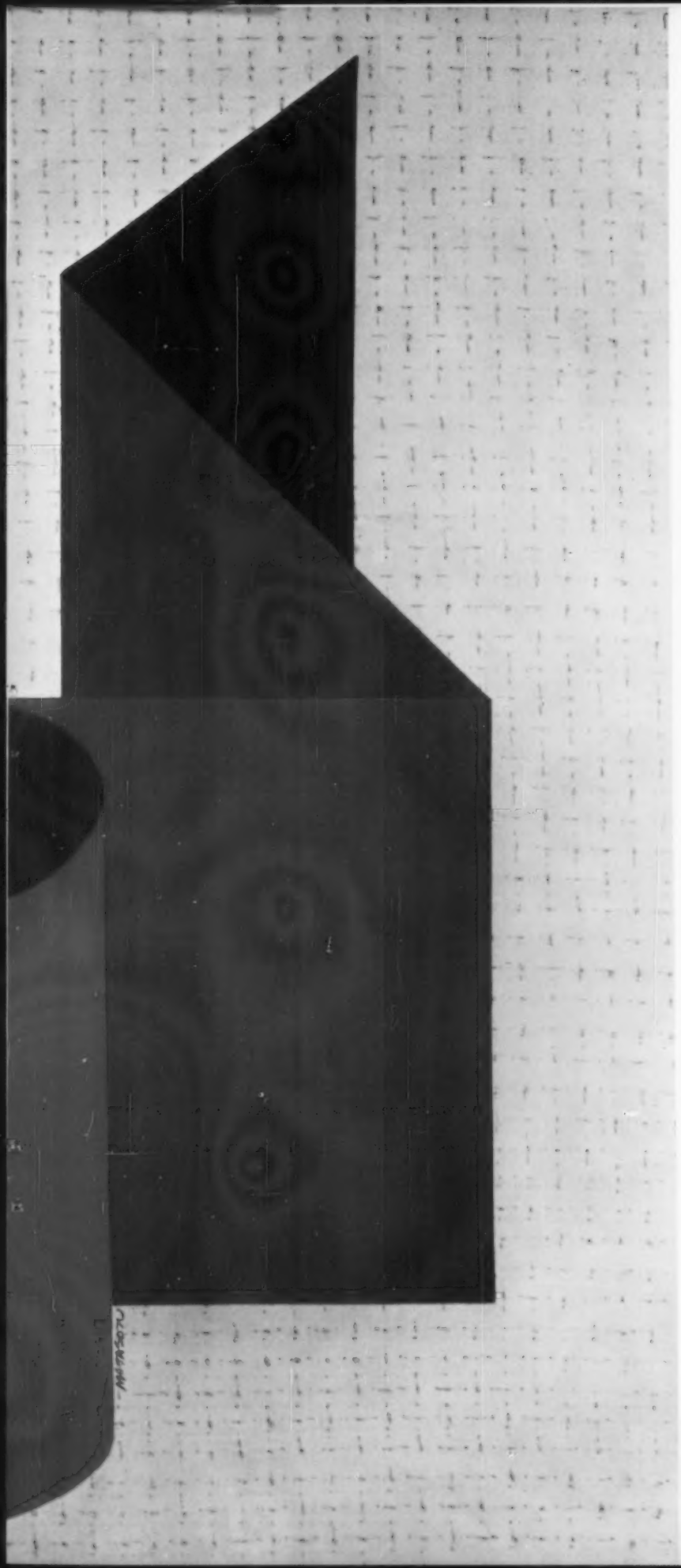


Fig. 47.
Fig. 48.





Want a non-tearing paper that holds any shape? Make it with steel wire!

It's a simple idea, but nobody ever did it before Arkell Safety Bag Company* and American Steel and Wire got together to develop wire-reinforced paper. Fine steel wires are bonded between two pieces of paper. The product is remarkable: Bend it, and it stays bent. Try to tear it, and it won't. It can be corrugated and formed like steel sheets, only easier. The new paper is amazingly light for its strength. As to strength, wire is *cold drawn* into the strongest form of steel in existence. Already, lots of designers are scratching their heads figuring out how to use this product, and suggestions are pouring in for everything from tobacco hogsheads to automobile trunk liners, temporary livestock shelters, and heavy parts packaging. This product is now in production and samples are available. Write Product Development, Room 8001, American Steel and Wire, Rockefeller Building, Cleveland 13, Ohio. As innovators in wire, we welcome a chance to work closely with you to create new products. You probably know already that we sell the widest range of the finest wire made in the world.

*New York, Chicago, Newport News, Va.

Innovators in wire

USS TRADEMARK

American Steel and Wire
Division of
United States Steel

LETTERS

Spray-on doesn't suit

Sirs:

As an admirer of ID I was delighted to see your editorial pages turned over to an article on fabrics. I hope this will be a continuing part of your magazine.

I am also an admirer of Mr. Larsen, but I do think he does "protest too much."

Schumacher and one or two other decorative fabric houses have their own weaving mills. It has been our experience that since the end of World War II these small quality mills have been doing just what Mr. Larsen says they haven't. New innovations in yarns and weaving have made the machine and power looms come closer and closer to the hand loom. All our looms have become more diverse and we're doing things today with power looms and special yarns that were never dreamed of twenty or even ten years ago. We have been able to give a hand-made look at machine-made prices.

As for a sprayed suit, I'll take that when I'm driven to powdered martinis.

Rene Carrillo
Director of Merchandising
F. Schumacher and Company
New York, New York

Faces on the cutting room floor

Sirs:

The long awaited arrived and we took the day off to read it. The whole issue looks very good. I love your layout man. The big Olivetti type page, for example, is spectacular. One thing does puzzle me, however. What does he do with the parts of the portraits he crops off? No offense . . . there's a lot to be said for "less means more". Less seems to improve people as much as it does words.

Mrs. Leon Gordon Miller
Cleveland, Ohio

Boiler theft scared

Sir:

You have, perhaps unwittingly, made yourself the instrument of sharp practice in having served as the publisher of some very erroneous information in connection with the Nuclear-magnetic boiler unit described on page 110 of the November issue in which you say that Richard Stankiewicz was the designer, which he was, but that was before he deserted us and was pirated away by Diametric who bought him just so they could steel our

design and get for nothing all the years of work we put into developing the boiler unit and it will serve them right if the government steps in and takes it off the market as being so efficient that it will create employment problems and anyway the way those cheepskates built it it won't work.

Yours truley,
William Renwick
President, General
Manager, Treasurer
NEW Nuclear Atomic Streamlined
Type Buggy Whip Co., LTD.

Audio critic

Sirs:

I am amazed that, with all the new products, ideas, and innovations being offered to the general public in the audio field, you've picked only two radically new pieces of equipment for your design review of audio equipment (ID, October, 1961). I feel your article does the component industry as a whole a disservice.

The AR turntable is interesting to the general public because of its price, and the Omega amplifier because of its transistors, but the Ampex $800 tape-recorder has been on the market for over a year, and Allied Radio Corporation's arm seems to be a copy of the Dynaco B & O arm. As far as design of tape-recorders is concerned, I would like to suggest for consideration the Tamberg 6 because of its beauty and functional design. Not only is this the easiest tape-recorder to operate but it is also the most compact in its price range.

As for turntables, Paul Weathers 803 turntable, arm, and cartridge are not only new, but quite different in design and construction as well as being magnificent in performance.

In the development of amplifiers the Harmon-Kardon Citation I, II, IIIX—a prime development of Mr. Hagermann—are the finest new (last three years) entrants into the amplification field. I am also surprised that the new Scott S-3 speaker was not shown. It is a beautiful, as well as functional, new speaker.

Now we come to the field in which you evidently feel our industry has lagged behind — FM Multiplex. Dear sir, anything done well takes time in the doing, and I point with industry pride to the Scott 350 Multiplex tuner as well as the Fisher FM 100, the Pilot 602-M, and the Citation IIIX Elect. Some manufacturers of radios might bring out something that looks like two boxes strung together with a string of wire but I think you'll find after reconsideration that the component manufacturers take pride not only in the quality of the sound of their equipment but in the design, too.

Michael F. Goldstein
Sam Goody's
New York, New York

Errata

The buildings for the Federal Science Pavilion at the Seattle Century 21 fair, shown on page 76 of the October issue, were designed not by Minoru Yamasaki & Associates but by Minoru Yamasaki & Associates, Naramore, Bain, Brady and Johanson. The photograph of the Science Pavilion used in the article, and also on the cover of the October issue, was taken by Baltazar Korab.

The statement, on page 12 of the November issue, that the U.S. did not participate in the European Packaging Federation's Eurostar competition in London this past September, is inaccurate. Margery Markley, executive vice president of the Package Designers Council, now reports that PDC was invited at the last minute to assemble a group of U. S. entries, and that she did so, drawing on the work of her own office and the offices of Egmont Arens, Donald Deskey, Robert Sidney Dickens, Dixon & Parce's, Morton Goldsholl, Walter Landor, Lane-Bender, Frank Liotta, Lippincott & Margulies, Seymour Murray Kent, Robert Neubauer, Scherr & McDermott, Frederick Truchsess, and Robert Zeidman.

NEWS

Aluminum Extrusion's scrolls by Joseph Woodward.

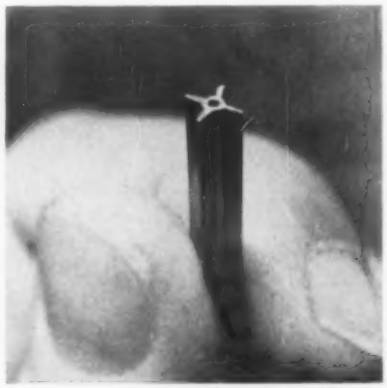
Extruded ingenuity

Design awards in two categories of aluminum extrusion have been announced by the Aluminum Association, as the result of a competition to demonstrate the design versatility of the extrusion process.

Top honors for "the most ingenious extrusion" went to Joseph Woodward, for a scroll extrusion (above) produced by Aluminum Extrusions, Inc. The extrusion is cut into ¼-inch "wafers," and incorporated into the backs, arms, and legs of chairs, and into table tops. It is used in a line of furniture — the "Andalusian Group" just introduced by Lee L. Woodward Sons.

Honorable mention in the same category went to G. H. Bauer, of Mideast Aluminum Corp., Dayton, New Jersey, for a military guidance mechanism component (right) said to be the smallest hollow extrusion ever produced; also to D. J. Cullen and J. A. Merrill, of Reynolds Metals, for heavy end pipe.

First award in the second category — "most ingenious finished part made from an extrusion" — went to Grant Mack and Harry J. Loehlin of the Reynolds Metals Company for an extruded and pierced refrigerator or freezer sheif. Another Reynolds Metals designer, Ernest J. de Ridder, received honorable mention for a folding door section used in conjunction with leather or plastic strips.



Smallest hollow extrusion

Ray Rude, president of Arcadia Air Products, Pasadena, California also won honorable mention for a diving board section produced by Harvey Aluminum.

Judges for the competition were industrial designer Bronislaw Zapolski; H. R. Clauser, editor of *Materials In Design Engineering;* and W. B. Griffin, editor of *Modern Metals.*

Steps on display

"Stairs" (see frontispiece), an exhibition of steps and ramps, is currently on view at the J. B. Speed Museum in Louisville, Kentucky. Selected and designed by Bernard Rudofsky, and circulated by New York's Museum of Modern Art, the exhibition examines the way up, in forms ranging from the Tower of Babel to the ramp of the Guggenheim Museum, and including the ramp in the penguin pool at London's Regent Park Zoo.

The exhibition will close in Louisville on December 25th.

Arts and sciences at Yale

Yale University has proposed complete revision of its engineering curriculum, along lines that would enhance the social significance and professional status of graduate engineers. The plan, proposed by a committee of seven engineers and scientists appointed more than a year ago by president A. Whitney Griswold, calls for the elimination of the School of Engineering's undergraduate division. Engineering students will be enrolled as regular students in Yale College, and will major in a new department — the department of engineering and applied science. Professional training will be supplied by a graduate curriculum that will let students concentrate on either research or problem-solving.

In announcing the new plan, the committee said technology has assumed a social importance that makes it imperative for the techniques of engineering, science, and mathematics to be represented in the social sciences and humanities. "In our opinion," their statement reads, "a four-year (undergraduate) program cannot be truly professional and still provide the foundation for future leadership which is so essential to the education of today's engineer."

Industrial designers, who have in recent years professed an intense concern

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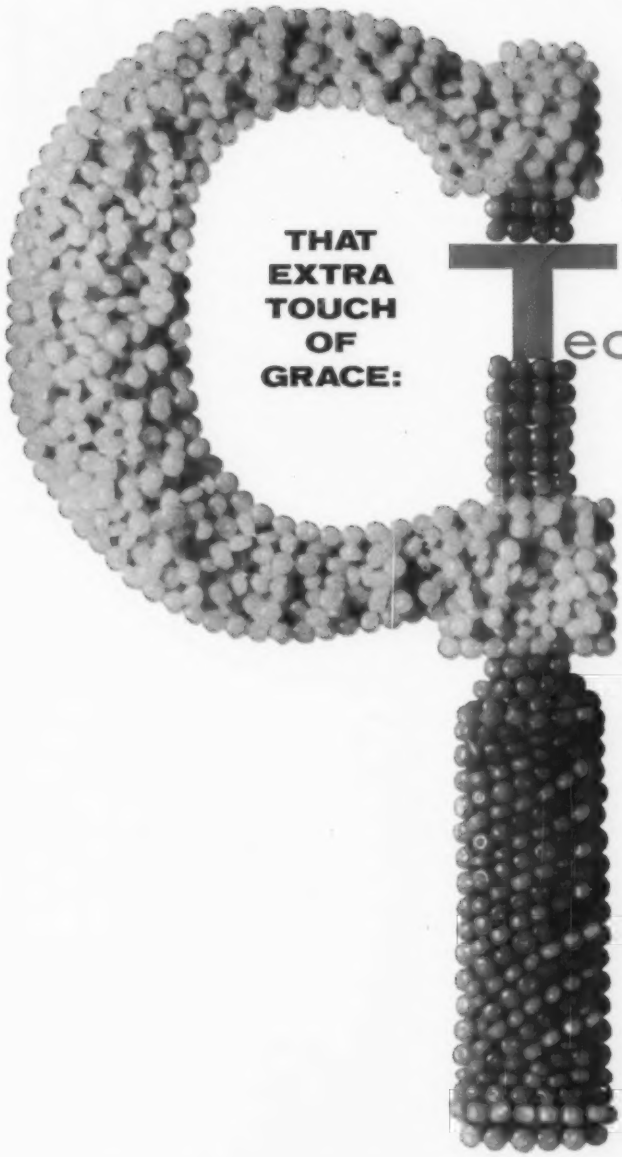

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GRACE PLASTICS

with professional education, will be interested in the Yale plan because it suggests the creation of a truly professional engineer, one who is educated rather than merely trained. Yale's new engineer will be grounded in the humanities and sciences "because it is much easier for the scientist to convert himself into an engineer than for the trained engineer to master the new science required for a dynamic technology." The professions of medicine and law have for a long time based their curricula on similar premises.

ID honored

INDUSTRIAL DESIGN was awarded a certificate of merit for editorial excellence, in *Industrial Marketing's* 23rd annual editorial competition. The award, for "outstanding improvement in design," was presented in New York on November 30.

Chemist's soup kitchen

The indefatigable Dr. Peter Schlumbohm, inventor of the Chemex coffeemaker, has often turned his attention to solving problems most people never knew they had. Most recently he has developed the

Schlumbohm's "Soupette"

"Soupette" (above), a double boiler designed to facilitate and enhance the preparation of concentrated canned soup.

The can of soup is poured into the inner boiler, and an equal amount of water poured into the outer boiler. The boiling water heats the concentrate to 180 degrees in about 12 minutes, and is then added to it, resulting in a soup that comes to the table at 180 degrees and stays hot, protected by a Dylite "Tempot." The Tempot is equally useful for retaining the temperature of chilled soup. Dr. Schlumbohm recommends the new products for zabaglione and hot chocolate, as well as for soup.

Alcoa competition

The Aluminum Company of America's industrial design department is now collecting material on "product design incorporating imaginative and effective use of aluminum," and placed on the market since January, 1961. Material chosen will, after clearance with contestants, be used in Alcoa advertising programs. Entries and recommendations should be sent by March 17 to R. D. Parks, 1501 Alcoa Building, Pittsburgh 19, Pa.

National Hotel Exposition

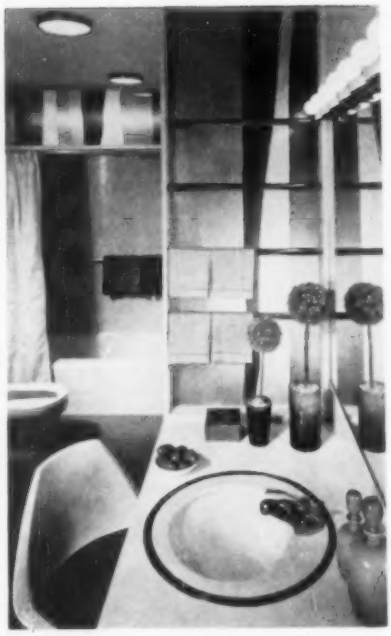
An estimated 57,000 persons, representing owners and managers of what are described as "mass housing and feeding operations," saw a record 848 displays by 654 exhibitors at the 46th annual National Hotel Exposition in New York's Coliseum, November 6 through 9. Among the featured exhibits were: the "Room of Tomorrow" (above), designed by Emily Malino, presenting new ideas in hotel-motel guest room decor; "Designs for Dining" by Ellen McCluskey, including five dining rooms and one cocktail lounge; and a "Kitchen Modernization Clinic" exhibit, designed by Arthur W. Dana, demonstrating how to buy kitchen equipment economically and use it efficiently. Also included in the exposition were conferences such as the Fourth Annual Motel-Motor Hotel Conference and a Wine Sales Workshop. The Exposition was sponsored by the New York State Hotel Association, Inc. and the Hotel Association of New York City, Inc.

New York World's Fair

The New York fair has decided to rent exhibition space at the Seattle fair, for a scale-model display to be built by Display, Inc. in association with Richard C. Gunthridge.

Speaking to New York's West Side Association of Commerce, fair president Robert Moses called the critics of the fair "rash," "petty," "superficial" — everything but "legion," which they are.

Asserting that he had never been identified with a cause that had not been ridiculed at first by "experts in sneer and



Bathroom of Tomorrow

innuendo," Moses pointed out that these "mud throwers" were quiet enough at the end when, as always, he proved to be right.

"Don't worry about the fair," Moses said. "Neither wind nor rain nor gloom of night, neither hell nor high water, neither the machinations of politics nor the deviltries of the King's enemies shall prevail against it. Come out to Flushing Meadow and see the dirt flying and watch the shrinking spaces on our map filling up with participating nations, industries, states, arts and amusements."

The government of Cambodia has announced plans to participate.

Any number can play

Variety Store Merchandiser's 25th annual packaging competition announced two top award winners last month at the variety industry dinner. "Best-package-of-the-year" award went to the Norwich Pharmacal Co. for its Unguentine First Aid Spray pack, because "it offers instant visual identification and association with use." The package, which was company staff-designed, is a red plastic bottle styled to resemble a fire extinguisher and bearing the legend "pain extinguisher," to make sure everyone gets the point.

The "best-of-point-of-purchase merchandiser" award was given to the Clopay Corporation for its Sell-O-matic window shade display unit, praised because it gives the dealer a place to store his shades and the customer a chance to see what she is buying. The unit was developed by the company and Robert

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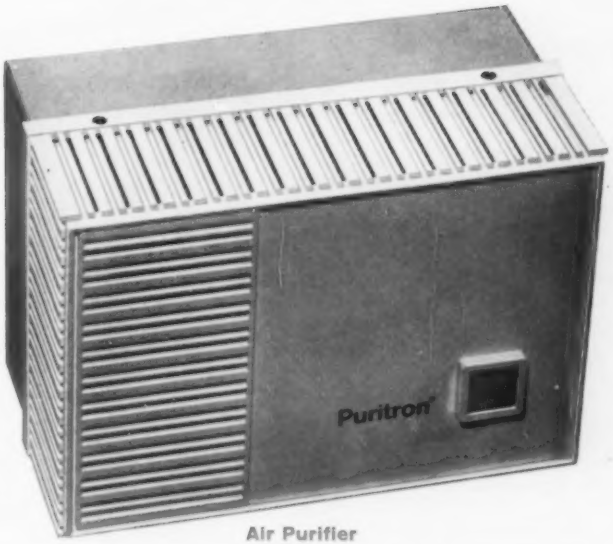
Trading Stamp Dispenser

Housing molded of IMPLEX for impact resistance, high gloss, durability under severe conditions of use.



Air Purifier

Housing molded of IMPLEX for excellent appearance, toughness, color stability, sales appeal.

Automatic Chemical Feeder

Housing, adjustment dial and 10 internal parts molded of IMPLEX for strength, stain resistance, surface hardness, ease of cleaning, dimensional stability.

High quality housings at moderate cost

Housings that match quality appearance with quality performance are just some of the host of parts in many fields that are now being molded of IMPLEX® acrylic plastic. You'll find the specific combination of properties *you* need in one of the five formulations of IMPLEX. Write today for full information on *tough . . . colorful . . . stain-resistant* IMPLEX.

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The contest, which drew 1,000 packaging and 200 point-of-purchase entries, also presented, in a blaze of metallic glorifying, one gold and three silver awards for private brands; 11 gold and 32 silver awards for other packaging categories; and eight gold and four silver plaques for point-of-purchasing devices.

Package Designers Council president Robert Sidney Dickens, who was one of the 10 judges (each of whom also got a "distinguished service award") delivered a straightforward after-dinner address that amounted to a post mortem of the contest entries.

"Quit treating your packages as if they were ads in a trade journal," Dickens admonished the industry. "And quit copying each other.... And if you use transparent material to show your product, then for God's sake, show it. About 75 per cent of the packages that 'showed' their products also concealed them by printing a garish design over a large part of the transparent covering.

"If you use a new packaging material, be sure that it is the best for your product and its problems. We saw a lot of flimsy materials trying to cover and protect heavy, sharp items. Present your product as if you were really proud of it. We saw a great many items whose quality images were destroyed by sleazy packaging or atrocious graphics. A well-designed package will do more to make the customer pick it up and buy than all the cluttered hard-sell packages ever invented. The same people who shop in variety stores also shop in other places, are exposed to good taste in drug stores, supermarkets, department stores. They react to good design in any store. . . . Some manufacturers are apparently aiming at some imagined 'poor taste' level. Believe me, it does not exist. All taste is improving, much faster than you think."

Modular exhibit shells

The three walk-through pods shown above are hand-formed of steel, appropriately enough, since they comprise the National Steel Corporation's exhibit at the 43rd National Metal Show in Detroit. The exhibit, designed by William M. Schmidt Associates, displays construction equipment in one of the pods, automotive equipment in the second, and trucking equipment in the third. Linked to each other by walkways, the pods were grouped around a steel pylon that supported colored explanatory panels. The modular arrangement permits the use of single pods for smaller exhibits, or additional ones for larger shows.

The project was directed by Schmidt associate Dann Deaver.

Modular pods for steel exhibit

America abroad

The United States exhibition of the Second Pacific International Trade Fair in Lima, Peru, was awarded honors last month for having "the best pavilion at the fair." The U.S. show, designed under the direction of M. Fillmore Harty, of William M. Schmidt Associates, featured a Sears Roebuck exhibit, a CBS tv assembly line, and a complete print shop that turned out a brochure on the fair.

The exhibition's manager and deputy manager, John U. McManus and Frank Rizzo, were presented with gold medals.

Meanwhile back in Washington, Secretary of Commerce Luther H. Hodges announced that the U.S. plans to participate officially in 17 international trade fairs in 1962. The schedule includes four locations where the United States government has never before shown its face: Tripoli, in Libya; Bulawayo, in the Federation of Rhodesia and Nyasaland; Lagos, in Nigeria; and Baghdad, in Iraq.

Packaging forum

Packaging problems ranging from color preference to cushioning were explored at the Packaging Institute's 23rd annual forum, held late in October in New York. "Seminars" covered research and development, bulk packaging, marketing, machinery, paperboard, testing, drug packaging, industrial packaging, food packaging, flexible packaging, adhesion, and the new food additive law. Three package designers, Robert G. Neubauer, Maxwell Rogers, and Albert Kner, spoke in the marketing session.

The Institute also presented awards and announced officers. L. H. Zahn, director of purchasing and package development for CIBA, has been re-elected president. Also re-elected were: Fred W. Langer, package coordinator for Socony, vice-president and treasurer; and Allyn C. Beardsell, director of Mead's new product division, vice-president in charge of membership.

For his work in establishing printing and color standards, the Institute gave their professional award to E. H. Balkema, director of purchasing for Colgate-Palmolive's household products division. It also commended the first commercial use of "Foil-Kan," a laminated aluminum foil and fiberboard container, by giving H. P. Hood & Sons the Institute's corporate award. "Expanding the Polyethylene Extrusion-Coating Art," by Dom A. Perino, Milprint's manager of the development division, was cited as the forum's most informative paper (all papers may be ordered from the Institute).

Senator Estes Kefauver reported to the group on the findings of the Congressional subcommittee investigating consumer packaging. "Too often," he said, "today's package is not functioning as an honest, easy-to-understand salesman."

Versatile theatre

Maximum theatrical flexibility is the design goal for the Vivian Beaumont Theatre, to be erected in Manhattan's Lincoln Center for the Performing Arts, now a-building.

The theatre, designed by Eero Saarinen & Associates, with Jo Mielziner as collaborating designer, adjusts to either proscenium or arena staging. Its 11,000 square-foot main stage has a proscenium that can be opened to a width of 58 feet. The apron will go 12 feet into the auditorium, and can be supplemented by an open platform thrust over the first seven rows of seats (which can be mechanically lowered into the basement) in a variety of shapes.

Sliding walls can narrow the apron to any size, and the proscenium can be closed off completely, with all action taking place on the thrust stage.

Patrons can enter the 1000-seat theatre either on foot or by a taxi ramp beneath the playhouse.

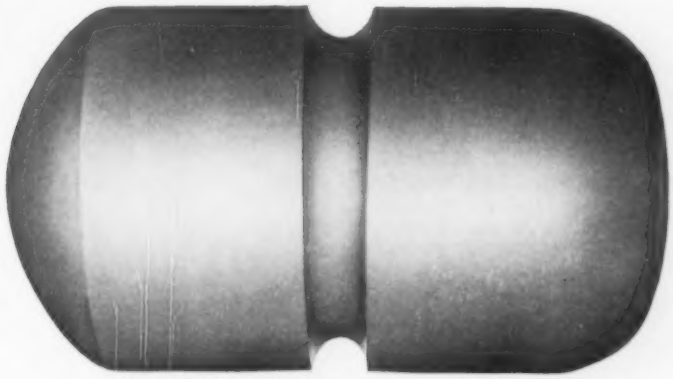
Continued

CREATIVE DESIGNS FOR PRACTICAL APPLICATIONS

5-gallon plastic carboy with narrow mouth and sturdy handle for industrial chemicals and acids.

Extra heavy-duty, wide-mouth container developed by Air Formed primarily as a re-usable laboratory bottle for corrosive chemicals.

Plastic vaporizer for home use. Molded handles and platform eliminate separate housing.



Foam-filled plastic water float for ocean beach safety has proven buoyancy, is resistant to impact, marine growth, and deteriorating effects of salt water.

Plastic foot pump for largest-selling air mattress decreases cost of assembly, and has withstood over 50,000 flexes.

Let our specialists in designing and producing blow-molded plastic containers, shapes, and forms help you solve design problems

A component? A free shape? A container? An industrial part? Let your creative imagination soar, unfettered by the high unit cost of metal stampings or the fragility of other materials. Economical, shatterproof blow-molded plastics creatively designed for practical applications can be the answer. Let our design specialists show you how your imaginative designs can be brought to final form through blow molding. Contact: Design Services Department, Air Formed Products Corporation, Haines Street Extension, Nashua, N. H.

AIR FORMED PRODUCTS CORPORATION

A Bemis Company

NEWS *continued*

People

APPOINTED: **Damon C. Woods** as chief stylist in the interior studio, and **Robert H. Maguire** as chief stylist in the advanced, international, and tractor studio, Ford Motor Company. . . . **William J. Armstrong** and **Perry C. McColhom** to the staff of the industrial design section at General Electric's Appliance Park, Louisville, Kentucky. . . . **Bert R. Prall** as director of merchandising for the Chicago International Trade Fair. . . . **William Wright Dawson, Bill Harmer,** and **George Parker** to the staff of Package Design Associates Ltd., London. . . . **Edward E. Worthington,** formerly with Rand Development Corporation, as assistant to the president of Designers for

Daniel J. Carlick

Eugene Kraiman

Industry, Inc., Cleveland. . . . **Robert H. Lee** (right) as director of engineering for Kurz & Root Company, Appleton, Wisconsin. . . . **William Kraus** (right) as general manager of Sippican Corporation's new western division (electronics welding equipment), Santa Ana, California. . . . **George Treida** (right), previously Columbia Enameling's plastics division manager, as product manager of the plastics division of Faultless Rubber Company, Ashland, Ohio; also, **Fred H. Weber** as product manager of the firm's industrial sales division and **Leo F. Woelfling** as product manager of its new foam division. . . . **Dr. Eugene Kraiman** (above), formerly with Nopco Chemical Company, and **Daniel J. Carlick** (above), formerly with Interchemical Corporation, as research group managers at Sun Chemical's Corporate Research Center, Carlstadt, New Jersey. . . . **John K. Levin** as vice-president in charge of manufacturing at Power Designs Inc., Westbury, New York, designers and manufacturers of power supplies. . . . **Robert T. Stringer,** previously with Firewel Company, Inc., as manager of oxygen products engineering at the aeronautical and instrument division of the Robertshaw-Fulton Controls Company, Anaheim, California. . . . **Stuart Parsons,** previously with Litton Systems, Inc., as general manager and member of the board of directors of Remanco, Inc.,

William M. Schmidt

George Treida

Robert H. Lee

William P. Kraus

Santa Monica, California, manufacturers of dynamic radar simulators and microwave test equipment. . . . **Carl L. Brockman** as director of engineering for Gemco, Inc. (missile and aircraft equipment), subsidiary of Hupp Corporation, Los Angeles. . . . **Frank Goeghegan,** formerly senior vice-president of Fletcher Richards, Calkins and Holden, as member of the plans board of Frank Gianninoto & Associates, Inc. . . . **Dr. John G. Grayne** as manager of the data systems department of the Marquardt Corporation's electronics division, Pomona, California. . . . **Julius T. Tou,** formerly of Purdue University, as professor of electrical engineering, Northwestern University, Evanston, Illinois. . . . **Glenn Hutt,** previously with the Ferro Corporation, as president of the Bettinger Corporation, Milford, Massachusetts, a supplier of ceramic coatings for metal. . . . **John F. Morten,** formerly with Daystrom, Inc., as executive vice-president and director of Van Dyck Associates, Inc., Westport, Connecticut.

RESIGNED: **Virgil Exner** as vice-president and director of styling of the Chrysler Corporation. **Elwood P. Engel,** formerly chief stylist of advanced and international styling at Ford Motor Company, has been appointed to succeed Exner.

CITED: **Paul MacAlister** and **Flolydia Etting,** of Paul MacAlister Associates, Chicago, by the Industrial Designers Institute, for outstanding service and promotion of the organization's ideals.

AWARDED: To **John Vise,** of Mason-Vise Design, Los Angeles, an award for design in the *Journal of Commercial Art's* Annual Review of Advertising Art.

DELIVERED: The 1961 Design Oration by **Sir Herbert Read** on November 27th at the Royal Society of Arts, London.

ELECTED: **William M. Schmidt** (above) as chairman of the Detroit Chapter of the Industrial Designers Institute.

Company News

RETAINED: **F. Eugene Smith Associates,** Bath, Ohio, to do display and exhibitions for the Goodyear Tire and Rubber Company. . . . **William M. Schmidt Associates, Inc.,** Harper Woods, Michigan, by Vinyl Products, division of Ford Motor Company. . . . **Charles Butler Associates,** New York and London, by British Aircraft Corporation, to design interiors for their new twin jet BAC One-Eleven, by United Press International and by General Kinetics. . . . **Scherr & McDermott Inc.,** Akron, Ohio, and New York, by Diebold Inc., Canton, Ohio, and by Anchor Industries, Inc., Cleveland, Ohio. . . . **Palma-Knapp, Inc.,** River Forest, Illinois, to develop visual design elements of electronic data processing and storage equipment for the Magnavox Company. . . . **Lawrence H. Wilson Associates,** Detroit, as packaging and point-of-purchase designers by Faygo Beverage Company.

ESTABLISHED: **Hisata, Ishimaru, Montgomery & Marsh,** consulting design firm at 200 Green Street, San Francisco, by Tom Hisata, Philip Ishimaru and Robert W. Montgomery (formerly with General Motors Styling), and John F. Marsh (formerly with Sundberg-Ferar) . . . by **Martin Golombek,** his own design firm at 187 Clinton Place, Hackensack, New Jersey. . . . **Service Engineering Associates,** a consulting firm specializing in "housekeeping programming," (the planning of building maintenance facilities), at 932 Ashby Street, N. W., Atlanta, Georgia . . . by **Robert W. Hain,** formerly with Westinghouse Electric Corporation, his own design firm at 77 Clavert Avenue, Metuchen, New Jersey.

GOING PLACES: **Creative Concepts,** a graphic and exhibition design company, to 510 Madison Avenue, New York.

CITED: **Itek Laboratories; Wasco Products Department, American Cyanamid Company;** and **Polaroid Corporation** by the Institute of Contemporary Art for their corporate design programs.

ANNOUNCED: by C. & E. Layton, Limited, London, the rules and conditions for the **Layton Annual Awards,** Great Britain's advertising art competition. This year's entries may be color gravure as well as letterpress. Judging will be held in the spring of 1962.

INSTITUTED: by John Arnold, at Stanford University, Palo Alto, California, **a new five-year industrial design program,** leading to a B.S. in engineering and an M.A. in design . . . at Columbia University's School of Architecture, New York, **two new postgraduate programs,** providing specialized training in the design of medical or education facilities.

CLIPS AND QUOTES

"In America the only authentic arts we so far have, with a few exceptions, are those that have risen from the bottom, our jazz, movies, musical comedy, popular (so-called) literature, such as *Huckleberry Finn*, and even the technological arts of television, advertising, and the industrial arts, architecture and machine making."
Karl Shapiro in *Poetry*.

"The organization in this country that employs most Ph. D.'s today is not Harvard or Yale or Michigan. It is du Pont."
Dr. Bernard Berelson in *"Graduate Education in the United States," a report.*

". . . It is obvious to all that the righteousness of research is no longer confined to the academic world. Business respects the magic name fully as much . . . Corporations and public bodies carry on paperwork called research and help sustain the prestige to which the activity has risen. Research may be simply a search through documents; it may be tabulating answers to questionnaires; it may be interviewing strangers and combining their replies; it may be mailing out three different styles of flyers and meditating on the reason why one 'drew' better than the rest."
Jacques Barzun in *Harper's*.

"The claims which decorative objects make on us seem urgent but somehow alien and untransmuted. As we weigh these claims, the differences between the designer and the artist are more apparent, and chief among them seems to be precisely this matter of the direction in which the whole effect is to be resolved. The designer must necessarily hand over what he has invoked to the hazards of contingency at the very moment the artist will want to transform it into a statement of meaning. Because the designer wishes to affect our lives more directly, he speaks *for* our experiences only remotely, if at all. Art illuminates our experience without asking us to become something other than what we are. Sooner or later the designer must of necessity include *us* in his design, for the motive of all design is to change our lives. In this sense, art makes no designs on us. Design, even the most prosaic, always aspires to an ideal, whereas art addresses itself to actuality.
Hilton Kramer in *Arts*.

"For years the most persistent complaint about the American people was that they were apathetic. Let the lament cease. The apathy is no more. The prime fact about the American temper today is that the people are exploding out of indifference. They no longer have to be pushed or prodded into an awareness of needs and dangers. The national preoccupation with tailfins and large tv screens has given way to a sense of national and personal peril. Exit easy drift; enter apprehension."
Norman Cousins in *Saturday Review*.

"In a film made for IBM Charles Eames describes artists as people who are never bored. They are constantly building stores of information from the world around them, which information they store in active memory banks. When confronted with a specific need, they call on these banks, run through the information, sort it out and relate it to the problem at hand. In a sense, the whole world around the artist is his *source*, his sorting and relating powers are his *sorcery*, and the one isn't much good without the other."
Sister Mary Corita in *The Irregular Bulletin*.

FROSTWOOD

. . . made from Pelaspan®

An exciting new dimension of *texture* is captured in *Frostwood** molded articles produced by injection molding Pelaspan expandable polystyrene beads. *Frostwood* molded articles have a uniquely swirled surface texture reminiscent of rich, fine wood grain. The appearance is compelling . . . its feel is friendly. And because the wood grain pattern never repeats itself exactly, every article becomes an original. For full details on the technique for producing *Frostwood* molded articles, drop us a line in Midland. Write Plastics Sales Department 1701BR12. *TRADEMARK

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

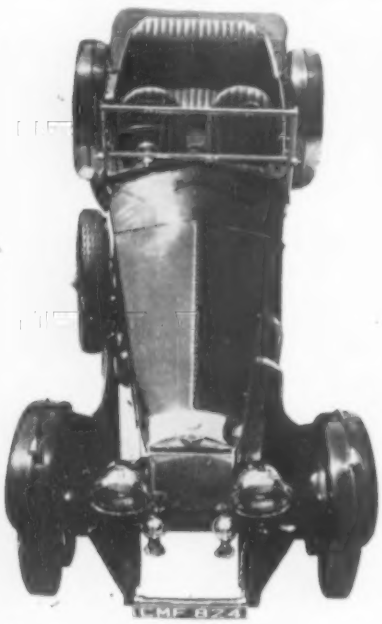
REVIEW: BOOKS

Automotive love letter

The Treasury of the Automobile. *By Ralph S. Stein. Golden Press and The Ridge Press, New York.* 248 *pages.* 72 *color illustrations;* 180 *black and white photos.* $15.00.

"This book is for anyone who has ever owned, driven or yearned for a sublime automobile," boasts the dust jacket for this beautifully illustrated automotive love letter. But you can't please everyone all the time, and if some sublime car lovers are bewitched, other may find its beauty a little overripe. Thomas H. Burnside's color photos of vintage sporting machines from the collection of Briggs S. Cunningham are stunning, but they have the disturbing, artificially brilliant color and careful arrangement of food pages from the *Ladies Home Journal.*

Ralph Stein, automobile editor of *This Week,* has written an entertaining text which covers the 200-year history of



Six cylinder, 100 mph Invicta.

the motor car from the fire chariots of the 18th century and the early internal combustion engines to the first "real cars" (with gas engines). He devotes one nostalgic chapter to electric cars and steamers, "two lovely dinosaurs en route to oblivion on evolution's dead-end street." But for many, his most rewarding chapter will be the one devoted to grand marques — the Rolls, the Bugatti, the Alfa, Dusenberg, Mercer, Jaguar, and Mercedes — the aristocrats of automotive history. Stein also describes the latter day Grand Prix racers and the newer sports cars — the Maserati, the Corvette, the Austin Healey, and MG. He concludes with a side swipe at Detroit, and some speculations on what we will be driving in the future.—*A.F.*

Exhibition International

Exhibitions. *By Klaus Franck. Frederick A. Praeger, New York. Verdag Gerd Hatje, Stuttgart.* 252 *pages. Illustrated. Text in English and German.* $17.50

Reviewed by Henry Gardiner

This international survey of exhibitions of the last 10 years opens with a section on typical problems of exhibition design, but the major portion is devoted to individual exhibitions—from the Triennale of 1951 to the Brussels Fair and the American Exposition in Moscow. It is well organized and handsomely designed, and its wealth of pictures provides real visual enjoyment.

At times, unfortunately, it is not quite clear to whom this book is addressed. The introductory section, except for the comments on structural systems, is too simple to be of much help to a working designer; and such remarks as those about graphic display and lettering are dangerous if taken literally by someone who is not a designer, because they establish too rigid rules in attempting to define principles. But the coverage of particular exhibitions (130 are represented, the work of nearly 200 designers from 16 countries) offers the designer inspiration and food for thought. For example, it is startling how many different solutions have been worked out for that perennial problem, the demountable, re-usable display system. No fewer than 20 are shown, with good detail drawings for each. And the international nature of the selection makes it possible to compare the work of such diverse men as Max Bill in Switzerland, the Castiglioni brothers in Italy, Arnold Bode in Germany, Nurmesniemi and Sarpaneva in Finland and Girard in the U. S.

HENRY GARDINER is design supervisor at the Museum of Natural History in New York. He directed the design for the museum's new Hall of Man (ID, May, 1961).

This collection also demonstrates that a widespread competence has been achieved in industrial and trade exhibition design. We see example after example of clean, light structures, excellent and varied lighting, dramatically displayed objects and effective use of graphics.

Certainly a highly professional standard of exhibition design has now been achieved, but the ultimate objective — the creation of an idea or emotional experience which delivers to the visitor a strong, conscious impact — is seldom reached. Klaus Frank addresses himself to this problem consistently, beginning the short text on each exhibition with a mention of the aim and approach of both the exhibitor and the designer. It then remains for the reader to evaluate, within the limitations of the illustrations, just how well each designer works out his concepts.

Swamproot and Snake Oil

One for a Man, Two for a Horse. *By Gerald Carson, Doubleday & Company, New York.* 128 *pages. Illustrated.* $6.50.

For the designer whose interest in the current avalanche of Thonet rockers, Tiffany lamps, and Pluto Water posters has not yet flagged, this pictorial history of patent medicine will be a pleasure. The 200-odd color and black-and-white engravings make a good history of commercial medical art from 1860 to 1900, the height of the patent medicine boom.

Included, with engravings of the original packaging and advertising, are the not-so-well-known stories behind such legendary cures as Lydia E. Pinkham's Vegetable Compound, the Kickapoo Indian Medicine, Nuxated Iron, the Electric Belt ("a common sense treatment for weak men"), and Pe-Ru-Na. And, lest we laugh too readily at the gullibility of our grandparents, *One for a Man* concludes with an account of the recent Hadacol promotion. —*A.F.*

Trenchant Commentary

Boy, Girl, Boy, Girl. *By Jules Feiffer, Random House, N. Y. Illustrated.* $2.95 *hard bound;* $1.50 *paper bound.*

Cartoonist Feiffer's latest collection shows his talent for trenchant social commentary (see ID editorial, November).

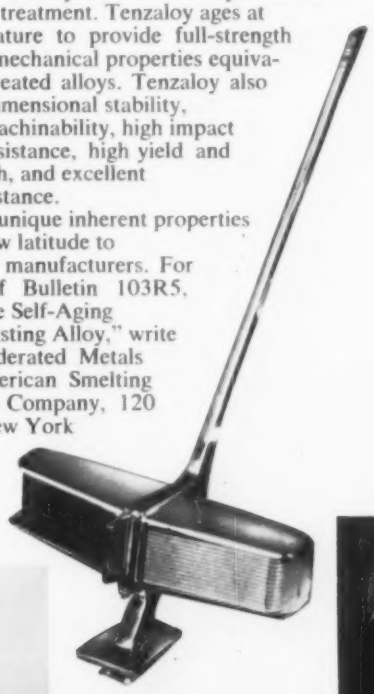
SPECIFY TENZALOY FOR:

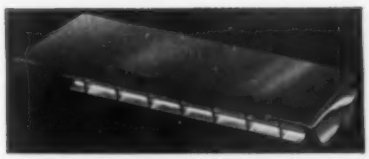
BRILLIANT FINISH AND SHARP DETAIL IN HIGH STRENGTH CASTINGS

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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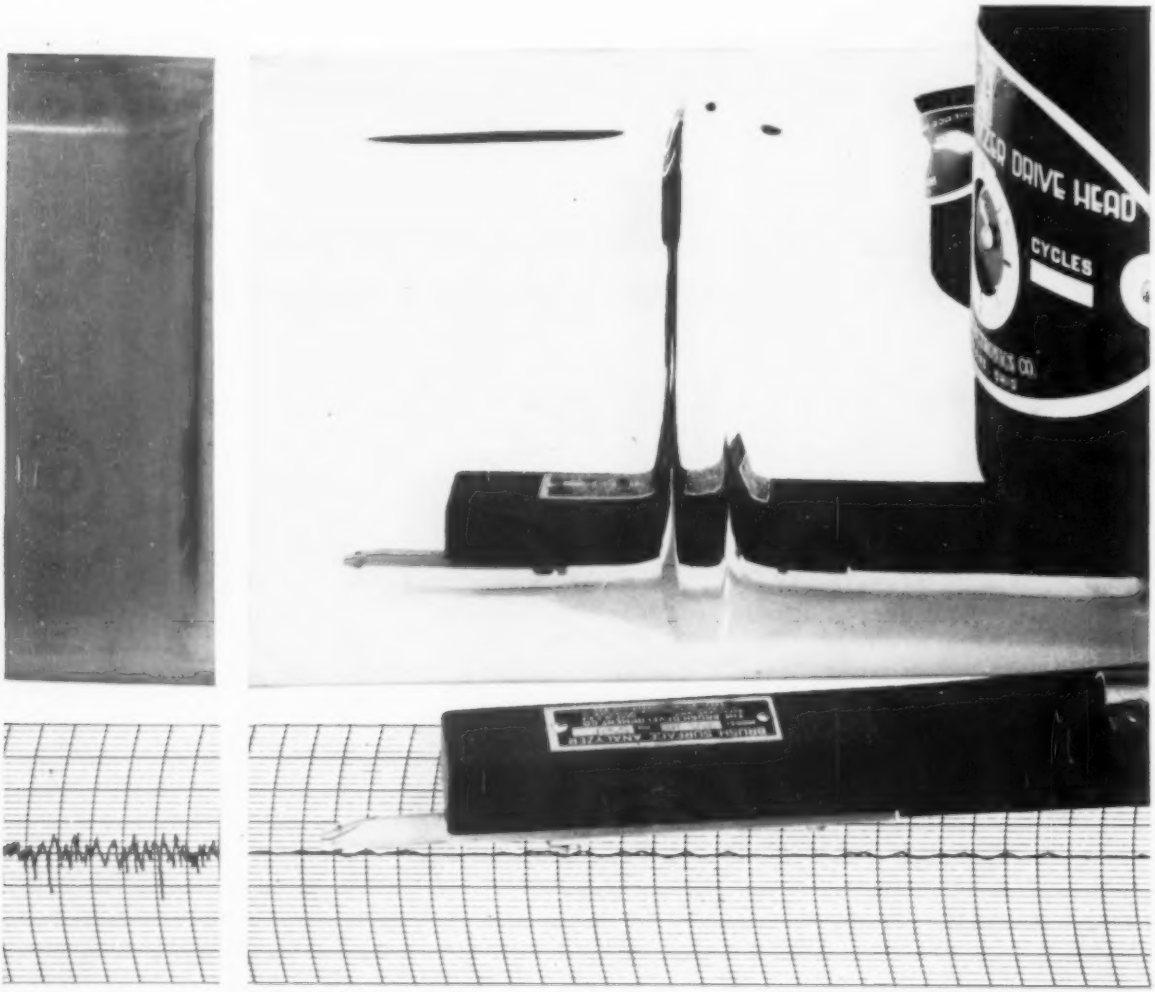

BEFORE: **Unplated steel section** shows surface variations averaging 40 micro-inches

AFTER: **Same steel section** plated with 2 mils of leveling Nickel and 0.01 mils of chrome shows an average variation from level reading of no more than 5 to 6 micro-inches

How leveling Nickel reduces costly finishing steps . . . saves production dollars

This steel section was plated with a layer of fully bright leveling Nickel. Rough surfaces were evened out – the need for polishing and buffing, before and after plating, was virtually eliminated.

