INDUSTRIAL DESIGN

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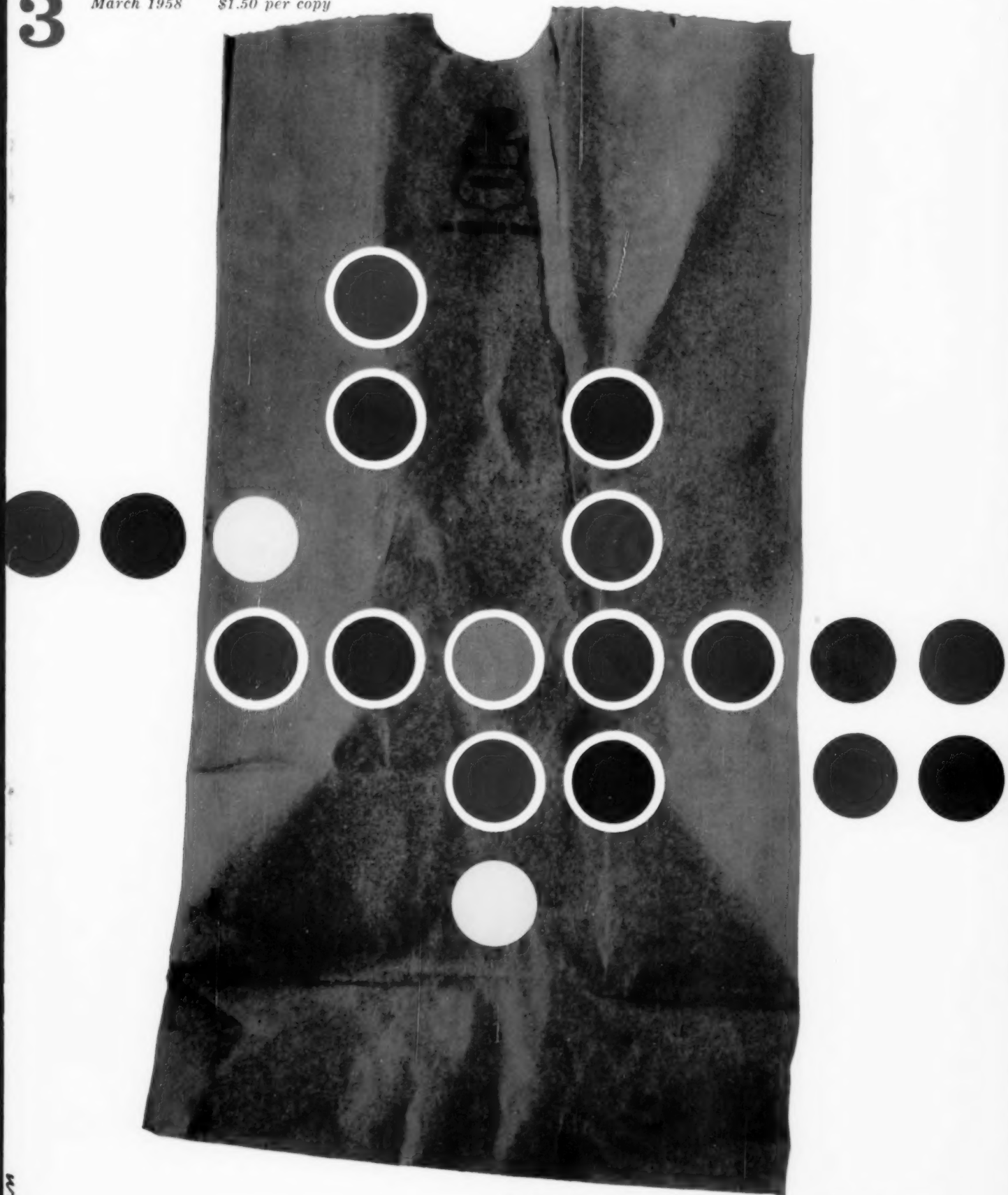

Problems in Package Design—the first of a series

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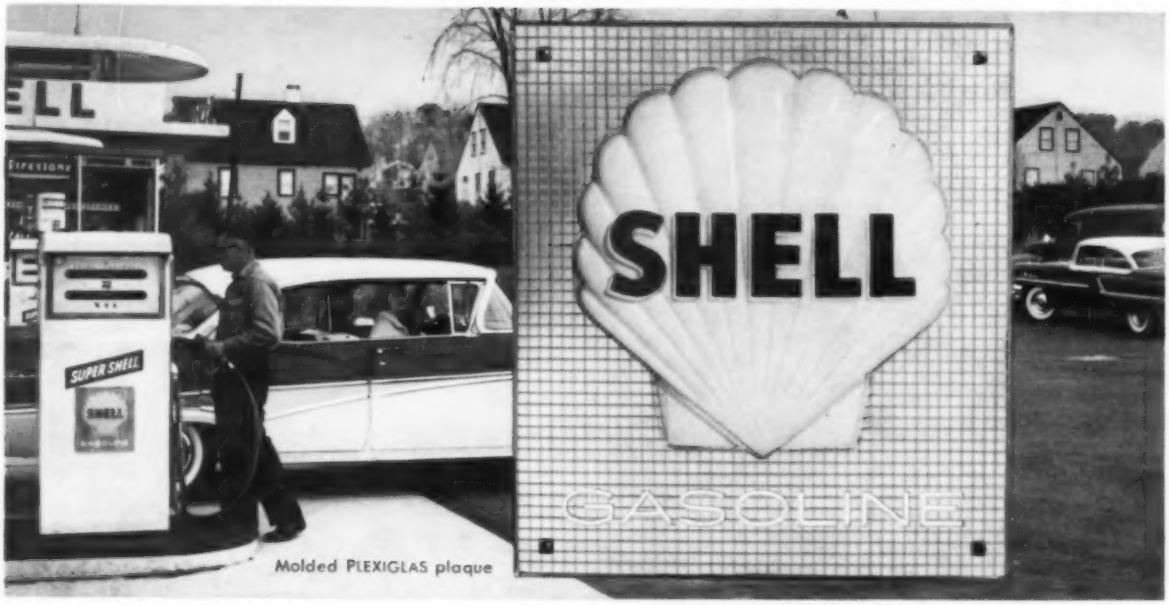

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MARCH, 1958 VOLUME 5 NUMBER 3

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.

CONTENTS

Coming

In APRIL—Air Force Academy—Phase I: a progress report on this comprehensive design program. Also an article on fabrication techniques: copper and brass.
In MAY—Color standards: systems and techniques used in industry to minimize color problems in today's products.

COVER: The traditional brown paper bag is given a contemporary design treatment to announce a new series on contemporary packaging design problems starting on page 32.

FRONTISPIECE: An important aspect of Visual Aid Systems, pages 60-65, is the variety of methods developed for signalling the status of equipment, labor division, or production control by using control systems such as the ACME VISIBLE RECORD system shown here.

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CONTRACT

LETTERS

European report

Sirs:
Your editorial on the "Common Market" was terrific. This is the coming significant shake-up of design complacency. I saw its stirrings everywhere when I was in Europe.

I also finished the excellent report of the Eleventh Triennale. I was fortunate in having had the opportunity to see this exhibition.

Unfortunately my reactions to the USA Industrial Design section were quite negative. Though the drawing power of the dome is undisputed, I am afraid that by now the Europeans think that our contribution of originality has lately consisted only of geodesic domes. Nor do I think that the atmosphere of clutter inside the dome did much to raise the prestige of US design or its design concepts. However, I must admit that the peek-into-me enclosures may very well have reflected the then secretive attitudes in our foreign policy.

It is understandable that since the ASID was primarily responsible for the design, selection and expediting of this segment of the Triennale, that the ASID should sell its own organization. However, as the older of the two US industrial design societies, it should have demonstrated its maturity by admitting the existence of the other. The letters ASID were printed after each of its member exhibitors, but an exhibitor who was a member of IDI had no corresponding designation. This discrepancy may very well have given the Europeans a rather one-sided and unfair picture of US designers. Their impression must be that there are the "select" and that there are some others.

I would like to call attention to two errors which I happened to notice in the article on the Triennale. When I was in Denmark I had a wonderful and exciting visit with Erik Herlow at his office in Copenhagen. I am sure that Mr. Herlow would be more pleased to be accurately called Danish than erroneously Swedish. When I was in Finland, I did not have the opportunity to meet Tapio Wirkkala but I would assume that he would be disturbed being classified as Swedish.

Aare K. Lahti
Associate Professor of Design
(College of Architecture and Design)
University of Michigan
Ann Arbor, Michigan

Annual Design Review reviewed

Sirs:
The December issue of ID is beautifully done.

There is one thing which should be corrected. The electric can opener, number 107, shown on page 60, was not staff designed as stated but was designed and modeled by Palma-Knapp Associates.

J. Gordon Knapp
Palma-Knapp Associates
River Forest, Illinois

Sirs:
Your December issue containing the annual review of design climaxes another year of real service to those of us in the field of industrial design.

Here at Harley Earl, Inc., all of us look forward to each issue of ID because it is always filled with informative and newsworthy material. The high standards of editorial excellence which you have established are a credit to the entire profession and certainly a reflection of the skill and integrity of your staff.

Jerome C. Earl
Harley Earl, Inc.
Center Line, Michigan

Sirs:
I believe you would all have been pleased if you could have been present at a recent meeting of the Committee on Selection and Procurement for the U.S. Pavilion at the Brussels Fair. The meeting was called to make final selections of American products for the Industrial Design Section in Brussels and all of us were anxious that our recommendations represent the best quality and most progressive manufacture of USA industrial products.

When the committee—consisting of Robert Hose, Robert Harper and William Renwick, representing ASID, John Vassos, representing IDI, Joseph Carreiro and William Daley for the U.S. Commissioner's Office, and myself as Consultant on Industrial Design to the U.S. Commissioner—got together, we found that all of us without exception had brought the latest issue of *Industrial Design's* Annual Design Review, to check the proposed Brussels selections against your survey. We found no difficulty in coming to quick agreements on eliminations and additions by referring to products shown in *Industrial Design*. I am sure that the compilation of your material must have taken a good deal of work but I can assure you that certainly as far as our committee was concerned it was well worth it and you all deserve our thanks and compliments.

Peter Muller-Munk
Pittsburgh

Sirs:
We congratulate you on the excellence of your Annual Design Review in the December issue. The written material and the photographic material gave an excellent cross section of American design.

On page 54, photograph 78, kitchen storage units, we noticed in the center of the photograph the new dishwasher manufactured by the Waste King Corporation, Los Angeles. Henry Keck Associates were the design consultants on this project. We tried to make this dishwasher fit into the modular type construction which is shown here and were pleased to see this tribute to the success of our objective in the handsome kitchen pictured.

Henry C. Keck
Henry Keck Associates
Pasadena

Congratulations and regrets

Sirs:
I have just finished reading the January Industrial Design report on M/R—its meaning, its methods and potential values.

Congratulations on this story. It should be a great help to those in industrial design activities who have questions in their minds regarding the place research can and should fill.

My only regret is that we were not included as one of the companies that has a long record of over two million consumer research interviews which have helped designers, manufacturers, and merchants.

Frederick H. Rahr, President
Customer Preference Clinics, Inc.
New York

Where credit is due

The Royal McBee standard office typewriter shown on page 93 of the February ID was designed by Laird Covey.

Which one is made of CYMAC®?

These two place settings of casualware for informal dining, both made of thermoplastic, have just emerged from one minute in boiling water. Before boiling, they were identical in appearance.

One setting survived without distorting, cracking, or changing color—the one made of CYMAC Methylstyrene plastic.

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CLIPS AND QUOTES

Tomas Maldonado, *chairman of the Faculty Board, Ulm School of Design:*

"The pathological cult of making things different leads to our daily life being flooded with artificially varied shapes. Two factors determine this phenomenon:

1) The demands of a narrow policy of sales. This is generally carried on by less progressive circles in industry, who do not want to bring their interests into unison with the interests of society. Fortunately, in industry, there are groups which are openminded and try to overcome this attitude with imagination and foresight.

2) Modernistic formalism, which identifies itself by the concept that the whole problem of our culture can be reduced to "styling" – to the bestowal of charming and sentimental shapes: lily-like vases and smart cutlery, a so-called Triennale design." ❞

DONALD DESKEY ASSOCIATES

William B. Hall, *manager of the Product Planning Dept., Donald Deskey Associates:*

"All products pass through four distinct stages of product life. Years ago, this was a long and poorly defined process. Today, products pass through the four stages of their life very rapidly.

The first is the *pioneering* stage. A new product is introduced which performs a new function, satisfies a previously nonexistent need, or performs an old function in a new and better way. The *competitive* stage begins at the moment other manufacturers become aware of a product's public acceptance and determine the advisability of entering into this product field themselves. There follows then the *retaining* stage in a product's life, in which the less successful manufacturers will be driven out of the market place by those manufacturers who are best suited to the product's manufacture, sale and service. The *declining* stage in a product's life begins, of course, when new products appear out of technology and replace its function.

In each of the four stages of a product's life, product planning is the key to successful exploitation of the product. In the pioneering stage, product planning lays the basic groundwork to establish a firm foundation for moving into that more critical of stages, the competitive stage. Product planning in the competitive stage will outline the goals which, when achieved, create a secure position for the product in the market place, enabling it to live throughout the retaining and declining stages." ❞

Always one step ahead of the weather with RUSCO

Walter J. Daily, *vice president of the F. C. Russell Co. (Rusco windows and doors):*

"Major appliance distributors will seek new products in the tightened, more competitive market for 1958. Ten years ago an appliance distributor limited his line, but the distribution picture has changed. Dealers have varied their merchandise and added new departments. Today, the former appliance retailer is selling cameras, hampers, garage door operators, combination windows and even such foreign products as grass seed and paint.

Many independent distributors will add building departments during 1958. These distributors are sitting on a golden egg that will hatch new volume sales because of the building industry's multi-billion dollar program involving new homes, commercial buildings and modernization." ❞

B + B

Jules and Nathaniel Becker, *Becker and Becker Associates:*

"In recent years, as a result of our top-speed production methods, our unbounded sales energies, and our great purchasing power, the designer has been able to put on "frills," to overpower and over-decorate consumer goods, and to get away with it. This American system which we enjoy has long been geared to produce all the comforts, all the conveniences, and as many as possible of the superlatives. But this system must be re-oriented.

What the industrial designer must do in 1958 is to give the consumer more–for less; and make available to science, research, defense–and to selling America to the world–monies devoted heretofore to producing "frills." We are faced now with selling America abroad–in science, in technology, and certainly in design leadership.

