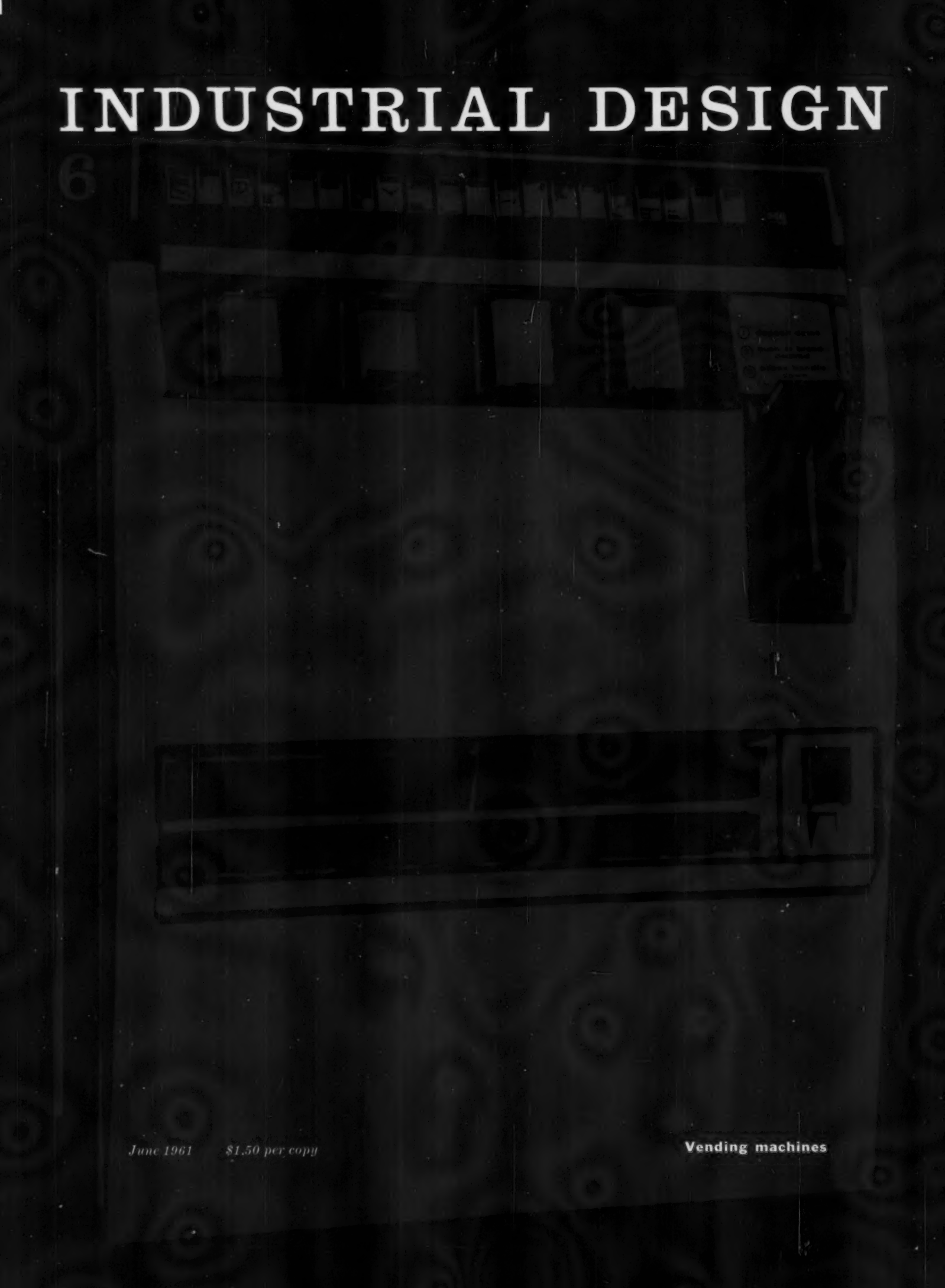
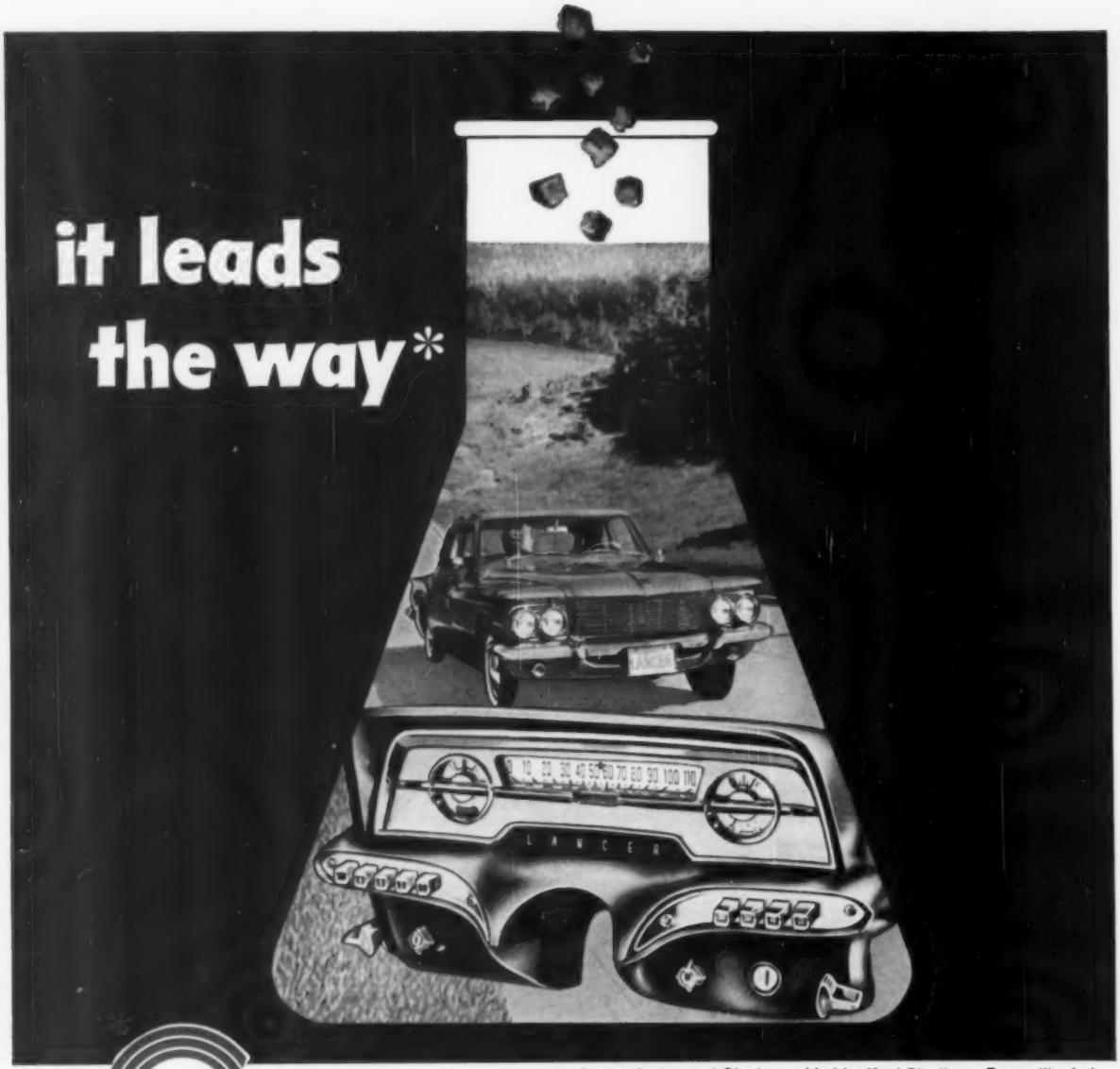
INDUSTRIAL DESIGN



June 1961 *$1.50 per copy*

Vending machines

it leads the way*



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MATERIALS AND TECHNIQUES FOR PACKAGE DESIGN

UPCOMING FEATURES:

August Issue:- FOILS AND FOIL SUBSTITUTES IN PACKAGING

Foils offer so many advantages that even the most prosaic contents are now sold in aluminum foils. But competing materials suppliers are not sitting still. Metallized papers, as well as specialized inks, are already in wide use as foil substitutes.

December Issue:- ANNUAL DESIGN REVIEW

In the 8th Annual Design Review December issue our editors will include a comprehensive section on significant packaging in 1961. In 1960 this section titled "Selling" totalled some twelve pages.

ID

MEMO TO ADVERTISERS

INDUSTRIAL DESIGN:
Whitney Publications Inc.
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QUESTIONS BEF

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INDUSTRIAL DESIGN

...the magazine for the men whose decisions today shape the products of tomorrow

BEFORE THE BOARD:

ackaging a major activity of company and independent industrial
gners?

short span of little more than a quarter century industrial
gners have become an important factor in the entire area of
eting which obviously includes packaging, both point of sale
heavy duty.

ecognition of our subscribers' concern with packaging we have
ished such stories as those listed overleaf.

ndustrial designers have a strong voice in the selection of
rials and processes?

question is best answered by industrial designers themselves:-

have for sometime been very active in the setting of specifica-
ns and the design and development of heavy-duty packages and
pping containers...There is a definite trend toward cost reduction
ough the use of new materials or construction techniques."
R.P. Vuillemenot, Executive Vice President, Donald Deskey Associates.

h an attitude has stimulated a new dependence on the industrial
igner as the source not only of package surface design and package
ucture, but as a creative consultant in all matters of packaging,
ticularly in the selection of materials, inks, adhesives and other
h production specifications." - Walter Landor.

n we do a package we are deeply concerned with the material of
ch it is made, and familiarize ourselves completely with
t is available on the market both at present and in the future.
specify inks and the exact formula of inks to be used. This is also
e of adhesives and closures." - Henry Dreyfuss.

ever, it is up to our design staff to engineer and create the
ropriate package for the product regardless whether it is a point-
sale package or a heavy duty shipping container. Our selection of
erial, packaging, printing method or any other phase of the overall
kaging operation is our major concern." - Alan Berni.

is true that the designer does not, in every instance, get involved
h detailed specifications of construction, etc., but will almost
ays influence such specifications by consulting with producers,
pliers and materials handling or shipping specialists."
R.H. Koepf, Manager Industrial Design I.B.M.

sales dimensions of display packaging and shipping containers are
integral part of the impact. Industrial designers are vitally
cerned with these factors, therefore exposure to materials, construction
hniques, printing inks, etc., would be a valuable asset."
F.W. Priess, Manager Product and Package Design, Montgomery Ward.

letters from which we quote are available.)
scuss the advisability of advertising to the industrial designer?

JUNE, 1961 VOLUME 8 NUMBER 6

INDUSTRIAL DESIGN

A monthly review of form and technique in designing for industry. Published for active industrial designers and the executives throughout industry who are concerned with product planning, design development, and marketing.

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COMING

IN JULY—*Urethane foams; Canadian National Railways graphics*

IN AUGUST—*Foils and foil substitutes*

COVER: Peter Bradford's preamble to the vending machine story (page 42) is a photograph of a Rowe cigarette vending machine.

FRONTISPIECE: Swirls of tape inside a Librascope RPC-9101 magnetic tape storage unit.

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INDUSTRIAL DESIGN is published monthly by Whitney Publications, Inc., 18 East 50th Street, New York 22, N. Y. Subscription price $10.00 for one year, $18.00 for two years, $24.00 for three years in the United States, Possessions and Canada. Rates to countries of the Pan American Union are $12.00 for one year, $22.00 for two years, $30.00 for three years. Rates to all other countries are $14.00 for one year, $26.00 for two years, $36.00 for three years. Price per copy $1.50 in U.S.A., Possessions and Canada, $2.00 to all other countries. Second-class postage paid at New York, N. Y.

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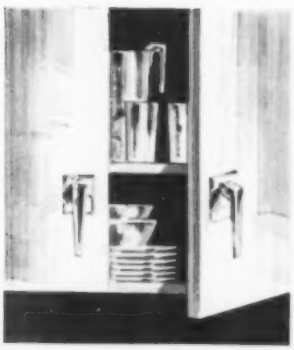
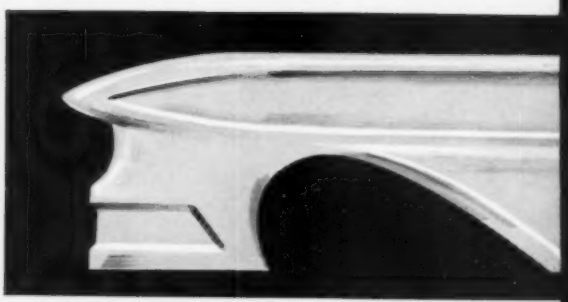
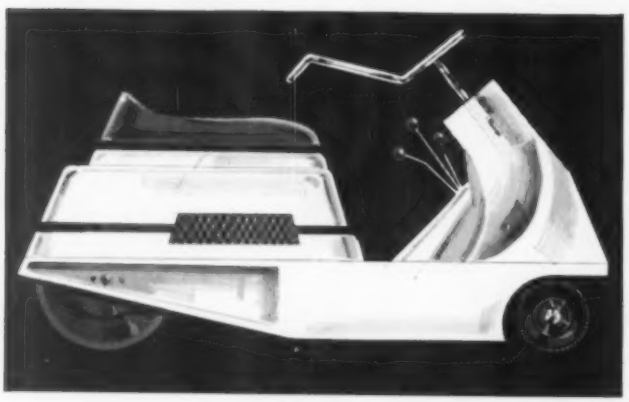
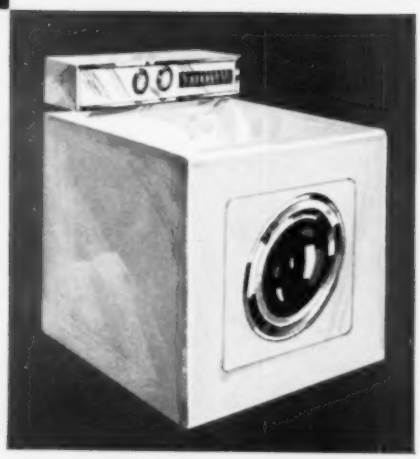
New Armco ZINCGRIP A, PAINTGRIP





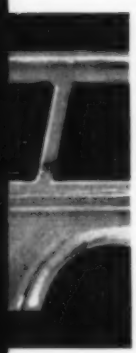




Galvanized Steel

For Durability, Strength, and Economy

Expands Design Potential of Zinc-Coated Steel



Adds superior paintability and surface finish to basic advantages of durable zinc-coated sheet steel.

Armco ZINCGRIP A, PAINTGRIP is a new grade of steel with a special spangle-free zinc coating that is mill-treated to take and preserve an ultra-smooth paint finish. Where design requirements call for the colorful appearance of high quality paint finishes on metal, with durable yet economical protection from rust and corrosion, ZINCGRIP A, PAINTGRIP offers advantages hitherto unavailable.

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Paintability—The spangle-free coating and special chemical treatment combine to produce a surface that results in ultra-smooth paint finishes. In addition, tests show that adherence and life of paint on ZINCGRIP A, PAINTGRIP is superior to that of any other zinc-coated steel especially prepared for painting.

Corrosion Resistance—Armco ZINCGRIP A, PAINTGRIP gives added life to painted parts. The zinc coating keeps rust from accelerating paint failure if the finish is scratched or worn away. And, it protects inside areas, that don't need paint, against rust and corrosion.

Fabrication—This design-improving Armco Steel can be drawn, formed or lock seamed by standard production methods without impairing its zinc coating or paint holding surface. It also has excellent spot welding characteristics compared to other zinc-coated steels. About twice as many spot welds can be made before welding tips need redressing.

Availability—ZINCGRIP A, PAINTGRIP can be obtained with either a light commercial weight or standard 1.25 oz. class coating, depending on service requirements. Likewise, it is produced with a regular or extra-smooth surface depending on paint finish required. Both sheets and coils in widths up to 48 inches, depending on gage, are available in thicknesses from 16 to 24 gage.

In your evaluation of materials, consider the multiple advantages now available to you with Armco ZINCGRIP A, PAINTGRIP. Write us for complete information on its properties and use. **Armco Division, Armco Steel Corporation, 2591 Curtis Street, Middletown, Ohio.**

NEW STEELS ARE BORN AT ARMCO

ARMCO **Armco Division**

IN THIS ISSUE

Poul Cadovius, whose Abstracta system is discussed on page 66, is a Danish designer-inventor-industrialist. His system won first prize out of 510 entries at the Brussels International Inventors Show this year and is manufactured by Abstracta Limited, a firm largely owned by Cadovius (he's also the sole owner of Royal System, Denmark's largest furniture factory). An amateur sportsman of considerable skill, Cadovius was Nordic Champion race car driver in 1939-40, and runner-up for the Danish Olympic small craft team in 1952.

Eric Nyland, the designer of Palakeen, one of the systems discussed on page 69, studied industrial design at Cooper Union and then became an apprentice of Frank Lloyd Wright at Taliesen East and West. During his several years with Wright, one of the things he worked on was drawings for the Guggenheim Museum. Although he has designed some houses privately, his professional career has been mostly in the field of furniture and home furnishings.

Norman Cherner, the designer who worked on Jiffy Joints (page 68), received his B.A. and M.A. from Columbia University in industrial and applied arts. His design activities are varied but seem to concentrate on houses and the things found in them. He designed his own house—a prefabricated one —which appeared at the Brussels Fair and is now on the market.

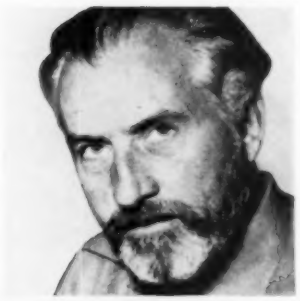
Allon Schoener, who contributes the comments on Ladislav Sutnar (page 74), has been Curator of Cincinnati's Contemporary Arts Center since 1955. After doing graduate study in art history at the University of London and receiving his M.A. from Yale, he became Assistant Curator at the San Francisco Museum of Art, where, among other responsibilities, he originated and produced the Museum's weekly tv programs. He has written articles for *Museum*, a UNESCO professional journal, and *Zodiac 7*, an international journal of architectural criticism.

Ed Zagorski, who took the photographs of pre-machine-age tools on page 54, calls himself "a found object collector, which is somewhat euphemistic for junker," but this explains the cast-iron elevator door which "rusts most handsomely" in his backyard. He is an Associate Professor in charge of the department of industrial design at the University of Illinois and is now in his second year as Secretary-Treasurer of IDEA.

Robert Picard, Director of Research and Engineering at Cenco, was the in-company liaison man who worked with Stowe Myers on that company's redesign project (see page 80). He received his M.S. in physics from the University of Arizona and his Ph.D. from the University of Michigan. Dr. Picard joined RCA's Scientific Instruments section in 1943 and became manager of their Scientific Instruments Engineering section in 1950; in 1955 he joined Cenco in his present position.

Stowe Myers, who describes his project for Cenco on page 80, served his design apprenticeship in the "big design offices" and was at various times associate/partner at Walter Dorwin Teague Associates, director of their Los Angeles office, and executive designer at Raymond Loewy Associates. In 1954 he opened his own firm which does product design as well as corporate identity programs and exhibits.

Cadovius



Nyland

Cherner

Shoener

Zagorski
Picard

Myers

LETTERS

Un-designed exhibit

Sirs:

We are extremely pleased with your March issue of INDUSTRIAL DESIGN, especially the section on the 16th Annual Conference of the Reinforced Plastics Division, SPI, in Chicago. The two target drones features at the exhibit were manufactured of prepregs based on our diallyl phthalate resins, and we had two speakers at the conference, hence our interest in this meeting was high.

Personally I was sorry to see your writer disparage the exhibits for "dismal failure in design communication" and "sketchiest kind of planning." This is one of the few exhibits where space is given gratis to qualified exhibitors. Participating companies are not charged for display space and "prebuilt" displays are not allowed. Only molders, fabricators and equipment manufacturers may exhibit; as a matter of fact, basic materials suppliers such as FMC are not allowed to participate. Speakers are allotted some space to display items of interest which may be covered in their talk, and this is why our material was permitted on display.

We attend a good number of trade shows and find ourselves caught up in a frightfully expensive proposition—renting a space, building, manning and shipping a booth, obtaining samples, etc. It is refreshing to us that at least one exhibit has not been taken over by hucksters with expensive and, often, garish pre-built exhibits. The SPI exhibit committee (God bless them!) actually receives, sets up, dismantles and ships the exhibit pieces that are forwarded to them. At any rate, here's a vote cast for an exhibit that still lets products speak for themselves.

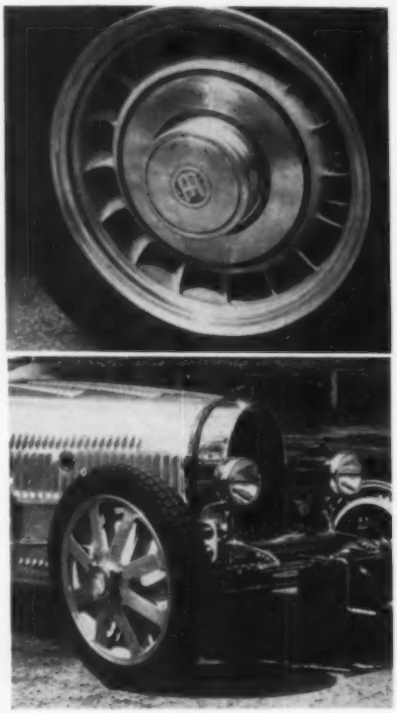
Foster Nostrand
Sales Promotion Manager
Food Machinery & Chemical Corp.
New York

Wheels of yesteryear

Sirs:

Mr. Crawford Dunn might be interested in seeing the enclosed photographs. These wheels (see above) predate his "aviation cadetism" by a great number of years, having been developed in the late '20s.

Designed to dissipate heat from the brake drums, which were cast as an integral part of the wheel, they were most efficient. The turbine type was used on



Turbine and spoke wheels

large touring models, and the flat spoked type was evolved primarily for the racing cars. Both were aluminum, and when thought of in terms of their period, were pretty advanced indeed.

But then, Bugatti was no slouch.

Jack Campbell
Pacific Palisades
California

West Coast after dark

Sirs:

I would like to take this opportunity to call the attention of Mr. Hansen (Letters, January, 1961) and any other interested parties to some courses in the industrial design field which are offered in evening classes in the greater Los Angeles area. The Long Beach State College offers courses in design for industry during this semester on Wednesday nights from 5 to 9:30 P.M. This program is taught by a professional industrial designer with complete facilities available. Our own junior college, Cerritos, offers a course in Graphic, Modeling and Design Techniques over a two semester period meeting Monday and Wednesday evenings from 7 to 10 P.M. This course is directed toward techniques used in industrial design type work including sketches and drawings in perspective, model making in different materials, delineating, industrial typography and layout drafting as well as design procedures. For those desiring it, a two-year curriculum including related courses in theory of design and color, manufacturing processes, mechanical drafting, technical sketching, wood working and sheet metal layout may be completed almost entirely in evening classes.

Please accept my congratulations on your continued excellent job of covering the industrial design area. The discussion in the January issue on short run production design has been long awaited and most appreciatively received.

Allen Gibbs Frankley
Cerritos College
Norwalk, California

Question of sponsorship

Sirs:

INDUSTRIAL DESIGN magazine's description of the Peabody Museum's "Design For You and Profit Exhibit" is not quite accurate (April issue, page 18). The exhibit was not officially sponsored by the ASID. It was, however, supported by several of our members because of the backing it received from an ASID member in the area. He is Howard Bourner, Chairman of ASID's new Committee on Adult Education.

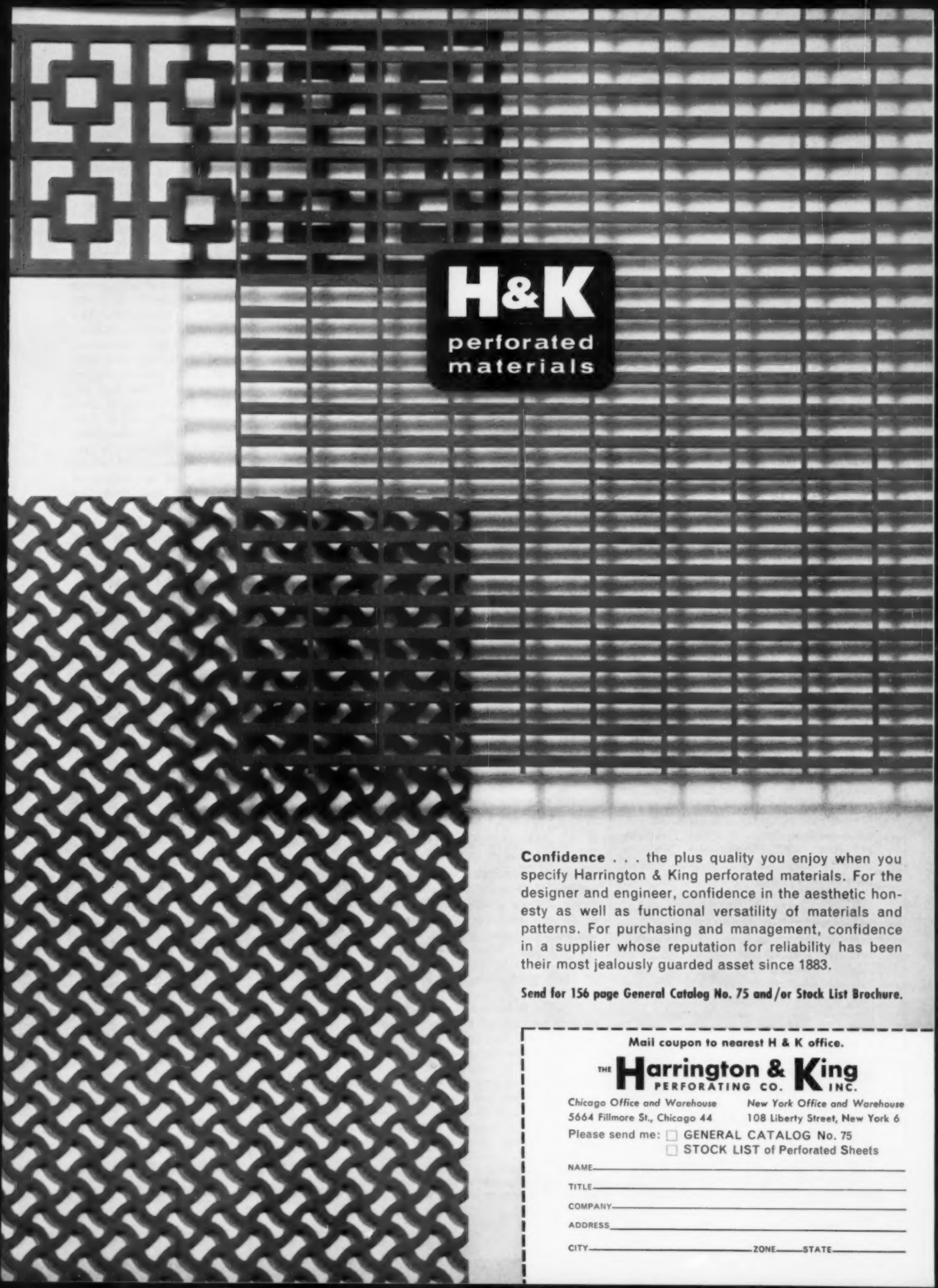
Mr. Bourner went into this as a private individual, acting as a technical adviser to the museum. All credit for organizing ASID membership participation in the exhibit should go to him. The Society is tremendously appreciative and grateful for his enterprise.

Ramah R. Larisch
National Office Secretary
American Society of
Industrial Designers
New York, New York

The source of information for our report was a Peabody College news bulletin sent us by Mr. Bourner.—Ed.

Erratum

The IDI would like to clarify the information in their news release on their booth at the National Design Center, which was the source of the News item on page 16 of April ID. The booth was given, rather than leased, to the IDI by the National Design Center.



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REVIEW: BOOKS

Steiglitz: a double exposure

Alfred Steiglitz, introduction to an American seer. *By Dorothy Norman. Duell, Sloan and Pearce. New York. 66 pages.* $6.95.

Photo-Secession, photography as a fine art. *By Robert Doty. The George Eastman House, Rochester, New York.* 104 *pages.* $7.50. *Distributed by Duell, Sloan and Pearce, Inc. New York.*

Two books, both handsomely made and generously illustrated, complement one another in surrounding (or rather, attempting to surround) the visions glimpsed, and often recorded by the Olympians who demanded and achieved recognition of photography as a fine art. Robert Doty's book describes in rather arid terms the history of the vision; the mechanics of how it was delivered to the public. He has organized the material thoughtfully so that his book presents the background, the origin and the products of the Photo-Secession in relation to the history of photography. The book is certainly a competent monograph, but there is no joy nor any anger in the text, and Mr. Doty might reasonably be reminded that his subject is a handful of eminently passionate people who were almost constantly joyful or angry.

Alfred Stieglitz was the enormous genius of Photo-Secession. He published magazines, broke down the doors of museums, introduced modern art to the United States, operated a series of galleries and nurtured a whole Pantheon of artists and photographers. What is more he produced photographic visions of lyric beauty and portraits of anguish.

Dorothy Norman's intimate biography differs from the Doty book in much the same way that Edward Steichen's famous portrait of Gloria Swanson differs from a studio publicity still (a retrospective Steichen show now hangs in the Museum of Modern Art). The publicity still may be externally descriptive but Steichen's portrait comes fearfully close to illuminating Miss Swanson's psyche.

Mrs. Norman reveals Stieglitz, instead of trying to describe him, in the way that a competent dramatist uses dialog rather than stage directions to make his points. Her volume is based on a close association with the subject which lasted from 1927 until his death in 1946. She has skillfully permitted direct quotations from Stieglitz to carry the main burden of text, connecting these quotations with paragraphs which serve to establish a context in time and produce a fluid narrative structure.

Norman by Steiglitz

Both volumes are pictorially stimulating and, in an odd way, disturbingly familiar, but the observer of these photographs is looking at prototypes, not cliches, and they are, for the most part, as electrifying today as they were in the first decade of this century.—R.B.

Color in action

Creative Color. *By Faber Birren. Reinhold Publishing Corp., New York.* 128 *pages.* $10.

Reviewed by Egmont Arens

Faber Birren is that *rara avis* of the artistic professions, a practicing theoretician. All too often we find, in the field of design, teachers quite untouched by the active practice of their subject. Yet in medicine, where teaching doctors, surgeons and internists are at the top of their profession, this split is nonexistent.

Creative Color is a major achievement in this building of bridges between the academic and the applied. And it is in an area where the gulf between theory and practice is tremendous. This great field of color theory has not been cross-fertilized often enough by the practitioner's needs or viewpoint. As a result, it stands as an immense body of knowledge reaching from Isaac Newton through I. H. Godlove, largely inaccessible to the general public.

For the designer or artist who wants to gain an understanding of the structure and order of the color world (an understanding essential to most effective color use) access has been limited to either the Munsell or Ostwald color system. And though both provide useful approaches with order, clarity and reliability once they are mastered, they are ponderous, and accessible only by long and concentrated study. Furthermore, there are discrepancies between the systems which make evaluation difficult. It is little wonder, then, that comprehensive study of this area has been more the province of the professor and theoretician than of the practicing designer.

However, Faber Birren himself is an unusual fellow. His profession is rare if not unique. He is a practicing colorist. Grounded in three decades of continual study of basic color theory and human color perception, he is nevertheless an unbiased pragmatist in his observations of people's changing wants, needs and reactions concerning color. This undidactic and empirical approach is carried over into *Creative Color*, making his presentation of color theory a tool for action which each reader can shape to his own needs.

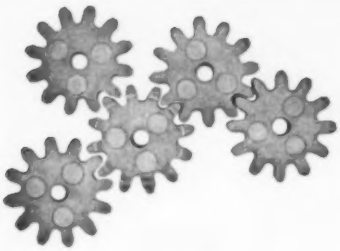
Creative Color is not a simple book, for it deals with a complex and diverse range of subject matter. Yet it is by far the simplest, best organized, and most direct exposition in this area known to the reviewer. Compared to the labor previously required to penetrate the material, Birren's lucid, highly organized and sequential treatment makes color theory easily accessible to every designer with needs or interests in the area.

Not only does Birren present a clear and intelligible review in the field; he develops an approach which each reader can use in preparing his own color palettes for special purposes. He also gives a basis for evaluating the Ostwald and Munsell systems, and for comparing the strengths of each, though, like this reviewer, he finds the Ostwald system more useful and reliable.

The ways in which human perception of the black and white and color image can be used to achieve effects of luminescence, iridescence, transparency, and colored light are also carefully explored in the latter part of the book.

Birren's *Creative Color* is a definitive achievement in building a solid, modern highway to the elusive but vital world of color.

EGMONT ARENS *is a founder of both PDC and ASID and is chairman of ASID's delegation to the Intersociety Color Council.*



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- *Takes brilliant, lasting finishes*
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- *Close dimensional tolerances*
- *Reduced production time and cost*
- *Complex shapes, thin wall sections*
- *Pleasing to eye and touch*

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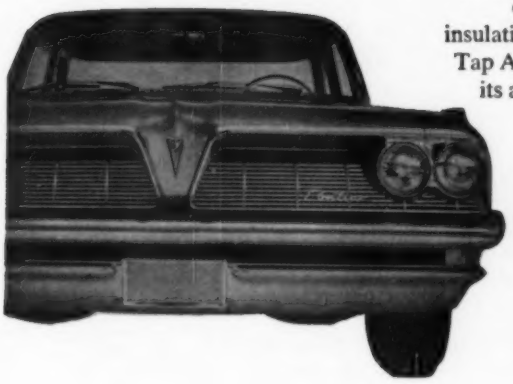
Asarco produces zinc in the following grades: Special High Grade, Prime Western, Brass Special, Intermediate and High Grade; Zinc anodes for cathodic protection of submerged steel structures and for electroplating; Zinc Foil for barrier wraps, insulation; Zinc Alloys for die-casting; Zinc Dust. Tap Asarco's knowledge about zinc's properties, its alloys and its many applications. If you are using, or contemplate using, zinc in your product, look to Asarco for technical information about this broadly useful metal.



ZINC DIE CAST METALS

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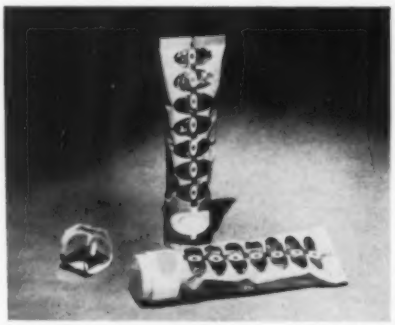
American Smelting and Refining Company, 120 Broadway, New York 5, N. Y.

NEWS



(1, 2, 3) First place winners in Du Pont's student project

Sweet-toothed students

Participating students in Du Pont's second annual packaging project for design schools (see ID, May 1960) were asked this year to concentrate on the candy industry and its problems, with special reference to the use of materials that provide maximum visibility. The project, sponsored by Du Pont's Film Department, was undertaken as a class assignment by students at Illinois Institute of Technology, Philadelphia Museum College of Art, and Carnegie Institute of Technology, and a total of 130 packaging designs were submitted. Entries were judged on the basis of the clarity of thinking evidenced in the package, originality of concept, functional aspect, esthetic aspect, and execution. There were first, second, and third places, and occasionally a special mention, for each school. Each school's winners were chosen independently by four judges: a faculty member, a member of Du Pont's Package Design Group, a representative of the candy industry, and an independent professional designer (in all cases Karl Fink).

Richard Demme, Jr.'s strip-packaged fruit balls (1) were awarded first place at the IIT Institute of Design. The cellophane overwrap opens with a tear tape, after which the hinged flap allows the candy to be reeled out as desired. Tube packaging (2) by Gary Gerber of PMCA won him a first place. Plastic top twists to allow one-at-a-time dispensing, tear tape removes top portion of cellophane when opened. An inner cellophane bag retains tubular form when dispenser top is either open or closed. Carnegie student Georgiana Chappel's group of licorice packages (3) received a first place, were cited by the judges for the sensitive relation of product color to graphic design. Licorice is matched by graphics in black-and-white printed cellophane bag, overwrapped checkerboard pattern, and die-cut box filled with skewered candy pieces. A special award was given to IIT student William Frcka for his Easter egg packages (4), which the judges called "excitingly imaginative." Top winners at each school received a trip to the National Packaging Show as a prize.

(4) Special award

Aspen, 1961

"Man/Problem Solver: The dynamics of man's development as a problem solver and an inquiry into the problem solving processes" is the theme of the Eleventh International Design Conference in Aspen, scheduled for June 18-24. Speeches and discussion groups will be arranged to cover the issue in three areas: the factors that have made man the problem solver he now is; how people in other fields see their own world of problems; and how man's problem solving abilities are used today and how they will be used in the future.

In an attempt to maintain the broad scope of views and ideas necessary to fulfill the aims of the conference, Aspen will again include speakers from the arts, social sciences, management, and government. Among the speakers already scheduled to participate are: Harry Belafonte; Edward C. Bursk, editor of the *Harvard Business Review;* designer Will Burtin; George Culler, director of the San Francisco Museum of Art; Reuel Denny, of the Department of Social Sciences, University of Chicago; Milner Grey, English designer; Dr. Peter C. Kronfeld, head of the Department of Ophthalmology, University of Illinois; Dr. Tomas Maldonado, head of the Ulm Hochschule für Gestaltung; Elizabeth Paepcke of Aspen; Dr. Albert E. Parr, of the American Museum of Natural History; Anatol Rapoport, of the Mental Health Research Institute, University of Michigan; Dr. Bernard Rudofsky, architect-engineer; C. B. Sitterson, director of research and development at Appleton (Wisconsin) Woolen Mills; Yu Soloviev, chief of industrial design of the State Scientific and Technical Committee of the Council of Ministers, U.S.S.R.; Dr. Harold Taylor, philosopher; and Dr. Herbert S. Zim, writer-science consultant.

Additional information and registration forms may be obtained by writing to International Design Conference in Aspen, 6 East Lake Street, Chicago 1, Illinois.

IDEA holds annual meeting

Raymond Spilman and Edgar Kaufmann, Jr. were the featured speakers at the Industrial Design Education Association's annual meeting held recently at Carnegie Institute of Technology in Pittsburgh. A number of discussion groups on various aspects of the issue "Why Teach Industrial Design?" were also conducted. Among those attending were about 40 educators from various design departments and schools, representatives from large corporations such as Alcoa (co-host of the meeting), General Motors, Claremont Color Dispersion, IBM, Westinghouse, and U. S. Steel, as

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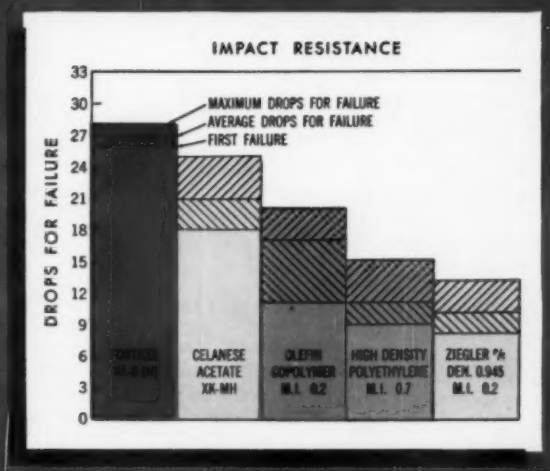
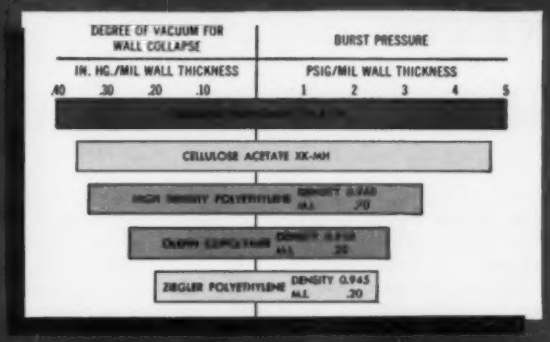
CELANESE POLYMER COMPANY





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well as a number of professional industrial designers. Robert Lepper, of Carnegie's College of Fine Arts, was program chairman of the meeting.

Officers for 1962, elected at the business session, are James M. Alexander Jr. (of the University of Cincinnati) as president; Austin R. Baer (of North Carolina State College) as vice president; and Edward Zagorski (of the University of Illinois) as treasurer. Next year's meeting will be held at the University of Illinois, Urbana.