Employed on a wide variety of basis metals—steel, zinc, brass, magnesium, copper – leveling Nickel coats and smoothes surface imperfections . . . reduces, in many cases eliminates, expensive polishing and buffing steps.

But economy isn't all you get with leveling Nickel. These Nickel baths . . . providing full brightness with leveling qualities . . . produce a brilliant mirror-smooth surface for that final blue-white flash of chrome. They offer remarkable resistance to nicks and scratches . . . protect basis metals against corrosion.

Other leveling Nickel baths, plated semi-bright rather than fully bright, are usually coated with bright Nickel before chrome plating. The resultant Double-Layer Nickel coating assures high brightness and lasting beauty . . . with increased corrosion protection.

Consider the advantages of versatile leveling Nickel baths for your products. For more information on Nickel plating, send for *The Contribution of Nickel and Chromium to the Durability of Decorative Plating.*

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Today, designers and manufacturers of furniture specify urethane upholstery foamed with Du Pont "Freon". Why urethane? Because it has twice the tear strength and wearability of commonly used cushioning materials. Why "Freon"? Because "Freon" blowing agents give controlled density to foam—make it softer, more luxurious.
Use of "Freon" and Du Pont "Hylene" isocyanates allows you to select precise densities for different purposes: high-density foams for heavy loads; lighter, less costly densities for lighter loads. This technique of density control, plus urethane's resistance to shrinkage, oils, greases and alcohols, is why you should consider urethanes foamed with "Freon" in your design.
FREON®
blowing agents
DUPONT

This is the Alcoa Industrial Design Award trophy. It was presented to Walter Landor and Associates in recognition of "notable achievements in design incorporating imaginative and effective use of aluminum." A distinguished jury . . . Greta Daniel, William T. Hurley, Joseph Carreiro, Theodore S. Jones and Otto Storch . . . picked Landor's work from the Alcoa collection of industrial design.

Designing enthusiasm into a product

"WE FIND IT POSSIBLE to design enthusiasm into products, packages and the total image of our clients," says Walter Landor. "This built-in enthusiasm then transmits itself to salesmen, dealers and, most important . . . the consumer."

The success of this point of view is enthusiastically attested by such Walter Landor and Associates clients as Kellogg, General Foods, Philip Morris, Lever Brothers, Kimberly-Clark, Standard Oil of California and a long list of smaller ones like Kaar Engineering Corporation, whose Han-D-Phone transceiver won the coveted Alcoa Industrial Design Award.

The sales success of this consumer-oriented attitude has taken Landor from the simple life of a one-man shop in 1940 to the lofty heights of one of the world's leading design firms today. His imaginative offices are on Pier 5, San Francisco, overlooking (and almost in) the famous Bay. His and his associates' weekly travel itinerary looks like a patchwork quilt on the map. It is *not* true that Landor keeps the airlines solvent singlehandedly . . . just almost.

Clients crowd the airlines, too, to reach Landor's unique quarters and seek his sound advice. Landor believes that products to make people happy must be designed by happy designers, and a happier group would be hard to find. First, they're in San Francisco. Then, the offices . . . 10,000 sq ft of floor space with enough north light for an army of designers. There's a museum of design, a library, a modelmaking shop, a laboratory supermarket, a kitchen, even a music room. The happy employee can fish off the office sundeck if he likes, or glance out the window at the giant States Lines ships styled by his firm.

Best of all, there's the Landor philosophy and working method. Briefly, while the consumer is king, the designer is boss. "There is no substitute," Landor says, "for the 'hunches' of creative people truly sensitive to consumer needs and market situations." While his firm was one of the first to have its own research affiliate, Landor has always made sure that the designer's creative intuition is aided . . . not dictated . . . by research findings. Design-oriented, the Landor approach to research is to study consumer response throughout the design process, not just before and after. Landor also works with independent consumer research organizations. In addition to observing and evaluating consumer response, Landor assimilates engineering and production consideration, oversees modelmaking, and presents the final pretested recommendations. It pays off.

When the designer is enthusiastic about his work, the client enthusiastic about the results, consumer enthusiasm preproved, it is inevitable that the product itself will find an enthusiastic market.

Sales Manager Frank Genochio of Kaar Engineering, makers of the Han-D-Phone, says: "The Landor organization beefed up our sales. They gave us a visual appeal we're proud of. You can sense it in the attitude of our salesmen and distributors, and the market has responded remarkably. Getting Landor to design our new Han-D-Phone is the most important thing we've done in six years."

Enthusiastic Han-D-Phone is a two-way hand-held radio for citizens' band communication. It is used widely in industrial, marine and emergency applications. Landor believes the design is "handsome, of lean construction, unselfconscious . . . gives you a feeling that the electronics inside must be valuable."

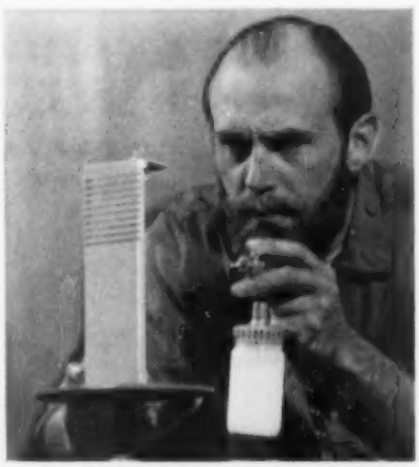
1. John Crane (right), Landor designer assigned responsibility for the Han-D-Phone, meets Kaar executives to discuss objectives. From left, facing camera: Frank Genochio, v.p. and sales manager; Arthur Osborn, production manager; Norman Helwig, v.p. and general manager; and backs to camera, Ben Wright, chief engineer; and Jack Armstrong, shop foreman. They settled upon circuitry and electronic components, establishing size and general configuration. Osborn holds container made to indicate needs. The case must be light, strong and durable as possible; easily fabricated and assembled with Kaar's existing facilities. Landor would decide ultimate shape, placement and design of switches, finishes and colors, graphics, choice of materials.

Han-D-Phone electronics were to be higher quality than any on the market. Design must say quality, wear price tag proudly. Genochio recently said, "The success of the Han-D-Phone has been due to Crane's ability to work with our engineers and design to the limitations of our shop. The practicality of his designs enabled us to hold down costs and score quick sales success."

2. Landor meets with key staff members to plan research and design for the Han-D-Phone. On a balcony adjoining his office overlooking San Francisco Bay are, from the left, Dave Bowman, Rodney McKnew, Donald Short, Francis Mair, Nicholas Newbeck and Landor. Cross-fertilization of ideas of creative personnel and researchers is standard procedure. Informal conferences were held often, included people not working directly on Han-D-Phone project. Landor feels San Francisco atmosphere helps attract the sort of designer he prefers—"generalists, well-rounded specialists in many fields of design."

3. After market research by a Landor affiliate, the Institute for Design Analysis, work on the Han-D-Phone proceeds to the drawing board. Landor reviews preliminary concepts with Crane and Tsugio Kubota, another designer.

Landor sees a need for two kinds of designers: "...those who are determined to be avant-garde, to do things that have never been done in a new, far-ahead way. And those who have the talent and skill to do that, but are willing to temper the end result to the immediate market. We have both. A blend of the two attitudes produces concepts far enough ahead to excite the consumer and close enough to his habit and response patterns for him to feel safe in buying it."



4. Design solutions having been reached, the next step is comprehensive models for client and market reaction. Here Pete Stevens, the master craftsman who runs Landor's extensive model shop, paints faceplate for the mock-up.

Enjoying the California sun on the balcony of Landor's office, a spectrum of the firm's work ranges from sophisticated electronic gear to a can for a Japanese beer designed "to look Occidental to an Oriental and Oriental to an Occidental."

Walter Landor's approach to industrial design is as much attuned to market and psychological considerations as it is to the functional and aesthetic: "It's up to us to keep ahead of the times; but we should not necessarily expect to put a design into production right after conception. If a design is too far ahead, we must warn the client to shelve the concept until the buyer or user is ready to accept the improved design.

"There is no such thing as an ultimate design concept. Design is a continually fluid situation."

Consumer taste levels have risen sharply in recent years to challenge the designer's resourcefulness, according to Landor.

"It has become the designer's job to probe more deeply into the consumer's needs at both the functional and the emotional levels.

"If you have an item that performs well, is easy to handle and maintain, looks handsome today, and, if it is satisfactory from a sales standpoint, simply to give it a new look, without improvement, is not enough. One has to ask: Is this truly what the consumer needs, or are there needs that have not come to the surface? People may not be asking for the improvements we recognize in these latent needs, but we may, as a result of 'creative hunches' plus judgment, tell what the next design step should be.

"It is far simpler to arrive at a design solution which satisfies us aesthetically and emotionally than to evolve a solution which is relatively satisfying to us personally yet truly communicative to a mass audience. However, that is our responsibility."

Apparently, Walter Landor and Associates is meeting that responsibility . . . enthusiastically.

5. Crane goes back to Kaar with the first models. Discusses production techniques with Osborn, Helwig, Armstrong.

6. Aluminum is selected for chassis, body and faceplate, rating the nod over other materials for its strength-to-weight ratio, formability and resistance to corrosion. Samples of several sheet alloys are obtained from the local Alcoa distributor and tested with rubber dies on Kaar's brake-forming equipment.

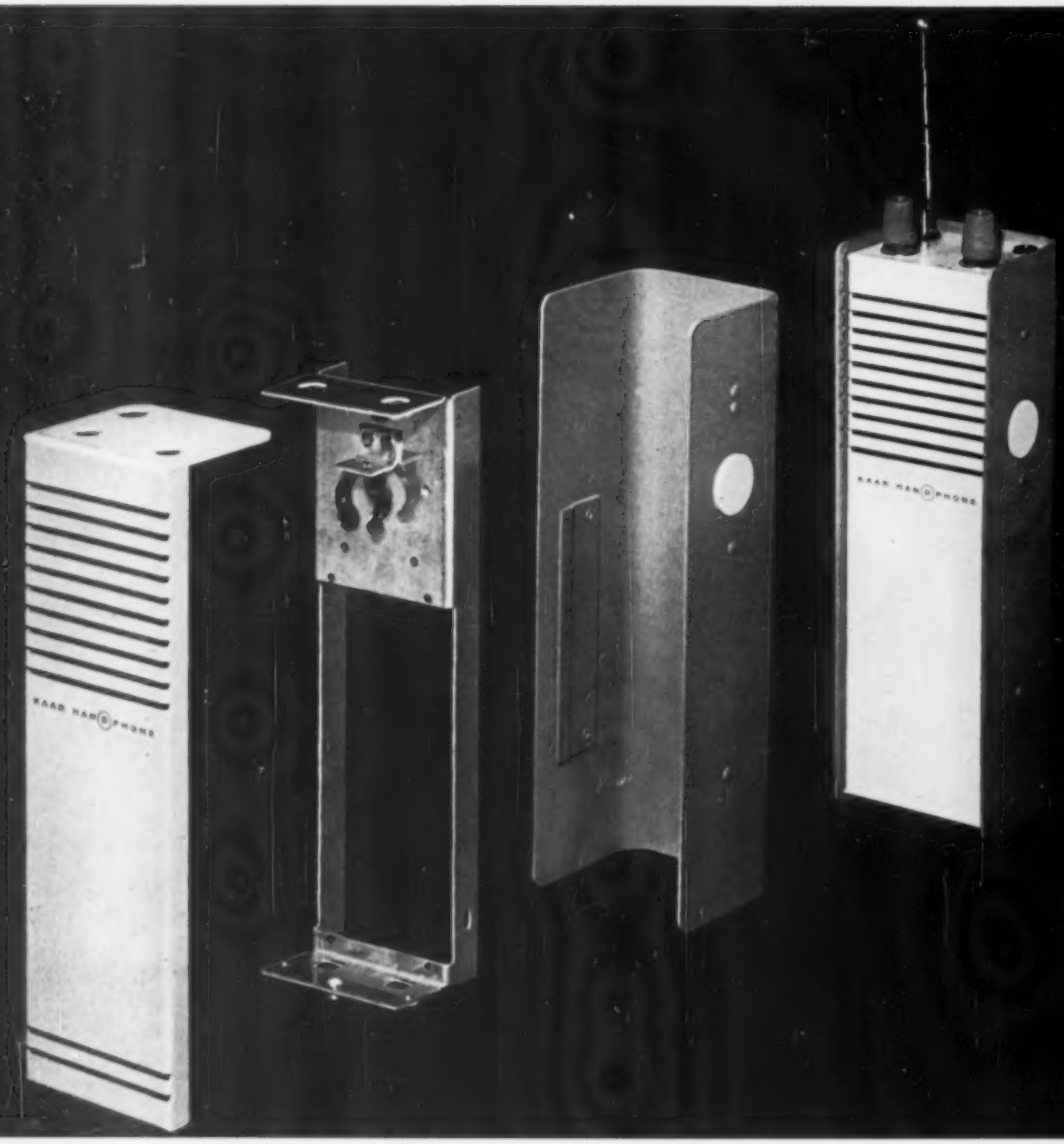
7. Production details agreed upon, Crane and Landor discuss colors and graphics for the prototypes.

8. Landor and Charles H. Bowen, executive vice president and treasurer of Kaar, admire pilot models. But the total design is not considered final until . . .

9. Pilot models receive thorough testing in field applications and with dealers. Here H. W. Ziegler, erection foreman for Yuba Consolidated Industries, talks to one of his men half a mile away. (Insignia on aluminum safety hat was designed by Landor as part of corporate image program for Yuba.) In tests like this, researchers established convenience of shape, size and placement of buttons, "feel" of textures and tensions. Transmit button is readily depressed by left index finger, leaving right hand free for writing or steering a boat. But unit works as well in right hand with thumb on button.

Aluminum is the designer's metal

Alcoa is the designer's ally



When Walter Landor and Associates designed the Han-D-Phone, they established these objectives: (1) light weight combined with strength; (2) compactness and simplicity of operation; (3) an appearance of quality, rugged durability and super-efficiency.

Alcoa® Aluminum provided the obvious functional answer, and its nonmagnetic properties offered a bonus of higher transmitting efficiency than is possible with other materials.

Sheet aluminum was selected for the entire case because it could be readily fabricated with Kaar's existing production equipment and easily assembled. The interlocking positive-negative design of the case produced a structural strength of over 500 times its own weight. Alcoa Aluminum also offered the ideal base for the two tones of gray epoxy paint with which the case is finished.

When the industrial designer approaches your product, he has an invaluable ally in Alcoa Aluminum and the technical resources Alcoa offers. No metal can be formed, joined, fabricated and finished by so many methods. No other metal matches its ratio of strength to weight. In addition, only Alcoa offers you such authoritative counsel on applications of aluminum with every pound you buy. This assistance is offered without obligation to you, your staff designers or the independent industrial designer you retain. All that's required is a call to your local Alcoa sales office or a letter to: Aluminum Company of America, 841-M Alcoa Bldg., Pittsburgh 19, Pa.

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

MARPROOF FINISHES THAT FOIL STAINING TOO ...M&T TEXTURED AND SMOOTH SPRAY-ON VINYLS

Beauty...distinctiveness...color...you get all of these visual qualities with the new spray-on vinyl finishes from M&T.

But that's only half the story. These coatings give your product a lasting coat of "armor" that withstands just about all the rough service users can give it. The finish absorbs impact without chipping, doesn't fade, won't stain despite constant handling.

With this *sprayable* vinyl coating you can cover even the most complex parts (impracticable with laminated vinyl finishes). It produces a rich-looking texture or satin-smooth finish on plain surfaces ... or reproduces the design of patterned metal.

Designers and producers of appliances will find M&T coatings ideally suited to their products. Not just for decorative texture and eye-appeal, but for long-term *durability*. There is hardly a finish that offers so much resistance to service hazards such as food acids, household chemicals, detergents, alcohol and water. Write for more information.

M&T COATINGS & FINISHES

METAL & THERMIT CORPORATION
General Offices: Rahway, New Jersey
In Canada: M&T Products of Canada Ltd., Hamilton, Ont.

Ability to create superior hardware starts with superior design service

Smart styling and sound engineering are essential to superior-quality decorative and functional hardware. That's why National Lock Company with its complete, creative design service is recognized as the leading hardware supplier to American industry.

National Lock design specialists will work with you in creating custom refrigerator, range, furniture and cabinet hardware, special-purpose screws and bolts. This service includes a wide selection of products . . . zinc die castings, stampings, cold headed products, plastics in both compression and injection molding.

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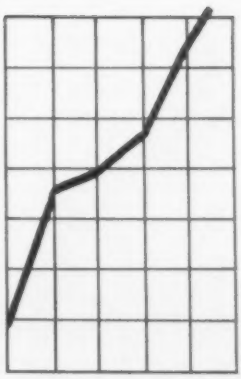
REACH ALL

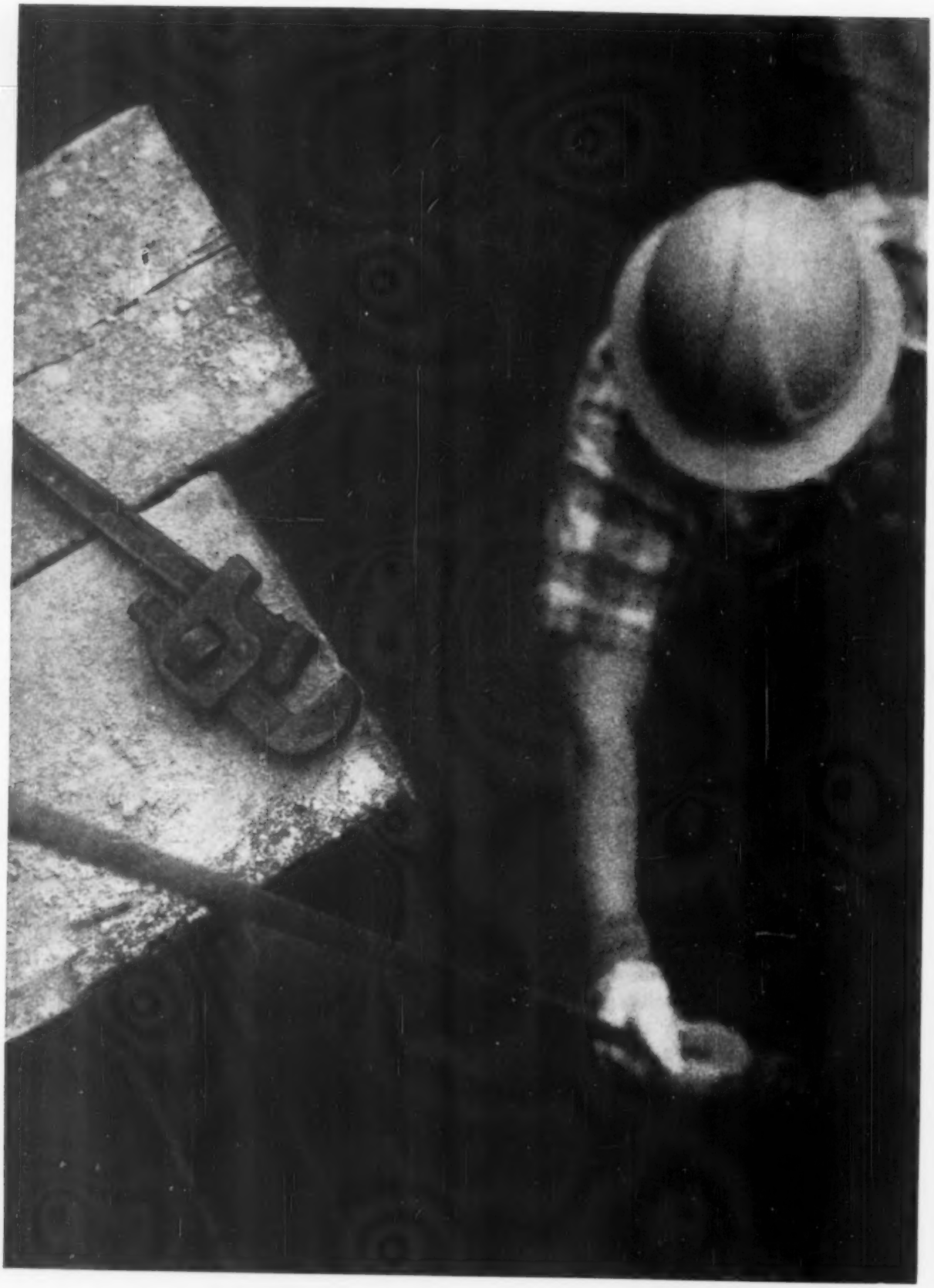
FIVE

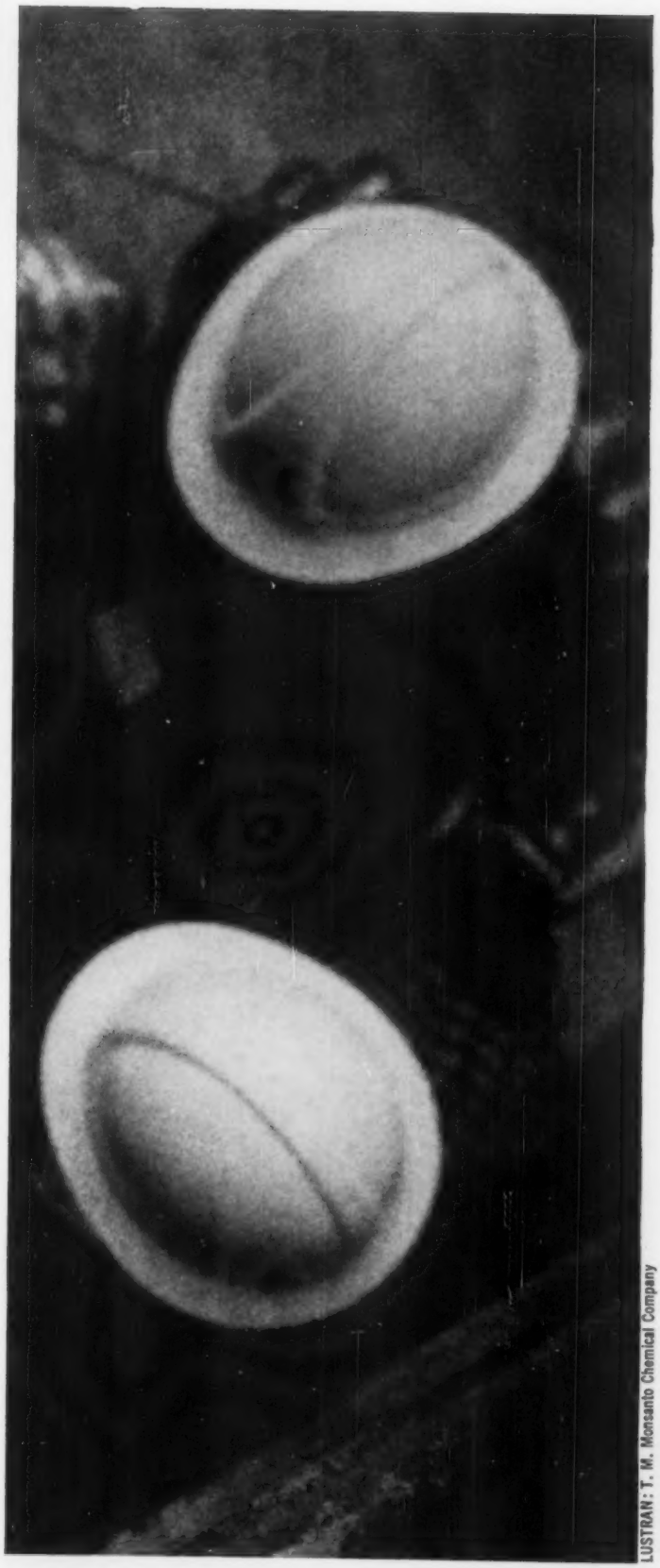
INTERIORS has circulation where it counts. Five groups* of professional designers create today's residential and contract interiors. They account for more than 60% of **INTERIORS'** readership. With 25,552 total net paid, **INTERIORS** has the largest circulation in its field. The five groups that comprise the huge Interiors Market are interior designers, architects, industrial designers, and staff designers for retail contract departments, hotels and motels, movies and television, and chain store and building managements. Only **INTERIORS** has dominant coverage of **ALL FIVE.** That is why **INTERIORS** is today's greatest sales outlet for this multi-billion dollar market.

Interiors



***THE FIVE ARE:** **1.** Interior designers. **2.** Retail store contract departments. **3.** Architects. **4.** Industrial designers. **5.** Staff designers: hotels, motels, chain stores, institutions, movies and television.





LUSTRAN: T. M. Monsanto Chemical Company

THE SAFEST SAFETY HAT EVER DESIGNED IS MADE FROM NEW, TOUGH MONSANTO LUSTRAN

For the first time a safety hat has been injection molded to pass these Federal, A.S.A., and E.E.I. tests: impact (40-ft. lb.) . . . penetration (less than ⅜" with 16 oz. plumb bob dropped 10 ft.) . . . electrical (30,000 volts). Lustran makes this possible at no increase in manufacturing costs over presently-used materials.

This hat passes these tests because Lustran has a unique combination of superior toughness, rigidity and dielectric strength. One formulation gives 4 times the impact resistance of rubber-modified styrene and 10 times that of general purpose styrene. At zero degrees fahrenheit, a ⅛-inch thick, 24-inch square sheet withstands the shock of a 6-pound ball dropped 48 inches. At 20 degrees below zero, Lustran still maintains its strength and rigidity. Lustran also gives excellent gloss, abrasion and chemical resistance and comes in unlimited colors.

Priced for volume use, starting just pennies a pound above high impact styrene, Lustran is a unique molecular arrangement of styrene, acrylonitrile and butadiene. It has been successfully injection molded into parts weighing as much as 5 pounds and vacuum formed into deep-drawn parts weighing up to 11 pounds. If you are working on a design where the performance-cost balance is critical, write us describing your requirements—or send for Lustran Progress Report and complete test data to Monsanto Chemical Company Plastics Division, Department 1048, Springfield 2, Massachusetts. **MONSANTO** DESIGNER IN **PLASTICS**

Monsanto®

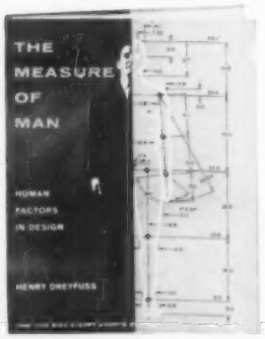
The Personal House *by Betty Alswang and Ambur Hiken.* Here is a book that will be welcomed by professionals and laymen alike; large (12" x 15½"), beautifully printed, with over 100 illustrations. It shows homes of people in the arts who live in art colonies near New York City. The seventeen houses are shown in exhibition-size photographs and the text describes the owners and how their houses reflect their personal needs. Most of the houses are undistinguished from the outside — often, in fact, they are the typical uninspired builder houses found all over the country. It is what their owners have done with them that is fascinating. This book shows just what houses can be like when they are designed to satisfy the everyday living requirements of their owners without regard to fashion.

$13.50

BOOKS FOR DESIGNERS

Interiors Book of Restaurants *by William Wilson Atkin & Joan Adler.* A new book on restaurant design with an informative review of all aspects of management and design theories as a practical working basis for creative design. Also a portfolio of best restaurant designs of the past ten years.

$15.00



The Measure of Man *by Henry Dreyfuss.* A portfolio of anthropometric data collected by this famous designer's office. 16 diagrams of general and detail data in various situations; a 16-page booklet of explanations, checklist, and bibliography; and 2 life-size charts for mounting in the office or home.

$4.95

Interiors Book of Offices. How to get maximum utility and beauty for every size and type of office interior. Materials, finishes, furnishings, partitioning, and many other practical aspects of office design are dealt with and 300 illustrations give visual interpretations of their design use.

$12.50

Perspective *by Jay Doblin.* A simplified system for perspective drawing by the famous Director of the Institute of Design at Illinois University. How to draw 3-dimensionally with speed and accuracy while developing skill in freehand drawing. Used by most major design schools.

$6.50

Display *edited by George Nelson.* A collection of modern display techniques and systems by more than 125 leading designers. Layout, decor, item presentation for shops, museums, showrooms, exhibitions, etc. 312 illustrations.

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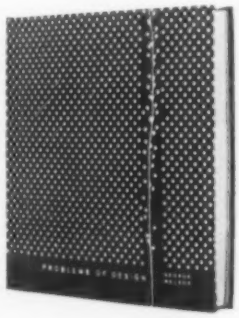

Problems of Design *by George Nelson.* An important guide for every designer and student aiming at the top of his profession. By one of this country's most versatile and accomplished designers in one of his most provocative moods.

$10.00

Whitney Library of Design
18 E. 50th Street, New York 22, N. Y.

The Personal House	$13.50	*Perspective*	$ 6.50
Interiors Book of Restaurants	15.00	*Display*	12.50
Interiors Book of Offices	12.50	*Problems of Design*	10.00
The Measure of Man	4.95	*Total*	$

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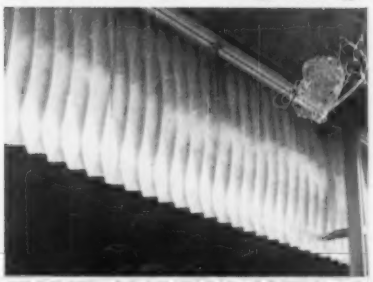
FASCIA PANELS OF BUTYRATE PLASTIC POINT NEW DIRECTIONS FOR DESIGNERS



Product designers in the market for new ideas should look at this shopping center with its fascia panels made from sheet of tough Tenite Butyrate plastic.

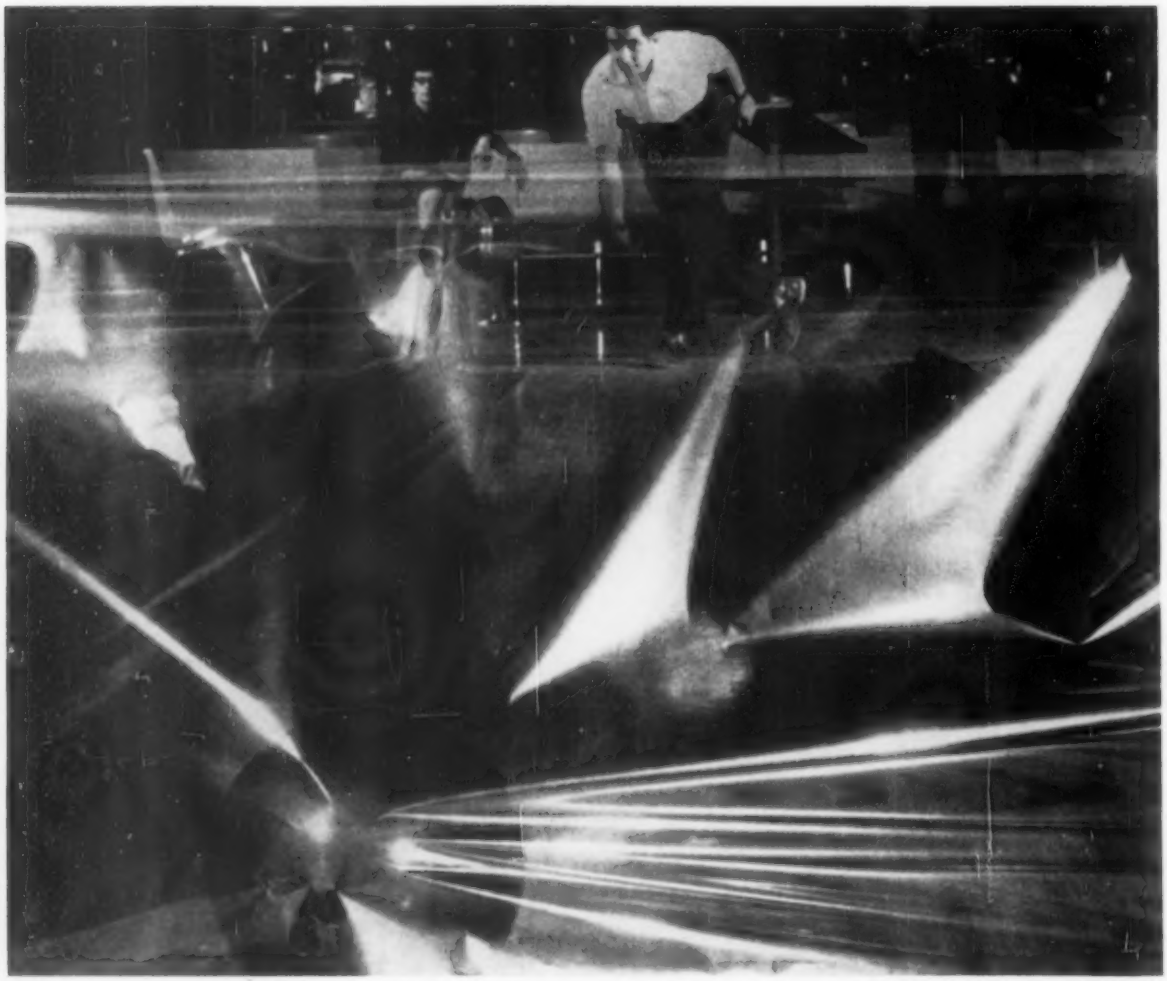
In special formulations for outdoor service, Tenite Butyrate withstands ultraviolet light and year-round weather. The brilliant whiteness and lustrous self-cleaning surface of these panels are integral features of the plastic and there to stay. Illumination heightens their effect at night.

The deep-drawn prism design shows how well sheet of Butyrate can be shaped by thermoforming. Each panel measures four feet square. (Others have been made six feet high by four across for a similar purpose.) But they are easy to handle during fabrication and installation, thanks to the light weight and impact resistance of Tenite Butyrate.

With its range of colors and formulations, Tenite Butyrate is adaptable to a wide variety of injection molded, blow molded, and extruded products—signs, street light globes, instrument and appliance housings, to mention just a few. For more information, write to EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

Fascia panels produced by Lyman Associates, Inc., Wolcott, Connecticut, for Colonial Plaza Shopping Center, using sheet extruded of Tenite Butyrate by Southern Plastics Company, Columbia, S. C.

Colonial Plaza Shopping Center, Waterbury, Conn.
Developers: Galesi Brothers, Paterson, N. J., and New York City.
Architect: William Mileto, Hamden, Conn.



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

For example, "Mylar"* polyester film gives many products extra resistance to chemicals and moisture . . . lengthens their life. Today, "Mylar", with its resistance to heat and cold, high tensile strength in thin gauges, is improving the performance of products as different as glazing film and tough, magnetic recording tape.

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

1. Motor size and weight are reduced with no decrease in horsepower when thin, light weight insulation of "Mylar" polyester film is used.

2. Wear-resistant book-jacket covers of "Mylar" keep books looking fresh and clean far longer . . . cut rebinding costs, increase service life.

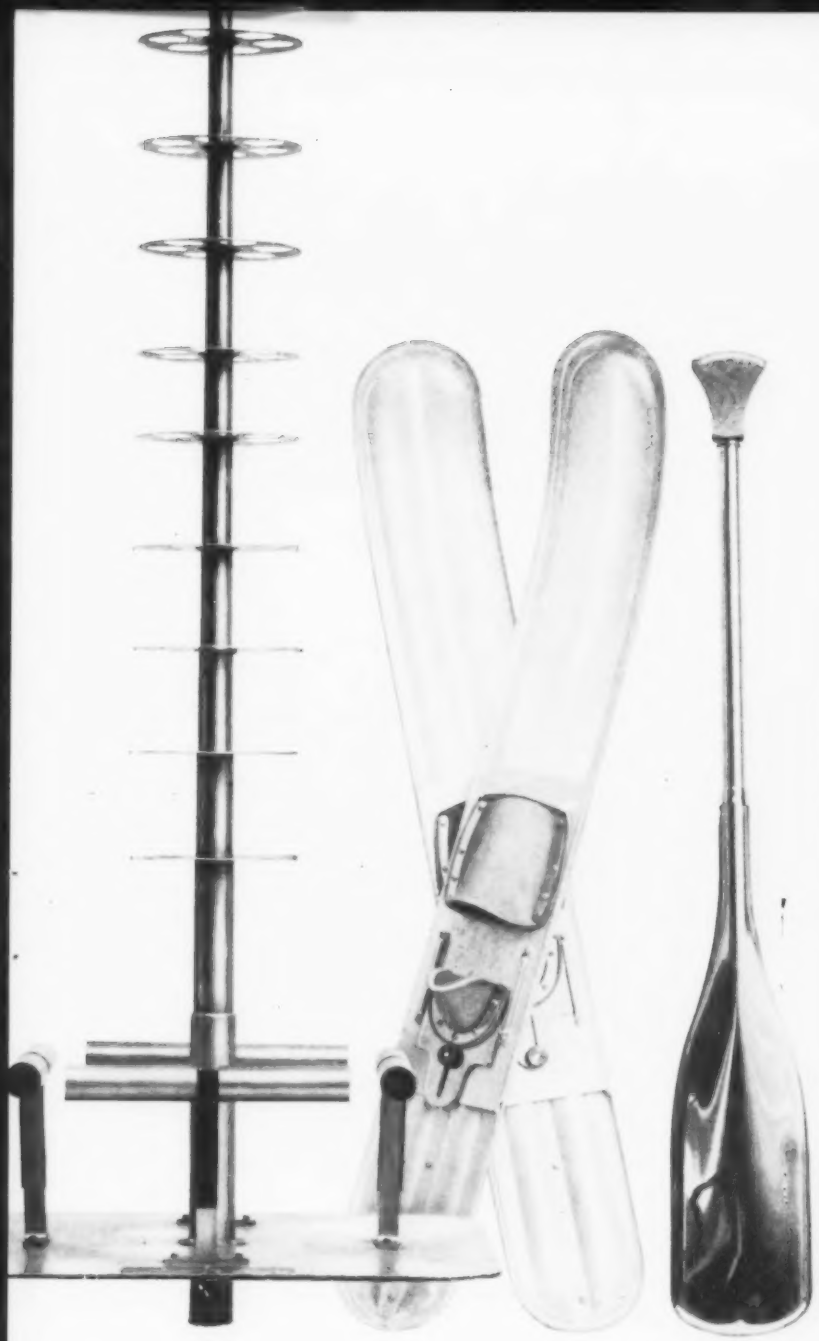
3. Abrasion- and dirt-resistant cartons laminated with "Mylar" cut costs by lasting far longer than ordinary cartons—can even be washed.

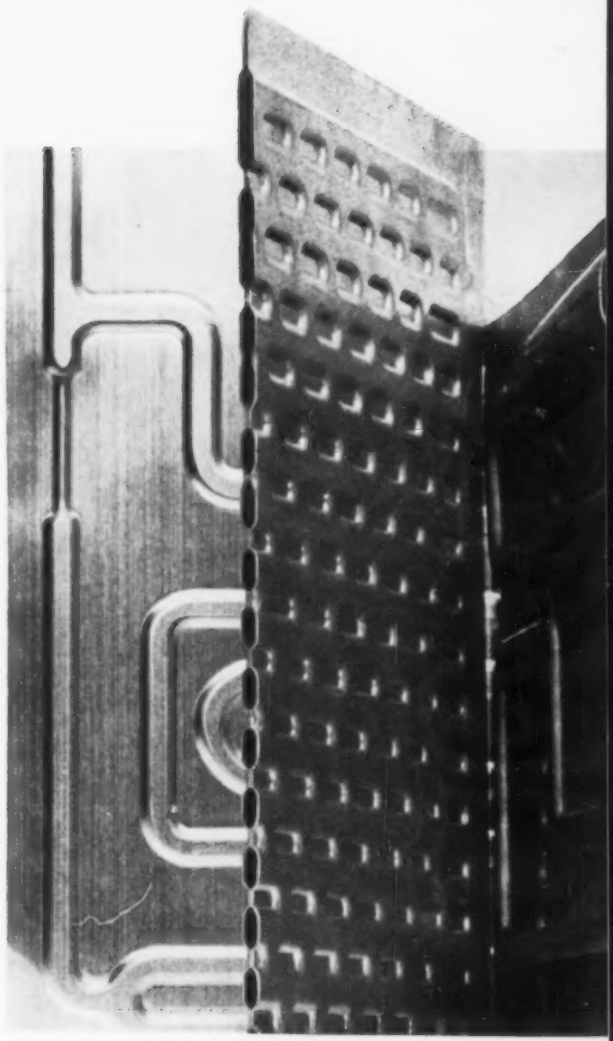
DU PONT

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

Better Things for Better Living . . . through Chemistry

DU PONT **MYLAR**® POLYESTER FILM





What's next?

Although Roll-Bond is still largely utilized in the heat exchanger field, creative engineers are gradually discovering that the Roll-Bond principle is ideal for many processes—especially where strength and lightness are vital factors. Now, Roll-Bond uses range from refrigerators to radar antennae, from water skis to boat paddles. What's next? We're never sure. Maybe you're the designer that will see the solution to one of your company's problems in Roll-Bond—where a product can be made better for less money—or dream up an entirely new creation. As you know, any continuous tubing pattern you can draw on paper can be made into a homogeneous sheet of aluminum or copper Roll-Bond. Intriguing?

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

Olin
METALS DIVISION

COMING NEXT MONTH

Metal-to-metal finishes

Designers can use a wide variety of traditional techniques, and a few new ones, to coat one metal with another. And they have a wide variety of reasons for doing so: from changing the appearance of the base metal, to changing what it will do and how. Next month's ID will discuss the range of metals which are commonly plated, the metals which are used for plating, and the advantages to be obtained in combining the characteristics of one metal with those of another.

The packaging specialists

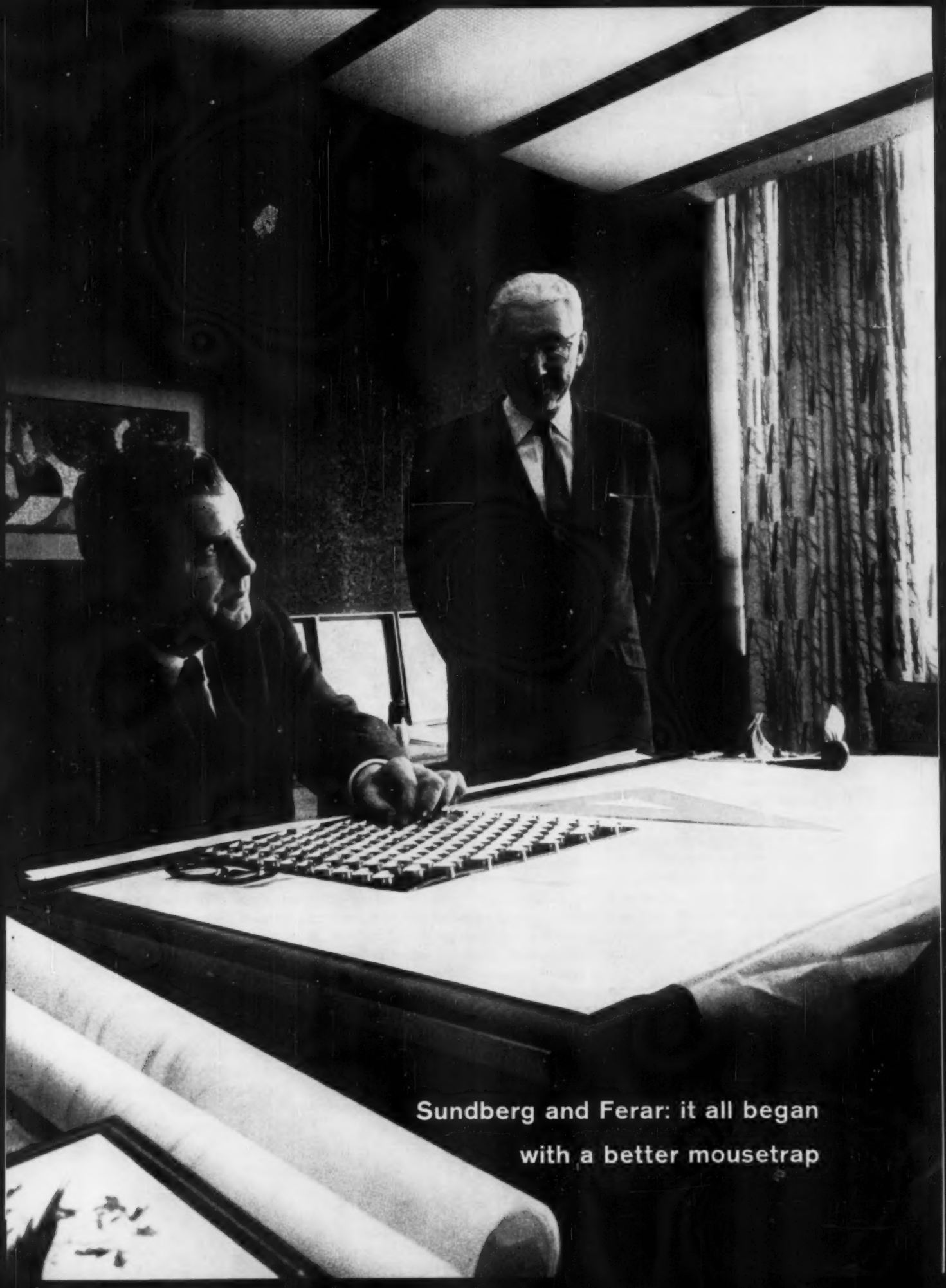
About what do specialized package consultants consult? About any problem for which someone will pay them—be it in mechanical engineering, machine design, chemistry, accounting, public health, or public relations. That they work on problems in such diverse areas indicates that manufacturers and suppliers have not found a unified system for solving packaging problems. Now, such firms as PRD in Paris and InPak Systems in New York are unifying many packaging skills to create a new kind of combination service: the packaging agency.