The consumer has become increasingly reluctant to put up with the inconveniences that now exist in product servicing – whether the product is a television set or a built-in electric can-opener. The buyer wants easier and less costly maintenance, in addition to style, and new models must offer both if they are to sell. This means that the industrial designer must work to reduce production costs, satisfy but not overstuff consumer demands, and provide for more economical servicing at the production plans level. This calls for stricter engineering and design programs, and responsible merchandising and advertising." ❞

Tide

Joseph J. Thursh, *vice president of Merchandising and Marketing, Design Dynamics, Inc.; in* **Tide:**

"Expanding consumer demand to match factory output will require the generation of a much higher replacement frequency in hard goods than now exists. Renting goods will considerably widen the area of what a person can afford, and this will apply to all income levels. Instead of confining his sphere of living to the rather limited area of what he can own, he gains the considerably greater vista of what he can enjoy in terms of control. Everybody's absorption capacity is stepped up a notch, aggregately giving relief to clogged distribution.

The introduction of yearly appliance models, which started in the late 1950's, was a tentative step in this direction. But it was a superficial one which has fallen short on two counts: 1) annual changes have not been significant enough–too frequently new models are only last year's models warmed over; and 2) the appliance business has failed to create a "hierarchy of status" in its models–that is, sufficiently marked differentiation between them.

The appliance business faces a tougher task in both areas than does the automobile, which because of its mobility has become a status symbol and can ride to market largely on exterior design alone. Since the major appliance is associated more closely with a housewife's work than with her pleasure, she will continue to be highly interested in an appliance's function, as well as its design. I'm convinced that most manufacturers are currently sitting on product improvements that can turn top-of-the-line models into status symbols. But instead of letting the sales slump spur them on to greater efforts, it has made them timid and fearful of making major investments. So they coast along with mere face-lifting jobs which are beginning to fool no one and may, more seriously, be curbing the replacement habit." ❞

NEWS

Drucker discusses innovation

Peter Drucker, economist, author and management consultant, was the challenging guest speaker at a dinner meeting of the New York chapter of A.S.I.D. on January 21. His topic, "Innovation in Business," gave him the opportunity to explore authoritatively many of the aspects of our economy that affect the work of designers —particularly these that will significantly affect future design practice.

The big change Mr. Drucker focused on is the growth of industrial research—an activity that has increased phenomenally in recent decades, and is of worldwide concern. "The significance of this growth," he explained, "is that it means *organized innovation* for industry; it shows that business no longer relies on a supply of new ideas and innovations flowing from the power group at the top. It has had to build its own source of change and improvement, and industrial research is the one reliable source so far.

"The rise of research goes with a disappearance of belief in progress," Mr. Drucker went on. "The kind of development that was once attributed to luck or providence is now supported by a sense of responsibility toward change, a belief that this is an essential function in modern society whether it is finally done by the Army, the government, or industry.

"And this is not a fad. It is likely to continue, because innovation is bound to become the central function of business—the central risk around which business operation may be measured."

What this concern with research has meant to problem-solving techniques was the speaker's next subject. "Traditionally, man's method has been to organize the knowledge he already has, in order to solve the unknown. Today we are reversing the process. We organize ignorance; we chart what we don't know into specific problems so that we may leapfrog to something new in a systematic way. Often this means teamwork. The Salk Vaccine was achieved this way: all the unknowns were analyzed, then the objective task systematically set up for experiment by various groups, until one of them broke through to a new answer. This shows a shift from pure reason, the intellectual way of solving problems, to a perceptive approach.

"We are gaining the ability to organize large numbers of individuals into a new pattern that will give us the answers we know we need. And today we look differently at science: it is technology that designs constant change. And that change is an orderly fact—controllable, purposeful, able to give us better innovation."

What does this mean to the designer? "That is up to the designer to decide," Mr. Drucker concluded. "It is my feeling, for one thing, that the intensification of technology calls on you to be interpreters *to* the consumer, to design products that can be understood and appreciated esthetically — perceptively — and not only rationally and mechanically. It also calls for a new look at our creative working methods. There are two different jobs to be done in group work — managing and creating — and we must recognize that they have equal importance and prestige, and the boss does not need to be on 'top'. And, finally it calls for a broader grasp of the nature of business by designers — a broader role than many of you are now willing to play."

Brussels appropriations cut

The Congressional appropriation for the Brussels fair is, at this writing, still being debated. Originally, $15,000,000 was set aside for the fair, but a House subcommittee first cut this to $12,345,000, then restored $1,000,000 with the proviso, added on the House floor, that this be used for a public health exhibit. After a vigorous protest by the United States Commissioner General for the Fair, a Senate committee increased the supplementary appropriation so that it now seems that $14,399,000 will be available for the American exhibit, with no restrictions.

Museum plans large design show

One of the most extensive design exhibitions ever held in this country will open at the Museum of Modern Art, New York, on June 3. The show will include more than 300 examples of furniture, household and office equipment, tools, textiles, and handicrafts from the Museum's design collection. It will survey the past 60 years, showing many objects never before exhibited. Selection will be based on quality and historical significance, regardless of price,

place or date of design, or current market availability. The exhibit, which will include the curvilinear furniture of Art Nouveau (1900's) as well as the rectilinear work of the De Stijl group (1920's), will emphasize the variety in style of modern design.

The Museum of Modern Art has maintained since its establishment in 1929 that "standards be defined and history written for architecture and design as well as painting and sculpture." The new exhibition's broad range in period and price of objects is a departure from the policy of the Good Design shows of 1950 to 1955, where only objects under $5.00 that had been produced in a specific six-month period were shown.

In charge of the exhibition are Arthur Drexler, Director of the Department of Architecture and Design, and Greta Daniel (above), Associate Curator of Design. A handbook illustrating the entire design collection and including objects not on view will be published by the Museum.

~~30~~ ~~20~~ **45** ***Top Refrigerator Makers Now Save with Spring-Lock Shelf Supports***

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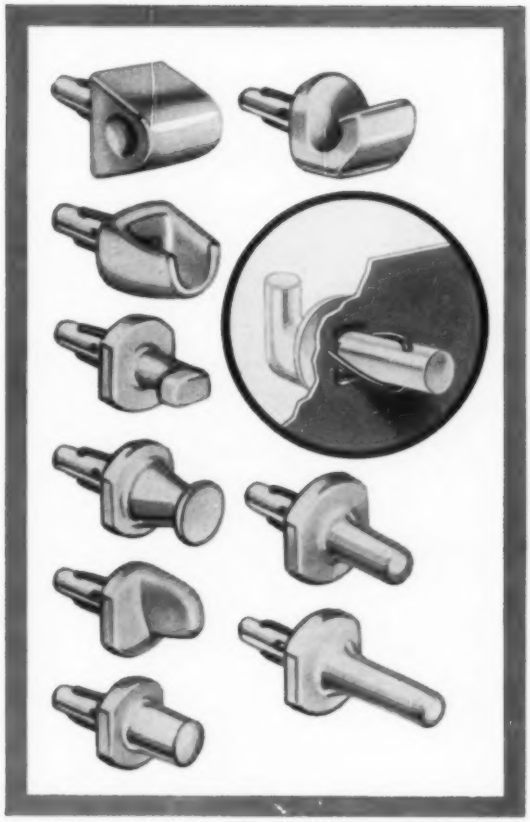

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Triennale jury announces awards

The United States received six awards in the Eleventh Triennale (ID, July, August, and November, 1957) at Milan which closed this past November, it was announced last month by the international jury which made the awards. Charles Eames was the only American to win one of the 25 grand prizes. It was given for his easy chair and ottoman. Gold medals were awarded to two Americans: Walter Dorwin Teague, consultant on Eastman Kodak's model K 100 turret motion picture camera; and Alfred Zuckerman, head designer for a David Bogen Company amplifier (not shown). Silver medals were awarded to Carl Otto for his Thomas A. Edison, Inc., dictating machine, Garth Huxtable for his hand tools for Millers Falls Company and RCA for its portable television set.

The jury, which made its selection from the products of 20 nations, was composed of president Guglielmo de Angelis d'Ossat, Italy; H. O. Gummerus, Finland; Rene Herbst, France; Erik Lassen, Denmark; Joaquin Vaquero Palacios, Italy; Ernesto Rogers, Italy; and Hans Schwippert, Germany.

Walter Dorwin Teague, chairman of the American Triennale Committee, reported that in a "poll made among visitors to the Triennale, the United States exhibit was second in interest, being surpassed only by the Swedish exhibit." The American pavilion, designed by Paul McCobb, was a geodesic dome which stood alone in the park outside the Triennale building. Inside the dome 200 products relating to "Communication in Business and at Home" were displayed. Mr. Teague reported that a total of 146,298 people attended the Triennale.

Grand-prizewinning chair: Charles Eames.

First Eastern IDEA conference

The Eastern Region of IDEA (the new Industrial Design Education Association) devoted its first conference, February 21, at the Rhode Island School of Design, to statements of the philosophy and general goals of the design schools represented. Some of the participants are shown in the photo right.

IDEA members present were: John Alcott, Carl Gibson, Ralph Kruck, RISD; Joseph Carreiro, Richard Reinhardt, Philadelphia Museum School of Art; Joseph Fiorello, State Teachers College at Boston; Warren Fitzgerald, IIT's Institute of Design; Theodore S. Jones, Institute of Contemporary Art; Robert Kolli, Pratt Institute; Robert Lepper, Carnegie Tech; Donald MacIntyre, Douglas Marilees, Robert Redmann, University of Bridgeport; and Arthur Pulos, Syracuse University.

The statements, prepared in advance, all emphasized the need for the student to integrate convenience, economic justification and aesthetic satisfaction.

Robie House rescued by Zeckendorf

Long under threat of demolition by the Chicago Theological Seminary to make room for an apartment building, Frank Lloyd Wright's historically significant Robie House, built in 1908, has now been bought by William Zeckendorf, head of Webb & Knapp realty company.

When the seminary, a branch of the University of Chicago, first announced its plans a spate of indignation was released by individuals and groups who felt strongly that it should be preserved. Although the date for demolition was postponed again and again no one stepped forward to take the controversial house off the seminary's hands.

Finally, last month, Mr. Zeckendorf put down the necessary $125,000 to save it. He will use it for three years as an on-site office while supervising construction of the Hyde Park redevelopment project, and then turn it over to the National Trust for Historic Preservation. Expensive rent for Mr. Zeckendorf, but a gesture welcomed by friends of architecture across the country.

Left to right: Fiorello, Boston State Teacher's College; Fitzgerald, IIT Institute of Design; Reinhardt, Philadelphia Museum School; Lepper, Carnegie Tech; Carreiro, IDEA president, and Gibson and Fosella, RISD.

Exhibit for Fulbright designers

The Museum of Contemporary Crafts, New York, will open an exhibition on April 20 devoted to the work of designers who have received Fulbright awards for study abroad. Edgar Kaufmann, who will direct the exhibition, says that the purpose of the show will be to emphasize what the Fulbright program has done in the field of applied arts and to show the diverse projects to which its funds have been applied.

Approximately 60 people have received Fulbright grants in applied arts since the program started ten years ago. The work of about half this group, not necessarily done during the time of the award, will be shown in the exhibition. About a third of the work shown will be for mass-produced goods. One purpose of the exhibit will be to raise standards and increase diversity of applicants for Fullbright awards.

"Endless House" to be shown

New York's Museum of Modern Art has received a grant of $12,000 from the Gottesman Foundation as a start toward a projected exhibition of Frederick Kiesler's "Endless House." This is a columnless structure, whose floors, walls and ceilings flow into each other without right-angled intersections. Long considered a theoretical study, the house has been brought nearer to practical realization by the development of shell concrete. The Museum hopes to erect a Kiesler house in its garden.

Other prizewinning products from Triennale: camera by Teague, dictating machine by Otto, hand tools by Huxtable, TV by RCA.


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Brooklyn Museum presents wide selection of contemporary furnishings in its show.

"Design for the Home" show

A modern home furnishings exhibition, composed of 450 items available in the U. S. market today, is open at the Brooklyn Museum through April 27. The purpose of the show is to make the public aware that art can enter daily life; and the public seems to have responded with more enthusiasm than restraint. Although the exhibit was never planned as a "don't touch" show, it has been necessary to stop ladies from cutting swatches of exhibited fabrics, and children from riding in the revolving closet.

The installation, by architects Romaldo Giurgola, Paul Mitarachi, and Gerhard M. Kallmann, covers a 4,200 square-foot area. Sloping slats of untreated oak have been constructed along the side walls, and oak steps and ramps (above, right) rise from the floor to supply a change of pace in the long gallery. Lighting concentrates on a series of pits (above, left), about ten inches below floor level, which contain groupings of furniture, rugs, accessories. In addition, the whole length of the side walls has been illuminated through panels of unbleached muslin which slope down from the ceiling.

Commenting on the selection at the opening of the show, Edgar Kaufmann said that it "indicates a distinct, educated taste aimed towards a real standard of living, not just a whim. The dominant note is one of ease, restfulness, simplicity." Jens Risom, a member of the jury, said that while it would have been impossible to include every good design available, he was sorry that not more designers and manufacturers had submitted products to the jury.

Other members of the jury were Tom O'Hare, merchandiser for Abraham and Straus, and Robert Riley, curator of industrial design at the museum.

U.S. companies at Brussels

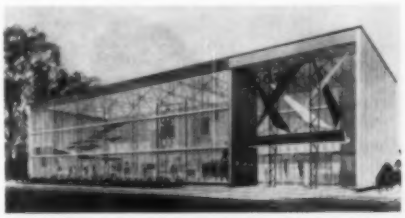
IBM, Kodak, Pan American, and Philip Morris are among the U. S. companies that will mount exhibits for the Brussels World's Fair, providing Fair attendees with a view of some American goods and services. These halls will be separate from the U. S. government pavilion, designed by Edward Stone.

IBM will show a selection of electric typewriters and data processing and time recording equipment in a rectangular pavilion (bottom) by Eliot Noyes and Associates, which will measure approximately 120′ long, 80′ wide, and 40′ high. Side walls of the shelter will be blank for maximum exhibit area; front and rear walls will be glass. The roof of the structure is an unusual "folded" concrete construction. One special feature of the exhibit hall will be "The Information Machine" a film written, produced, and directed by Charles and Ray Eames to dramatize the value of computers in freeing man from drudgery for more creative thinking.

The Kodak building (below), designed by British architect Jack Howe, will use glass, steel, aluminum and wood, and will serve the public interest as a photographic information center for shutterbug Fair viewers.

The Pan American building will offer tourist buffs a round-the-world travel movie within a 52′-in-diameter circular theatre which simulates a world globe on the outside. It is built on the principle used in inflated radar domes and will be manufactured by the Irving Airchute Company.