New York World's Fair

The New York Chapter of the IDI devoted its meeting on May 9th to a symposium entitled "World Fairs—Seattle '62 and New York City '64." The Seattle fair's share of the program consisted of a slide presentation by Barry Upson, Century 21's assistant vice president for the East Coast. The major part of the evening, however, was devoted to a discussion of the New York fair. John Vassos, who is at work on a building for that fair (see details below) compared the democracy of the Fair Corporation to the democracy of his native Greece, and urged that all IDI members support the fair to the utmost of their ability. Next William Berns, vice president in charge of communications and public relations for the fair, showed a color film containing a progress report on the '64 fair and a glance backward at the '39 fair. J. Anthony Panuch, who is in charge of the industrial section of the fair, spoke on behalf of the Fair Corporation, and answered a number of questions from the floor. In response to one question, he said that there was no plan to revive a Design Committee for the fair, and in response to another that the two criteria the Corporation would use in judging prospective exhibits were safety and good taste. A final feature of the evening was a vote in which the IDI members present expressed unanimous disapproval of the fair's symbol, the Unisphere.

Hawaii has announced that it will set up its state exhibit, featuring native music and hula dancers, in the lakeshore area formerly reserved by New York State for a nature and conservation exhibit. New York has dropped this idea.

S. Robert Elton, the entrepreneur who has been responsible for the annual National Home Furnishings Show at the New York Coliseum, has announced that he will build a three-story Pavilion of American Interiors, to exhibit the products of home furnishings manufacturers. He will also include a Designers' Gallery, to be devoted to the work of individual interior designers. T. H. Yardley is the architect on the project, and John Vassos is the designer.

Plans have been made for another exhibit devoted to home furnishings. Lady Malcolm Douglas-Hamilton, whose American Institute of Approval attracted considerable attention from designers last year, is organizing a House of Good Taste for the fair. It will, in fact, be two Houses of Good Taste, at two different price levels. Royal Barry Wills and Associates are the architects.

From old to modern

Waldheim-Koepke Associates, Milwaukee industrial and architectural designers, converted an old building into a modern exhibit hall (the picture below shows one of the rooms) for the Irving Galleries, also of Milwaukee. The project was completed for less than $5,000.

Converted exhibition hall

Fabric exhibition planned

Plans are now being made by the Philadelphia Museum College of Art and the American Craftsmen's Council for a collaborative exhibition of fabrics from all over the world. Titled "Fabrics International" the exhibit would be shown at both the Museum College and the Museum of Contemporary Crafts, New York, in the fall of this year. Subsequently, it will be circulated to other American museums by the Smithsonian Institution.

The stated purpose of the project is "to evaluate our present state of fabric design; to rediscover some qualities and techniques overlooked or sacrificed by industrialization; and to look toward a very real technological revolution in one of the world's oldest industries."

Two hundred samples will be chosen for inclusion in the exhibition. Jack Lenor Larsen, director of the Museum College's Fabric Design Department and a trustee of the American Craftsmen's Council, will plan and direct the project, with the assistance of an advisory council which includes E. M. Benson, dean of the Museum College; David R. Campbell, president of the American Craftsmen's Council; Cora Carlisle, editor of *American Fabrics*, and Greta Daniel, associate curator of design at New York's Museum of Modern Art.

Preliminary submissions will be accepted in the form of samples, swatches, photographs or descriptions, and should be sent to Jack Lenor Larsen, 116 East

(*Continued on Page* 18)

1

2

3

New products

1. Professional hammer by Billnas (Helsinki) also comes in smaller, home version. Designed by Bertil Gordberg.
2. Saalfeld Aircraft's "Skyskootor" can be built at home with special kit. Overall length is 10 feet, rotor blades fold for easier storage; top speed is 85 mph.
3. American LaFrance's first gas turbine-powered fire truck, now in use by the Seattle (Washington) Fire Department, is 51 feet long, weighs 15 tons. Turbine was manufactured by Boeing's Industrial Products Division.

19th Street, New York. Entry forms may be obtained from Mr. Larsen, the Philadelphia Museum College of Art, or the American Craftsmen's Council.

Alcoa drops Forecast program

Forecast, Alcoa's well-known corporate promotional program, has been abandoned by the company after almost five years. It has been succeeded as an advertising effort by a new program, but, according to Samuel Fahnestock, Alcoa's manager of design, "despite not having the exciting stage of national advertising on which to present the designs, we plan to maintain Forecast as a continuing program to encourage and commission outstanding design in aluminum." Among the best-known products introduced through Forecast were the Eames solar toy, Jay Doblin's "people chairs," Noguchi's three-legged table, Marianne Strengell's aluminum-threaded fabric, and David Aaron's play sculptures.

Nelson staff exhibits

Graphic design by the George Nelson staff was exhibited in a show at the Composing Room in New York last month. The work of the Nelson staff, which includes Don Ervin, Irving Harper, Tony Zamora, and Tomoko Miho, covers the past ten years. Among the most notable projects on display were corporate identity programs for Aluminum Extrusions, Herman Miller, and Howard Miller; packaging for Abbot Laboratories; exhibition design for the Moscow Fair of 1959; and graphic design for the Williamsburg, Virginia, information center.

SPE to discuss packaging

"Plastics in Packaging" is the theme of an SPE Regional Technical Conference to be held in Montreal, Quebec, at the Sheraton Mount Royal Hotel on June 14th. Among the topics covered in discussions at the conference will be overwrapping with polyethylene, development of a heavy wall polyethylene shipping bag, polypropylene film, and materials and techniques for skin packaging with plastics. The Quebec Section of the international Society is sponsoring the event.

Advertising posters displayed

"It Paid to Advertise," an exhibition of 19th century advertising posters, is on view now through July 31st at the New

19th century poster

York Historical Society. The Lorillard snuff poster (above) is one of an assortment that includes patent-medicine ads, pre-Civil War posters, and an ad for the first American comic-strip — the Yellow Kid. There are also other advertising media exhibited, including paper collars, sheet music, decorative plates and barber mugs.

Furniture from a frieze

An exhibition of classical Greek furniture of the sixth to the fourth century B. C. opened in the Athens, Greece, galleries of furniture manufacturer Saridis of Athens late last month for a run that will extend through 1962. T. H. Robsjohn-Gibbings, New York furniture and interior designer, has recreated nineteen models for the Saridis firm, including seven tables, a couch, six benches, and five chairs (see below); all of them are made in the same woods and metals as the originals.

The sources for the designs were sculpture and vase paintings of the period, a few existing fragments of classical furniture, and descriptive writings from the classical and later periods.

Idlewild wins award

New York International Airport, better known as Idlewild, was given the 1961 Award of the American Society of Civil Engineers as the "Outstanding Civil Engineering Achievement of the year." A jury of engineering magazine editors chose the airport, with their selection being affirmed by the society's board of directors.

Judging was based on three categories: (1) engineering skill demonstrated; (2) evident engineering progress; and (3) value of project to mankind. The civil engineering at Idlewild was cited by the jury as being "of a magnitude unprecedented in the history of airport planning, design and construction."

Plastics exposition opens

The Ninth National Plastics Exposition, featuring exhibits by more than 400 firms, including a sizable number of overseas companies, opened June 5th at the New York Coliseum. The exhibition is running concurrently with a series of technical conferences at the Hotel Commodore. Among the new developments announced prior to the show's opening is a porous plastic, Vyon, introduced by the English firm, Porous Plastics, Ltd. Other exhibitors are displaying plastics processing equipment and new applications for established plastics. The conferences are oriented in terms of markets and cover applications of plastics in building, machinery, packaging, automotive, appliance, and defense fields. There will also be a speech and discussion session on "Plastics for Profits."

A full report on the exposition will appear in the July issue of ID.

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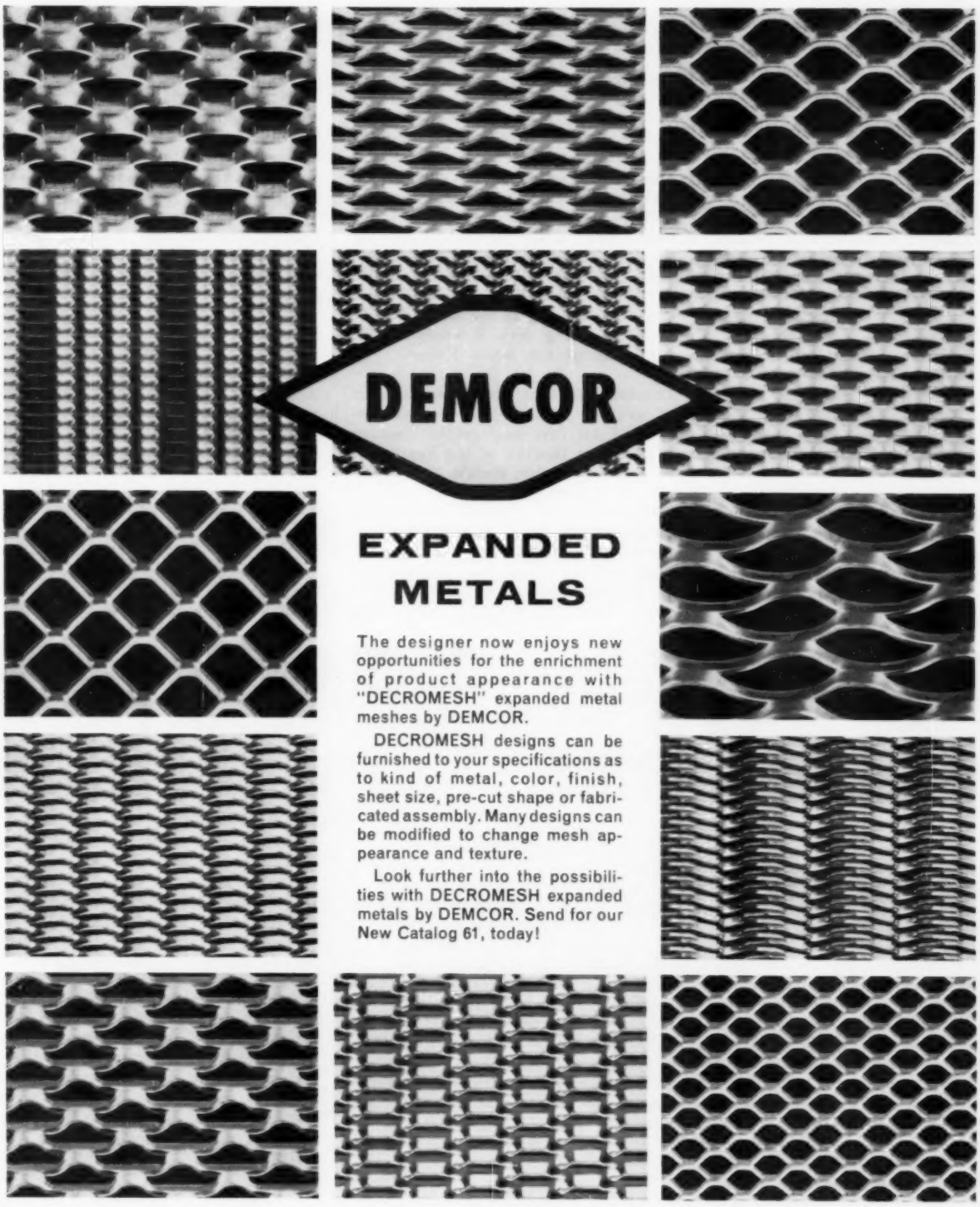
Ancient source and new model



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The designer now enjoys new opportunities for the enrichment of product appearance with "DECROMESH" expanded metal meshes by DEMCOR.

DECROMESH designs can be furnished to your specifications as to kind of metal, color, finish, sheet size, pre-cut shape or fabricated assembly. Many designs can be modified to change mesh appearance and texture.

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NEWS *continued*

People

APPOINTED: **Paul Burian** (below), to the staff of Cushing & Nevell, New York . . . **Leonard Fine** (below) and **Roland Johnson** (below) as associates at Monte L. Levin, New York . . . **Robert Willis** as director of graphics at Zierhut/Vedder/Shimano, Van Nuys, California . . . **Tucker P. Madawick,** previously in charge of industrial design of television products, as manager of industrial design for all RCA Sales Corporation home instruments. Madawick also heads the RCA Advanced Design and Styling Center . . . **William Brewer** (formerly with Mel Best Associates) and **Del K. Everitt** (formerly with General Motors Styling, Frigidaire Studio) to the staff of Zierhut/Vedder/Shimano, Van Nuys, California . . . **Donald G. Keen,** head of public relations at Lippincott & Margulies, New York, as a vice president of the firm . . .

Burian

Fine

Johnson

Gomez

Nederkorn

Flavio M. Gomez (above), previously package designer and account executive at the Chicago office of Raymond Loewy/William Snaith, to the graphics and packaging staff of Latham, Tyler, Jensen; Chicago . . . **Walter J. Young,** formerly director of package design, as vice president/creative director of packaging at Lippincott & Margulies, New York . . . **Leonhard W. Nederkorn** (above) as design coordinator for the U. S. Science Pavilion at the Century 21 Exhibit in Seattle. The appointment came under an executive order by President Kennedy . . . **Sherwood Loehndorf** as comptroller of Dave Chapman, Inc., Chicago . . . **David A. Wallace,** director of the Planning Council of the Greater Baltimore Committee, Inc., as professor of city planning in the University of Pennsylvania's Graduate School of Fine Arts . . . **Captain Ralph S. Barnaby** (USN Ret.) as manager of project development of the Franklin Institute Laboratories for Research and Development, Philadelphia . . . **Ervin J. Osterhus** as executive vice president and **Walter J. Hood** as vice president, engineering, at Designers for Industry, Cleveland, Ohio . . . **A. James Speyer** as curator of contemporary art for the Art Institute of Chicago . . . **Dr. John F. G. Hicks,** formerly vice president of the Corning Glass Works and vice president and technical director of Corning Glass International, as associate director of Battelle Memorial Institute, Columbus, Ohio . . . **Edgar M. Lewis,** design engineer at Douglas Aircraft, as director of the Aerospace Electrical Society's 1961 display scheduled for November 15-17 at the Pan Pacific Auditorium, in Los Angeles . . . **Marvin D. Schwartz,** curator of the Brooklyn Museum's department of decorative arts, to the advisory committee assisting Mrs. Kennedy in the furnishing of the White House.

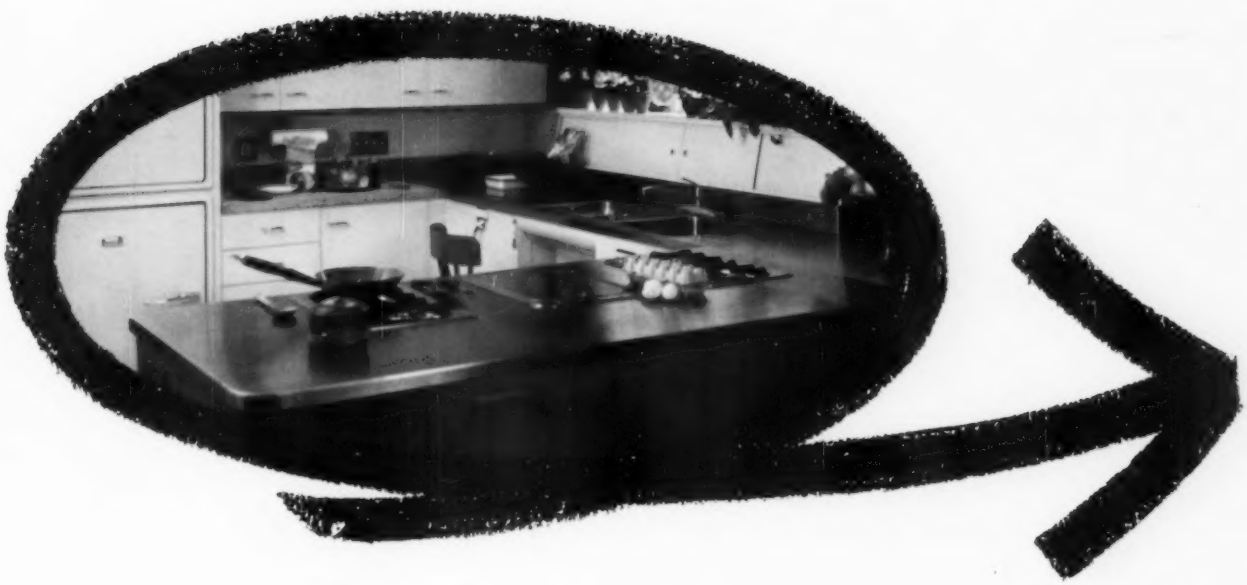
AWARDED: To **Otto Storch,** art director of *McCall's* magazine, the National Society of Art Directors' golden T-square as "The Art Director of the Year" . . . To **James D. Smith, Harold J. MacDonald, Jr., Harry Schmitke,** and **Ronald A. Brehio,** all juniors majoring in industrial design at the Rhode Island School of Design, $50 each and certificates for their designs for a paper box package for demi-tasse spoons, by the New England Paper Box Manufacturers Association . . . To **Dorothy Nickerson,** Color Technologist, Cotton Division, Agricultural Marketing Service, U. S. Department of Agriculture, the Inter-Society Color Council's Godlove Award, for "outstanding contributions to the knowledge of color in science, art, and industry." . . . By the Graham Foundation for Advanced Studies in the Fine Arts, fellowships to architects **Kenneth H. Cardwell, Louis I. Kahn, David Jacob, Reginald F. Malcolmson,** and **Paolo Soleri;** sculptors **Milton Cohen, Marian Jacob, Malcolm Leland** and **Peter Nicholson;** and art critic and lecturer **Jules Langsner.** The awards carry a one-year grant of from $5,000 to $7,500.

ELECTED: **William McCormick Blair,** president of the Art Institute of Chicago, to the Board of Trustees of the American Federation of Arts.

Company news

RETAINED: **Arthur Umanoff,** New York, and **Morton Goldsholl,** Chicago, by Storkline Corporation to design infant and juvenile furniture. Mr. Goldsholl is also handling the company's corporate identity program, has already created a new logotype . . . **Zierhut/Vedder/Shimano,** Van Nuys, California, by the Collins Radio Company to establish a corporate design program to cover the company's entire line . . . **Latham, Tyler, Jensen,** Chicago, by Archer-Daniels-Midland Company as consultants in a corporate identity program, by Weber-Costello Company for product planning and design consultation, and by the Hinson Manufacturing Company for product design . . . **Charles Butler Associates,** New York, by Aero Commander, Inc., makers of executive aircraft, as consultants on interior design of its planes . . . **Arthur D. Little, Inc.,** by Esterline Angus Instrument Company for assistance in corporate planning. **Raymond Loewy/William Snaith,** New York, has been retained by the company to redesign the cases for its instruments . . . **Teco, Inc.,** Burbank, California, by Los Angeles Airways to design and produce seats for the company's new multi-engined helicopters (see ID, February 1961) . . . **John S. Bolles,** San Francisco architectural and engineering firm, by Lenkurt Electric Company, Inc., to master plan and design new development engineering offices, a laboratory, and a cafeteria.

ESTABLISHED: By **Hayward R. Blake,** formerly manager of graphic design for Ekco-Alcoa Containers, his own design firm at 322 West Washington Street, Chicago. He has been retained by Ekco-Alcoa Containers as a consultant for the company's corporate, marketing, advertising and packaging programs and by Maess & Murphy, Chicago architects-engineers, for the graphic symbols and signs at the Chicago-O'Hare International Airport . . . By **Thomas C. Knight,** formerly with Westinghouse, his own design offices at 806 Central Towers, 2727 North Central, Phoenix 4, Arizona . . . By architects **Edward J. Hills** (previously with Fordyce & Hamby Associates) and **Maurice Medcalfe** (previously with Melanie Kahane and Harrison & Abramovitz), the firm of Hills & Medcalfe, at 36 East 57th Street, New York. . . . By Sears, Roebuck and Company, a **New Products and Business Development Committee.** Carl G. Bjornerantz, manager of the industrial design division of Sears Merchandise Development and Testing Laboratory will serve on the committee. END.



Appliances and Allegheny Stainless

Stainless...a growing force in appliance marketing

Stainless steel is unique among fabricated metals. It alone has a day-to-day familiarity for most people . . . an immediate product recognition. They see it everywhere . . . never painted over, never plated over . . . in their automobiles, in their homes, in their tools and sporting equipment. They know they can comfortably ignore it forever, and still depend on it. They look for it in the products they buy. Stainless is a marketing man's metal. It sells itself.

More and more manufacturers are beginning to recognize the potentialities of this built-in customer acceptance. Nowhere is this more true than in the appliance industry. And in this energetic and highly competitive field, one name stands out. The biggest name now marketing stainless steel in appliance design . . . Speed Queen, a Division of McGraw-Edison Company.

Speed Queen's automatic washers and dryers have always been engineered for absolute product dependability. And the almost inevitable result of this design philosophy has been to feature stainless steel in the major unit components: the washer tub and the dryer drum.

Easily formed into smooth, operationally desirable baffles and contours, stainless steel provides maximum protection for a Speed Queen load of clothes throughout all washing and drying cycles. Slick and snag-free to pamper the most delicate fabrics, stainless is tough enough to shrug off the battering that only the usual miscellany forgotten in a boy's trouser pocket can inflict.

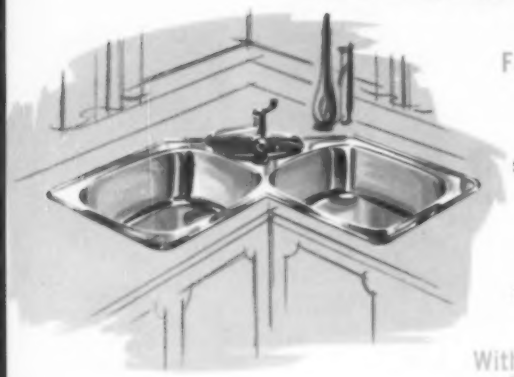
Speed Queen introduced stainless to provide rust-free, chip-free reliability for their customers. But they have also used stainless to help them sell. While other manufacturers use bits and pieces of stainless, Speed Queen has featured it in a big way . . . for years. And they can tell the world about it. They can go into their markets with persuasive and exclusive sales messages, and reach prospects already pre-sold and strongly preconditioned to look for stainless steel.

They can point to themselves as pioneers in the use of stainless in home laundry equipment. They can point to themselves as the only suppliers of stainless steel washer tubs and dryer drums. They can guarantee these components for a lifetime. They have a powerful sales feature. They have put stainless steel to work for their customers. And, they have made it work for themselves. Allegheny Stainless Steel can do the same for you . . . for your products. It's a marketable metal.

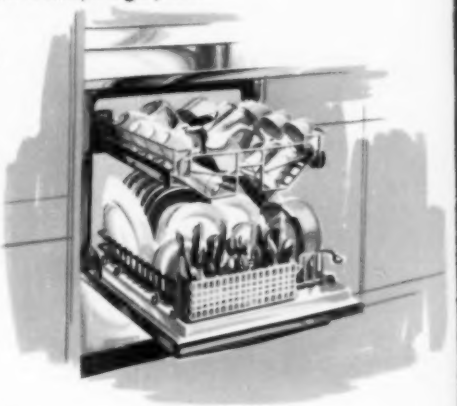
First with domestic washer tubs of stainless steel, Speed Queen has continued to feature them over the years. Their reliability, chip resistance, and unmatched resistance to corrosion are in keeping with the firm's tradition of absolute product dependability.

Exclusive with Speed Queen, the stainless steel dryer drum provides maximum protection for all fabrics during the drying cycle. Virtually indestructible, and like the washer tub of Type 201 stainless steel, this component can carry the guarantee of lifetime service.

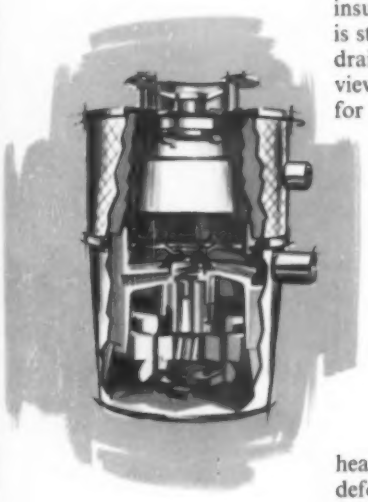
Allegheny Stainless for beauty with a function



For sinks and hardware . . . stainless steel, the logical choice. Here is an application where Allegheny Stainless can really shine, literally. Under the roughest use, under the battering of heavy pots and pans, under constant detergents and grease residue, the stainless surface remains unblemished, free of nicks or chips, and no corrosion or dark stains from chemically treated water, either. Stainless is easy to fabricate and finish, too. The new, special quality stainless steels now available make tough draws like bowls, drains, and baskets a simple matter. And, stainless can be the most economical metal for plumbing fixtures and hardware . . . looks better, longer, too.



With automatic dishwashers . . . there is freedom from a thankless task. Stainless steel helps keep it that way. Only pump impellers of stainless steel can be trusted to deal out the Niagara-like rush of water needed to power-wash and power-rinse dishes really clean. And with Allegheny Stainless, there's no corrosion, no erosion, no chance of staining dishes. There are stainless guides and channels to insure easy, no-stick operation of the door and trays. There is stainless out of sight . . . in manifolding, seals, seats and drains . . . for real peace of mind. There is stainless in plain view . . . door fronts, counter-high tops, hinges and hardware . . . for ease of cleaning, and long lasting, tasteful elegance.



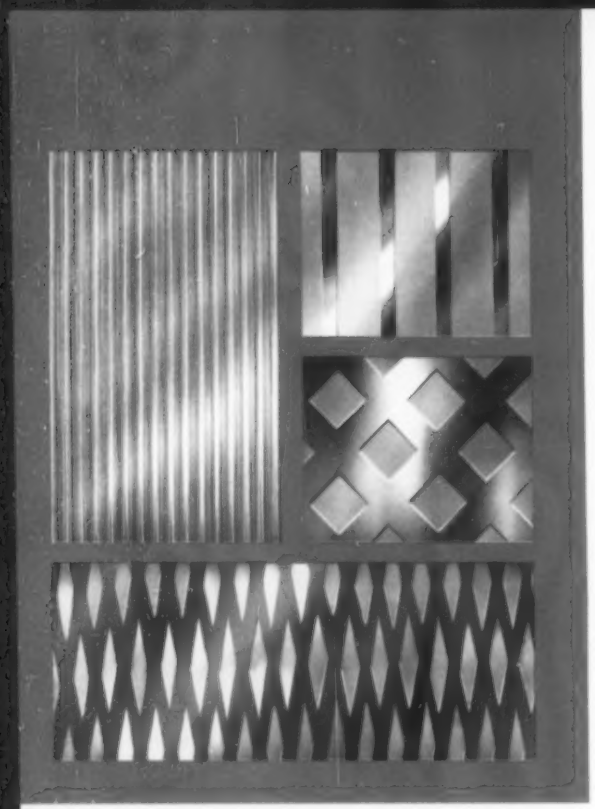
For garbage disposers . . . another thankless kitchen chore where long wear, sanitation, and corrosion resistance are absolute musts. Stainless steel's unique properties . . . excellent machinability and retention of hardness, corrosion resistance, and joint strength after welding or brazing . . . have proven ideal for this application. Whether in the flywheel, the cutter ring, the inner shell, or just for appearance's sake, Allegheny Stainless is unsurpassed . . . by any standard of comparison.

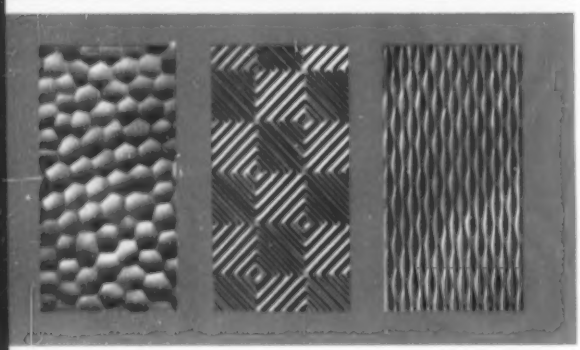
For heating coils . . . Type 332 Allegheny Stainless sheathing provides heat and scaling resistance to 1650 F. For high strength at red heat to support the heaviest pots and pans without deforming, for sliding wear resistance and ultimate cleanability, for economy in high wattage surface units or low wattage oven units . . . for all these reasons, stainless steel and kitchen heating are inseparable. But stainless has more to offer . . . a flash of brilliance in the trim ring around the burners—odor-free, wipe-clean drip pans under the burners—decorative wall tile spatter-shields—an entire custom cook top, gleaming bright and utterly impervious.

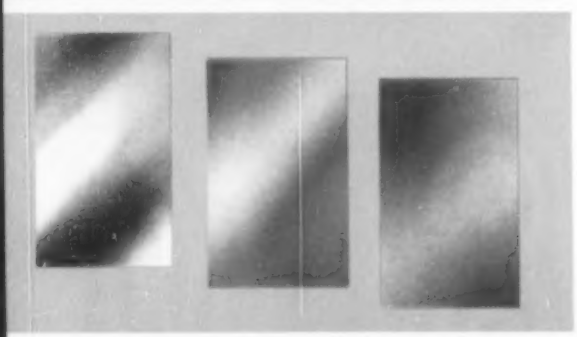
For decorative panels . . . for door-fronts and gleaming accents, for strictly show and for practical, chip-proof, scuff resistant beauty, too . . . stainless steel simply can't be topped. More than a coating . . . a plating, even . . . Allegheny Stainless is stainless utility and beauty clear through. Whether a soft, frosty luster is indicated by the final decor . . . or a brilliant mirror's shine, or any kind of rolled-on pattern you can dream up . . . stainless steel by Allegheny Ludlum can do it better, for longer, and for far less than you think.

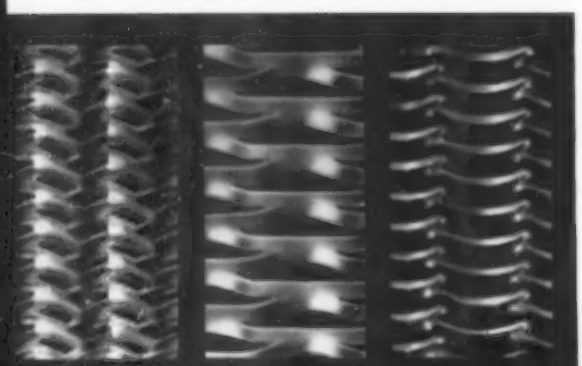
Appliances and Allegheny Stainless

Complemented by the soft gleam of stainless steel counter tops and decorative panels, these St. Charles Custom Kitchens would be welcomed in any home. Satiny stainless steel has the unique ability to blend beautifully with any decor, any color scheme.









IDEA STARTERS

Patterns An endless variety of decorative surface patterns can be mill-produced on Allegheny Stainless Steel. Generally achieved by specially prepared rolls, these patterns are often extremely practical as well as ornamental, serving to protect and stiffen the decorated panel, and to diffuse reflected light in interesting and useful ways. Virtually any design that can be drawn on paper can be reproduced on stainless steel.

Aside from its practical aspects, A-L patterned stainless also serves to broaden the scope of a designer's imagination. It can be used gracefully to break up large, flat areas of stainless panels, to cause the eye to focus on one aspect of an appliance design over another, and to emphasize or minimize shape and apparent dimension. Patterns can be obtained over any surface finish, and unlimited combinations of mirror-bright and softer lusters are possible. For light weight and freedom from dents and scratches, let Allegheny Ludlum show you what patterned stainless can do for your product line.

Textures Where even greater strength, stability, and resistance to warpage and "oil canning" are required, a wide variety of heavily textured or Rigidized patterns is also available. These textured impressions, either unidirectional or multidirectional, are considerably deeper than those on patterned stainless and have a marked stiffening effect on the decorated panels, permitting economically lighter gages of Allegheny Stainless to be specified.

Finishes The appliance maker is limited in his choice of stainless finishes only by the degree to which fabricating and joining marks must be blended into the final appearance of the surface. Available Allegheny Ludlum finishes cover the complete range from frosty white through a brilliant mirror shine, with the softer finishes permitting more grinding, buffing, and blending to remove all trace of weld beads, scratches, and other fabricating marks.

It is a highly questionable practice, however, to habitually specify mirror finishes, and especially to attempt a glass-like polished flatness in large areas. An appearance of waviness, even on exceptionally true surfaces, inevitably results due to light reflectivity. Highly reflective finishes also tend to reflect light as a sharp line image at right angles to the lay or "grain" of the polish, and may tend to introduce distracting elements into an appliance design.

These difficulties are eliminated with the softer, brushed finishes, whose frosty white gleam can be integrated beautifully into any design treatment without regard for reflections.

Expanded Stainless Many designs are now incorporating the beauty of Allegheny Stainless in the relatively new, functional form of expanded metal. To all the useful attributes of stainless steel, expanded metal can add the ability to control admission of light, heat, liquid, semi-solid, gas, and sound to or from any enclosure. For the more practical applications, expanded Allegheny Stainless can be utilized as baskets, guards or gratings, operating in any environment and under service conditions that would ruin other materials entirely. For purely decorative uses, the gleam of stainless can be retained in the expanded grid-like pattern to add soft or sparkling accents to door fronts, vents, and other functional appliance openings.

. . . for your design notebook

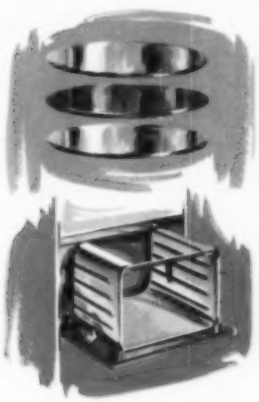
An important service which Allegheny Ludlum extends to the American metalworking industry is the maintenance of one of the country's finest research and development organizations to search out new methods, new steels, and new ideas. Many of the recent developments should be of considerable interest to the appliance industry.

TYPE 430 The phenomenon of roping is an excellent example. Some appliance fabricators were running into a furrowed, wrinkled appearance in their product after severe stretching operations. Aside from heavy mechanical polishing to remove these lines or "ropes," rejection was the only alternative. A-L's solution was a combination of processing and alloying steps which produced uniform ductility across the strip. A-L Type 430, low roping quality, is already in use throughout the country. It's worth investigating.

BRIGHT ANNEALING Speaking of polishing, it used to be necessary to buff up the surface of the strip because of the dulling, pickling treatment employed to remove oxide after mill annealing. Not any longer. Allegheny Ludlum's bright annealing process has been in full production since November 1, 1960, annealing stainless in pure, dry hydrogen on a tonnage basis. No oxidation, no surface-dulling pickling needed to remove it. The bonus is a clean, bright surface ready for fabrication with little or no buffing needed. For a really pretty shine, ask your A-L man to show you a #2 Bright Annealed finish sample.

A-L 433 There's even a new steel to try on your tough corrosion problems. Tentatively called A-L 433 and patent applied for, this copper-moly modification has the greatest corrosion resistance of any straight chromium stainless steel. Developed from Type 430, and available now at no price premium over the standard 430, A-L's new 433 is especially suited for applications where contact corrosion has been a problem.

AND, here are other developments worthy of your notice:



There is much going on with stainless steel cladding. There are flat disc cooking surfaces in the works made up of a stainless-copper sandwich with heating coils nestled inside. Its most obvious advantage is more efficient transfer of heat to pan bottom, plus better looks. Cast griddles are coming in for their share of attention, too. There's considerable interest in a thin stainless cladding to improve the appearance and the functional surface finish, and to eliminate buffing the castings.

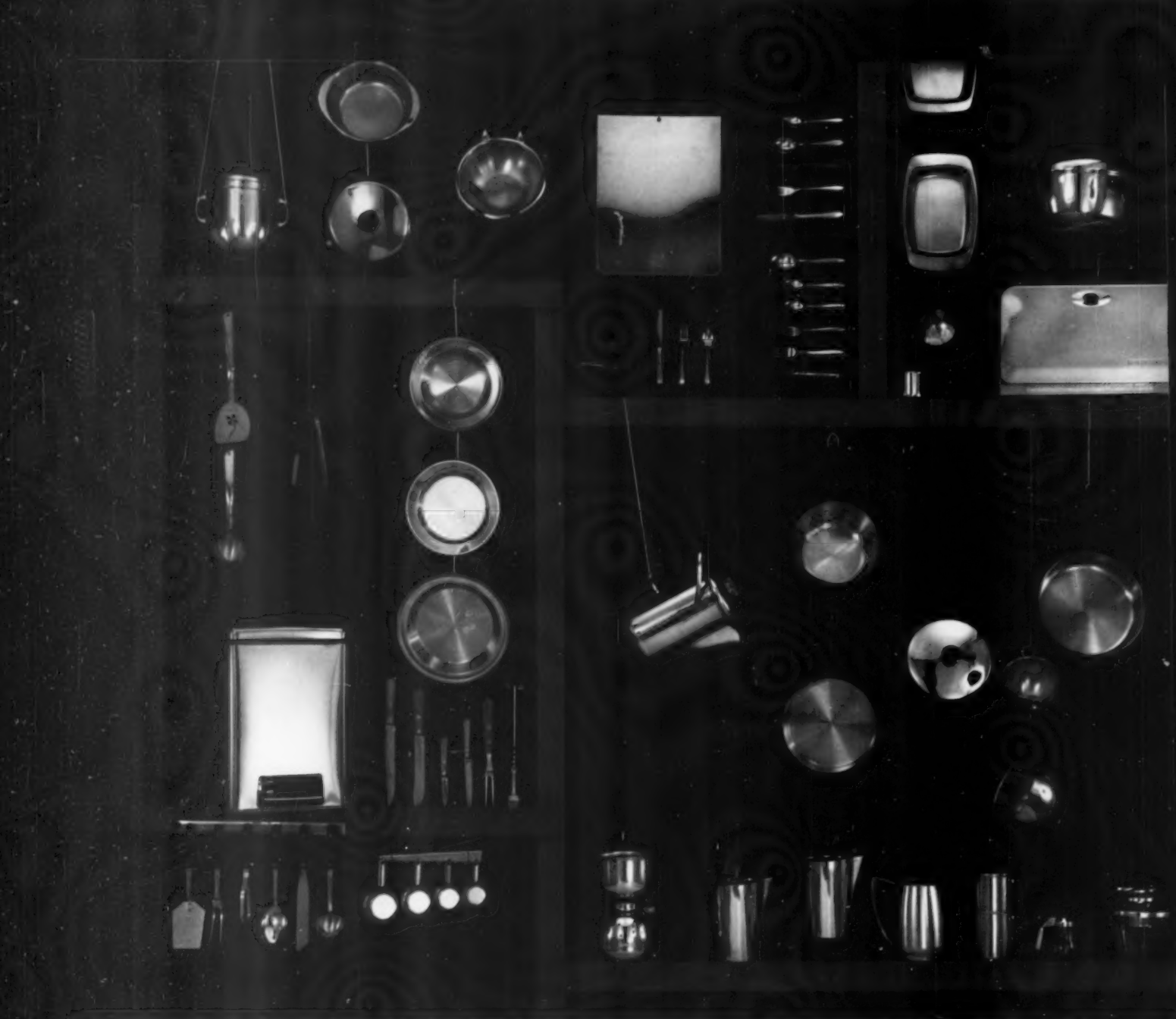
There's a coating under development that has a lot of people wondering. It's destined to make finger-marking and water spots on seldom cleaned stainless a thing of the past. Maybe, it will be used in much handled areas. But, more important perhaps, it has one other extremely interesting ability. It can retard heat tinting on stainless grades not otherwise immune to this disqualifying characteristic. This makes it ideal for oven liners, since it will produce a surface that is bright and reflective, and will stay that way through years of carefree resistance to spilled-on, baked-on foods. And, it should be valuable in preserving the gleaming good looks of functional range hoods and kitchen exhaust system components.

All these things come out of research. All are new or fairly recent developments. All come from Allegheny Ludlum, the acknowledged leader in research in the specialty steel industry.

But, there's more being done, and much more yet to be done. There's interest once again in stainless wire . . . for refrigerator and oven shelving, for freezer baskets, for springs, fasteners, and other applications. Strong enough to permit considerable reductions in bulk and weight, stainless steel wire is moving back into its rightful place in the kitchen once again.