Exhibits with messages

An exhibition, says Herb Rosenthal, primary designer for Seattle's Century 21 Fair, is no longer just an unfolding display of things. It is one of our most important communications media. As such, it should be an "event", a dramatic interplay of people, goods, and ideas. In an article in next month's ID, Rosenthal discusses the conceptual and physical problems of delivering a message to a crowded, mobile audience—and concludes that the main problem may lie with designers who tend to be too much concerned with the subtleties of joining panels, too little concerned with the material on the panels' surface.

Design Review

A round-up of recent entries to the field of business machines and other mechanical and electronic office equipment.



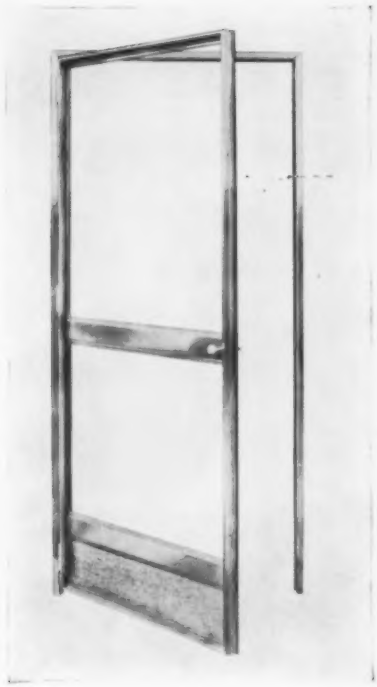
Sundberg and Ferar: it all began
with a better mousetrap

Sundberg and Ferar talk design

When Carl Sundberg and Montgomery Ferar were getting their design firm started during the depths of the depression, one of their first jobs was to build a better mousetrap. It had four holes, and they called it the "Mouseoleum." It sold well, and started them on their way. Today, Sundberg-Ferar is the largest appliance design firm in the United States—7 associates and 70 designers work in an ultramodern headquarters building near Detroit. Over the years, Sundberg and Ferar have never swerved from their premise that the American public has basic good taste. Give shoppers a choice between good and bad and they'll generally pick the better-designed product.

Carl Sundberg contributes a wide range of experience to the firm with a background of art schools and factory production lines. The spectrum of their abilities approaches the complete with Monte Ferar, MIT honor graduate and holder of two degrees in architecture. Since their early days, they have designed products as varied as the clip for an automatic pencil, 5-ton trucks, factories, homes and churches. Millions of consumers are buying and using Sundberg-Ferar-designed automobiles, automatic coffee makers, refrigerators, stoves, and perfume atomizers. Sundberg-Ferar designed the cabinet for UNIVAC, the Remington-Rand computer that predicted the outcome of the 1956 Presidential election. People type on Sundberg-Ferar-designed typewriters, dig holes with draglines they developed, guide boats and airplanes with their navigational equipment, enjoy coffee and soft drinks from Sundberg-Ferar-designed dispensers.

As designers of consumer products (including most of Sears Roebuck's appliance line), Sundberg-Ferar may be the target of criticism from a current school that decries "change for the sake of change." To this observation, Sundberg-Ferar has a response: "Newness is not vulgar, despite what some critics say. Honest newness—and the improvements that go with it—is what is needed. A product can be beneficial and honest to itself—and be



new at the same time. We've got to change and improve to stay alive. In this country it is far more dangerous to be too conservative in your design than to be too advanced," says Montgomery Ferar.

How advanced are Sundberg and Ferar? Consider Monte Ferar's views on the kitchens of tomorrow: "Kitchens have come a long way since the wood-burning stoves of Grandma's day. We've gone from the ornate, to the round, to the current architectural square look. Does design history repeat itself? Not in this case. The squared-off architectural look will be with us as long as we have kitchens. As space becomes more valuable, kitchens will become smaller and we'll have to design to use all the vertical space."

As for appliances, Sundberg predicts a trend to "portable built-ins" designed to be free-standing with a built-in look. Says Ferar: "More and more, Americans are becoming mobile. We want to design our appliances so they will look built-in no matter how many times they're moved."

Ferar also sees refrigerators that will be roomier inside but no larger outside. All major appliances will be matched. "We want women to choose their appliances the same way they now choose their silver," says Ferar.

How do materials fit into the Sundberg-Ferar concept of "newness"? Few materials are newer than today's steels, and no materials are as versatile, as functional and as long-accepted as steel. It's not surprising that Carl Sundberg and Monte Ferar use a lot of steel. "A designer must *know* material—what it is, what it will do," says Carl Sundberg. "He keeps up with new developments. Materials are his clay. He must have empathy with them." About 90 percent of the products Sundberg-Ferar designs use steel because it is usually the material that is functionally suited for the job. Like most designers, they have found steel the most economical, strongest, and most versatile of the materials they use. In an average year, some 500,000 tons of steel go into Sundberg-Ferar-designed products, a far, far cry from the early days of the better mousetrap. USS is a registered trademark.

Sundberg and Ferar talk design

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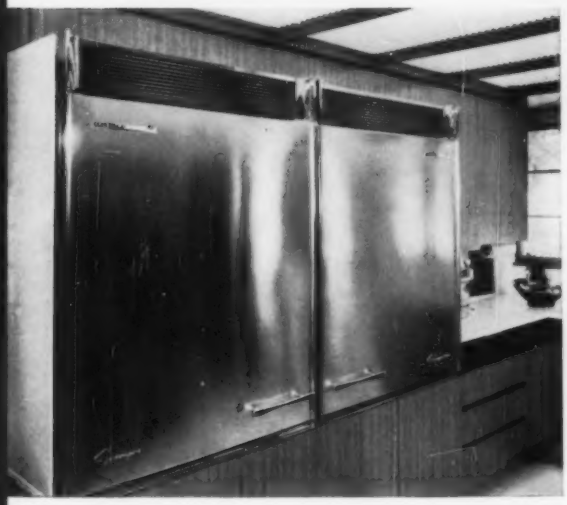

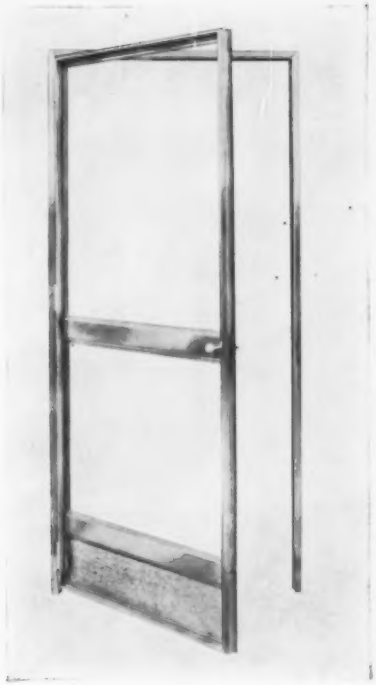

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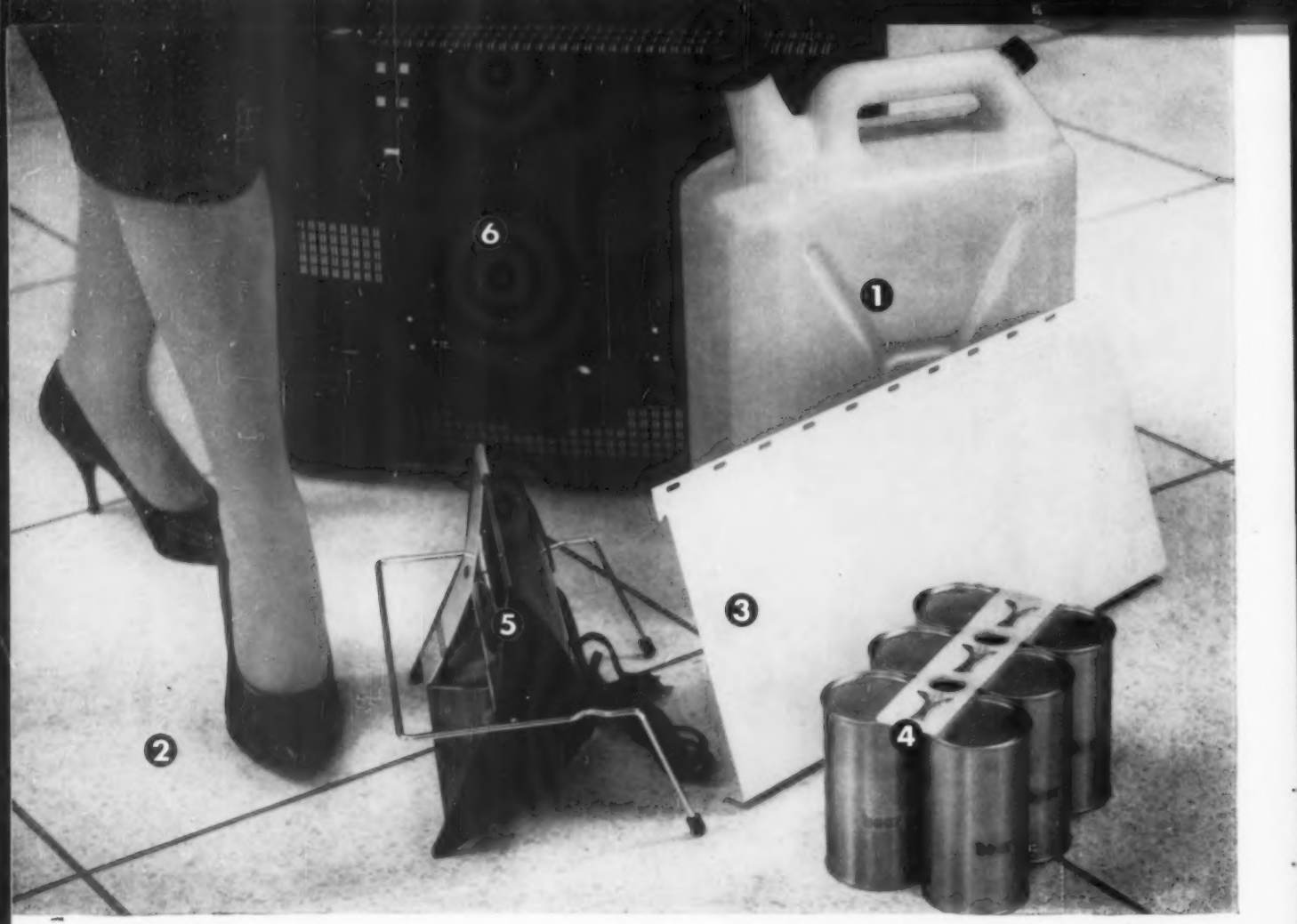
USS United States Steel



NEW DESIGN IDEAS IN PLASTICS

(Could one of them spark the solution to your problem?)

1 POLYETHYLENES—New lightweight container is ideal for a variety of liquids. Molded from BAKELITE high-density polyethylene, it is corrosion- and scuff-resistant. BAKELITE polyethylenes offer a broad range of properties: strength and sparkling clarity for film packaging, moisture- and grease-resistance for extrusion-coated packages, excellent insulating qualities for wire and cable, light weight for pipe.

2 EPOXIES—Epoxy terrazzo floors have more than twice the compressive strength of concrete terrazzo. Weight is cut 75% because ¼"-thick epoxy terrazzo equals performance of 1"-thick concrete-type. BAKELITE epoxies, among the strongest and hardest plastics known, are ideal for industrial coatings, adhesives, reinforced laminates (medium-to-long-run tools and dies).

3 VINYLS—Vinyl-based coatings on aluminum and steel are baked onto metal before forming. Provide excellent weather resistance with no cracking, chipping, or peeling. Offering high electrical resistance, formability, color and elastomeric qualities, BAKELITE vinyls can be easily fabricated into such products as swimming pool liners, extruded wire insulation, and as jacketing for conduits.

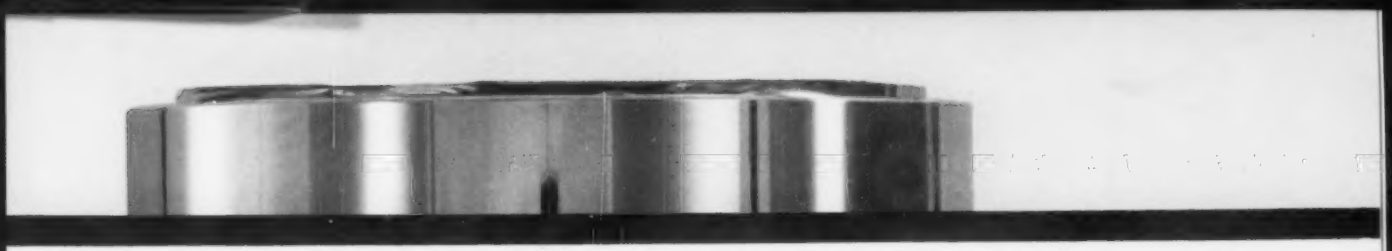
4 STYRENES—Beverage cans effortlessly snap on and off this handsome new 6-pack carrier made from BAKELITE medium-impact styrene. Styrenes offer the designer a wide range of impact strengths, brilliant colors, glowing finishes. Molded and extruded styrenes are ideal for toys, containers, housewares, refrigerator door liners, portable TV cabinets.

5 PHENOLICS—All-phenolic base housing for this newly designed sunlamp offers low heat conductivity, superior toughness. BAKELITE phenolics have high dimensional stability, very good machinability. Rich, glossy, smooth finishes. Ideal for all critical wet-dry conditions . . . and for bottle caps, chemical-resistant coatings, industrial or decorative laminates.

6 POLYPROPYLENES—High heat resistance plus light weight, toughness and excellent dielectric properties, make BAKELITE polypropylenes ideal for TV backs. Outstanding chemical-, fatigue-, and stress-cracking resistance make them well-suited for pipe, housewares, auto accessories, webbing for outdoor furniture and many other uses.

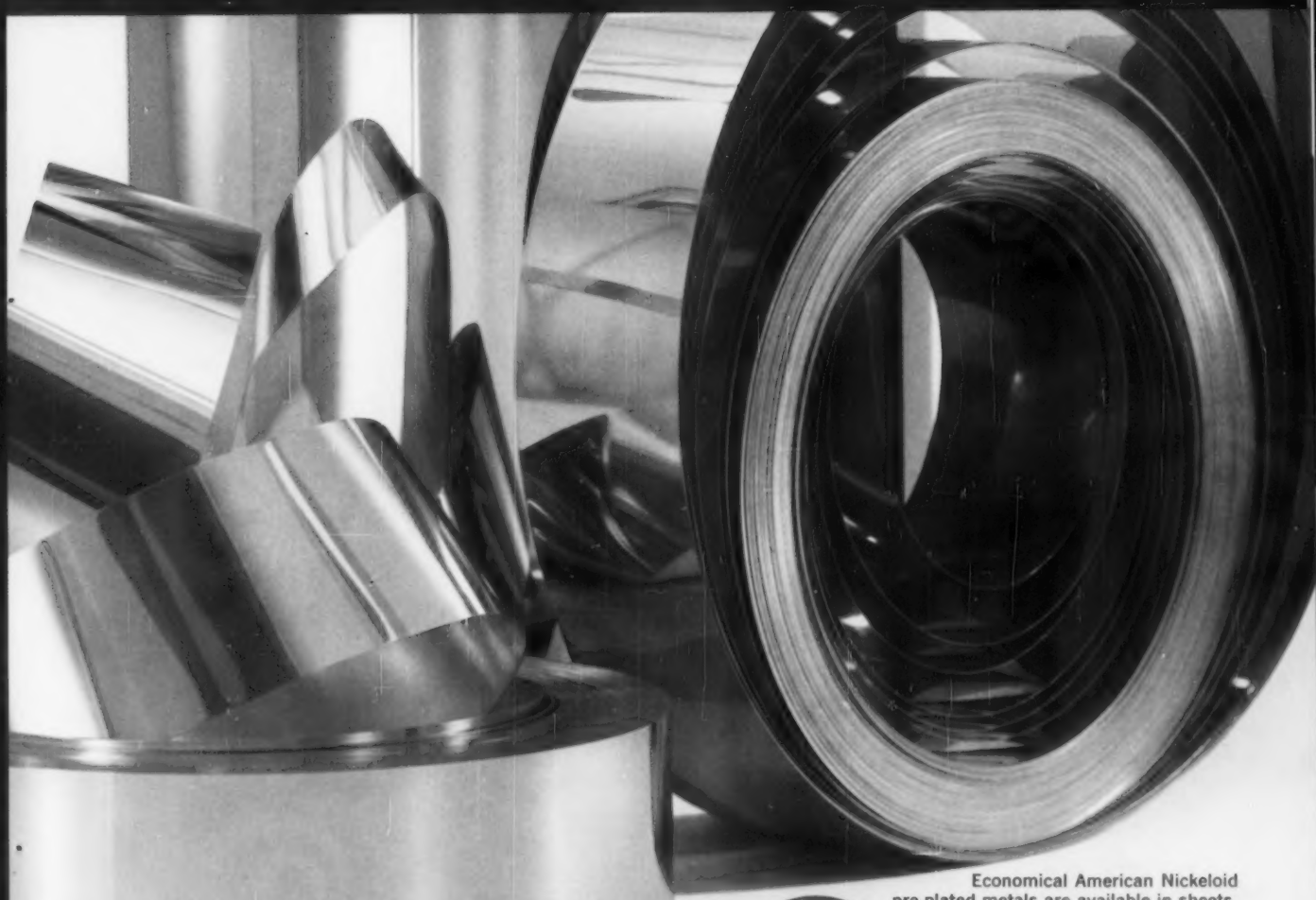
For information on application of these materials and processes to your products, write Dept. JW-79L, Union Carbide Plastics Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, New York. Be sure to ask for your copy of the "Materials and Data Guide" which describes in detail the full range of BAKELITE *Brand plastics.*

UNION CARBIDE **PLASTICS**



How to be Elegant though Thrifty

Finding it hard to say "Beauty" and "Economy" in the same breath? Then think in terms of American Nickeloid pre-plated metals! You'll open up a whole new world of product elegance . . . but leave costly cleaning, polishing, buffing, and plating far behind. For American Nickeloid is more than a METAL . . . it's a *method*, combining exciting cost savings with lustrous splendor!



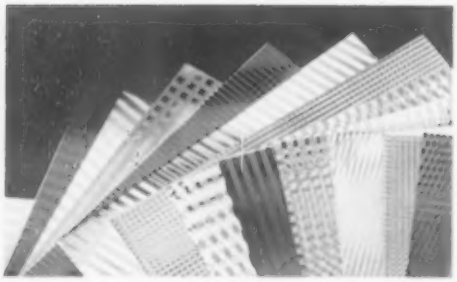
NICKELOID METALS
SINCE 1898

NM

Economical American Nickeloid pre-plated metals are available in sheets, strips, or coils, in bright and satin finish, with eye-catching platings of chromium, nickel, brass, or copper, backed by a sturdy base of steel, zinc, copper, brass, or aluminum. Easy to fabricate, too! For the full, engrossing story, turn the page.

JOURNEY *into the glowing* WORLD *of* *American Nickeloid* METALS!

AMERICAN NICKELOID Co.
PERU 72, ILLINOIS



JOURNEY INTO THE GLOWING WORLD of American Nickeloid PRE-PLATED METALS!

Available in Sheets, Strips, or Coils — Bright or Satin!

Most of American Nickeloid's pre-plated metals are available in three forms . . . sheets, strips, and coils . . . to insure the greatest possible flexibility in fabrication. You also have a choice of finishes . . . mirror-like bright, or soft-sheen satin.

LOWER UNIT COST!

Saves 3 Costly Production Steps!

Speeds Production from Metal to Shipping Carton!

A DESIGNER'S PARADISE

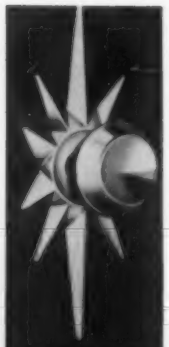
Hand your designer a set of American Nickeloid pre-plated metal samples, and watch his eyes light up in creative anticipation! American Nickeloid's in-built beauty provides the inspirational spark for irresistible product appeal!

Supplied in Dazzling Crimps, Patterns, Textures, Stripes!

Wonderful virtuosity is yours when you select from American Nickeloid's tantalizing assortment of rippling crimps, ingenious patterns, luxurious textures, and pleasant stripes . . . all built into the metal before fabrication!

EASY TO FABRICATE!

American Nickeloid's lustrous pre-plated metals are amazingly workable . . . they can be stamped, drawn, folded, welded, lithographed, silk screened, etched, seamed, punched, beaded, riveted . . . they fit right in with modern production procedures, moving directly from fabrication to assembly without passing through costly plating tanks, cleaning solutions, or polishing wheels!



BACKPLATE FOR DOOR HARDWARE

Mar-Not AND Bakekote PROTECTIVE COATINGS!

In cases of severe fabrication, American Nickeloid pre-plated metals are available with Mar-Not protective coating . . . which peels off like a banana skin after production. Also available, for brass and copper finishes, is the revolutionary Bakekote, which provides protection not only during fabrication but during actual product use.

The American Nickeloid line of Prefinished Metals includes

NICKEL STEEL	CHROME ALUMINUM
CHROME STEEL	BRASS STEEL
NICKEL ZINC	COPPER STEEL
CHROME ZINC	GOLD BOND STEEL
NICKEL BRASS	BRASS ZINC
CHROME BRASS	COPPER ZINC
NICKEL COPPER	POLISHED BRASS
CHROME COPPER	LAMINOL
NICKEL ALUMINUM	(Vinyl-metal laminates)

Available in all standard gauges and weights. Our engineering department will help you select the correct temper and gauge for your specifications.

Thousands of STRIKING APPLICATIONS!

Pre-plated American Nickeloid is the ideal finish for food servers, toasters, lighting and lamps, toys and novelties, displays, curtain rods, kitchen appliances and canister sets, stoves and heaters, and trim on washing machines, hardware, water heaters, clocks, desk accessories, giftwares, coffee makers, brushes . . . in fact, wherever decorative metal is sought!

"It's MORE Than a Metal —it's a METHOD!"

SEND TODAY for Descriptive Literature and METAL SAMPLES!

Whatever your product design requirements, chances are that there's an American Nickeloid pre-plated metal tailored to your needs. Write us today, describe the area of intended application, and we'll rush a complete file of comprehensive information in your direction. We'll also be happy to provide handsome metal samples . . . so you can see their beauty, feel their strength and quality!

AMERICAN NICKELOID Company

America's Pioneer Manufacturer of Prefinished Metals

MILLS at PERU, ILLINOIS, and WALNUTPORT, PENNSYLVANIA

PERU 72, ILLINOIS

INTRODUCTION TO A YEAR

"The present level of design," said a famous American designer last month to a meeting of his peers, "is not very high." That statement is hardly a shocker. Yet while it certainly is not false, as a truth it is half safe. To be sure, industrial design that could be considered both sound and elegant was not abundant in 1961. We confess that examining the hundreds of items submitted to the Annual Design Review — and searching through showrooms, shops, and periodicals for items that had not been submitted — was not an experience that constantly delighted the eye or gladdened the heart. But it is just as true that there is no discernible excess of excellence in the year's painting, poetry, tv programming, or architecture. For that matter, airline hostesses are no longer all charming, all pretty, all polite. These are inflationary times. Design in 1961 was about as good as most other aspects of our culture.

It was, for instance, as good as manufacturing, and in some cases it seemed to be far better. Two of our favorite products were scratched before they even got to market (bugs to be ironed out), and generally the year's output showed a lamentable affluence of defective merchandise, shoddy workmanship, slapdash assembly, inadequate joining, careless detailing. (Yes, we *know* that it's just a matter of learning to feed the proper data into electronic craftsmen; but in the meantime, can't we keep an old-fashioned man on hand to see that the parts at least meet in the right places?) Between the idea and the execution there is room for a lot of misadventure, and many products look as though the designer had been sold down the river by the production engineers.

Of course it is often just the other way around — a badly manufactured product resulting from a designer's failure to anticipate the process of making it. We confess to having been badly shaken by designers who were unable to tell us even what their product was made of ("some plastic"). Although they are not always able to control the development of the forms they conceive, designers are never absolved from an intense concern with it. The occasional absence of such concern was distressingly ironic in a year when the most popular cliché of the profession was "total design."

With a surge of seasonal good will, and with satisfaction, we welcome Detroit back to the Annual Design Review: for the first time since 1955 the selection includes a stock automobile. It may be significant that the car we are showing began life as a compact.

The next 86 pages are a collection of that part of the year's work that the editors regard as most worth showing; we have tried in the captions to say why. Some of the designs are superb; we hope they are all interesting. Our own attitude toward the material as a whole is something like that of W. H. Auden, who once prefaced a collection of his poems by saying that any poet's work fell into four classes:

> "First, the pure rubbish which he regrets ever having conceived; second — for him the most painful — the good ideas which his incompetence or impatience prevents from coming to much . . . third, the pieces he has nothing against except their lack of importance; these must inevitably form the bulk of any collection since, were he to limit it to the fourth class alone, to those poems for which he is honestly grateful, his volume would be too depressingly slim."

—The Editors

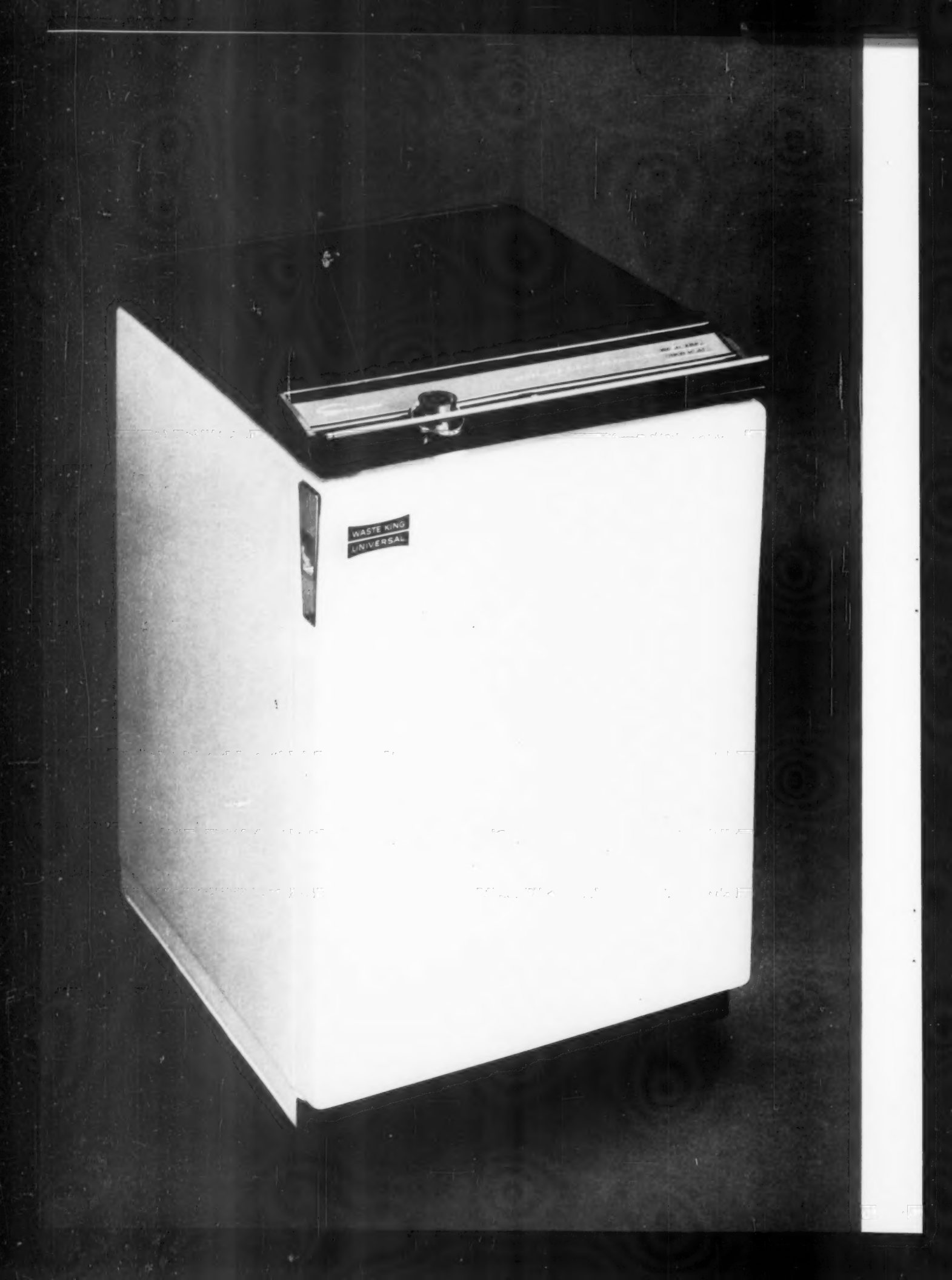
CONSUMER products with group and page number

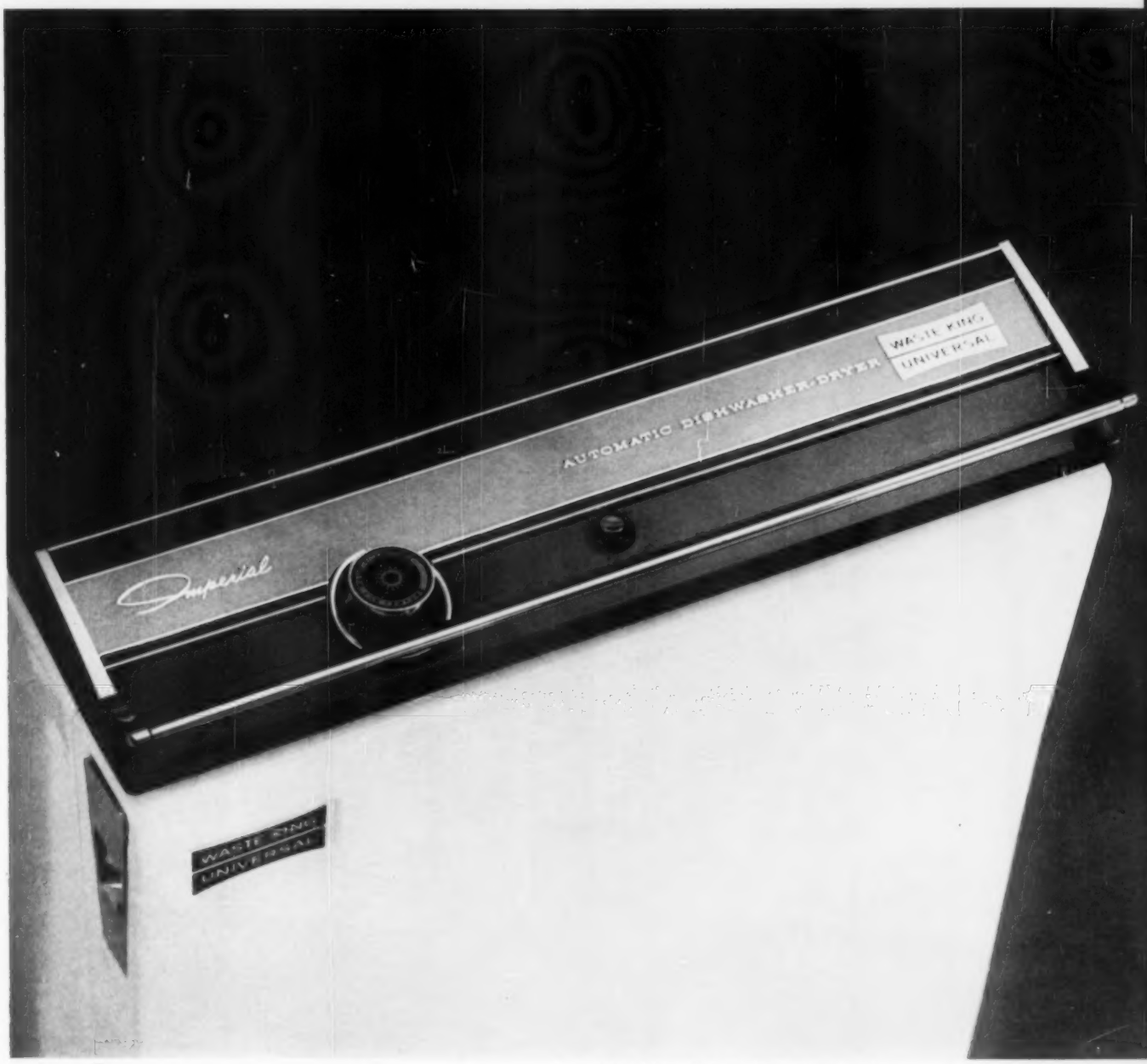
PACKAGES with group and page number

NON-CONSUMER products with group and page number

CONSUMER: Kitchen equipment reflects the growing pleasure in rich textures, decorative finishes, and finer details which became apparent in furniture design recently. It is not only evident in such appliances as the Waste King dishwasher and Montgomery Ward refrigerators, but in such kitchen addenda as paper dispensers and spice racks (27). The dogma that control panels must run the full length of appliances, which has given us a plethora of space fillers, is at last being challenged. We admire an oven (3) that refused to use extenders: it has just a square control box, and although the box and column might be better proportioned, represents a step in a more pleasant direction. In camera equipment there is increasing simplification for the photo taker, and increasing complexity for the man behind the projector. As for furniture, designers have, like the public at large, gone outdoors, where there is fresh air—and the designs show it.

Photographs at the beginning of each section by Maude Dorr


WASTE KING
UNIVERSAL

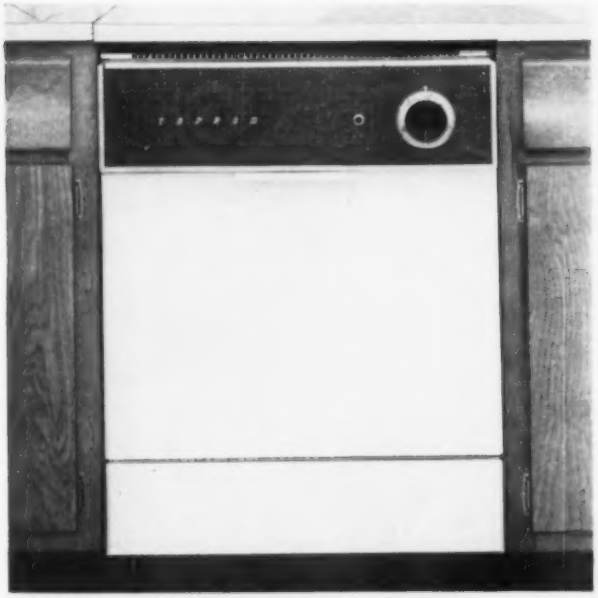


1—Portable dishwasher, Waste-King Universal

CONSUMER **Appliances**

1—Waste King Universal dishwasher is an elegant statement of notable simplicity. Black porcelain enamel top bends down to form control panel. Full-length handle evolves out of panel frame. Within, however, control knob and button are rather casually placed. Other portables boast they can be rolled into the living room; this is probably the only one that should be.
Designers: Emerson/Johnson/MacKay, Inc.

2—Refrigerators, Montgomery Ward
3—Electric range, Sunray Stove Company



4—Dishwasher, The Tappan Company

6—Disposer, American-Standard

5—Electric range, Montgomery Ward

CONSUMER **Appliances**

2—Montgomery Ward refrigerators share in the growing (judging by this year's entries) propensity towards decorated appliances by using textured aluminum on freezer compartments. For Ward, it is also a quick way to impart a family resemblance to appliances coming from various sources. Whatever the drawbacks of this technique, a good balance has been achieved between the metal, wood-grained vinyl, and porcelain enamel surfaces of the exteriors.
Designers: Montgomery Ward staff; F. W. Priess, manager; G. F. Mendenhall, F. J. Greb.

3—Sunray range's burner placement gives unimpeded access to three burners rather than usual two. Recessed top is stainless steel unit framed with extruded aluminum. Control tower placement — some distance (over 4 inches) from cooking surface to protect fingers and clear backsplash — mars an otherwise refined and luxurious range.
Designers: Vie Design Studios; Read Viemeister.

4—Tappan dishwasher has serene facade composed of judiciously placed graphics, start button, and dial. Vent grille contributes visual interest. Unusual single rack inside holds double layer of dishes.
Designers: Tappan staff.

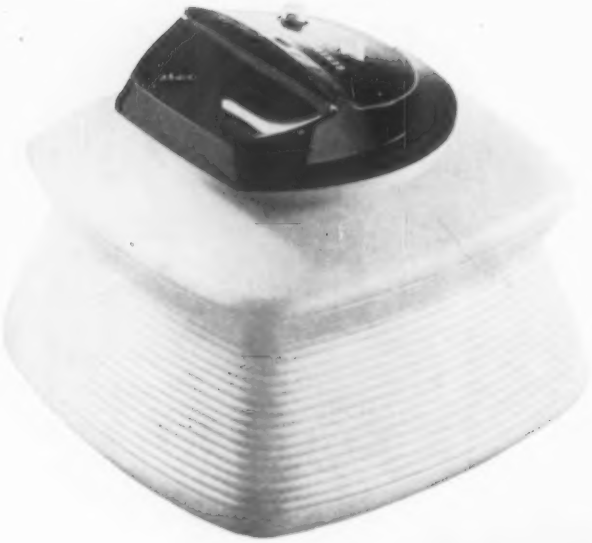
5—Montgomery Ward electric range isolates oven control from burner knobs with reassuringly accurate looking temperature indicator. Automatic on-off oven controls and timer are separately boxed and graphics kept to a minimum. It is not the most beautiful oven in the world, but it looks pleasant to use.
Designers: Montgomery Ward staff; F. W. Priess, manager; G. F. Mendenhall, G. Oka.

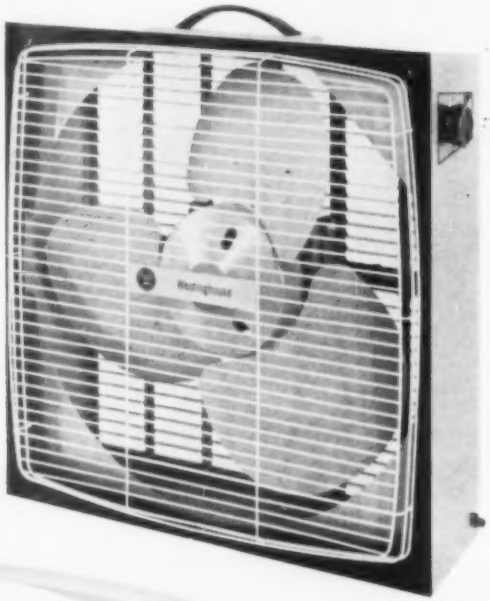
6—American-Standard disposer stresses quiet operation with rubber shock mounting extended over outer surface of inner cone, and fiberglas insulation. New bite system uses radiating lines of cutter teeth made of precision stainless steel castings. Shape is determined by injection-molding requirements of polypropylene housing, rather than natural form of inner components.
Designers: American-Standard staff; Thomas F. Spackman, project engineer.

7—Vaporizer, General Electric Corporation

8—Fan, Westinghouse Electric Corporation

9—Fan, Chemex Corporation





10—Air conditioner, Albion Div., McGraw-Edison Co.

12—Dehumidifier, Cory Corporation

11—Heater, Cory Corporation

CONSUMER **Atmosphere conditioners**

7—GE vaporizer, for children's respiratory diseases, was designed with safety in mind. Blow-molded linear polyethylene provides light weight, strength, and translucency (for quick check of water level). Shape discourages tipping over and eliminates need for handles. With a sound reason behind every decision, the designers have come up with a sturdy little container.
Designers: GE staff; Olie E. Haggstrom, manager, Robert J. Reading, Arthur M. Felske.

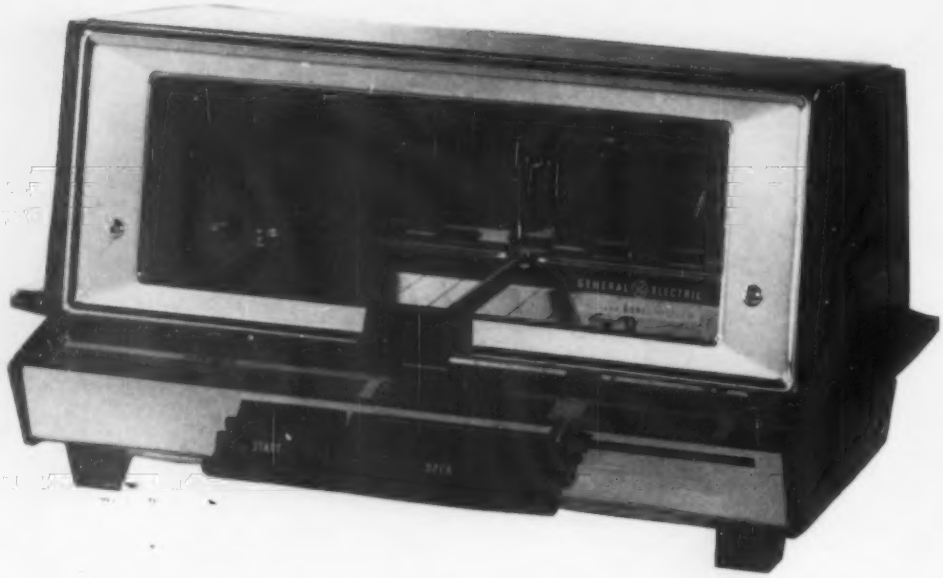
8—Westinghouse fan control symbols distinguish exhaust from intake. Body tapering doesn't last long enough to become objectionable.
Designers: Westinghouse staff; F. W. Perl, director, George H. Frost.

9—Chemex fan made to supplement air conditioner, uses five filter papers to clean air and jet it through opening in cowl. It is molded of Boltaron in two parts, yellow above, blue below. Fan sits on floor or table, and can be tilted.
Inventor: Dr. Peter Schlumbohm.

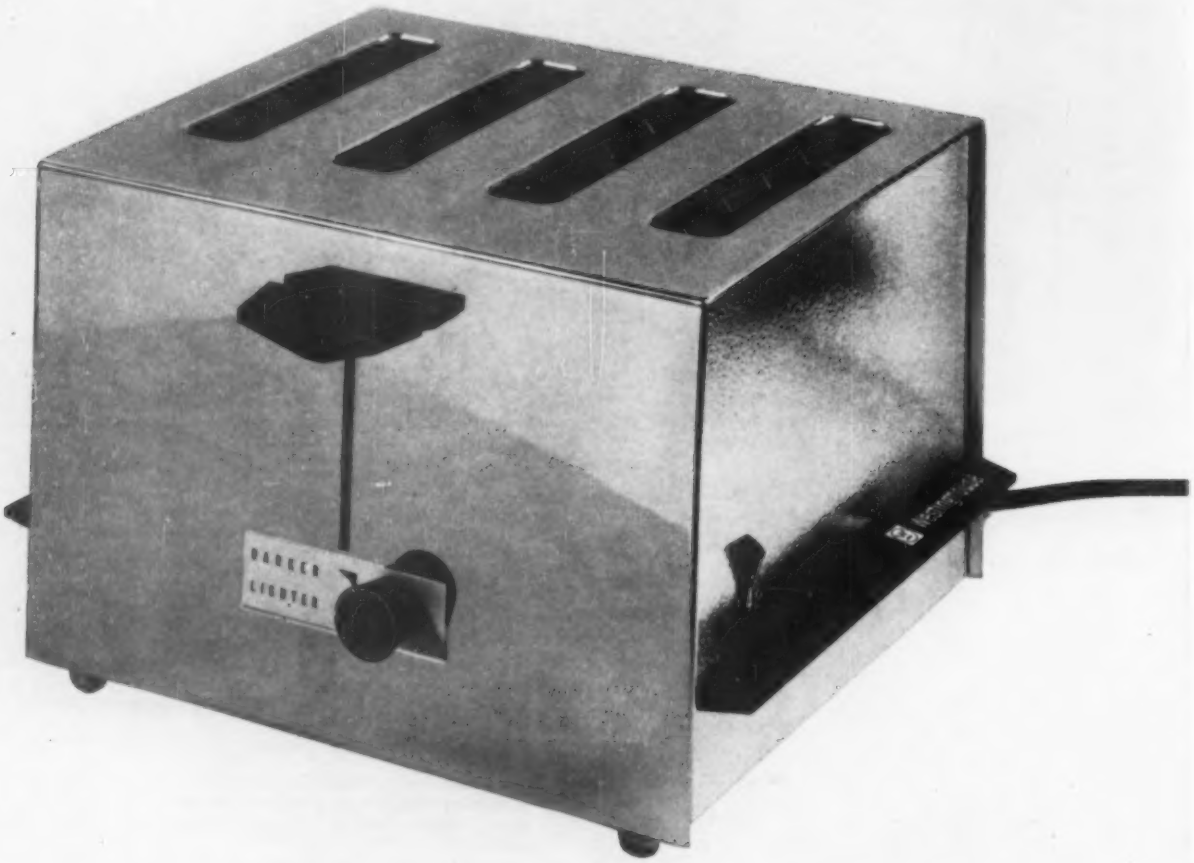
10—Albion air conditioner, a compact $10\frac{3}{4}$ by $14\frac{1}{2}$ inches, has Scotfoam filter impregnated with germicide which may be removed by pulling down magnetic-latched front, and cleaned by simply washing or vacuuming.
Designers: Albion Division staff; H. N. Minick, director.