Another film—this one extolling Philip Morris cigarettes—will be shown in the company's Hospitality House, an aluminum and glass pavilion with a pagoda-like roof. The film will be multi-lingual, U. N.-style, projecting its message in five languages, using RCA Peerless Projectors and special acoustical equipment.



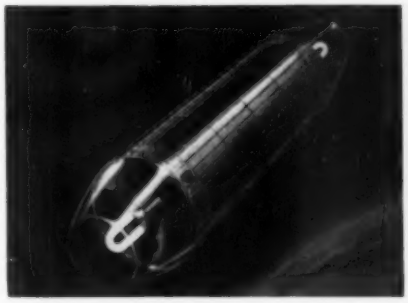
Automatic steering demonstrated

General Motors last month demonstrated at Warren, Michigan an automatically guided automobile steered by an electrical cable buried in a concrete roadbed. Dr. Lawrence R. Hafstad, head of the GM Research Staff, explained that the car was the development of a system demonstrated in model form in 1953 by RCA, and later translated by RCA into an experimental road signal system.

GM concentrated on developing controls capable of picking up the road signals and steering a full-sized car. The project staff designed a combined electronic computer and servo system. Low frequency alternating current in the highway cable creates a circular magnetic field extending the length of the cable. A pair of tuned pick-up coils on the front bumper of the car straddles this magnetic field. Any deviation or lateral movement of the car produces a difference in voltage from one pick-up coil to the other. A computer on the car's instrument panel measures this difference and adjusts the steering onto the magnetic path by means of a servo system. When the driver wants to turn off the road or pass another car, he switches back into the manual steering system.

Loewy suggests "Star of Hope"

It is time, Raymond Loewy feels, to launch a satellite that will be classed not as part of the arms race but as a worldwide symbol of America's "geo-spiritual" values.



The satellite would carry a message of our peaceful intent and universal good will.

The proposal is a realization of the scientific findings that astrophysicist Dr. S. Fred Singer submitted to the National Academy of Science's Committee on the International Geophysical Year. Loewy's "star of hope" (above) would be entirely covered on the outside with solar batteries which would recharge interior chemical batteries to make the satellite visible to the naked eye at night.

The symbols of all religions, the flags of all nations and the United Nations shield would be inscribed on the star or, if necessary, on microfilm carried inside.

Where do you fit into this

Products of PLASKON Plastics and Resins in this kitchen:

Nylon—baby bottles, cabinet knobs, food bag
Urea—electric blender base, radio housing, electrical outlet and switch plate, can opener
Melamine—dinnerware, washing machine agitator, utensil handles
Polyester Resins—translucent panels, chair

Barrett PLASKON

picture?

IN THIS KITCHEN ARE TWELVE NEW PRODUCTS MADE WITH PLASKON MATERIALS...THERE IS ROOM FOR MANY MORE! YOURS?

Throughout the kitchen at the left are twelve new products produced with PLASKON® Plastics or Resins. For example, the washing machine agitator the woman is holding is molded of PLASKON Melamine, the chair is PLASKON Polyester, the drawer handles are PLASKON Nylon, the radio is PLASKON Urea.

But this is just the beginning. Bright new products of PLASKON Materials are appearing all the time—and not just in the kitchen!

The diverse line of PLASKON Plastics and Resins offers designers and molders unlimited opportunities—for improved versions of existing products or entirely new products. No matter what combination of properties you're looking for, chances are you'll find the answer in a PLASKON Material.

Take a minute and check the properties of the various PLASKON Plastics and Resins below:

Nylon Molding and Extrusion Compounds: High strength, impact resistance, abrasion resistance, light weight solvent resistance, self-lubrication, rapid injection molding and fast extrusion. Literally hundreds of new applications, including transparent films, long-wearing gears, cams, bushings, rollers, etc.

Urea Molding Compound: Ready moldability, wide range of colors and good fusibility. When molded its hard surface resists cracking, chipping and scratching, has good electrical insulation properties. Used in housings, buttons, toilet seats, wall plates, closures, etc.

Melamine Molding Compound: Extra hard surfaces that resist scratching, heat, common household solvents, oils and greases. Used in colorful, virtually unbreakable dinnerware, utensil handles, washing machine agitators.

Polyester Resins: For glass reinforced laminates with great strength, light weight, excellent electrical insulation properties, good dimensional stability. Used in boat hulls, decorative panels, chair seats, car bodies and parts, etc.

Molders and end-users alike can avail themselves of Plaskon's research and design service personnel.

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...LEADER IN THE FIELD

Allied Chemical

The Boston Institute of Contemporary Art recently sponsored a seminar on "How Management Can Use Design More Effectively." Participating were, as shown left to right above, seated: John Curtis, National Industrial Design Council of Canada; Alfred Duhrssen, Commercial Decal, Inc.; Robert W. Swift, Jr., Swift & Anderson, Inc.; Julian J. Smith, A. L. Smith Iron Co.; Stephen B. Wellington, Standard Thermometer, Inc.; William L. Patton, Jr., Boston & Maine Railroad; Warren T. Brookes, Cryovac Co. Standing: L. T. Alexander, E. I. du Pont de Nemours & Co.; Frank Rideout, Weymouth Art Leather Co.; Theodore S. Jones, director of design studies at the Institute; Ross M. Cunningham, M.I.T.; William V. Judson, General Electric Co.; Samuel Ayres, Jr.; Samuel L. Ayres, Jr. Associates; and Curtis Billings, Butcher Polish Co.

IIT to exhibit 100 best designs

One hundred leading designers, architects, educators and editors have been invited by Illinois Institute of Technology's Institute of Design to select the 100 best-designed products of the modern era. From a possible 1000 selections, the faculty of the Institute of Design will pick the 100 most frequently named products, which they then plan to exhibit at the Institute during the month of May.

The jury has been asked to consider, with few exceptions, only products which have been produced in quantities of at least 10,000. They should be outstanding in appearance and function, and should fill a real human need. They may be selected from a world-wide field.

U. S. Trade Fair in Moscow

The first American trade fair ever to be held in Moscow is presently being organized by America Abroad Associates of New York, a group of professional trade show managements. The association is headed by Gottfried Neuburger, president of International Trade Shows. The United States Government, which had originally made an appropriation for the fair, withdrew from participation because of restrictions imposed by the Russians.

Mr. Neuburger has leased, for the month of August, 250,000 square feet of exhibition space in Moscow's Gorky Park of Culture and Rest. Displays are to be designed by the individual exhibitors, with emphasis on audience participation. All American products, with the exception of those subject to security regulations, are eligible for display. Further information can be obtained from America Abroad Associates, 545 Fifth Avenue, New York.

Styles enliven IDI meeting

A fashion show at a recent meeting of the Philadelphia chapter of IDI helped illustrate the relation of industrial design to other manifestations of contemporary style. The fashion show, contributed by the Blum store in Philadelphia, was preceded by a graphic exhibit comparing product and fashion design and the living trends that affect each. The theme of the meeting, "Trends in Formal Informality," expressed the current tendency toward elegance in casual living.

Canadian design awards announced

The National Industrial Design Council has announced 67 winners in its sixth annual Design Award competition. Of these, only four are of foreign design, reflecting the increasing importance of native Canadian design.

The NIDC Index Committee acted as a preliminary selection board, screening the nearly 600 entries submitted by manufacturers. In making its final selection, the board of judges found especially noteworthy the many groups of modular furniture.

"World Living" at Home Show

The International Home Show, soon (April 19) to open at the New York Coliseum, will have "World Living" as its theme this year. The exhibit is planned with the cooperation of various government information services and members of the Housing and Planning Commission of the UN. Raymond Stewart is decorating and coordinating room settings for the show, one section of which will be turned over to a preview of "Tomorrow's Living."

Design Team in Korea

Smith, Sherr & McDermott of Akron, under a contract awarded by the International Cooperation Administration, has sent a team to Korea to stimulate the development of native handicrafts and small scale industries. The group will set up a demonstration center in Seoul and will teach design and related courses in three local universities. The home office in Akron will assist in the merchandising of Korean products and will help participants to

study industrial design in this country. Above, the Korean and the home office teams are shown examining objects made in Korea. Left to right: Stanley Fistick, Samuel S. Scherr, David K. Munro, Norman R. DeHaan, and Austin E. Cox.

Art Directors explore creativity

Creativity in our national life will be the theme of the Third Annual Communications Conference, sponsored by the Art Directors Club of New York, to be held at the Waldorf-Astoria Hotel April 2 and 3. Conference director Paul Smith, president of Calkins and Holden, Inc., announces that the conference will call on experts in the fields of psychology, industry, management, science and the arts to discuss the applications of the creative process, the establishment of a favorable climate for creative work, and the methods of developing individual creativity. The conference will also review the work already done in this field by industry and educational institutions.

Printing exhibition in the works

The jury and the designer for the Society of Typographic Arts's 1958 Design in Chicago Printing Exhibition have been selected. Jury members are John Breunig, art director of Foote, Cone and Belding of Chicago; Louis Danziger, California designer; and George Krikorian, Look Magazine's promotional art director.

The show is being designed by Walter Severson to demonstrate the part that printing plays in everyday life and the importance to communication of well-designed typography. See Calendar, page 96.

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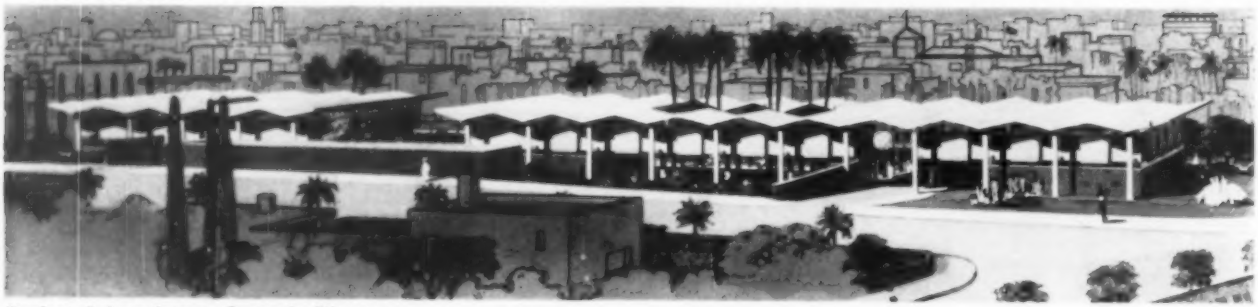


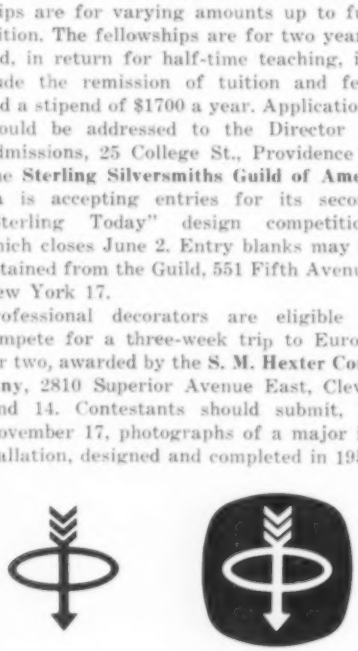
Projected American embassy in Morocco.

Competitions

The **Rhode Island School of Design** announces the establishment of four scholarships and two fellowships in its graduate program in Art Education. The scholarships are for varying amounts up to full tuition. The fellowships are for two years, and, in return for half-time teaching, include the remission of tuition and fees and a stipend of $1700 a year. Applications should be addressed to the Director of Admissions, 25 College St., Providence 3.

The **Sterling Silversmiths Guild of America** is accepting entries for its second "Sterling Today" design competition, which closes June 2. Entry blanks may be obtained from the Guild, 551 Fifth Avenue, New York 17.

Professional decorators are eligible to compete for a three-week trip to Europe for two, awarded by the **S. M. Hexter Company**, 2810 Superior Avenue East, Cleveland 14. Contestants should submit, by November 17, photographs of a major installation, designed and completed in 1958.



Parker Pen's new trademark.

Awards

Robin Day has been awarded Britain's Society of Industrial Artists Medal for 1957.

Edwin F. Harris, Jr. is the winner of the $5000 Lloyd Warren fellowship, the National Institute for Architectural Education has announced.

The National Institute of Arts and Letters has elected **Edward Durrell Stone**, the designer of the American Pavilion at the Brussels World's Fair, to life membership. The Institute has also awarded its Gold Medal for Architecture to **Henry R. Shepley** of Boston.

Company News

The New York architectural firm of **Ketchum, Gina & Sharp** has designed the new American embassy in Rabat (above). In line with the State Department's policy of respecting local building methods and motifs, the embassy office building and ambassador's residence will reflect Moroccan traditions wherever practicable. The structure is reinforced concrete with masonry walls of local stone. Wood grilles set with brightly-colored glass inserts screen the second-level walls. Each building has interior patios and pools open to the sky.

Sundberg-Ferar, Inc., of Royal Oak, Mich., have been appointed design consultants to Remington Rand, New York, Remington Rand Univac, Sperry Gyroscope, and RCA-Victor.

The **Parker Pen Company** has adopted a new corporate symbol (left), developed in consultation with **Design Dynamics, Inc.**, of Chicago. The trademark will be used by all the company's subsidiaries, including the newly acquired **Eversharp Pen Co.**

Charles Butler Associates of New York have opened a London office, under the management of Robert J. Price, to expand the firm's activities in the British aircraft, marine, and product fields.

Lenox, Inc., with the purchase of the **Branchell Company** of St. Louis, is the first major United States manufacturer of china to enter the plastic dinnerware field.

Belle Kogan Associates have been retained by the **Libbey Glass Division** of Owens-Illinois to design a new line of pressed glassware.

Design Education

New president of the **Detroit Institute of Technology** is Dewey F. Barich, at present assistant manager of educational affairs at Ford Motor Company.

The **Museum of Primitive Art**, New York's youngest museum (one-year-old last month) starts its second year with an exhibit of the art of pre-Columbian Peru.

Students at the **I.I.T. Institute of Design** will stage the tenth annual Moholy-Nagy auction in May. The auction—which includes paintings, drawings, sculpture, and photography donated by the artists and by other friends of the Institute—is for the Institute's scholarship fund.

Curator is a new quarterly publication being put out by New York's **Museum of Natural History.** The editorial board, headed by Edwin Colbert and including Lothar P. Witteborg, director of the museum display department, is made up of museum staff members. The first issue includes several articles related to museum display concepts and techniques.