There's work being done with new stainless applications . . . with jobs that only stainless can perform, like the developmental dishwasher with built-in garbage disposer. And all this work is being done with Allegheny Ludlum as an active, interested partner, keeping pace with the needs and desires of the appliance industry, working with the appliance maker and backing him up with the A-L team of research and service specialists, unmatched anywhere. If you could use an experienced, helping hand with your metal problem, *your* A-L development specialist is only a phone call away.

Appliances and Allegheny Stainless



Large or small . . . by the ounce or in 25 pound slices . . . stainless steel offers the same lustrous beauty and honest utility to custom kitchen builders and gadget makers alike. Sparkling, easy-to-keep-clean kitchen utensils of stainless steel will keep their display counter shine in spite of constant exposure to kitchen acids and stains. Whatever the job, however often or infrequently the utensil is scoured and cleaned, stainless steel will keep it bright and shiny, ready for the close-up scrutiny of the most fastidious housewife. Eat from it, drink from it, or boil your coffee in it . . . you can depend on it when it's Allegheny Stainless . . . practical, functional, elegantly indestructible.

ALLEGHENY LUDLUM STEEL CORPORATION

General Headquarters: Oliver Building, Pittsburgh 22, Pa.

EVERY FORM OF STAINLESS . . . EVERY HELP IN USING IT

3102

LITHO IN U.S.A.

COMING NEXT MONTH

Urethane foam as a design material

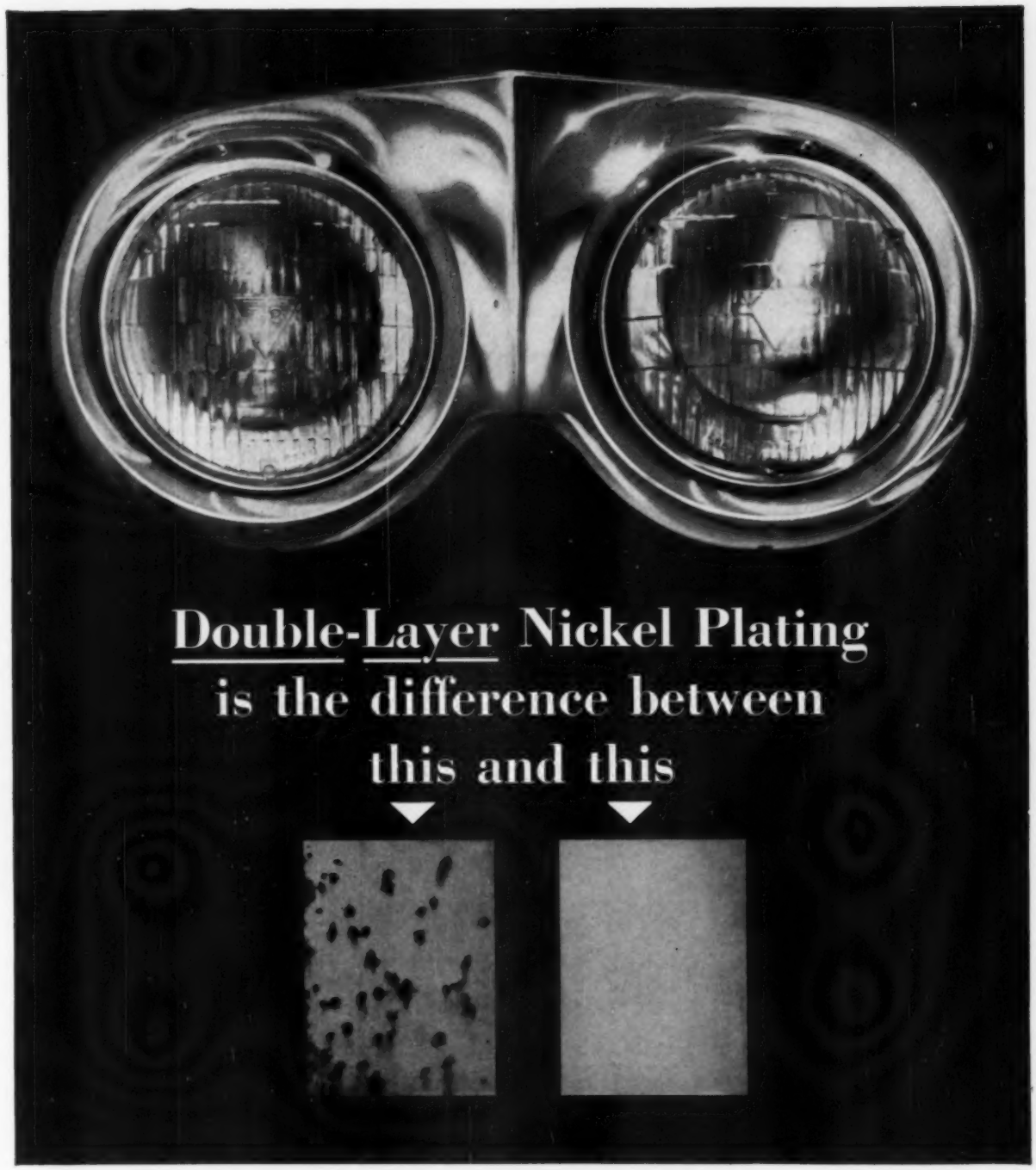
As urethane foam continues to earn wider acceptance in both industrial and consumer markets, industrial designers are becoming increasingly aware of the need for an application guide directed specifically to them. ID's article will examine the range of urethane foam applications in such fields as furniture cushioning, automotive and aircraft interior design, packaging, insulation, kitchen products, and building construction. In addition to recording the present achievements of design with urethane foam, the article will speculate on possible market developments in the future.

Graphics for a railroad

For years the Canadian National Railways, the largest government-owned rail system outside the Soviet Union, had been the butt of cartoons and carping. When the road undertook an extensive modernization program, they were anxious to let the public know about the new spirit at CNR. How this colossus of railroading and the New York design firm of Jim Valkus, Inc., got together, worked out a graphic design program which would please management, public, and parliament, is told in the next issue of ID.

The plastics marketplace

A review of new plastics and new developments in machinery to work with existing plastics as well as an examination of the market—estimated at nearly four billion dollars a year—will be discussed in an article based on the Ninth National Plastics Exposition at the New York Coliseum, sponsored by the Society of the Plastics Industry.



Double-Layer Nickel Plating is the difference between this and this

Both of these plated panels were exposed in a corrosive marine atmosphere for 18 months!

You can see how the panel on the left — plated with a Nickel-Chromium coating that is perfectly suitable for less rugged use — fared in this severe outdoor test.

But the panel on the right — *coated to the same 2.0 mil thickness* — retained its rich original luster!

Why? *Double-Layer* Nickel Plating — a good thick layer of sulfur-free, semi-bright Nickel beneath the lustrous bright Nickel layer and the thin chromium overlay.

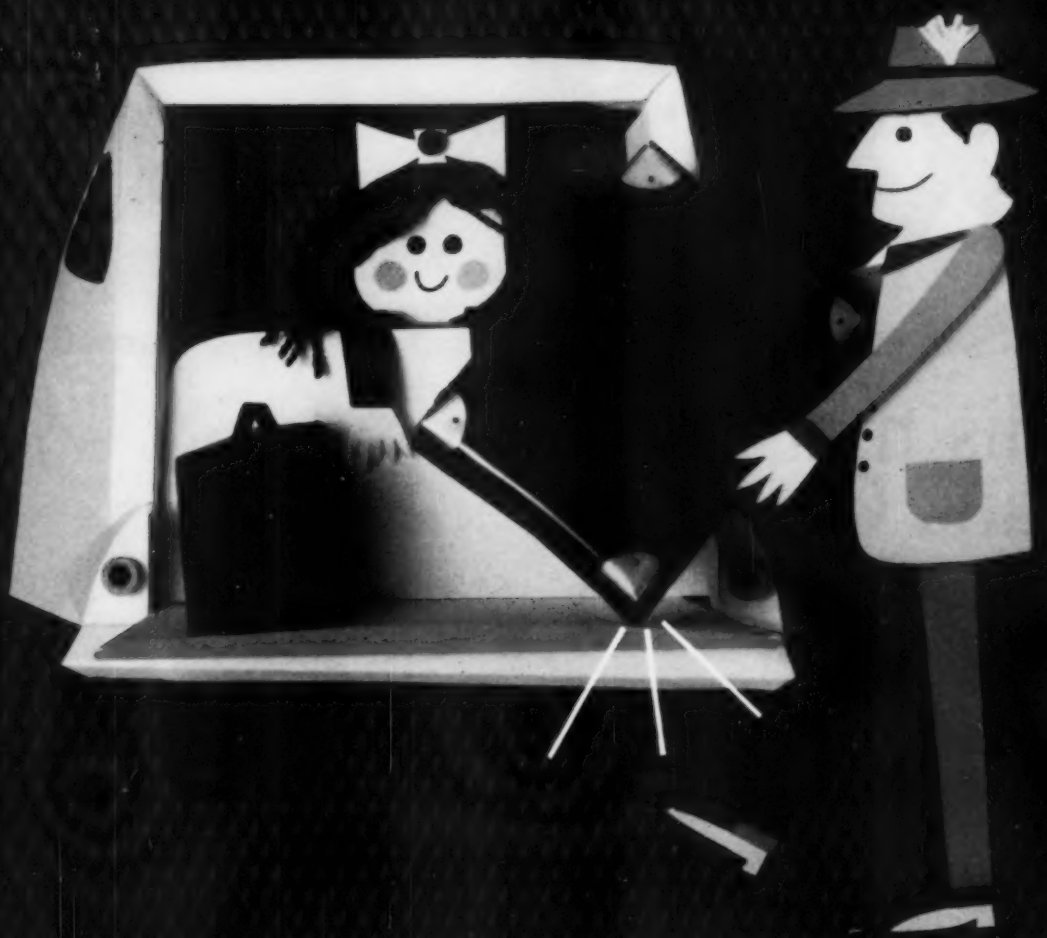
Remarkably durable, this combination provides outstanding resistance to corrosion, abrasion and wear . . . helps assure the mirror-bright, *lasting* eye appeal that satisfies today's quality-conscious customers.

For more information on the durability of decorative Nickel-Chromium plating, write for your free copy of "*The Contribution of Nickel and of Chromium to the Durability of Decorative Plating.*"

The International Nickel Company, Inc.
67 Wall Street New York 5, N.Y.

Inco Nickel

Nickel makes plating perform better longer



A TEXTURED FINISH THAT DEFIES MARRING...M&T SPRAY-ON VINYLS

Here's an economical way to add a whole range of interesting, colorful effects to metal products... and put on a good layer of protection at the same time.

With the help of new vinyl coatings from M&T, you can get dozens of different "looks." Two basic types of coatings are available: one for a leather-like texture on smooth metal, the other to mirror the surface of mill-patterned or perforated metal. You can also apply the second type to smooth metal for a smooth mantle of protective beauty.

Automotive interiors are well suited to the multiple benefits of M&T spray-on vinyl. Parts get a richer-looking finish... one that feels warmer to the touch. And you can have it up to 15 mils thick, so the beauty lasts for the life of the car—resists scuffing, fading, chipping, staining. Because this coating is applied after metal fabrication, parts can be finished in the color ordered at decentralized plants.

Send for complete information on what these exciting new M&T Spray-on Vinyl Finishes can do for your new product design.

M&T COATINGS & FINISHES

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

This mark means Glass, engineered by Lancaster

Lancaster designed and produced this window for Westinghouse automatic washers. The unit is molded in a functional, free-form shape for extra strength and sales appeal. Integral appendages permit perfect fit, water-tight sealing all around.

Look to Lancaster for imaginative design and dependable production of glass components for your products. Lancaster engineers assist you in early stages of product development, insuring complete design integration—great beauty and practicality. Cost? Lancaster's advanced production facilities help you sell at competitive prices. Send blueprints for quotations or write for further details.

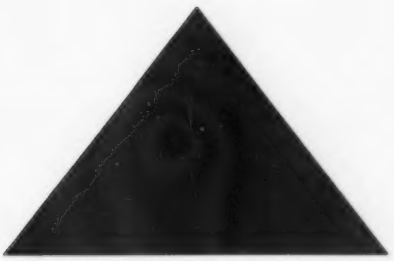
This mark means glass, engineered by Lancaster

Lancaster

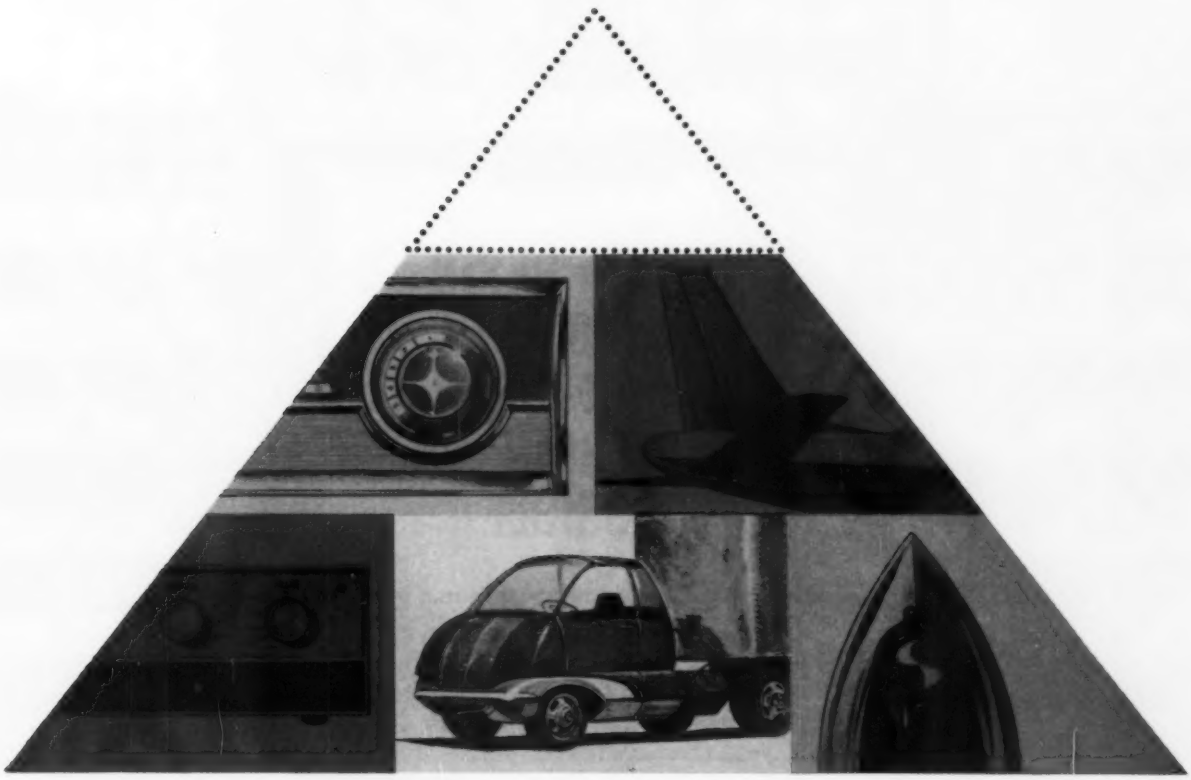
LANCASTER GLASS CORPORATION, LANCASTER 7, OHIO

BEHIND THE BIG RED NOSE OF CANADIAN NATIONAL'S NEWLY BRANDED DIESEL FOLLOWS A STRING OF EQUALLY BOLDLY MARKED CARS. ALL OF THEM WERE DESIGNED BY JAMES VALKUS, INC. FOR A RAILROAD THAT MUST PLEASE ITS GOVERNMENT-OWNERS AS WELL AS ITS PASSENGERS. A HISTORY OF THE SENSITIVE ASSIGNMENT APPEARS IN JULY'S ISSUE OF INDUSTRIAL DESIGN

Whitney Publications, Inc., 18 East 50th Street, New York 22.



Because it deserves the look of the leader..."SCOTCHCAL" FILM



Top off your design with the mark of quality—a marking, emblem or label of "Scotchcal" Film. Get flawless reproduction of any message . . . in vivid colors or lustrous metallic finishes. "Scotchcal" Film has a pressure-sensitive adhesive to save time on the production line. No drilling, riveting or messy glueing. "Scotchcal" Film—with its tough plastic base and tenacious adhesive—resists abrasion, weathering, gasoline, oil, mild alkalies and acids, and temperature extremes. Wherever beauty and long life must be linked, specify a marking of "Scotchcal" Film. The final touch to a quality product . . . designed for the look of the leader. **FREE DESIGN FILE:** specifications, ideas, samples of "Scotchcal" Film. Send coupon today.

SCOTCHCAL®
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MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW
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At no cost or obligation, please send me the "Scotchcal" Film Design File.

Name_____ Title_____
Firm_____
Address_____
City_____ Zone____ State_____

Diffusers molded by
Flambeau Plastics Corp.,
Baraboo, Wisconsin

A new concept in air distribution—pioneered by Carnes Corporation of Verona, Wisc.—made a reality by LEXAN polycarbonate resin!

In Carnes' design, 6-by-6-inch air diffusers, like those above, form modular units which can be arranged in any desired ceiling pattern. Three different module designs provide complete flexibility in directing air.

"LEXAN resin is the only material we have approved for our diffusers," says Gordon Sylvester, Chief Product Engineer of Carnes. "We tried polystyrenes, polyethylene, nylon and others, but they all fell short in one way or another."

The material for Carnes' diffusers had to meet this combination of requirements: • INJECTION MOLDING for low production cost. LEXAN resin, as a thermoplastic, gave this advantage. • NO HEAT DISTORTION in 225°F. test for handling warm air. In month-long tests of parts, LEXAN resin met this spec. Actually, the resin's rated distortion point is 270-280°F. under load. • DIMENSIONAL STABILITY in use. LEXAN resin was stable. • FLAME RETARDANCE to pass ASTM test. LEXAN resin passed. • COLOR STABILITY and versatility. Although the modules are now a stable white, LEXAN resin offers the possibility of a wide range of colors. • HIGH IMPACT RESISTANCE. Frank Freese, Product and Merchandising Manager for Carnes, really sells LEXAN resin's enormous impact strength. He says "In demonstrating the strength of the modules, we slam them against the wall. It doesn't damage them at all. Metal diffusers would be bent by this treatment."

LEXAN resin has raised the quality of many designs to new levels. It's been substantially reduced in price as new G-E plant facilities have come onstream. Can this tough new thermoplastic help you? Send for design literature. Address General Electric Company, Chemical Materials Dept., Section ID-31, Pittsfield, Mass.

LEXAN®
Polycarbonate Resin
GENERAL ELECTRIC


if she takes pride
in her home—
give her a kitchen
of stainless steel
McLOUTH
STAINLESS
STEEL—the spotless
metal for homes and
home products.
McLouth Steel Corporation
Detroit 17, Michigan

Monsanto introduces...

LUSTRAN TYPICAL PERFORMANCE DATA			LUSTRAN I							LUSTRAN A	
			MOLDING				EXTRUSION*				
PROPERTIES	Test Conditions	Units	210	410	610	710	261	461	761		ASTM
Tensile											
Stress at Yield	73° F.	psi	9,000	8,000	6,800	6,200	6,800	6,000	5,100	11,800	D638-58T
Stress at Failure	73° F.	psi	6,800	6,200	5,400	5,200	6,200	5,300	4,500	11,800	D638-58T
Elongation at Yield	73° F.	%	3.3	3.0	3.0	3.2	2.2	2.3	2.5	3.0	D638-58T
Elongation at Failure	73° F.	%	45**	55**	55**	70**	25	35	40	3.0	D638-58T
Modulus in Tension	73° F.	psi	420,000	380,000	330,000	300,000	360,000	320,000	290,000	520,000	D638-58T
Flexural											
Maximum Stress at Yield	73° F.	psi	13,700	12,000	10,000	9,200	12,500	10,000	8,500	15,600	D790-59T
Maximum Deflection at Yield	73° F.	inches	0.50	0.47	0.45	0.45	0.3	0.3	0.3	0.32	D790-59T
Modulus in Flexure	73° F.	psi	450,000	400,000	350,000	320,000	460,000	380,000	320,000	—	D790-59T
Impact Strength											
Izod ½" x ½" Bar Mld. (.010" Notch Radius)	73° F.	ft. lbs./in. of notch	1.1	1.8	3.5	4.3	0.9XX	1.8XX	3.6	0.4	D256-56
	0° F.	ft. lbs./in. of notch	0.8	1.2	1.6	2.0	0.6XX	0.9XX	1.5	—	D256-56
	−40° F.	ft. lbs./in. of notch	0.6	0.7	0.9	1.4	0.6XX	0.8XX	1.1	—	D256-56
Izod ¼" x ½" Bar Mld. (.010" Notch Radius)	73° F.	ft. lbs./in. of notch	1.3—4.0	2.5—5.5	4.0—6.0	6.0—8.5	—	—	—	0.4	D256-56
	0° F.	ft. lbs./in. of notch	0.7—1.2	1.1—1.8	1.4—2.0	2.0—2.6	—	—	—	—	D256-56
	−40° F.	ft. lbs./in. of notch	0.6—0.8	0.7—1.0	0.9—1.2	1.1—1.8	—	—	—	—	D256-56
Hardness											
Rockwell	73° F.		R-119	R-113	R-108	R-103	R-113	R-106	R-101	(M85-M90) R-122	D785-51
Thermal											
Deflection Temp. under Load Unannealed ½" x ½" Bar	264 psi	°F.	185	183	178	177	196+	192+	187+	197	D648-56
Physical											
Specific Gravity (Naturals)		—	1.07	1.06	1.05	1.04	1.07	1.06	1.04	1.08	D792-50

*Data on Extruded Sheet **Monsanto Test +Data on Molded Samples XX½" x 0.115" Bar-Sheet

a new family of plastic materials

LUSTRAN

breaks through the price-performance barrier

LUSTRAN is a high strength plastic material supplied at low cost in performance-tailored formulations. It provides a balanced combination of light weight, unusual toughness and durability, excellent thermal stability and colorability.

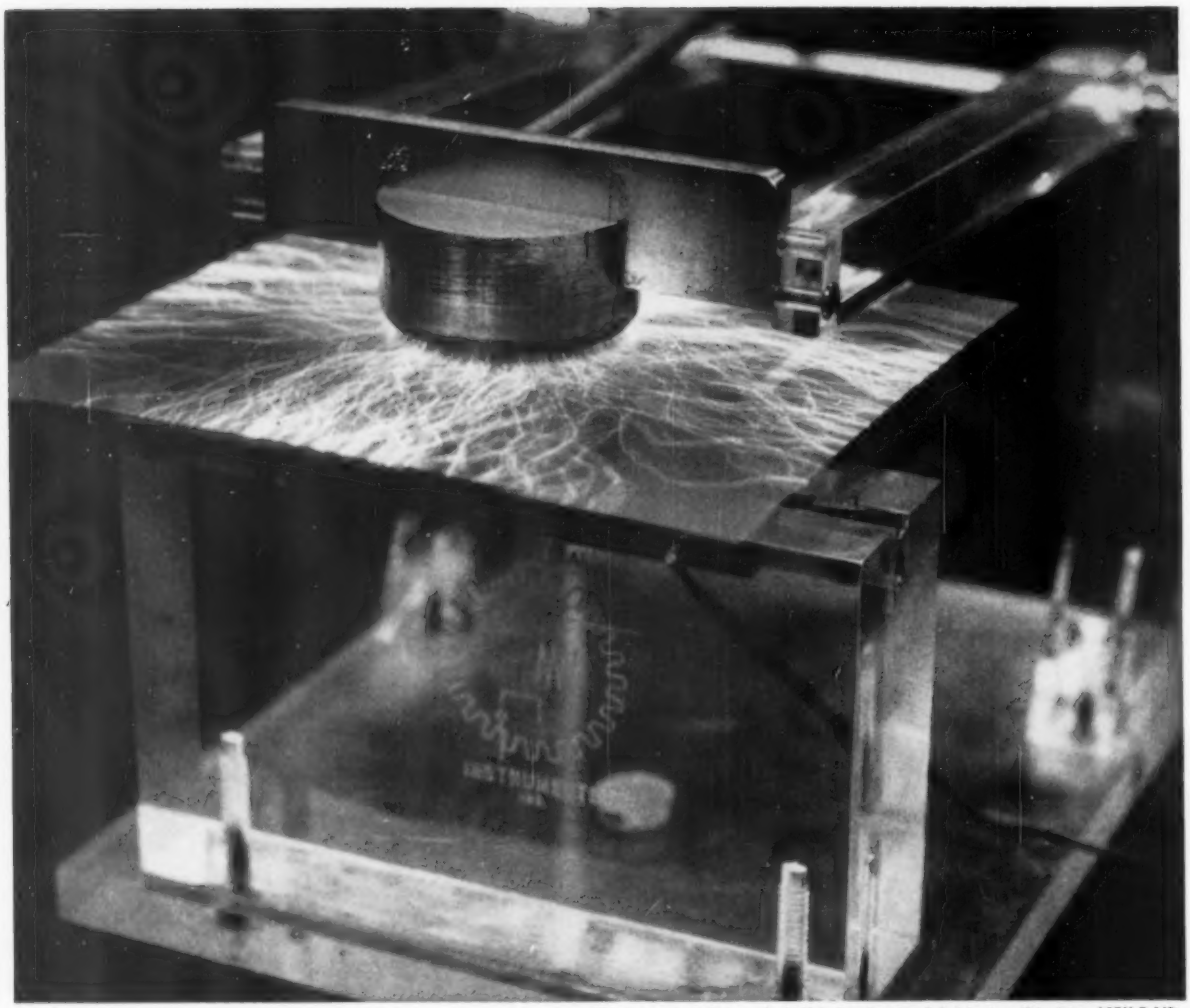
With LUSTRAN, you will be able to design the right level of effective strength at the right cost into every product. See for yourself—compare the typical performance characteristics of the LUSTRAN formulations shown against the material requirements of those designs you now have on the boards. You can select a LUSTRAN formulation with *four* times the impact resistance of rubber modified styrene and *ten* times that of general purpose styrene. And, at zero degrees fahrenheit, a ⅛-inch thick 24-inch square sheet withstands the shock of a 6 pound ball dropped 48 inches. LUSTRAN has superior rigidity, excellent surface and gloss appearance, abrasion and chemical resistance and is available in a vast color range.

LUSTRAN—a unique molecular arrangement of styrene and other monomeric materials—has been successfully injection molded into parts weighing as much as 3½ pounds and vacuum formed in deep drawn parts weighing up to 11 pounds. It promises new design possibilities for components and housings for business machines, automobiles, refrigerators, radios and other appliances, packages, luggage and toys. Wherever the performance-cost balance is critical, LUSTRAN can help you. For more data, write to Monsanto Chemical Company, Plastics Division, Department 822, Springfield 2, Massachusetts.

Reg. U.S. Pat. Office

Monsanto

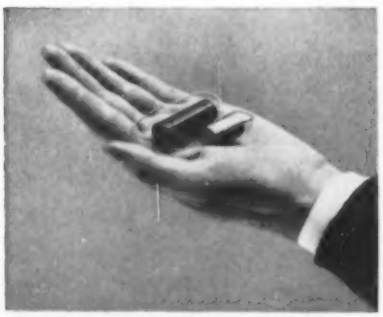
MONSANTO INNOVATOR IN **PLASTICS**®



This is an actual photograph of "Mylar" undergoing dielectric strength test (per ASTM-D-149).

MYLAR® has a dielectric strength of 4,000 volts per mil

Can the unique combination of properties found in "Mylar" help you solve your design problems?



High dielectric strength helps cut capacitor size. Tough, thin "Mylar" with a dielectric strength of 4,000 volts per mil for 1 mil film (per ASTM-D-149) permits capacitor manufacturers to reduce size of finished unit . . . improve performance and reliability.

"Mylar"* polyester film is a tough, flexible engineering material. In addition to its outstanding dielectric strength, "Mylar" has an average tensile strength of 20,000 psi, withstands temperature extremes (-60° to 150° C.) . . . resists most chemicals and moisture.

On an area basis, tough, thin "Mylar" often *costs less* than heavier, conventional materials. "Mylar" can be laminated, embossed and metalized, punched or coated. The film won't embrittle with age. "Mylar" is available in roll or sheet form in a wide range of gauges.

Find out how the *combination of properties* in "Mylar" can help you solve knotty design problems, improve product performance or cut costs. Write for our booklet containing detailed information on properties and applications. E. I. du Pont de Nemours & Co. (Inc.), Film Dept., Room P-9, Wilmington 98, Del.

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

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BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

DU PONT MYLAR® POLYESTER FILM

See Du Pont's complete line of industrial films at the Plastics Show, Booth No. 1024

TWENTY-FIVE YEAR OLD WATCHDOG

Ideally, the industrial designer is the best friend a consumer ever had. But the ideal has not yet come to pass, and until it does the consumer's best friend is probably Consumer's Union, publishers of a monthly journal of fact and well-documented opinion called *Consumer Reports*. Last month both the organization and the magazine were twenty-five years old, and we are glad to salute their sustained service to the cause of an enlightened consumerhood. Walt Whitman claimed that "to have great poets there must be great audiences too," and this month we are claiming that to have good designers there must be good consumers too. (It is demonstrably untrue in both cases; we say it, as Whitman did, purely for rhetorical purposes).

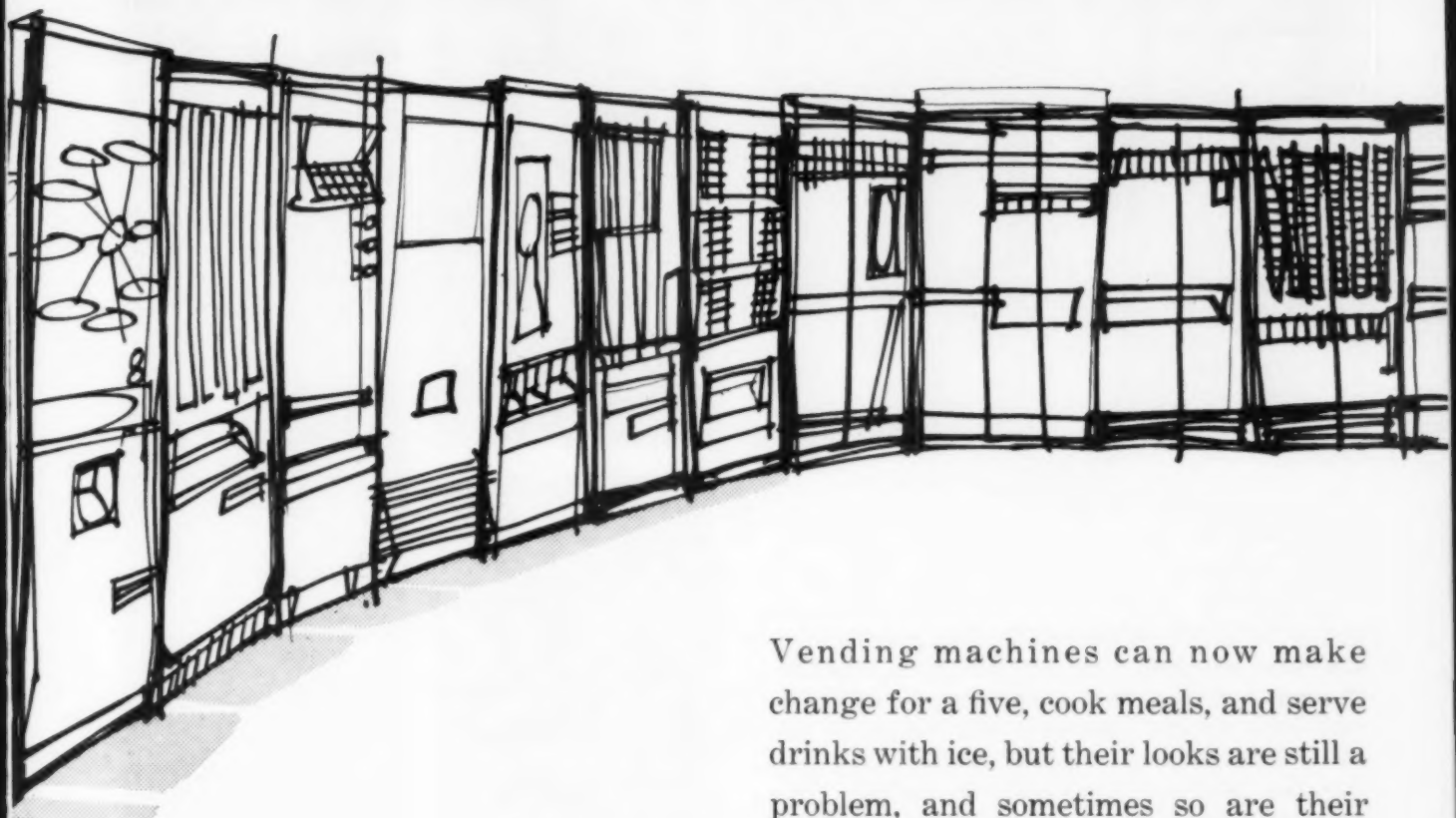
Consumer's Union is dedicated to the proposition that, in a democracy, anyone has the right to spend his money foolishly, but no one should have to spend it ignorantly. To this end—with utter probity—it goes about the business of testing products, comparing them, and telling the world of its subscribers what it has found. Few important manufacturers have been able to get products on the market without coming under CU's righteous scrutiny. Good designers regularly consult the publication to sharpen their sensitivity to consumer needs and wishes; bad designers sometimes read it to find out what the enemy is thinking.

No more interested in the whole product than medical specialists are in the whole body, CU has almost a principled indifference to beauty, and the consumer can expect no esthetic guidance from its editors. This is probably just as well: there is no accounting for tastes, and *Consumer Reports* accounts scrupulously for everything it does. It has not wholly ignored the senses, however. From time to time wines and whiskies are tested, making it possible for a man who makes a fool of himself on Saturday night to face Sunday morning with the consolation that at least the demon rum was quality controlled, fairly priced, and honestly labeled.

In *Pictures From an Institution*, Randall Jarrell describes a couple whose every possession "had been recommended by Consumer's Union—and if you had taken them for a trip on your new yacht, they would have told you how you could have got it at Sears Roebuck under a different brand name and saved four thousand dollars." And it is true that *Consumer Reports* appeals strongly to many readers eager to transform the magazine's necessarily restricted editorial approach into a personal way of life. They seem cramped by a kind of Puritan crankiness that renders them unable to make distinctions other than those of price, weight, and repair costs. In pursuit of justice, they apparently cease to value anything else, such as their own time. Recently a subscriber wrote in to boast of having driven for days on a nightmarishly frustrating journey around the countryside looking for a 50-foot clothesline that was not eight inches short.

This spirit is encouraged by the organization's official activity, for CU not only splits hairs—it analyzes them for color fastness and shrinkage. But in the process it has consistently contributed to making consumers more intelligent and manufacturers more responsible.

No other razor blade can make that statement!—*R. C.*



MECHANICAL MERCHANTS

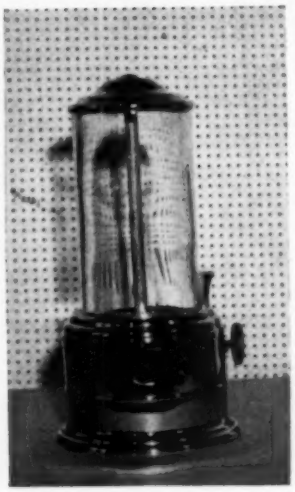
Vending machines can now make change for a five, cook meals, and serve drinks with ice, but their looks are still a problem, and sometimes so are their controls.

BY LESLIE D. GOTTLIEB

On the outskirts of Kansas City, a newly opened drive-in snack bar serves up its hamburgers, malteds, coffee, and soft drinks from vending machines. In Atlanta, Rich's department store is test marketing such products as Swiss army knives, pearl necklaces, and toy dolls from six machines that mete out this merchandise at the drop of a coin (or the insertion of a one or five dollar bill on which they return exact change). In midtown New York, General Electric is installing an employee cafeteria, designed by Russel Wright, to be staffed by automatic food-vending merchants.

These merchandising innovations, forced into being by rising payrolls, dwindling profits, and a serious shortage of trained salespeople, are the products of an industry that last year sold 2½ billion dollars' worth of goods, and by 1965, according to sales projections, will account for 4 billion dollars' worth. Vending machines dispensed 16 per cent of all cigarettes sold last year, 20 per cent of the candy and soft drinks, and over 2 billion cups of coffee. Other machines — four million of them — peddled everything from live worms to sprays of perfume, insurance policies, pop corn, and disposable razor kits.

To be successful at its job a vending machine must call attention to itself, be a persuasive salesman, work dependably, and be easy to use. Organizing all these functions into a machine is a complicated and troublesome task, and an obvious one for industrial designers.



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Antique vending machines had small capacities but big personalities. All of them were mechanical, and most needed a push on a lever to crank out products. (1) Hershey's one-cent bar, 1915. (2) Ball gum vender, 1912. (3) Pulver gum machine, 1899. (4) Collar button vender, 1912. (5) This bronze laughing clown spit out a piece of gum, and groaned and growled, whenever a penny was dropped into a slot on his head. (6) Jeffries' Drop-A-Dime Inn featured 10¢ sandwiches. (7) Picture post card machine, 1912. (8) penny candy or gum machine used a windmill device to flush out products. (9) Adams' Tutti-Frutti gum vender.

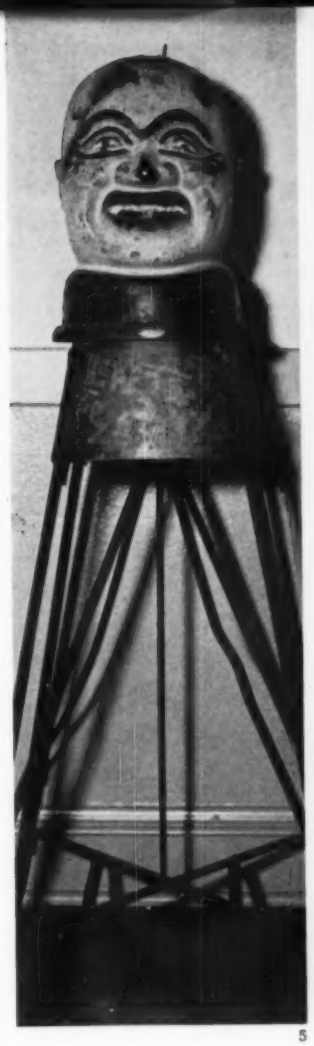
But so far, only a few have been called in to tackle it, and those who have have not been given free rein. The reason is that vending machine manufacturers, until quite recently, have considered themselves suppliers to a peripheral kind of merchandising, and therefore believed it unnecessary to pay more than minor attention to the ease of operation and appearance of their machines. In the last few years, however, vending has begun to gain status, and interest in it has been accelerated by a number of recent mechanical advances.

Most important of these is the paper currency changer which electronically identifies and gives change for one and five dollar bills as well as coins, while rejecting counterfeits and foreign currency. Developed by National Rejectors, a subsidiary of Universal Match, this machine puts vending in a position to compete, at least mechanically, with the salesclerk who, until now, was irreplaceable for merchandise sales over a dollar. It also makes possible new kinds of machines; for example, one for selling theatre tickets, and a self-service pari-mutuel window.

Other recent mechanical developments help make vended food products taste better: coffee can now be brewed from fresh grounds, one cup at a time, and tiny ice cubes are served with soft drinks. Another machine takes frozen food platters in the morning and cooks them in time for lunch.

Vending machines are also invading new locations. Industrial plants, hospitals, and large offices have replaced unprofitable cafeterias with automatic food vending equipment, or are supplementing their cafeterias with machines. The New York Telephone Company replaced expensive refrigerated milk-storage equipment and service counters with efficient and simple milk venders. To cut costs further, they also closed their cafeterias on Sundays, making do with sandwich, coffee, pastry, and fruit dispensers.

Although some department stores and supermar-



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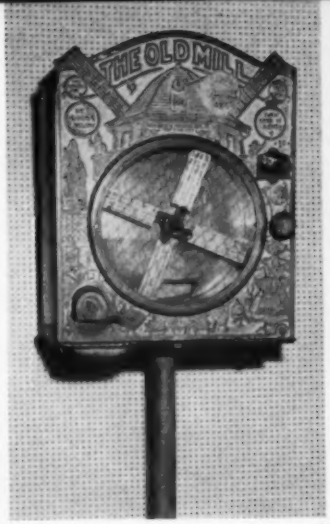

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kets are eyeing machine merchandising, so far only pilot experiments have been undertaken. Since 1956, Grand Union has used vending machines to sell food staples such as bread, milk and canned goods outside its East Paterson, N. J., store to attract shoppers who run out of food late at night or on Sundays, when stores are closed.