11—Cory portable heater looks easy to lift and able to stand on its own two feet. Heating coils and ceramic connectors unwittingly make a pleasant pattern behind refined grille.
Designers: DeFano-Kallman Design, Inc.

12—Cory dehumidifier has door at lower left for removing collected water, but door knob casts doubt that it will really open. Pleasant grille is of expanded steel.
Designers: DeFano-Kallman Design, Inc.



13—Toaster and oven, General Electric Company
14—Toaster, Westinghouse Electric Corp.



15—Electric can opener, Cory Corporation

17—Drink mixer, The Iona Manufacturing Co.

18—Coffee maker, The West Bend Co.

16—Power unit with attachments, Casco Products Corp.

CONSUMER **Electric housewares**

13—GE toaster and oven is not just a handy gadget for toasting bread and muffins, it will also do some baking chores. It takes its new functions very seriously, as well it might for they lift it into a luxury price range. Open bar which lifts door and pushes toast rack forward in one operation is a nice detail.
Designers: GE staff; Olie E. Haggstrom, manager; Paul Rawson, Roger Funk.

14—Westinghouse toaster introduces sharp angles to a usually over shapely object. Wrapped top overhangs anodized aluminum end panels. Controls are clear and well placed.
Designers: Westinghouse staff; F. W. Perl, director, George H. Frost.

15—Cory can opener, housed in molded polystyrene, has handle that invites powerful hand movement. Brushed aluminum faceplate with unusually subdued graphics.
Designers: DeFano-Kallman Design, Inc.

16—Casco appliance center (power unit with mixer, blender, juicer, knife sharpener, and coffee grinder attachments) sprang up full grown in one year. The new blender shape is outstanding as is simplicity of the juicer; motor housing is not so successful. Unfortunately, execution is not up to design, and colors and finishes do not contribute to luxury look.
Designers: Raymond Loewy/William Snaith, Inc.

17—Iona drink mixer's chrome-plated wrap-around panel serves as nameplate as well as motor housing. Molded look is achieved not by plastic, as its curves might indicate, but by zinc die castings.
Designer: Gordon Florian.

18—West Bend coffee maker for 30 cups is perhaps more impressive for its beautiful finish—brushed stainless steel—than for its design details. Wire handles are more decorative than useful, and look it. But base, also very decorative, does imply solidity.
Designers: Painter, Teague & Petertil.

15—Trivet, International Consumer Products, Inc.

20—Cookware, International Consumer Products, Inc.

21—Cookware, Prizer-Ware

23—Tray, Sam Mann Designs

22—Soufflé and baking dishes, Heath Ceramics

CONSUMER **Housewares**

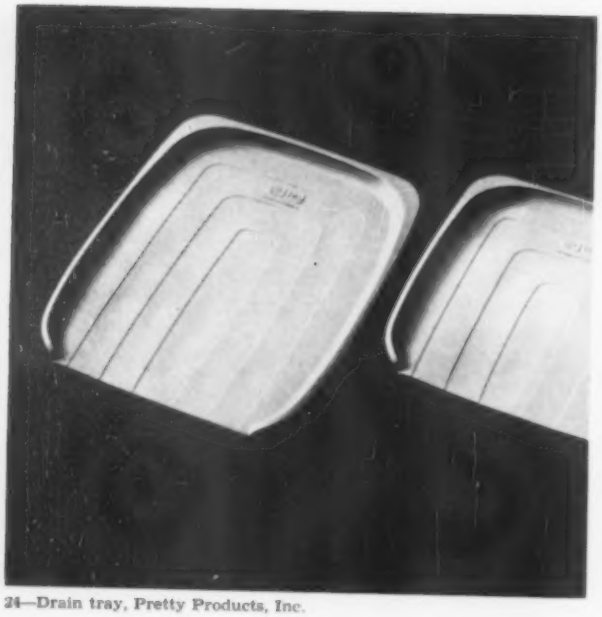
19—Copco trivet has three steel magnets which protrude above oiled walnut surface to adhere to metal cooking utensils. A new idea introduced in good form.
Designer: Michael Lax.

20—Copco cast iron cookware is made by special thin casting technique, with a very sleek result. Handles are interestingly done: on skillets, shank and auxiliary handle are cast in one piece with body; on casserole, handle is cuffed extension of its sides.
Designer: Michael Lax.

21—Prizer-Ware cast iron cookware comes in an all-inclusive 18 pieces, including seven skillets and four saucepans with either a wooden pistol handle or a conventional cast iron one. This variety is not quixotic; a good working handle is the most important part of any tool, and cooking tools is what these are. Their pleasant looks derive from a strong sense of function.
Designers: Prizer-Ware staff; Philip Johnson, consultant.

22—Heath soufflé and baking dishes double as dinnerware. Flat, unglazed bottoms prevent slipping.
Designer: Edith Heath.

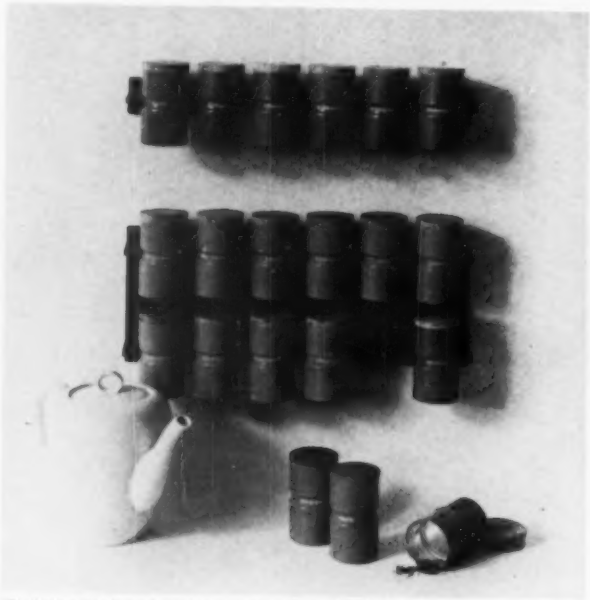
23—Sam Mann serving trays are shaped from cherry and American black walnut in full-blown curves. Oil finished.
Designer: Samuel J. Mann.



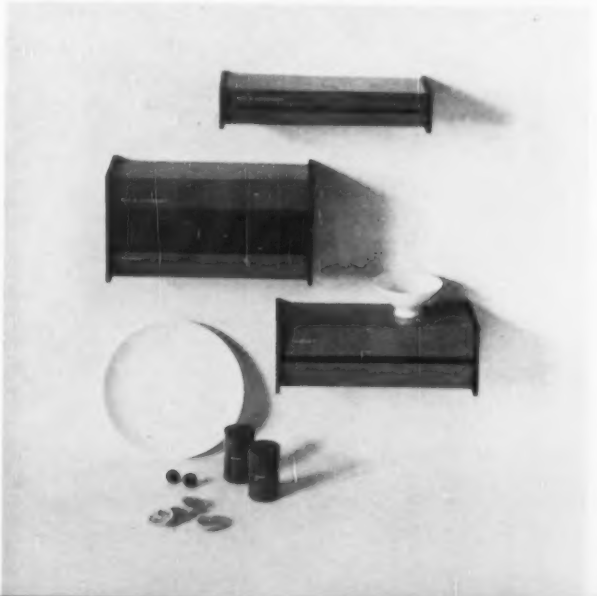
24—Drain tray, Pretty Products, Inc.

26—Refrigerator containers, Idealware, Inc.

25—Teamaker, Chemex Corporation

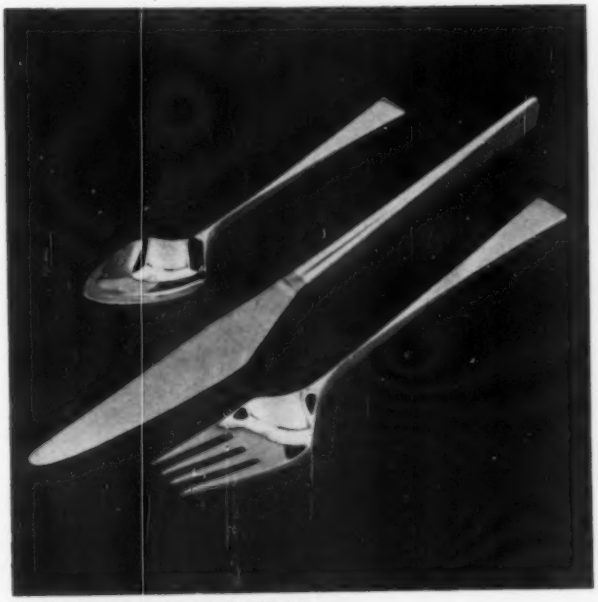


27—Spice rack and canisters, Sam Mann Designs
28—Kitchen paper dispensers, Sam Mann Designs



29—Carving knives, H. E. Lauffer Company, Inc.

31—Can opener, Ekco Products Company



30—Sterling flatware, Reed & Barton

CONSUMER **Housewares**

24—Pretty Products drain tray is made of molded rubber in a pleasantly rounded form with deep border.
Designer: Edward Klein.

25—Chemex teamaker makes tea by pumping liquid through extruded aluminum cylinder with sieve bottom holding leaves. It can also be used for chilling cocktails. Vigor of method is reflected in big bold handle.
Inventor: Dr. Peter Schlumbohm.

26—Idealware refrigerator containers have rounded the square to look better and clean easier. Side tabs on white tops facilitate uncapping.
Designers: Alan Berni & Associates, Inc.

27-28—Sam Mann spice canisters and paper dispensers fill a long-felt need for something to replace the usual decals and Pennsylvania Dutch curlicues. These are lovely. Dispensers are of teak and baked enamel on steel in yellow, turquoise, and orange; canisters of lacquered aluminum in same colors. Pressure-sensitive Mylar labels come separately to let customer do her own labeling.
Designer: Samuel J. Mann.

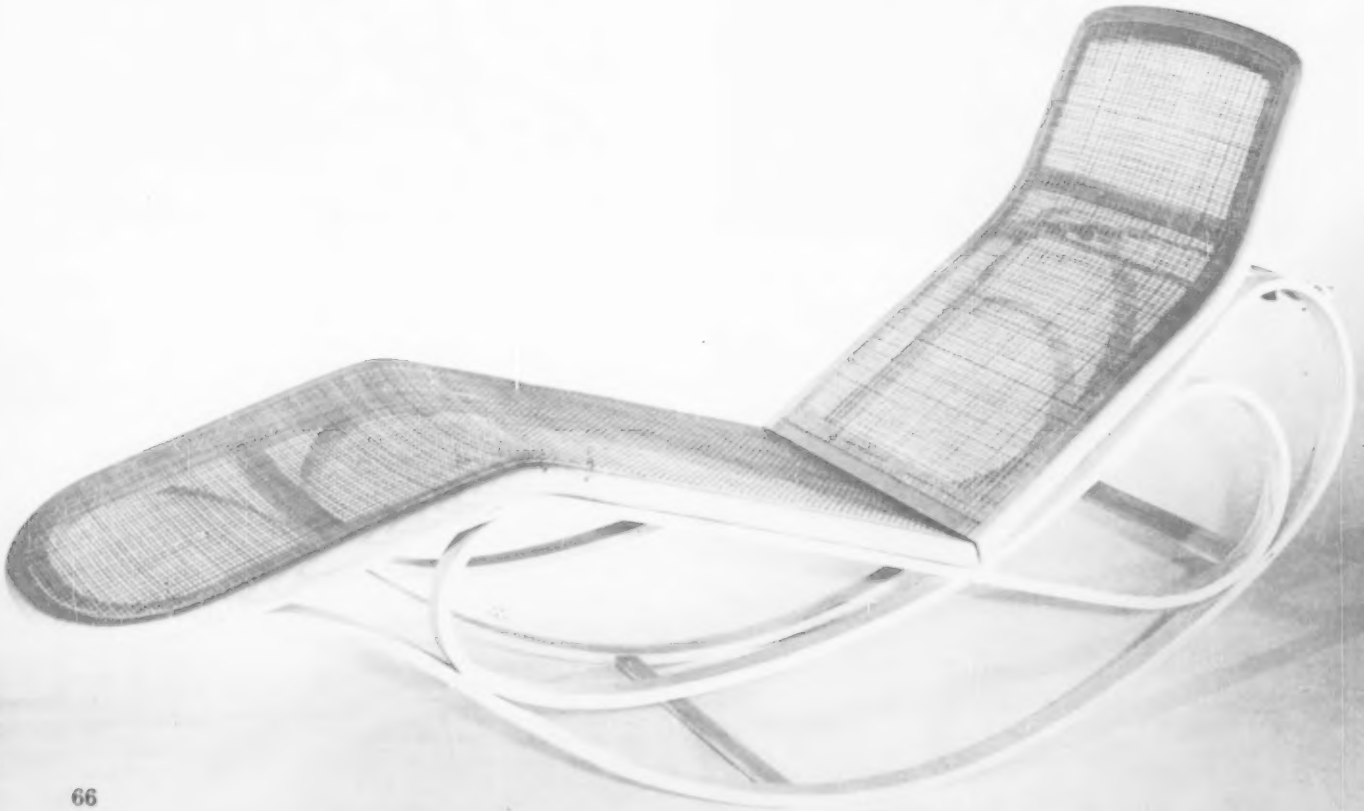
29—Lauffer carving sets' handle and blade are forged in one continuous, contoured piece of high-carbon stainless steel; black plastic is molded into it to delineate handle and equip these luxurious working tools with a solid grip.
Designer: Don Wallance.

30—Reed & Barton "Dimension" sterling flatware looks like a refaceting of Gio Ponti's silver. But it is interesting in its own right—particularly in the way the flat surfaces of the handle move from vertical to horizontal. Knife handle is touted as resting on either surface, a dubious benefit.
Designer: Reed & Barton staff; John Prip.

31—Ekco can opener is a good, inexpensive tool in a trim new form. Nickel plated; uses Delrin for bearing.
Designers: Ekco staff.

32—Hammock, Glenn of California

33—Rocker-chaise, Dunbar Furniture Corp.



34—Swinging chair, Decorative Imports

35—Chaise, Knoll Associates, Inc.

36—Nested tables, Decorative Imports

37—Tables and chairs, McGuire Company

CONSUMER **Outdoor furniture**

32—Glenn of California hammock is made of pecan or hickory slats separated by black plastic spacers and supported by stainless steel aircraft cables with stainless steel fittings. For comfort it may not match rope hammocks but it certainly outdistances them in looks.
Designer: Richard W. Thompson.

33—Dunbar rocking chaise acknowledges all that it owes to a 19th century Thonet bentwood piece, but its longer, loopier curves come from 20th century technology: these rockers are laminated rather than solid, and are therefore more resilient. The wood is ash. A brass adjuster pitches the back to several positions.
Designer: Edward Wormley.

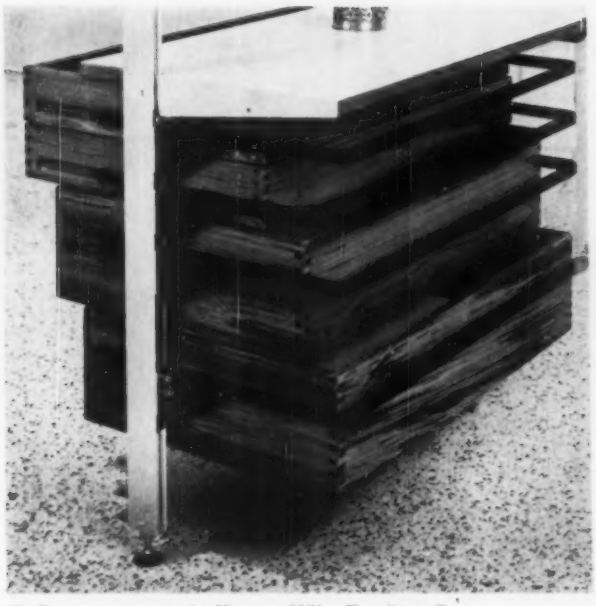
34—Decorative Imports "spinnaker swing" is not for serious swingers (it is awkward to pump), but it is a nice bit of nonsense just the same. It is of vinyl-coated rattan; made in Hong Kong but designed in the U. S.
Designer: Francis Mair.

35—Knoll chaise is a series of wire baskets (steel with a white fused-plastic finish) holding treated canvas cushions in red, yellow, or blue. Neatly done altogether, its neatest feature may be its big, smooth-hubbed wheels.
Designer: Knoll Design Development Group; Richard Schultz.

36—Decorative Imports nesting rattan tables come in natural or teak-stained finish, and are welcome replacements for folding tray-tables. But it would be a shame if someone mistook them for stools.
Designer: Francis Mair.

37—McGuire palm rib furniture proves that rustic furniture needn't *look* rustic. Each piece is working out with a nice attention to dimensions and finish, but the pinwheeling tabletops are the best of all. Made in the Philippines, but designed in the U. S.
Designer: McGuire staff, Eleanore McGuire.

38—Serving cart, Herman Miller Furniture Company



39—Drawer components, Herman Miller Furniture Co.

42—Desk, Glenn of California (chair and cart not included)
43—Cabinets, Knoll Associates, Inc.

40—Table, Avard Furniture
41—Chest and dressing table, Herman Miller Furniture Co.

CONSUMER **Furniture**

38—Herman Miller serving cart (left), from ebonized frame group (see 41) has tapered legs ending in big, substantial-looking casters. Top slides out on tracks; underneath it are a food warmer and Formica bins for silver and linen—providing only what a drawer usually provides, but in a much more accessible form.
Designers: George Nelson & Company; Ernest Farmer.

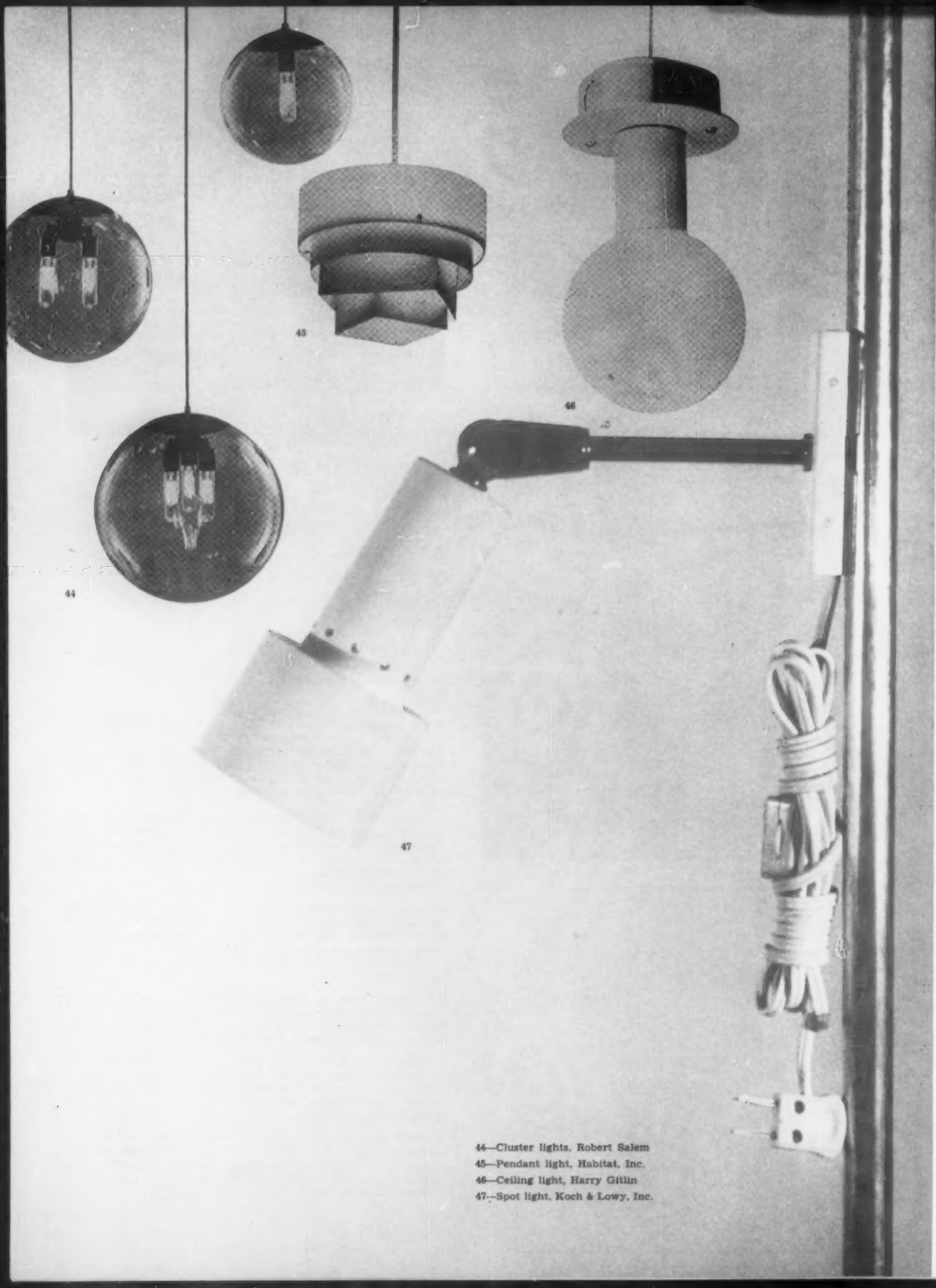
39—Herman Miller drawer units for Comprehensive Storage System are supported by an arrangement of black metal wedges and heavy bar guides. It is pleasant for a change to see the mechanism of a drawer brought out into the open, and to see rabbeting raised to the level of design.
Designers: George Nelson & Company; John Pile.

40—Avard desk or dining table has a black leather-wrapper top and satin-finished steel legs. Each leg is a continuous strip of metal doubled back on itself and clamped to a cross-bar just before it flares to join the top. It is a soft and sinuous way to handle steel—not a bad thing to do, but still, not especially appropriate to the metal.
Designer: Darrell Landrum.

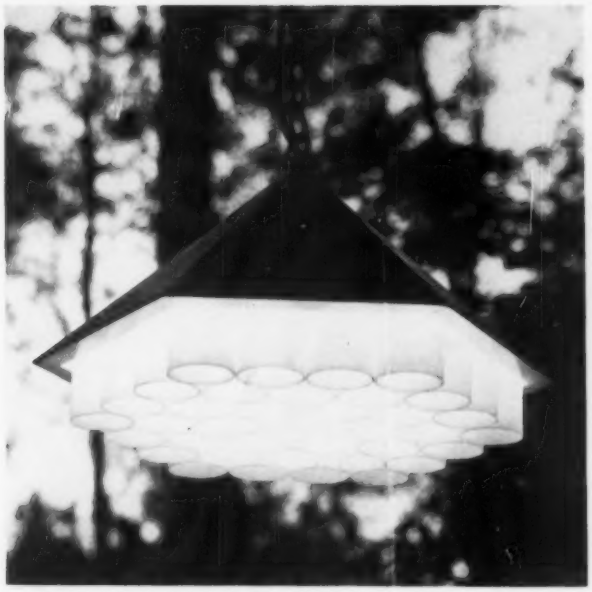
41—Herman Miller teak table and chest are part of a collection whose motif is its ebonized framing. Chunky and emphatic, it may be the "new brutalism" of furniture.
Designers: George Nelson & Company; Ernest Farmer.

42—Glenn of California roll-top desk is a whittled-down version of a vanishing breed. Although curvaceous and sleek almost to excess, it provides—in four drawers and six pigeonholes—the easily-reached eye-level storage that roll-tops are famous for.
Designer: John Kapel.

43—Knoll chests of teak, with teak or white Formica tops, rest on a continuous chrome base. Nothing interrupts these sheer surfaces except the narrow raking lines that set off top from sides, sides from base, and each drawer from the other.
Designer: Florence Knoll.

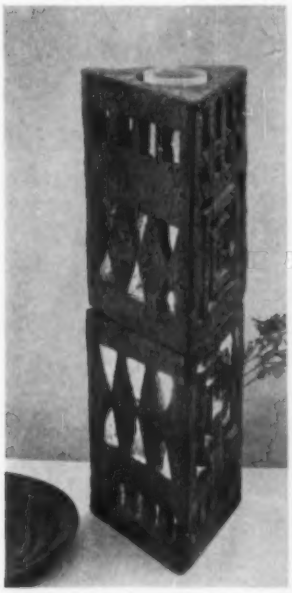


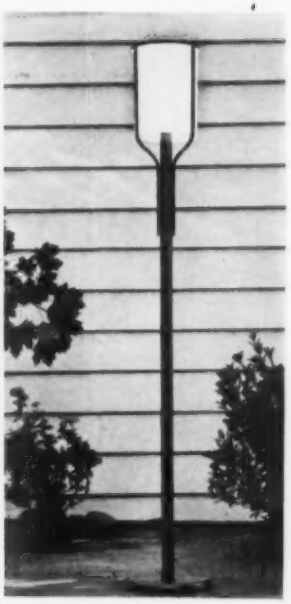
44—Cluster lights, Robert Salem
45—Pendant light, Habitat, Inc.
46—Ceiling light, Harry Gitlin
47—Spot light, Koch & Lowy, Inc.



48—Hanging light, Nessen Studio, Inc.

51—Wall light, Nessen Studio, Inc.





49—Lighting column, Virginia Frankel Gallery
50—Torch light, Nessen Studio, Inc.

CONSUMER **Lamps**

44—Robert Salem cluster lights are crystal balls with black steel caps in one, two, and three-bulb versions and four diameters.
Designer: Robert Salem.

45—Habitat pendant arranges formal shapes informally. Of four shields in graduated sizes, top one is acrylic, others are metal.
Designer: Paul Mayen.

47—Harry Gitlin ceiling light is nothing but a bare bulb in a big size (5 inches in diameter), mounted in a husk that covers the whole neck of the bulb and its socket, and fitted with a flat ceiling canopy the same size as the bulb. The husk comes in lengths up to 18 inches. In a year notable for its bare-bulb look, this one may be the most artless.
Designer: Harry Gitlin.

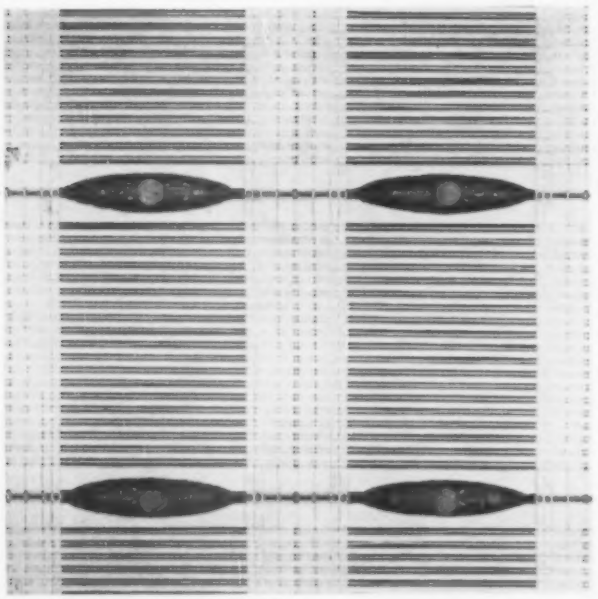
46—Koch & Lowy adjustable miniature spotlight has a magnet base that clamps it to any steel surface—cabinets, shelving, poles, machines. This useful idea could have been worked out with more finesse: shade is acceptable, but arm and base are clumsy by comparison.
Designers: Ernest Lowy, Jesse Reed.

48—Nessen outdoor chandelier, called Beehive, filters light through a thick honeycomb of acrylic cylinders mounted in a hexagonal sheet metal hood. It hangs from trees, or from anything else, on an ordinary black-painted link chain.
Designers: George Nelson & Company; Lucia De Respinis.

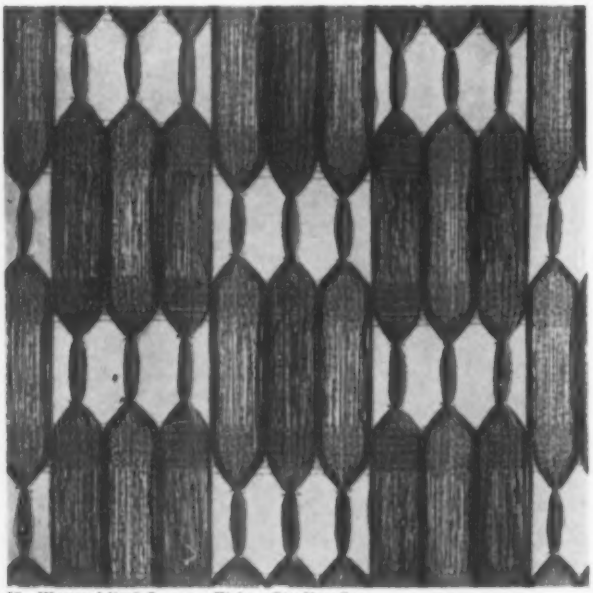
49—Virginia Frankel modular lighting column of pierced stoneware can be stacked and bolted together to any height, used indoors or out—but it is not for reading by.
Designer: Eloise Harmon.

50—Nessen torch light for outdoor use is pleasantly reminiscent of gas streetlights. Finish is a "weathered" oxidized brass. Light comes with a base, or without: the pointed shaft can be poked directly into earth or gravel.
Designers: George Nelson & Company; Lucia De Respinis.

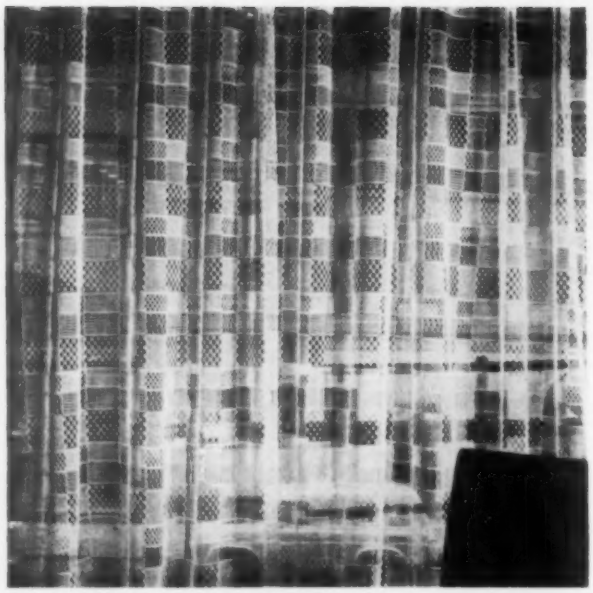
51—Nessen outdoor wall light is a chunkier version of indoor variety. It can be hung against trees or buildings, but its wiring does not permit it to be mounted directly over electric outlet—a drawback when installation is meant to be permanent. Enameled sheet metal cylinder with brass fittings.
Designers: George Nelson & Company; Lucia De Respinis.



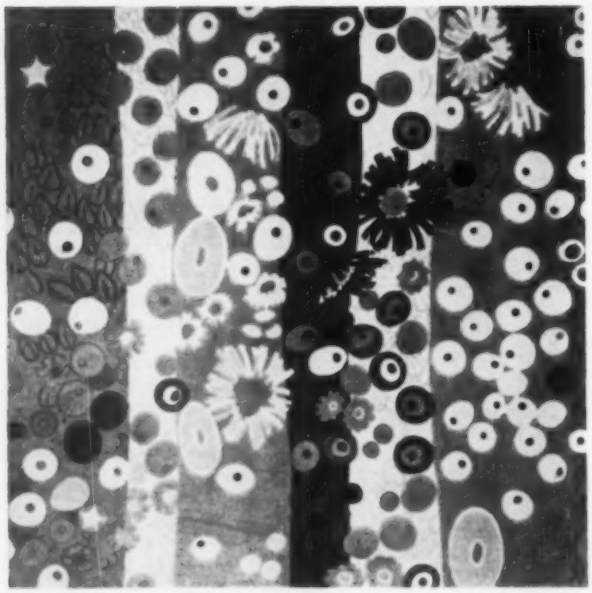
52—Woven blind, Webb Textiles, Inc.



53—Woven blind, Lozano-Fisher Studios, Inc.

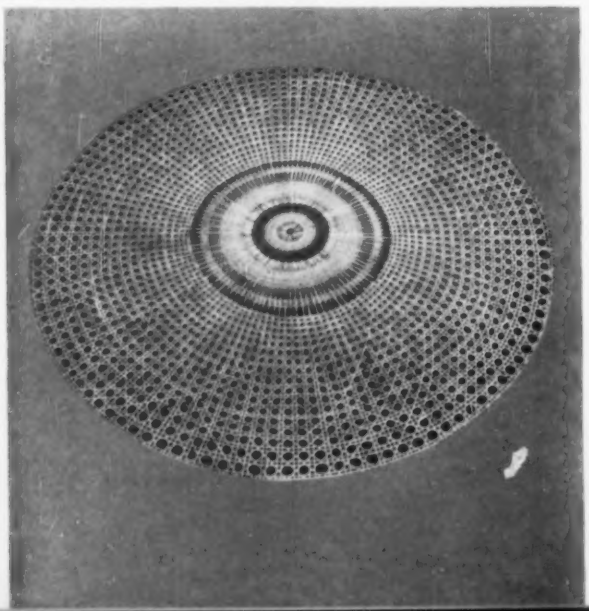


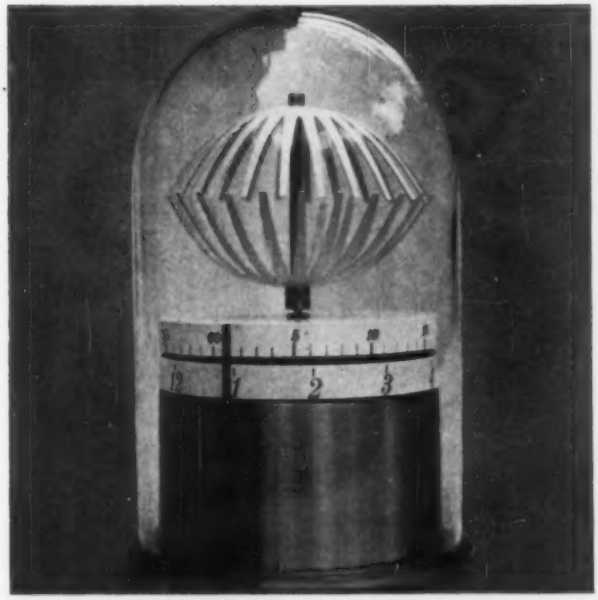
54—Casement cloth, Jack Lenor Larsen, Inc.



55—Upholstery fabric, Jack Lenor Larsen, Inc.

56—Table top, Dimensional Plastics Corp.





57—Clock, Howard Miller Clock Company

58—Planters, Krevolin & Constantine

59—Ashtray, Lietzke Porcelains

CONSUMER **Accessories and fabrics**

52—Webb Textiles bamboo blind is interwoven at intervals with scooped-out slats of Douglas fir between which are threaded brass rods strung with glass beads and cork balls. It is called Baubles, but the chaste background keeps it from being trinkety.
Designer: Robert O. Webb.

53—Lozano-Fisher blind is in sumptuous stained glass colors outlined in black. The matchstick bamboo which supports it is woven through the pattern in widely spaced clusters that are almost invisible.
Designer: Matias Lozano.

54—Jack Lenor Larsen casement cloth is Nottingham lace, resurrected and brought up to date. It is refreshing to find something other than gauzy weaves for translucent curtaining. Width is 134 inches.
Designers: Larsen staff; Jack Lenor Larsen.

55—Jack Lenor Larsen printed velveteen upholstery fabric, Primavera, comes in exotic color combinations that result from complex over-printing with multiple silk screens. It is not easy to be rampantly luxuriant and succeed; this does.
Designers: Larsen staff; Don Wight.

56—Dimensional Plastics cane-embedded table top uses a molding process that combines opaque and clear plastic over a chipboard core, for bulk without weight. The process is also used for rectangular paneled screens and partitions.
Designer: S. Ronald Barnette.

57—Howard Miller clock tells time by moving concentric hour and minute disks across a brass bar. A complicated way to do it, perhaps (and made to look even more so by the curious bubble-gum-dispenser dome), but this at least is a modern clock with numerals, rather than balls or bars or nothing to mark the hours.
Designers: George Nelson & Company; Irving Harper.

58—Krevolin & Constantine stacking planters of high-fired ceramic are designed to accept florist tubs intact, eliminating transplanting. Stackability may be of questionable value to consumers, but florists with storage problems will probably like this feature.
Designers: Krevolin & Constantine.

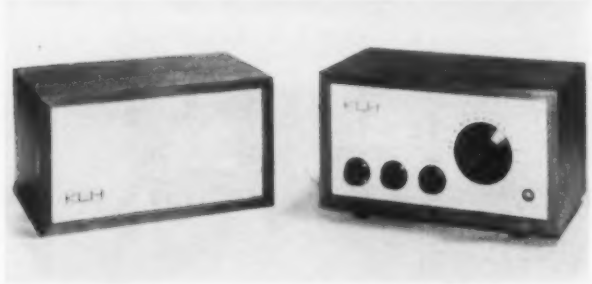
59—Lietzke Porcelain's water-quenching stoneware ashtray hides a useful but messy-looking water-filled base with a vigorously patterned decorative grid.
Designers: Luke and Rolland Lietzke.

60—Tape Recorder, Saba-Werke

61—Tape recorder, Westinghouse Electric Corp.

62—Radio, Radio Corp. of America

65—Radio, Westinghouse Electric Corp.



63—Short-wave radio, Knight Div., Allied Radio Corp.
64—Radio, KLH Research and Development Corp.

CONSUMER **Radios and tape recorders**

60—Saba tape recorder has its own system of operational symbols which may confer prestige on the initiated, and certainly simplifies graphics. Red plastic pushbuttons and unusual polished aluminum capped knobs are placed on sloping panel. Injection molding, as usual, induces a lot of unnecessary shaping and tapering on case.
Designers: Goertz Industrial Design, Inc.

61—Westinghouse tape recorder comes in three models: monaural, stereo, and stereo with speaker controls. For stereo, the speakers are halves of a second carrying case. Despite their chunky form, and such space economies as doubling-up knobs, these are expensive set-ups, and look it. Metal framing, which even extends to handle, and brushed finish see to that. Gently curved corners are another fine detail.
Designers: Westinghouse staff; S. Silverman, manager; Robert Hain.

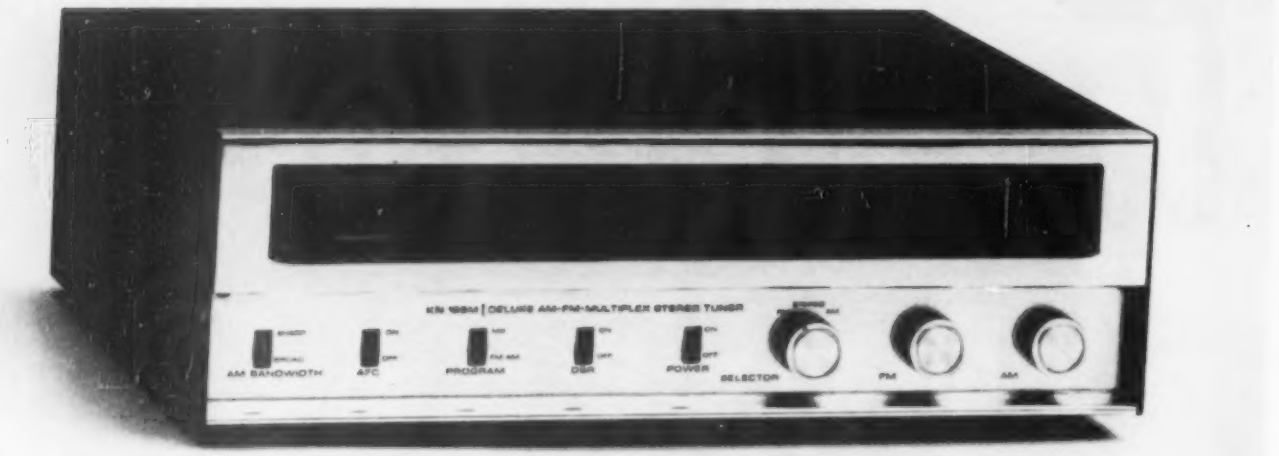
62—RCA portable transistor radio's handle slips down into grooves on both sides. Refined framing and clean graphics contribute look of luxury.
Designers: RCA Victor staff; Donald A. Devarco, Bernard A. Grae.

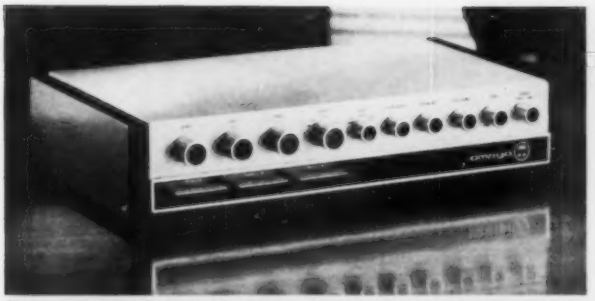
63—Knight short-wave radio is a low cost item that has introduced a noteworthy simplification: tuning knobs are located in the center of their respective dials. Platform at the bottom is less successful.
Designer: Edward Klein.

64—KLH fm radio consists of tuner-amplifier and separate speaker. The units are compact in size, high in quality, and are designed like fine pieces of furniture.
Designer: William Barton.

65—Westinghouse miniature (4½" x 2½" x 1⅛") transistor radio is reminscent of an imported predecessor, but good nevertheless. On such a small surface the fewer and simpler the forms the better. Made of injection-molded Prolon with perforated metal grille.
Designers: Westinghouse staff; S. Silverman, manager; Gene Grossman.

66—KX-60 stereo amplifier kit, Knight Div., Allied Radio Corp.
67—KN-125 stereo multiplex tuner, Knight Div., Allied Radio Corp.





68—Amplifier, Omega Electronics Corp.
69—Tone arm, Acoustic Research, Inc.

71—220 MS speaker, Hartley Products Co.

70—Amplifier, tuner, Transis-Tronics, Inc.

CONSUMER **Hi Fi**

66—Knight stereo amplifier is a transistorized unit which comes in kit form. Just half as high as the Knight tuner and much smaller in overall dimensions, it nevertheless is designed with similar recessed panel and framing. Selector and volume knobs are grouped in dark gray box, bass and treble knobs are importantly handled, and separation and balance controls underplayed. Gray and white silk screening on gold anodized extruded aluminum.
Designers: Klein Wassmann/Design; Gerry Priestley.

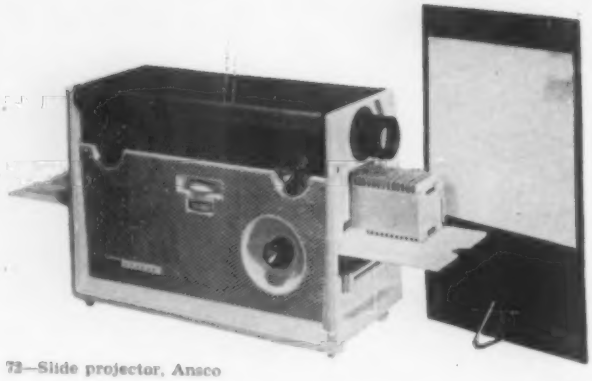
67—Knight stereo multiplex am-fm tuner puts emphasis on fine tuning with full-length dial and separate pointers for fm and am. Controls are collected on recessed polished brass face panel.
Designers: Klein Wassmann/Design; Gerry Priestley.

68—Omega stereo amplifier, a transistorized unit, not only introduces low, long size (3" high, 15½" long) but an unusual cradled shape for hi fi components. Long line of buttons is clarified by enlarging the four most frequently used.
Designer: Richard Sorel.

69—AR record player has unclothed tone arm which is sensitive arrangement of geometric shapes. If these forms are lurking under all the tapered arms about, it is high time they were revealed. The arm support and lift tab are also noteworthy for elegant simplicity. Burgundy cartridge shell and brass counterweight.
Designers: Acoustic Research staff; Edgar M. Villchur.

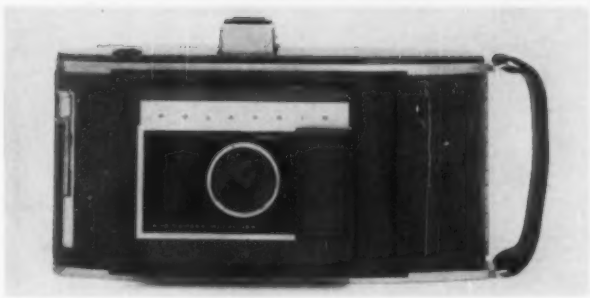
70—Transis-Tronics matching fm tuner and stereo amplifier come in gray-painted wraps as separate units or mounted together within a walnut frame. Tandem mounting is possible because transistor components give off little heat. Graphics are well done, as are the neat little diagrams indicating which of stacked knobs is for what. Black panels with white and red lettering.
Designers: Transis-Tronics staff; Russ Allee, Al Williams, engineering; Don Albinson, appearance.