People

APPOINTED: **Leonard Eisen** to design representative with C. A. Dempsey Associates of Dayton . . . **Ray F. Hurley** as staff industrial designer with Benjamin Electric Manufacturing Company, Des Plains, Illinois . . . **Lawrence V. Stapleton** as first vice president of Lippincott and Margulies, New York . . . **Irvin T. Shapiro**, display expert (below), as sales representative in the exhibits department and **Philip N. Sabatino** as senior art director of Art Designers Incorporated, Washington, D.C. . . . **Jim Gerrie** (below) as director of the

Earl

Armstrong

Balmer

Los Angeles office of Reinecke and Associates . . . **W. M. de Majo** as consultant designer to Transparent Paper Limited of England . . . **James G. Balmer** to executive vice president and **William H. Armstrong** and **Jerome C. Earl** to vice presidents of Harley Earl, Inc. (above) . . . **Nathaniel Knowles** as acting director of the Commerce Department's Office of International Trade Fairs, replacing **Harrison T. McClung**, who resigned in January.

Gerrie

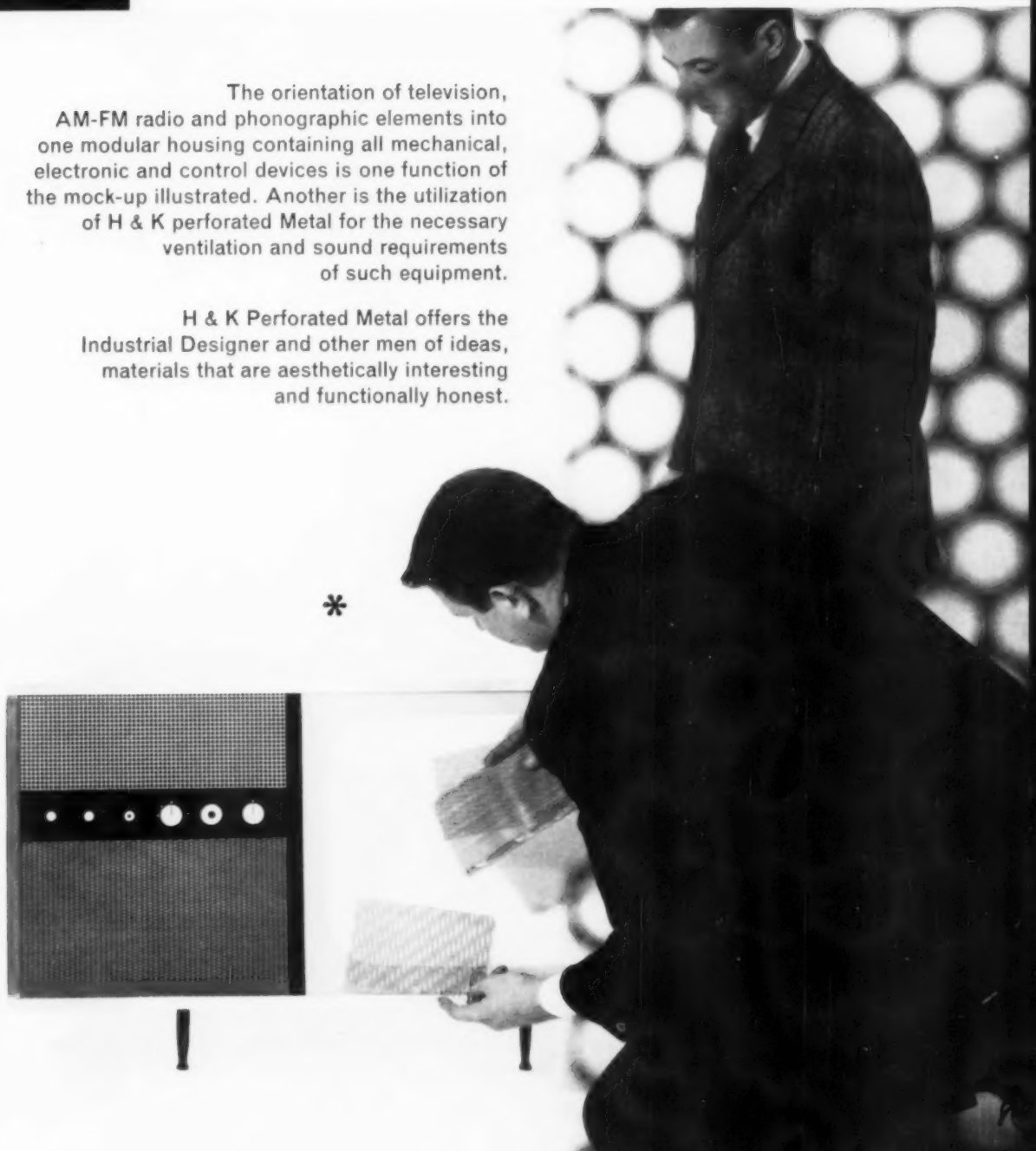
Shapiro

Idea!

H & K perforated metals serve a function of design

The orientation of television, AM-FM radio and phonographic elements into one modular housing containing all mechanical, electronic and control devices is one function of the mock-up illustrated. Another is the utilization of H & K perforated Metal for the necessary ventilation and sound requirements of such equipment.

H & K Perforated Metal offers the Industrial Designer and other men of ideas, materials that are aesthetically interesting and functionally honest.



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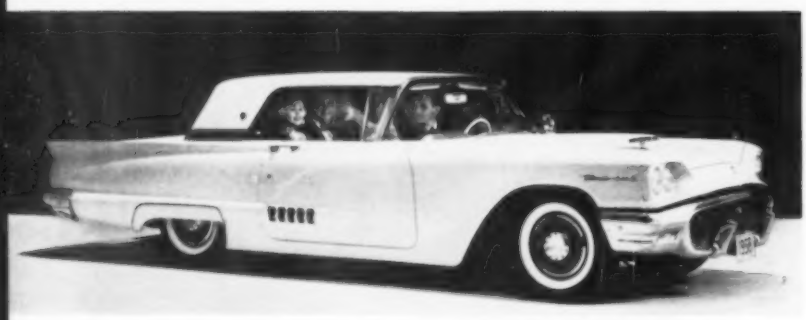
CHALLENGE TO INDUSTRIAL DESIGN: *Specify a decorative material which can be easily stamped and drawn, and which will match exactly the textures of fabric and the colors of painted metal.*

Ford styles interior of new 4-passenger Thunderbird in vinyl-on-steel laminate



In transforming the T-bird into a 4-passenger luxury car, Ford stylists sought to give the interior a look of visual unity in both texture and color. The material they used to achieve this effect is Col-O-Vin vinyl laminated to steel.

Foam crash pad, door panels, pleated upholstery, perforated headlining, window mouldings, package tray, even the unique "panel console" housing controls—the **entire** interior presents an uninterrupted flow of grained vinyl with the luxurious look and feel of hand trimmed upholstery.

Col-O-Vin Laminate makes it possible to maintain this flow by eliminating the show of painted metal side by side with fabric, as in the instrument panel extension. It "tailors" smoothly around contours without distortion. It creates a tailored effect which has been impressed with a grain to match the upholstery.

Col-O-Vin Laminate met the requirements of Ford Stylists; equally important, it answered Ford's Engineering specifications. Dollar-wise, it involved but slight modification in tooling, less than for rigid plastic alone. It is machined on standard equipment as precisely as metal. It does not require hand finishing. And the vinyl itself acts as a natural lubricant in the stamping operation by eliminating metal-to-metal contact.

Manufacturers of many products, from appliances to airliners, have found in Col-O-Vin/Metal Laminate the ideal wedding between the engineer's practicality and the designer's dream. It provides unlimited opportunities for color, texture and dimensional effect. It eliminates hand operations. Often, it eliminates the cost and space of finishing machinery.

Write us for samples suitable for test forming. We'll include "Col-O-Vin Meets Metal", a booklet showing colors and textures, laminate test specifications, industrial applications, and list of laminators to whom we supply Col-O-Vin sheetings.

COL-O-VIN® **... first and finest in the vinyl laminate industry**

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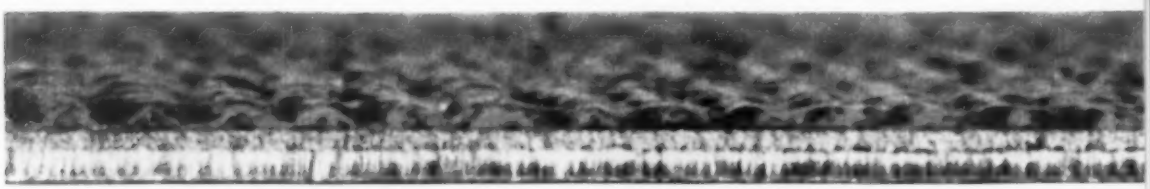
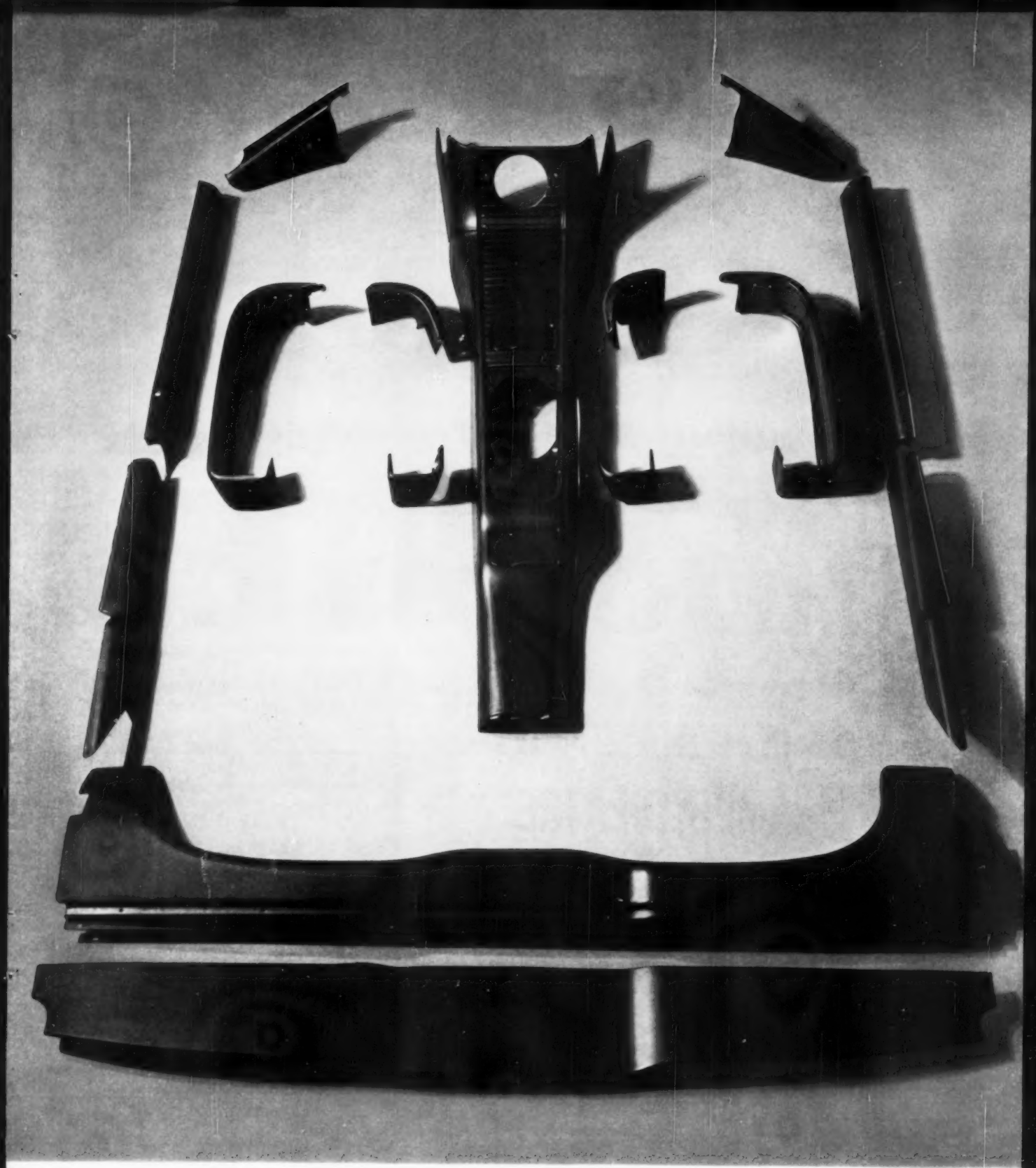


Enlarged cross section of Col-O-Vin vinyl laminated to steel. Note the permanent, almost invisible, bonding of plastic and metal. The laminate can be deep-drawn, stamped, sheared, crimped, bent, drilled, punched, embossed or welded. The vinyl coating is virtually indestructible, actually protects the metal beneath and provides electrical insulating qualities.



Layout of Ford's luxurious 4-passenger Thunderbird interior showing parts formed from Col-O-Vin Laminate. Illustrated are console panel, instrument panel extensions, window garnish mouldings, seat side shields, bucket seat moulding, package tray, and ash tray covers.

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Sponsored by the Machine Design Division, American Society of Mechanical Engineers, the 1958 Design Engineering Conference will be the most important event of the year in your field. Speakers and panel members are top authorities in their subjects. Separate sessions on *mechanical, electrical* and *materials* problems allow engineers to devote their time to areas of primary interest.

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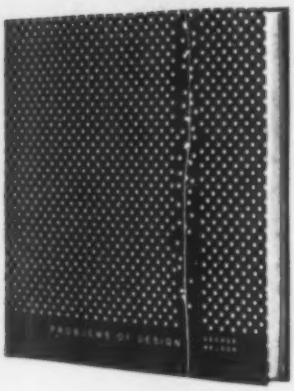

PROBLEMS OF DESIGN

by George Nelson

A forceful challenge to creative leadership in product planning and design.