Last summer, a Universal Match machine sold men's underwear for two months in Macy's New York store, and right now, six Universal Match machines, each vending 36 different products at various prices, are being tested for consumer reaction at Rich's in Atlanta. Both of these experiments were conceived to be frankly promotional in character rather than professional market studies. Neither represents a fair test of the machines' adaptability to department store merchandising because the vended products have been switched too quickly. Also, the machines have been located adjacent to regularly manned sales counters (thus negating their purpose), and the public has viewed them as novelties, making a fair assessment of their purchases almost impossible.

The problem of what the public will buy from machines is a most intriguing one. A clue to its solution may be found in supermarket merchandising, according to Roger Mark Singer, an industrial designer who has worked on supermarket displays. Here, he says, the public is learning to accept pre-packaged items such as drugs, underwear, socks, stockings, handkerchiefs, and bathroom accessories without having to feel them or try them on. These products, he concludes, will be the most likely ones for machine vending, where, of course, they must be pre-packaged and cannot be handled before purchase.

Experiments in automatic merchandising reach back pretty far. It is a legend in the industry that in 219 B.C. a Greek priest of Athena concocted a machine that yielded a few drops of sacred water at the drop of a five drachma coin. In more recent times, in 1822, an Englishman built a machine to hawk censored books on the theory (familiar even today) that he was not liable to arrest because a machine did the selling. But the court found otherwise and he abandoned the enterprise. Later in the same century machines were developed to peddle post cards, beer and wine, chewing gum, candy, and matches. The modern era in vending began in 1926 when William Rowe invented a mechanical cigarette dispensing machine, to be followed in the 1930's by five-cent candy machines. Coca-Cola introduced the first soft drink machine in 1937, but it was not until 1946 that hot coffee became available in machines. Since then, the industry has built a mechanical merchant for nearly every product that can be conveniently packaged and purchased with a coin.

From the outside, a vending machine is simply a box with control buttons, a coin slot and return, and a delivery port. Inside, however, it is quite complex, and it is here that the manufacturers have spent most of their time and money. Essentially, a vending machine consists of merchandise storage trays, a coin receiving slot, coin chute and slug rejector, and an

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activating mechanism that transfers merchandise from the trays to the delivery port. Machines that vend hot and cold products must, in addition, have heating and cooling units, and beverage machines must have a substantial supply of cups, as well as a waste storage area for liquids that get poured back or spilled into the delivery area.

Obviously, the customers of vending machine manufacturers are not the public but small businessmen—operators who, for the most part, are neither conversant nor concerned with how the machines look or how easy they are to use. They are mostly interested in mechanical dependability and ease of servicing. Thus, even when manufacturers have used industrial designers, their services have largely been confined to graphic displays and color schemes, with some minor excursions into the localized design of product selector buttons and product delivery areas. Consequently, most machines simply do not meet the first requirements of good design—clarity and simplicity of operation.

But besides lack of interest in design, there has also been lack of capital. Except for about five large manufacturers, the industry is composed of numerous small companies, each making perhaps only one or two machines on a financial shoestring, and unwilling to invest even modestly in good design. This attitude, however, may have to change. There is already some pressure for better design from proprietors of industrial and office locations who are demanding that the machines look better as individual units and also that they have a unified, coordinated appearance when used in groups.

Response to these demands has been reluctant, although several manufacturers have put new boxes on old machines, lined up display signs, scrapped mirrors, provided more pleasing paint combinations, and added false shells to the tops of shorter machines to give them a uniform height. This rubber-stamp

1—Vending machines on a Danish street are typical of the many sidewalk installations in the Scandinavian countries.
2—Grand Union's machines peddle food staples and selected groceries outside its East Paterson, N. J., supermarket.
3—Vendo Company's experimental drive-in snack bar, in Kansas City, serves all its refreshments from machines.
4—False plywood fronts, here edged with aluminum trim, are frequently used in in-plant vending line-ups to present a unified appearance by disguising the machines' varied shapes and colors.
5—Vendo attempts to coordinate over-all appearance of new line of machines by matching signs, grilles, and graphics.

4—5

jacketing produces some curious results: On Vendo machines, ventilating grilles were painted in on cooky, candy, and cigarette machines, and a coin return box was left to peep out from the grille on their cold sandwich machine. The manufacturers continue to disregard the fact that the public has to use the machines. On some of them it is still hard to find the coin drop. On others, written instructions are scattered and often haphazard, and the mechanisms with which the public comes in contact—the coin return area, the delivery port, and the selector buttons—are often inconvenient or difficult to operate.

In addition to solving these problems, the designer must recognize several others: if a machine fails to work properly, the disgruntled customer often slams and kicks it, and sometimes attacks it with a hammer. This limits the designer to materials—such as sheet steel—which take punishment, and rules out the less sturdy plastics, glass, or other decorative materials. The machine should also be vandal-proof, and presentable for long periods of time. Besides this, the designer must contend with the position of internal mechanisms which arbitrarily dictate where he can place external components. Often these locations have no relation to their use—a delivery port that is far too low (the products are stored above and dropped by gravity), or a coin return likewise located near the floor. And finally, his graphic headache is sometimes aggravated by operators who change color schemes at intervals to suit their own fancies, paste decals at random, substitute sloppy hand-written price markings for the printed ones, and install poorly prepared display pieces.

Paradoxically, while most of the industry neglects the design of machines, its largest manufacturer, the Vendo Company, has begun to design environments for them. The company is using a commercial artist-turned-interior designer for this purpose and, in the last three years, he has already filled over 250 requests for this free service, including one from the University of Kansas for nine snack-food vending locations in dormitories and other student meeting areas.

Designing the vending location gained further impetus recently when the Brass Rail Restaurant Association went into the automated food service business, using, among other machines, Continental Industries' new hot food unit that cooks and dispenses hot food platters which the Brass Rail prepares and freezes. A vending cafeteria using the Brass Rail food service has been completed at Westinghouse's Sturtevant plant in Boston, and one is currently being built, to Russel Wright's design, at General Electric's New York office.

As automated merchandising expands into more and more industrial and office locations, in the process acquiring a more sophisticated clientele, the vending industry might take a sharp look at its counterpart industry in the Scandinavian countries where well-designed machines stretch in ranks along the sidewalk (see page 46), and are widely accepted as merchants of everything from wine and corsages to drugs and bread.

VENDING MACHINES

1

Eight new vending machines, here and on the following pages, sample the design approach to new types of vended merchandise as well as some more familiar machine-sold products.

1—The Universal Match merchandiser vends as many as 36 different kinds of products with any combination of prices up to $9. When a customer inserts his money—in coins, $1 and $5 bills—his total balance is indicated on the central panel. After he makes a purchase, by pressing the numbered button corresponding to the product, the new corrected balance is flashed on the panel. Additional purchases may be made until the balance is used up, or the correct change, in coins and bills (rolled in cardboard cylinders), may be obtained by pressing the "change" button. Total merchandise capacity is 684 items, all packaged in the same size box. Eleanor LeMaire Associates designed the product displays, signs, and lettering.

2—The Diversified Automated Sales Corporation (Nashville, Tenn.) film and flashbulb vender is particularly easy to service—a boon to the vending operator—since all internal working parts can be removed or disassembled without tools, and their modular units quickly replaced if necessary. The operator can also change prices simply by inserting jacks in a price panel at the top of the electronic (right-hand) section. The machine accepts coins and dollar bills; however, it is not equipped to give change because the manufacturer believes this would tie up too much of the operator's capital—a minimum of $1,400 is required to stock the changemaker; the product inventory is only worth $850. It was designed by the company's president, F. N. James.

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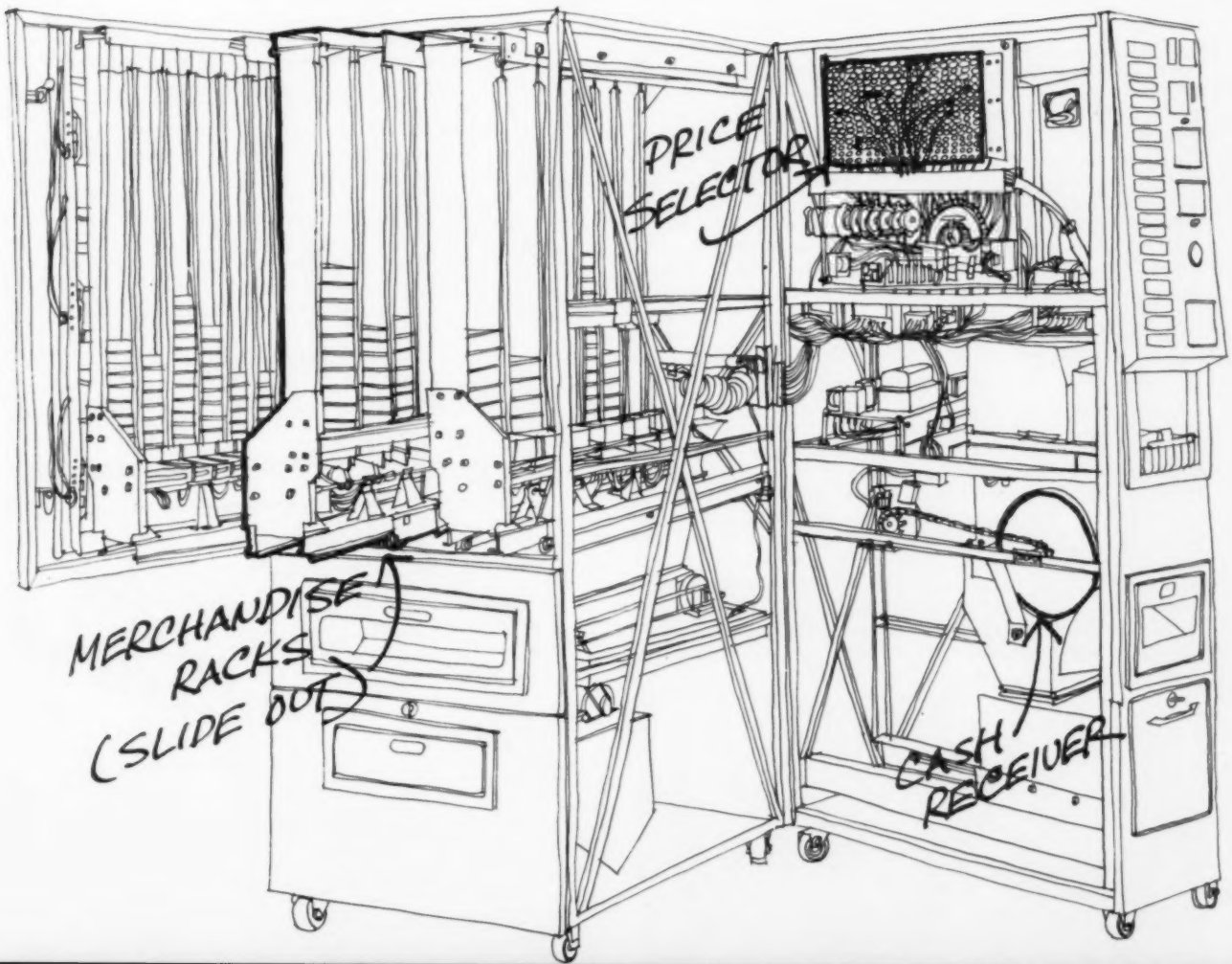

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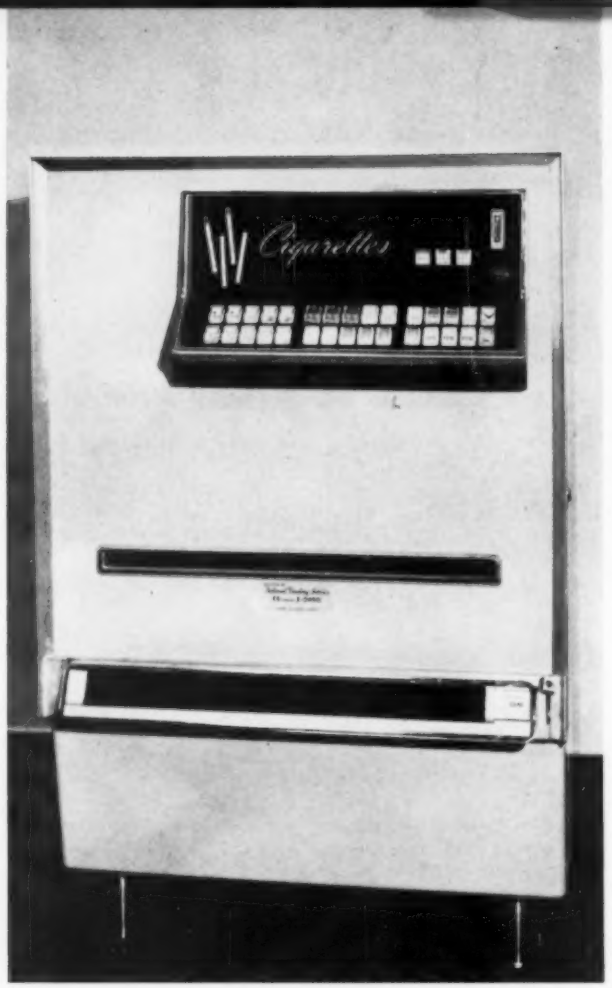

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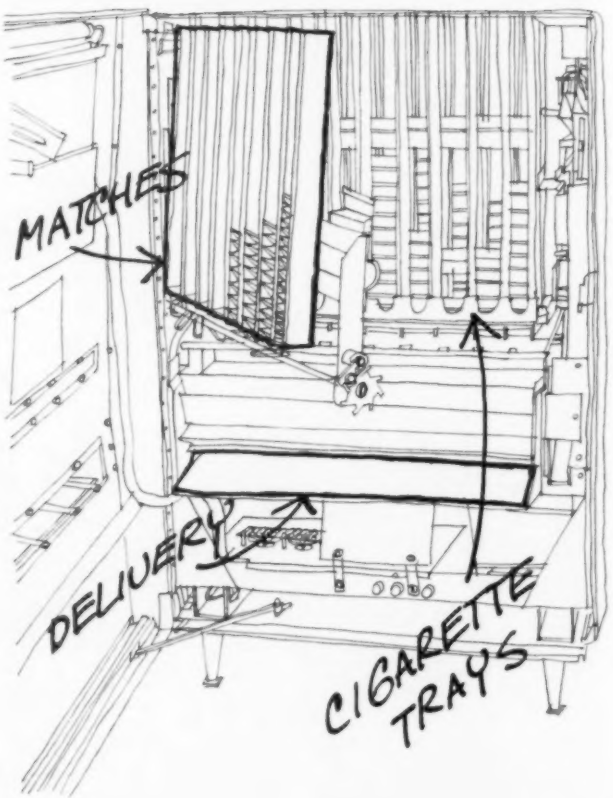
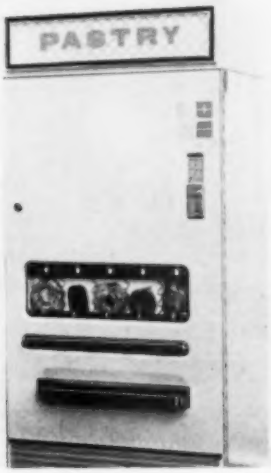
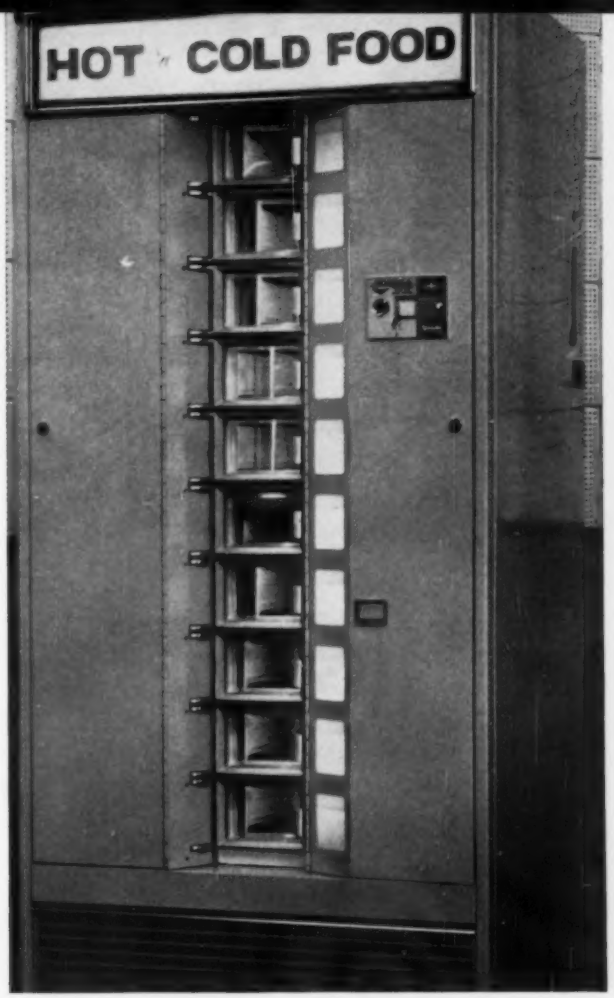
3—Continental Industries' hot food machine takes frozen food casseroles and heats them to serving temperature. The process takes about 3½ hours, and thus the machine must be stocked and turned on well before the time when the food is to be served. Total capacity is 108 meals of three different types. To receive his platter, a customer first deposits a coin and then presses the button that shows a picture of the meal desired; the machine makes change up to 25 cents. Cabinet was designed by Monte Levin several years ago and is used by Continental for a variety of venders. The circle to the left of the coin entry is a light-up sign that tells the customer when the food being heated will be ready to serve.



4—Continental Industries' cigarette machine, designed by Monte Levin Associates has a tilted (45 degree) keyboard brand selector for increased visibility and illuminated coin entry. The buttons are miniatures of the brand labels. The console, which can offer as many as 30 different brands and holds a total of 830 packs, is finished in solid, grained, or vinyl combinations with chrome trim. The horizontal window between the keyboard and the delivery port is required by law for visual inspection of the cigarette tax stamps.





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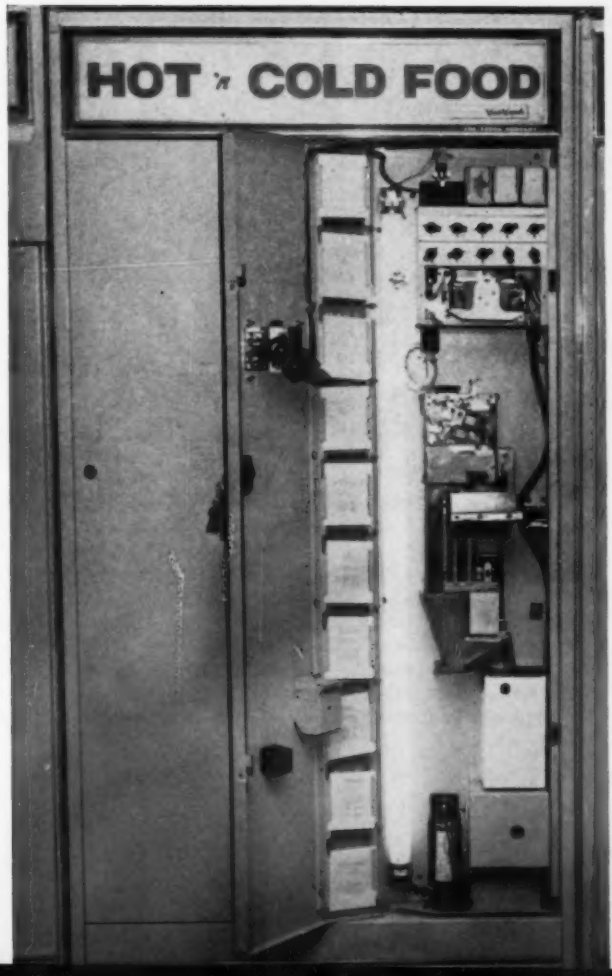
5—When Vendo bought out the vending equipment of another manufacturer, they restyled its line in two steps, to match its own in size and appearance. The three machines, above, illustrate how this was done. Although the cabinet was cleaned up, and a false grille was added to conform visually to other machines in the line that required them, the basic controls were scarcely touched. Vendo's Visi-Vend machine, right, vends ten different products, both hot and cold, and has variable-sectioned shelves. (It is also supplied in all-hot or all-cold versions.) The price-changing mechanism, inside the right-hand door, is especially good—the dials, each corresponding to a specific product window, are simply turned to the desired price.



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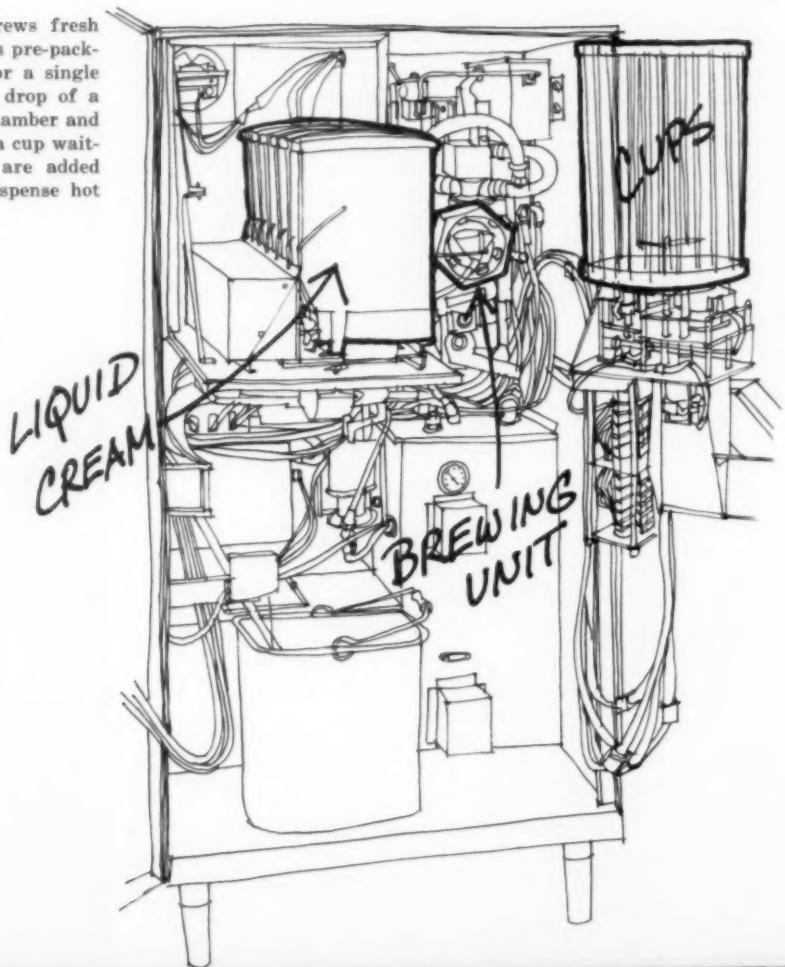
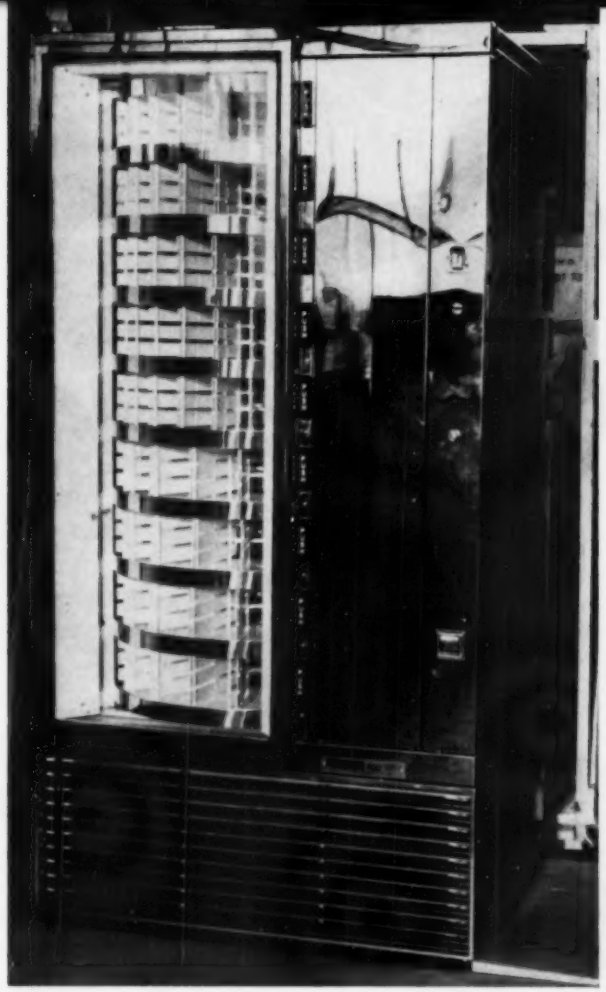
6—Rudd-Melikian's Brew-a-Cup coffee machine brews fresh coffee, one cup at a time, in six seconds. The coffee is pre-packaged in individual "pods," each carrying enough for a single cup, along a tasteless, odorless filter tape. At the drop of a dime, one pod of the tape is passed into a brewing chamber and hot water is passed through, perking the coffee into a cup waiting below. Liquid refrigerated cream and sugar are added automatically, if desired. The machine can also dispense hot chocolate, tea, and soup.





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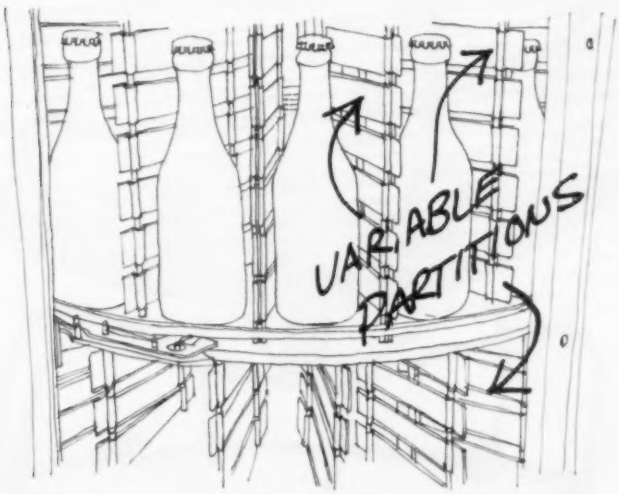
7—The Wittenborg 400, designed and built in Denmark, is the only vending machine with completely variable shelf space—permitting it to vend products as different in size as milk bottles and candy bars. The shelves can be taken out or added, as required, up to 12 per machine, and each shelf can be divided into from 6 to 36 compartments. Available in either refrigerated or heated versions, the unit is housed in a stainless steel cabinet which is easy to clean, and, when used in outdoor locations, maintains its new appearance without rusting. Wittenborg has been a pioneer in the vending industry: it was the first company to provide visible product display, the first to offer hot and cold space in a single machine, and the first to feature a variable shelf arrangement. (see below).



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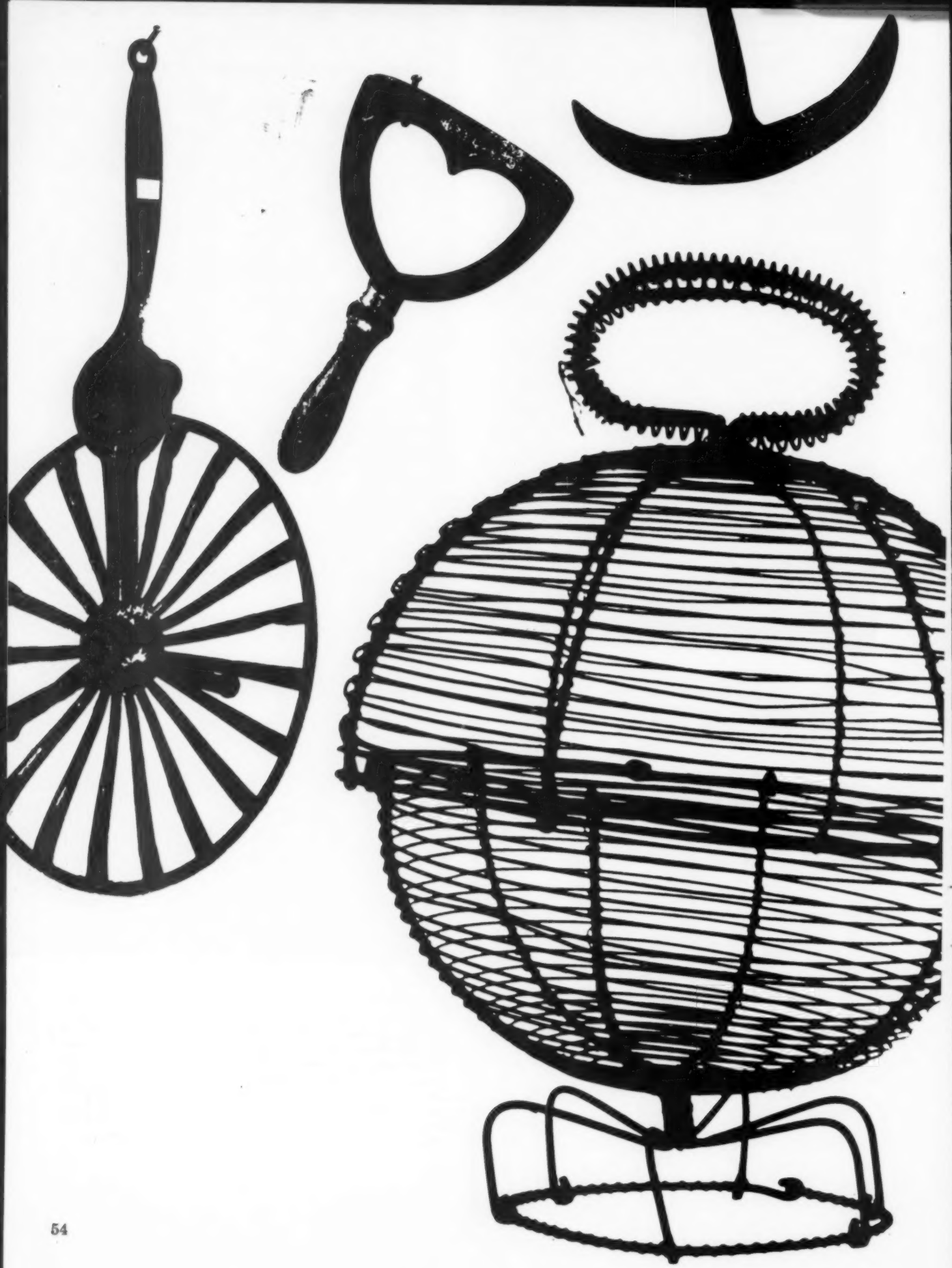
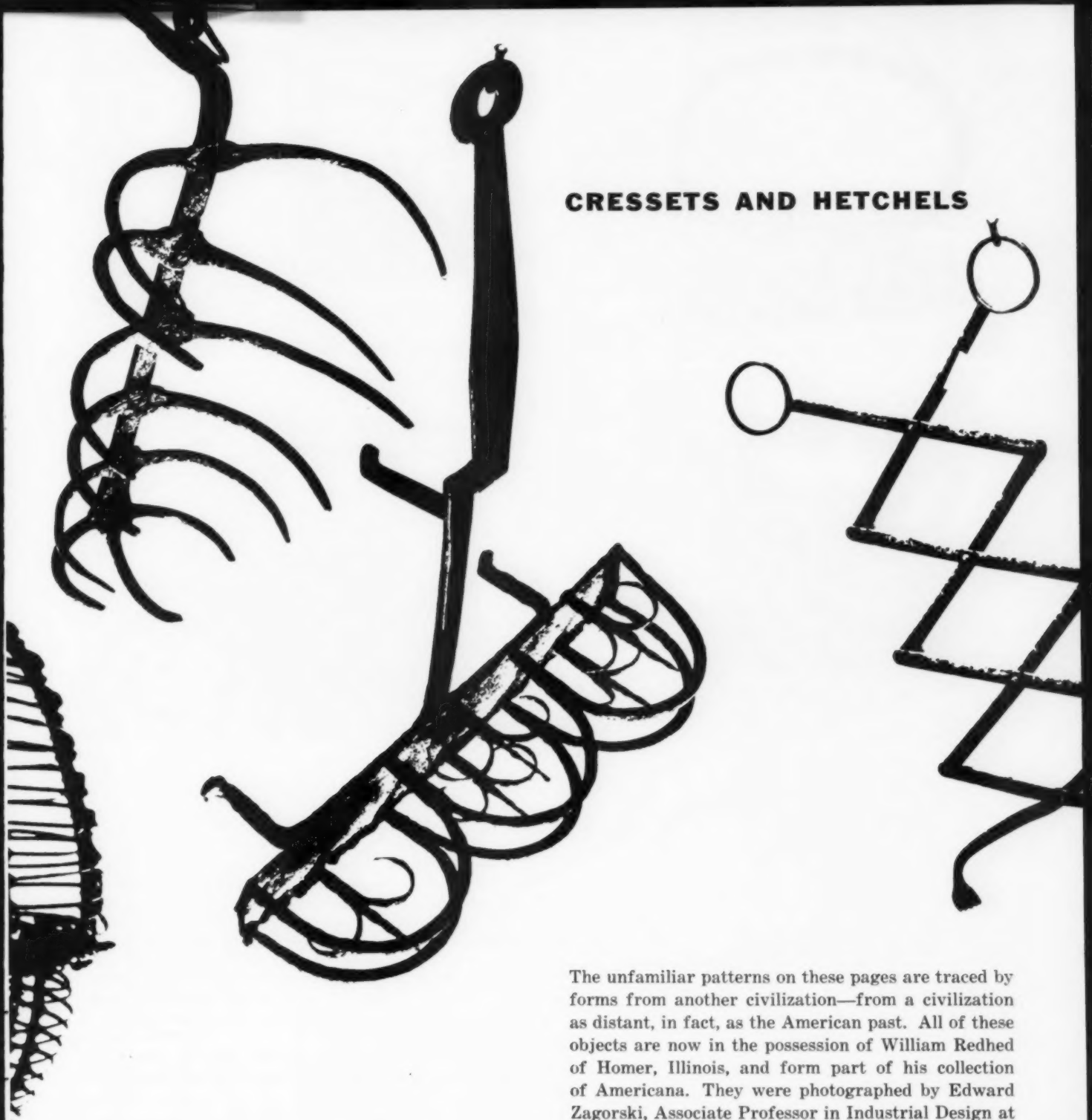
8—The Rowe all-purpose merchandiser localizes all its control buttons on a single, well-organized panel. Selections are made by pressing a button (at the left of the vertical bar) to revolve the merchandise compartments until the item desired is positioned behind the vending door. Money is then inserted and the door is opened. It automatically relocks when the compartments are moved for the next purchase. Available in either refrigerated or heated versions, the machine has a capacity of 130 items on 13 levels. It is finished in charcoal, with a white and terra-cotta front, and is by Walter Koch, Rowe's chief designer.

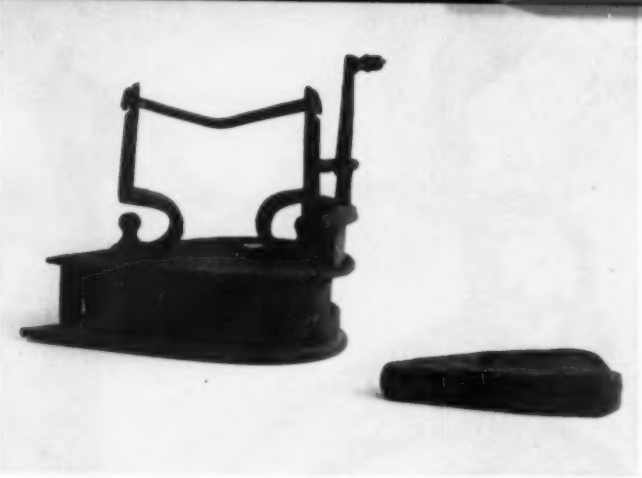


CRESSETS AND HETCHELS



At left, in foreground: a wire vegetable washer; in background, left to right: a roasting grill for an open fireplace, two food choppers, a wrought iron cresset to hold burning pineknots for outdoor illumination, a swiveling bread toaster for an open fireplace, and tongs for retrieving a hot ember from the fireplace.

The unfamiliar patterns on these pages are traced by forms from another civilization—from a civilization as distant, in fact, as the American past. All of these objects are now in the possession of William Redhed of Homer, Illinois, and form part of his collection of Americana. They were photographed by Edward Zagorski, Associate Professor in Industrial Design at the University of Illinois, who used them in a recent exhibition called "Man, the Problem Solver—Circa: 1800," an obvious reference to the theme of the forthcoming conference at Aspen. Unfamiliar largely because tasks that used to be performed by men are now performed by machines, these devices range from the ingeniously simple (the saddler's vice) to the ingeniously complicated (the death-by-water mousetrap). Modern technology may have made them obsolete, but the shapes it imposes cannot begin to compare with the boldness of the cresset, the exuberance of the toaster, and the whimsy of the whale oil lamp.—*U.C.*



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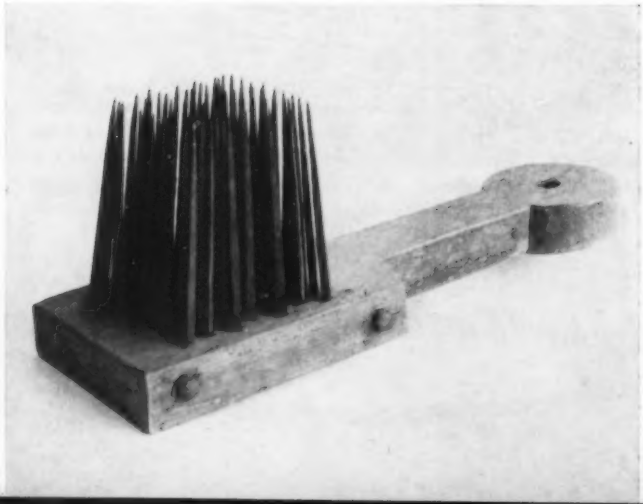

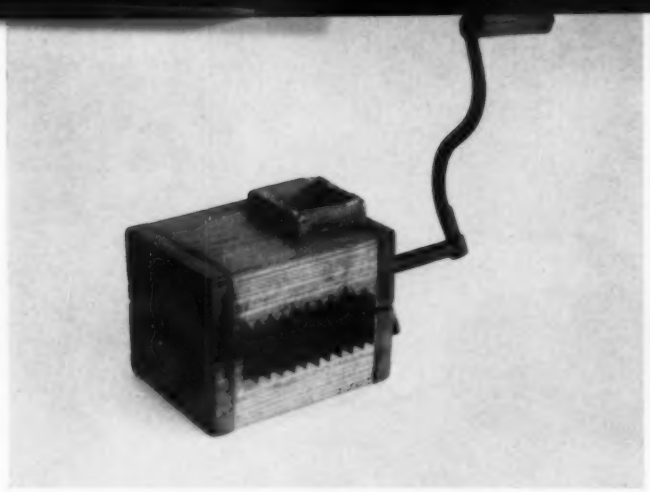

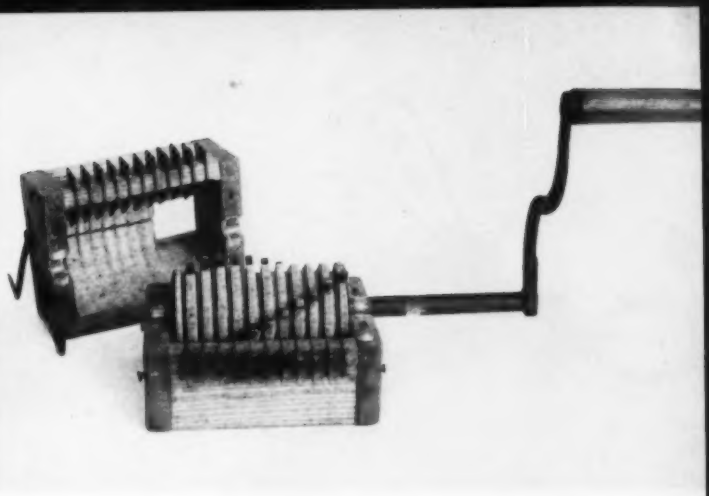

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(1) Simple flat iron has to be reheated often.
(2) Slug iron can be used constantly by rotation of heated slugs. Wooden grip for handle is missing.
(3) Double-end charcoal iron eliminates external heat source.
(4) Gasoline iron shows advanced stage of technology.
(5) and (6) Hetchels comb flax fibers straight and remove broken bits of bark and core.
(7) and (8) Wooden sausage grinder ready for use and, right, disassembled to show mechanism.
(9) Wooden corn sheller, and, below, lead and brass "knucks," used as weapons.
(10) Wooden ice skates, tied and screwed to the skater's boots.
(11) and (12) Shears to cut pieces of cone sugar to usable size.