71—Hartley 10-inch speaker covers full range of musical sound. Cone is made of new hard-as-china plasticized cloth; voice coil has magnetic properties for quicker restoration of cone, cutting down on sound hangover. Execution is as meticulous as audio design; brushed aluminum cast frame, red ring magnet, and white cone.
Designers: Hartley staff; Harold Luth, engineer.



72—Slide projector, Ansco

73—Slide projector, Argus



74—Zoom camera, Eastman Kodak
75—Camera, Polaroid Land

76—Movie light, Westinghouse

77—Electric flash unit, Hershey Div., Simpson Electric Co.

CONSUMER **Camera equipment**

72—Ansco "Regent" projector, like Houdini's hat, is an extremely compact unit packed with surprises. Front cover doubles as projector screen, sides open out to form tray tracks; and folded down, handle works like a typewriter space-bar to advance slide tray. Entire unit measures 6½" x 9" x 15"
Designers: Hodgman-Bourke.

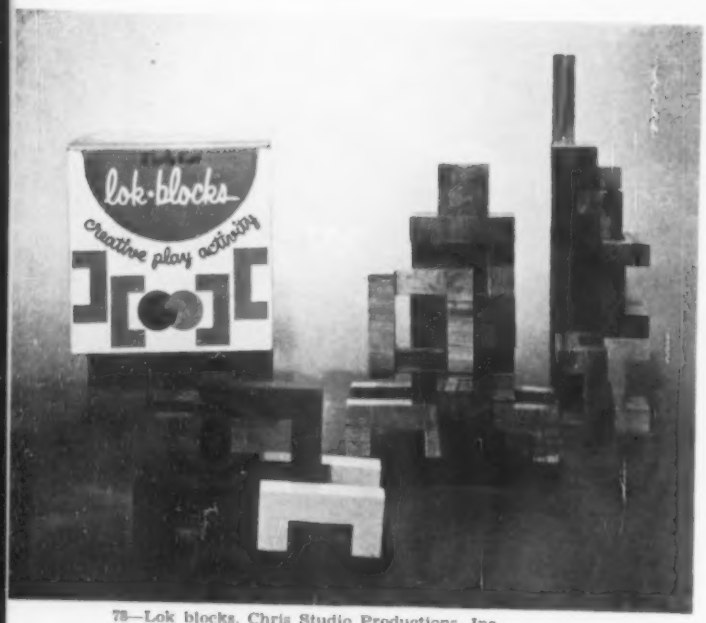
73—Argus "Electromatic 570" projector is larger than the above unit and less gimmicky. Controls are all grouped at the rear and lighted by electroluminescence; rear panels are self-storing. Remote control unit has pointer light, controls for forward, reverse, and focus.
Designers: Harley Earl Associates; Raymond Grosso.

74—Kodak "Zoom 8" automatic movie camera has a simple box design which makes moviemaking look as easy as taking snapshots with a Brownie. It very nearly is—with an automatic exposure control, built-in "Type A" filter and viewfinder coupled to zoom lens (f/1.6).
Designers: Eastman Kodak staff.

75—Polaroid J-66 looks and handles like a 35mm camera, with open lens, release button on top right, and stress on horizontal use. Electric eye is subordinated to general color scheme, and built-in flash unit is hidden behind faceplate.
Designers: Goertz Industrial Design, Inc.

76—Westinghouse "Studio One" camera light uses new sealed-beam head light which gives as much light as a bar light containing four standard 300-watt R-30 flood lamps. Swivel joint permits movement of unit for bounce lighting.
Designers: Westinghouse staff; S. Silverman, E. Kitasako.

77—Hershey "Pro-Lite 2000," an off-the-camera flash unit of 75 watt/second, is designed to look professional, which is what its market is. Case is compact and efficient-looking with charcoal and satin aluminum finish.
Designers: Schory Steinbach Associates.



78—Lok blocks, Chris Studio Productions, Inc.

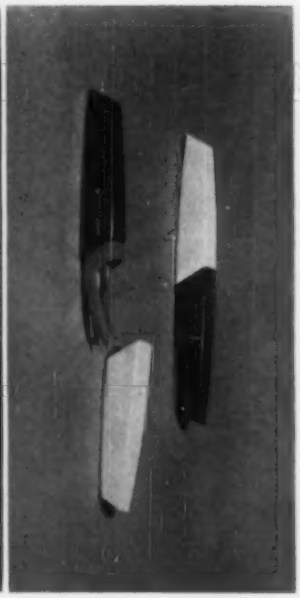
80—Paper toys, Watkins Strathmore Company

79—Water toy, A.T.S. Enterprises, Inc.

81—Puppets, Sheram Puppets

82—Tent, Powers & Company

83—Ski pole, Head Ski Company
84—Outboard motor, Johnson Motors



85—Pen, Scripto, Inc.
86—Paper clipper, Parker Pen Company

87—Typewriter, Remington Rand

CONSUMER **Recreational and personal**

78—Chris Cut lock blocks are building tools which interlock for three-dimensional structures.
Designers: Chris Studio Productions staff.

79—A.T.S. water toy is made of expanded polystyrene and thus safer than the usual air-filled toys. It is propelled by moving paddle wheels.
Designers: Walter Landor & Associates.

80—Watkins Strathmore corrugated cardboard animals are big enough for a child to get into and imagine he is one, yet not so detailed as to limit the play of his imagination.
Designers: C. William Moss Associates; Geraldine A. Sakall.

81—Sheram hand puppets, made of felt and in some cases plush, derive their charm from simplicity and a complete absence of trickery.
Designers: Sheram staff; Lucille Gasaway.

82—Powers A-tent, big enough for two or three, has all its framing outside to simplify setting up. Waterproof nylon stretched over aluminum tube frame.
Designers: C. William Moss Associates.

83—Head ski pole has clean new ring of molded rubber with aluminum outer ring. It is attached by taper fit, eliminating cotter pins or other fasteners.
Designers: Head staff; Howard Head.

84—Johnson 10-hp outboard engine's controls inspire confidence with clear markings and strong knobs. Molded fiberglass shroud with baked enamel finish in white and silver.
Designers: Dave Chapman, Goldsmith & Yamasaki; Paul B. Specht.

85—Scripto pen has angled ballpoint to encourage a more comfortable, less vertical, writing position than usual. Wing design on case cannot be so sensibly explained.
Designers: Scripto staff; Charles K. Lovejoy, Frank H. Stephens.

86—Parker Pen's "Clip-it" is a useful new gadget for neatly clipping newspaper items without cutting pages beneath. Body and cap of butyrate—one gray, one white—are made in same mold.
Designers: Don Doman Associates.

87—Remington Rand portable typewriter is lightweight, brightly-colored, and low cost for the teen-age market. Injection-molded Cycolac skin in choice of five colors.
Designers: Sundberg-Ferar.

PACKAGING, as a selling device, can be divided into that which sells the product — by showing it, describing it, and singing its praises; and that which sells an image — of the product, of the manufacturer, of the consumer as he would like to be. Today the infatuation with images is so universal that it is the overpowering element in all kinds of packaging design. Cartons for cigarettes, eggs, facial tissues, and even tea, are designed to express the presumed distinction of the buyer. Since this upgrading is chiefly pictorial, it is hard to find good typography. The word seems to be giving way to the air-brushed photo and colored bands, gold seals, and symbols generally. Shipping and carrying cartons, both for the consumer and the retailer, are more designed than ever, more to reinforce the image than to sell the goods.


JOHNSON WAX PRODUCT
french modern
Glade
mist
air
freshener
Glade
evergreen
Glade
mist
air

1—Aerosol air freshener can (opposite), S. C. Johnson & Son
2—Orange juice carton, Ever Sweet Corp.

PACKAGING **Food**

1—S. C. Johnson & Son theorized that air fresheners would be used more often if attractive enough to be out in plain view, so designers aimed for an elegant, decorative package. Cap has definite front and back to indicate direction of spray. Each of four scents is differentiated by green, blue, lavender, or orange cap and type.
Designers: Chermayeff & Geismar Associates.

2—Ever Sweet orange juice carton uses bright orange circles on each panel as main design element, is a less cluttered package than most in this product category.
Designers: Doyle, Dane, Bernbach, Inc.; Elward Bias.

3—Kimberly-Clark uses special mechanism to pack 400 tissues in box half of former size. Design had to indicate that new box contained as much, and was worth as much, as old. Re-design carries new "K" symbol and is color coded for tissue color.
Designers: Morton Goldsholl Design Associates.

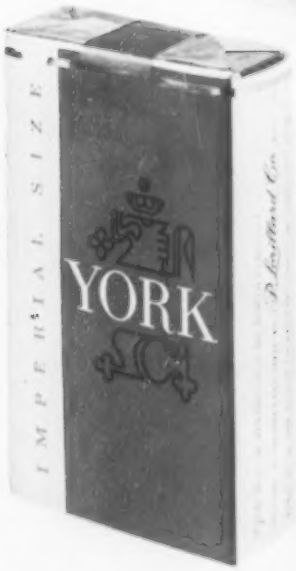
4—Royal Crown's new bottle for Canadian market has conventional graphic treatment, but slender bottle shape is a pleasant variation from standard soft drinks.
Designers: Dominion Glass Company, Ltd., bottle shape. Royal Dadmun & Associates, graphics.

5—Rheingold bock beer can in red, gold, and white carries stylized stemmed beer glass, a minimum of type.
Designers: Frank Gianninoto & Associates.

6—Ocean Spray's red and white package, with huge logo, shows stylized cranberry roll.
Designers: Donald Deskey Associates.

3—Tissue box, Kimberly-Clark Corp.
4—Soft drink bottle, Royal Crown Cola Ltd.
5—Beer can, Liebmann Breweries Inc.
6—Cranberry can, Ocean Spray Cranberries Inc.

7—Cigarette package, British-American Tobacco Co.
8—Cigarette package, P. Lorillard Co.
9—Tea box, The Print Club
10—Liqueur gift carton, Contreau Ltd.



11—Egg carton, Riegel Paper Corp.
12—Wine bottle, Taylor Wine Company
13—Wine bottle, Paul Masson Vineyards

7—British-American Tobacco Company had an American designer do this package for the German market. White, with a colored band of gold and two shades of red, it is not meant to look American.
Designers: Frank Gianninoto & Associates.

8—York cigarette package relies on heraldic cliché, but uses it with discrimination. White type and black figure stand against a red background.
Designers: Robert Kennedy Associates; Chad Taylor, Jay Doblin, consultant.

9—The Print Club's elegant package has a black panel and a red one; gold seal on each appears to be applied by hand.
Designer: Samuel Maitin.

10—Cointreau's full-color gift cartons have windows so each of 20 liqueurs can be identified. Photos show product in context of various uses.
Designers: Warner Brothers Packaging Division; Edward C. Kozlowski.

11—Riegel Paper stock-design egg carton takes a soft-sell tack to promote breakfast eggs over prepared breakfast foods.
Designers: Riegel Paper staff; Dan Gorski.

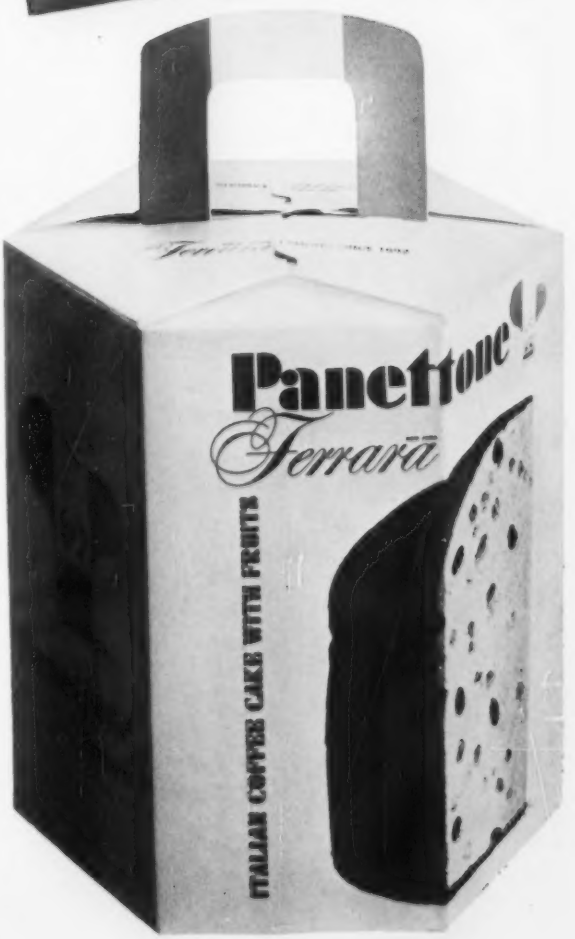
12—Taylor's dry and sparkling wines all have redesigned labels. This one carries new Taylor logo with grape leaf mark. Bottle cap is lead gold foil with grape leaf embossed on top.
Designers: Lippincott & Margulies.

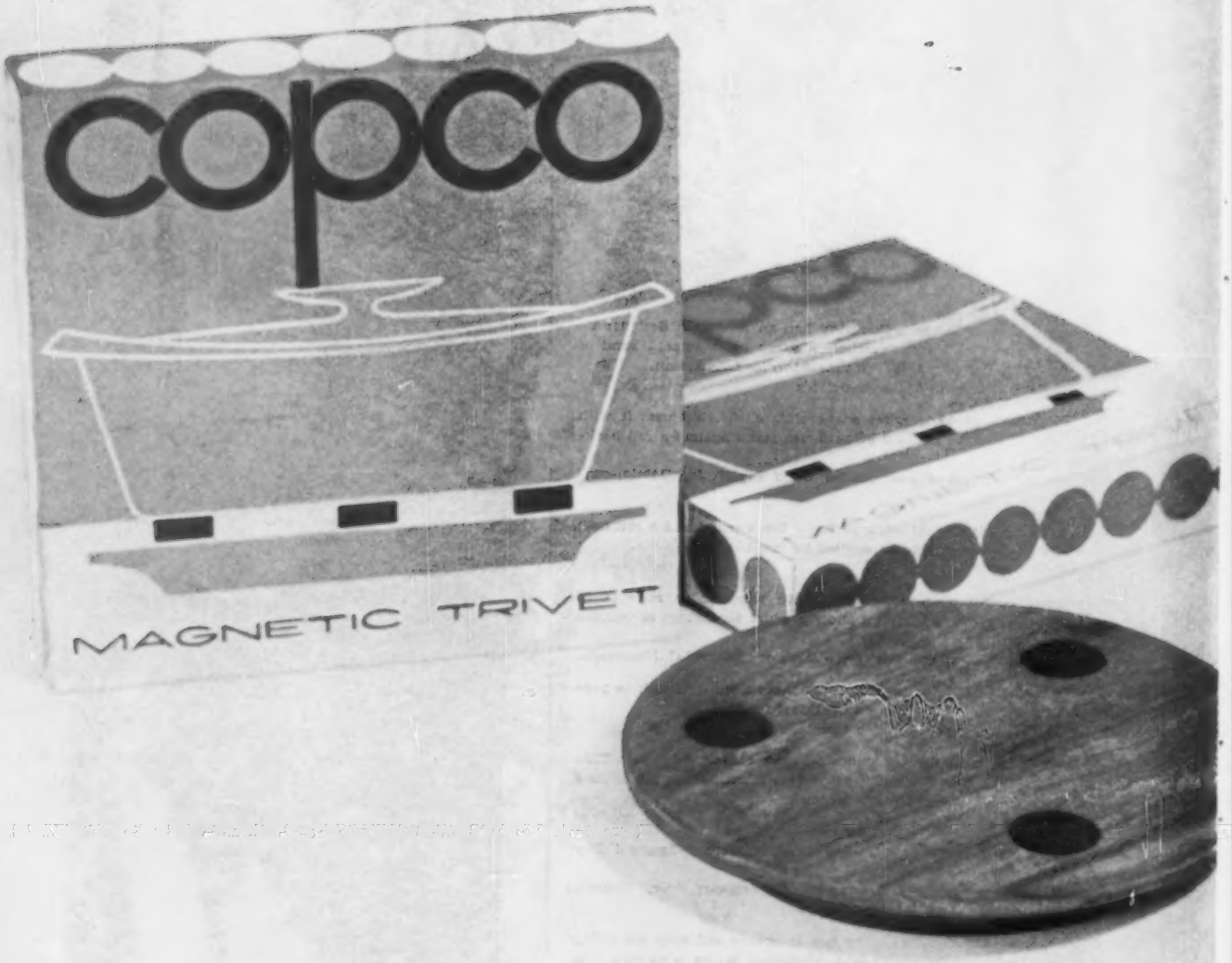
13—Paul Masson's faceted, jewel-like label reinforces Emerald Dry brand name. Color is muted green.
Designers: Walter Landor & Associates; Francis Mair, Rodney McKnew.

14—Staff Supermarkets facial tissue box is bronze and gray for white tissue; gray and pink for pink tissue. Medallion device is supposed to suggest classic beauty and Roman baths. All selling copy disappears when top panel is removed.
Designers: Riegel Paper staff; Dan Gorski.

15—Ferrara hexagonal Italian coffee cake package, with carrying handle, shows full-color silhouette of cake on four sides; green, brown and red chef trademark on other two panels.
Designers: Harry and Marion Zelenko.

14—Tissue box, Staff Supermarkets
15—Coffee cake package, Ferrara Confectionery Co.




copco
MAGNETIC TRIVET

16—Trivet package (opposite), International Consumer Products, Inc.
17—Fruit juice packages, Nippon Breweries, Ltd.

PACKAGING **Gift**

16—Copco magnetic trivet package shows stylized version of product in orange and brown against a white background. Baking dish top of slip-sleeve box lifts off trivet bottom, in art as in life.
Designer: Michael Lax.

17—Nippon Breweries fruit juice carton uses ribbon design as a visual projection of the brand name. Carton is a bright orange, green, purple, and yellow gift package since fruit juice is frequently bought as a present in Japan.
Designers: Walter Landor & Associates; Francis Mair.

18—Pepperell gift set pack, one sheet and two pillow cases, is offset-printed in five colors to match color of sheets.
Designers: Frank V. Liotta & Associates.

19—Meidi-Ya fruit juice packages were designed with strong western overtones for prestige (but might be easier for Japanese customers to identify if major type elements were in their own language, rather than English).
Designers: Walter Landor & Associates; Rodney McKnew, Lewis Loewe.

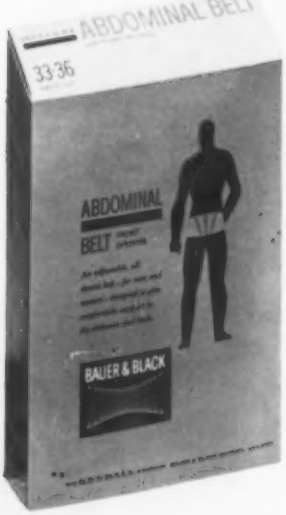
20—Montag Centennial stationery box, recalling 100th anniversary of Civil War, exploits this theme with more taste than most other products which have used it this year.
Designer: Vincent Dieball.

21—Consolidated cigar gift pack for Father's Day promotion is a departure for a product which often relies on more traditional approach. Full color horse and jockey stand against blue, orange, red, and white panels.
Designers: Irv Koons Associates.

18—Sheet gift set, Pepperell Manufacturing Co.
19—Fruit juice packages, Meidi-Ya Company, Ltd.
20—Stationery box, Montag, Inc.
21—Cigar package, Consolidated Cigar Corp.

22—After-shave lotion bottle, The Mennen Company
23—Elastic goods packages, Bauer & Black Div., Kendall Co.
24—After-shave treatment packaging, Charles of the Ritz

25—Cosmetic Line, D'Azur Products
26—Mouthwash bottle, Johnson & Johnson, Inc.
27—Medicated products packaging, Pharmacraft Laboratories



PACKAGING **Drugs**

22—Mennen after-shave lotion bottle has bubbled surface to prevent slipping in hand and to suggest tingling quality of product. Wide neck makes removal of polypropylene cap easier; wide bottle is a sturdily masculine shape, looks distinctively different on store shelf.
Designers: Francis Blod Design Associates; George Stehl, Fred Feucht.

23—Bauer & Black brightly colored elastic goods packages with new logo have angled tops for easier identification in stacked position. Silhouette of specific model simplifies self-service.
Designers: Morton Goldsholl Design Associates.

24—Charles of the Ritz after-shave treatment, firm's first product for men, comes in square, jet-black bottle with gold and white lettering, a gold cap, and matching carton.
Designers: Stephan Lion, Inc.

25—D'Azur shampoo, deodorant and hand lotion packages come in white, blue and gold. Design adapts easily to either glass bottles or cardboard boxes.
Designers: Mel Richman Design Associates; Sam Ciccone.

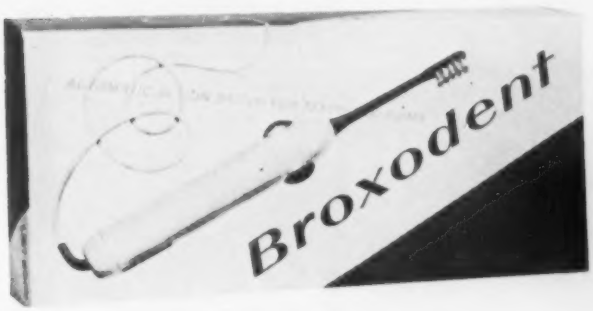
26—Johnson & Johnson bottle, inspired by old apothecary jars, may have re-use appeal for some customers. Trademark is stylized mortar and pestle in combination with abstract "D" for Dequalinium, the product's featured ingredient. Screw-type polypropylene stopper.
Designers: Donald Deskey Associates.

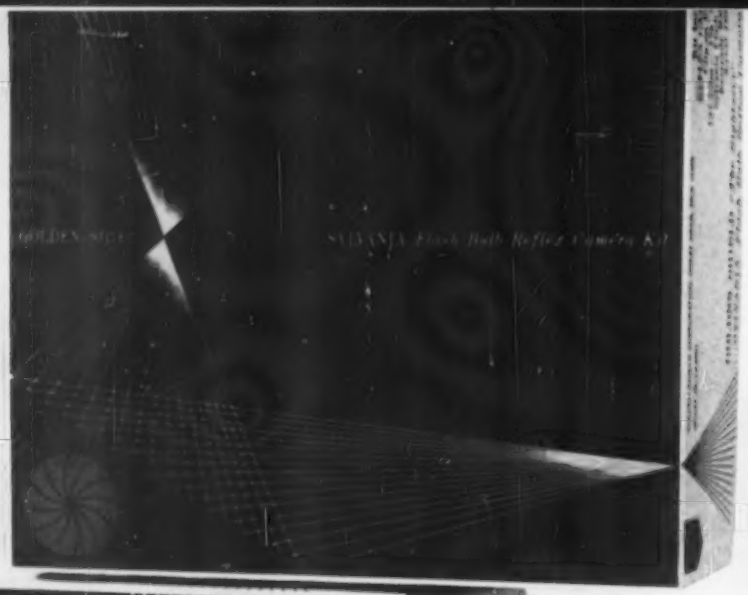
27—Pharmacraft medicated products use two-color "battle ribbon" bar, with sketches to identify each product (soap, cream) and what it is used for. Trademark is new.
Designers: Visual Marketing, Inc.; A. J. Copeland, Robert Baker, Robert Kimura.

28—E. R. Squibb & Sons "Broxodent" carton shows new product—a motorized, vibrating toothbrush—on gold, black and white folding carton. Its gray polystyrene case (not shown) may be permanently attached to the wall, or, when traveling, the motor can be suspended in a polyethylene sling from shower rod.
Designers: Francis Blod Design Associates; George Stehl, Soichi Furuta.

29—Mennen "Genteel" baby shampoo bottle is made of blow-molded linear polyethylene with white, compression-molded cap. Three sizes are white, blue, or pink.
Designers: Francis Blod Design Associates; George Stehl.

28—Electric toothbrush kit and display carton, E. R. Squibb & Sons
29—Baby bath and shampoo bottle, The Mennen Company





30—Magnetic tape package, Columbia Records.
31—Camera packaging, Golden Shield Corp.
32—Construction toy package, Modular Fabrications, Inc.

30—Columbia magnetic tape packages come in bright purple, yellow, blue, or red. Main design element is derived from silhouette of reel
Designers: Columbia staff, James Nott; Robert Cato, director.

31—Golden Shield line of three set-up boxes is offset-printed on white coated stock in black and gold with accent color in blue, ochre, or orange.
Designers: Klein Wassmann/Design.

32—Modular Fabrications' Poly Rods box carries photo of different-aged child on each of its red, green or blue sides. Shape lends itself to unusual displays.
Designers: Graphics, Chermayeff & Geismar; David Enock. Structure, Modular Fabrications, Don Gelbert.

33—Allied Radio black and red coated-sheet set-up box for magnetic tape emphasizes product quality to offset its unusually low price.
Designers: Klein Wassmann/Design.

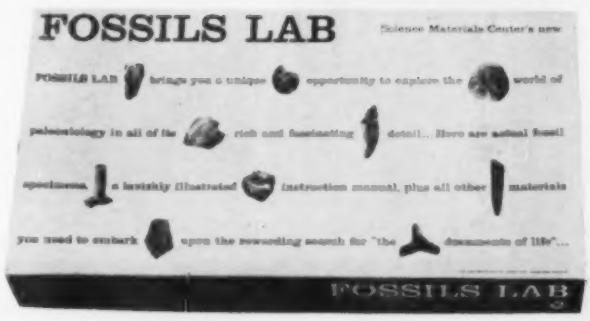
34—Sylvania "Sun Gun" movie light appears as stylized representation in blue, magenta, purple, and green, offset-printed on glossy stock.
Designers: Case-Hoyt Corporation; Walter Kornrich.

35—Weston light meter package uses representation of product itself against a foil-covered stock of silver, red, and black.
Designers: Harper Landell & Associates.

36—Healthways orange, blue, and black package for "Scuba-Vest" life jacket attracts attention with simple, dramatic photo. Same photo appears on posters at point of purchase.
Designers: Porter & Goodman Design Associates.

37—Science Materials Center fossil lab package has a clear bottom panel allowing the customer to see which fossils he is buying without opening the box.
Designers: Ward & Saks; James Ward.

33—Magnetic tape package, Allied Radio Corp.
34—Movie light package, Sylvania Electric Products, Inc.
35—Light meter package, Weston Instrument Div., Daystrom, Inc.
36—Scuba life jacket package, Healthways, Inc.
37—Fossil lab package, Science Materials Center.



38—Extension cord package, Cornish Wire Co.
39—Windshield washer solvent dispenser, The Delman Co.
40—Plant package, Nurseryman's Exchange

41—Pipe joint compound can, Force Chemicals
42—Seed box, Teweles Seed Company
43—Parts packaging, General Motors Corp.
44—Cement bag, Dundee Cement Co.

PACKAGING **Hardware**

38—Cornish Wire Company's extension wire and appliance cord packages are tailored for lightweight, medium, and heavy-duty cord. Silhouettes show end use for each type.
Designers: Orie Stone Associates, structure. Francis Blod Design Associates, graphics; Fred Feucht.

39—Delman's blow-molded, 3½-gallon polyethylene bottle for windshield washer solvent is displayed on service station islands. Top (not shown here) doubles as a syringe for dispensing.
Designers: William M. Schmidt Associates; Dann Deaver.

40—Nurseryman's Exchange wrap-around label, with wide yellow, white, and green stripes, provides product identification on three sides (but quality look of Japanese import stamp conflicts with pedestrian corporate mark at bottom of package).
Designers: Walter Landor & Associates; Dick Young

41—Force Chemicals pipe joint compound is labeled in blue, yellow, and white; first letter of brand name is picked out in pattern of pipe ends.
Designers: Robert Gersin Associates.

42—Teweles lawn seed package is designed around grass blades in contrasting shades of green. Because supermarkets, drug and department stores are growing sources of sales, designers tried for impulse purchase appeal.
Designers: Waldheim-Koepke Associates.

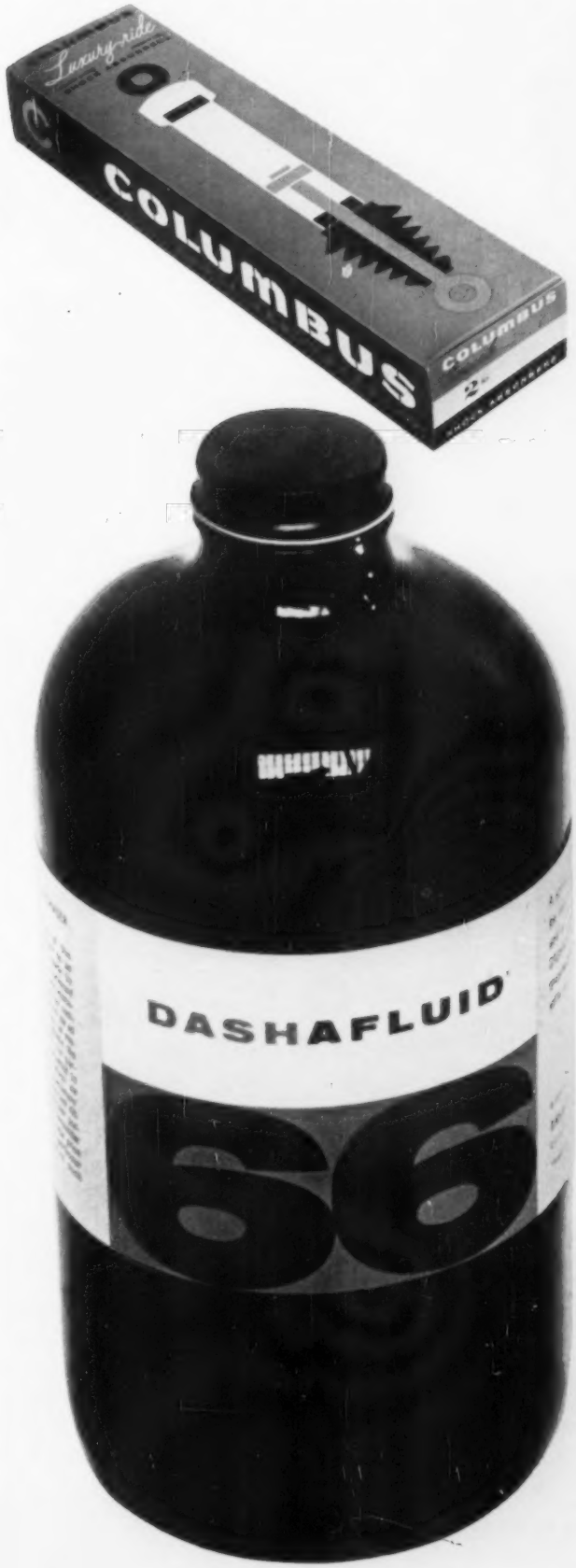
43—GM's Delco packages contain products from 12 parts divisions, and are part of a merchandising program to unify the divisions under a common symbol, typography, and color program.
Designers: GM Styling; William L. Mitchell, vice president.

44—Dundee cement bags are printed with new maroon and gray logo as part of corporate identity program. Products are coded by color.
Designers: W. B. Ford Design Associates; Harley H. Melzian, Felix V. Waser.

45—Columbus shock absorber package has schematic diagram of product in turquoise, black, and orange for strong mass-display impact.
Designers: Vie Design Studios; J. Budd Steinhilber.

46—Dashew Business Machine printing fluid bottle makes bold impression with design reduced simply to name.
Designers: Porter & Goodman Design Associates.

45—Shock absorber package, Columbus Parts Corp.
46—Printing fluid bottle, Dashew Business Machine Co.



47—Coffee buffet carton, Corning Glass Works.
48—Electronic parts carton, Corning Glass Works.

49—Clock retail and shipping cartons, Sessions Clock Co.
50—Hospital supply cartons, MacBick Co.

PACKAGING **Shipping**

47—Corning coffee service is sold in department, gift, and hardware stores. Four-color lithography on corrugated carton gives it a gift look and emphasizes end use of this new product.
Designers: Corning staff; Martin S. O'Connor, Robert Ivers.

48—Corning Clearform and Multiform packages for small glass electronic parts come in orange or blue and white. Bold pattern suggests variety and complexity of finished products.
Designers: Corning staff; Martin S. O'Connor, manager; Frederic Makie.

49—Session's master carton is printed in only one color to minimize registration difficulties of rubber-plate printing. Retail cartons come in either blue or brown and feature new corporate clock symbol and logo.
Designers: Samuel Ayres Associates.

50—MacBick blue, black, and white trademark appears on all hospital supply packaging.
Designers: MacBick staff; William J. Hannon.

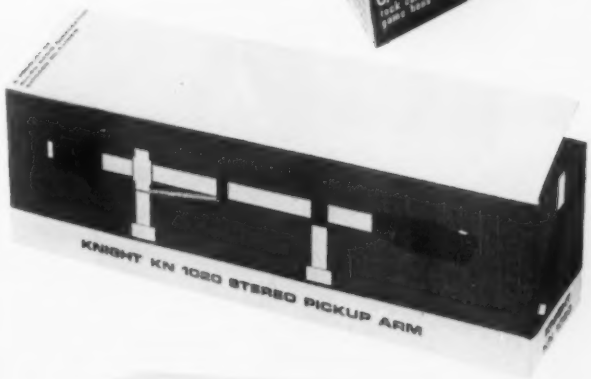
51—Vines poultry shipping and storage container meets size requirements for commercial cold storage and size preferences of its customers. Company's previous package was charged premium storage rates because it was under the minimum size—although it was the size customers liked. New one-piece breakaway container comes up to minimum-size cold storage standards, unbroken; broken, it conforms to size desired by customers. Graphic design is adapted for either broken or unbroken carton.
Designers: Mead design staff; Ott Kistner, structure, Eleanor Jahnke, graphics.

52—Knight silk-screened charcoal and red-orange corrugated shipping carton is comparable to retail shelf carton in styling and finish. Shipping label is applied to blank top panel.
Designers: Klein Wassmann/Design.

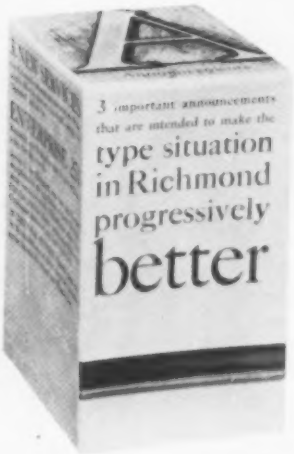
53—Oasis shipping carton graphic design is based on the hexagonal shape of the retail packages. Hexagon is printed in "Oasis" blue, green and white color scheme.
Designers: F. Eugene Smith Associates; Richard Oborne.

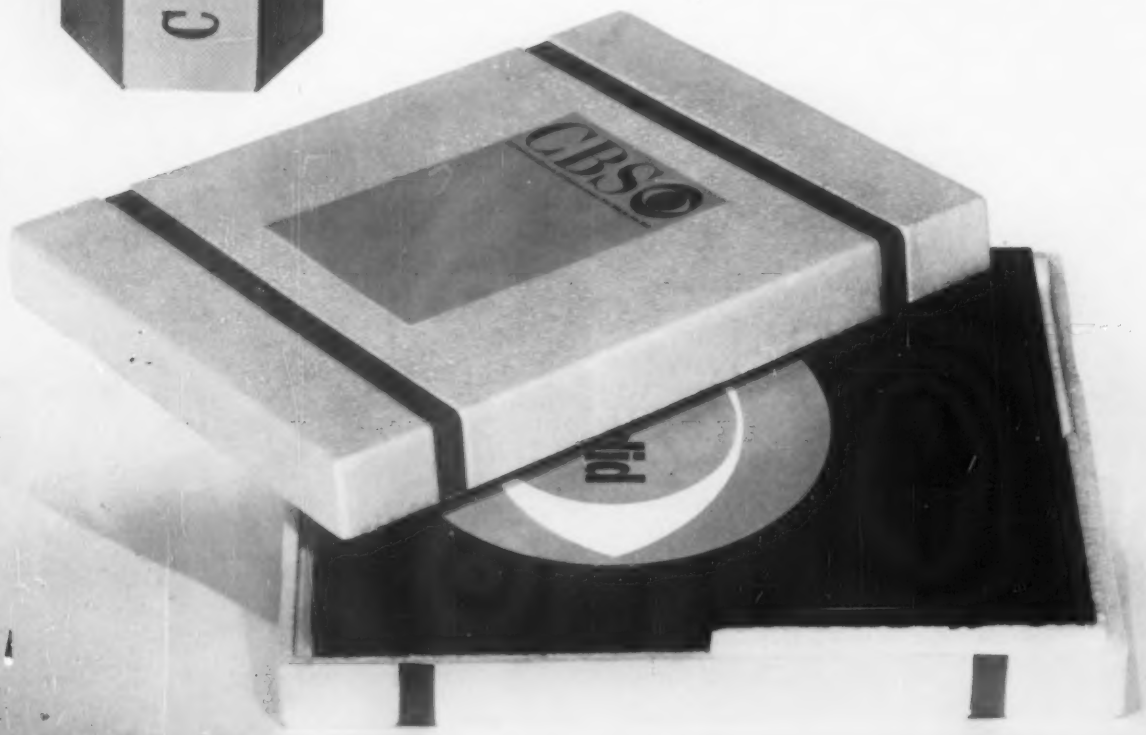
54—Go-Power shippers and cartons are "designed to give maximum exposure to new trademark for new company in new field," but, although graphically strong, cartons do not tell what company makes or for whom. Contents could be mistaken for an ancient Japanese game rather than go-cart accessories.
Designers: Silten Graphic; M. H. Silten, Jack Jones, William Chan.

51—Poultry shipping carton, Vines Poultry Company.
52—Tone arm carton, Allied Radio Corp.
53—Foam flower holder shipping carton, Smithers-Oasis Co.
54—Go-cart accessories cartons, Go-Power Corp.



55—Beer promotion carton, Molson's Brewery Ltd.
56—Promotion box, Cargill, Wilson and Acree.
57—Textile sample case, Jens Risom Design Inc.
58—Television program promotion kit, CBS Television.





PACKAGING **Promotion and trademarks**

55—Molson's red, white, and blue hexagonal beer carton introduces new product to Canadian market. Canadian flag colors and product name were chosen to appeal to purchasers' national pride.
Designers: Dave Chapman, Goldsmith & Yamasaki, Inc.

56—Cargill, Wilson and Acree promotion box in silver paper, announces three new printing services.
Designers: Cargill, Wilson & Acree staff; Al Cascino.

57—Risom textile case houses over 100 fabric samples in 10-inch cube with Velcro tab closure. Drop-down lid permits access. Covered in washable, latex-impregnated proxylin.
Designers: Jen Risom Design, Inc.

58—CBS Television program kit for 16 mm films contains films, ad mats, and newspaper proofs for promotion by network stations. The same injection-molded styrene package is used for all mailings, but the contents and outer label change for each. Packages can be stored book-fashion on shelves for ready use.
Designers: CBS Television Network; Louis Dorfsman.

59—Olin Mathieson split "O" is black on lower half, upper half is a color or tone of black. It will be used by all six Olin divisions.
Designers: Lippincott & Margulies, Inc.

60—Promedica Research and Development Corporation trademark.
Designers: Carl Regher Design Inc.

61—Tuthill Pump Company trademark.
Designers: Carl Regher Design Inc.

62—First International Symposium of the Manhattan Eye, Ear and Throat Hospital; symbol with connotations of both eye and world.
Designers: Medical Design Studios.

63—Continental Manufacturing Company trademark for Tufline valves.
Designer: Noel Martin.

64—Rugoff Theatres trademark.
Designer: Norman Ives.

65—The Bird House, a Chicago night club; symbol structure is effectively for the birds.
Designers: Klein Wassmann/Design.

66—R. Zimmerman Inc., designers of business interiors; trademark.
Designer: Hiram Ash.

67—Industries Quimicas, a Central American drug company; symbol is based on pharmacist's mortar and pestle. Pestle is indigo; dot is turquoise.
Designers: Dickens, Inc.

59-60 61-62 63 64-65 66-67

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NON-CONSUMER: Designers of EDP and electronic equipment have always concentrated on relating man and machine for effective operation. First considerations were the clear reading and logical arrangement of controls. The control problem has by no means been solved, but we note that this year some human engineers have been human enough to provide such things as a place for an operator to rest his elbow. Modularization and miniaturization are too much with us to be called "trends"; their design domination continues to add efficiency and flexibility to communications equipment and capital goods. In the contract furniture field a new kind of human engineering has just appeared: a dormitory room system that thoughtfully provides what a student needs to study and sleep; and to store his trophies, books, clothing, bongo drums, and dirty laundry.

1—Unit inscriber, IBM Corp.

3—Data accumulator, General Electric Company

2—Input and printout keyset, The Teleregister Corp.

NON-CONSUMER **EDP**

1—IBM unit inscriber, which prints common language digits in magnetic ink on paper, is pleasant arrangement of assorted shapes, letting the device's complexity contribute to its visual pleasure. Padded vinyl is provided for the operator who may need to rest an arm, even if the machine does not. Entire superstructure is hinged at rear for servicing. White and gray vinyl paint.
Designers: IBM staff; Walter Furlani, manager, Frank Wilkey, Jr., Eliot Noyes, consultant.

2—Teleregister keyset input and printout sections are separated by design — pale green Textolite is used for the keyboard, brushed stainless steel for the printer cover. Input components are grouped so that teller has efficient routing of her hand over the keyboard. Window in print section provides visual check of printed information. Sprayed and baked green vinyl organisol finish on outside of housing.
Designer: Laird Covey.

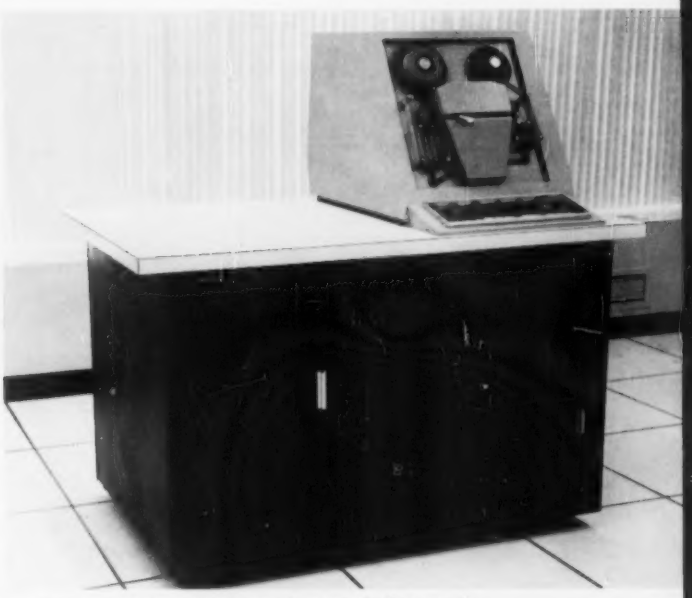
3—GE data accumulator is bench-mounted unit framed with a bold hand, but left standing on little cat feet. Air outlet is baffled to prevent foreign matter from falling into the cabinet and playing havoc with the delicate mechanism.
Designers: GE staff; John H. Wilson, manager, Henry H. Bluhm.

4—Remington Rand tape handler's modular design allows an indefinite number of units to be butted side by side. Dust door over reels slides upward; clear plastic reels simplify checking tape supply. Design element of loosely hanging tapes is reminiscent of the pendulum in grandfather's clock.
Designers: Remington Rand Univac staff; John C. Schulte, manager, R. H. Van Valkinburgh, R. S. Massarella.

5—Data Stor tape transport's front deck, which covers major part of mechanism, is horizontally divided by two finishes. Since it is a component unit, the choice of finish is up to the buyer. Extruded aluminum frame and transparent acrylic dust door.
Designers: Painter, Teague & Petertil.

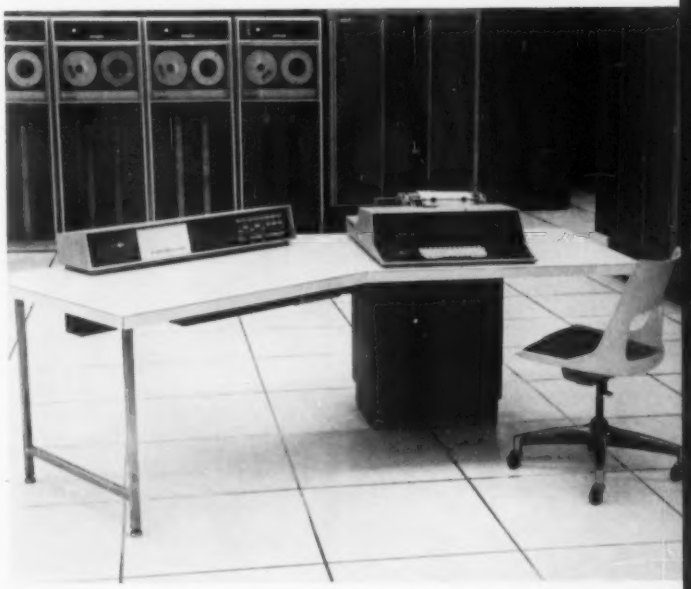
6 and 7—Minneapolis-Honeywell paper tape reader and operator's console have white Formica work surfaces, dark beige housings for logic packages, and light beige for elements above table surface which require operator attention. Placement of operating elements — off-center for the tape reader, far to the rear for display unit of console — takes into account the operator's need for a place for papers, pencils, coffee cups, or elbows. Revealed tape path in reader is an intriguing design element.
Designers: Minneapolis Honeywell staff; William H. Harkins, Philip L. Cuskley. Henry Dreyfuss, consultant.