Here, in superbly illustrated, large book format, is a unique demonstration of what the designer can accomplish when integrity of purpose is teamed with authentic creativity. It will inspire YOU to achieve an even greater success in your work than you may now feel is within your grasp. It will bring you up-to-date with the best thinking that has been done in recent years. Then, it will broaden your horizon with a set of affirmative, new concepts that will enrich your understanding, fortify your own creative talents, and help you to perfect your skills. The two chapters entitled, "Obsolescence" and "'Captive' Designer? vs 'Independent' Designer!" are alone worth the purchase price of the entire volume. George Nelson, one of America's most accomplished designers, has a unique insight into the requirements of marketing success. His talents have enabled many a manufacturer-client capture the leadership positions in their fields—and this new book will show you how you can achieve leadership in YOURS. 206 pages. Full cloth bound, $10.00

What HOUSE & HOME, the national building magazine, says of these basic design books—

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Perspective

A new system for designers by *Jay Doblin*. Everyone whose work requires the representation of objects in perspective will find this book a tremendous time saver. It sets forth a streamlined working system for the designer, draftsman, architect, etc., which does away with complex mechanical methods and simplifies the technique of visualizing any object in its three dimensions. It eliminates the errors which traditional methods have always permitted, and it is the simplest of all ways to develop a highly precise free hand skill. Authored by a prominent designer and President of the American Society of Industrial Designers, 1956-7, this book will repay many times its low cost each day you put it to use. $5.00

Storage

edited by George Nelson. This comprehensive volume brings answers from all over the world to solve one of today's most challenging problems in residential and contract interior design—the provision for adequate storage. In this book, George Nelson (an originator of the Storage Wall) demonstrates the most imaginative and functional solutions, in 176 large-format pages and 303 detailed illustrations. $12.50

Anatomy for Interior Designers

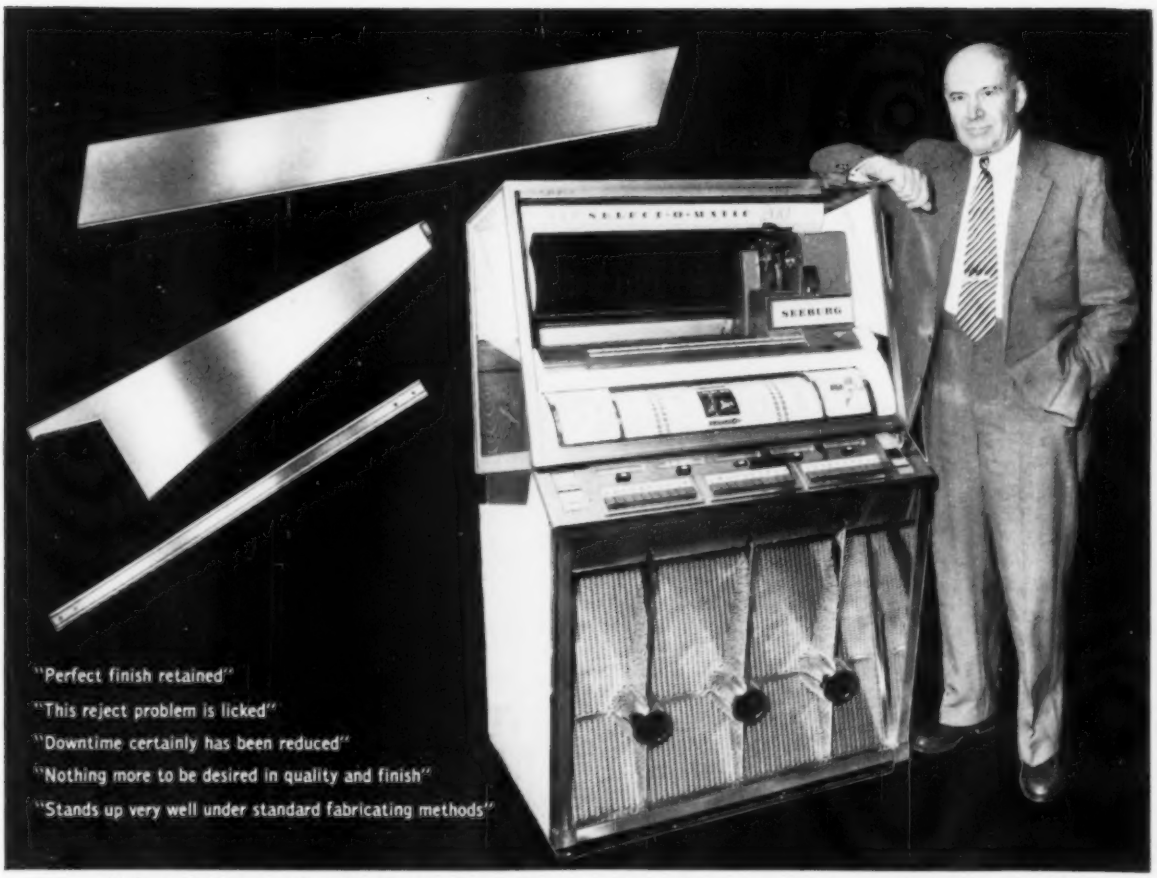
by Francis de N. Schroeder. 1,312 essential modular measurements of anatomy which every designer must keep in constant reference whether he is drafting out a doorway, a unit of furniture or the interior of a railway car. This book can save many hours of tedious research and prevent many a costly error. It also contains a unique chapter on How to Talk to Clients. $4.00

Package Design

by Ladislav Sutnar. This book makes package design come alive, illustrates many a new device to make any product's package a more effective vehicle for generating sales. The author, himself a designer of great international renown, throws the spotlight on 500 outstanding examples of successful package design, picked from world-wide markets as the best of their kind in current use, giving designers the best precedents they could have in practically every consumer product field. 545 illustrations. $9.75

Display

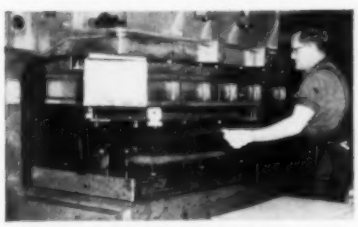
edited by George Nelson. Here are the ingenious and remarkable displays that have set entirely new precedents in shop, showroom, museum and exhibition layout . . . decor . . . and item presentation. Its 192 pages and 312 illustrations show you the new systems created by more than 125 top designers and architects to attract the attention and capture the interest of a transient audience. It is the most complete book of its kind, a source of imaginative ideas for everyone who has an interest in modern display techniques. $12.50



K. R. Craft, Vice President, The Seeburg Corp., Chicago, with one of the company's famous juke boxes. The brilliant reflectivity and durability of Nickeloid pre-plated metals is an important factor in the product's eye-catching good looks.

NICKELOID METALS SAVE 4 PRODUCTION STEPS— REDUCE REJECTS FOR THE SEEBURG CORPORATION

Standard fabricating methods are used to stamp and form juke box trim. Nickeloid Metals eliminate machinery tie-up; rejects are less than 1%.



Stamping Nickeloid chrome steel, protected with Mar-Not adhesive-backed paper which is easily peeled off. Finished part will need no polishing.

Pre-Finished Design Material is Easily Worked With Standard Fabricating Methods

The Seeburg Corporation uses Nickeloid *pre-plated* chrome steel to achieve functional beauty and attention-value . . . economically. Before switching to Nickeloid, the company did its own cleaning, plating and buffing. The job required four — sometimes five more operations than are now necessary. According to Mr. Craft, "The tremendous cost of plating and buffing was not only more expensive and much more time consuming, but the finished product had to be inspected, and the rejections on plated and buffed metals was very much higher than it is with Nickeloid. Economically, the Nickeloid Metals have proved themselves in production."

Using standard fabricating methods, Nickeloid Metals need only be stamped and formed — then assembled. By capitalizing on this pre finished *method* of production, this leading manufacturer has eliminated the machinery formerly required for plating, polishing and buffing — saved four or five production steps, and is producing a better end product *with less manpower.* Can you use these advantages in *your* operation?

At the Design Engineering Show — See Nickeloid Metals, Booth 103-A

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CAMERAS—The optical qualities of LUCITE, along with its light weight and economy, solve many design problems in lenses. For these reasons LUCITE was chosen for the photoelectric cell of Bell & Howell's unique 16-mm. electric eye movie camera. (Molded by Stimsonite Division, Elastic Stop Nut Corporation of America, Chicago, Illinois.)

LAMPS—This decorative diffuser of LUCITE is a Fresnel lens directing soft, controlled light without reducing normal illumination . . . conceals bulb and socket. (Molded for Sears, Roebuck & Co., Chicago, Ill., by Rupert Manufacturing Company, Blue Springs, Missouri.)

SIGNS—Economically molded in a wide variety of shapes and colors, LUCITE makes eye-catching signs and displays. This panel of LUCITE resists shattering and weathering. (Molded for Shell Oil Company, New York, N. Y. by Kent Plastics Corp., Evansville, Indiana.)

DU PONT

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BETTER THINGS FOR BETTER LIVING
THROUGH CHEMISTRY

By love of what possessed?

The novel at the top of current best-seller lists is, like so many books these days, one we haven't read. The evidence seems to be that most of the people who bought it haven't read it either–at least not all the way through. There has been rich speculation therefore on how to account for the overwhelming popularity of a novel only the reviewers claim to have finished reading, and we can't help wondering whether the title itself may not explain much of the book's appeal. So few of us today are even mildly possessed by anything we would be willing to own up to, that the title *By Love Possessed* has a quaintness beyond the grammatical inversion.

What, for example, are consumers possessed by? Superficially by hexachlorophene, GL-70, and the desire to own a low-priced car in the high-price group. Actually, by unemployment figures (and unemployment), by recession talk (and depression memories), by the thousand and one anti-confidence anxieties that eat away at human spirit and–according to the President of the United States–at a sound economy.

And what, in this period of professional challenge and opportunity, possesses designers? Clearly the answer ought to be *Design*. But judging by both the public and private utterances of American designers, one concludes that they are owned and driven less by design than by such peripheral activities as impressing clients, justifying fees, whining about competition from sources they insist, paradoxically, are not competent to offer competition anyway.

This is not as bad as it sounds. The practical problems of selling, implementing, and protecting design must indeed be met, and to be met intelligently they must be discussed. Design, on the other hand, like any art or craft, does not always profit from conversation, and we are not calling for just more *talk* about design.

What we *are* calling for (and it's a little embarrassing, and shouldn't be) is the design-intoxicated man: sensitive to clean and appropriate form, committed to quality, attentive to rightness of detail, innately concerned with people and their needs–a man so deeply committed and so hugely excited that he can truly be called "possessed." We would ask him to guard his creative impulse: all the world's forces will conspire to exorcise dat ole debbil design and, failing that, will seek to disguise and dilute it out of existence. We can all name people this has happened to, and the appellation *designer* hangs outdated and deceitful and empty on their office doors. Having arrived at the creation market, they have jettisoned creativity.

And it isn't even necessary! The designer possessed by design is by no means incompatible with the designer as businessman; he can still convince a client of the worth of his services–and they are much more likely to have real worth. But a profession possessed only by techniques for selling design cannot for very long convince anyone of anything.

A few years ago one philosopher warned that "we are living in a cut-flower civilization," the point being that while cut flowers are pretty they do not last, because they have been severed from the roots that nourished them. No such civilization can survive and neither can a cut-flower profession, one that devotes too much attention to peddling blossoms and too little to groping rootlike in fresh soil.

Industrial design today is not a cut-flower profession. The terrible danger is that it may become so, and that the designer-businessman–a useful figure for our time–may give way to the businessman-designer, who is not useful and who, for that matter, is not really a designer at all. *R.S.C.*


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PACKAGE DESIGN: a golden egg

An inquiry into the nature of a new profession reveals a wealth of opportunity for applying intelligent design principles to the packaging of goods for the marketplace

by RALPH S. CAPLAN

An egg, as every schoolboy knows, is a product manufactured by a hen. An egg shell, as every designer knows, is a natural package. Whether or not the egg actually represents (as the poetry of design has it) the perfect form, it is a somewhat less than perfect package for contemporary purposes: it is intolerably fragile, badly insulated, and it will not stack. In their natural habitat, where they lie cradled by straw and productively sat on by feathered warmth, eggs are functional enough. But for purposes of modern merchandising, man has had to devise a cardboard nest, with each egg upright and isolated in a machine-made cell. More recently, we have replaced the shell with a plastic one, impervious to bacteria, mother hens, and maladroit grocery clerks. Oh, we know better than the hen how to care for its never-to-be-realized young.

As a package, the egg is stark and unadorned; like public speakers of a cliché ago, it needs no introduction. If distinctions are to be made between kinds of eggs, the consumer must make them for himself. The packages men devise are less reticent. They are also less beautiful.

It is the formidable task of the package designer to make them beautiful—but that is not his only task, nor even his chief one. And a single assignment is complicated by marketing considerations so various and complex that the wonder of it is that packages are ever designed at all.

A few weeks ago there appeared in the weekly newsmagazine *Time* an important two-page advertisement. Bleeding from left to right was a full-color photograph identified on the right-hand page as "Young Man Going Places." The face was the sort that, in a quieter age, might have appeared on the cover of *The Open Road for Boys*. Handsome, exuding youth, the model was equipped with crew-cut, button-down collar, rep tie and, although the photograph was a portrait, a sophisticated viewer could be reasonably sure that there was an attaché case within reach. A youth replete with so many attributes of the good life might be expected to have a gleam in his eye. He had. It was inspired by his realization of the opportunities in "one of America's fastest-growing industries—Packaging."

Notwithstanding the ebullience of what have come in this country to be called "the communications industries," the fact is that packaging is indeed growing, that the designer has a lot to do with the direction of its growth, and that its growth has a lot to do with the direction of the American design office. For packaging is essentially a coat-tails industry – it rides, properly enough, on the coat-tails of whatever is produced. An economy producing more of almost anything has also to produce some sort of package to put it in.

But this isn't quite where the designer comes in. Products can be contained without his help, and too often are. What has brought the package designer to his present importance is not a policy of containment but a condition of marketing: the package does not just carry the product through channels of distribution; often the package *is* the channel of distribution. The designer helps make it so, and how he does it is important to everybody concerned with marketing, including

other designers, whatever their specialties.

In a sense there are very few "other designers." According to a recent survey, as the old saying goes, a majority of industrial designers do *some* package design. There is at this writing no telling—and apparently no knowing—how many designers do more package design than product design, although an "educated guess" indicates that there are from 150 to 200 designers in this country who derive a substantial part of their income from package design.

Why so many? The chief reason, says one designer, is that the field is lucrative. "There may be all kinds of opinions about package design, but one thing everybody agrees to: there is a lot of money in it. After all, products can't be redesigned very often—the expense of retooling forbids it. But packages are constantly being market-tested and redesigned. A big problem for product designers is getting enough work-through to keep their staffs busy the year round and year after year. By designing packages—which change much more rapidly and frequently than products—they are able to keep going."

The package is a product

They do keep going. And as they do they raise some provocative questions about the very nature of the activity that keeps them going. Is most package design simply a handy way of subsidizing product design staffs? Is it, for the client, merely the application of some commercial art techniques to the directives of research and advertising programs, and if it is, can it really be called design?

"Before we talk about design," says Lony Ruhmann, of Container Corporation's design laboratory, "I think it is necessary to stress that package design cannot be conceived of in any other way than as part of a total advertising strategy." In this light, isn't package design—so intensely aimed at moving goods off the shelf, rather than at improving them—really an extension of advertising? Isn't the package designer a horse of a different color from the product designer, and less likely to be an off horse at that?