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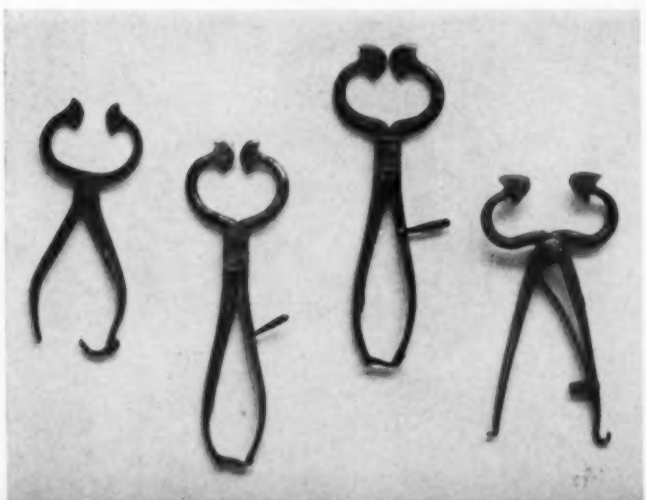

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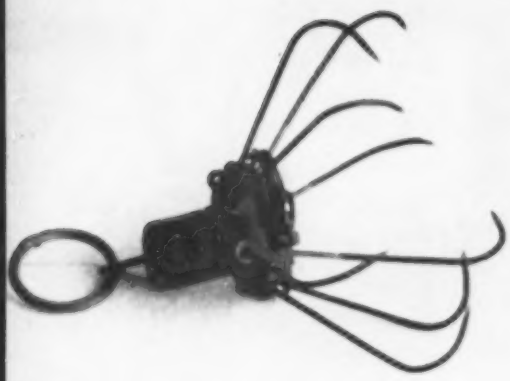

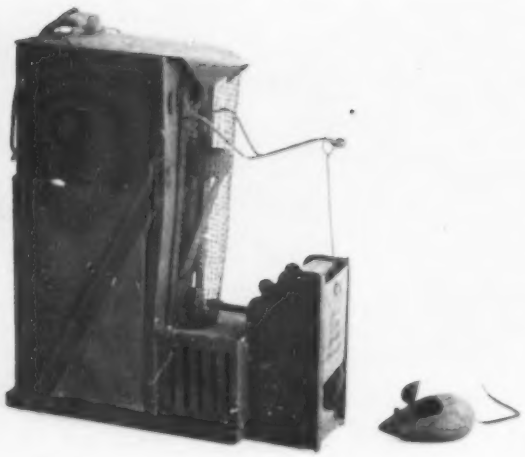

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Mousetraps: (1) impale mouse; (2) drown him—door closes behind hungry mouse; his only path is up through mesh column, to fall through hole at top down into container of water; (3) crush him with rare "drop-and-fall" mechanism.

(4) Container of wood and metal
(5) Sieve of wood and horsehair
(6) Adjustable whale oil lamp
(7) Wooden pricket candle holder dating from 16th Century
(8) Saddler's vice holds leather work. Small lever on side forces wooden jaws apart.
(9) Conestoga wagon jack

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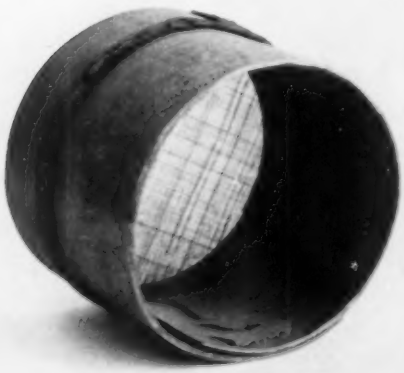

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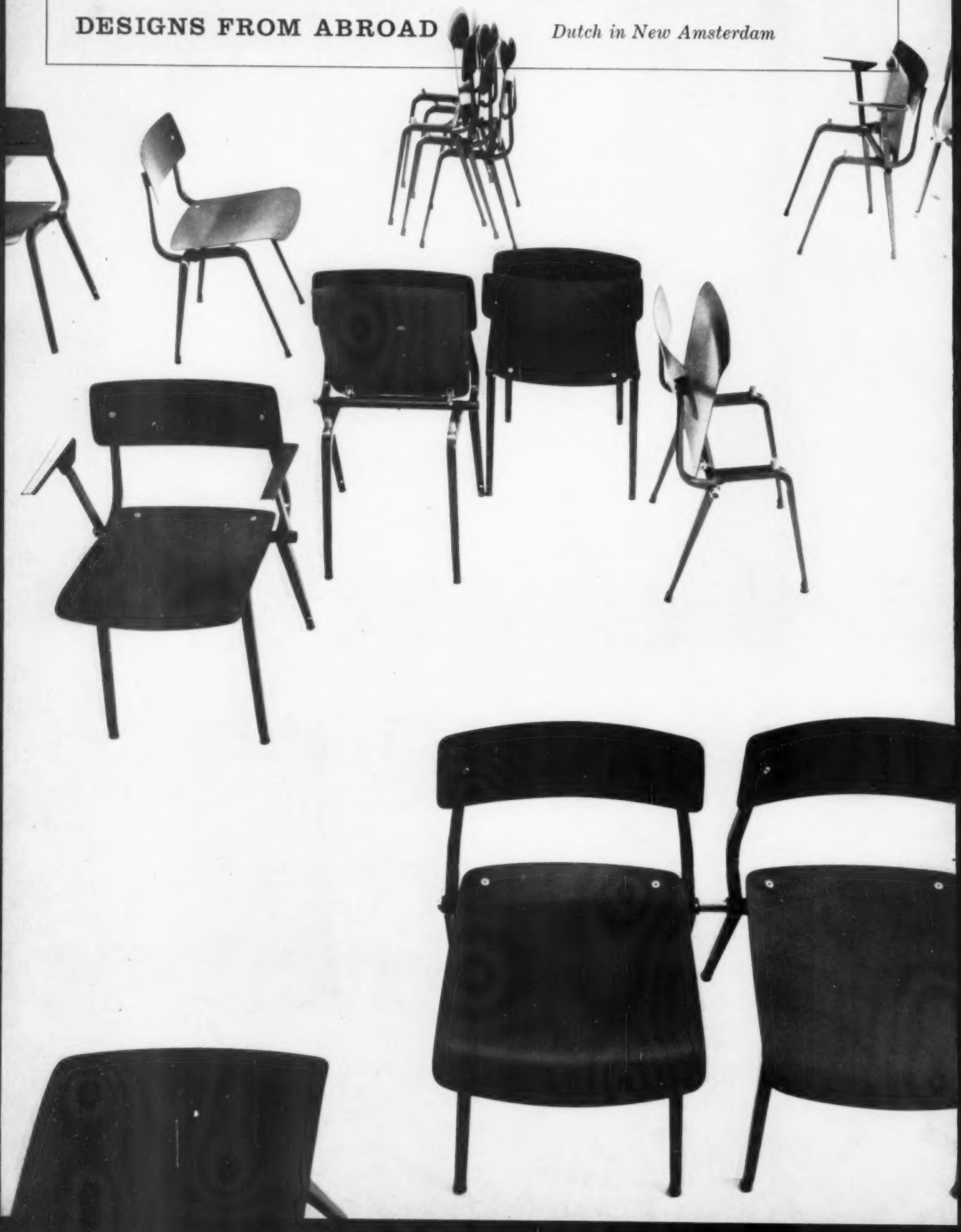
DESIGNS FROM ABROAD

Dutch in New Amsterdam



Last month, Ahrend Trading Inc., a Dutch export company, opened showrooms in New York and prepared to invade the U. S. furniture market with a second coming of De Stijl. Curiously enough, until six years ago Ahrend furniture had little to distinguish it. The two manufacturing branches, Oda and De Cirkel, produced practical, grey steel furniture for business, industry, and schools. It was neither De Stijl, Bauhaus, nor Miesian, but was the unconscious result of function, economics and endurance and looked frankly nuts and bolts. Since 1955, however, a new look has appeared, largely through the efforts of a new company president, Jacobus Mulders. Under his more progressive management, Ahrend's free lance designer, Friso Kramer, has been able to drop the traditional tubular steel, and introduce a steel channel construction for the latest models. The new system allows far more freedom in design as is shown in the graceful, tapered frame of the Revolt Chair (opposite), or the crisp geometrical

"Revolt" chair (opposite) solves problem of connecting row seating with a rod that springs from tube below seat and slides into tube of adjacent chair. A simple device automatically raises seat when not in use or unhooks for seat to remain down. Chairs stack 12 high on dolly.

"Result" school desk (below) eliminates back legs so pupils can slide out without scraping back chairs. Desks are heavy, weighted to maintain perfect balance, and covered with melamine. Result chair legs are connected by a torsional steel plate that adjusts them to uneven floor; small plastic cushions between frame and plywood sections adjust seat and back to position of sitter.

legs of the school desk (page 61). As a heavy-gage sheet steel is used there is no loss of quality or strength in the structure.

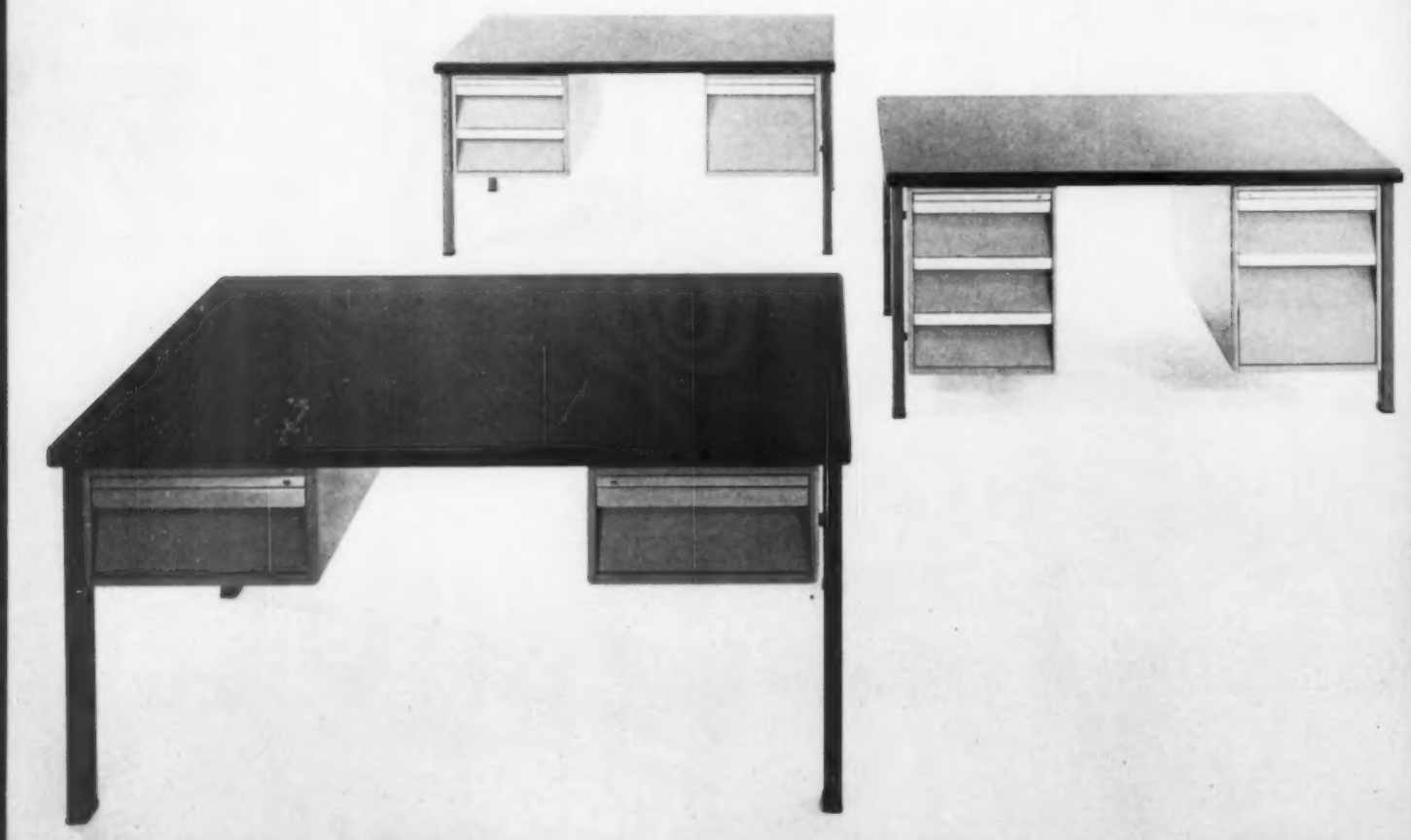
Ahrend's color schemes have also blossomed from olive-green or grey to blue, red, yellow, light green, and black. There is a choice of upholstery fabrics, and a new protective finish, Odaplast, stretches tightly over writing tables.

Production and assembly remain simple, the nuts and bolts are still there, but joining is more often used to an esthetic advantage and new methods are explored. The screws in the desk (below) manage to "float" the drawers; the sliding coupling rod of the "Revolt" chair (page 60) is a simple and attractive solution for the auditorium chair; and the plain flat steel bar connecting the legs of the "Result" chair (page 61) permits a torsional adjustment of legs to an uneven floor.

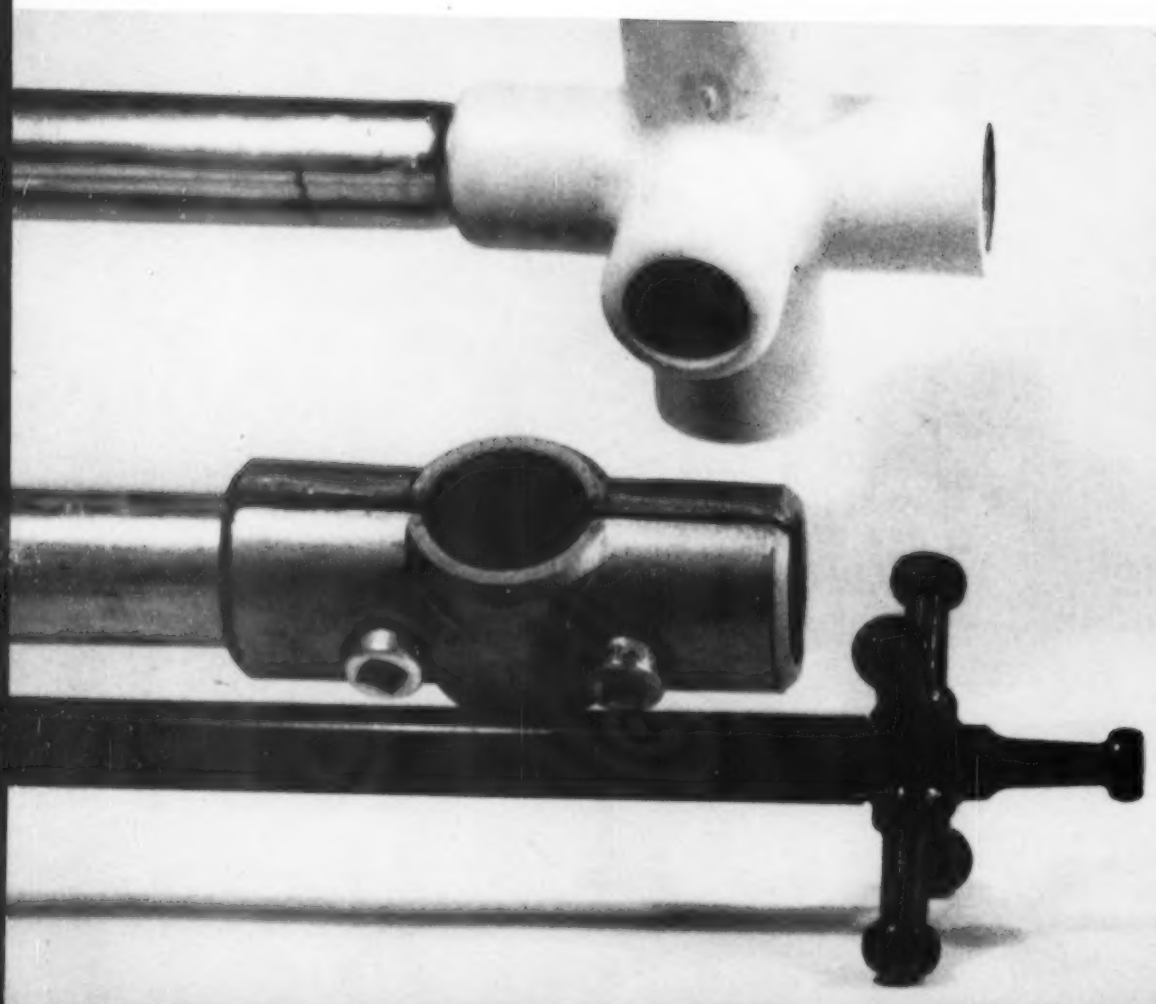
Since 1957, six Ahrend designs have won Signe d'Or awards. Five of these were by Friso Kramer.—*M.D.*

"Revolt" desk (below) is a simple table unit with various drawer combinations which screw into legs and top. Writing surface is covered with Odaplast, a heavy material of rubber and plastic, stretching over corners without folds or seams. Drawers have grooves for innumerable partitions.

"Repose" arm chair (opposite) has a steel frame with flanged edges to receive upholstered sections. Arm rests slide on, back cover hooks over rim along top and sides, and the seat fits over box frame. Foam rubber padding preserves neat geometric shape but is more flexible than it looks, as the back cushion rests on a springy wooden board which bends into curved steel frame.



THREE K-D SYSTEMS



A trio of connector joints are the pivotal elements in three demountable structural systems that are superficially alike, but different in what they can do and how they are used

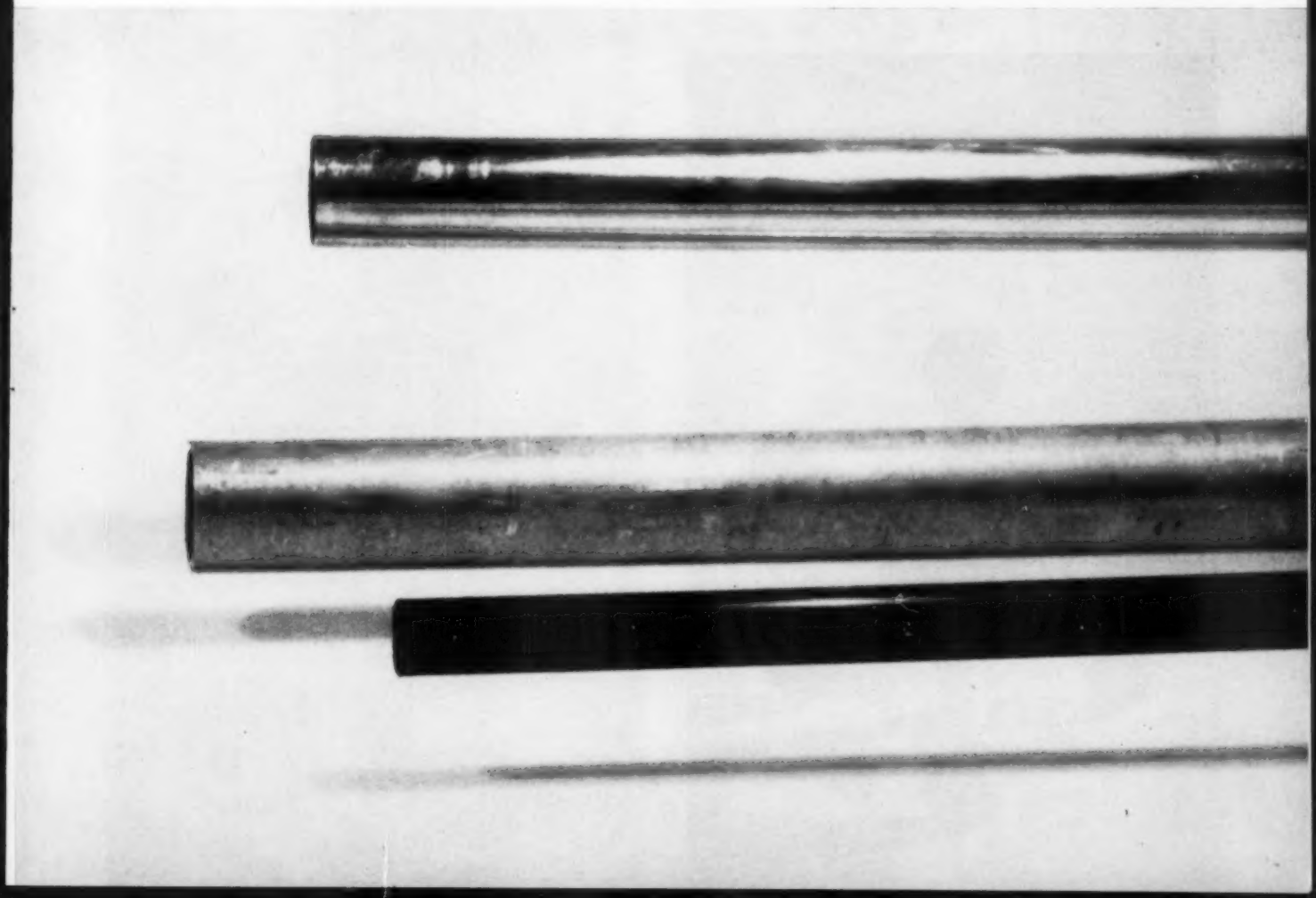
Although they seem similar, and actually are similar in general concept, the three demountable systems shown here were generated by very different impulses. Danish designer Poul Cadovius arrived at the idea for his jack-like Abstracta joint without external stimuli, wholly as a result of idle, conjectural thought (Cadovius is one of Europe's most prolific inventors). Its end-use at present is a shelving system as elegantly proportioned as a space-frame but sturdy enough to use for warehouse storage in a lumberyard.

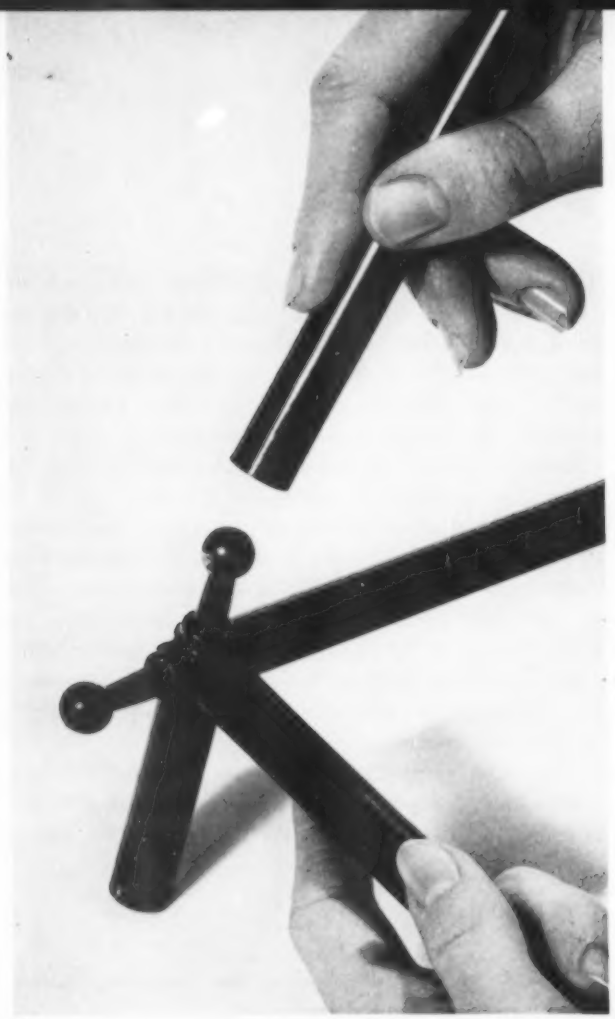
Taliesin-trained architect Eric Nyland designed his Palakeen system to satisfy a personal desire for an easily portable windbreak-sun-shield for beach or patio. Color was a main consideration, and the square of cotton poplin subdivides into blue, green, brown, and orange triangles so close in tone that their patterns shift like a kaleidoscope, depending upon the angle of view, or upon the rippling of its surface by the wind.

Connecticut designer Norman Cherner's play structures are the result of a commission from Reynolds Feal Corporation to explore possible consumer-product uses for the Jiffy Joint system designed and made by its parent company, Feal Corporation of Milan, Italy. Jiffy Joint's widest use at present is for scaffolding (it formed the "jungle gym" exhibit designed by George Nelson for the 1959 U.S. fair in Moscow).

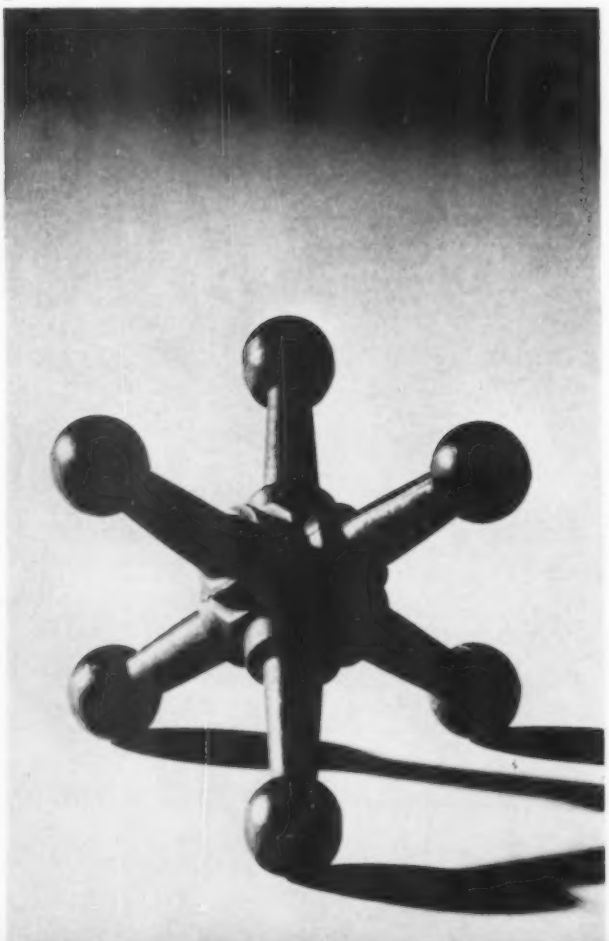
The basic component of each system is its joint. Abstracta's cast steel joint, the most subtle and sophisticated of the three, fits inside the steel rods and becomes

Top to bottom: Palakeen, Jiffy Joint, Abstracta





1

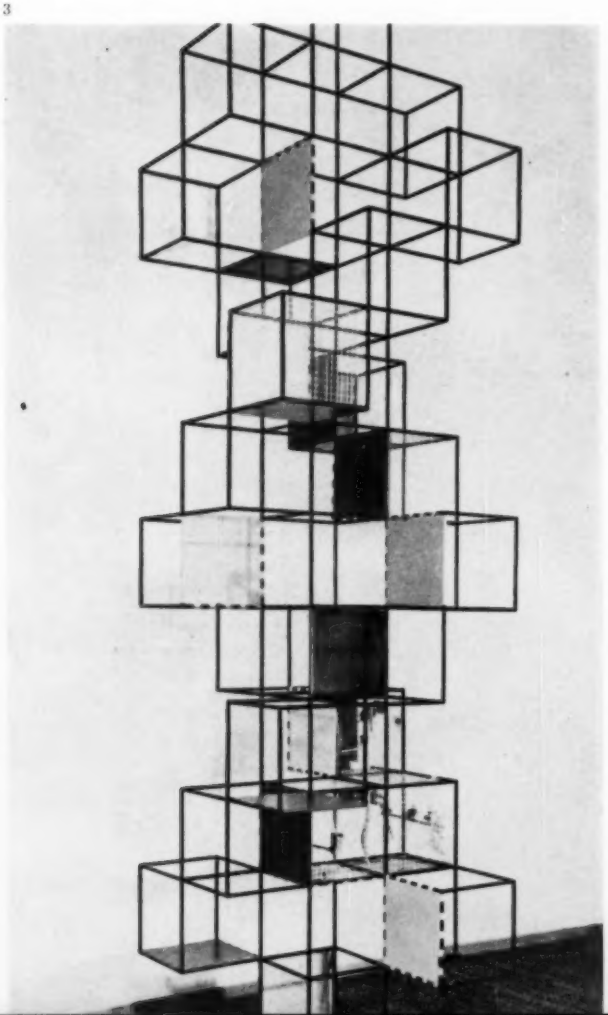


2

invisible when all the rods are in place; it comes in three-, four-, five-, and six-armed versions to take care of every possible construction. Utilizing a slightly flexible plastic so that it gives a bit in the wind, Palakeen's joint is designed to accept the two diameters of its aluminum tubing (one end of each tubing length is swaged so that the lengths can be fitted together). The nature of the joint invited comparison with Tinker Toy, a similarity Nyland had to disprove when applying for a patent. Jeffy Joint is not so quickly assembled as the other two, needing a small wrench to tighten a screw which clamps the aluminum joint against the rod. But Jiffy Joint was designed initially for construction work, and strength under stress was important. The designers of Abstracta and Palakeen are also currently experimenting with mechanical locking devices for their joints to give them wider application.

Because of the similar nature of the systems, their uses, actual and proposed, are somewhat alike. Each one

3



is light, easily portable, and simply designed and constructed. Cherner's study led him to propose that Jiffy Joints be used for children's play equipment; he suggested and designed a prototype kit, including Jiffy Joints, aluminum tubing, and colored rectangles of canvas, from which parents could build a jungle gym, a playhouse, or a trampoline. But the idea has yet to be acted upon. Nyland hopes to modify Palakeen (now being sold experimentally in New York City) for use in portable patio furniture kits, or even for use as children's play equipment. The Abstracta system is currently used, in Europe where it is marketed, as shelving for storage and display; the shelves, of enameled metal in eight colors, have rabbeted edges and snap over the rods. But Cadovius has also designed and is selling a small Abstracta as a children's toy, and he too envisions a wide variety of uses for his system—he is building experimentally, from an enlarged version, a house and a boat.—E. C.

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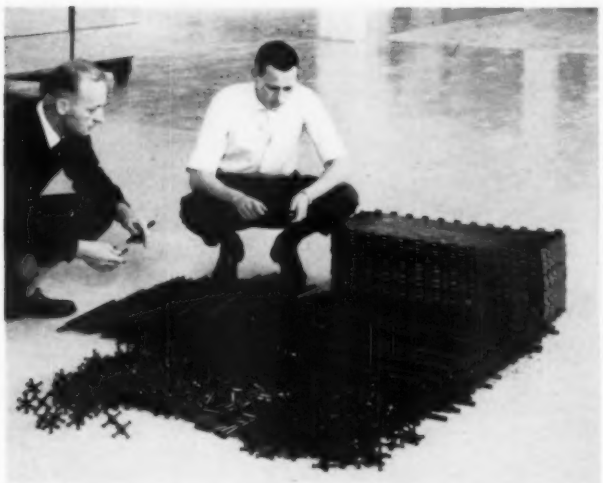
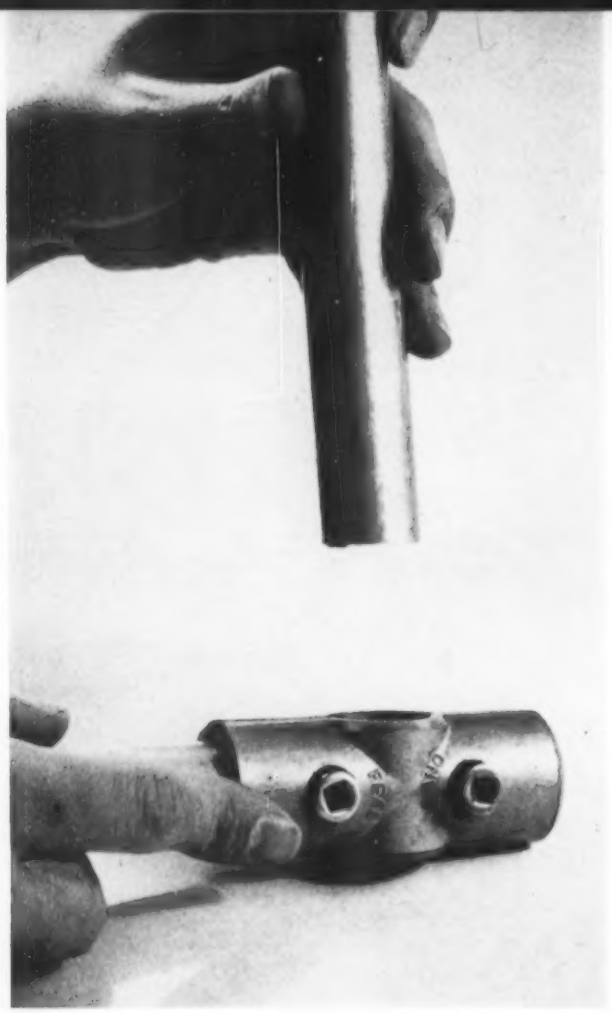


Rounded head of **Abstracta** joint slips easily into ½-inch tubular steel rod (1). Arms of joint narrow below the head (2), allowing rod to be fitted to joint from an angle, thus permitting construction of the system in tight corners. Arms widen at base to fit rods snugly, and are held in place by friction. When weight is placed on the assembled system, the increased tension holds joint and rod together even more firmly. Abstracta "sculpture" (3) was set up as a display at Frankfurt Trade Fair in the fall of 1960. A major feature of the system is its rapidity of assembly: two Abstracta salesmen show the basic components (4) with which they erected the warehouse shelving shown (5) in one hour and fifteen minutes. The experimental dome (6) was put together using joints whose arms were slightly curved. Covered with a plastic fabric, it forms a portable shelter (7). Standard version of system has shelves in eight color choices: white, black, grey, green, orange, yellow, purple, turquoise.



1

Jiffy Joint has a mechanical locking screw (1) which is operated by a square-headed locking tool. When the 1-inch aluminum tubing is clamped in place, the system can take a great deal of stress and hence is ideally suited to children's play equipment. Norman Cherner has designed three pieces of equipment into which the system can be converted: a playhouse (2), a trampoline (3), and a jungle gym. When a child tires of one construction, the form can be changed (but not by the child himself) in about half an hour.

2

3

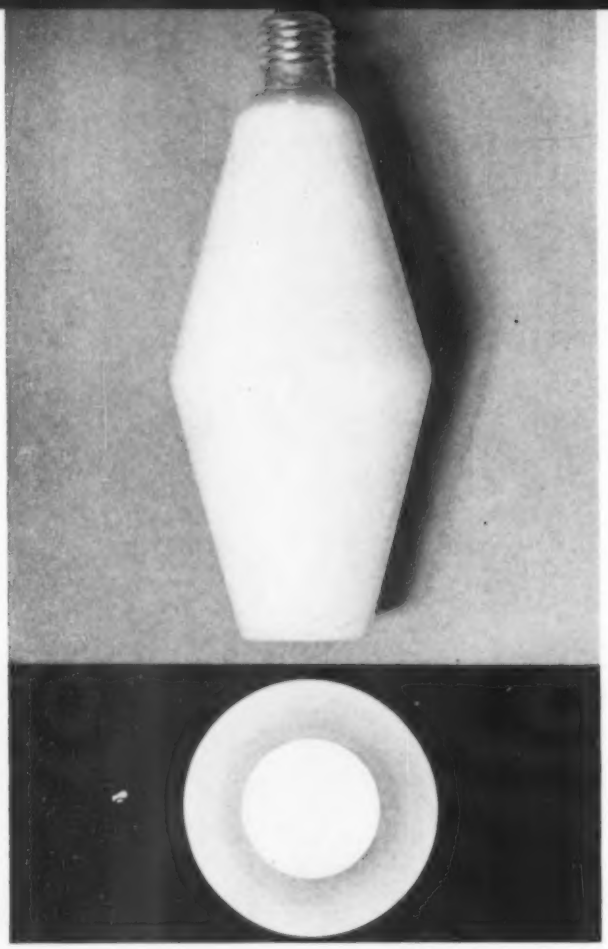
1

2

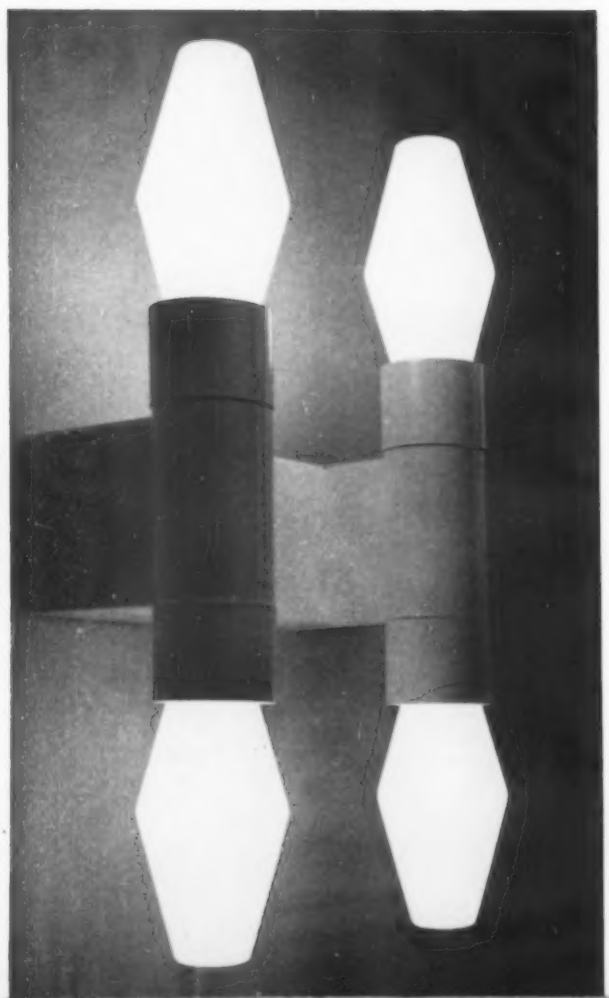
Palakeen's slightly flexible, plastic joint (1) comes in two colors, black and white. Four of the six arms of the joint are sized to hold the standard end of the tubing (2); the other two arms admit the swaged end. The inside of the arms narrow slightly for the last 1/16th inch, to hold the tubing securely. In kit form the system includes four joints, 16 aluminum tubing sections (these are standard ⅞-inch aluminum, 36 inches long), one 86-inch cotton poplin square, four lengths of rope and four stakes. From these ingredients 10 different forms can be constructed, five of which are shown (3).