4—Tape handler, Remington Rand Univac, Div. of Sperry Rand



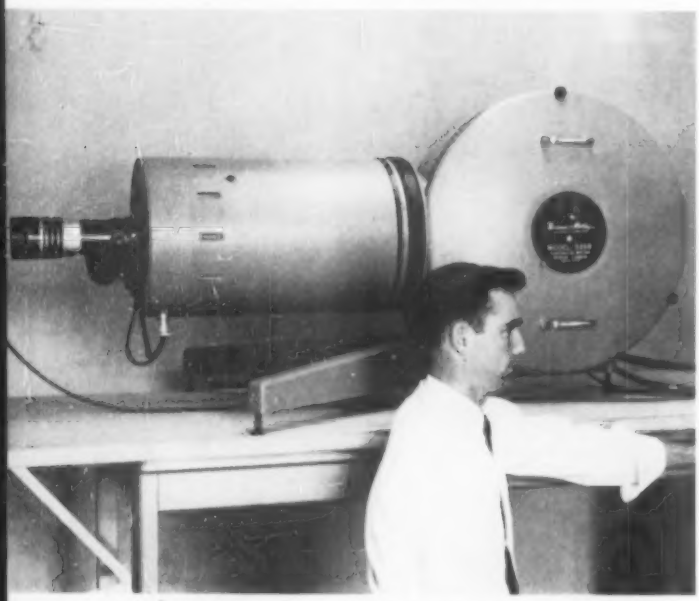
6—Paper tape reader, EDP Div., Minneapolis-Honeywell

5—Digital magnetic tape transport, Data-Stor Div., Cook Electric Co.



7—Operator's console, EDP Div., Minneapolis-Honeywell

8—Electronic enclosure system, Hewlett-Packard Co.



9—Sweeping-image camera, Beckman & Whitley, Inc.

10—Recorder/reproducer, Mincon Div., Minnesota Mining and Mfg. Co.
11—Remote indicating unit, Packard Bell Computer Corp.

NON-CONSUMER **Electronic instruments**

8—Hewlett-Packard electronic enclosure system represents comprehensive redesign with meticulous attention to details. For bench work, units can be securely stacked by using overlapping rubber feet; a flange is added, and the feet removed, for rack mounting. A cover with handle is also provided for field work. Part of design rack for rack mounting is pair of extension slides for pivoting unit out of rack into stable position for minor repairs. Two identical die-cast frames function as structural support and panel handles. Textured metal and smooth paint have replaced former wrinkle-finish.
Designers: Hewlett-Packard staff, Carl J. Clement, Jr., manager.

9—Beckman & Whitley sweeping-image camera solves the problem of joining two oversize geometric forms by simply butting them together. Splayed feet have a hard job putting over the idea of balance and stability, however.
Designers: Beckman & Whitley staff.

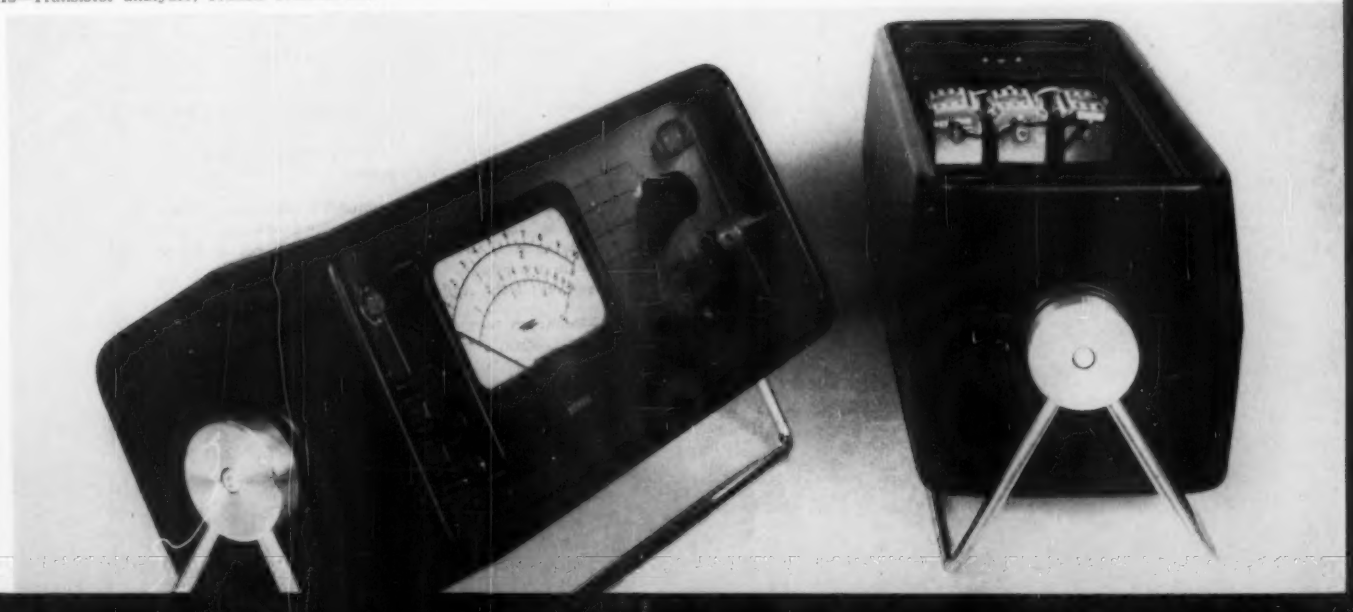
10—Mincom recorder/reproducer for intermediate range packs 14 transistorized tracks into the same design scheme developed last year for only seven. The real change is in the dust door, which has more refined framing and reveals more of the interior parts.
Designers: Mincom staff: G. Nels Johnson, supervisor; Art Kato, Ted Smith.

11—Packard Bell remote indicating unit relays check-out information from a computer testing the booster stage of the Saturn space vehicle. It indicates where the operator is to go, what he is to do, and when his action has been satisfactorily completed. Since it will be operating in many positions, the unit has a handle which allows it to sit, hang, or be carried.
Designers: Packard Bell staff; Boris Field, manager; Bernard Caminker, Charles Zlatkoff.

12—Precision Instrument portable recorder/reproducer packs seven channels into an instrument one-tenth the size of comparable units. Considerable space is saved by mounting the second tape reel in the door frame, and, of course, by the use of transistorized components. The entire tape compartment is removable from the main body of the unit.
Designers: Leonard Albrecht Associates.

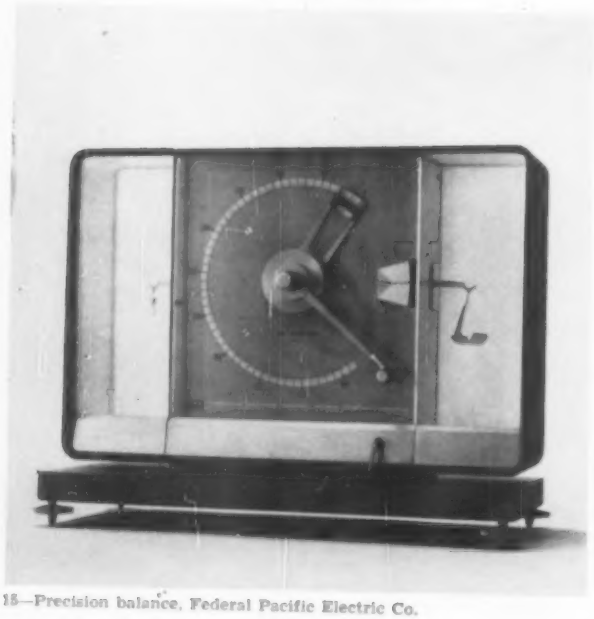
13—Transis-Tronics transistor analyzer case is designed with overhang, and covered with black grained Royalite, to withstand the rigors of transportation. The unit pivots on two elegant aluminum end connectors for above and below-bench use, and for testing transistors (when the analyzer is used upside down with back cover removed).
Designers: Transis-Tronics staff; Richard C. Heyser, Wayne Helmer, Don Albinson, appearance consultant.

12—Portable recorder/reproducer, Precision Instrument Co.
13—Transistor analyzer, Transis-Tronics, Inc.



14—Tachometer, Knight Div., Allied Radio Corp.

16—pH analyzer, Beckman Instruments, Inc.



15—Precision balance, Federal Pacific Electric Co.

NON-CONSUMER **Scientific Instruments**

14—Knight tachometer, handsome because uncontrived, has a black pointer for rpm indications, a red one for setting at specific points. Universal mount permits use on either vertical or horizontal surfaces.
Designers: Klein Wassmann/Design.

15—Federal Pacific's balance case floats above its platform; the adjustable feet bring it down to earth. This may be over-designed for laboratory purists—its attenuated forms, although expressing the delicacy of its function, add up to a certain frailty.
Designers: Raymond Loewy/William Snaith, Inc.

16—Beckman pH analyzer is deeply framed, small-size component executed in light gray paint on sheet metal, dark gray etched on aluminum panel, red graphics, and satin-brushed aluminum. Coin-adjusted knobs discourage knob twiddlers.
Designers: Beckman staff; John Leonard, project engineer; David J. Malk.

17—Beckman wave length marker is unobtrusively and carefully designed to do its job well when called on. It can be used in the hand or resting on the table, and the mechanism is actuated by pressure at any spot on the bar. Housing is two injection-molded Cycolac sections held together by steel clips only, to facilitate opening for repairs.
Designers: Beckman staff; Robert E. Moody, project engineer; David J. Malk, Robert E. Greene.

18—CEC moisture monitor represents a technical advance; its form is unoriginal, but straightforward.
Designers: Consolidated Electrodynamics staff; R. F. Marsh, engineer; A. Nowina-Sapinski, appearance.

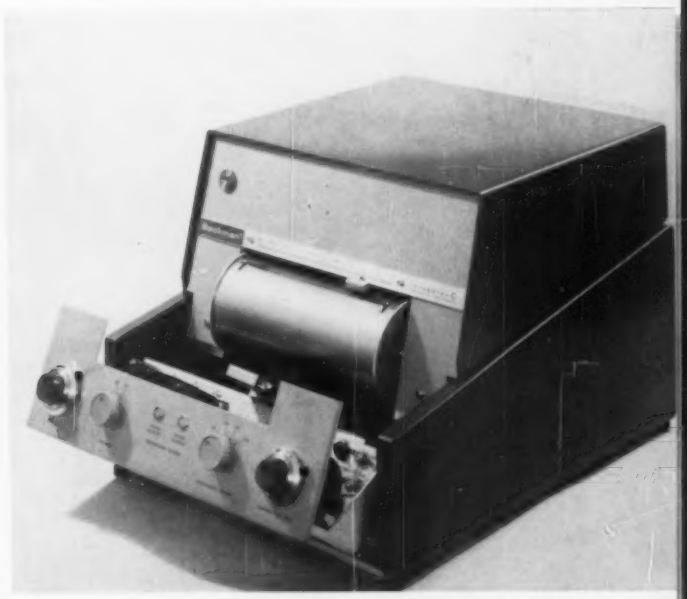
19—MRC diffractometer attachment simplifies a complex laboratory job by looking well-organized and by innovation: the heating element, for example, is the stage for the sample. Polished aluminum housing; beryllium windows.
Designers: MRC staff; Alfred E. Riccardo, manager.

20—Beckman temperature programmer for gas chromograph concentrates electronic components under control panel which opens forward for repair. Lid lifts off for rapid cooling, accounting for its slightly hooded overhang. Graphics are exceptionally neat, but best element is the big, partly revealed drum turning on end caps whose edges are milled like a coin's.
Designers: Beckman staff; Donald Carle, project manager; David J. Malk, Robert E. Greene.

17—Wavelength marker, Beckman Instruments, Inc.

19—Diffractometer attachment, MRC Manufacturing Corp.

18—Solids moisture monitor, Consolidated Electrodynamics Corp.



20—Temperature programmer, Beckman Instruments, Inc.

21—School desk, Brunswick Corporation

22—Analog computer kit, General Electric Company

NON-CONSUMER **Medical and educational equipment**

21—Brunswick "Trizoid" desk has a drop-leaf that rises to horizontal to provide extra work surface, or to vertical to provide privacy partitioning for a pinwheel "study carrell" arrangement. Books go into an easily-reached basket at the front. Unfortunately, the colors are still watered-down, "eye-saving" pastels and the legs are still swedged.
Designers: Dave Chapman, Goldsmith & Yamasaki, Inc.

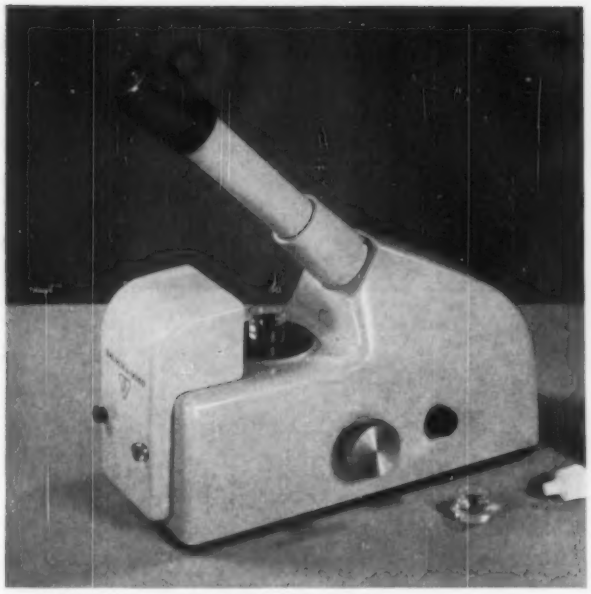
22—GE analog computer kit is one of seven do-it-yourself electronic kits designed for schools and science hobbyists. Not a toy in either price or purpose, its precise packaging and well-organized array of parts immediately establishes its "semi-professional" nature. Packaging's transparent top permits examination, but discourages pilfering; opaque base becomes the console for the assembled kit.
Designers: GE staff and Visual Marketing, Inc.

23—Bausch & Lomb serum protein meter evaluates serum samples by measuring their light refraction through an integrally mounted telescope. It is hard to imagine anything inaccurate coming out of these solid, substantial, interlocking forms—which is one way for an instrument to make a good impression.
Designers: Bausch & Lomb staff; Kenneth Maier.

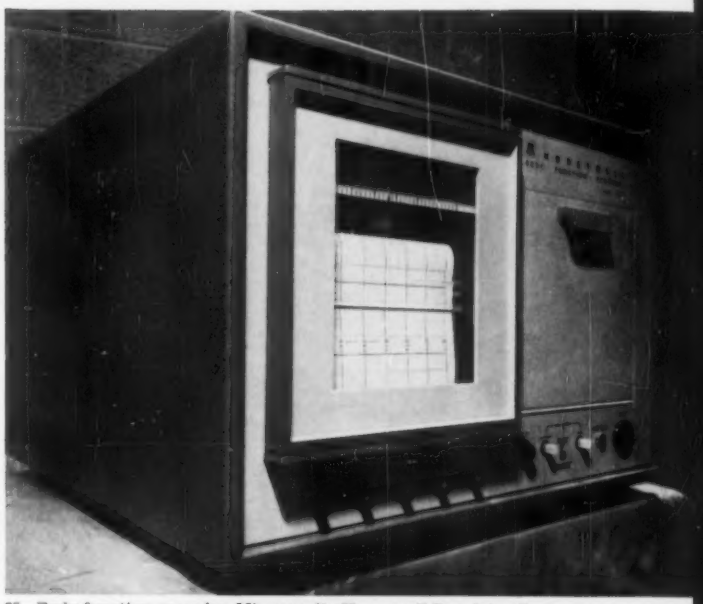
24—Labline disposable cage for laboratory mice is a polystyrene base suspended from a stainless steel frame, capped with a perforated nickel-plated steel top. It is outfitted with a water bottle and an aluminum food hopper which together hold enough food and drink for six mice (its maximum capacity) for a week.
Designers: Microbiology and Design Departments, Southern Illinois University; Harold Cohen, project head.

25—Minneapolis-Honeywell body function recorder measures and graphs the pulse, respiration rate, temperature, and blood pressure of critically ill patients. An immaculate looking instrument for a crucial job, it nevertheless can be understood and used by nurses with no technical training.
Designers: Minneapolis-Honeywell staff; Tommy Tyler.

26—Western Electric artificial larynx is a modest-looking transistorized kazoo-shaped object with a fascinating function: held against the throat, its membrane "speaker" picks up the vibrations of the vocal chords and converts them into sound.
Designer: Henry Dreyfuss.



23—Serum protein meter, Bausch & Lomb, Inc.



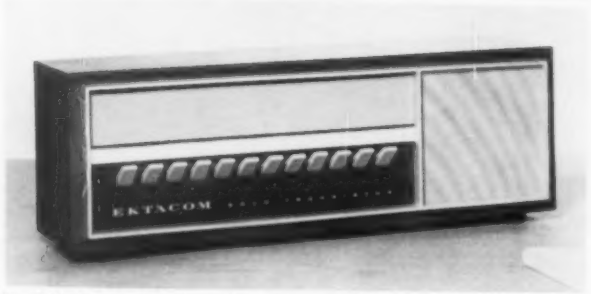
25—Body function recorder, Minneapolis-Honeywell Regulator Co.

24—Mouse cage, Labline, Inc.

26—Artificial larynx, Western Electric Company

27—Broadcast turntables, Collins Radio Company

28—Dictation machine, IBM, Inc.



29—Telephone answering set, Electronic Secretary Industries, Inc.
30—Intercom, Fisher Berkeley Corporation

NON-CONSUMER **Communications**

27—Collins "Announcer" is a portable turntable for disc jockeys. Case is welded steel with extruded aluminum trim and anodized aluminum control panel. Extruded steel legs are removable and extremely sturdy.
Designers: Zierhut/Vedder/Shimano.

28—IBM "Executary Portable" dictating machine closes up completely and needs no additional carrying case. Unit is charcoal gray, with brushed chrome doors and bright blue control panel. Handle is integrated into the machine.
Designers: Eliot Noyes & Associates.

29—Electronic Secretary's telephone answering set uses two tape recorders (instead of 45 rpm record), and butts them end to end so that the shallow rectangular shape of the case suits its intended desk-top location. Tapes are accessible under hinged cover.
Designers: Raymond Loewy/William Snaith, Inc.

30—Fisher Berkeley "Ektacom" is an intercom designed to fit anywhere—home, office or factory. Cabinet is hand-rubbed walnut, and control panel is beige and black. Operation is simple: each switch has three positions—off, listen, talk.
Designers: Walter Landor & Associates.

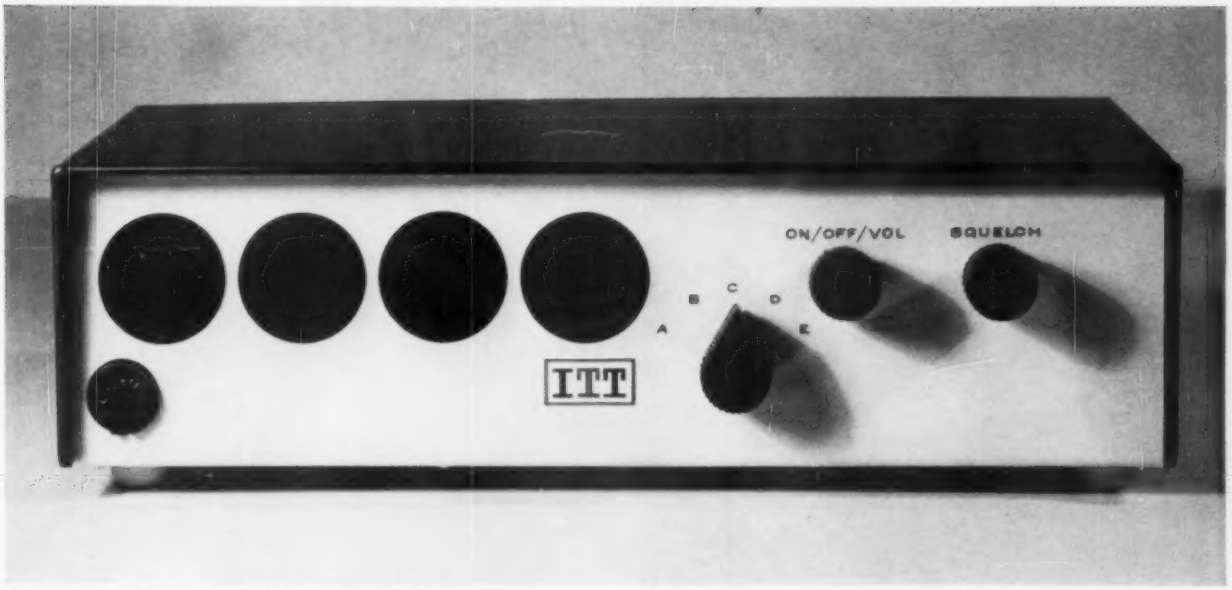
31—ITT Citizen's band radio has striking appearance due to unusual treatment of the speaker area — four circles actually cover a single elliptical unit. The only difficulty is that the consumer may think he is getting four speakers instead of one.
Designer: Samuel D. Han.

32—Hartman "White Cloud 3059" ship-to-shore radio-telephone has a remote control unit. Control panels are neatly designed with standard circular shapes for broadcast dial, twin speakers, and output meter. Arrows run full width of knobs, making them easier to read.
Designer: Jaap Penraat.

33—Knar "Konalert II" continuously monitors civil defense and weather warnings. Conelrad alert light is accentuated by the civil defense symbol which surrounds it. Control panel is simply designed.
Designers: Walter Landor & Associates.

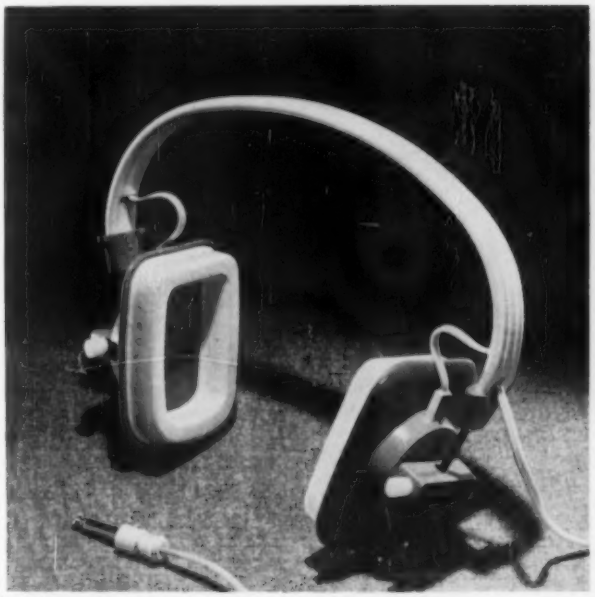
34—Ampex VR-8000 television recorder has a minimum number of controls and knobs for operation by personnel with minimum training. Tape storage cabinet is integrated into the design; unique feature is the single helical scanning head.
Designers: Ampex staff: R. Hibbard, M. Southcott, F. T. Walsh.

35—Clevite brush headphones for audio teaching devices have been redesigned to appeal to collegians. Head band is said to adjust to any type of hairdo; colors are coral, suntan, spruce green, and black. Ear cushions are attached with Velcro and remove for cleaning.
Designers: J. M. Little & Associates.



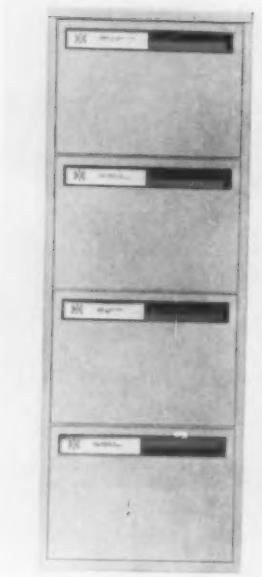
31—Citizen's band radio, ITT, Distributor Products Div.
32—Ship-to-shore radio, Hartman Marine Equipment Corp.

33—Conelrad radio, Kaar Engineering Corp.
34—TV recorder, Ampex Video Products Co.



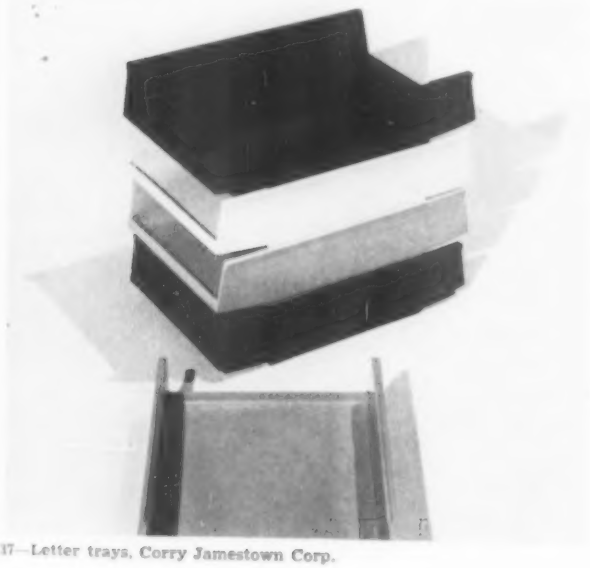
35—Headphones, Clevite Electronic Components

36—Desk set, McDonald Products Corp.



38—File cabinets, Art Metal, Inc.

39—Coat closet, Hugh Acton



37—Letter trays, Corry Jamestown Corp.

NON-CONSUMER **Business Equipment**

36—McDonald desk set of extruded aluminum is for businessmen in glass towers. Besides being clean and modern, it is also functionally thoughtful—e.g. the pen and pencil holder is grooved to slide along the frame of the black linoleum pad.
Designer: James Vevirit.

37—Corry Jamestown stacking letter trays are molded of polystyrene and come in charcoal, orange, white, blue, and beige.
Designers: Klein Wassmann Design.

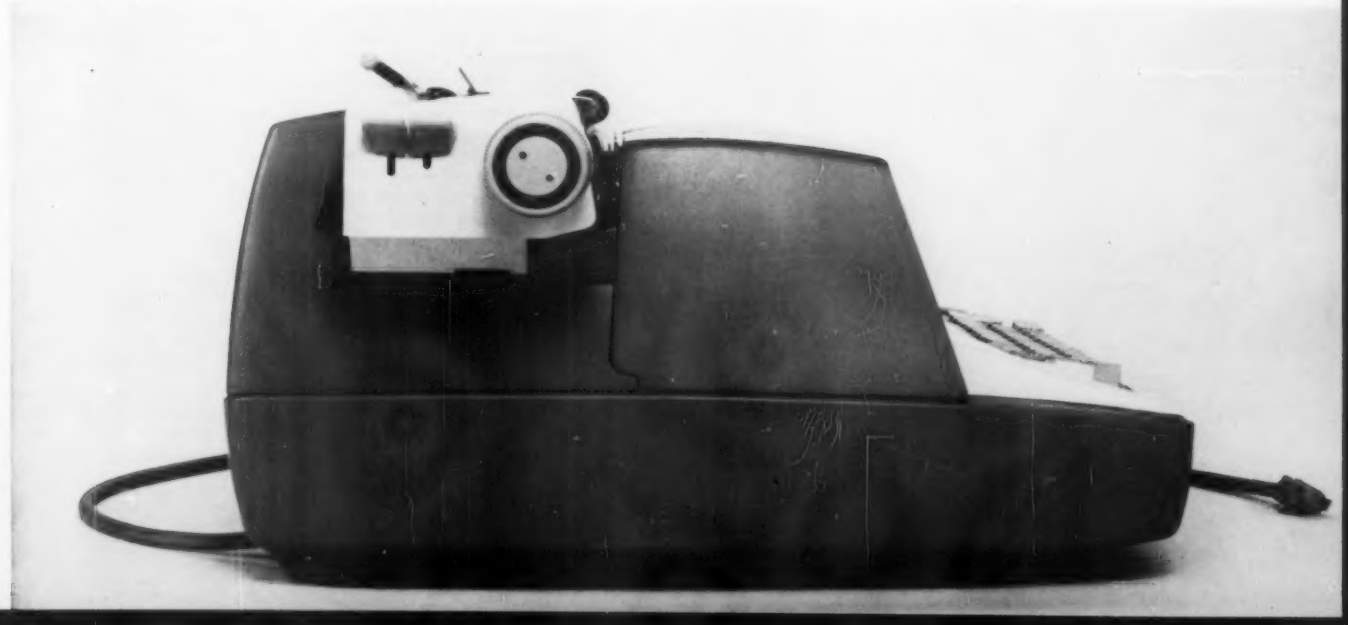
38—Art Metal filing cabinets align drawer pull and label in a single horizontal element, a small change that makes a big difference in the visual order of a bank of files.
Designers: Knoll Planning Unit.

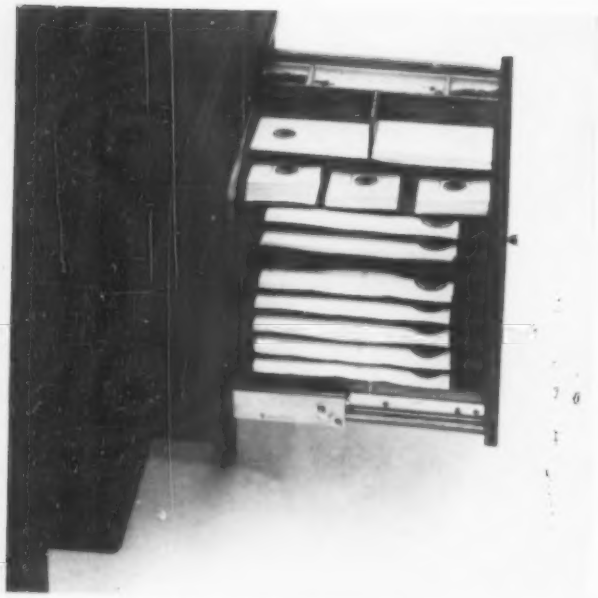
39—Hugh Acton wall-mounted wardrobe takes care of architectural absent-mindedness by providing closetless offices with a place for hat, coat, and attaché case. The slab can be of walnut or laminated plastic; the fittings are chromed steel.
Designer: Hugh Acton.

40—IBM's "Selectric" is most remarkable for its basic typing element: the type is on a small ball that whirls and dips across a bar as the keys are struck. There is no moving carriage. To express the non-motion, the housing is a serenely sculptured form that tends, unfortunately, to look more sculpture than machine.
Designers: Eliot Noyes & Associates.

41—Smith-Corona electric typewriters (standard is shown; there is also a portable) have nicely detailed joinings and make interesting color distinctions between acting and supporting parts: keyboard area and carriage end-caps are off-white, setting them apart from body. Dished keyboards have a strong rationale (they shorten the distance between fingers and keys) but a weak curve.
Designers: Stevens-Chase Design Associates.

40—Electric typewriter, IBM, Inc.
41—Electric typewriter, Smith-Corona-Marchant, Inc.





42—Stationery pedestal, Cumberland Furniture Corp.

43—Folding table, Hugh Acton

44—Desk, Bentson Manufacturing Company, Inc.
45—Desk, Stendig, Inc.

NON-CONSUMER **Business Furniture**

42—Cumberland stationery pedestal (for Cumberland desks, naturally) stacks storage slots horizontally so that the secretary who deals with multiple business forms can reach the desired one with a minimum of effort.
Designer: Jacob Epstein.

43—Hugh Acton pedestal tables fold up by a series of ingenious actions: adjustable-height feet retract into legs; legs turn on concentric tubing to fold flat, one above the other. The top folds conventionally, comes round, or square as shown. The square may be linked in series with special fastening pins, for banquet or conference use. A special hook also permits the folded table to be stored hanging up. Steel with Formica or walnut.
Designer: Hugh Acton.

44—Bentson metal desks are uncomplicated, unpretentious, and moderately-priced. The frames and the good handles are aluminum; all the rest is blue or white enamel steel; it comes in all the usual arrangements of pedestals and wings.
Designers: Bentson staff; Ernest Latham.

45—Stendig top-opening pedestal desk exposes a whole filing system to view. It may not be (as the manufacturer claims) the first new desk in 50 years, but it should provide a handy working arrangement for people who deal constantly with reference material. It can be fitted for various storage needs.
Designer: George Mulhauser.

46—Knoll secretarial chair converts normally clumsy seating adjustments into smooth forms: a cylindrical sleeve around the pedestal adjusts the seat height; two flush-mounted aluminum knobs on the back shaft adjust the pitch of the back. To minimize bulky look, base is a combination of brushed and black oxide aluminum.
Designers: Knoll Design Development Group; Max Pearson.

47—Albano swivel chair has a beautifully modeled bucket seat, but seems slightly flat-footed base (the fault may be in the pedestal shaft, whose size and abrupt joining to base seem to overpower the feet). Black leather upholstery with down-filled cushion; stainless steel.
Designer: Nicos Zographos.

46—Secretarial chair, Knoll Associates, Inc.
47—Swivel chair, Albano Company, Inc.

48—Storage system (below, handle detail) Herman Miller, Inc.

NON-CONSUMER **Institutional Equipment**

48—Herman Miller dormitory storage system wraps up a student's studying, storage, and sleeping accessories in one continuous wall unit, which can be assembled in any number of combinations, without special tools. It is hung from standard Unistrut sections pressure-mounted to the wall, and touches neither floor nor ceiling. Designed with great attention to minutiae, the unit has nicely rounded doors, fine hinging and handle details.
Designer: Charles Eames.

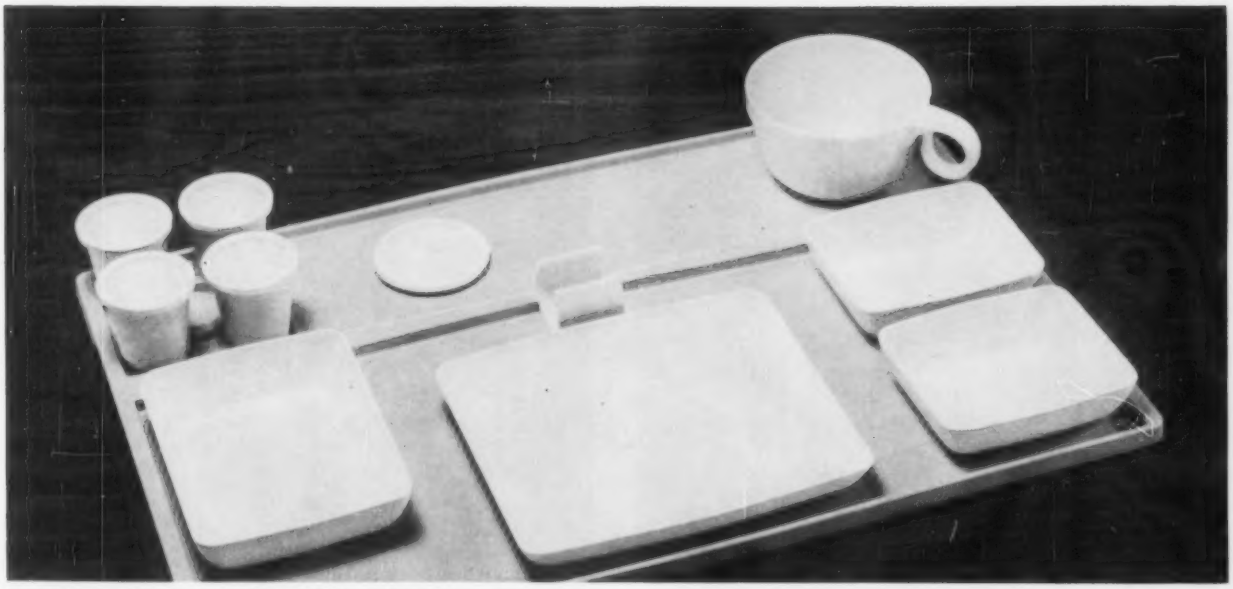
49—American Airlines serving tray, of styrene with styrene or melamine dishes, makes the best of compressed meals by resorting to simplicities rather than to the illusion of "gracious living."
Designer: Walter Dorwin Teague Associates.

50—International Silver tableware for La Fonda del Sol restaurant is stock design made special by scored pattern that hides scratches. (Gaucho knife and chocolate whisk are standard Latin American items.)
Designer: Alexander Girard.

51—Herman Miller dining chair for La Fonda del Sol restaurant has removable one-piece upholstery and cushioning: both are bound with a channeled vinyl strip which snaps over the edge of chair shell. Chair seat is shallower than usual, making back more comfortable.
Designer: Charles Eames.

52—Bobrick Dispensers collect mirror, towel and soap dispensers, and shelf into one handsome recessed unit. Stainless steel with satin finish.
Designers: Bobrick staff; Donald A. Gerds, consultant.

53—Gamewell fire alarm's bull's eye design makes itself immediately understood for quick, emergency action. Glass rod is added as false-alarm deterrent.
Designers: Samuel Ayres Associates.



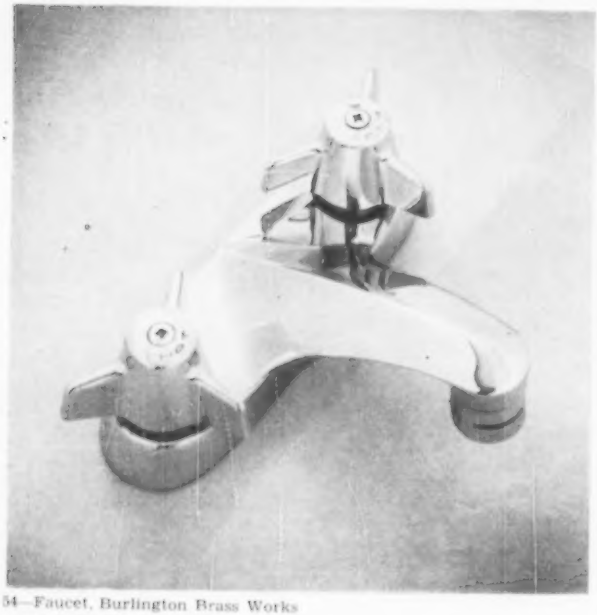
49—Airline serving tray, American Airlines, Inc.

50—Tableware, La Fonda del Sol, International Silver Company.

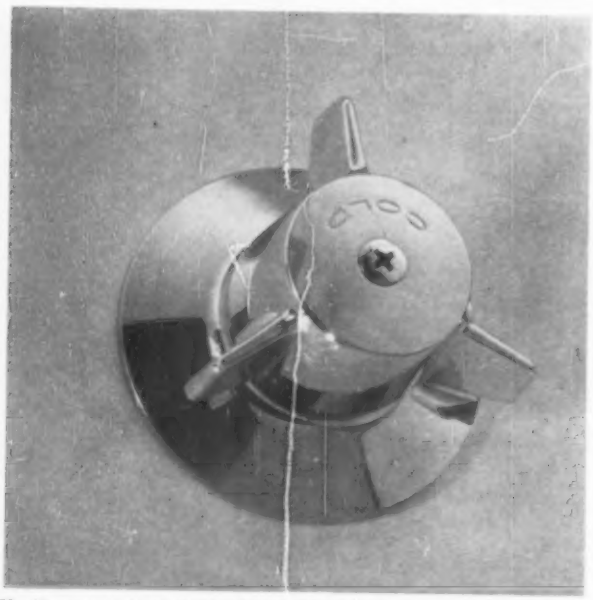
51—Chairs, La Fonda del Sol, Herman Miller, Inc.

52—Washroom dispenser, Bobrick Dispensers, Inc.

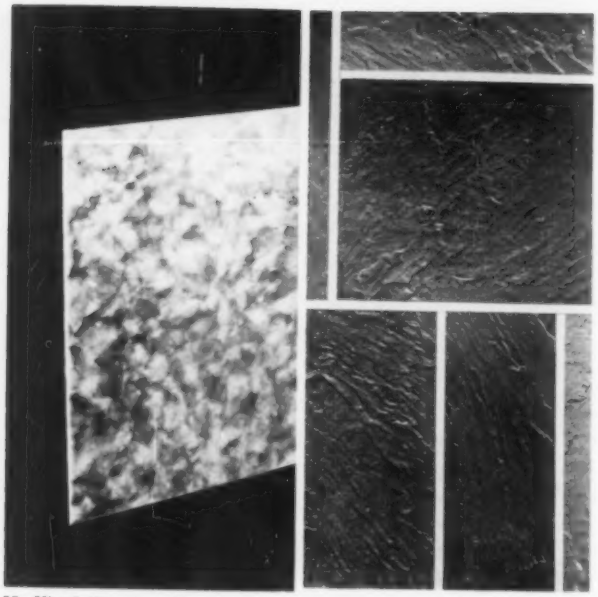
53—Fire alarm, The Gamewell Company.



54—Faucet, Burlington Brass Works



55—Shower controls, Burlington Brass Works



56—Vinyl tile, Armstrong Cork Company
57—Vinyl flooring, American Biltrite Rubber Company

NON-CONSUMER **Building Products**

54, 55—Burlington Brass bath controls have fluid shape appropriate to a water tap. Spout, handles, and base form one unit of highly polished chrome.
Designers: Schory-Steinbach Associates.

56—Armstrong Cork "Castilian" vinyl tiles have a three-dimensional "quartz" effect achieved by combining translucent, transparent, and opaque vinyls. Muted colors are borrowed from natural stone.
Designers: Armstrong staff; Arthur E. Kern.

57—Amtico flagstone vinyl flooring duplicates the color and texture of slate but is lighter, easier to install, and safer for children.
Designer: Natalie S. Marcus.

58—Luminous Ceilings light baffle is formed of two "waffle-grids" sandwiching a layer of colored vinyl. Five colors are available and if an additional texture is wanted, the surfaces of the baffle can be imprinted in a pattern of black crosses.
Designer: Charles Deaton.

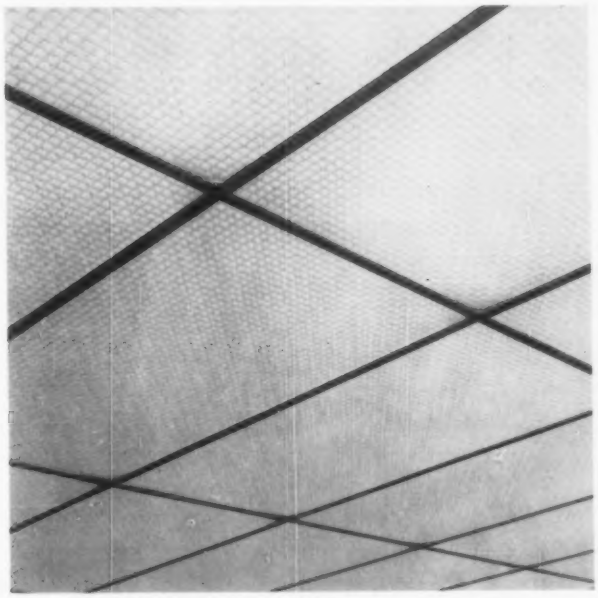
59—Owens-Corning ceiling system holds interchangeable acoustical and lighting panels in an aluminum grid. It can be installed with ordinary household tools and is easy to assemble: panels lie within the grid, and grid itself is engineered for quick leveling.
Designers: Owens Corning staff.

60—Gotham Lighting ceiling for the Tower Suite of the Time & Life building combines direct and indirect lighting: aluminum grid members are channels for indirect lighting; cylinders at intersections hold downlights.
Designers: George Nelson & Company, Inc; Gordon Chadwick. Martin Garon, lighting consultant.

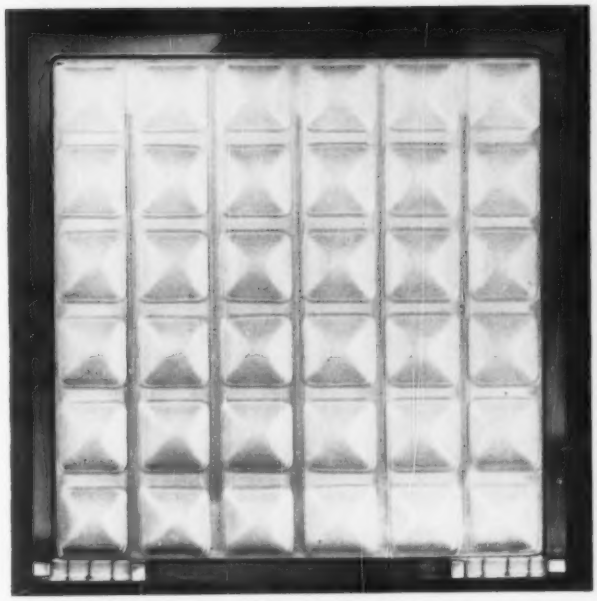
61—General Electric fluorescent panel is a new invention which should increase the appeal of fluorescent lighting: square shape ($11\frac{5}{8}$ inches) is more attractive than its tubular predecessors, eliminating the need to disguise components.
Designers: General Electric staff; William C. Martyny.

62—Kawneer "Zipperwall" is an exterior wall system of aluminum mullions, glass windows, and enameled-steel-over-perlite-core panels all zipped together with an H-shaped neoprene gasket. System is inexpensive, easy to assemble, and weatherproof.
Designers: Kawneer staff.

63—Julius Blum "Curtainscreen" is a versatile system of interlocking components forming exterior and interior screens and railings. Vertical aluminum mullions may be etched, anodized or laminated with wood veneers. Slip-in panels are of plastic, wood or glass.
Designers: Seery & Company.