The implication is not new. Nine years ago *Time* said of Raymond Loewy: "As the 'great packager' who tricks up boxes and labels, Designer Loewy lures U. S. consumers into buying more soap, lard, perfume and hair oils. If he did nothing more than such trivial things, consumers might well wonder what benefit, if any, they get from his work. But he also works just as hard making all manner of things better and more usable."

The sentiment is clear, and is commoner now than it was nine years ago: the product designer makes better things to sell; the package designer makes things sell better. The product designer makes the consumer's life easier; the package designer makes the consumer an easier mark. If this is in fact his job, doesn't he have to depend more on such gimmicks and fads as brainstorming, and less on the creative impulse that made him a designer in the first place?

Package designers—to no one's astonishment—say no; and they have reasons:

1. Creation is creation. What this Gertrude Steinish statement comes down to is that a design, whether of a plywood chair or a polyethelene hat-box, comes from the only place it can come from—a man's brain. This is creativity, and the package designer, like any other, uses his design talent, his ingenuity, his professional experience. Research is an aid, not a substitute. As Lony Ruhmann says, "Whatever testing methods are employed, they do not replace any of the designer's creative work." But is the package designer ever actually in a position to assert his creative judgment against the findings of market researchers? Apparently he is. Designer Jim Nash—who finds market research valuable (see February ID)—gives as an example his redesign of the Quaker Oats trademark. For 69 years the company had used a full-figure Quaker trademark, and research findings indicated that the public would not accept, or even recognize, a change. Nash—who proposed a head-and-shoulder version of the Quaker—was sure they would prefer the new mark, and said he would stake his reputation on its public acceptance, regardless of what researchers said. The Quaker Oats people were in no mood to gamble an entire line on a designer's insistence, but neither did they want to fly an antiquated trademark in the face of marketing progress. Since they were about to introduce a new product, "Instant Oats," they decided to use it as a testing ground for the new mark. Nash's "smiling Quaker" met with immediate public approval, and is now used for the whole Quaker Oats line.

2. It is hard to say, technically, where the line is between package and product. Often a package *is* a product—a dispenser, for example, is as much a mechanism as it is a container. By the same token, a product is often a package. "The product designer doesn't make a toaster," says Norman Schoelles, Chairman of the Plans Board at Lippincott & Margulies, "he puts a case around it. Actually what he does is to package it, which is what we do."

"To a packaging designer," says Morton Hollis, "a

package is not merely the housing of merchandise, for it may be the actual merchandise. A package may be in the form of a sunglass display which ships prepacked to the retailer in one compact, complete unit ready for selling. Or it may be a cast-iron gear-reduction housing that encases a set of gears."

To be sure, package designers admit that a lot of their work is just "prettying up" for the kill. But so is a lot of product work. The market imposes certain limitations on all designers; those who create packages feel, like everyone else, that the deeper they can go, the more effective their contributions will be.

How the consumer benefits

3. The package designer does do something for the consumer. His purpose is not just to make a package that will be greedily snatched from store shelves but to make one that will be pleasant for the consumer to live with. The cartons for Yes and Chiffon facial tissues are two cases in point. Since they function as selling tools on the shelf, the brand name must be clearly and attractively displayed. But since they go into homes and onto dressing tables, the brand name is an irritant. No woman wants an advertisement in her bedroom if she can help it; and with these cartons she *can* help it. The Yes logo is printed on a perforated patch. The Chiffon brandmark and copy are printed on a clear film overwrap. Both the patch and the overwrap must be removed for the consumer to get at the respective products. The techniques differ but the principle is the same: to give the retailer a salesman for his shelf, to give the consumer a convenience for her home.

Chiffon: Staff art dept., B. Rutledge, director; S. McCormick, consultant. Yes: C. Magers, designer.

There are subtler ways in which the package designer serves both seller and buyer, and the designer may mention them when confronted with the fairly common view of package design as a sort of technicolored white lie. After all, the argument goes, the designer is perfectly aware that differences between cigarettes are negligible. Yet isn't his job to stress and dramatize the differences that don't really exist? To this he has two answers.

The first is that although there may be no important differences between cigarettes (and this has not been established), there are great differences between cigarette companies, each of which has—or with the designer's help, can have—a distinct personality. Human nature is the same everywhere, the designer muses; but individuals differ in the faces they show the world. The designer is responsible for the face a product shows the world, and his job is to create one consonant with the character of the company.

The hidden benefactors

For another thing, the designer today has read enough psychology to know that all that glitters has a chance of giving some of the pleasures of gold. Cigarettes may be indistinguishable by taste, but the pleasure of smoking comes from more than just tobacco wrapped in paper. It comes from a whole network of pleasant associations, and the designer can enhance these even if he can't do anything about the cigarettes themselves. Why shouldn't a product be made as appealing as possible by extending its merit to the package?

In *Madison Avenue, U.S.A.*, perhaps the first intelligent defense of advertising to appear between hard covers, Martin Mayer argues that advertising increases the value of a product by increasing the desire for it, and by adding pleasant connotations to its use. If this is true of advertising, it is certainly true of package design. The proof of the pudding is, ultimately, in the eating. But until someone wants and buys and prepares the pudding, there can be no eating. The promise of the pudding is on the package. Designers put it there.

How do they learn to do it, and from whom? There seem to be about as many answers as there are package designers. Becoming one is apparently like becoming a design critic—you *decide* to become one. This doesn't mean that package designers don't need training—they need all they can get; but it does mean that the profession is made up of men from so many walks of design life that no one has clearly established what kind of training is required. A sampling of some prominent package designers brings out the following variety of backgrounds. Eric DeKolb was first a fashion designer. Gordon Lippincott was a product designer. Walter Margulies was an interior designer and architect. Peter Schladermundt was an architect. Frank Gianninoto was an advertising art director, as was Robert Neubauer. George Reiner designed textiles. Egmont Arens was a printer, publisher, editor, art director, lamp designer. Margery Markly began in the art department of The Walgreen Drum Co. Harry Lapow served his apprenticeship in an art studio. Karl Fink has been a package designer since adolescence.

Kleinert's "Storybook": Alan Berni & Associates. Atlantic tape cartons: Arnold Saks & Marvin Israel.

There is a real need for the establishment of standards and requirements in training designers, and it is a need that the Package Designers Council has recognized since its inception. The Council has in the past sponsored an educational program consisting of fellowships awarded to talented young designers-to-be. These have been based on the belief that the profession needed young men who had been grounded in two specialties: design technique, and marketing and retailing principles. Any effort at stabilizing package designer training, however, must be recognized for what it is—a new program for a new profession, a program necessarily tentative and experimental. In the meantime, designers will go on learning as best they can, for themselves and from each other.

The uses of the past

As designers learn from each other, so do designs. New though it is, the profession of package design has its roots deep in an old tradition. One of the first designed packages was the book. Designers sometimes speak of package surface design as "three-dimensional graphics." The book is just that. Because it is so old and respected a form, and because it is so logically adaptable to certain products, the book is a fairly common packaging motif. It allows easy and variable stacking, and there are agreeable associations in the format itself. In the case of the stereo tapes, its use is logical: the product is one that is collected like books and kept like books. The "storybook" package for Kleinert's line of rubber baby pants has other things to recommend it: it has a gift look; the hinge does away with lost covers; the spine displays pertinent information clearly, and the storybook graphics are appropriate to a product for infants.

These book packages show how an old form may be incorporated into a contemporary design solution, and add up to more than just imitation. They also serve to remind us that the craft of packaging was not born yesterday. Yet in a field that is developing so fast, the designer cannot rely on shaping traditional forms to his purposes. Often he must meet problems in completely new ways. A very special kind of problem was present in the packaging of surgeons' gloves, which had to be put through a number of wrapping and folding steps preparatory to sterilization at the hospital. The package on the next page was designed to eliminate all processing steps. The gloves are encased in a double envelope of two-way stretch Kraft, which can be reused. As in approved hospital procedure, gauze pads have been inserted in each wrist to allow for thorough circulation of steam during sterilization. A paper packet of biologically absorbable lubricating powder for the surgeon's hands is included. The envelopes are sealed with a tape which changes color when exposed to heat sterili-

zation, thus identifying those gloves which have been sterilized. Glove size is stamped on the tape.

Problems of the present

Most designers don't work on surgical gloves, but they do work towards the same general packaging objective. This is, quite simply, to sell the product. In the case of the glove package the anticipated sales increase is based—as the package designer's contribution must always be—on a thorough knowledge of the market it is prepared for. Since labor costs are well in excess of half the total cost of running a hospital, any product that can reduce them is welcome.

Although an offbeat packaging achievement like this may help sharpen our view of some of the daily problems in package design, the designer rarely deals with so special an item. More often than not he is asked to redesign a package that already has a history of sales and consumer acceptance, and his task is to achieve a successful blending of old and new values. Frequently he is faced with these dilemmas: while he seeks to create a modern look, he has to realize that the company his package represents has a character and personality that has taken years to develop; while he seeks to create a distinctive individual package, he must create one that is also in harmony with other products in a line.

Glove bag: Wilson Rubber Co.

This is what one package designer meant when he said that "Starting from scratch is the easy way to good design." Starting with a trademark or logo that is already charged with desirable emotive meaning, and that is to be preserved and modified, rather than tossed aside, is much more difficult.

To travel the middle ground of public acceptance is a subtle process that demands experience and judgment, and some kind of research. Successful package design always demands these qualities. Where can the client look for them? There are a number of sources, and it is interesting here to examine two of them. One, a large independent consultant design firm, does not conduct market research, but *uses* professional research facilities on the grounds that "we think it would be perfectly absurd for us to check our own packages." The other, the design service of a major supplier, conducts research in its own "design laboratory." Both pride themselves on results that have proven to be profitable for the client.

Plucking the package

One of the country's largest and most successful package design firms is Jim Nash Associates, with offices in New York and Canada. A former BBD&O poster designer, Nash won the Irwin Wolf award for the best package design in 1934 and went into business for himself. To his new profession he brought what he calls the poster treatment of graphic design—a graphic presentation planned for the consumer on the move, a package that will never be static, that has in a sense to pluck the consumer's attention in order to make him pluck the package from the shelf.

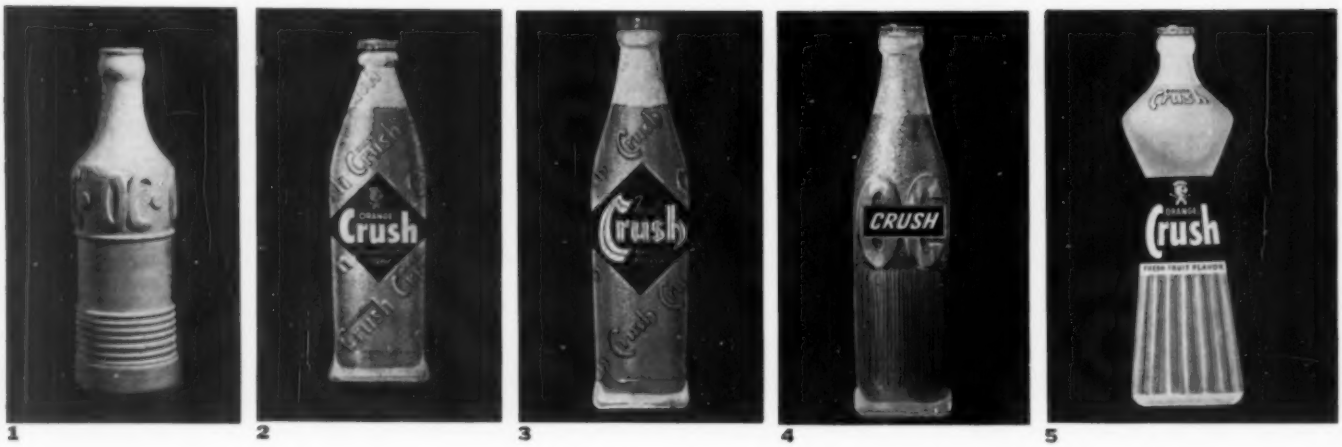
Kitchen on Madison Avenue

In his New York office, staffed by 30 people, including ten designers, Nash takes on projects ranging from the outside of cakemix boxes to the inside of submarines. But the major part of his work is package design, and the greatest part of that is food packaging: more than four billion dollars worth of pantry products are sold in Nash-designed packages each year. The firm has its own Home Economics Department, where they test the client's recipes and experiment with new ways of using his product. Thus they get not only into an aspect of product design, but into the very basis of the copy to appear on the package. The service started in the thirties with clients too small to have testing facilities of their own, and grew naturally because Mrs. Nash, an officer in the firm, has a keen and informed interest in cooking. Now, though Nash's clients include some of the world's largest food merchandisers, the firm continues the service because of Mrs. Nash's conviction that it provides something giant corporations find it impossible to get—home cooking conditions. Although clients may have complete scientific cooking laboratories of their own, these are too professional to simulate the housewife's kitchen. In the Jim Nash Madison Avenue kitchen, all the testing is done on a range that might be anyone's, by a cook who might be anyone's. The results are revealing and useful.

Because Nash, who is president of the PDC, is so much a force in the package design world, it will be useful to take a look at what he does and how he works. The complete redesign of bottle, crown, carriers and trademark for Orange Crush—a project Nash considers representative of his comprehensive approach—is presented overleaf.

Famous old amber Orange Crush bottle concealed product color.

Jim Nash Associates experiment to bring about



1 2 3 4 5

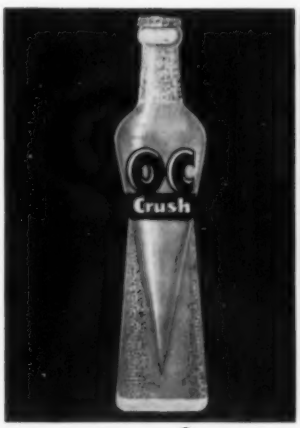
Molds and sketches show how new bottle evolved. Number 1 is a plaster mold, an experiment with molded trademark. Sketches 2 and 3 concentrate on special ornaments and embellishments; 3 emphasizes the word Crush, *with transparent center line letting the drink show through. 4 tries out new trademark idea. Company liked streamlined shape of 5, and encouraged Nash to continue along this line. 6 features new concept of two cones passing into each other; stipple was discarded in final design because greater inspection visibility was required. Three models trace approved design through stipple, fluting, and shoulder-rounding phases, leading to final bottle at far right.*

The Orange Crush bottle shown in the upper left hand corner of this page is pretty much like the one originally designed in 1918. The only major variation appeared in 1937, when the color of the glass was changed from white to amber. Considering the original design purpose, it was a successful bottle. It lent itself to practically all forms of vending equipment, and sold very well for on-premise consumption, which was for a long time the chief market for soft drinks. In the years following World War II, however, the industry's sales pattern changed. From 1939 to 1955 the per capita consumption of soft drinks leaped from 88.6 bottles to 190 bottles, a movement largely attributable to increased sales in food stores. It was a sales pattern for which the old Orange Crush bottle seemed to be unsuitable: the product was not getting its share of the general increase, so the company decided to change the bottle. They asked Nash to redesign it in line with modern marketing currents. If a radical change seemed desirable, they were willing to make one.

the birth of a new bottle design

The Nash office began by formulating a set of design objectives. They wanted to provide more instantaneous appetite-appeal, to obtain a quicker brand and product identification, and to create stronger individuality in the trademark. With these objectives in mind, they set about making point-of-sale tests and experiments, thus establishing a need for 1) a clear flint bottle for greater appetite and quality appeal, and 2) increased size. In addition to incorporating these features, the design they came up with had to be producible within the limitations imposed by the many different kinds of filling and cleaning equipment that are used by bottlers of Orange Crush in various parts of this country and in Canada. The design research therefore included studies of bottling and cleaning equipment, and trial runs of bottles for breakage tests.