3

PHOTO BY GLEB DERUJINSKY

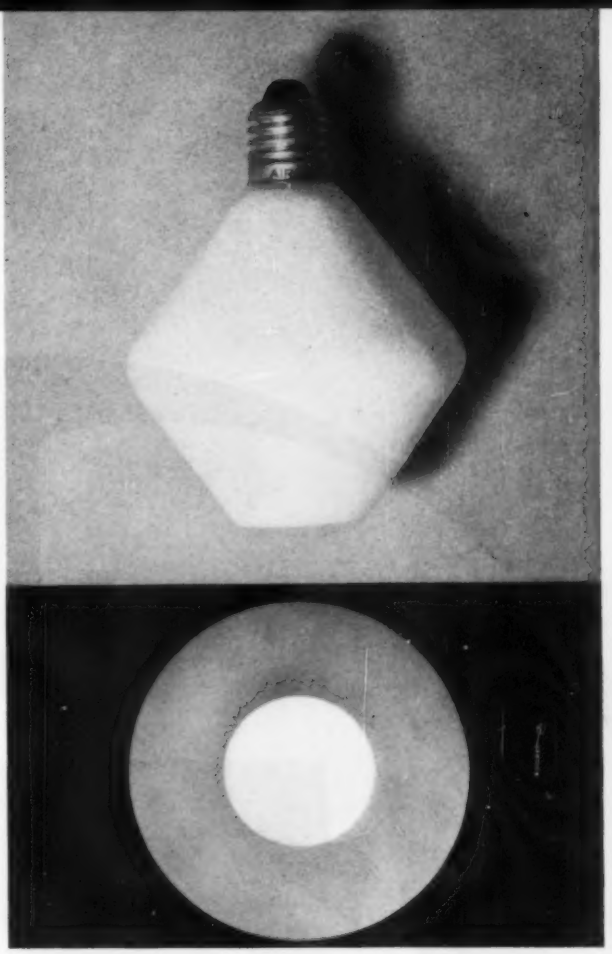


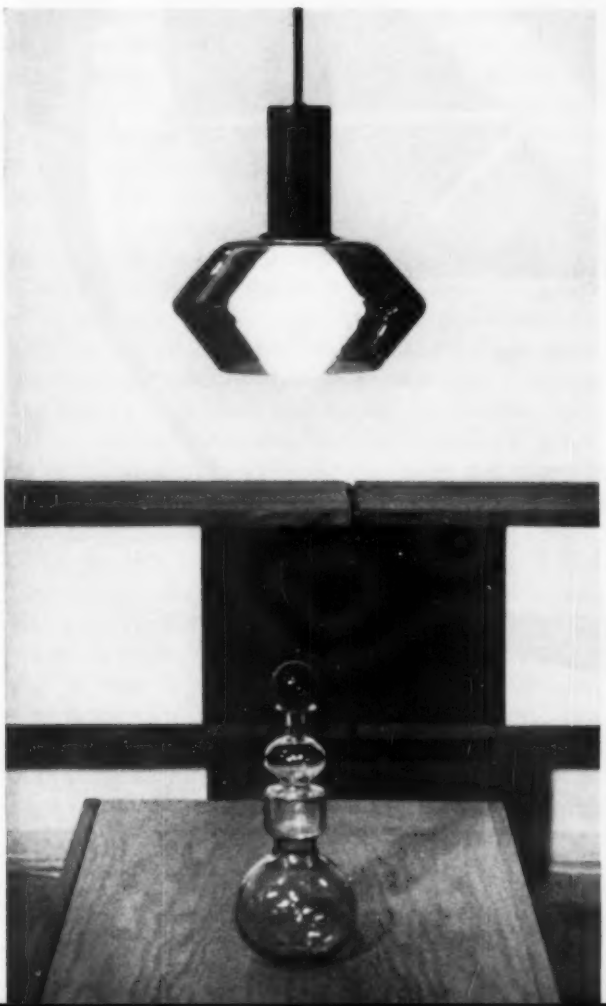
WIRKKALA'S BARE BULBS

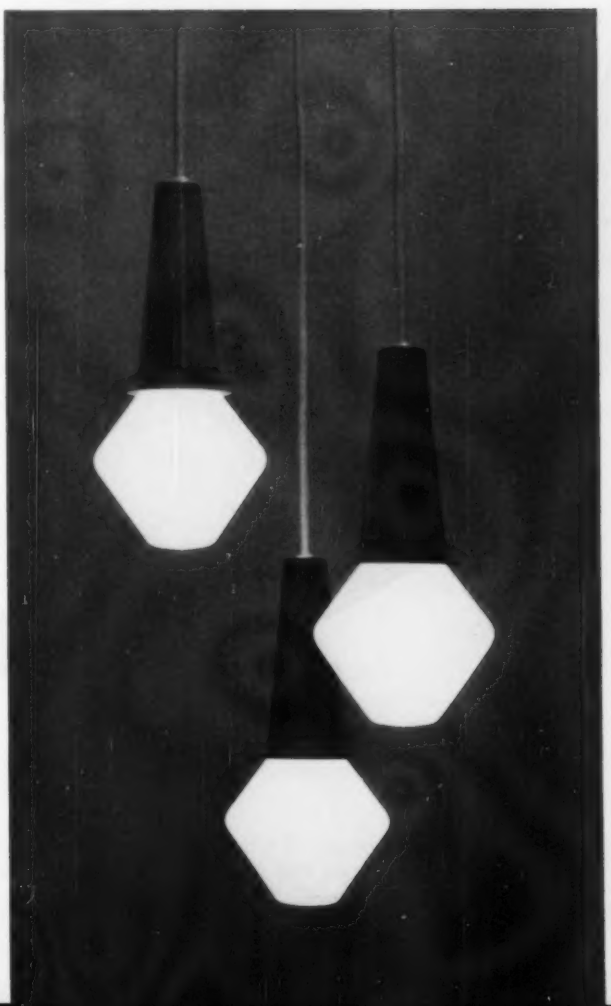


Elongated version of bulb (1) is part of wall sconce (2) in Finnish church; squat bulb (3) can be used with decorative glass shade, straight cylindrical socket (4); or as a cluster (5) with flared socket.

Finnish designer Tapio Wirkkala's new light bulb operates as both light source and decorative fixture. Wirkkala has transformed the familiar pear-shape into a conical lantern distinguished enough to go unshaded, which it often does. The bulb comes in a squat and an elongated version, and is coated on the inside with an especially fine powder which improves the light, diffusing it more evenly and making a shade unnecessary except as a design element. A variety of cylindrical and tapered sockets has been developed which adapt it for use as a pendant cluster or wall fixture, and when shades are wanted there are also several possibilities: a conventional textile version and two smoked glass mantles whose faceted forms complement those of the light. At present it is available in only 40 and 60 watts, but a wider range is anticipated. Manufactured by the Finnish firm of Oy Airam Ab, the lights, used in Finland's exhibit at last year's Triennale, are now available here in limited quantities.—*S. B. R.*





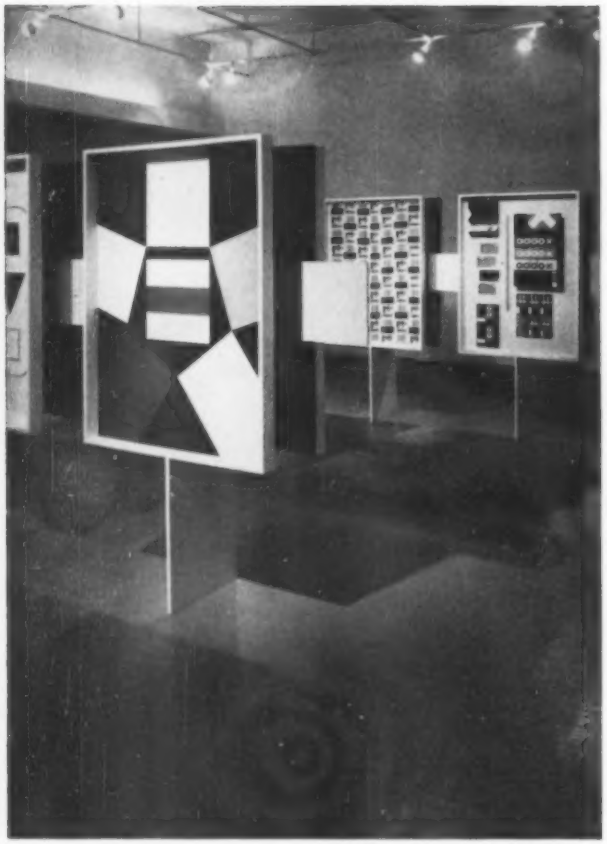


SUTNAR IN RETROSPECT

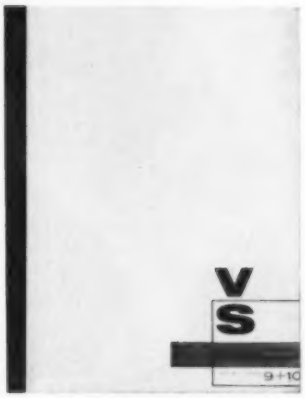
In a period when most designers cultivate an anonymous versatility, the work of Ladislav Sutnar stands apart: Sutnar has carved out a style so much his own that no one quite dares to imitate it. This unique style is both his strength and his limitation. Czech-born Sutnar first achieved notice in Europe of the late '20's when he directed the State School of Graphic Arts in Prague. And although he never worked there, his style recalls the early Bauhaus. It is often spare, unornamented, direct—even brutal. But most important, it is peculiarly memorable. At least one reason for this may be that Sutnar, unlike most contemporary designers, rejects the easy temptation to follow passing fads or to invent a new "style" for each new project. Working from principles formulated years ago, Sutnar still produces designs that bear the stamp of an earlier period. Again, this is both his strength and his limitation.

Last month the Contemporary Arts Center in Cincinnati opened a retrospective show of Sutnar's product and graphic design. Sponsored by the Champion Paper Company, it will open at the Pepsi Cola building in New York on July 27, afterward traveling across the country. This month Hastings House publishes Sutnar's own restrospective: *Visual Design in Action*. Beginning overleaf, ID prefaces its own review with a commentary on Sutnar's significance based on correspondence with Contemporary Arts curator Allon Schoener.

Skewed "S" symbol, opposite, appears on jacket of Sutnar's book. Random pattern on this page is a recent experiment.



Retrospective exhibition, 1961



VS magazine cover, 1929

For more than 35 years, Ladislav Sutnar's numerous designs for catalogs, signs, advertisements, books, posters, packages, and exhibitions have demonstrated a superlative ability to communicate visually. In the introduction to his new book, Sutnar lists *visual interest*, *visual simplicity*, and *visual continuity* as his guiding principles. The application of these special qualities has been fundamental to his work.

Sutnar describes *visual interest* as a "force of inventive design which will excite and hold attention." Thus, his design for the VS magazine cover of 1929 (above) exploits white space to focus attention on the initials. *Visual simplicity*, says Sutnar, "stands for the strength of simple design to communicate directly." He makes the location of a new theatre immediately clear (in the theatre poster of 1934, opposite) by emphasizing the key avenues in a street map, eliminating non-essentials.

Since his arrival in the United States 20 years ago, Sutnar has continued to accept the challenge of new conditions and to revise his solutions. His industrial catalog designs, his work for Sweet's (page 76), and his exhibition design (above) all demonstrate Sutnar's principle of *visual continuity*. In such large projects as exhibitions, says Sutnar, visual continuity must be projected in time and space where it will maintain tempo, provide rhythm and climax, and give the whole an ultimate color and form.

Sutnar's ability to develop unique symbols is particularly evident in his trademark designs for addo-x, Carr's, and Vera (page 76). Each of these firms has its own definite personality, and its products, distribution, and advertising procedures are different. But Sutnar's corporate symbols are successful solutions to each firm's search for a distinct profile. For example, the precise, geometric addo-x symbol reflects the craftsmanship of the firm's business machines and the flowing Vera logo suggests scarves.

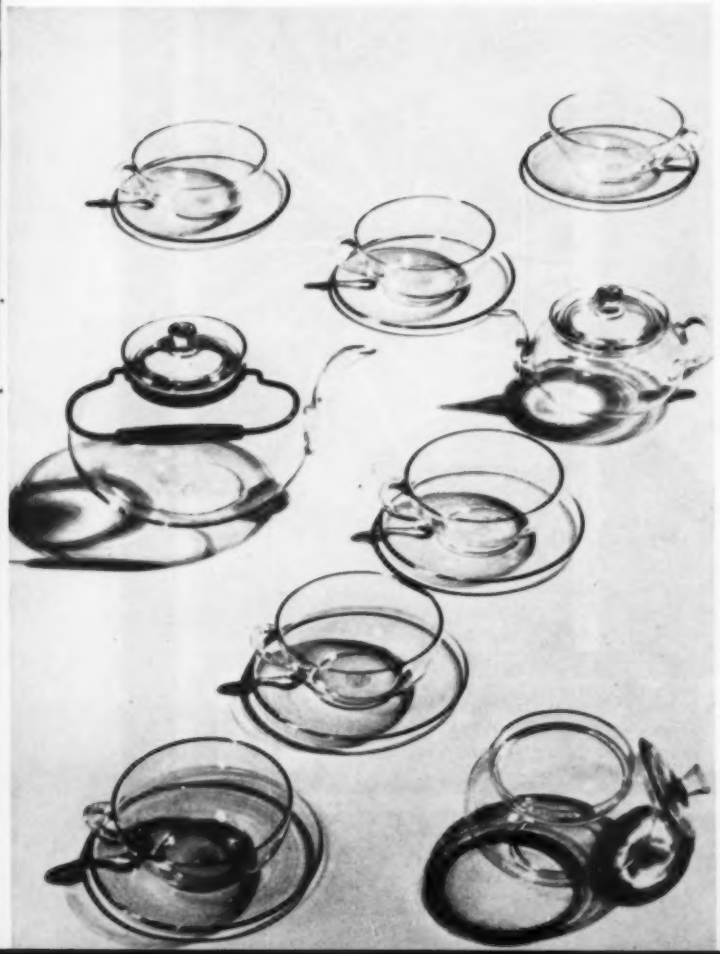
Finally, whether in a 1934 theatre poster or the departmental signs at Carr's, Sutnar's ability to solve the complex problems of *information design*—communication of visual and verbal messages at high speed and intensity—is a hopeful indication of a less chaotic visual environment. And his work shows how the designer can serve as the significant creative artist of the 20th century.

Book jacket, 1929

Theatre poster, 1934

To heighten impact of Upton Sinclair book jacket, Sutnar cropped and blew up photo to poster size—marking possibly the first experiment with this technique. For his tea service Sutnar used heat-resistant glass, a material previously found only in chemical laboratories. A knife of one-piece construction was the major innovation in Sutnar's stainless steel flatware. Its bent shank serves as a finger rest and lifts the blade from the table. Long handles are for easy grasping.

Heat-resistant glass tea service, 1930

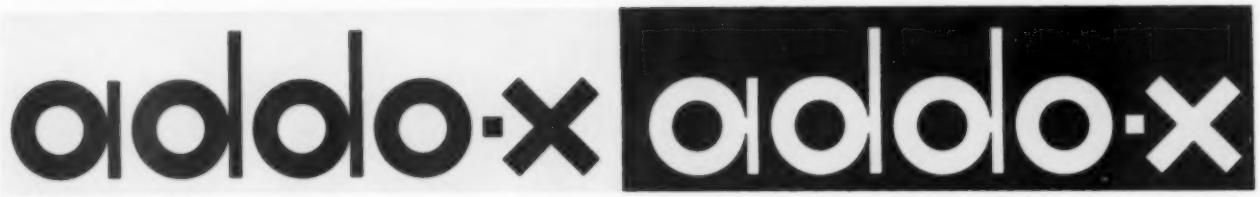


Chrome-plated egg cup, 1930

Stainless steel flatware, 1933

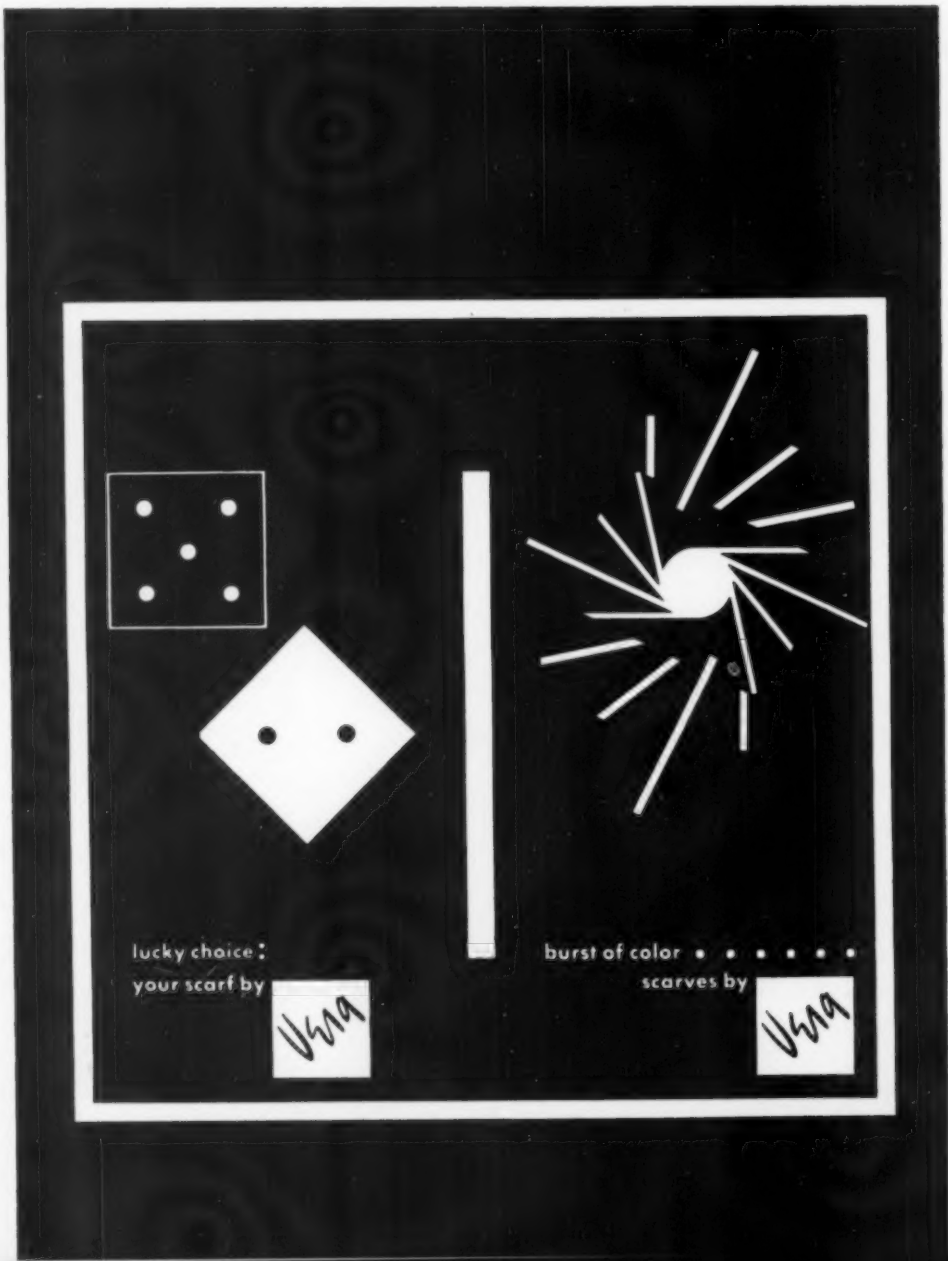
Sweet's catalog, 1942

Coordinated graphics for Carr's includes pentagonal symbol (opposite, below) suggesting departmental nature of store; and symbols for individual departments (hammer = hardware, etc.). Attention-getting symbols were the basis for Vera's small-space advertising campaign. As study opposite shows, Sutnar explored beyond the familiar to discover powerful new forms. Actual examples below show how symbols were combined with text and logo to produce the final ad.



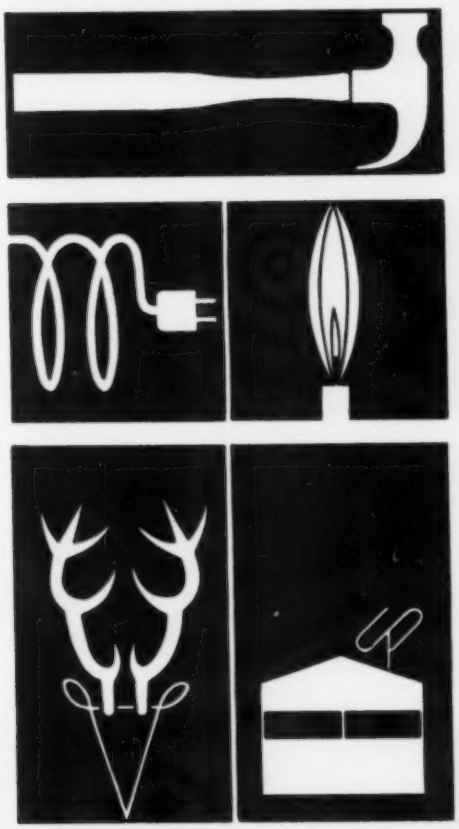
addo-x trademark, 1956

Vera scarves, 1958



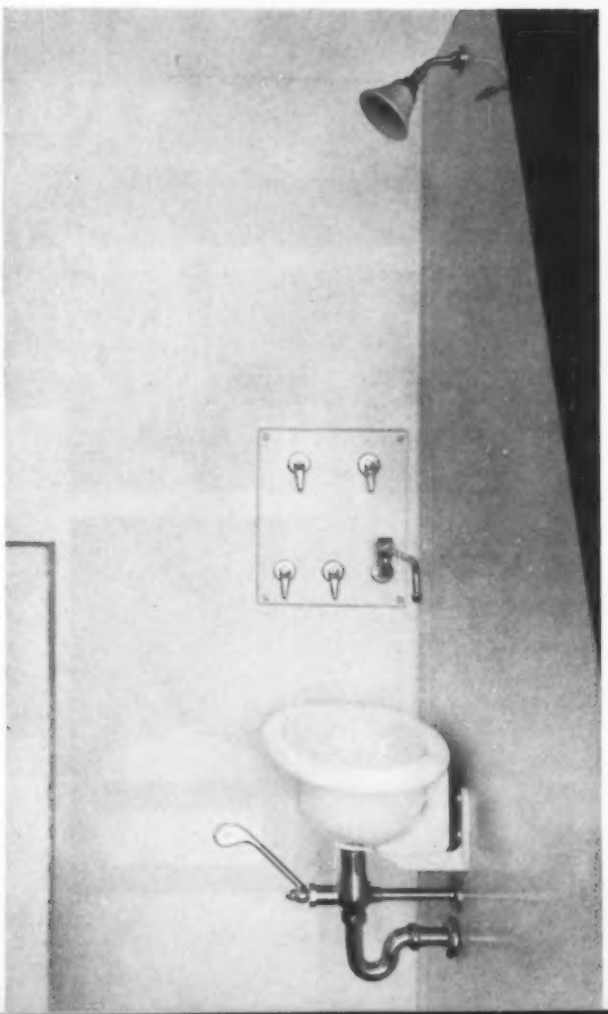
Carr's self-service department store, 1956

Architectural lettering, 1958 (right)



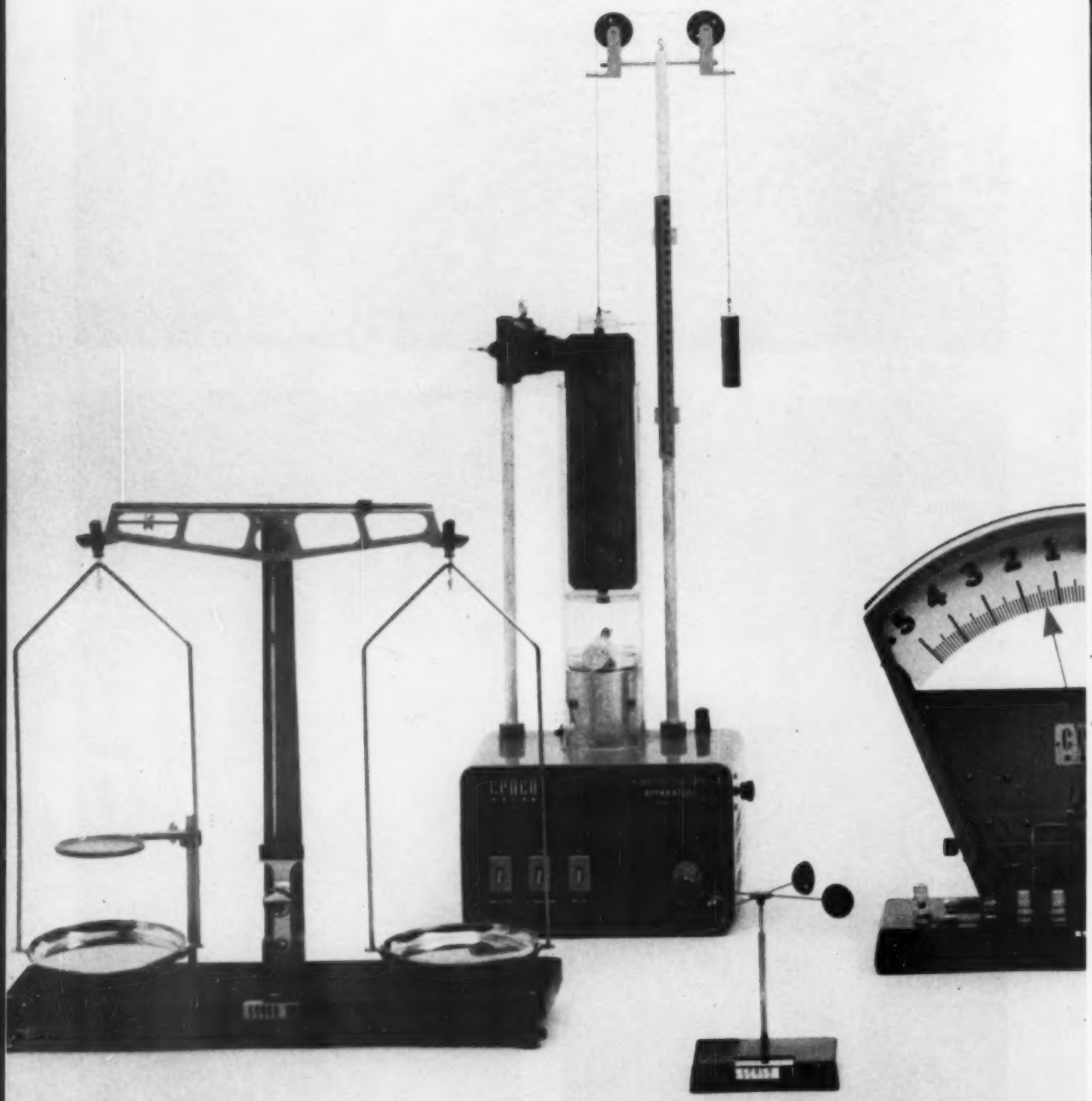
MASTER'S BATH

Charles Jeanneret, better known as Le Corbusier, came to the United States for three days in late April to accept two richly deserved awards: the American Institute of Architects' gold medal and an honorary doctorate from Columbia University (he was also the subject of one cycle in Columbia's special spring series of discourses on Four Great Makers). Le Corbusier is known primarily for his architecture, but he early recognized art in industrial products (in his 1923 book, *Vers Une Architecture,* he compared a motor car to the Parthenon). This is a "sanitary cabin" that he designed with his cousin, Pierre Jeanneret, and Charlotte Perriand in 1936 for Etablissement Delafond, a French manufacturer of plumbing fixtures. It was produced once, presumably for an exhibition, and these photographs of it were apparently published in Europe at that time. They are now in the possession of Connecticut architect Stamo Papadaki, to whom we are indebted for their use as well as this information. Le Corbusier designed the cabin to show that an efficient bathroom could be composed of few parts and fitted into a limited space. There are only two fixtures: a wash basin, and a toilet-bidet (the toilet combines a low, or "Turkish," bowl with a regulation-height seat). Two batteries of faucets and a shower head above the wash basin complete the equipment; a long, swiveling nozzle on the battery above the toilet substitutes for the usual flush-tank. The cabin is 49 inches square, a dimension derived from Le Corbusier's Modulor (a series of harmonic measurements based on human proportions). Its sub-floor, which acts as drain for the shower, is an enamelled cast iron pan with grooved edges to receive the side walls; it is covered with a wood slat floor.



Left, wash basin with shower head above it; faucets for both are on wall panel. Top right, overall view of bath. Bottom right, two views of toilet-bidet and nozzle for flushing.

DESIGNER'S CASE STUDY:
NEW LABORATORY EQUIPMENT



A manufacturer of laboratory apparatus wanted a new look for 30 items in its school line, set a time limit of three months, and got a redesign program for all its products.

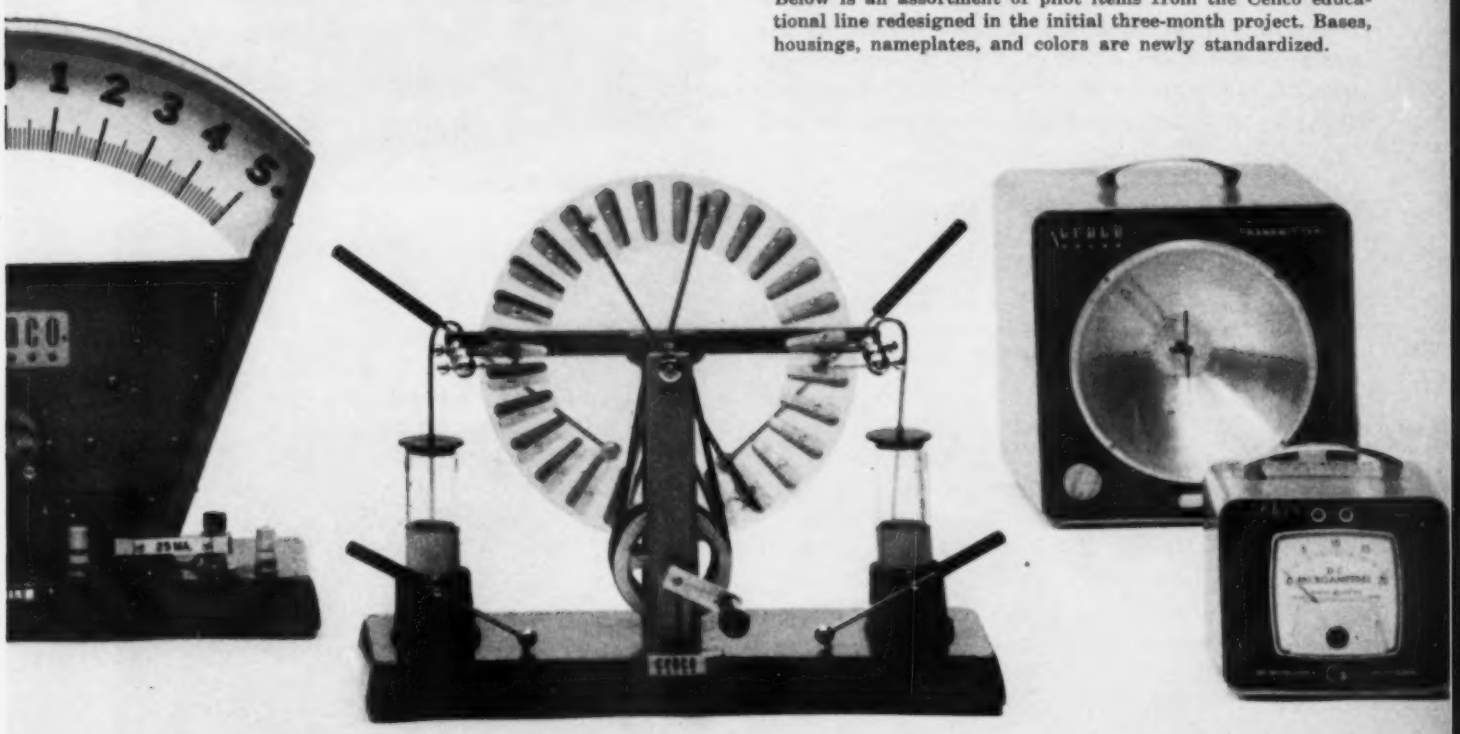
BY STOWE MYERS

One day in January, 1958, I was invited to inspect an array of objects on a conference table at the Central Scientific Company in Chicago. These objects were 30 pieces of scientific equipment, bearing such forbidding names as "Blackwood Pendulum," "Alpha Ray Track," "Mechanical Equivalent of Heat," "Rotational Inertia," and "Second Law of Motion," and they were a representative selection from Cenco's line of scientific apparatus for schools, research laboratories, and industry. The collection had been assembled so that a number of industrial designers could submit suggestions and proposals for its redesign. After 70 years of supplying the science-education field, Cenco had decided to seek outside design help to unify the line as well as to improve its appearance.

Cenco itself had been formed at the beginning of this century by the amalgamation of three scientific equipment manufacturers, and the company's products had been derived from even more varied sources — frequently from teachers who had invented the instruments for class demonstrations of a physical principle, of a means of weighing or measuring, or of an action or sequence. Often, form, color and material remained unchanged from the professor's original model, and over the years the only uniformity that had prevailed was one of dullness, based on the traditional theory that scientific equipment must be black and rest on a black lab table, in a darkened room. On the conference table that day was a conglomeration of gray-toned finishes in crinkle or in hammertone—here a wood base, there a cast base, and everywhere the gloomy configuration of black, hand-dipped japanned parts. In all its history, Cenco had only twice employed a consultant designer, and the two products that had resulted from those experiments stood out from the general monotony: a sleek laboratory oven by Carl Bjorncrantz and a graceful balance by Karl Brocken.

This was the era of Sputnik I and the beginning

Below is an assortment of pilot items from the Cenco educational line redesigned in the initial three-month project. Bases, housings, nameplates, and colors are newly standardized.

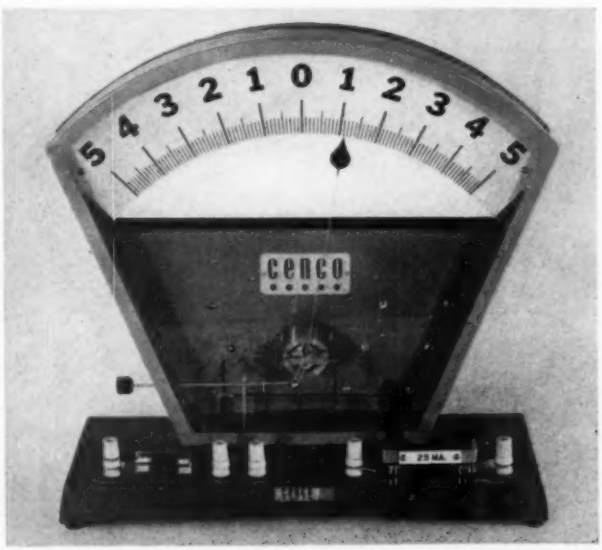


of the government's program of increased aid to science education, and Cenco had decided it was time for a change. Not all Cenco's products could be redesigned at once—there are nearly 2,000 of them in all and they fill an 812-page catalog—but a representative selection of the educational items could be redesigned in time for the next school year.

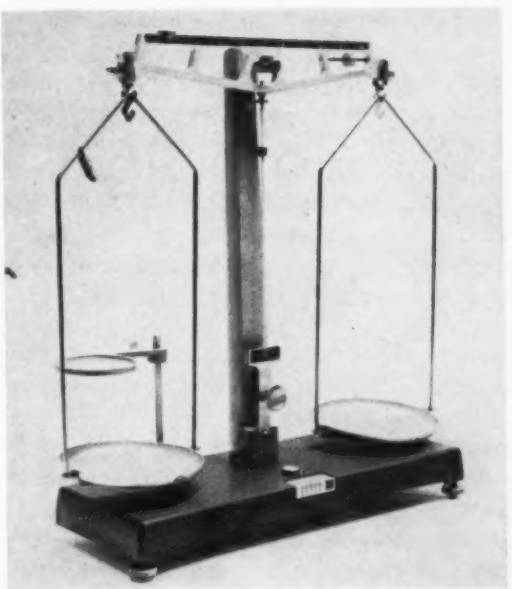
My initial proposal, which was accepted, was that this selection be chosen from the existing products "most representative of features (bases, supports, housings, etc.) whose design modifications would be most adaptable to various other Cenco equipment." My suggestion was based on a study of the company's catalog as well as of the group of products assembled by its management. (Cenco's management is Ralph Read, then chief of production and now president, and Robert Picard, director of research and engineering. In fact, Dr. Picard especially was so closely associated with me in the project that this is really his case study as well.)

The most important limitation under which we worked was that of time. Although I had at first recommended at least six months for the project, the company convinced me of the need to condense the redesign into three months. In that way, Cenco would be ready with a group of new products as well as a whole program of modernization in time for the summer market, when schools decide on their fall term orders.

We started with a research phase of two or three weeks, during which I became more thoroughly acquainted with Cenco's own products, with their competition, and with the educational market in general. Our plan of attack rested on two premises; the first was that no change should detract from or obscure the functional purpose and performance of each piece. These instruments were not consumer products in the usual sense—they had evolved without the pressure of typical consumer demands—and clarity was to remain the first requirement. Also, since the redesigned pieces would often be used in classrooms and laboratories alongside the older pieces, the departure from traditional forms could not be extreme. (Although the project involved only the educational line, the redesigns were to be capable of adaptation to Cenco's industrial line. Furthermore, it was initially



Lecture Table Meter in old (top) and new (bottom) versions shows how redesign emphasizes instrument's function. Meter scale is enlarged, pointer and circuits are brightly colored.



Top: Cenco's Laboratory Balance before redesign. Bottom: change in many small details adds up to a whole new look.

intended to deal only with existing products, where the problem of how to illustrate the scientific principles had already been solved. It was not until later in our assignment that we had to grapple with new and exclusively scientific problems.)

Our second premise had to do with production problems. Several of the items to be considered were produced in quantities as low as 25 a year, and the average production run was 50 to 100 units. This proved less of a problem than we had anticipated, however, when we discovered that the products could be divided into groups possessing common parts — bases, supports, and controls. These parts could thus be standardized, instead of being considered individually, as before.

The actual items for redesign were selected by our office and Cenco management from the first 30 I had inspected as well as from the rest of the catalog. The chief criterion was that changes in each product be adaptable to other products, but we were also careful to include those items whose sales figures were substantial and thus especially important. The 100 items we chose for consideration fell into three groups. The first and most important group was selected mainly to cover representative items in the school line. It included several balances, the Static Machine, the Blackwood Pendulum, and the motor-driven Rotators. Since there was currently a strong demand for optical and electrical devices, these made up the second group; and the third group was in the area of heaters, generators, and power supply devices — traditional items in the Cenco catalog, and products which had never received any sort of design attention. These were immediately regrouped according to form: those that could fit well on rectangular bases, those requiring tripod supports, those with significant moving parts, etc. *(Continued overleaf)*

Starting with assembly prints of the existing unit, we made an overlay which retained the functional characteristics of the device but made it possible to substitute new bases, knobs, and supports, and to revise shapes that were expensive to produce, deviated unnecessarily from our standard shapes, or were just plain dull. We then met with Cenco's engineering staff to discuss the practicality of our overlays, and in collaboration with them worked out versions acceptable to both sides. Throughout the project, Cenco's engineering staff served as an extension of our own office; their drafting department did all the final drafting; and all the final models were made in Cenco's plant model shop. This close collaboration was an enormous help to a small design office. It would have been difficult for us to undertake so extensive a task otherwise.

When we had all agreed on a final version, we proceeded to a mock-up model, usually of wood. Then Cenco's engineering and drafting departments extended the common features of each sample to the other items in its group.

We found that four bases, varying only in size, would accommodate 98 per cent of the Cenco products that had been mounted on various rectangular foundations of wood or cast metal or formed sheet metal. This unification served a double purpose; in addition to establishing a family resemblance, it warranted mold costs for zinc die casting, resulting in savings in fabrication and inventory. (Until existing inventories of bases were used up, the new bases were produced by sand casting.) Similarly, all the instrument cases were enclosed in a simple wrap-around steel case which permitted assembly entirely from the rear, at a considerable savings in cost. We replaced the Bakelite instrument panel with sheet metal as another economy move—made possible because the components available today are better insulated for mounting on any material. We also specified a type face and location for these panels, which were in future to be silk-screened. Next we standardized the knobs and controls and redesigned the nameplate.

Perhaps the most important of our standardizing techniques was color. In some cases, as in the Bunsen burner, no physical improvement was necessary, and color alone tied it in with the rest of the line. Although black had been the dominant color in the old line, it had been relieved with splashes of orange, red, yellow, green, or whatever else may have struck the original inventor's fancy. We decided not to eliminate black entirely, because certain pieces, particularly optical equipment, require it. But basically, the color combination was to be slate blue and beige, with Naples orange used as an accent color on nameplates and on the moving parts that demonstrated a function. The blue appeared on instrument panels, where it formed a good contrast for the white silk-screened lettering.

Our biggest problem was caused by the existing inventories, and often our new designs had to wait until stockpiles of parts had been used up. For example, the "kitchen-drawer" handles on the instrument cases shown here are only now about to be replaced with redesigned handles more related to our design intentions. This meant it was difficult to control details after the lapse of time between design approval and eventual production. Another problem lay in demonstrating to management that no individual item could bear the cost on its own. An item which was produced in quantities of only 25 a year required as much design study as those in wider demand, and both design studies were necessary.