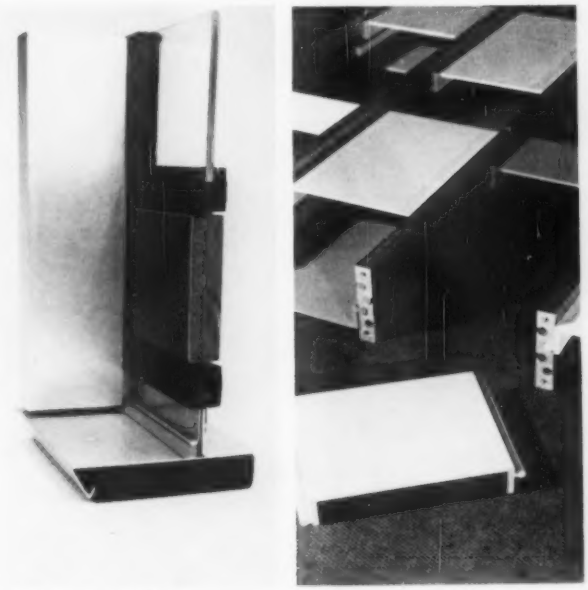


58—Plastic baffle, Luminous Ceilings, Inc.

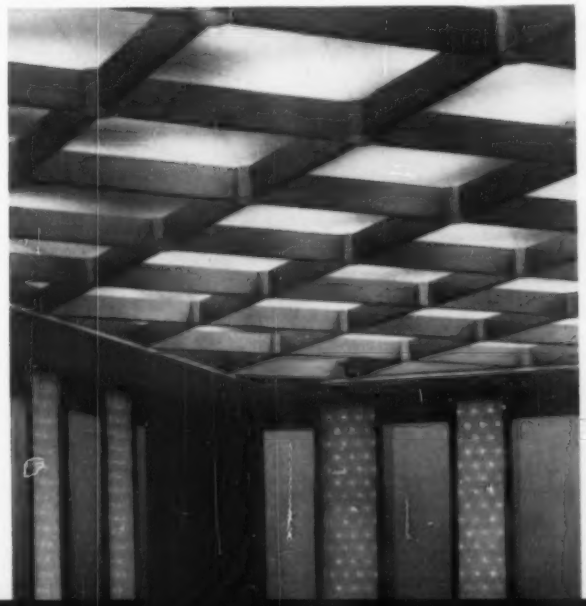


61—Fluorescent bulb, General Electric Company

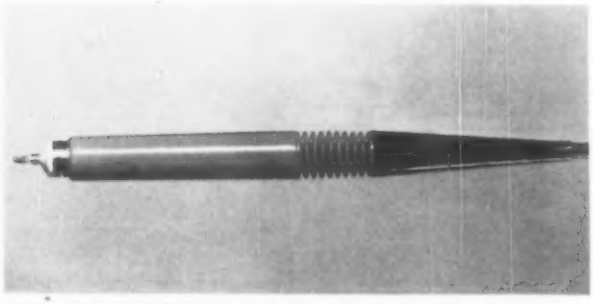
59—Ceiling systems, Owens-Corning Fiberglas Corp.
60—Light system, Gotham Lighting, Inc.



62—Wall system, Kawneer Company
63—Curtain wall, Julius Blum & Co., Inc



64—Cordless drill, Black & Decker.



65—Crimping tool, The Thomas & Betts Co.
66—High frequency probe, Tektronix, Inc.

NON-CONSUMER **Tools**

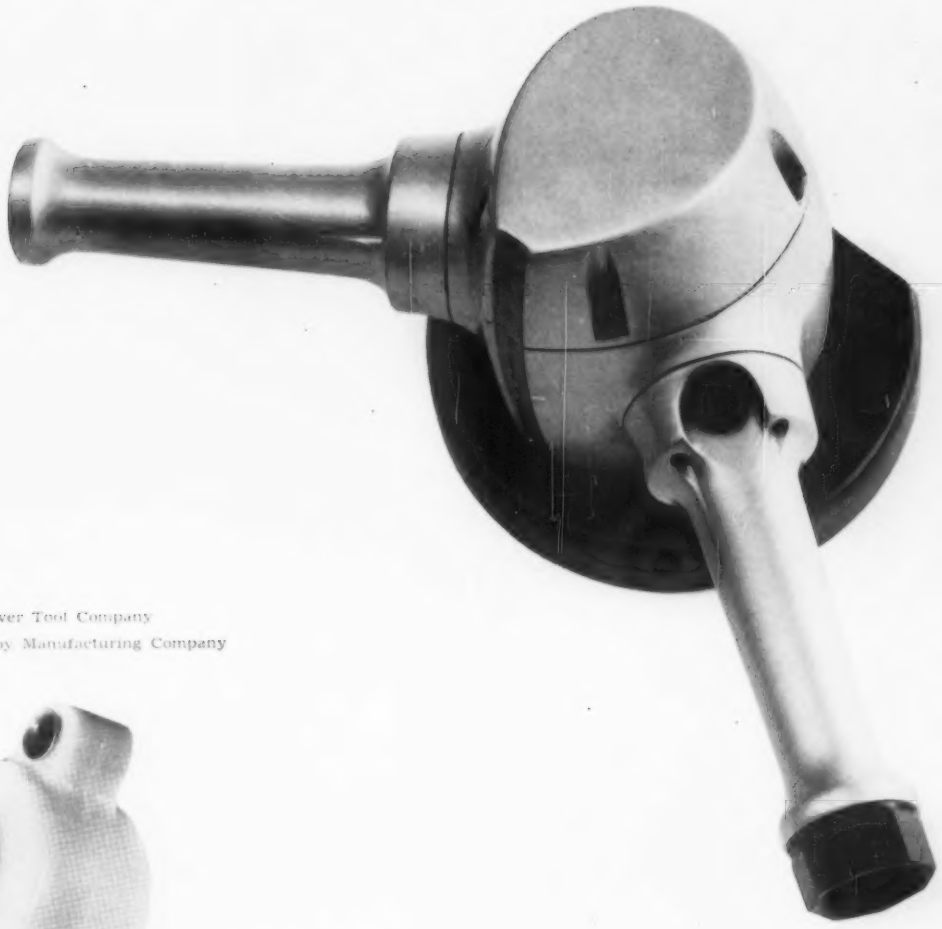
64—Black & Decker portable drill is run on four fuel cells of nickel-cadmium, which can be recharged 400 times before replacement. With die-cast aluminum housing and Cycolac handle, it weighs only four pounds. Although idea is new, outer shell follows the usual drill configuration.
Designers: Black & Decker staff.

65—Thomas & Betts crimping tool for the electric industry is a neat tool of color-anodized forged aluminum. Handles are plastisoled.
Designers: Thomas & Betts staff; D. P. Schwester, Harold B. Martin.

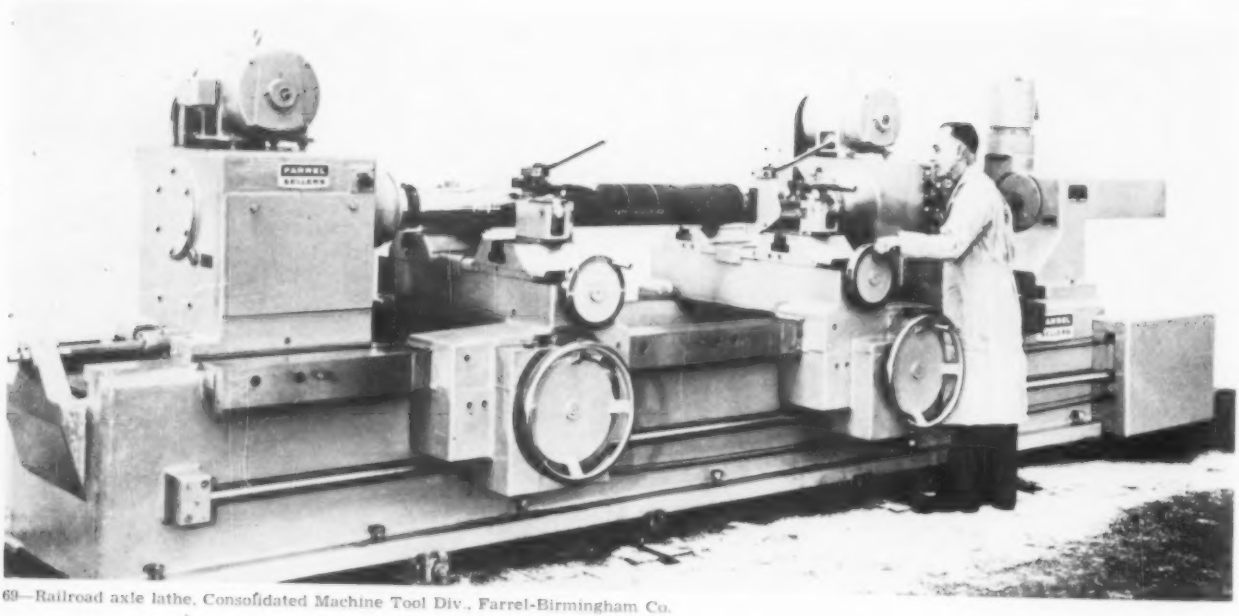
66—Tektronix high-frequency probe's best design point is air intake grille.
Designers: Tektronix staff; Gale Morris, Robert G. White.

67—Thor air grinder for industrial metal-working is made of die-cast magnesium to minimize weight. The material, in combination with smooth curves, suggests a fine working instrument.
Designers: William M. Schmidt Associates; Dann Deaver.

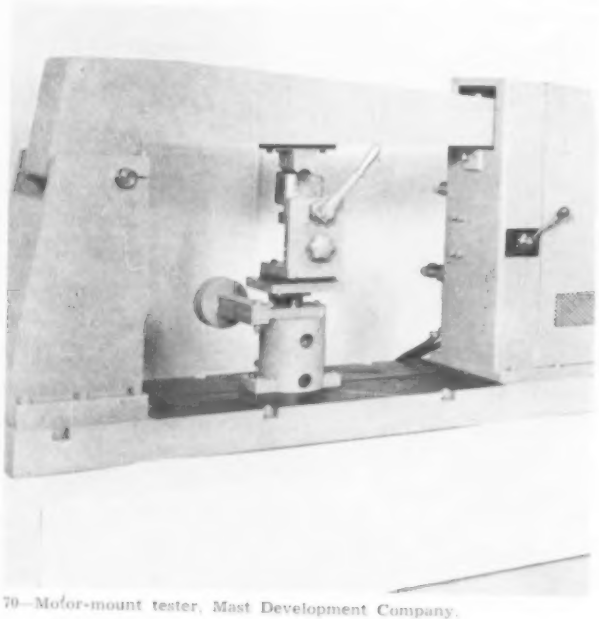
68—Coy rotary gear pump is a miniature component weighing only three ounces. Its pleasant looks derive from skillful job of plastic molding. Delrin housing and gears, Zytel bearings.
Designer: Oscar C. Blomgren.



67—Air grinder, Thor Power Tool Company
68—Rotary gear pump, Coy Manufacturing Company



69—Railroad axle lathe, Consolidated Machine Tool Div., Farrel-Birmingham Co.



70—Motor-mount tester, Mast Development Company.

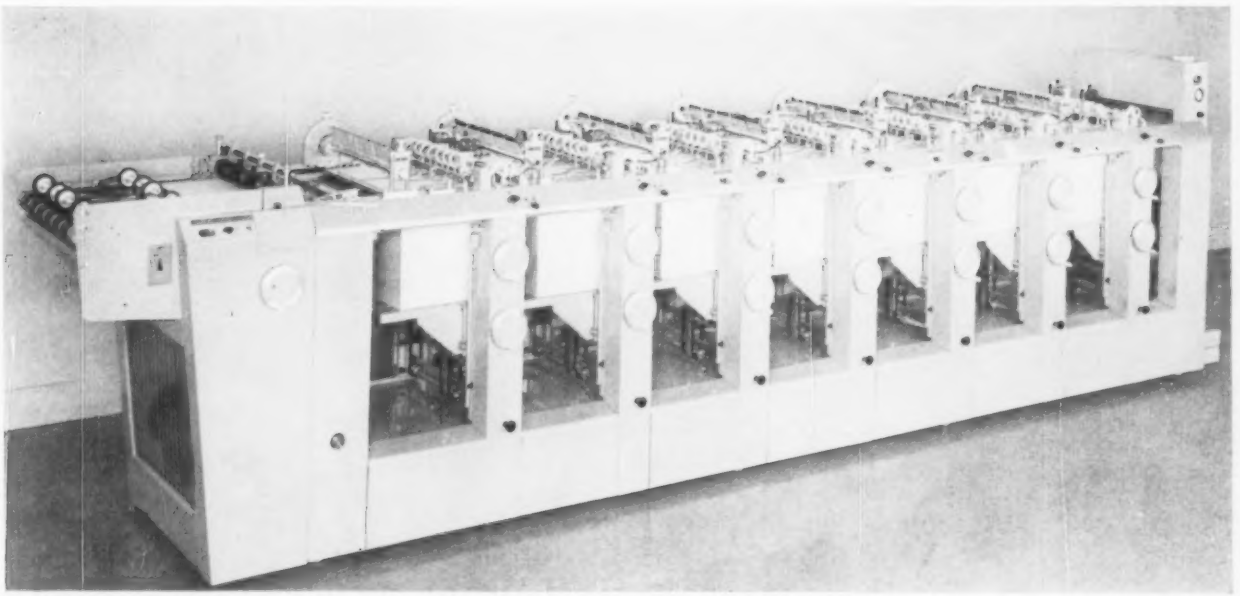
NON-CONSUMER **Machinery**

69—Consolidated Machine Tool's railroad axle lathe is an amalgam of designed and engineered units, coordinated to look nearly manageable. Machined iron castings, welded steel plate, formed steel sheet metal.
Designers: Van Dyck Associates; Howard F. Weber.

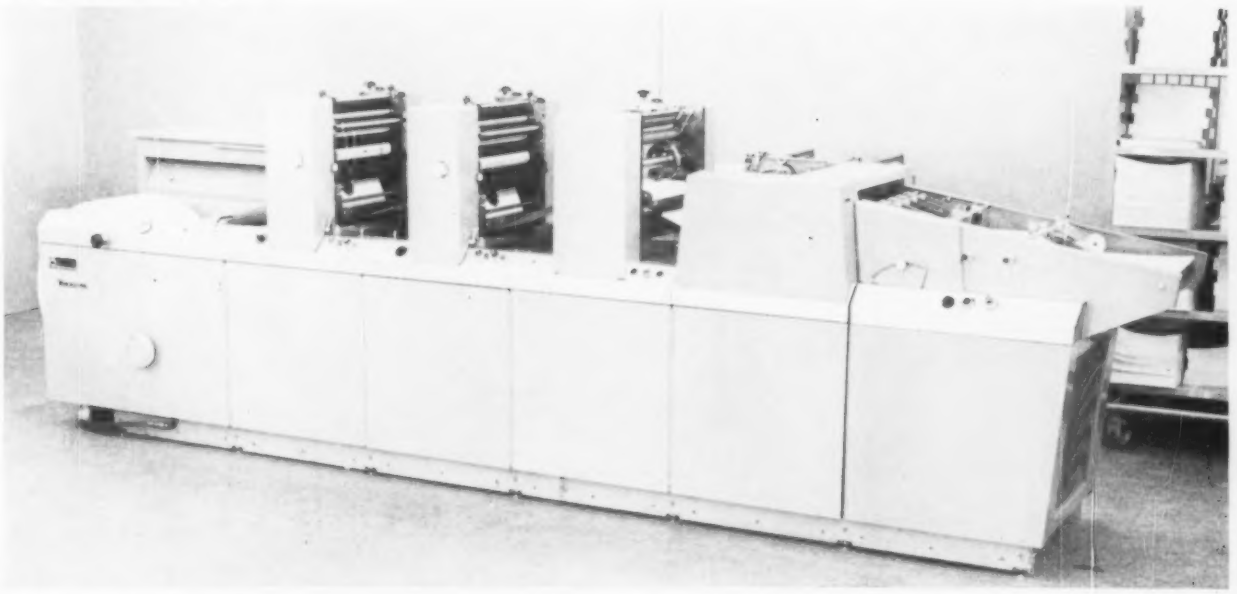
70—Mast motor-mount tester determines, in association with other electronic components, dynamic spring rate of automobile rubber mounts. Although both columns are similarly handled, the one at right houses an intricate assembly, the left one is a support column. Welded steel units with gray epoxy paint.
Designers: Mast Development staff; Gifford M. Mast, Samuel E. Hohulin, Lewis M. Shuh.

71-72—Didde-Glaser collator and offset printing press organize a lot of complicated machinery into a series of related modular units. Designed particularly for the production of business forms where numbering, carbon attaching, and punching play as large a role as printing, the various units that do these jobs are plugged into the basic offset machine. The collator unit can be increased according to the size of the job. There is more shrouding than usual, which cleans up appearance and also increases safety. Controls are mounted on side bevel in about the same position on every unit.
Designers: Didde-Glaser staff; W. A. Siegel, project engineer. W. D. Jensen Engineering Co.; Jack Meeker, W. D. Jensen.

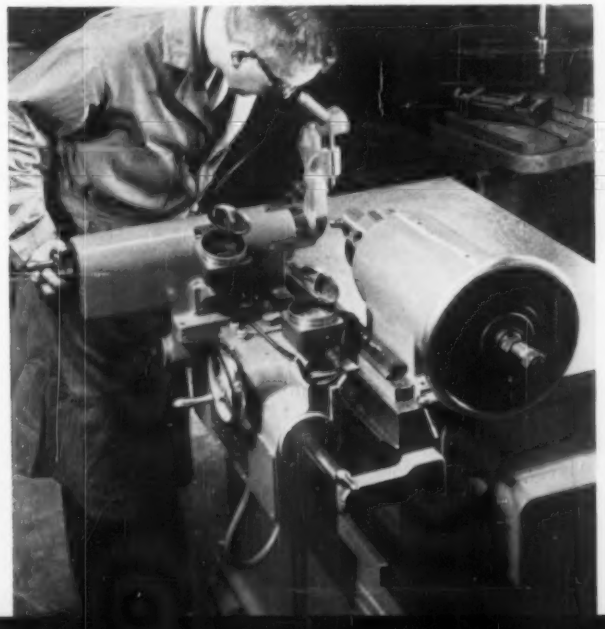
73—Microbore precision tool presetting machine combines (without developing design schizophrenia), such precise instruments as a 40-power microscope and a Vernac optical measuring instrument with a machine-tool-type, cast-iron base.
Designers: Microbore staff.



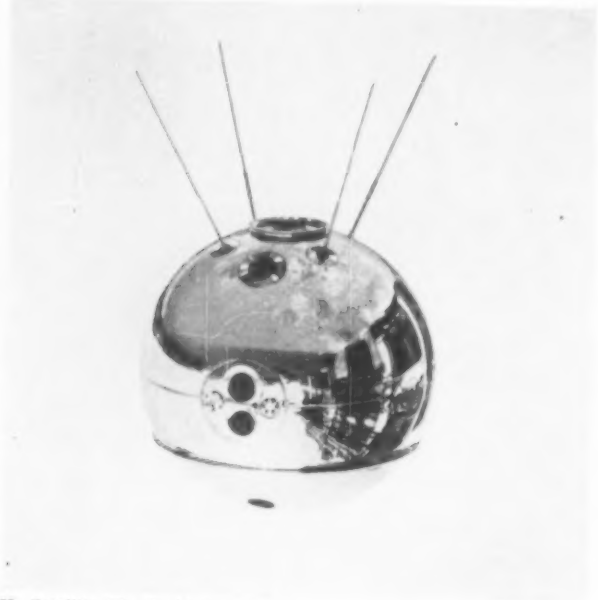
71—Collator, Didde-Glaser, Inc.
72—Offset press, Didde-Glaser, Inc.



73—Presetting machine, Microbore Div., DeVlieg Machine Company.



74—Universal engineer tractor, Barnes & Reinecke, Inc.



75—Satellite, The Budd Company

NON-CONSUMER **Heavy Equipment**

74—Barnes & Reinecke "Universal Engineer" tractor is a jack-of-all-trades for the Army — it is light enough to be airborne, heavy enough (with ballast) to move mountains, and can float across inland waterways. Numerous interchangeable units fit between front and rear wheels converting the tractor into a missile launcher, snow plow, concrete mixer, troop carrier, etc.
Designers: Barnes & Reinecke staff.

75—Budd S-6 military satellite is a completely leak-proof sphere, 35 inches in diameter, made of deep-drawn hemispheres of 21 stainless steel. Walls are only .025 inches thick, polished to a mirror finish.
Designers: Budd staff; E. Walter Hammer.

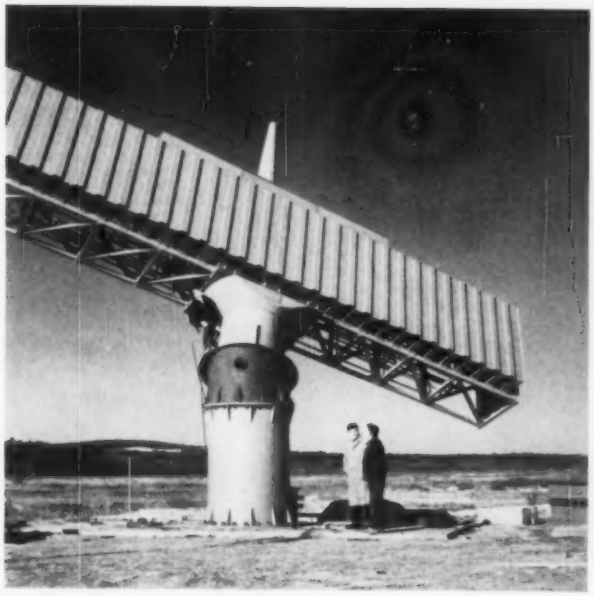
76—Raytheon seagoing radar is one of the largest of its kind with a 40-foot aluminum antenna and 150 horns that beam and collect signals pinpointing vessels hundreds of miles away.
Designers: Raytheon staff.

77—John Deere crop dryer has unselfconscious utilitarian appearance accentuated by a few sophisticated design details. Controls have been centralized for easy operability and covered with a fashionable "hood". Sheet metal fenders and guards protect clothes and persons from moving parts, and critical machinery is easily accessible for maintenance repairs.
Designer: Henry Dreyfuss.

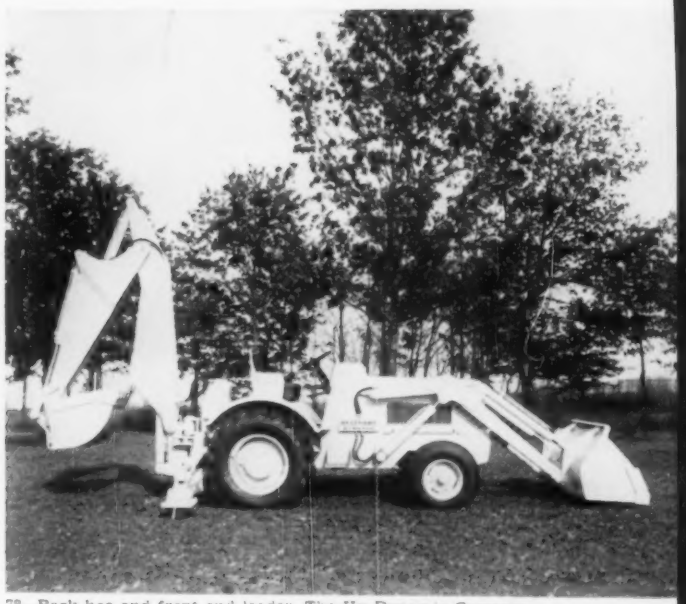
78—Hy-Dynamic "Dynahoe" combines back hoe and front loader in one unit. Seat (with fiberglass shell to improve appearance) swivels for operation of back hoe controls. Nameplate acts as protective cover and disguise for hydraulic tube connections.
Designers: Raymond Loewy/William Snaith, Inc.

79—New Holland windrower is all angles; the ones on the working end make sense, but those on the operator's cab look more jazzy than farm machinery ought to look.
Designers: New Holland staff; C. J. Kermes.

80—New Holland forage harvester is a compact unit that does a job usually assigned to machines of larger size. Its forms are vigorous, but the hitch and spout control seem frail.
Designers: New Holland staff; C. J. Kermes.



76—Radar tower, Raytheon Company



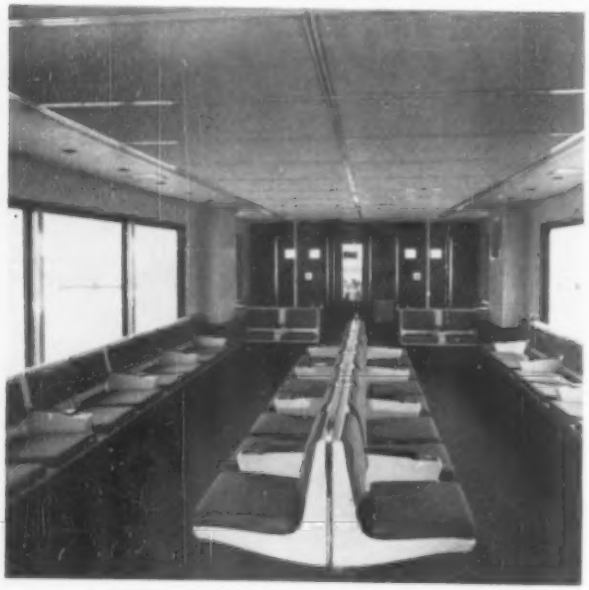
78—Back hoe and front end leader, The Hy-Dynamic Company

77—Crop dryer, John Deere

79—Windrower, New Holland Machine Company

80—Forage harvester, New Holland Machine Company

81—Mobile lounge (above and below) Chrysler Corporation.



NON-CONSUMER **Transportation**

81—Chrysler and Budd collaborated on the construction of this prototype for the mobile lounge that will carry passengers from terminal to plane at Washington's Dulles International Airport. A massive vehicle, full of marvelous shapes, it will carry more people (up to 90) than any other rubber-tired conveyance ever has.
Designers: Eero Saarinen Associates.

82—Corvair Monza may not be a great car, but it is a long time since Detroit has produced anything this good. Its best feature outside is its refined rear deck; inside it can boast the first (and still the best-looking) bucket seats in a compact car, and a quiet dashboard.
Designers: GM Styling staff.

83—Cessna "Skyhook" helicopter has a front engine, windows all around, a simplified drive system (only five gears), and more than the usual shoulder room. As its comfort and convenience features suggest, it is intended as a businessman's aircraft—a competitor and supplement to the company car.
Designers: Cessna staff; Charles M. Seibel, chief rotary wing engineer.

84—Clark "Housecar" is an all-in-one: car in front, living quarters behind. The living would be pretty constrained, but all the necessities are fitted into a vehicle no larger than a standard American car. Its main market will probably be dilettante outdoorsmen.
Designers: Clark staff; C. B. Rogers, Division Manager; R. D. Benson, Project Engineer.

82—Corvair Monza (above and below) Chevrolet Div., General Motors Corp.

83—Helicopter (below) Cessna Aircraft Company.

84—Housecar (above and below) Clark Equipment Company.

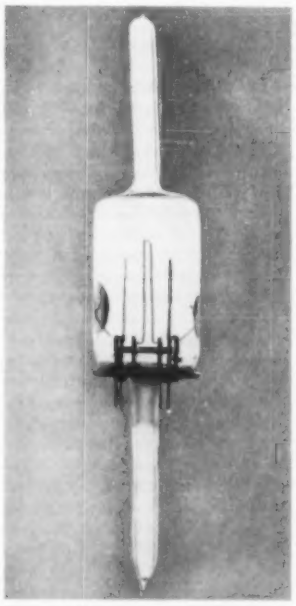
TECHNOLOGY advances so rapidly and so relentlessly that most designers (and many engineers) are in a position much like that of the Red Queen in *Through The Looking-Glass*, who found it necessary to run very fast indeed just in order to stay in one place. One engineer has described the whole thing as "sophodetonation", the explosion of knowledge. But this kind of explosion, unlike others, produces a benign fallout. Some results of the sophodetonation fallout during the last 12 months are shown in the following pages, as they apply to energy, information and communication, products, and materials.

ENERGY

For any layman whose high school physics course predates "the atomic age," power development during the past 12 months will be overwhelming. Some of the energy generated seems excessive, as well. For example: General Electric has developed a lightbulb which operates with a 5000-watt xenon arc unit, and is said to be three times brighter than sunlight — bright enough to let you read a newspaper 15 miles away at midnight. Both the Soviet Union and the West are faced with the monstrous abundance called overkill — weapons that can destroy more human beings than their range can accommodate.

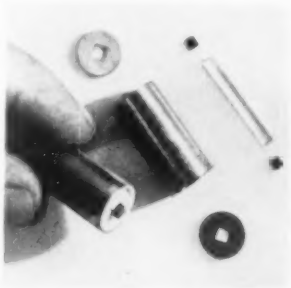
On a lesser scale, the development of energy sources and their application and conversion, continue to generate important technology.

1. A titanium pump uses unique combinations of electrical and chemical phenomena to achieve extremely high vacuums. It is designed for use in the manufacture of electron tubes, external anode transmitting tubes, magnetrons, klystrons, and other vacuum devices. The pump works by absorbing the gas to be evacuated in any of three ways: (1) chemical reaction between the gas and a titanium filament, (2) forced combination of titanium atoms with



evacuated gas particles which have been excited or ionized through collision with electrons emitted from the cathode, and (3) trapping of gas particles and imprisoning them between the layers of titanium which are being deposited on the wall of the tube. *By Amperex Electronic Corp.*

2. Semi-conductors and super-conductors figure widely in current electronics exploration (semi-conductors act on electronic current in much the same way that the throttle acts on gasoline in an automobile, by controlling the rate of fuel flow; super-conductors practically eliminate electrical resistance altogether). Semi-conductivity is being used to control the flow of current in a crystal device which converts one form of energy (electricity) into another (ultrasonic vibrations). The device, like all energy converters, is a transducer and it is unique because it uses a "depletion layer" to develop its semi-conductivity. The depletion layer, which throttles the current, is formed within the crystal because traces of certain impurities were introduced when it was fabricated. The thickness, and consequently the resistance, of the layer can be varied, depending on the voltage induced in the crystal. The transducer was developed to serve as a more efficient means of converting electrical energy to ultrasonic energy and vice versa. It is expected to



be employed primarily in ultrasonic delay lines because it will operate at high frequencies and over an extended bandwidth. These capabilities permit the transducer to store large amounts of information and, furthermore, suggest probable applications in the study of the acoustical properties of materials at higher ultrasonic frequencies. Bell Telephone Company scientists (who developed the transducer) anticipate that large-amplitude ultrasonic waves may be generated in similar materials at micro-wave frequencies and also that extremely weak waves will be detected with greater efficiency than with existing transducers. *By Bell Laboratories.*

3. An alloy of niobium and zirconium developed by Bell Laboratories permits the construction of the most powerful magnet ever devised: a device which may make it possible to contain in a "magnetic bottle" plasmas of gas at temperatures approaching those found at the core of a hydrogen bomb explosion. These temperatures (ranging up to one hundred million degrees) paradoxically can be studied only by using magnetic fields which will operate in cryogenic, (extremely cold) environments. The magnet, using the Bell alloy, has been manufactured and tested by Westinghouse. It is approximately the size of a doughnut and weighs only a pound. It creates a magnetic field twice as strong as that of a conventional iron-core magnet as large as an automobile, weighing 40,000 pounds and requiring 100,000 watts of power; and it runs on an automobile storage battery whose only function is to supply the few watts needed to overcome the small losses in the wires leading to the magnet. The doughnut-shaped coil incorporates about a half-mile of the titanium-zirconium wire, and is immersed in a vessel of liquid helium which keeps it at a temperature near -450 degrees F. Since little energy is needed to cool it, the coil produces almost all of its super-magnetism at no cost. *By Westinghouse Electric Corporation.*

4. Photoelectric controls which use a cadmium-sulphide cell have been introduced. They provide greater precision and quicker control than existing units. In addition to the new cell, the device incorporates a hermetically-sealed rectifier and a relay system with special contacts which are said to give "safe-fail" operation. The components are mounted on a printed circuit board minimizing wiring complexity, adding durability, and eliminating wiring errors. It is

housed in a unit with an externally-adjustable shield for precise adjustment of light level settings. *By General Electric.*

5. An experimental fuel cell, about the size of a man's wristwatch, uses sodium amalgam-chloride to

produce an open-circuit voltage of 3.30 volts. For its size, the cell is twice as powerful as the common flashlight battery. Unlike a battery, however, it will operate indefinitely, delivering one watt of power, because it recharges itself. *By Hoffman Electronics Corp.*

6. A thermoelectric generator to convert waste heat into usable electricity has been developed which operates at temperatures as high as 2,400 degrees F., while delivering 100 volts of power. The device theoretically could operate by using the heat from a rocket engine exhaust or from nose cones at re-entry temperatures. The generator is made like a cake with 14 layers. The ceramic, nickel oxide, is sprayed on one side of each layer, platinum on the other. The ceramic and metal are then scored so that they appear to be wrapped around each layer like an unbroken wire. Felt-like ceramic separates the layers. Even the nuts and bolts holding the assembly together are ceramic, since the thermoelectric generator operates at temperatures that would melt steel. *By Minneapolis-Honeywell Regulator Co.*

7. Plasma engines roughly the size of a human thumb are being studied for possible application to space propulsion or rocket course correction. These motors shoot a jet of plasma (positive ions and electrons in a gaseous state) in rapid pulses; they have run at 40 per cent efficiency, which approaches the most effective point ever achieved by a pulsed plasma motor. They resemble miniature craters each gouged into the end of a cylinder; 100 of these "crater" motors, taking up one cubic foot of space could control a 1,000-pound satellite. The device operates with a solid propellant in the form of a metal wire which is fed to a center electrode. High voltages from a capacitor ionize the wire (break it up into electrically charged gas particles). This gas or plasma shoots out of the center electrode, thus providing the motor's thrust. *By Stevens Institute of Technology.*

8. Computer equipment and circuitry which operate at speeds about 1,000 times faster than con-

ventional circuits — speeds approaching that of light — are made feasible by taking advantage of the "thin film tunneling effect" in super-conductors. These devices consist of two metal films separated by a thin insulating layer with one or both of the metal films in the super-conducting state, that is, offering no resistance to passage of an electric current. At certain voltages these super-conductors will permit electrons to "tunnel" through the insulation barrier, thus inducing a measureable, usable current. By varying the voltage and introducing magnetic fields, these currents may be altered to give "negative resistance" and to serve alternatively as switches, diodes, resistors, or capacitors. The advantages of manufacture and design with devices incorporating the tunneling effect are: (1) Extremely low manufacturing cost. All that is needed is a simple vacuum deposition of the appropriate metals and an insulating layer on a suitable foundation. In a single operation it is possible to make complex circuits with hundreds of intricate components. This not only reduces cost, but size as well. (2) An extremely low power loss and resultant reduction of the size of the power source and its cooling equipment. (3) Greater reliability of the circuit and increased speed of operation. *By General Electric, Radio Corp. of America, and Arthur D. Little.*

9. An electronic tube, capable of detecting fire by sensing its ultraviolet radiation, may offer an almost instantaneous alarm system, or signal the absence of flames in boiler fire boxes, furnaces, and other combustion chambers. As a fire detector its advantage is that it activates an alarm system well before temperatures reach the point where automatic sprinkler systems are turned on. As a flame-out detector, the tube could actuate or send a visual or audio alarm to a manned, central location. It is about the size of a golf ball. *By Thomas A. Edison Industries.*

10. Controlled free flight has been achieved for the first time with a personal rocket belt which gave its users (in experimental trips) a flight to the top of a 30-foot hill at speeds estimated around 20 miles an hour. The personal rocket belt system has been suggested for use in transporting infantrymen over surface obstacles such as streams and ravines, barbed wire and mine fields. It might also be used during amphibious operations to fly assault troops from ship to shore. The rocket consists of a twin-jet hydrogen peroxide propulsion system mounted on a fiberglass corset which is molded to fit the back and hips of its operator. The wearer slips his arm through padded lift rings attached to the corset, then secures the unit with two quick-release safety belts passing around his chest. Metal controls extend forward on each side of the operator — one to permit directional change and the other to regulate rocket thrust — thus controlling the rate of climb and descent. According to the manufacturer, the device is stable in flight and a practiced operator can easily control pitch and roll by moving his body. The rocket engine works by forcing hydrogen peroxide under pressure into contact with a catalyst in a gas generator chamber where it decomposes into steam. The steam, escaping through two exhaust nozzles, provides thrust. The nozzles are positioned so that special protective garments are not needed to shield the operator. *By Bell Aerosystems.*

11. A pulsed barrage of electrons is used in a linear accelerator which emits x-rays so powerful that they can radiograph a five-foot-thick section of solid fuel in a matter of minutes. Then a permanent x-ray film record is produced for analysis by inspectors, who are able, by the accelerator's examination, to detect flaws as small as a few hundredths of an inch in diameter. The device has a unique x-ray head that can be rotated 360 degrees in a vertical plane. It is mounted on a turntable which rotates 360 degrees in a horizontal plane and is suspended from a telescoping overhead crane. This flexibility makes it possible for the accelerator to get into and around bulky, odd-shaped

objects which otherwise would be impossible or extremely difficult to examine. It is available in several energy and power levels to meet varying industrial test situations and, according to the manufacturer, would be suitable for making fast, accurate inspections to detect internal flaws in steel at the point of fabrication. *By Varian Associates.*

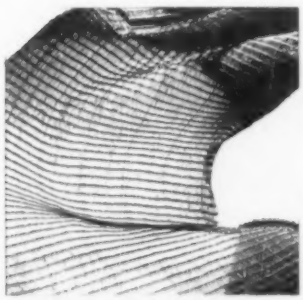
MATERIALS

The discovery of a new design material is likely to be the most important piece of information that can be reported in these pages throughout the year. These discoveries do not take place daily, nor even monthly, and there is some evidence that the revolution in materials which has been going on since the late 40's may be losing some of its steam. The past decade's enormously creative fundamental research in the plastics industry, for example, seems to have slowed down. There are a few new metals around as the result of atomic fission and fusion, but for the most part they are curiosities as far as the work of the industrial designer is concerned. If there are any conclusions to be drawn from the last 12 months, they are that materials suppliers seem to have reached a plateau, from which position they are studying ways and means to use their recently-invented materials, ways to modify them, and to develop new markets for them. This is not to say that the suppliers are idle. In fact there is explosive activity on all the foregoing problems. If many basic suppliers have stepped aside from their test tubes or their rolling mills for the time being, they are just as busily engaged in handling some little graphics problem for one of their customers or designing a nice modular beach cabana for anyone who wants to manufacture it.

1. A versatile new chemical, introduced in developmental quantities late this year, promises to have an extremely wide range of industrial uses. Trademarked Baymal, it is a white, free-flowing powder consisting of clusters of minute fibrils of boehmite alumina ($AlOOH$) and small traces of other chemicals. The fibrils are so small that if one pound of them were laid end to end they could make 25 round trips to the sun. Baymal can be formulated for a number of varying applications, some of which are: making synthetic fabrics stain- and moisture-resistant and improving their dyeability; binding color pigments in water-based paints so that the paint can be sprayed on almost any surface without smearing or dripping; increasing heat resistance of many materials such as fire-brick by as much as 500 degrees F.; and in cosmetics, as an anti-perspirant and for enhancing the smoothness of lotions and creams. Furthermore, the manufacturer claims that in a slightly different formulation, Baymal can be made hard enough to serve as a cutting tool to machine materials which are as hard as steel and glass. *By E. I. Du Pont de Nemours & Company.*

2. A new copolymer in the olefin (petroleum-based) chemical family shows promise of being the lowest cost synthetic rubber yet developed. Research on the material, ethylene-propylene rubber, is being conducted by the Acushnet Process Company under a licensing arrangement with the Montecatini Chemical Company of Milan, Italy, who recently introduced the plastic in European markets. Pilot samples are presently being molded here into a variety of parts and components currently made of natural rubber as well as of butyl, chlorosulphanated polyethylene, and other elastomers. At least two major American concerns, Du Pont and Enjay, are conducting parallel research here — Enjay with a material quite similar to the Montecatini copolymer and Du Pont with a polypropylene terpolymer. Since polypropylene rubber is made from the least expensive and most readily available petroleum products, its price should ultimately be lower than that of other elastomers. Its outstanding characteristics are said to be high resistance to chemicals and ozone (the latter makes it particularly adaptable for outdoor applications where conventional rubber and substitutes show up poorly). *By Acushnet-Montecatini, Enjay, and E. I. Du Pont de Nemours & Company.*

3. Knit paper has been formulated which will form unlimited patterns through combinations of yarn, colors, and knitting techniques, stand up under repeated washings and dry cleanings, and combine with plastics and other materials. Although the material has been available for a number of years, its new design possibilities permit considerable sophistication, due in part to chemical additives, but more important, to manufacturing techniques which permit the production of fine-gage yarns. The range of the material is suggested by the fact that knit paper will support a minimum of 30 pounds dead weight; withstand 350 degree F. heat and more than 5000 pound pressures; it will resist salt water, outdoor weathering, and punctures. It is, furthermore, cheap and reuseable. *By Enterprise, Inc.*



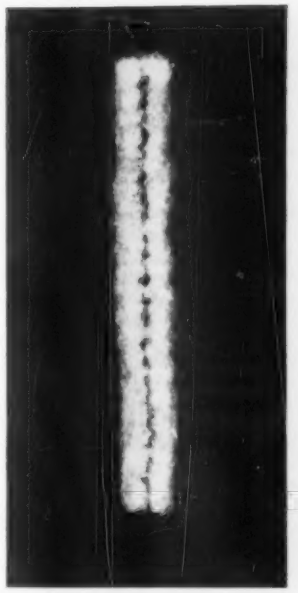
4. Flexible sheeting of stainless steel wire has been woven to specifications calling for a sheerness of 160,000 tiny openings per square inch. It was developed to solve material problems in the missile and rocket field. For the recovery of space vehicles, parachutes made from metallic textiles like the stainless "cloth" will be able to withstand both high friction heat and atmospheric contamination. *By U. S. Steel.*

5. Reductions in size and weight of components are made possible with a new high-temperature material which has a 70 per cent greater strength than pyrolytic graphite, a material previously used for many high-temperature applications. Designated Boron Pyralloy, the material has demonstrated the highest bend strength of any known material at temperatures above 1800 degrees C. Its room temperature bend strength of 37,000 pounds per square inch compares favorably with aluminum alloys. A layer only 1/20-inch thick will insulate to provide a temperature drop of 4000 degrees F. More than five feet of ordinary graphite would be required for the same effect. *By High Temperature Materials.*

6. Celcon, a new acetal co-polymer, is expected to compete with acetal and polycarbonate resins as a replacement for metals like die-cast zinc and aluminum, brass, copper, and steel. The material can be fabricated by injection-molding, extrusion, blow-molding, and other thermoplastic processing techniques. Celcon is said to have many properties required in a high-strength engineering plastic: hardness, stiffness, dimensional stability, light weight, and resistance to abrasion as well as to environmental attack. When used to replace metals, the new plastic, like the acetals and polycarbonates, offers the advantages of lower cost, greater design flexibility, lighter weight and reduction of the number of finishing and assembly procedures. Above, a Celcon nail. *By Celanese Corporation of America.*

7. An acrylic film formulation which forms a clear protective coating on a variety of products has been made available. It is called Carboset 511 and it resists boiling water, yet can easily be removed with various detergent and emulsion formulas. It is said to be suitable for as wide a variety of products as hair spray, paper coatings, and temporary protective coating during assembly and shipping for highly polished metal sheet, precision engine parts, metal toys, mirrors, and metal furniture. *By B. F. Goodrich.*

8. Small amounts of tiny sapphire and alumina crystals or "whiskers" are being blended with pure silver to increase the metal's strength approximately 500 per cent. The additional strength helps overcome the problem of the heat barrier in space vehicles and advanced aircraft design, where there is a need for structural materials which maintain strength at the elevated temperatures created by atmospheric re-entry, hypersonic air speeds, and extremely high engine temperatures in rockets and jets. These laboratory-grown crystals have extremely great strength (up to several million pounds per square inch) for independent structural applications or engine parts. Although high-strength metals, including steel, are rigid and can be machined into precision parts, they lose nearly all their strength at high temperatures (2000 degrees F. or more). Embedding the crystals in the metal enables them to carry almost all of the structural load placed on the material and allows the metal to perform at temperatures far beyond its normal operating range. It is the same principle that operates in reinforced concrete, plastic, or cardboard. The crystal-silver composite was achieved by infiltrating molten silver into a pack of the crystals under a vacuum, with the final composite containing 11½ per cent sapphire. The silver withstood tension of 118,500 pounds per square inch, which means that it is five times the structural strength of the pure metal. The process is suggested for use in forming composites which might use steel or other higher-strength refractory metals as a matrix. *By General Electric.*

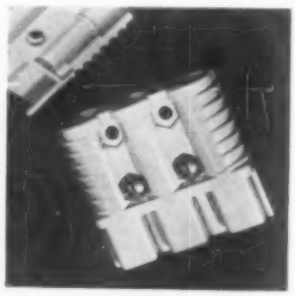


9. A new low-cost non-woven cloth offers the appearance, hand, and texture of woven fabrics and is superior to existing non-wovens in some performance characteristics, notably wash-and-wear. The manufacturer claims that the fabric, trade named Dorron, can be used for anything conventional non-wovens are used for, and that it will compete with woven fabrics in many areas where non-wovens have not been useable because of structural and property deficiencies. Apart 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 into 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 as rigid as required. Strength and dimensional stability can also be pre-determined within wide limits. In apparel and decorative applications the fabric can be manufactured to resemble a variety of different woven textiles. A typical cross-section is shown above. *By Dorron Industries.*

10. A new industrial gas offers advantages over acetylene, natural gas, and propane in terms of accidental explosibility, toxicity, and performance, according to the manufacturer. Furthermore, the new stabilized gas, methylacetylene, permits operating economies ranging from 15 to 45 per cent. The product combines the high energy characteristics of acetylene with the handling and safety features of propane. Although it is a member of the acetylene family and can be liquefied and handled in existing acetylene equipment, it is not an acetylene or propane formulation. The components are methylacetylene, propadiene and related compounds. It is trademarked MAPP by the manufacturer, who claims that it is safer to use than acetylene, has faster cutting speeds, and is lower in cost. Its safety features are rated the same as propane. However it has a cutting speed higher than propane's and although it costs more than propane, operating economies are possible because of the higher cutting speeds and reduced oxygen consumption. The new gas is recommended for all regular metal-cutting operations. Its flame temperature is about the same as acetylene's. MAPP's flame is easier to light and adjust than propane's: backfire and flashback are almost impossible. Oxygen consumption is 2.3 parts oxygen to one part MAPP. *By Dow Chemical Company.*

11. Fabrics have been successfully woven for the first time with a graphite yarn which contains more than 1440 filaments per twist. The one-ply yarn, when woven into a textile provides an extremely dense fabric which is strong enough to be used (in combination with plastic resins) in high-temperature, high-pressure molding of missiles and rocket engine components as well as in nose cones and exhaust nozzles. *By Union Carbide Corp.*

12. Two new plastics, Lexan and Merlon, now available in commercial quantities, are finding their way into specifications for a broad range of parts and products some of which have never before been made of plastic. The two are proprietary names for polycarbonate thermoplastic resin, produced respectively by General Electric and Mobay Chemical Company. The new material promises designers a combination of high performance characteristics not previously available in thermoplastics. Its most noteworthy property is an impact resistance high enough to put it in a class with glass-fiber-reinforced thermosetting plastics. Polycarbonate's excellent dimensional stability and high heat distortion point (290 degrees F.) have permitted its use as a replacement for bronze



in pump impellers in a line of self-priming jet pumps. The plastic is reported to withstand abrasive wear better than bronze, and not to soften or change shape in water or diluted acids. Its smooth surface also permits higher operating efficiency because of reduced friction in the liquid passageways. The new resin has better load-bearing properties than either nylon or Delrin, one of the lowest water-absorption rates of all plastics, good electrical properties, and high resistance to chemical attack, staining or aging. It is self-extinguishing. It is transparent but can be colored. Also, it can be metalized, welded, or cemented to itself and other materials. And it lends itself to modification for even greater strength with glass fiber reinforcement. Fabrication techniques possible with the polycarbonate resins include injection-molding, extrusion, vacuum-molding, blow-molding and cold-working techniques such as hammer-forging, stamping, and draw-bending. *By General Electric Company and Mobay Chemical Company.*

13. Two new silicone product modifications have been introduced by Dow Corning Corporation. One is a free-flowing silicone rubber that vulcanizes at room temperature in sections of unlimited thickness.