Nash designed 3-color crown for quick recognition in coolers.



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The pictures across this spread show the sequence of design thinking. From experiments with a new trademark molded in the glass, through sketches seeking to retain the old mark's memory value, while emphasizing the brand name more strongly, the designers arrived at the "cone-into-cone" concept (4) with a stipple to simulate orange peel. However, because the bottles are reusable, the bottoms are subject to inspection by light for possible foreign material; the stipple had therefore to be discarded, and replaced with fluting to insure ease of inspection. The three models directly above show how the bottle evolved after designers had arrived at a pleasing shape. The third model, a wooden one made under Nash's supervision by Owens-Illinois, has shoulders slightly more rounded to allow for filling and cleaning equipment. Lettering on the new ten-ounce bottle (right), printed in green and white, gets a third color from the drink itself showing through thin lines in the letters. The company reports spectacular sales results since the introduction of the new bottle.

It is important to remember that no matter how many package designers there are, and no matter what the scope of their operations, packages are designed by a good many people besides consultant designers. Advertising men, sign painters, printers, boss's wives—everybody can design some kind of package, and a lot of people do. There's nothing new about this: "Why, I was designing labels when I was in high school," says PDC Executive Vice President Karl Fink. "They weren't professional caliber — how could they have been?—but I did them, and a lot of the same kind of amateur design is being done right now."

The design service many clients get from sources other than package designers is not always amateur, however. One of the chief among such sources is the supplier of materials and containers, who is likely to have a design staff of his own and to lend its talents to his customers. He is a source also of more than mild irritation to the design consultant, who finds some suppliers offering "free" what he must charge money for. Independent designers are likely to offer two opinions about free design services. The first is that since somebody has to do the actual designing, and whoever does it has to be paid, the free design service is seldom if ever really free. It goes with the cost of the material. (To which some suppliers reply that the cost of the material is neither more nor less than it would be *without* the design service.) The second objection is that "free design" can never be as good for the client as consultant design. This is not a reflection on the designers who are employed by suppliers, but on the circumstances under which they must inevitably work.

The kind of close client-designer relationship that the consultant prizes so highly is impossible with supplier design services, the independents claim. The designer may be doing a package for X cookies one day and Y cookies the next. Just whose team is he on anyway? And does he get his understanding of the design problems from his own study, or from what someone in the sales department interprets as the client's needs and wishes?

A further—and much graver—argument is that the supplier's designer is unavoidably handicapped by his allegiance to the material or product his firm sells. No one disputes that he wants to do his best work; but he is confined to doing the best work he can in an automatically specified material, rather than being left free to design as he chooses. Is this fair to the client?

The supplier is likely to reply that he is as interested as the client in effecting the very best design possible. The consultant accepts this as true—within limits—the limits being whatever it is the supplier has to sell. Independent designers say they are perfectly willing to believe that a folding-box manufacturer will do all he can to assure a customer of the best-designed folding box possible. They are less willing to believe that he will ever conclude that the product would be packaged best in a can. Nor is any insincerity implied. The supplier must be sold on his product. It follows naturally enough that he will find it the best solution to most packaging problems. Suppliers insist that their main design interest is to see that their product is properly used, and that they will always discourage its misuse. To which a midwestern designer comments cynically that "There are irrefutable statistics to show that the design departments of halaxite producers tend to gravitate suspiciously toward halaxite as the best material for packaging almost anything."

The more the merrier

When Container Corporation of America recently introduced, for medium-sized canners, a machine that loads cans into six-pack cartons at rates of 300 to 600 cans per minute, it ought to have come as no surprise. A pioneer in the development of multiple packaging machinery, CCA has been extremely active in sparking and boosting the multiple packaging trend.

The philosophy behind the trend is not complex: put more items in a package unit, and you'll sell more items. But the advantages of the multiple pack go further than that. For display and other promotional purposes, the multi-pack can be given a "billboard" treatment impossible with most single units because of the rounded surfaces of cans and jars. Container's enthusiasm for multi-packs is also stimulated by their ability to get more of the product onto the shelf. Market Development Manager William L. Dempsey, Jr. explains it this way:

"The fight for food store shelf space is keener than ever before. Grocers measure their take in terms of square feet of shelf space. Multi-packs demand more space—which increases sales."

Multiple packaging was pioneered before World War II by (among others) four brewers—Schlitz, Pabst, Budweiser, and Schmidt—each of whom came out with a closed box of six cans. In 1947 Ballantine appeared in a three-pack, and packs in various multiples became fairly standard for both beverages and food. CCA designers find the principle useful for many other products, and have employed it in packaging everything from clothes lines (Puritan Cordage Mills) to brassieres (Exquisite Form). They find that it simplifies handling, thus saving retailers time; and the size discourages pilferage. It can convert inexpensive products into gift items: goods like candy bars and small jars of cheese are too small in themselves to qualify as gifts, but in attractively packaged multiples they have been well received.

Containers by Container Corporation feature multiple packaging for multiple sales

Multiple packaging of glass jars makes possible a billboard effect for promotional display purposes.

Baby travel kit combines six necessary baby items in handy package that hangs when open.

The psychology of multiple packaging can be useful in winning brand loyalty, for the consumer buys enough of the product to give it a fair trial. A good (and very amusing) example of how this works is Container's design for Kitty Snicker cat food, a product containing an ingredient that eliminates objectionable (to people) fish odors. The trouble with cat food, people complained, was that it smelled fishy. But the trouble with Kitty Snicker, cats complained, was that it did not. Feline consumer research revealed that by the time they were on their second can, cats had cultivated a taste for the odorless food and were pleased with it. Hence, the multi-pack. The cat may turn up his nose at the first odorless serving, but the thrifty housewife, having bought three cans, refuses to waste the remaining two, and the product is given the chance it needs.

Because of its flexibility, multiple packaging can arrange products in combinations that make life easier for the consumer. The Johnson's baby travel kit assembles most baby needs in a washable hanging unit that folds neatly and snaps shut for carrying. The Texas Tavern collection below illustrates how the multiple approach to packaging can combine several food elements that add up to a complete meal.

Container Corporation, on the basis of both experience and predictive research, is convinced that multiple packaging is here to stay and that it will spread to products never before merchandised in this way.

Both large and regular size detergent cans in one package (left) shows flexibility of multi-pack.

Harmonious tie-in items can be sold as dinner unit (right). Multiple packaging promotes the unit sale of several companion items.

From a barker on the shelf, to a friend at home . . . the package is for people

Whatever else it is, package design is a specialty—a design specialty. And as the profession matures its members tend increasingly to become design specialists. The form such specialization takes will depend partly on marketing trends of the future and partly on how effectively designers can deal with the new functions that packages are coming to assume.

As Walter Landor says, "Modern package design is moving in the direction of greater consideration of what the package is like to live with after it gets home and is put to use at the sink, in the pantry or refrigerator, on the table. The designer must take cognizance of the consumer's increasing sensitivity to the visual aspect of his environment. To develop brand loyalty, a package must be more than a barker from the shelf; it should behave as a friend in the home. It is not just a sales device, but a re-selling force, and has to be conceived as such.

"There will be rapid growth in talent that can turn out *acceptable* packages at a high level of mediocrity. This will put a premium on designers who can truly understand consumers and know how to reach them through their emotions."

This means of course that the designer must *responsibly* reach consumers, and must persuade them to buy not because he pushes a hidden button that motivational research has revealed to him, but because out of his understanding he has designed packages that are useful and enjoyable. It was not just a whim that made Henry Dreyfuss call his book "Designing for People," and although the book itself is mostly about product design the title might well serve as a motto and a reminder for package designers. They too are designing not just for the market or the supermarket, not for promotional tie-ins or stronger company identification or brand loyalty or taste appeal or "buyability" or line harmony or shelf prominence or display stacking or any of the thousand and one other considerations that go into the creation of a successful package. They are designing for *people*, in a new field in which the possibilities of serving consumers are richer and more various than a lot of people (and maybe a few designers) imagine.

Coming in May: ID investigates how a revolutionary change in retailing methods challenges the skill and ingenuity of anyone "Designing for the Supermarket."

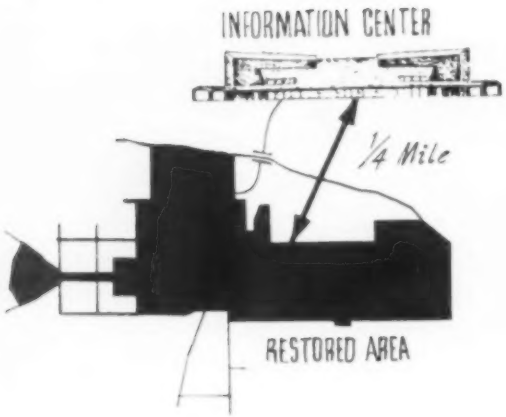
Robert C. Lautman

The Nelson assignments ranged from integrating modern furniture with such historical material as Herbert Bayer's 12' by 15' map of Virginia, to redesigning Bulmer type face for signs (below) in the Information Area.

Williamsburg: a design program creates a link between centuries

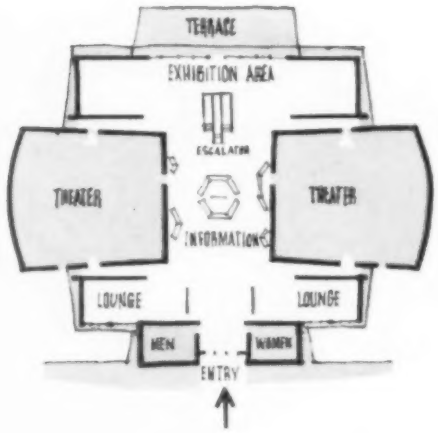
Alexandre Georges

Williamsburg, Virginia, famous colonial capital restored to its original appearance through a fund set up in 1926 by John D. Rockefeller, Jr., has in recent years become popular enough (more than a million visitors in 1957) to require building—beyond the restored area—an eleven million dollar Information Center Area to accommodate twentieth century visitors and to prevent their destroying the very thing that brought them—an eighteenth century town. George Nelson and Company, Inc. has created for the new area a highly flexible Information Building interior and other aids to help tourists enjoy their visit.

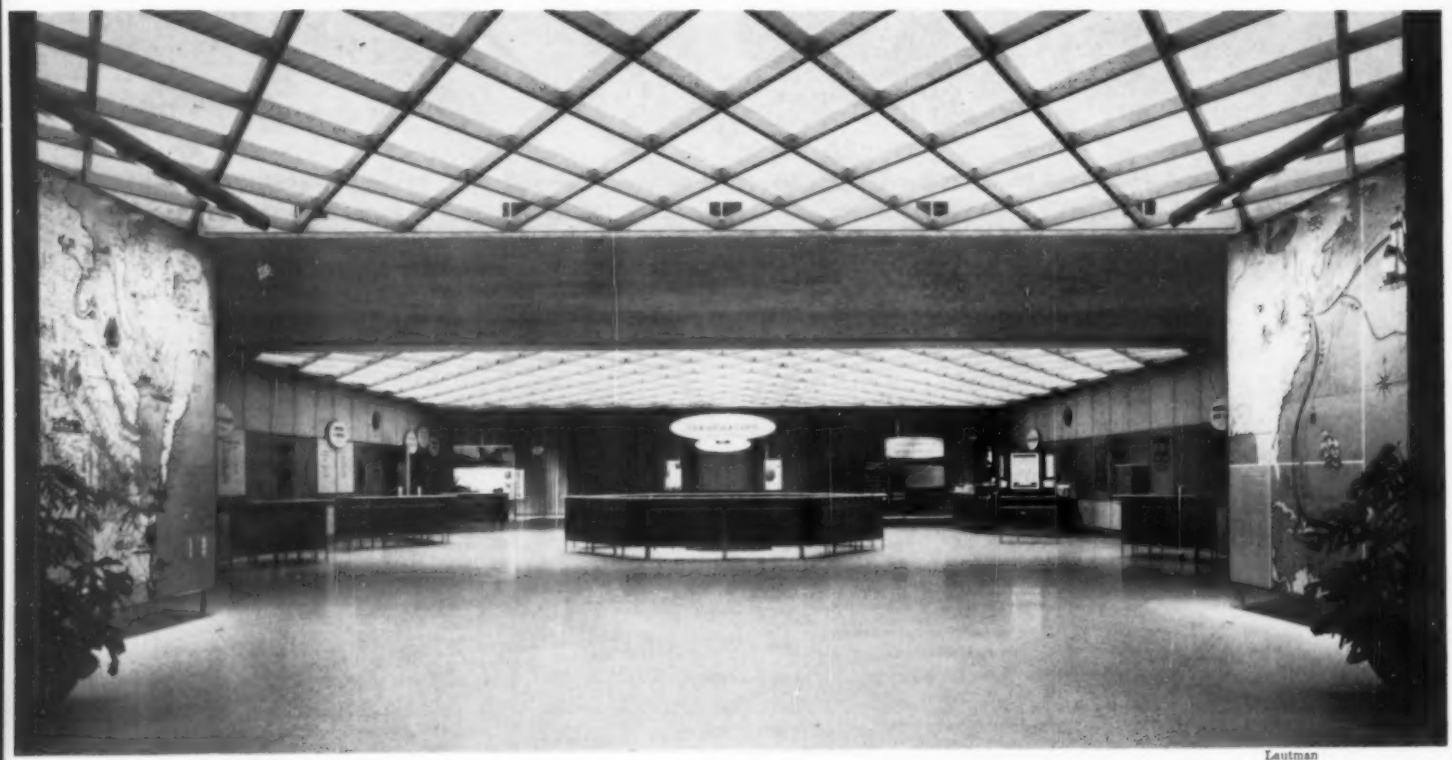


The purpose of the Information Center Area is to provide for visitors a comfortable transition from the twentieth to the eighteenth century and, by absorbing the cars that were formerly parked bumper-to-bumper on Duke of Gloucester Street, to keep Williamsburg's atmosphere unspoiled. It offers visitors a motor house of some 200 rooms, a cafeteria that serves 600 people an hour, parking lots to accommodate 1,000 cars and buses, and the Information Building. The buildings are in conservative, contemporary style with Virginia brick, grey slate, and glass the predominant materials. The site is a 40-acre wooded dale, where the major highways to Williamsburg converge. It is about a quarter-mile from the 130-acre center of town, which boasts 82 restored eighteenth-century structures and 400 public buildings, taverns, homes and shops now reconstructed on original foundations.