In spite of these problems, in three months, by an accumulation of small changes, we achieved a significantly new look for Cenco. Of the 100 products we considered, 30 were redesigned in detail, the others were modified in small but important (we think) ways, and we had, with Cenco, laid the foundation for a design program which is continuing today. END

PACKAGING *Industrial container and consumer graphics*

CONTOURED PAINT PAIL

U. S. Steel's tapered pail for industrial packaging comes as something of a shock because it is such an obvious improvement over its predecessors and because the improvement is so obviously simple.

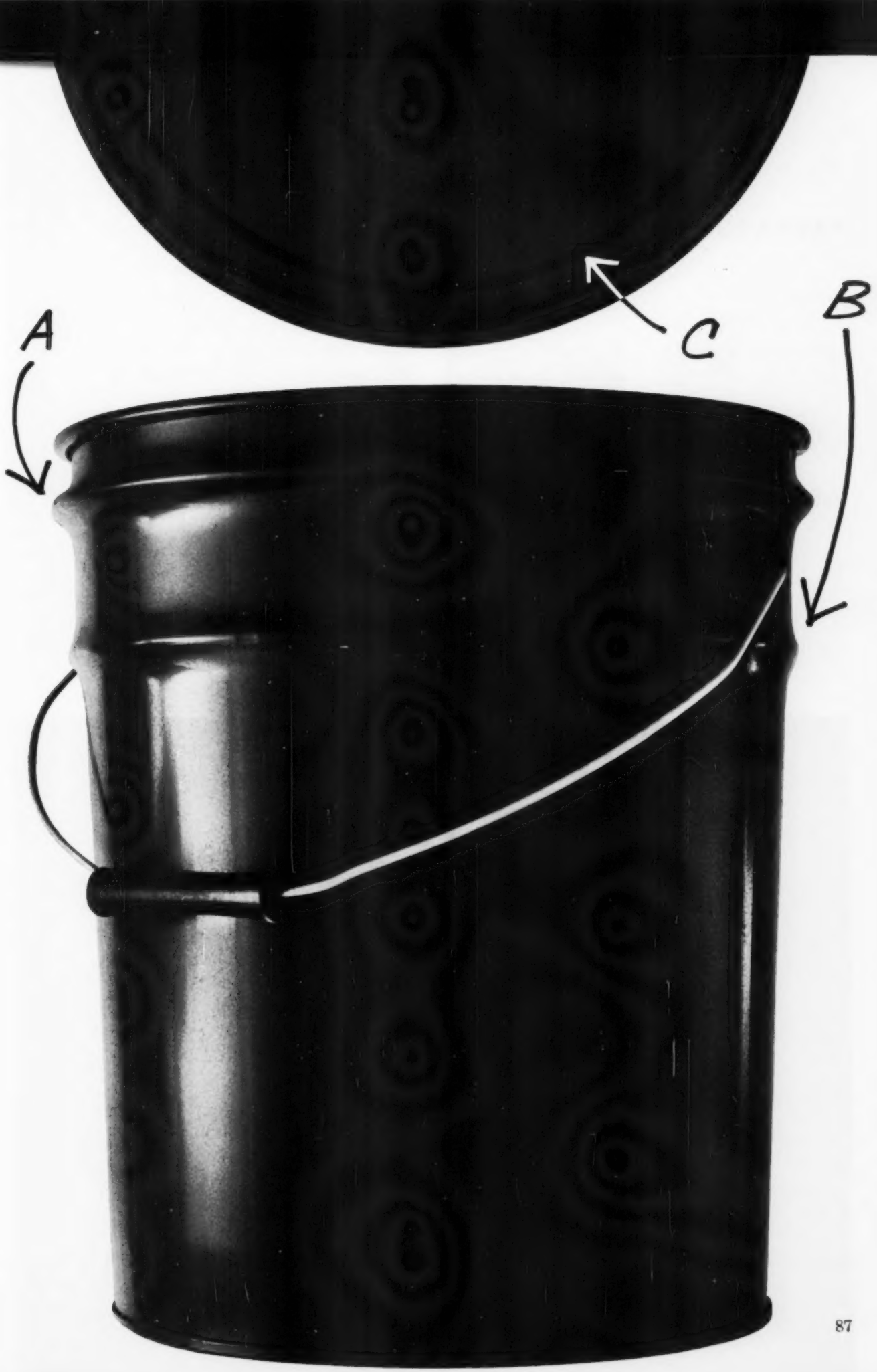
The pail's distinctive characteristics are a tapered shape, which gives it its name (U.S.S. Taperite), and an embossed indentation on the cover. Both taper and embossing make the pail a more efficient and economical container. The shape allows empty pails to be nested, trimming storage space requirements by two thirds; the cover indentation allows the bottom of one filled pail to fit snugly into the top of the one beneath it. Furthermore the design permits interchangeable nesting or stacking of pails in three different capacities—five, six, and six and a half gallons—by retaining identical measurements for covers and outside bottom diameters.

In addition to its obvious space-saving advantages, the pail is expected to reduce handling costs considerably, since more units can be moved about at the same time. Also, it is expected to be safer to handle and store, because the danger of toppling stacks is considerably lessened by nesting.

Other design details that contribute to its efficiency are a standard-size top opening which makes it possible to use existing tools for clamping on the cover; and two bumper edges at the top and bottom of the tapered cuff which add strength and also prevent the nested pails from damaging each other in shipment. The bumpers keep the pails from rubbing against each other, and the cuff itself lifts the bottoms of the nested pails slightly away from each other.—*R. B.*

Design details of the Taperite pail shown at right include two bumper rims (A and B) which add strength and prevent pails from sticking together or damaging linings while they are stacked empty. The cover embossment (C) permits filled pails to be stacked with less danger of toppling.

Empty Taperite pails are contrasted with conventional ones (left) to show space savings—the new design permits storage of the same number of pails in one third the space.


A
B
C

PACKAGING POTPOURRI

Packaging — to borrow the movie slogan — is better than ever, at least in terms of surface design. But while the design standard inches upward, few of the handsome packages shown here capture interest either for use of new materials or for constructions. Surprisingly, an exception comes from an office associated mainly with graphic design: Chermayeff & Geismar's tricky pyramid package wins attention by shape alone. And Scherr & McDermott's hexagonal Oasis package makes a marketplace reality of a shape Morton Goldsholl used last year in his non-commercial A'ccent package. This year for Bauer & Black's elastic goods packages, he uses semi-trapezoidal shapes for product recognition. Metallic ink appears on both the Rheingold can and the Columbia tape package, but otherwise there are few experiments with new printing techniques. As everyone agrees, good packaging means a real marriage between handsome surface design and imaginative structure. Will it take a shotgun to bring them together?—*A.F.*

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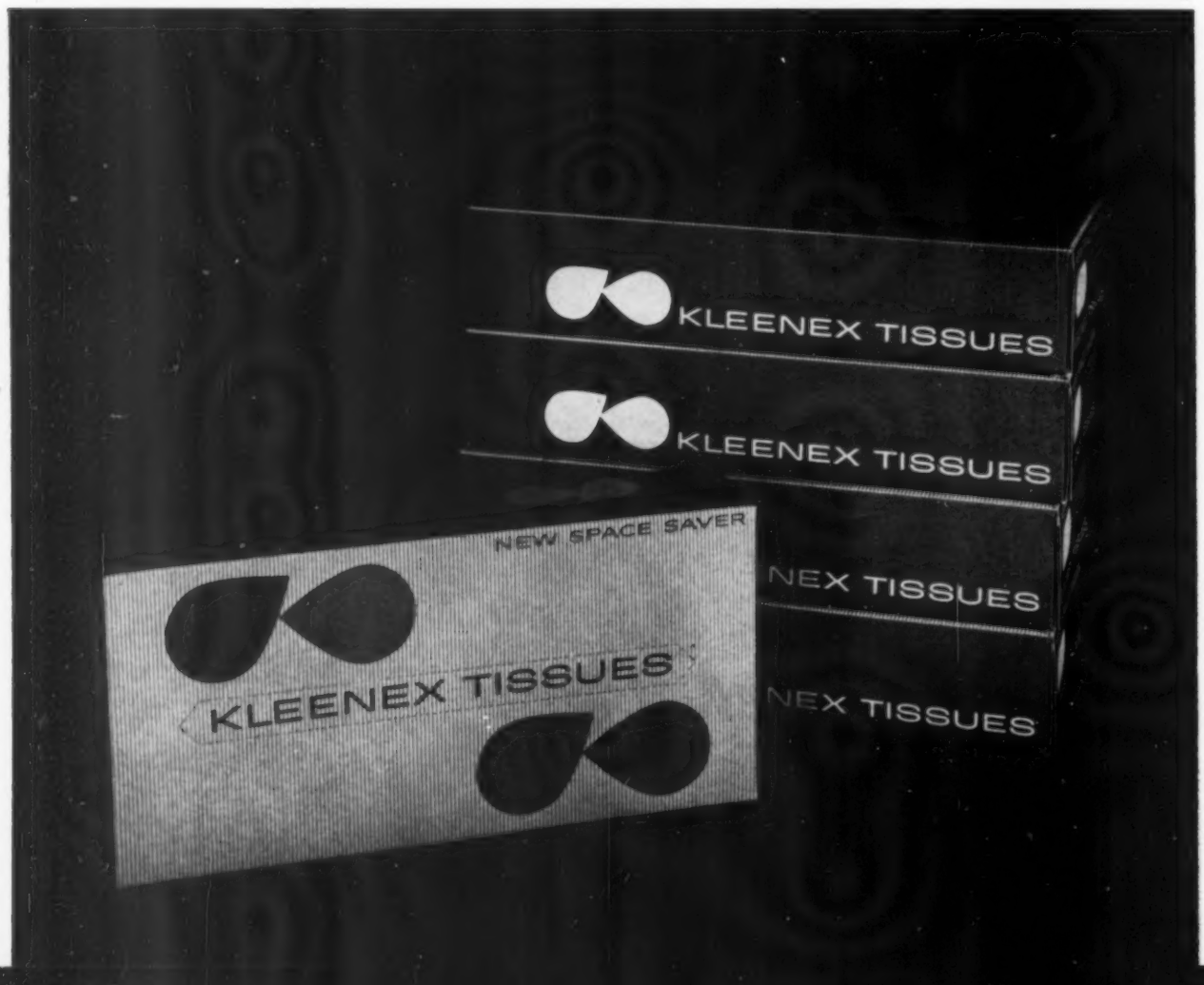

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1—*Kimberly-Clark* uses special mechanism to pack 400 tissues in box half of former size. New "K" symbol, color coding. *Morton Goldsholl Design Associates.*

2—*Ocean Spray* cranberry package shows stylized cranberry roll. Red, white with blue logotype. *Donald Deskey Associates.*

3—*Mennen's* Lather Shave package comes in complementary shades of green and blue against white. Includes Mennen "M," new corporate symbol. *Francis Blod Design Associates.*

4—*Bauer & Black* elastic goods packages have 45 degree tops, sliding sleeve trays, bright color range, strong silhouette, and new corporate logo. *Morton Goldsholl Design Associates.*

5—*Sapporo* beer can with bi-lingual type looks Western to Eastern purchasers and Oriental to Western purchasers. Reads correctly standing on either end. Red star has been Sapporo trademark since 1876. *Walter Landor & Associates.*

6—*Rheingold* bock beer can in red, gold and white carries stylized glass, minimum type. *Frank Gianninoto & Associates.*

7—*Sapporo* Ribbon Concentrate Juice, popular Japanese gift item, comes in appropriate orange, green, purple, and yellow gift package. *Walter Landor & Associates.*

7

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4

1—*Oasis* flower holder carton's hexagonal shape is emphasized by big stripes, simple type design. *Scherr & McDermott, Inc.*

2—*Teweles* lawn seed package shows stylized grass blades in contrasting shades of green. *Waldheim-Koepke Associates.*

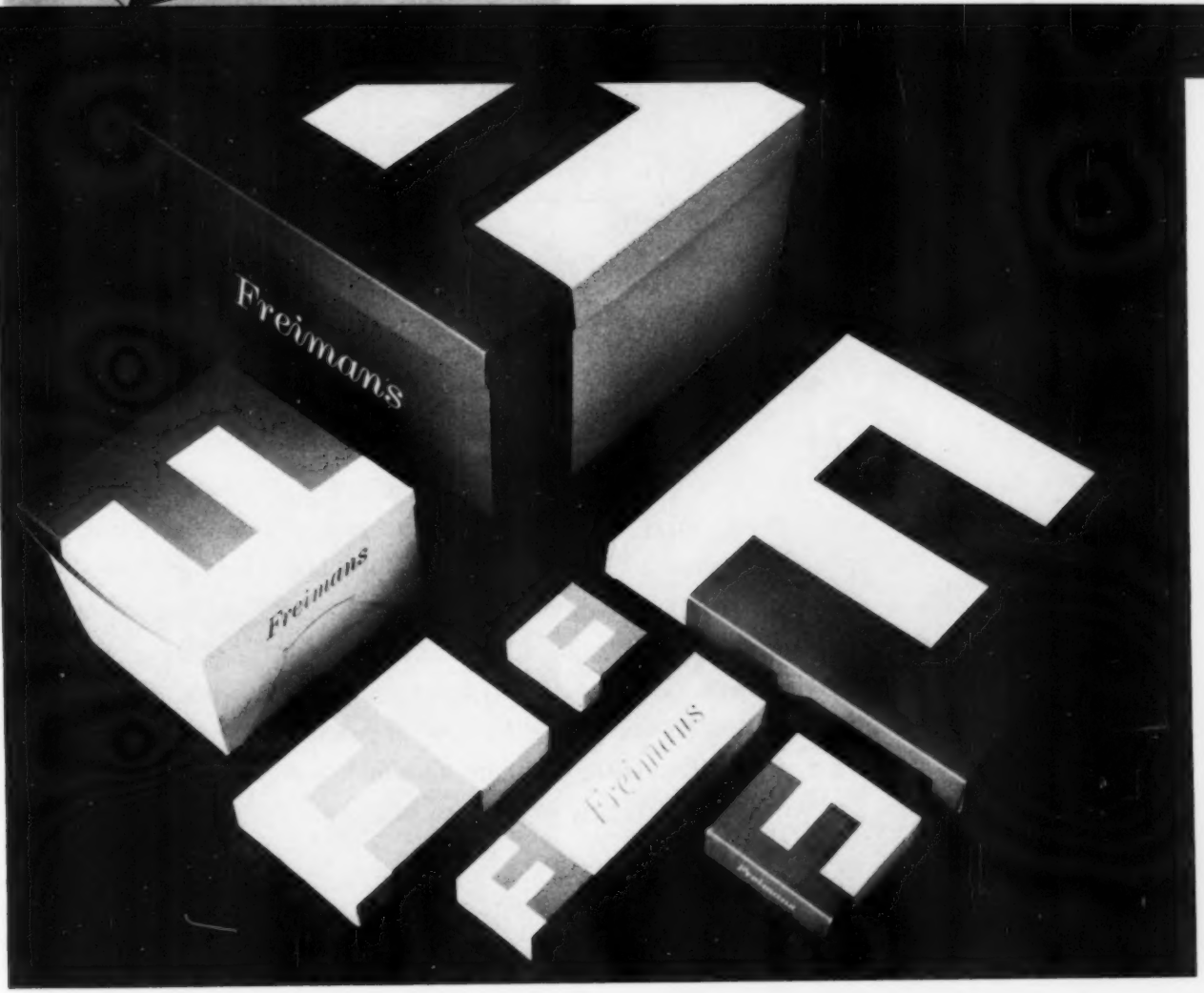
3—*Columbia* magnetic tape package features stylized reel. Four types of tape are distinguished by purple, yellow, blue or red package. *James Nott. Creative director, Robert Cato.*

4—*Dashew Business Machine* printing fluid bottle makes bold impression with design elements simplified to the bare title of the product. *Porter & Goodman Design Associates.*

5—*Freiman* department store packaging carries big "F" which can be read positively or negatively. Color changes from red to green, blue or brown according to season. *I. M. Pei Assoc.*

6—*Poly Rods* pyramid box carries photo of different-aged child on each of its red, green or blue sides. Shape suggests unusual display possibilities. *David Enock: Chermayeff & Geismar. Construction, Don Gellert: Modular Fabrications.*

7—*Healthways* hand exerciser appears dramatically on its package in a combination photograph and line drawing. Red and black. *Porter & Goodman Design Associates.*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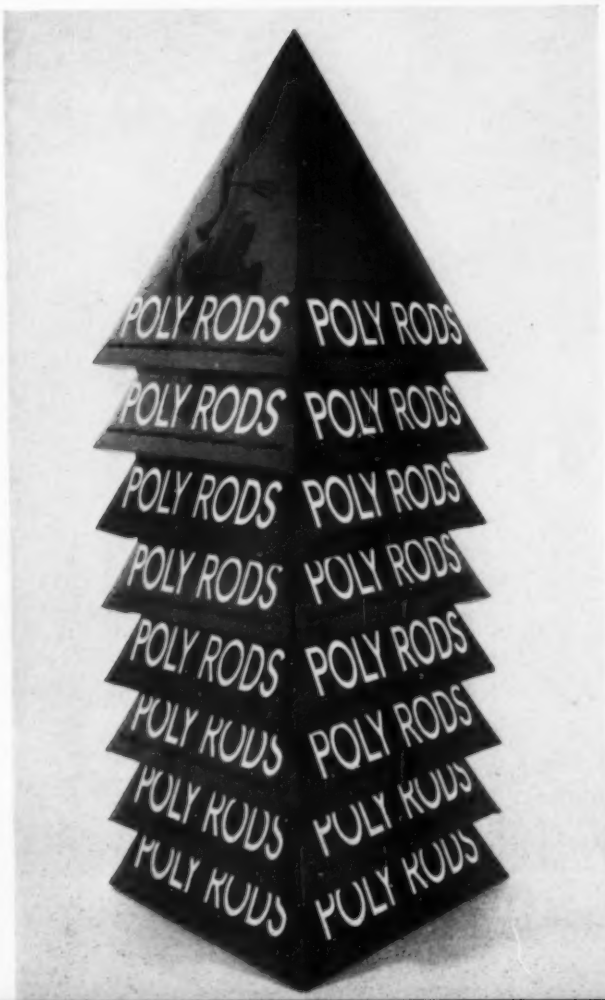
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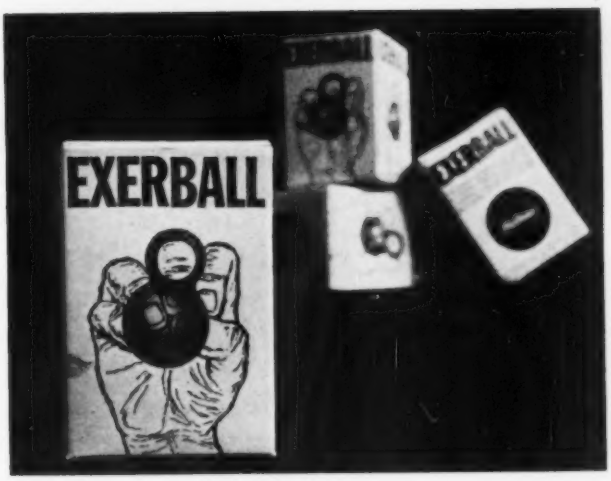
EXERBALL
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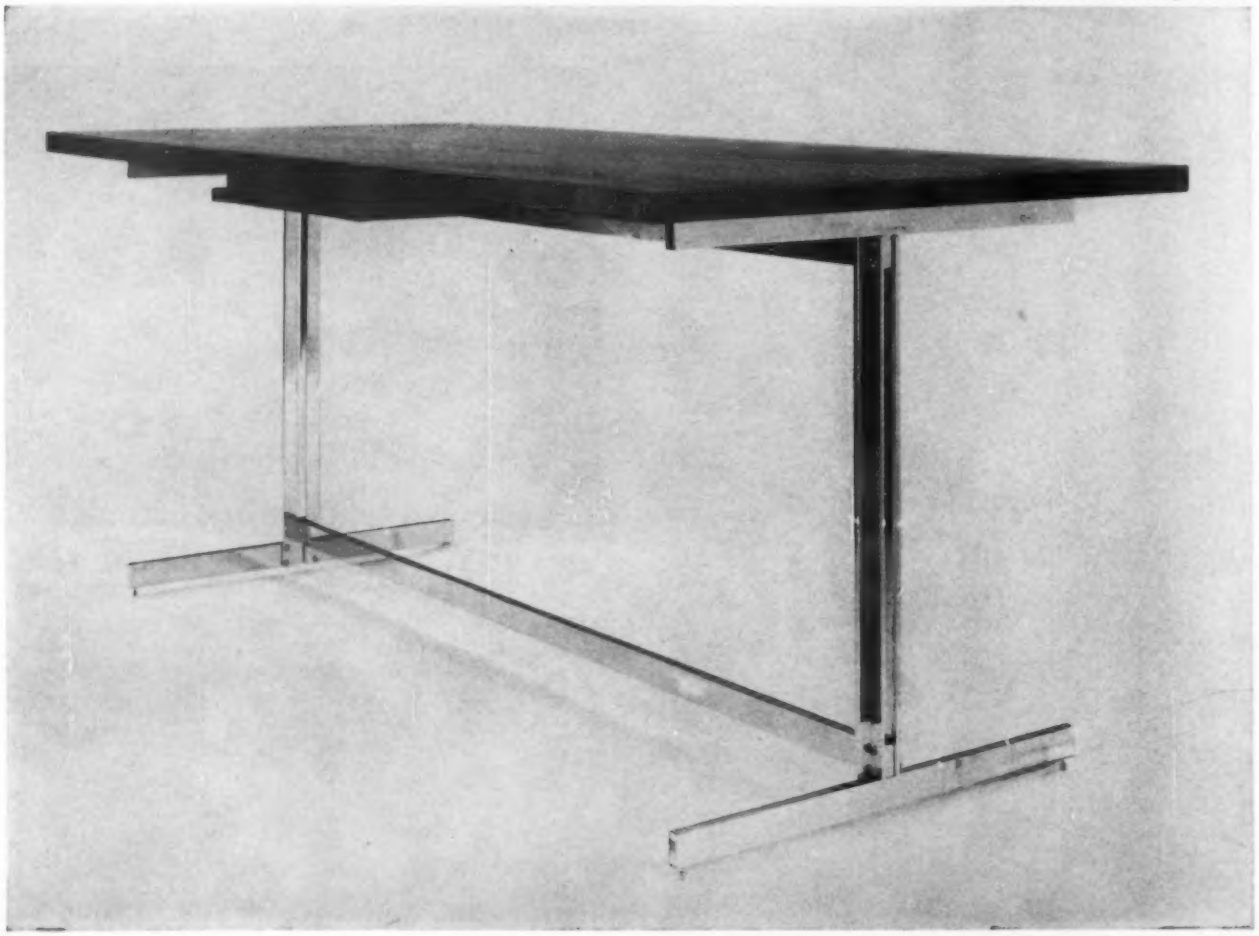
7

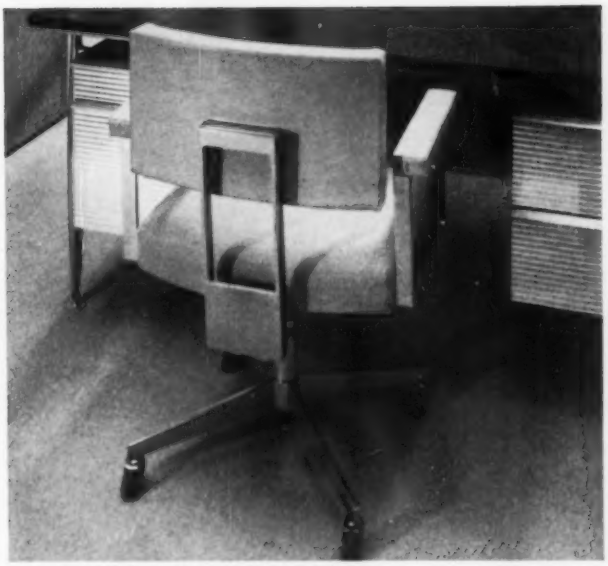
DESIGN REVIEW *Furniture and lighting*

Whether in desperation or plain boredom, designers of current furniture and lighting seesaw wildly from bizarre (Verner Panton's cone chair) to old-line Bauhaus austerity (Harry Gitlin's wall lights). Designers for office furniture face a tough, long-standing problem: how to design equipment for minimum space. Unfortunately, this year's squared-off solutions are hard to distinguish from last year's. Where are the experiments with new forms and new materials? By contrast, designers for home furniture have introduced at least some interesting refinements. For example, electro-luminescent paneling, which has been available for several years, now comes in a far more attractive and usable yellow tone in addition to the standard spookhouse green. Other designs this season, though handsome, reflect the disturbingly high price of simple design — for example, Herman Miller's new vanity unit.

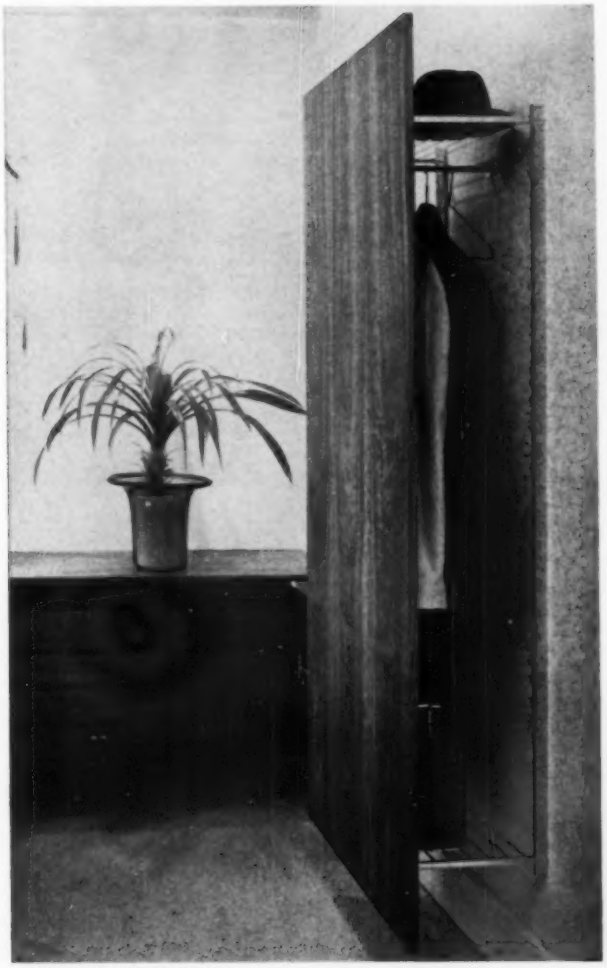
1—Executive table, Hugh Acton



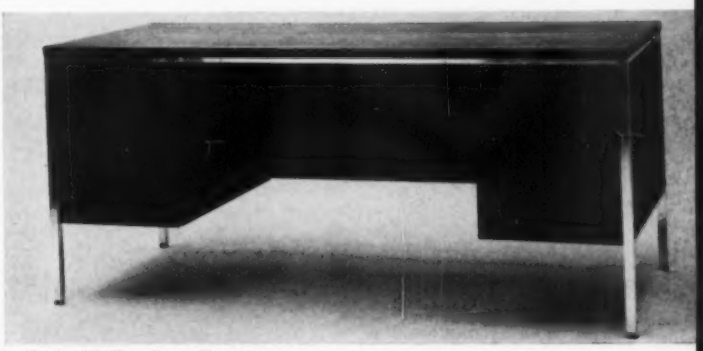
2—Office chair, Art Metal



3—Executive chair, General Fireproofing



4—Wardrobe, Hugh Acton



5—Desk, JG Furniture Company

Office furniture

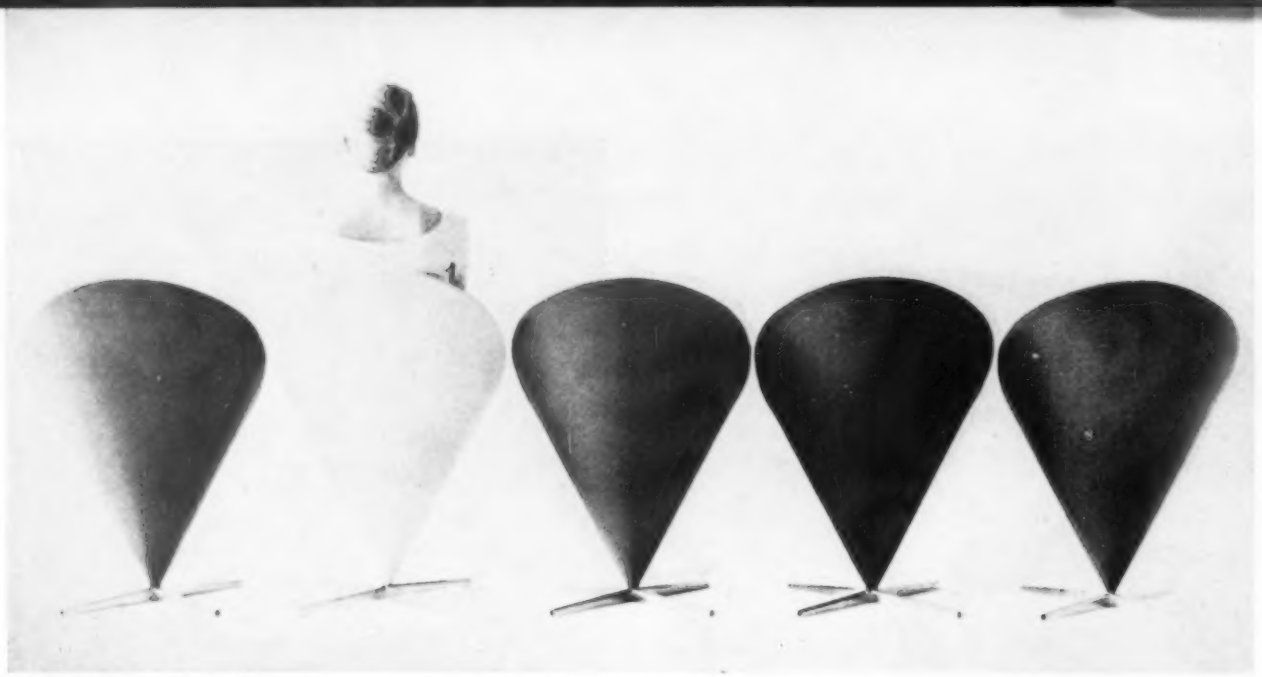
1—Hugh Acton executive table comes in plastic-impregnated or oil-finished walnut with mirror-finished chrome steel base. Pearls on base sink through carpet pile, leave no spots.
Designer: Hugh Acton

2—Art Metal twists chrome-plated steel frame of its office chair into a perilous paper clip form. Cast aluminum seat pan conceals tilt mechanism. Polyurethane cushions.
Designer: Knoll Planning Unit

3—General Fireproofing Goodform 600 executive chair is adjustable in height, depth, pitch of seat, and angle between seat and back. Adjustability is common to office chairs, but here the mechanism for it appears less cluttered than in many examples.
Designer: William Harris

4—Hugh Acton wall-mounted walnut wardrobe provides a simple, good-looking answer to the problem of storing coats in a closetless office. Mounting bar allows easy attachment to any wall surface.
Designer: Hugh Acton

5—JG Furniture oil-finished walnut desk has a sparely simple form, emphasized only by an aluminum frame. Mechanical joints require neither screws nor welding; leave unblemished surface.
Designer: Skidmore, Owings & Merrill



1—Cone chair, George Tanier

2—Dining chair, Troy
3—Corporate chair, Taylor

Home furniture

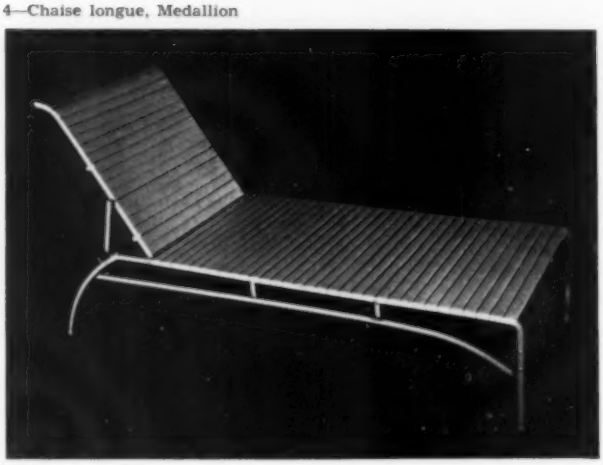
1—George Tanier revolving cone chair comes in foam rubber upholstered with Danish fabric. Lock device on stainless steel foot holds chair in fixed position. As the figure in the photo indicates, one can also sit in this chair.
Designer: Verner Panton

2—Troy jade green dining chair uses fiberglass for both structural frame and webbing. Chairs stack compactly. Also comes as lounge chair.
Designer: H. V. Thaden

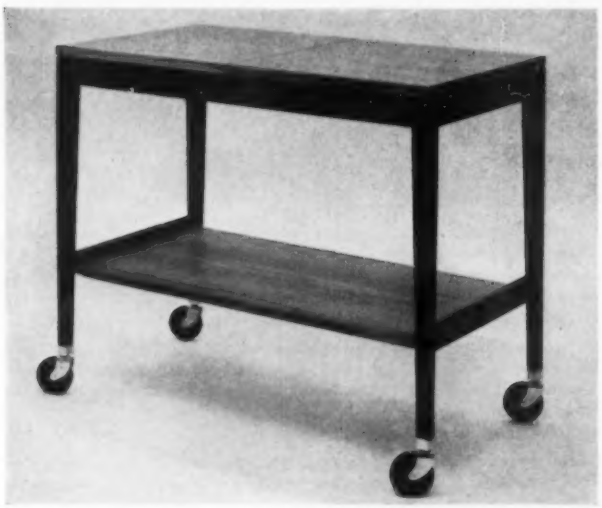
3—Taylor corporate chair features steam bent arms of walnut set on H-frame of satin or mirror finished metal. All horizontal rails in walnut. Comes in leather or fabric over foam rubber.
Designer: Leon Gordon Miller

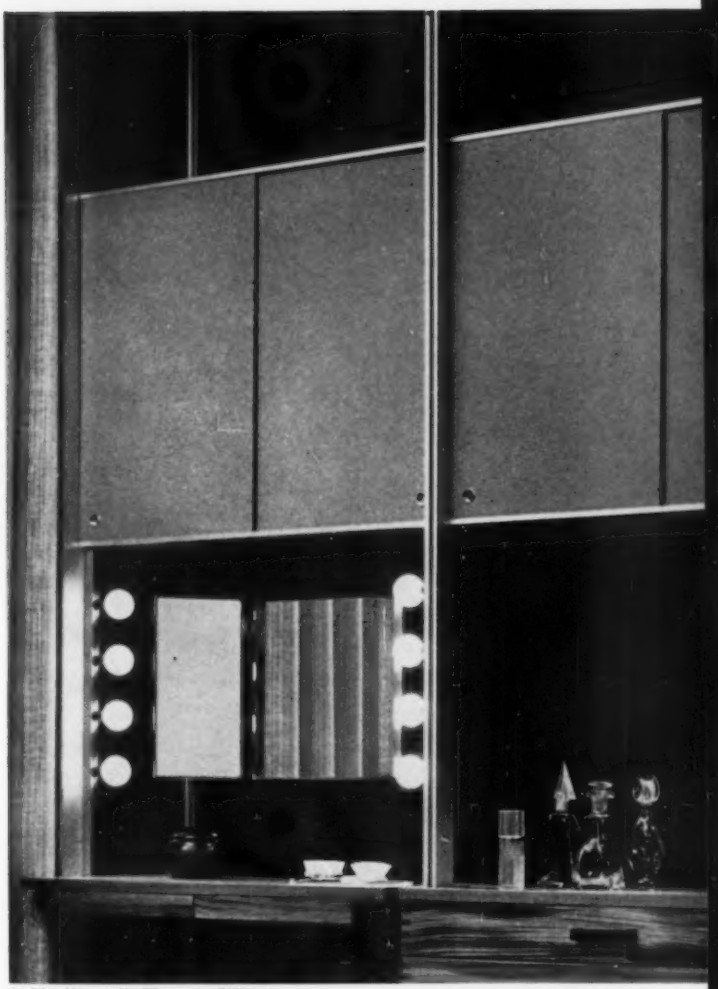
4—Medallion vinyl-wrapped, aluminum-framed, adjustable chaise longue may be rejuvenated after several seasons by re-wrapping it with new tape. Comes in seven colors.
Designer: Ken Schwartz

4—Chaise longue, Medallion



5/6—Serving cart, Herman Miller



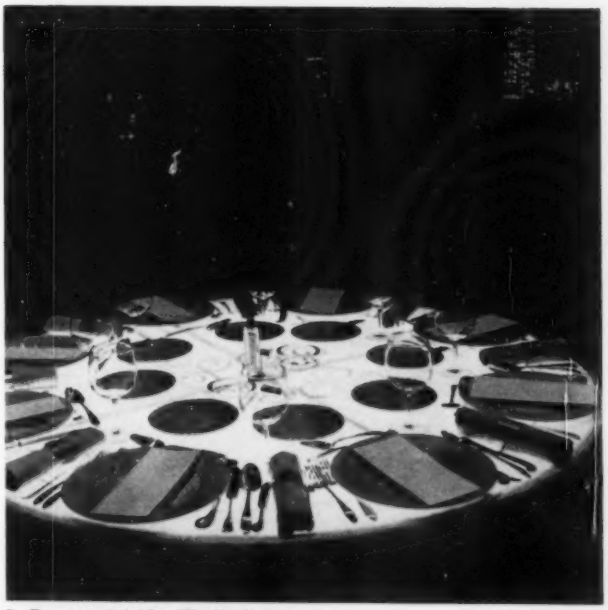


7—Vanity unit, Herman Miller

5/6—Herman Miller serving cart has a sliding top over a radiant glass electric food warmer. White melamine plastic lines the storage drawer. Combination of oiled teak with ebonized frame is characteristic of this new "Black Frame" line.
Designer: George Nelson & Company

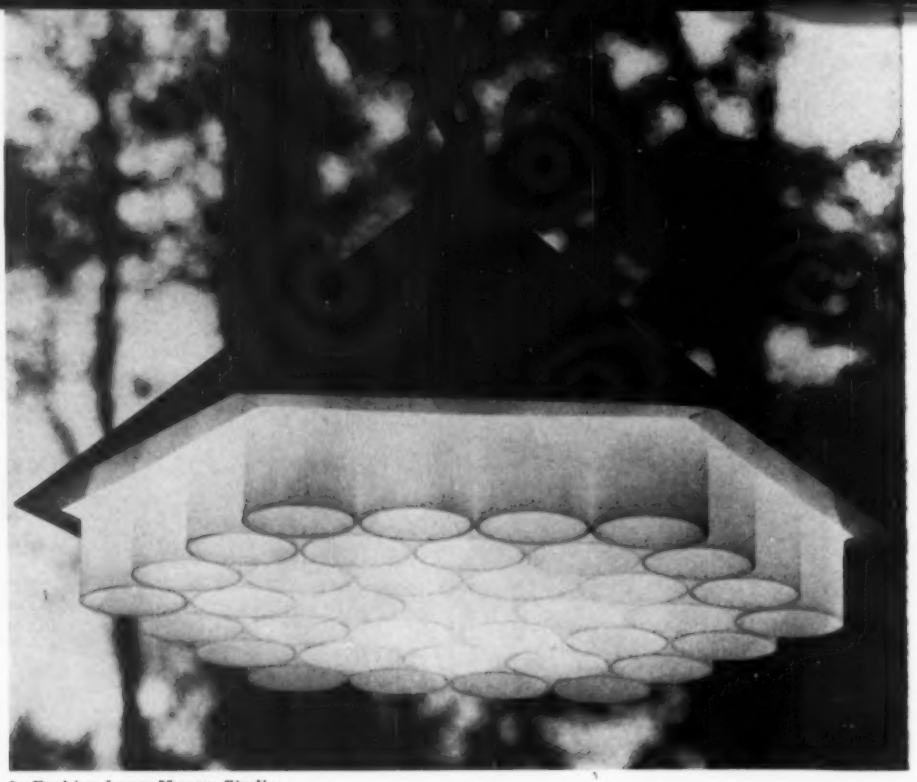
7—Herman Miller Comprehensive Storage System now includes a vanity unit illuminated with naked, low-watt bulbs, much like the traditional backstage dressing table. But those wanting to indulge a theatrical taste will pay for it—Miller light strips alone list at $70 a pair.
Designer: George Nelson & Company

8—Westinghouse Rayescent table, shown at the George Nelson-designed Tower Suite in New York, is one of the new applications for electro-luminescent light. When the current goes on, phosphor-coated glass panels glow but produce virtually no heat. The tone of light is a warm yellow rather than the eerie green usually associated with this kind of illumination.
Designer: Philip Dietz, Mgr., Westinghouse Rayescent Products Dept.