Identified as Silastic RTV 601, the new material cures without heat, pressure, or moisture — even under totally-confined air-tight conditions. Variations in thickness are said to have no significant effect on curing rate and uniformity. Venting during the cure is also unnecessary because no volatile by-products are released. After vulcanizing for 24 hours, parts made of the material can be put into full service at temperatures from -100 degrees F. to 500 degrees F. Potential applications include flexible mold-making and casting of prototype parts and encapsulating of totally enclosed electrical components. The other development is a transparent silicone resin encapsulating material, Sylgard 182, which permits visual inspection of circuits and components within encapsulated assemblies. Replacement and repair procedures are simplified because a defective component can be spotted and the resin around it pared away with a knife. The component may be replaced, and new resin poured over the repaired area to restore the encapsulant to its original condition. *By Dow Corning Corp.*

14. A new ethylene plastic compound is said to equal rubber in flex-cracking resistance, and polyethylene in resiliency and elongation. The material can be manufactured by injection-molding, blow-molding or by extruding from conventional equipment. It contains no plasticizer, which suggests applications in which conventional plasticized vinyl resins cause problems (such as paint lifting off adjacent surfaces, or fogging of glass surfaces near the vinyl). Other applications for the plastic, designated Bakelite DPDB 6169, include industrial bellows, diaphragm pumps, moldings, gaskets, and thin-walled or inflatable toys. *By Union Carbide Corp.*

INFORMATION AND COMMUNICATION

Computers are replacing dogs as man's best friend. These benevolent machines are performing tasks that would never before have been attempted, not because men aren't smart enough, but because they just don't have time. IBM has one (see 10, below) which is perfectly capable of directing a machine to turn out objects as subtly contoured as Brancusi's bronze head of Mlle. Pogany. All that is needed is a programmer to translate Brancusi's curves, tangents, and planes into computer language. On the other hand a new newspaper, *The Arizona Journal*, will begin publication on February 14 with a General Electric computer system preparing its classified section for a cold-type offset press. The newspaper might never have been able to make a go of it without the computer—which permits a much cheaper printing process. Far from putting people out of work, this computer has made it possible for a number of Arizona journalists to practice their craft.

Along with proliferation of business machines has come rapid expansion in the field of communication. All the information being developed (with the aid of computers) has to be communicated somehow to human beings. This is being accomplished in new ways: optically, audibly, and by the tactile sense.

1. Because jet pilots are frequently deluged with more visual and auditory data than they can absorb with just two senses, the Air Force is experimenting with a new "touch" system of communicating information. The method transposes vocal frequencies into mechanical vibrations which are felt by placing the fingertips against a small vibrating plate. After training, the participants in the experiment were able identify words through the vibrator with 85 to 90 per cent accuracy. Although the Air Force is particularly concerned with developing the touch system for channeling information to a pilot when his hearing or sight has been impaired by injury or environment, it might also be used as a reserve channel when technical difficulties interrupt normal communications. In addition, the new system suggests interesting approaches to the problem of deafness. *By Rome Air Development Center, Griffis AFB.*

2. The optical maser has developed rapidly and is now becoming more than just a scientific novelty. IBM has produced an instrument which generates coherent light waves continuously (previously optical masers were limited to short-pulse outputs of 1/1000 of a second). Another continuously-operating maser was demonstrated last year by Bell Laboratories. Bell's instrument used a gaseous discharge excited by a high-powered flash of light to produce the coherent light beam, typical of all masers. This instrument is essentially a 40-inch glass tube filled with neon and helium gases. As current is fed into the tube, the helium atoms are excited to a state of high energy in which they collide with the neon atoms. The neon atoms, activated by these collisions, radiate their energy in the form of a highly coherent beam of light. This beam is reinforced by being passed back and forth by mirrors along the length of a tube. When the beam is amplified to a designated strength, it is discharged in a very narrow beam — so narrow that at a distance of 100 miles the spread would be no more than one foot more than the size of the source. The "line frequency width" of the output beam is one hundred thousand times narrower (or purer) than that from any other coherent light source. This means that if used for telephone or television communication, the number of channels that can be squeezed into a frequency band can be increased a thousandfold. The Bell maser furthermore requires less power to operate than previous similar devices. The results of this research led, later in the year, to a practical, functioning device. This was a radar unit which used light waves in an instrument which was low in weight, small, and permitted more accurate identification of the object under observation than is possible with conventional radar systems. The manufacturer went as far as to claim that this device would detect a target located 100,000 miles distant if it were used in space where absence of atmosphere would extend its range. The maser serves as a transmitter in this instrument and a telescope coupled to a photo-electric tube is the receiver. In operation, a beam of light from the transmitter strikes the target and is reflected back into the telescope where it is focused into a photo-electric tube for amplification. The measure of the time required for transmission of the signal and its reflection back to the receiver is used to calculate the target distance. *By IBM, Bell Telephone Laboratories, Hughes Aircraft.*

3. Minute, light-carrying pipes, smaller than a human hair, extend the performance of cathode-ray

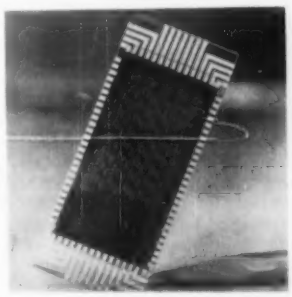
tubes used for recording computer-generated information. These are essentially nothing more than glass fibers, although they are made from high-quality optical materials and coated with a surface which keeps the light inside the fiber without allowing it to leak through the filament walls. In the Charactron Shaped-Beam Tube, these fibers eliminate conventional lens systems and allow direct-contact printing (the image is sent through the fibers directly from its source without having to be projected optically on a screen or viewing plate). It is said that systems using cathode ray tubes with fiber optics will allow operations with lower voltage, reduced complexity, weight, and size. In a cathode ray tube the image or picture is formed by an electron beam illuminating a light-emitting phosphor which has been deposited on the inside surface of the faceplate (screen in a tv set). Conventional cathode ray tubes have drawbacks — such as reflection, light scattering, and halation — caused by the thickness of the faceplate glass; these limit the resolution and clarity of the image. Installed in a cathode ray tube, fiber optics will transmit the image produced on the phosphor to the external surface of the faceplate. The resulting image will show considerable improvement over conventional cathode ray tube performance. *By General Dynamics/Electronics.*

4. At a time when most of the startling innovations in the fields of information and communication involve electronics, a computer is being developed which works on 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 -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 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. *By Kearfott Division, General Precision Co.*

5. A simplified model of a phonetic typewriter that can convert spoken words directly into words typed on paper has been developed by RCA to study and demonstrate the requirements for a practical phonetic typing system. In its present form, the laboratory device can type up to 10 spoken sounds in various arrangements to make up a number of intelligible sentences with a typing accuracy as high as 98 per cent. The system required the development of electronic means for analyzing the sounds of speech, identifying the analyzed sounds, encoding, storing, and decoding the sounds.

The most complex of these operations is the analysis of the various sounds. Since pronunciation of sounds varies among individuals, each phonetic typewriter will probably be limited in use to one person unless a method can be developed for adjusting it to speech peculiarities. *By RCA Laboratories.*

6. Automatic control techniques were used this year for the first time to fabricate cryogenic (low temperature) thin-film memory planes for use in computer devices. Cryogenics, a branch of solid-state physics, is concerned with what happens in materials at temperatures near absolute zero (—459.4 degrees F.). At these temperatures, some metals become super-conductors (see Energy, above) and will permit an induced electric current to flow endlessly without additional power supplies. In a cryogenic computer, super-conducting materials are used to perform logic operations and to store information. Because of the combination of functions (not possible with conventional computers) sophisticated operations may be realized. For example, scientists expect that cryogenic devices may be used in an "associative memory" which simultaneously searches all memory compartments and therefore speeds access to any stored information. Since extremely large numbers of these devices are used in cryo-



genic computers, automatic manufacture of them is an extremely important technological development. The key to this advance is a special technique which permits accurate automatic duplication of each device. By means of the new technique, microscopically thin layers of metal and insulating material are deposited automatically on a glass foundation. The production equipment allows each layer of material to be subsequently deposited through 17 microscopically adjusted masks, or perforated metal sheets. The masks are changed automatically, much like records in a juke box and are held in a large metal cylinder under a vacuum. Once the masks have been properly aligned, the process automatically produces 135 tiny devices — each functioning as a unit of logic and memory — on a foundation the size of a postage stamp. *By IBM.*

7. Heat waves—invisible infra-red beams — transmit voices silently, secretly, for distances up to three miles with a new gun-shaped device called MAXSECOM (Maximum Security Communications). Words spoken into the hand-held unit are electronically converted into infra-red beams, transmitted to a receiver and reconverted back into sound waves. Larger systems have been developed with ranges up to 20 miles. MAXSECOM is said to be immune to interference, detection, or jamming. It was developed primarily for military, police and civil defense applications calling for secrecy and complete security. The device is powered by a 12-volt storage battery and needs no wires or cables between transmitting and receiving units. The infrared signal is confined by optical control to a narrow

beam between sender and receiver. It can be received only in this zone and then only by a twin MAXSECOM unit containing the necessary specialized infra-red sensor apparatus and decoding devices. *By Minneapolis-Honeywell Regulator Co.*

8. An infra-red sensor, said to be so sensitive that it detected the change in temperature when the moon cooled off during a recent total eclipse, operates at cryogenic temperatures so that some of its elements are super-conducting. The device will be included in equipment being developed for the U. S. Navy. The sensor incorporates a miniature refrigerating device known as a closed cycle liquid helium cryostat, which weighs approximately 27 pounds and has a volume of less than one cubic foot. At the minimum temperature (-452 degrees F.) it requires almost no power input because once current has been introduced in a superconducting material, there is practically no loss and the electricity will circulate almost indefinitely. *By Hughes Aircraft Co.*

9. A wind-up mechanism operates a radio which uses no batteries or other power source. Each complete wind-up cycle supplies power for two hours of operation and, according to the manufacturer, the mechanism can be re-wound indefinitely. The radio is expected to be useful in both rescue and air-drop applications. In a remote control operation, it could be made to respond to a coded signal. The radio weighs six pounds and is small enough to be carried in one hand. It has a range of from 75 to 125 miles. *By the GPL Division, General Precision, Inc.*

10. A new computer language enables its users to describe the surface of a complex part without having to write a lengthy and laborious program for each individual tool path. Designated AUTOPROMPT the system leaves to the computer the task of generating these paths. All the user must provide is a description in AUTOPROMPT language (which closely follows English usage) of the part to be milled, tooled sizes, tolerances required, and general machining modes. From this input the computer, operating under control of the master program, draws up a complete series of detailed numerical instructions covering every operation the machine tool must follow. The new computer program is expected to offer designers greater freedom: they will no longer have to compromise their efforts in order to avoid expensive hand-tooling or design treatments which demand close tolerances. 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. The AUTOPROMPT 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 describing a shape in terms of its constituent surfaces, the programmer can quickly and simply instruct the computer in how it shall go about running a machine to manufacture the most complex three-dimensional shape. *By IBM.*

11. The first computer built from complete wiring information and parts furnished by another computer has been installed on Ascension Island in the target area of the Atlantic Missile Range. The computer is to be used in connection with target tracking tests for Nike-Zeus, the U. S. Army's anti-missile defense system. The entire logic network of the machine, consisting of 47 sub-assemblies, was built from wiring diagrams produced by a specially programmed digital computer. The automatic process required less than 25 minutes per sub-assembly to produce manufacturing information which would have consumed nearly four man-weeks of labor by using conventional engineering methods. Known as BLADES, an acronym for Bell Laboratories Automatic Design System, the process is expected to save thousands of man-weeks of time in the design of missile defense equipment. In addition, manufacturing information obtained from the "designing" computer can be converted into a control program for an automatic wiring machine, which would do the actual assembly work. Experiments on this aspect of the program are under way, and present results are said to indicate that automatic wiring of the electronically-designed machine is feasible. The BLADES process starts with engineers determining the logic network that

will perform necessary data processing operations. The network is then converted into a set of equations to produce sheets of instructions specifying the number of logic packages to be used in a sub-assembly. The instructions go on to detail the pins to be connected, the size and length of the wire to be used in connecting them, and the wire paths to be followed for minimum path length. *Process by Bell Telephone Laboratories; fabrication by Western Electric Co.*

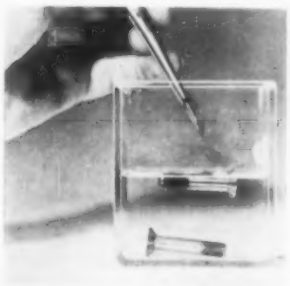
PRODUCTS

It is easy to find technical products that look competently, even outstandingly, designed; their serious purpose inspires it. The products cited here, however, are particularly exciting for what they do and how they go about doing it. This year's innovations" included, not surprisingly, a clutch of creations for outer space. But there were also some products whose applications were closer to home—for instance, a tickless watch that runs on a tuning fork (see 8, below).

1. Materials handling devices and other types of technical transport continue to grow more muscular and more specialized. In doing so they exhibit considerable design interest. Late in the year, for example, four wildly-conceived vehicles for lunar transport were discussed at the American Rocket Society's New York exhibition. Three of them came from General Motors, and working models are currently being evaluated in a Detroit sandpile. The other, developed by the Space-General Corporation, differs from the GM attempts in that it walks on six spidery legs. It will weigh about 135 pounds on earth (about 25 pounds on the moon) and will travel at the insouciant (for these times) speed of about three miles an hour. This rate of mobility is specified because the walker is to be directed by a tv signal from earth which takes about 2½ seconds to get to the moon. If it went faster, the walker would get ahead of its instructions. Space-General used legs for two reasons: the company expects that inflated wheels will deteriorate rapidly under lunar conditions; also, efficiency losses stemming from movement over irregular terrain are calculated to be less with legs than with wheels or tank-like treads. At General Motors' Land Mobility Laboratory, it has been predicted that the surface of the moon will be something like a mixture of packed dry beach sand and wheat flour. With this in mind, GM's three lunar vehicles tackle the problem of traction in three ways: one uses pairs of huge, soft, almost spherical wheels; another looks like an endless belt of brass knuckles; the third looks like nothing so much as a pair of giant screws threaded both clockwise and counterclockwise, and rotating in opposite directions. This last, possibly the most startling configuration in the collection, drags itself along in exactly the same way that a screw bores into a chunk of wood. Direction in this vehicle can be controlled by altering the speed of the individual screws. By *Space-General Corp. and General Motors.*

2. A cargo lifter, now in service in Alaska, is reported to be the largest and most mobile vehicle of its type. With a load capacity of 70,000 pounds, the unit is being used to load and unload cargo containers from ship-side to storage, and from storage to flatcars and highway trucks. One man, seated as driver, controls the complete operation. The unit's fork-type carriage can be rotated 12 degrees back and 90 degrees down from the vertical, and it can hoist cargo to a height of 17 feet. Its forward reach is more than six feet. It is built on an 11-foot wheelbase and is 12 feet, 2 inches high. *By Transitier Truck Co.*

3. The strongest metal fasteners for their weight are being made of beryllium metal, which is one-fourth the weight of steel. The development is expected to open up immediate weight-saving possibilities in space and missile craft. Pound for pound the new beryllium bolts are nearly twice as strong as the best comparable steel; thus, where two pounds of



steel bolting have been used, one pound of the new metal will do the job. Until this year, investigators have passed up beryllium for high strength applications because they attributed to it a general inherent brittleness. However, new research has revealed that the real source of the metal's structural weakness is a sensitivity to notches or surface irregularities. By eliminating microscopic surface scratches and designing reinforcement into other necessary notches (the head and threads), the weakness is eliminated. On a strength-to-weight basis, the shear strength of beryllium bolts is 150 per cent greater than that of titanium and 200 per cent better than that of steel. Beryllium bolts withstand fatigue nine times better than steel and are twice as durable as titanium (on a weight-strength basis). *By Standard Pressed Steel Co.*

4. Portable, inflatable structures which need no pressurization were made available last year for the first time. Structural rigidity is obtained by confining air pressure within the double-wall construction and by reinforcing the ceiling and walls with inflated members. The basic unit is a 14-foot cube, which, deflated, folds into a compact 650-pound package for easy transportation. The cubes can be attached to each other to expand the structure. Double-wall doors are provided and the shelter is stabilized by guy wires attached to fixed positions on the exterior walls. It will withstand 100-mile-an-hour winds. The flooring consists of inflated beams covered with sheets of aluminum over a sub-floor of expanded honeycomb paper im-

pregnated with synthetic rubber. The entire unit can be assembled in less than half an hour. *By Berger Brothers Co.*

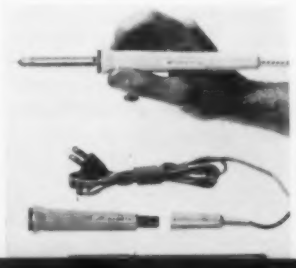
5. The first commercial application of thermoelectricity to residential heating has been developed in a gas-fired, forced air furnace. Totally independent of any outside power source, the furnace promises to be more reliable, easier to install, and cheaper to operate. What's more, emancipation from external power supplies suggests

a new flexibility in location and design of residential heating plants. The new unit uses thermoelectricity to convert the heat of its own burning gases into electricity to power its blower. The conversion units are built into openings in the furnace walls so that the portions inside the furnace absorb more heat than those outside and electricity is released at their junctions. *By C. A. Olsen Manufacturing Co.*

6. A completely mechanized aircraft cargo loader has a capacity of 20 tons which it handles with great adaptability. The vehicle

incorporates a hydraulically-actuated loading platform which meets aircraft cargo decks as low as 40 inches off the ground or can lift its loads to a height of 13 feet. In addition it can rise and fall, pitch and roll in response to aircraft movement as the cargo is transferred. A remotely controlled pallet conveyance moves the cargo from the loader platform into the aircraft; a powered winch can pull cargo from the aircraft onto the loader or from the platform into the aircraft. The lift platform will accommodate palletized cargo of various sizes, general "skidded" cargo, or vehicles. The time needed to change platform configuration to suit the various types of loading problems is less than 15 minutes. The vehicle cab raises with the platform or stays at chassis level at the option of the operator. Its power plant is a 242 horsepower gasoline engine, tucked neatly away in the chassis where it doesn't interfere with maximum platform flexibility. *By American Machine & Foundry Co.*

7. A versatile new soldering iron uses a polycarbonate resin handle and employs what its manufacturer calls a "heat sink" to dissipate the high temperatures associated with its operation. The heat sink uses a double cushion of air combined with five separate heat transition surfaces to soak up temperatures which range as high as 950 degrees F. The handle represents a new design for the traditional soldering iron and the heat cartridges (interchangeable to provide a temperature range from 600 to 950 degrees F.) are made of stainless steel in three wattages, 25, 30 and 40. The soldering iron can be further amended with components from a stock catalog of 42 thread-on tips in a variety of metals and shapes. *By Ungar Electric Tools.*



8. A tickless timepiece operates on principles completely different from those behind the usual wristwatch. It is called the Accutron, a portmanteau word coined from *accuracy* and *electronics*. The name's validity is supported by the manufacturer's guarantee of 99.997 per cent accuracy. The watch eliminates the traditionally essential mainspring, balance wheel, and winding mechanism—and replaces them with a vibrating tuning fork, a micro-miniaturized indexing system and a transistorized electronic circuit. The watch hums, instead of ticking; its hands sweep around smoothly rather than in jerky motions, and it has no visible winding or setting stem. Ordinarily a self-winding watch has 29 moving parts, but Accutron has only 12. And since both tuning fork assembly and electronic circuit are designed as modules, they can be replaced as units if damaged. Accutron's 1.3-volt mercury power cell costs about $1.50 and will last more than a year; it is as easy to replace as a flint in a cigarette lighter. *By Bulova Watch Co.*

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

Materials—Plastics

Reinforced Plastics. Dept. 1833, Owens-Corning Fiberglas Corp., 717 Fifth Ave., N. Y. 22, N. Y. 40 pp. Manual provides the product designer, engineer, or materials specifier with an up-to-date compilation of data on fiberglass-reinforced plastics to assist in materials comparisons and design decisions.

Building Insulation. Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22, Pa. 20 pp. Catalog FB-108 deals with the use of Foamglas, the cellular glass insulation, and Foamglas-Board in the building field. Contains the latest information on the use of building and insulation materials in roofs, curtain walls, core walls, wall linings, ceilings, etc. Information on accessory materials, along with charts and graphs computing "U" values and other technical data, is also included.

Properties Data Sheet. United Foam Products Company, 2990 Industrial Blvd., Bethel Park, Pa. Ill. Sheet gives all the physical characteristics of the new Hewflex flexible urethane pipe covering, including density, thermal conductivity, water absorption, and maximum temperature limits.

Laminated Plastics and Vulcanized Fiber. Taylor Fibre Company, Norristown, Pa. 8 pp. Ill. Data intended for use in selecting and applying Taylor laminated plastics and Tayloron vulcanized fiber in electrical, electronics, and mechanical applications.

Laminated Plastics. Duralith Corp., 1025 Race St., Philadelphia 7, Pa. 4 pp. Brochure outlines the facilities available for the production of laminated plastic books.

Porcelain-Enameled Architectural Panels. Caloric Corp., Architectural Porcelain Division, Topton, Pa. 8 pp. Booklet shows typical applications of Calcore porcelain-enameled architectural panels for various types of buildings including schools, banks, motels, apartments, offices, and industrial centers.

Plastic Laboratory Ware. Palo Laboratory Supplies, Inc. 75 Ninth Ave., N. Y. 11. 1962 catalog contains new additions to Palo's line of plastic beakers, carboys, bottles, tubing, funnels, and containers.

Materials—Metals

Wire Design. E. H. Titchener and Company, 58 Titchener Pl., Binghamton, N. Y. New edition of handbook has special interest for electronics field. Tables of technical data and illustrated description of wire materials, wire forming, welding, and finishing techniques make it a useful guide for designers and engineers in all fields of electronics.

Packaging. Wirebound Box Division, St. Regis Paper Company, Box 4433, Chicago 80, Ill. Brochure gives detailed case histories and unusual packaging applications for reusable wirebound pallet boxes.

Silicone Potting Compounds. Silicone Products Department of General Electric, Waterford, New York. Publication S-23 provides full information on the tough RTV silicone rubber compounds, the new, extremely resilient, transparent material which provides continual inspection and easy repair of potted assemblies. Also covered are typical physical and electrical properties.

Methods and Machines

Flat Machining. Abrading Systems Company, 3636 W. Oakton St., Skokie, Ill. Brochure discusses how to cut costs and improve the product by using the Speedlap process for making screw-machine parts, stampings, castings, and ceramics.

Steel Process. Alon Processing, Inc., P.O. Box 11431, Pittsburgh 38, Pa. Brochure describes the "alonizing process" of deeply diffusing aluminum into steel to form an iron-aluminum protective alloy with mechanical properties provided by the steel base.

Hydraulic-Magnetic Circuit Breakers. Westinghouse Standard Control Division, Beaver, Pa. 4 pp. Bulletin 29-550 describes the type 550 circuit breaker, a line of hydraulic-magnetic breakers for use in electrical and electronic equipment where fractional ampere ratings in relatively low currents are required. Also includes test data, electrical ratings, trip ratings, and typical specifications.

Fluorosilicone Fluids, Greases, and Compounds. Dow Corning Corp., Midland, Mich. The literature, designated 15-200 for fluids, 15-201 for compounds, and 15-202 for greases, contains properties and performance charts and graphs, suggested applications for these new solvent, fuel, and chemical resistant materials.

Multivalve Steam Turbine. Westinghouse Electric Corp., P.O. Box 2099, Pittsburgh 30, Pa. 24 pp. Ill. Booklet B-8227 gives detailed descriptions of the various types of M-line high-speed mechanical drive steam turbines. System components including nozzles, nozzle blocks, steam chests, rotors, blades, journals, and thrust bearings are shown and their special features explained. System flow diagrams of oil relay governors and single automatic extraction controls are included.

Tools and Components

Filling Balances. Mettler Instrument Corp., P.O. Box 100, Princeton, N. J. Bulletin No. 102A describes a new line of low-weight-range filling balances which automatically weigh out granular or powdered substances.

Acrylic Molding Powder. Rohm & Haas Company, Plastics Department, Washington Square, Philadelphia 5, Pa. 4 pp. Chemical and physical properties of the high-impact acrylic, Implex R, are discussed along with its typical applications.

Fibrous Glass Insulation. Fibrous Glass Products, Inc., Mountaintop, Pa. Bulletin F101 covers five major product areas—thermal insulation, acoustical insulation, vibration isolation, packaging dunnage, and filtration. Specifications given in the bulletin include composition, density, temperature ranges, and noise reduction coefficients.

Louver panels. Bohn Aluminum & Brass Corp., Dept. LP, Detroit 26, Mich. Specification sheet itemizes features of Bohnalite lighting louvers, which can be used for wall-to-wall ceilings, luminous floating panels, fluorescent and incandescent fixtures.

Rotary-wound components. Kearfott Division of General Precision, Inc., 1150 McBride Avenue, Little Falls, N. J. Newly

revised edition of "Technical Information for Engineers" details the theory, performance, application, construction, and testing of such rotary-wound components as standard, high-inherent damping, viscous-damped motors, and many more. Definitive tabulations give operating characteristics for more than 250 different rotary-wound components used in servo systems, computers, and other applications. Gearhead data is included.

Self-Sticking Tape. ACS Tapes, Inc., Dept. OB, 217 California St., Newton 58, Mass. In addition to suggested usage and descriptive information for all types of tape, the brochure carries a list of colors, sizes, prices, and complete information on ordering.

Precision Test Instruments. B & K Instruments, Inc., 3044 West 106 St., Cleveland 11, Ohio. 24 pp. Catalog ES-10 lists the complete Bruel and Kjaer lines of integrated sound, vibration, and data-analysis instrumentation.

Industrial Wire Cloth. Dept. RDT, National-Standard Company, Niles, Mich. 28 pp. Ill. Handbook contains a glossary of terms, description of weave types, mesh size vs. open area tables, weight listings, application of industrial wire cloth principles, and guides to the selection of proper metals and protective coatings.

Miniature Round Connectors. Burndy Corp., Norwalk, Conn. 32 pp. New catalog BHB contains comprehensive data on the Burndy Hyfen Bantam miniature round connectors that conform to MIL-C-26482. Indexed for easy reference, the multicolored catalog includes specifications, dimensional drawings, tables, shell styles, and termination devices for eight shell sizes.

Bimetal Thermometers. Weston Instruments Division, Daystrom, Inc., 614 Frelinghuysen Ave., Newark 14, N. J. 16 pp. Bulletin covers all Weston industrial, laboratory, Navy, and pocket types of bimetal thermometers. Also states available ranges, sizes, and types, covering not only the usual industrial and laboratory uses, but those intended for alarm control systems, maximum-minimum indication, and other applications.

Electronic Equipment, Components, and Accessories. Radio and Electronic Parts Corporation, 3235 Prospect Avenue, Cleveland 15, Ohio. 300 pp. A wide range of products is offered in this comprehensive catalog, with detailed specifications given for most items. Catalog is intended for the industrial user of electronic equipment and components, also lists audio components and kits, public address systems and accessories, etc. Industrial tube cross reference is included. The book is indexed by manufacturer and product.

Product and Package Identification. Markem Machine Company, 178 Congress St., Keene, N. H. 6 pp. Ill. Brochure explains how to insure that buyers know what the product is and who made it. Examples are given showing how products and packages can best be marked, labeled, decorated, and identified.

Miniature and Instrument Ball Bearings. Sales Department, New Departure Division, General Motors Corp., Bristol, Conn. 48 pp. Catalog contains complete descriptions of the company's engineering and production facilities for small-size bearings. Various testing functions are pictured and described.

Resins Comparison Chart. Mitchell-Rand Manufacturing Corp., 51 Murray St., N. Y. 7. 4 pp. Folder compares 17 Randac Epoxy Resins, their components, primary uses, handling characteristics, and physical and electric properties.

Piping Design and Analysis. Francis L. Jackson, Assistant Director, Franklin Institute Laboratories, 20th and Parkway, Philadelphia 3, Pa. Leaflet describes how Laboratories' engineers use the Institute's (UNIVAC) computing center for piping design and analysis. The computer program for flexibility analysis yields direct print-out of forces, moments, stresses, and deflections at every segment and terminal in the system under study.

Nylon Stock Shapes. Cadillac Plastic and Chemical Company, 15111 Second Ave., Detroit 3, Mich. 8 pp. Brochure lists available sizes for Cadco nylon rod, plate, sheet, strip, and tubing. Typical applications are illustrated.

Power Transformers. General Electric Company, Schenectady 5, N. Y. 12 pp. Ill. pamphlet GEA 6604B gives scopes dimensions, product features, benefits, and basic concept of General Electric power transformers rated up to 230 kv, 400,000 kca. Included are details on new low-height design, reduced floor space requirements, and cooling arrangements.

Automated Turret Drills. Burgmaster Corp., 15001 S. Figueroa St., Gardena, Calif. 16 pp. Catalog covers Burgmaster 6 and 8-spindle tape-controlled turret drilling, tapping, milling, and bore machines. Four basic models are illustrated and described, and the procedure for programming work and making up tape is explained.

Miscellaneous

Hydroxyacetic (glycolic) acid. E. I. du Pont de Nemours and Company, Public Relations Department, Room D-4147, Wilmington 98, Delaware. First technical bulletin ever published on hydroxyacetic (glycolic) acid. Covers range of subjects including adhesives, copper brightening, dyeing, electro-plating, masonry cleaning and chemical milling.

Plastics Education. Society of Plastic Engineers, 65 Prospect St., Stamford, Conn. 12 pp. Brochure includes a comprehensive discussion of the desirability of a specialized training to prepare an engineering student for a career in plastics as well as a description of recommended courses to provide such a training.

Sound Control. Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22, Pa. 12 pp. Booklet GC-5 deals with the effectiveness of Geocoustic, the cellular glass acoustical tile intended for "patch" application in situations ranging from classrooms to swimming pools. It contains basic information on sound control, and sound absorption and diffusion. Amount of treatment needed for average applications, background data on the material itself. Application procedures and specifications are included.

Industrial Gas. Air Reduction Sales Company, 150 E. 42 St., N. Y. 17. 48 pp. Form ADE-890 provides industrial gas data in compact form. Data booklet lists physical and chemical properties of oxygen, nitrogen, argon, helium, hydrogen, carbon dioxide, etc. and of medical gases, too. Conversion tables provide a simple and fast method for changing volumetric information on the various industrial gases from one equivalent unit of measure to another.

Training and Education Systems. Applied Communications Systems, division of Litton Systems, Inc., 8535 Warner Dr., Culver City, Calif. 4 pp. Ill. Applications of audio-visual systems and equipment in training and education are described.

Appliances of the Future. Designers for Industry, Inc. 4241 Fulton Parkway, Cleveland 9, Ohio. 6 pp. Brochure describes appliances of the future, such as a push-button meal planner, a computer for inventorying the kitchen food supply, a conveyor that removes dirty dishes and carries them through a dishwasher to the cupboard, etc.

FREE LITERATURE *continued*

American Council of Independent Laboratories Directory. Executive secretary of the ACIL, 4302 East-West Highway, Washington 14, D. C. The directory is available, without charge, to industrial and government executives when requested on company or official letterhead.

Electric Cranes. R. G. LeTourneau, Inc., 2399 South McArthur, Longview, Texas. 12 pp. The bulletin contains illustrations and technical information about the complete line of full-revolving, all-electric LeTourneau cranes.

Double-coated Tapes. Dept. J1-10, 3M Company, 900 Bush Ave., St. Paul 6, Minn. 6 pp. Ill. Folder P-DNF (915) LP tells how "Scotch" brand double-coated paper, cloth, transparent film, plastic film, and adhesive transfer tapes are tailored for manual, semi-automatic, and automatic applications to cut costs, speed production, and improve the appearance of industrial products.

Volumetric Dry Feeder. B-I-F Industries, P.O. Box 276, Providence 1, R. I. 2 pp. Ref. No. 21-02.201-1. Specification data sheet discusses the Omega Universal volumetric dry feeder, Model 21-02. The dry feeder was designed to measure by volume any dry flowable material—lumps or fine powder, light or heavy.

Electronic Data Presentation Systems. A. B. Dick Company, 5700 West Touhy, Chicago 48. Brochure outlines the research and development capabilities of the firm in regard to its videograph electronic data presentation systems. Described are personnel, facilities, and products involved in such areas as: pulse-code and high-speed facsimile data processing, digital-to-alphanumeric conversion for readable, hard-copy records, visual data display, information retrieval from graphic or digital sources, and the production of continuous, dry records by video techniques. Videograph systems, both in customer operation and under development, are reviewed with emphasis on high-speed electrostatic printing, graphic scanning, electronic document transmission and reproduction, and character generation.

Bars and Billets. Advertising Dept., Allegheny Ludlum Steel Corp., Oliver Building, Pittsburgh, Pa. 80 pp. Comprehensive booklet entitled "Stainless Bars and Forging Billets" gives detailed information on the corrosion resistance, fabrication, machining, welding, thermal treatments, mechanical properties, and other data on stainless steel bars.

Automation. Minneapolis-Honeywell Regulator Company, Minneapolis 8, Minn. The full-color booklet covers building automation and centralized control concepts. Booklet is devoted to control centers for air-conditioning systems but also pictures actual installations in private and municipal buildings.

Film Resistors. Corning Electronic Components, Corning Glass Works, Bradford, Pa. Reference file CE-2.10 describes low cost, low power film resistors for radio and television applications.

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Classified Advertisements

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Exhibit Display Designer—*Highly experienced designer seeking position in progressive modern display firm. Very good renderer, fine color sense, capable of building scale models, fresh and modern ideas, fast, quiet and willing to relocate. Resume on request. Box ID-432, Industrial Design, 18 East 50th Street, N. Y.*

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Theodore S. Jones & Company:—*A national placement service for designers: graphics, packaging, product, display and exhibit, interior, structural packaging, advertising art, product development. References checked. Openings and Individuals served confidentially. Request free bulletins. Box 41, Milton 87, Massachusetts. OX-6-3221, OX-6-7676.*

Architectural and Design Personnel Agency—Muriel Feder—*A personalized placement service for top-level architects, designers, engineers, draftsmen, interior decorators, and home furnishing personnel. Selective contacts arranged in a confidential and professional manner. Interviews by appointment. 58 Park Avenue, N. Y. MU 3-2523.*

Career Builders—Ruth Forrest—*Since 1947 a Personnel Agency specializing in Architectural, Interior, and Industrial Designers; all Home Furnishings and related personnel. Trainees to top executives. 515 Madison Avenue, New York 22, Plaza 2-7640.*

Helen Hutchins Personnel Agency—*Specialist Professional, Sales, Administrative Personnel for Industrial, Architectural, Interior Designers; Home Furnishings manufacturers, Distributors, Stores Publications, etc. Helen Hutchins' long association with a leading industrial design organization insures intelligent screening. 767 Lexington Avenue, New York. TE 8-3070. By appointment.*

Experienced Industrial Designer—*is needed to investigate, design, and develop new products. BSME or BSEE is required. $8,000 to $10,000 starting salary, depending on experience. For confidential appointment send resume to Personnel Engineering, 1102 Broadway, Rockford, Illinois or 3300 Peterson Avenue, Chicago, Illinois. "Licensed and Bonded."*

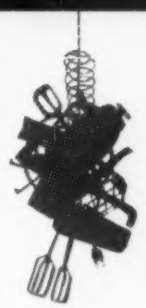
Packaging and Graphics Designer—*To head up a small division. Must be creative and strong on client contact and job servicing. Benefits provided and the potential within the organization for the right man is very good. Product Designer with ability to carry projects from planning through prototypes. Please contact only Akron office of Scherr & McDermott, Incorporated, 39 S. Miller Road, Akron 13, Ohio.*

Industrial Design Supervisor—*Blue chip east coast consumer electronics manufacturer has supervisory opening for graduate industrial designer with some 10 years' experience in product design and supervision, preferably in the home entertainment field. Will direct industrial designers, establish styling quality levels and utilize creative design judgment. Salary commensurate with experience. Our employees know of this ad. Write stating salary requirements. Box ID-431, Industrial Design, 18 East 50th Street, New York 22, New York.*

Help Wanted—Male—*We would like to add two experienced designers to our organization. We work in 40 product design. Preference given to top graphic and package designers. Product design background also helpful. Client contact and future stock participation to key personnel. Robert Zeidman Associates, Inc., 250 Park Avenue, New York 17, New York. YU-6-1690.*

MISCELLANEOUS

Products Wanted:—*Well established research and development company desires to contact designers and inventors having new, novel and original ideas or inventions for toy or hobby field. Royalty or outright purchase. Prefer items two dollars retail and higher. Any accepted medium OK. Please send for submission forms. Box ID-429, Industrial Design, 18 East 50th Street, N. Y.*



INVITATION.
A COLLECTION
OF THE YEAR'S BEST
WORK IN PRODUCT AND PACK-
AGING DESIGN, DRAWN FROM THE
SELECTIONS SHOWN IN THIS MONTH'S
ISSUE OF INDUSTRIAL DESIGN (THE
8TH ANNUAL DESIGN REVIEW), WILL BE DIS-
PLAYED IN THE PEPSI-COLA EXHIBITION GALLERY,
500 PARK AVENUE, NEW YORK, JANUARY 4-26, 1962. YOU
AND YOUR BUSINESS ASSOCIATES ARE INVITED TO SEE IT.

CALENDAR

Through December 15. Exhibit, "Creativity on Paper," sponsored by *Art Direction* magazine. Mead Paper Company, 230 Park Ave., New York.

Through December 20. Display of products of Finland. Commercial Museum, Philadelphia Trade and Convention Center, Philadelphia.

Through December 25. "Stairs," a circulating exhibition designed by Bernard Rudofsky for the New York Museum of Modern Art. J. B. Speed Museum, Louisville, Kentucky.

Through December 29. Exhibition, "The Inventions of Leonardo de Vinci." IBM Gallery of Arts and Science, New York.

Through December 31. Showing on family fallout shelters. National Housing Center, 1625 L Street, N.W., Washington, D.C.

Through December 31. Exhibition of architectural student theses, sponsored by the American Institute of Architects. Gallery of the Octagon, Washington, D. C.

Through January 7. Showing of enameled metalwork by Kenneth Bates. Decorative Art Galleries, The Art Institute of Chicago.

Through January 14. Display of the Pottery of Toshiko Takaezu. Museum of Contemporary Crafts, New York.

Through January 14. "Fabrics International," an exhibit of handcrafted and industrial fabrics from twenty-one countries. Museum of Contemporary Crafts, New York.

Through January 28. Exhibit, "Japan: Design Today." Munson-Williams-Proctor Institute. Utica, N. Y.

Through February 18th. "Masterpieces of Photography," from the Eastman Collection. Munson-Williams-Proctor Institute, Utica, N. Y.

December 12-13. Seminar on non-destructive testing, Engineering Institutes, University of Wisconsin, Madison.

December 12-14. Eastern Joint Computer Conference. Theme: "Computers—Key to Total Systems Control." Sheraton Park Hotel, Washington, D.C.

December 12-January 2. "Roads," a circulating exhibition by the New York Museum of Modern Art. General Motors Technical Center, Warren, Michigan.

January 7-12. China and Glass Convention. Atlantic City.

January 7-12. National Retail Merchants Association convention. Theme: "The Challenge of Change." Senator Humbert Humphrey is feature speaker at luncheon January 8th. Statler-Hilton Hotel, New York.

January 8. Mahogany Association's annual awards banquet. Palmer House, Chicago.

January 8-17. International Home Furnishings Market. Also, Toy and Juvenile Market. Merchandise Mart, Chicago.

January 9-11. National symposium on reliability and quality control. Statler-Hilton Hotel, Washington, D.C.

January 15-19. National Housewares Exhibit, sponsored by National Housewares Manufacturers Association. McCormick Place, Chicago.

January 15-19. Winter Southern Furniture and Rug Market. Southern Furniture Exposition Building, High Point, N. C.

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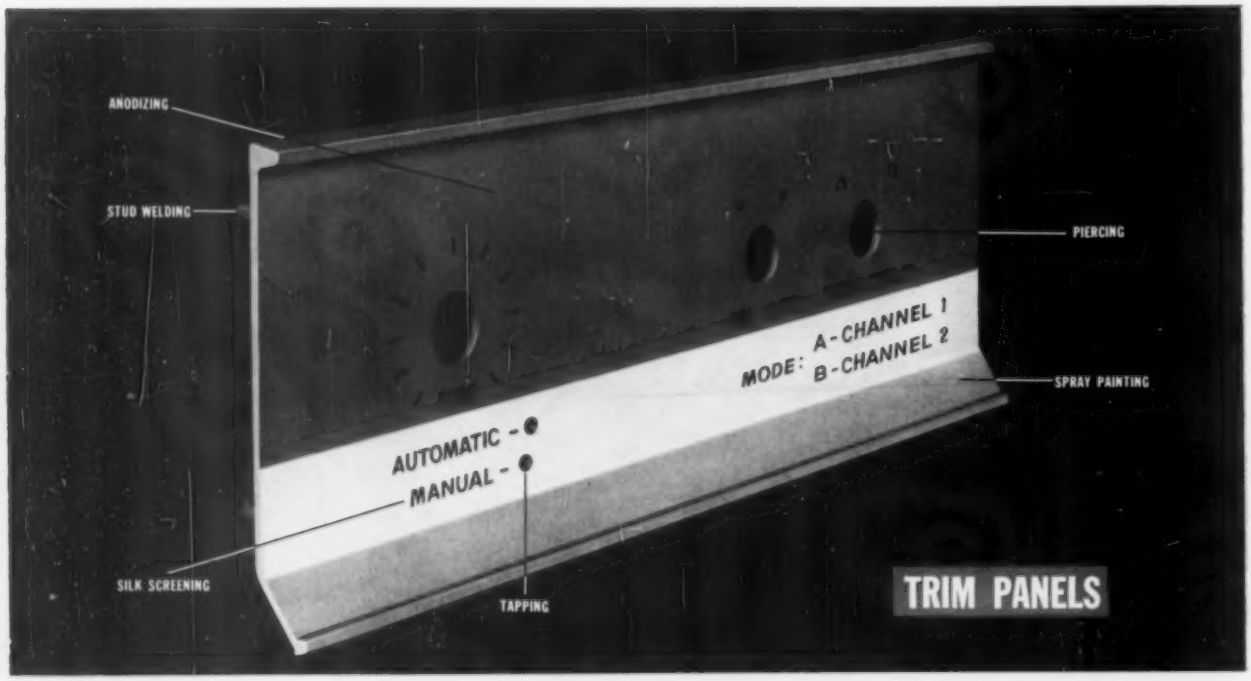

FRAMES

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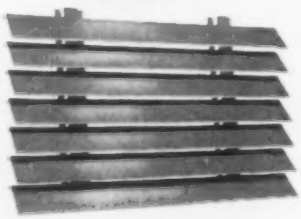
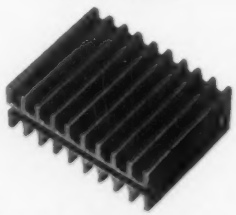
GRILLES



DECORATIVE AND FUNCTIONAL GRILLEWORK ASSEMBLIES. SOME DESIGNS WITHOUT TOOL CHARGES

HEAT SINKS



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