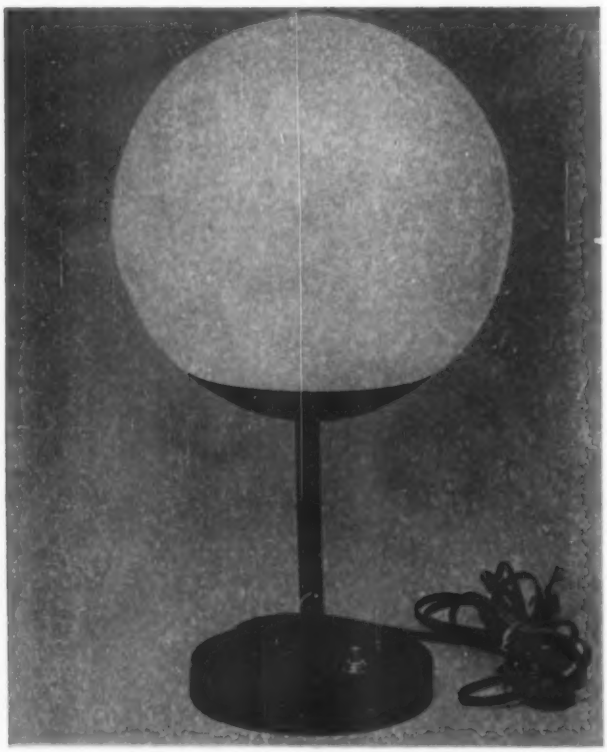


8—Rayescent table, Westinghouse

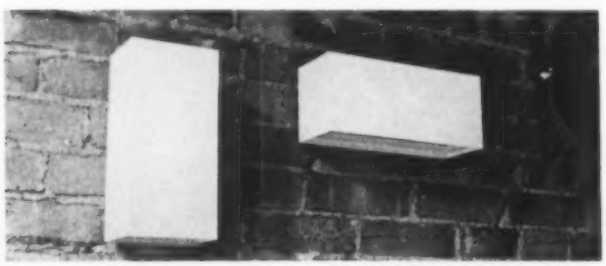
1—Torch, Nessen Studio



2—Beehive lamp, Nessen Studio



3—Occasional lamp, Harry Gitlin



4—Wall lights, Harry Gitlin

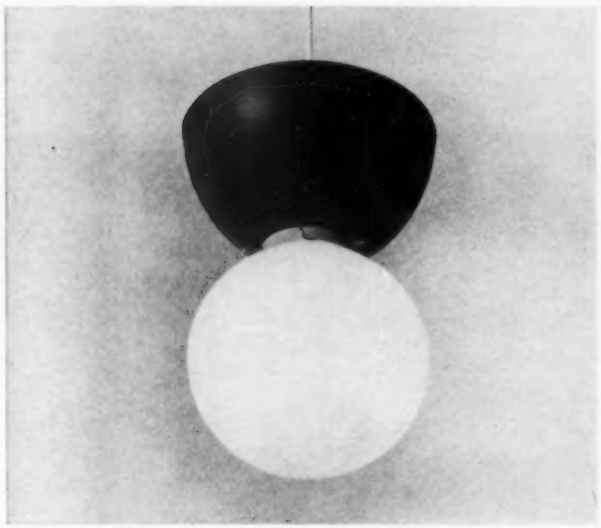
Lighting

1—Nessen Studio torch provides soft, general illumination through white opal glass cylinder. Top is covered with rust resistant lead-coated steel disk. Post may be buried, as here, or used free standing on weighted base either inside or out-of-doors.
Designer: George Nelson & Company

2—Nessen Studio hanging beehive hexagonal hood holds translucent white acrylic cylinders. This bronze finished outdoor lamp is weather-proofed and harmonizes with colors and textures of trees, stone and other natural materials.
Designer: George Nelson & Company

3—Harry Gitlin occasional lamp comes on black or white lacquered spun aluminum base. Eight-inch diameter globe takes maximum of 75-watt bulb for soft, overall lighting.
Designer: Harry Gitlin

4—Harry Gitlin horizontal (11½ by 4 inch) and vertical (10½ by 5 inch) wall lights come in black or white sheet steel. To clearly define shape and decrease sense of bulk, each lamp sits a half-inch away from wall.
Designer: Harry Gitlin



5—Hanging fixture, Habitat

6—Hanging fixture, Raymor

7—Hanging spheres, Salem (right)

5—Habitat Duo-Form fixture combines two geometrical shapes—a metal hemisphere above a sphere of hand-blown white opal glass. The hemisphere conceals three reflector bulbs mounted on swivel bases; the glass sphere casts a diffused but direct downward light. Hemisphere comes in white, red, blue, yellow, sprayed brass, aluminum. *Designer: Paul Mayen*

6—Raymor adjustable ceiling fixture combines Danish white or polished brass fittings with Swedish glass. Glass comes in either smoke or orange over white opal. Color shows through when lamp is lit. *Designer: Raymor Design Studio*

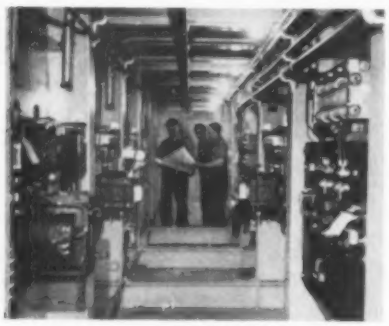
7—Salem lights are crystal spheres in 8, 12, 14 or 16-inch diameters suspended from cord or steel stems. Lamps are available with one, two or three sockets. Bulbs may be replaced by unscrewing the steel canopy at top of globe. Lamp also comes as a flush ceiling fixture. *Designer: Robert Salem*

TECHNICS *new products, materials, processes and finishes*

Inside job

Interior of overhead crane's main girder is a walk-in passageway for maintenance crews, greatly reducing costs and increasing safety

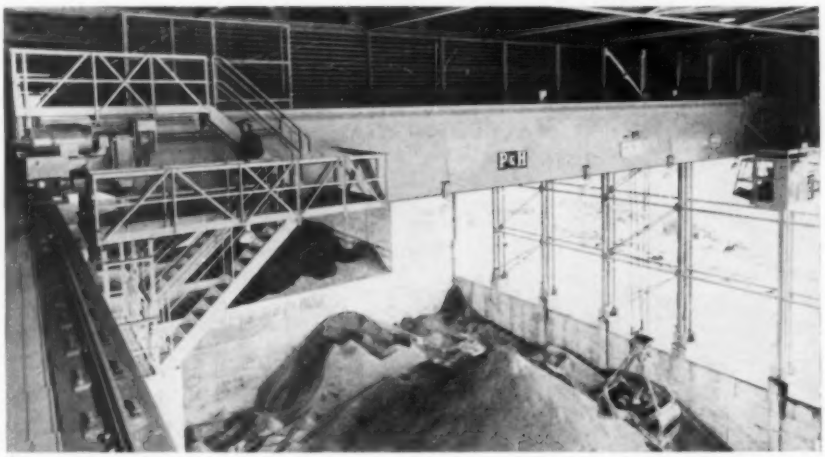
Overhead traveling cranes, used in large plants and foundries to carry materials through the air from one spot to another, conventionally rely on a pair of giant overhead girders that run the length of the plant, and a heavy-duty hoist that travels along them. To inspect the girders, which are about 80 feet above floor-level and completely exposed, is a dangerous and expensive job. Also, their electronic and power components are often subjected to high concentrations of abrasive dust or other corrosive material in the plant atmosphere.



Interior of traveling crane

These problems have been solved by converting the main girder into a walled-in corridor where maintenance crews can work with convenience and safety, and where strategic electronic and power components can be located. The corridor is pressurized like an airplane's interior to prevent dust seepage from the outside and protect against excessive internal heat accumulation. To ease the handling of any heavy equipment within the girder, a small hoist runs along the ceiling for its entire 120-foot length.

The new crane's control system was also simplified so that the operator, who sits in a "bubble" chamber suspended beneath the main walk-in girder, can run the equipment with only two manual controls instead of the conventional four. The system costs less than conventional systems, and is said to require 75 per cent less maintenance, and yet have double the production capacity over an extended period of time. *Manufacturer: Harnischfeger Corporation, Milwaukee, Wis.*



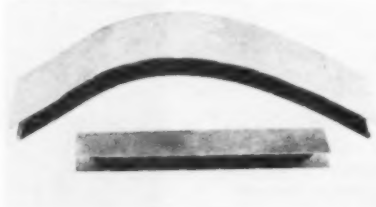
Crane from the outside

Inexpensive sandwich panels

New process produces corrugated-core sandwich panels more simply and cheaply than standard methods

A method of producing corrugated-core sandwich panels has been developed that requires no jigging, provides completely sound core-to-cover bonds, and allows the panels to be extensively formed after assembly. The panels have the all-round rigidity of honeycomb sandwiches, and are simpler and much less costly to manufacture. They can be formed into a wide variety of shapes, including hemispheres, without buckling the core, and with standard tooling. Size of the panels is limited only by rolling-mill capacity.

To form the corrugated core, an accordion-pleated sheet of metal is woven over and under V-shaped inserts of a chemically soluble, deformation-resistant metal such as copper or iron. A rectangular metal frame is placed around the core, and the face sheets of the sandwich are added. The entire assembly is then clamped in place by two additional metal cover sheets, which are welded to the rectangular frame. The whole package is then hot-rolled (a method of reducing the thickness by rolling between two hot cylindrical dies) in a direction parallel to the corrugations. The rolling reduces the thickness of the panel up to 60 per cent to provide the desired corrugation shapes. After rolling, the retaining frame is sawed or sheared off, and the metal covers, which were welded to the frame, are peeled away. With the support wedges still in place, the sandwich panel is formed into the desired shape and the V-shaped inserts leached out of the formed structure with a chemical acid, yielding the sandwich structure. *Manufacturer: Battelle Memorial Institute, Columbus, Ohio; research sponsored by Douglas Aircraft Company.*



Cheap sandwich panel

Polyethylene tape

Adhesive-backed polyethylene tape is stretchable, resistant to chemicals over wide temperature range

A new adhesive-backed polyethylene tape, potentially similar in application to cellophane tape, stretches and conforms to surface variations and contours and is extremely resistant to water and chemicals. It also performs effectively through a temperature range of minus 50 degrees to plus 225 degrees F. In addition to ordinary household and commercial applications commonly associated with cellophane tape, the new tape is particularly recommended by the manufacturer for freezer packaging, closure and sealing of plastic covers, liners, drums, bags, and tarpaulins, waterproof coating or sealing, corrosion protection of piping, and sealing seams in concrete forms.

The tape is supplied with an easy-release backing paper to simplify handling and application, especially in pre-cut strips or patches. Prices start at 79¢ per 100 foot roll in a one-inch width. *Manufacturer: Fasson Products, Painesville, Ohio.*

Natural cork surfacing

Coating cork with clear vinyl for protection provides new decorative material for furniture

Natural cork in eight surface patterns is now available to the furniture industry for use as desk coverings and in

Vinyl-covered cork desks

other decorative areas. Protected by a vinyl coating the material is said to be impervious to stains from water, alcohol, and fruit juices. It is available in 28 by 50 inch sheets, one-eighth inch thick. *Manufacturer: Armstrong Cork Company, Lancaster, Pa.*

Improved galvanized steel

Spangle-free, zinc-coated sheet is easier to paint and weld, and is corrosion resistant

A spangle-free galvanized sheet steel has been developed that is said to take paint better and form a better weld, without loss of the corrosion resistance of the standard galvanized product. Wide applications are forecast for the new material, designated Zincgrip A, Paintgrip, in the automative, appliance, architectural, and construction markets.

Currently, paintable galvanized steel does not satisfy paint finish requirements because the spangle marks often show through. The solution has been to use a lighter weight zinc coating but this reduced corrosion resistance. Zincgrip A, Paintgrip is said to eliminate this problem. The new material is also more easily spot welded, a difficulty with conventional galvanized sheet which has caused many manufacturers to avoid its use. It is available with a 1.25 ounce coating in coils and cut lengths, in gages 16 through 24 and widths up to 36 or 48 inches. *Manufacturer: Armco Steel Corporation, Middletown, Ohio.*

High temperature material

New material exhibits higher bend strength, higher insulation value than any other

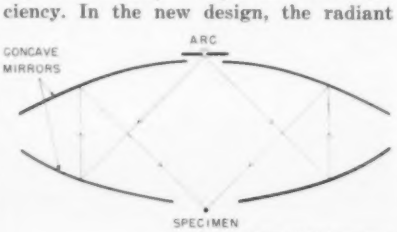
Reductions in size and weight of components are made possible with a new high temperature material which has a 70 per cent greater strength than pyrolytic graphite, a material previously used in high temperature applications. Known as Boron Pyralloy, the material has demonstrated the highest bend strength of any known material at temperatures above 1800 degrees C. Its room temperature bend strength of 37,000 psi compares favorably with many aluminum alloys. The material is also capable of providing a 4000 degree F. temperature drop across only 1/20 inch of thickness. Over five feet of normal graphite would be required for this same effect. *Manufacturer: High Temperature Materials, Inc., Boston, Mass.*

High intensity furnace

"Clam shell" furnace uses mirrors to develop ultra-high temperatures needed to grow crystals

Rubies, sapphires, and silicon carbide crystals needed for advanced electronic devices are now being grown in a new, multi-purpose, high-intensity furnace that uses two opposing concave mirrors to capture radiant energy from an electric arc and focus it into an area one-half inch in diameter, creating temperatures in excess of 6700 degrees F.

Although furnaces using optically concentrated heat have been available since 1957, the "clam shell" design is said to represent a major improvement in efficiency. In the new design, the radiant energy source and the specimen to be heated are both located outside the reflecting system, thus substantially reducing shadows, and loss of heat concentration. Radiation enters the clam shell reflecting chamber through a circular opening in the back of one of the mirrors and converges on a specimen outside an opening in the back of the second mirror.



Clam shell furnace

In addition to crystal growing, the furnace could be used in refining, chemical processing, and in welding materials in any desirable atmosphere (or vacuum) free from contamination. *Manufacturer: Arthur D. Little, Inc., Cambridge, Mass.*

Telemetering

Unit provides constant check on remote conditions to assure proper overall system operation

A transistorized, high-speed telemetering system has been developed for use in the oil industry to provide a constant check on operating conditions such as storage tank levels, pipe line flow rates, and oil temperature. The system can

Telemetering control unit

serve up to 1200 check points. If a malfunction occurs in any of them, it is designed to flash an alarm and to operate whatever valves, switches or other devices are required to control the situation. The unit was designed by Mulholland and Associates of Burlingame, California. *Manufacturer: Shand & Jurs Company, Berkeley, Calif.*

Midget motor

Charged particles provide thrust in thumb-sized motor to maneuver space satellites

A tiny motor, the size of a human thumb and resembling a miniature crater, is undergoing tests to determine whether it is suitable for controlling and maneuvering satellites in outer space. The motor derives its power thrust from

jets of plasma—positive ions and electrons in a gaseous state created by bombarding a special metal wire with high voltage electricity. The plasma erupts from the motor's crater in rapid pulses; it is believed that 100 of the miniature motors, occupying only one cubic foot of space, could control and correct the course of a thousand-pound

Tiny motor

satellite. Additional research on the motor is aimed at discovering how various design variables, such as the shape and placement of the metal wire, influence its performance. *Source: Stevens Institute of Technology, Hoboken, N. J.*

Vinyl carpet

Vinyl carpet practical for use both indoors and outdoors, available in many colors

A durable vinyl carpet that bridges the gap between hard and soft floor covering is now on the market. Outdoors, it is being used around swimming pools and in patios and porches because it is resistant to rain and splashing of saline or chlorinated water. The carpet is practical indoors for children's rooms, and other areas subject to rough usage.

The carpet is backed with nylon-reinforced base fabric, and is available in nine sunfast colors in 54 inch widths. The material is weatherproof, vermin and moth proof, mildew and flame resistant. *Manufacturer: U.S. Rubber Company, New York, N. Y.*

Stainless steel foil

Stainless steel foil with adhesive backing used as trim, needs no mechanical fastening

A stainless steel foil with an adhesive backing has been developed for use wherever mechanical fastening of steel strips or panels might create problems, such as kick plates on glass doors, or where use of the foil in combination with other backing materials will prove more economical. Applications include do-it-yourself home uses, decorative trim for commercial buildings, automobiles, boats, signs, panels, furniture, appliances, etc.

The .003-inch stainless can be applied to almost any clean, smooth, dry surface. Initial contact adhesion ranges from 2 to 4 pounds per inch with a build-up in strength of 60 to 75 per cent or more during the first three days. The adhesion is said to be effective from minus 50 to 300 degrees F. The adhesive side of the foil is protected by a silicone paper. The stainless surface can be furnished with protective paper to eliminate scratching or marring during handling and installation. *Manufacturer: Fasson Products, Painesville, Ohio.*

Information storage-retrieval console

Fact finding

Automatic information storage-retrieval system said to offer ultra-fast search rate, low costs

New technical journals are appearing at the rate of two a day, adding to an annual total of more than one million published technical articles. The task of locating specific documents in this blizzard of paper grows harder with each publication. To help solve the mounting problem, a machine has been developed to search microfilm reels automatically at the rate of 6400 pages a minute, making copies of the requested material. The machine, FileSearch, stores 32,000 standard-sized magazine pages on a single microfilm reel. It costs about $100,000, said to be well below the price of any comparable system.

FileSearch consists of two units: the recording system to photograph files of documents along with a coded description of each document's contents; and the information retrieval system to search for and find the needed facts. When found, they are instantaneously projected on a viewing screen. If permanent, usable records on paper are required, the machine can produce an immediate print.

The entire system is integrated into a single console (except for recording camera and indexing machine), measuring 71 by 55 by 50 inches. *Manufacturer: FMA, Inc., El Segundo, Calif.*

Prefabricated wall panels

Entire pre-insulated wall panels do away with studs and spacers; speeds construction, reduces waste

The stressed-skin effect used in design of aircraft wings has been put to work to strengthen a new prefabricated wall panel construction. In contrast to standard wall construction, the new units, trademarked Flex-Ponent, do not require studs and spacers for strength or resistance to deflection. The Flex-Ponent units come in stock sizes and can be cut at the site with conventional tools. They can be used with existing foundation or roof-framing methods, and are said to permit erection of the walls of an average sized house in a single day.

Basically, the prefabricated unit consists of a load-bearing exterior rock wool-insulated wall panel with associated door and window headers and corner posts, and load and non-load bearing interior wall panels with door headers and associated appurtenances. Use of the units permits the builder to erect in one step an entire pre-insulated wall, including the interior and exterior surfaces. Exterior walls may be finished in board and batten style or covered with shingles or masonry, and will take paint or wallpaper.

Once the units are positioned, they are nailed or stapled together, and their interior joints are filled with a special

Building with prefabs

epoxy adhesive, and finished with a coat of conventional spackling compound. Wiring installation is similar to conventional construction; plumbing installation uses a conventional double plumbing wall. *Manufacturer: Johns-Manville, New York, N. Y.*

Do-it-yourself irrigation

Pre-formed steel panels can be assembled into many sizes, shapes for inexpensive irrigation

Extensive field tests are underway on a newly developed all-steel device that will make it possible for farmers to easily install their own irrigation works. The device, which controls and directs the movement of water, is said to be flexible enough for a small garden furrow or a large ditch. It consists of three basic module units, from which various types and sizes of structures can be assembled, and includes all parts of the structure except the check gate itself and the angle frames into which the gate fits. The panels are pre-punched and packaged as a kit, complete with lock nuts and bolts.

Besides ease and speed of installation and assembly, advantages of the unit include: inexpensiveness, resistance to rust and corrosion, light weight, adaptability to most irrigation structural needs (including single or multiple turn-outs for diverting flow), and adjustability for exact control of flow in nearly any size ditch. *Manufacturer: U. S. Steel Company, Pittsburgh, Pa.*

New vinyl finishes

Spray-on vinyl finishes offered in unlimited colors, controllable textures and patterns

A new decorative vinyl finishing system for consumer, architectural, and industrial products has been developed which permits the spraying of vinyl in unlimited color choices and with controllable textures and patterns. The process permits application of the vinyl finishes to products after fabrication, thus yielding savings over other methods which start with pre-laminated or pre-coated sheet metal. Also, inventory problems are simplified since only the actual uncoated metal need be stocked. Different colors and textures are obtained by changing the spray material.

Spray-on textured vinyl

The finishing requires two steps. A wet-film base coat of the desired undertone color is first applied. Then, while the part is still wet, the topcoat is sprayed on in three or four passes. As the topcoat dries, it shrinks and provides the texture—which is a function of the viscosity and wetness of the base and top coats, and is controllable within close limits. *Manufacturer: Metal & Thermit Corporation, Rahway, N. J.*

One-coat enameling

Use of citric acid instead of sulfuric eliminates need for ground coat and allows direct application of enamel

Kitchen ranges, refrigerators, and other household appliances can now acquire their enamel coatings in a fraction of the time formerly required through the development of a one-step porcelainizing process. Known as the Citrobond process, the new system utilizes non-toxic citric acid, familiar in oranges and lemons, for pickling instead of the sulfuric acid commonly used in the conventional two-coat process. Use of citric acid eliminates the need for a ground coat and allows direct application of the cover-coat enamel with a single firing. The sulfuric acid process requires a ground coat and two firings. Bond and finish characteristics of the one-coat enameling are said to equal or surpass the quality obtained from the standard double-coat application. The Citrobond process can also be used for enameling in color. *Manufacturer: Charles Pfizer & Company, New York, N. Y.*

Low-cost trim

Highly decorative pressure-sensitive material available in many styles, colors, at very low cost

A line of low-cost, pressure-sensitive decorative materials has been introduced especially for products where costs must be kept to the minimum. Manufactured from Pyroxylin-coated paper, they are said to cost about 40 to 50 per cent less than high-quality vinyl materials, and about 30 per cent less than Mylar-vinyl pressure-sensitive materials.

The new material has initially been used as an overlay for an electric blanket control unit, and for the control front of a room air conditioner. Other applications include premium give-aways, clock faces, picture frames, book bindings, and waste paper baskets. It can be made to simulate leather, and is available in a variety of colors, styles, and embossing patterns. *Manufacturer: Avery Label Company, New York, N. Y.*

Inexpensive, speedy irrigation

TECHNICS *continued*

Hand-held tv/radar screen

Miniature telescope-shaped screen—viewed by one person at a time—cuts space and cost requirements

A miniature radar or television screen, roughly the shape, size, and weight of a telescope, has been introduced for use in private aircraft and boats where space requirements and equipment costs are critical. The device, which is viewed by one person at a time, is said to be able to operate effectively under bright light conditions that would wash out displays on large open screens. Additional applications include outdoor television requiring a portable screen unaffected by daylight, closed-circuit tv systems for auto-

Hand-held tv screen

mobile traffic control and large construction projects, and three-dimensional displays for medical and biological microscopy.

The essential element of the "private eye" is a seven-inch long cathode ray tube, which plugs into a separate receiver. Viewed through a ten-power magnifying eye piece, the picture is equivalent to a six-inch screen observed from a distance of just under a foot. The complete assembly is 8½ inches long and weighs 20 ounces. *Manufacturer: Westinghouse Electric Company, Electronic Tube Division, Pittsburgh, Pa.*

Time control switch redesigned

Mechanical switching combined with light-sensitive control means the lights go on automatically only when they're wanted

A new time switch combines mechanical switching with sensitivity to light, for automatic on/off light control. The unit is designed to fill the need for the best possible control of entrance lighting, outdoor protective lighting, and industrial lighting. With the new control, lighting comes on automatically, as needed, regardless of the season. It goes off automatically at any pre-set hour when no longer desired. Automatic switch-off means lights do not remain on until dawn as with ordinary photo-electric controls. The new unit will also turn lights on whenever natural light drops to approximately 2 to 4 foot candles. Thus, a dark summer storm at 4 p.m. will cause the light-sensitive switch to respond and turn lights on even though sunset may not be until 7 p.m. or later. *Manufacturer: Tork Time Controls, Inc., Mt. Vernon, N. Y.*

Anodized aluminum trim

Aluminum foil and gage trim now comes in anodized, multi-colored adhesive-backed forms

An aluminum foil and gage trim for product decoration is now being marketed in any combination of colors with the colors permanently anodized into the aluminum. The new trim, which has a pressure-sensitive adhesive backing, is supplied in stock and custom designs in sheet or strip form. The trim may also be embossed, pre-formed, or cut-to-shape. *Manufacturer: Anodyne, Inc., North Miami Beach, Fla.*

New temperature control valve

Valve converts electrical energy directly into hydraulic force for greater efficiency, quicker operation, smaller size

A rarely used phenomenon—the flow of liquid metal—operates a new device for controlling valves on such temperature control equipment as fan coils and radiators, eliminating the need for the many moving parts of conventional motorized valve mechanisms. Electric current induced in the liquid metal forces it to flow from a reservoir against a bellows, which closes the valve stem and thus the valve; turning off the current reverses the flow and opens the valve.

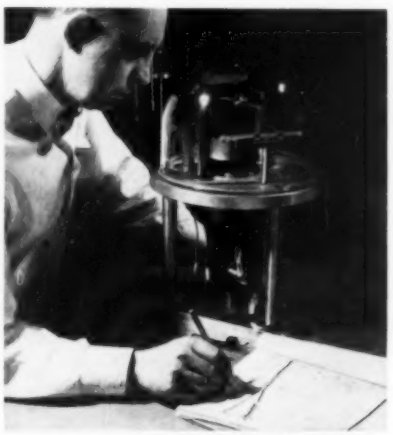
Liquid-metal controlled valve

This promises smoothness, silence, speed, compactness, and exceptionally long life, according to the manufacturer. It permits manufacture of a valve one-third smaller with operating speeds five times faster than conventional motorized valves, enabling heating systems to maintain more precise temperature levels. Other advantages include reduced maintenance, and elimination of periodic lubrication. *Manufacturer: Minneapolis-Honeywell Co., Minneapolis, Minn.*

Testing ball bearings

Simply constructed research tool reduces long, costly testing of critical ball bearings

Until now, the only way to determine the life of a bearing was to go through a lengthy and expensive run-to-failure test of the instrument housing the bearing. However, a recent development, called a ball bearing simulator, is said to reproduce the major characteristics of a ball bearing precisely, simply, and cheaply. The simulator has opened the way to a quick, but comprehensive eval-



Ball bearing tester

uation of the effect of a multitude of lubricants, contaminants, and other materials on the life of bearings. It can duplicate the performance of any high speed, high temperature, low lubricant bearing such as those employed in miniaturized gyroscopes, motors, or computer memory drums for missiles and space vehicles. And additional improvements in the simulator promise its effective use for a much broader range of industrial bearings. Its parts can be manufactured with simple machine tools, and can be assembled or dismantled quickly and easily. *Manufacturer: Sperry Gyroscope Company, Great Neck, N. Y.*

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

Materials—Plastics

Mylar. Coating Products, Inc., 101 West Forest Ave., Englewood, N. J. Sampler presents 33 actual color samples of Du Pont Mylar metallized polyester film, including embossed patterns and specialties like perforated, flocked, and pressure-sensitive-backed laminations.

Silicones. General Electric Company, Silicone Products Dept., Waterford, N. Y. 8 pp. Ill. Catalog CDS-129C describes complete line of silicones and their applications in four categories: fluids, protective coatings, electrical insulation, and rubber.

Corrosion-resistant coating. Pfaudler Company, division of Pfaudler Permutit, Inc., Rochester, N. Y. 4 pp. Ill. Bulletin 1007 describes Pfaudlon 301, a medium-priced, corrosion-resistant plastic coating for metal that is particularly valuable in the chemical process industries for protection against acid spillage and corrosive atmospheres.

Polycarbonates. General Electric Company, Chemical Materials Dept., Pittsfield, Mass. 4 pp. Folder lists sources of supply for Lexan polycarbonate resin in standard fabricated shapes, and also contains a brief description of its properties.

Materials—Metals

Finned tubing. Superior Tube Company, 1712 Germantown Ave., Norristown, Pa. 2 pp. Ill. Data memorandum 30 discusses the advantages of integral finned tubing over finned tubing produced by brazing or welding the fins in place. Advantages are said to include greater strength, constant physical and mechanical properties, and no danger of corrosion between fins and tube wall. So far, the tubing has been used primarily in heat exchangers in nuclear plants.

Expanded metals. Designers Metal Division, Southern Electric Company, 8701 S. Greenwood Ave., Chicago 19, Ill. 34 pp. Ill. Catalog 61 describes and illustrates, in actual size, 38 decorative expanded metal designs, and gives property and size specifications of each.

Methods

Brazing. Air Reduction Company, 150 East 42 St., New York 17, N. Y. 24 pp. Ill. Catalog 925 discusses silver brazing procedures, problems, and solutions. Also described are the new Aircosil silver brazing alloys that incorporate the fluxing agent within the brazing wire.

Materials handling. General Electric Company, Schenectady 5, N. Y. 8 pp. Ill. Bulletin GEA-7130 describes automated materials handling systems, noting the close ties between them and data processing functions. Such systems can be used to identify, dispatch, store, recall, and deliver numerous types of products.

Electronic welding. Hughes Aircraft Company, Vacuum Tube Products Division, 2020 Short St., Oceanside, Calif. Illustrated technical report presents laboratory studies in the electronic welding process and evaluates the weldability of various materials.

Cutting production costs. Machinery Electrification, Inc., 56 Hudson St., Northboro, Mass. 32 pp. Ill. Booklet describes the application of load controls, which are devices that continuously analyze the use of electrical power by a machine or a process in order to increase productivity and protect machinery.

Electroplating processes. Hanson-Van Winkle-Munning Company, Church St., Matawan, N. J. 24 pp. Ill. Bulletin EP-103 describes 19 plating and other metal finishing processes and procedures. Listed for each process are solution preparation, type of deposits, operating conditions, equipment required, and applications.

Automated steel mill. Meissner Engineers, Inc., 300 West Washington, Chicago 6, Ill. 10 pp. Ill. Report outlines proposed automated steel mill system in which raw materials are received, stored, recovered and moved to sintering plant or blast furnace, all automatically.

Components and Machines

Strip heaters. Bryant Electric Company, Box D, Barnum Station, Bridgeport 2, Conn. 12 pp. Ill. Catalog C-300 describes line of general purpose and finned strip heaters suitable for heating ovens, process welding, outdoor control equipment, forced hot air heating, warming tables, radiant heating, and baseboard heating.

Industrial electron tubes. Machlett Laboratories, Inc., a subsidiary of Raytheon Company, Springdale, Conn. 32 pp. Ill. Booklet describes applications and electrical characteristics of industrial electron tubes including triodes, tetrodes, hard-pulse tubes, high-vacuum diodes, mercury vapor diodes, and Vidicon and Image Orthocon television camera tubes.

Floodlights. Crouse-Hinds Company, Syracuse 1, N. Y. 4 pp. Ill. Bulletin 2725 introduces a new quartz-beam floodlight for outdoor locations such as lighting of buildings, signs and billboards, parks and loading docks.

Metal testing machines. Steel City Testing Machines, Inc., 8817 Lyndon Ave., Detroit 38, Mich. 4 pp. Ill. Bulletin G-361 describes a line of machines for testing the physical properties of metals including hardness, ductility, tensile strength, compression, flex, etc.

Retail store automation. Addressograph-Multigraph Corporation, 1200 Babbitt Road, Cleveland 17, Ohio. 10 pp. Ill. Brochure describes a system that permits the retailer to automate his accounts receivable section through the use of a special plastic credit card issued to each charge customer.

FREE LITERATURE *continued*

Electric eyes. Photomation, Inc., 96 South Washington Ave., Bergenfield, N. J. 22 pp. Ill. Bulletin 611 covers all phases of electric eye applications in automation and describes a wide range of diversified photoelectric systems.

Electron tube applications. Sylvania Electric Products, Inc., 1100 Main St., Buffalo 9, N. Y. 58 pp. Ill. Brochure gives a number of rules for electron tube applications.

Soldering iron. Ungar Electric Tools, Division of Eldon Industries, Inc., 1475 E. El Segundo Blvd., Hawthorne, Calif. 8 pp. Ill. Catalog describes the new Imperial soldering iron that uses a double cushion of air, combined with five heat transition surfaces, to keep the polycarbonate handle at a comfortable temperature.

Underlayment nails. Weyerhaeuser Company, Silvatek Division, Box E, Tacoma 1, Wash. Folder contains samples of underlayment nails and describes and illustrates their correct application. They are used to secure the floor underlayment to the subfloor in suspended wood frame floor systems.

Underwater lighting. Stonco Electric Products Company, Kenilworth, N. J. Catalog presents line of cast bronze low-voltage swimming pool lights for use in new or existing concrete, gunite, tile, steel or fiberglass pools.

Product finishing. Conforming Matrix Corporation, 824 New York Ave., Toledo 11, Ohio. 2 pp. Ill. Data sheet describes an automatic organic spray coating machine for rapid, continuous finishing of electrical and electronic components.

Aluminum foils. H. G. Dietz Products Company, 12-16 Astoria Blvd., Long Island City 2, N. Y. Chart presents actual samples of 14 different colors and finishes in which aluminum foil nameplates can be manufactured by the company.

Flexible hose. Resistoflex Corporation, Roseland, N. J. 8 pp. Ill. Bulletin HP-2 describes high pressure aircraft and missile flexible hose assemblies of Fluoroflex-T (Teflon) for pneumatic and hydraulic systems.

Pressure-sensitive tapes. Topflight Corporation, 160 E. 9 St., York, Pa. 12 pp. Ill. Brochure describes various current and potential applications for pressure-sensitive adhesive tapes and labels.

Urethane seals and packings. Disogrin Industries, 510 S. Fulton Ave., Mt. Vernon, N. Y. 8 pp. Ill. Catalog covers the various types, sizes, operating features and advantages of a complete line of solid urethane hydraulic seals and packings.

Switchgear. General Electric Company, Schenectady 5, N. Y. 42 pp. Ill. Bulletin GEA-5664F describes features of Metal-clad switchgear, and discusses basic equipment arrangements.

Fluorescent lamp ballasts. Universal Manufacturing Corporation, 29-51 East 6 St., Peterson 4, N. J. 16 pp. Ill. Handbook catalogs different types of fluorescent lamp ballasts and presents information on their design, construction, and application.

Screens. Julius Blum & Company, Carlstadt, N. J. 20 pp. Ill. Booklet introduces Curtainscreen system of components for forming interior and exterior architectural screens. A number of typical applications are illustrated including vision screens, partitions, facing and solar screens, railings, and space dividers.

Miscellaneous

Free films. Modern Talking Picture Service, Inc., 3 East 54 St., New York 22, N. Y. 32 pp. Catalog lists more than 350 free films available to commercial, industrial, and financial firms. Included are films about sports, travel, cooking, electronics, health, etc.

Manufacturing facilities. Hamilton Watch Company, Lancaster, Pa. Data file describes and illustrates company's range of precision manufacturing abilities. Production facilities are for plate processing, tooth wheels and gears, pinions and arbors, small screws and threaded parts, flat and irregularly shaped parts.

Die-casting facilities. Newton-New Haven Company, 780 Third Ave., West Haven, Conn. 6 pp. Ill. Brochure describes facilities for the design and production of aluminum and zinc die castings.

Test facilities. General Electric Company, Flight Propulsion Laboratory Department, Lynn, Mass. 20 pp. Ill. Bulletin LCT-611 describes technical services and equipment available to industry, such as data recording center, compressor test facilities, turbine test stand, flame tunnels, fluid dynamics laboratory, and stress instrumentation system.

Industrial ceramics. Saxonburg Ceramics, Inc., Saxonburg, Pa. 20 pp. Ill. Catalog covers complete line of industrial ceramic products including beads, tubing and rods, seals, laboratory ceramics, and special shapes.

Microfilm retrieval operations. Minnesota Mining and Manufacturing Company, 900 Bush Ave., St. Paul 6, Minn. 8 pp. Ill. Booklet describes the operations of the engineering documents sections of the Army's Redstone Arsenal. The microfilm operation permits instant mechanical retrieval of engineering drawings on Filmsort aperture cards from a file of over two million drawings, 850,000 of which are active records.

Hardboard. Weyerhaeuser Company, Silvatek Division, Tacoma 1, Wash. 8 pp. Ill. Brochure describes industrial applications and machining and working characteristics of Weytex hardboard. The newest feature of the hardboard is its bending capabilities—panels of ⅛-inch thickness can be formed to a 1¼-inch radius without cracking or crazing.

Piezoelectricity. Clevite Electronic Components, Bedford, Ohio. 16 pp. Ill. Booklet describes the applications of piezoelectric devices and highlights new developments in high-power handling abilities of the materials. These devices generate an electric voltage when squeezed, bent, or twisted. Conversely, when voltage is applied, they bend, twist, expand or contract.

Glass. Corning Glass Works, Corning, N. Y. 68 pp. Ill. Booklet reviews the history of glass and details the basic types of glass. Also included are sections on the expanding role of glass in science, industry, electronics, and the home, the new glass-ceramic materials, and the contribution of glass to art.

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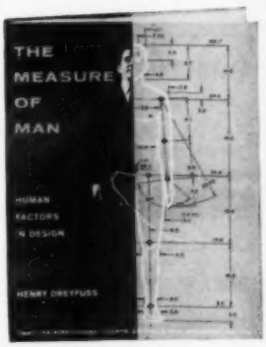

All the essential body measurements of the human male and female have been gathered into this concise portfolio by Henry Dreyfuss and his staff. 16 diagrams, a 16-page booklet, and two 6 x 2 foot charts comprise its contents. The 16 dimensioned diagrams are supplemented by a check list, explanation, and bibliography in the booklet. The two large charts are suitable for mountings and give the fundamental body measurements for the medium framed male and female. This handy presentation of basic data will save hours of research. **$4.95**

DISPLAY

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CALENDAR

Through the summer. "Color in Prints." An exhibit of prints which use color, ranging from the 15th century to the present. Metropolitan Museum of Art, New York.

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

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

June 3-July 2. Exhibit of the work of members of the Central New York Chapter of the Industrial Designers Institute. Munson-Williams-Proctor Institute, Utica, New York.

June 5. Engineering standards seminar sponsored by the Standards Engineers Society. Carnegie International Building, New York.

June 11-16. China and glass show of the China, Glass and Pottery Assoc. of America. Hotel New Yorker, New York.

June 12. Air pollution instrumentation symposium sponsored by the Instrument Society of America and the Air Pollution Control Association. Hotel Commodore, New York.

June 12-15. Convention and exhibit of hospital furniture and equipment; Catholic Hospital Association. Cobo Hall, Detroit.

June 12-25. International electronic-nuclear energy exhibition and congress. Rome, Italy.

June 14. Plastics in packaging is the subject of a regional technical conference of the Society of Plastics Engineers. Sheraton Mount Royal Hotel, Montreal, Quebec.

June 11-15. Annual summer meeting of the American Society of Mechanical Engineers. Statler Hilton Hotel, Los Angeles.

June 13-16. Seminars in industrial engineering sponsored by Cornell's School of Mechanical Engineering. Cornell University, Ithaca, New York.

June 14-16. Applied mechanics conference of the American Society of Mechanical Engineers. Illinois Institute of Technology, Chicago.

June 18-24. The 11th International Design Conference; its theme: "Man/Problem Solver." Aspen, Colorado.

June 18-24. International home furnishings market. The Merchandise Mart, Chicago.

June 20-22. Course on corrosion fundamentals conducted by the National Association of Corrosion Engineers. Wentworth Institute, Boston.

June 21-September 11. "Musical Instruments of the Five Continents." Metropolitan Museum of Art, New York.

June 26-27. Fifth annual conference on vacuum metallurgy sponsored by the American Vacuum Society and New York University. University Heights Campus, New York.

July 10-14. Housewares exhibit of the National Housewares Manufacturers Association. Merchandise Mart, Chicago.

July 10-14. Fourth annual institute in technical and industrial communications. Colorado State University, Fort Collins, Colorado.

July 10-21. A short course in structural sandwich design and fabrication sponsored by University of California Extension. University of California, Los Angeles.

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