A comprehensive and flexible plan facilitates the flow of information and people



The Information Building itself is a combined theatre, exhibition hall, and information center. It is built around two 250-seat theatres which show a 35-minute color film on Williamsburg alternately every 20 minutes. A major problem for Gordon Chadwick, who supervised the Williamsburg assignment for the George Nelson office, was to develop a plan for circulating visitors through lounges, information area, exhibition areas and theatres in a way that would make best use of their time. However, since there was no guarantee that people would enter the theatres by the lounge doors and leave by the exhibition area doors, as intended, the whole interior was kept flexible for accommodating possible traffic flow.



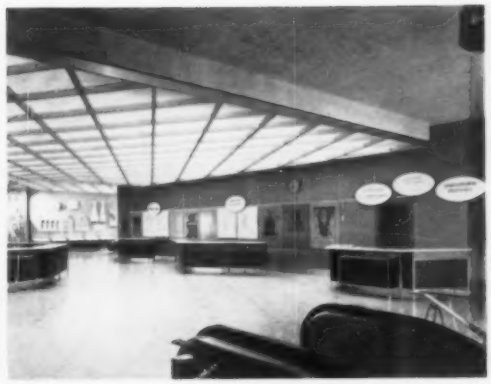
Lautman

Lautman

Time at which movie begins is clearly marked over theatre door (left). Visitors relax in lounge, study exhibits while waiting.

Lounge exhibit serves as decoration as well as guide to eighteenth century building method.

Lautman



In the information area tours, special events, publications, lodging and dining are handled at modular desks. They are walnut with blue Micarta tops.

Irving Harper set up two major shows in the exhibition area at the rear of the building. Archeological exhibit (below) traces reconstruction and restoration of Williamsburg to its present state.

"Williamsburg's Sister Capitals," second exhibit (below), compares events in other colonial capitals with events in Williamsburg, and reminds visitors of early life in their own regions.

Lautman

Lautman

When George Nelson and Company, Inc. was invited by Colonial Williamsburg, Inc., to help with the creation of the Information Center Area they found themselves with a variety of problems adding up to much more than an interior design assignment for the Information Building itself. Their program had two aims. The first was to create for Colonial Williamsburg an interior that could be altered with ease—where exhibits could be changed with a minimum of trouble, and where, if necessary, the whole function of the building could be changed. The second aim was to adjust visitors to an eighteenth century environment and show them how to get the most out of their visit.

To keep the building free for diverse uses, the Nelson office developed modular ceilings, walls, desks, and display fixtures. This gave remarkable flexibility to the interior space. A suspended, diamond-pattern lighting grid of U-shaped, extruded aluminum will accept hangers and display poles and support additional lighting facilities (see page 47 for details). Electrical outlets at each intersection of the diamond-pattern terrazzo floor allows for complete flexibility in furniture placement by eliminating wiring problems. The walls in the information area are composed of anodized, expanded aluminum panels. Metal slots in the joints between each panel receive display placards, and the panels themselves may be varied with a kind of Mondrian effect.

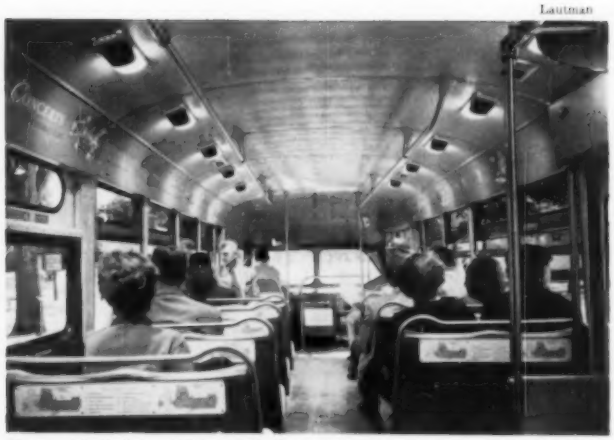
To show Williamsburg visitors how to enjoy the town, Gordon Chadwick developed a comprehensive design approach for the Nelson office. It included a brochure on how to see Williamsburg and exhibitions, under Irving Harper's direction, that help the visitor understand what he is about to see in the town. The office also participated in developing a free bus system to discourage use of cars in the restored area of Williamsburg, and they designed parking lot and bus signs to facilitate tourist movement. A specially redesigned Bulmer type face was used in all graphic work.

It was decided early in the planning that the interiors would be frankly modern. Designers wanted to create a transition from the twentieth to the eighteenth century; certainly they did *not* want to confuse visitors with a reproduction before they had had the opportunity to experience genuine colonial architecture. But all decorative elements—Herbert Bayer's historical maps, wall blow-ups of early tobacco cards—are designed to bring out the flavor of Old Virginia without interfering with modern comforts.

Lautman

An escalator leads from main floor to bus loading area, where an illuminated diagram indicates points of interest along route. Rooms for training guides, rest rooms, offices are on this floor.

Lautman



Work of Nelson office included strip advertising on interior of free buses and a logotype used on exterior of buses and throughout Information Area. Both were in modified Bulmer type face.

Designers' contributions range from logotype to versatile lighting and display systems

The Bulmer type face had to be particularly sturdy for use in signs of many materials: porcelain enamel on steel (above), baked enamel on aluminum, wooden letters on formica panels, aluminum letters applied to brick wall, back-lit lucite, silk screen on Plexiglas, scotch light on painted wood, die-cut vinyl letters.

A modified Caslan was the only type face to be found in eighteenth century America and the one which Colonial Williamsburg uses in all its graphic work. Since this face was too delicate for the many kinds of signs in the Information Area, Don Ervin of the Nelson office developed a new type face (left). Discovering that both Baskerville and Bulmer had existed in eighteenth century England, he settled on the Bulmer for its sturdy, architectural qualities and because it required less modification.

The final type family consisted of an upper and lower case Roman, an upper and lower case italic, and an upper-case, bold Roman alphabet. He made all serifs longer, widened all letters, modified the T, N, and Y to be more consistent with other letters, and squared off all serifs to make for easier cutting of wooden letters. Graphic work employing this modified eighteenth century face is now found in the restored area of Williamsburg as well as the Information Center Area, and works as a subtle, unifying element between the two.

A B C D E F G
H I J K L M N
O P Q R S T U
V W X Y Z &

OTHER CREDITS:

For the Building

Mitchell A. Wilder, vice president, dir. of presentation, Colonial Williamsburg, Inc.

A. Edwin Kendrew, vice president, dir. of architecture, Colonial Williamsburg, Inc.

Harrison and Abramovitz, consulting architects.

Benjamin Schlanger, designer for theatres.

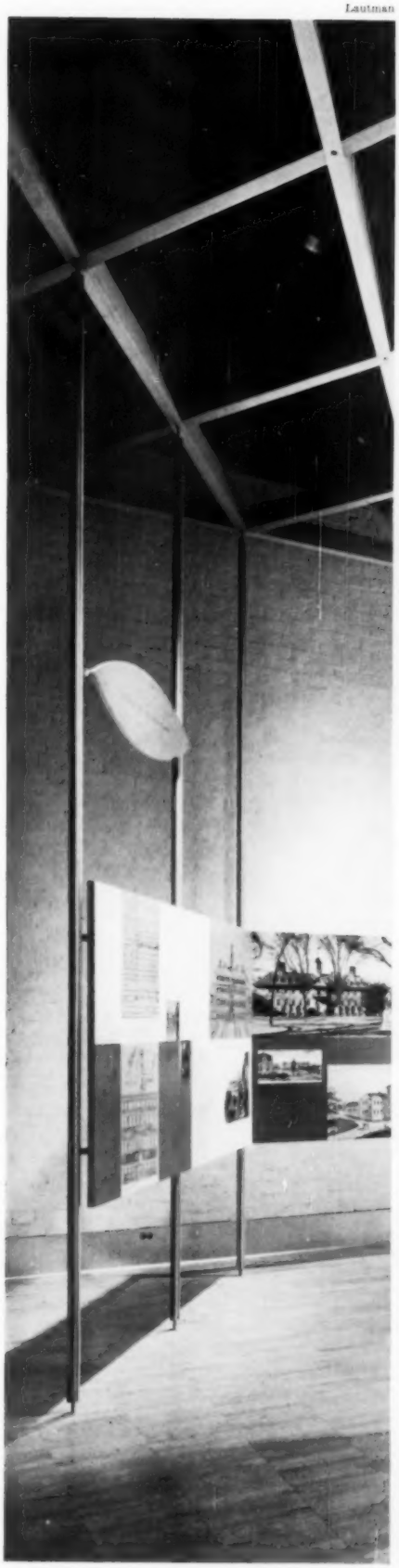
For the Interiors

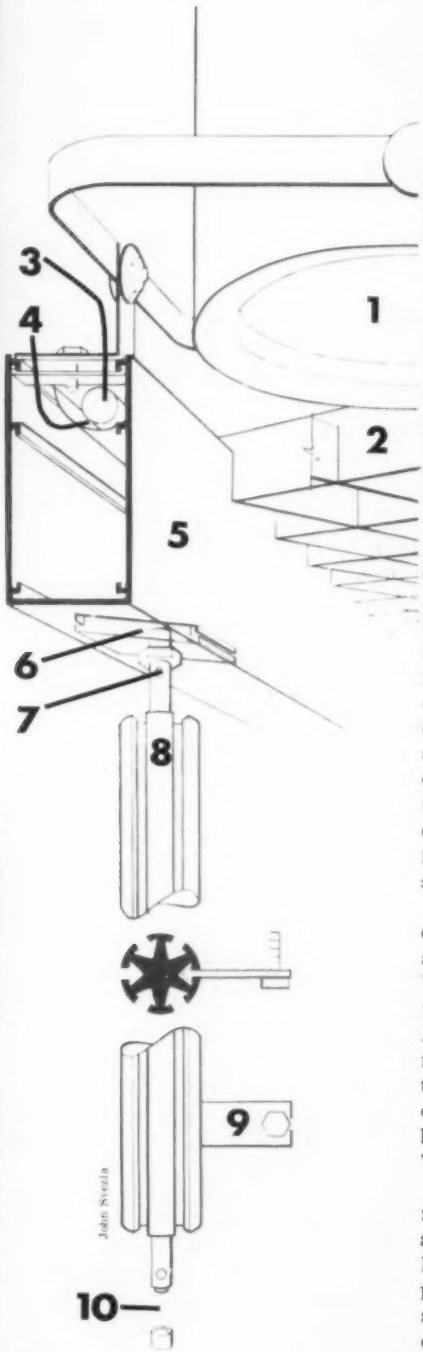
Gerald Ewing, lighting consultant.

James Thomas Flexner, historical consultant for the special exhibits.

Herbert Bayer, designer for historical maps.

Lautman





The sketch at left diagrams the lighting and display modules which contributed to the interior flexibility of the Information Building. The lighting system, planned by consultant Gerald Ewing, was based on a grid of U-shaped aluminum channels (5) extruded by the Reynolds Metals Company.

The grid, 14,000 pounds of which were used in the building, was designed to lock the exhibition poles (8) into place; support the upward thrust of exhibition poles, and permit insertion of an attachment (6) for them at any grid intersection; provide simple, accurate mounting means for spot lighting fixtures (1), plug mold (not shown in diagram), cold cathode lamps (3) and reflectors (4), and egg crate (2).

This flexible ceiling module provided three different lighting systems (the three systems are never actually used together as shown in the composite sketch) for the Information Building. In the lounge area cold cathode lamps, especially desirable for their long life and variable lengths, were placed within the U channels of the grid, used as an indirect light source for the domed ceiling. In the information area aluminum egg crate was inserted between the open diamonds of the grid, and continuous rows of cold cathode lamps were mounted on the ceiling above it. In the exhibition area the grid served as conduit and lighting fixture support. The spotlight used was, like most of the other lighting fixtures, refined and manufactured by Edison Price, Inc. It accommodates six different PAR type reflector lamps and contains a rotating spread lens.

The display system itself was based on the "Omni-pole" (8), an extruded aluminum display unit developed by William Katavalos of the Nelson office for the building and produced by Aluminum Extrusions, Inc. An aluminum arrow bracket (9 and cross section) fixes the exhibit panels, by means of an internal set screw, at the desired height along any one of five grooves. The fastening is invisible.

With the "Omni-pole," exhibitions may be set up rapidly, and the sockets at each grid intersection (photograph, left) allow for modular positioning. The pole is set in place and the threaded stems (7 and 10) at both ends tightened until they engage ceiling connector and floor collar; then it is locked at the top. In the actual installation, the pole was fastened at the top into a ball socket which allowed it to hang free to find its own center for floor anchoring.

Small Wonder

Touch speed on a manual calculator is offered by the portable, low-cost BDC Contex. Ridge on center key (No. 5) positions fingers automatically . . .

It takes a string of adjectives to sum up the BDC Contex calculator. It is smaller (7" x 10" x 4") and lighter (6 lbs.) than any 10-key machine on the market, yet costs $125, about half as much as its nearest competitor. This would not be so remarkable, except that it offers a full 11 columns and boasts one function found only on large office machines: it divides. For a manually operated calculator, it is extremely fast and accurate, requiring only 20% of the force used on most manuals. It is easy to disassemble for repairs, though servicing is kept to a minimum by the simplicity of its unitized internal design. Externally, it has a rare degree of sculptural and surface refinement.

The only detail these words do not sum up is how all this was accomplished. In all its mechanical and visual details, the machine can be credited to Henning Carlsen, engineer for Bruder Carlsen of Copenhagen; the stimulus for his work came from Leon Bohn, president of Bohn Duplicator Corp. of New York, distributor of BDC products here. Several years ago, Bohn arranged to handle the original Contex model: slim and small, it had—in place of the 90 or 100 keys of a conventional "comptometer"—only 50 keys (5 digits for each column of figures) and the minimal price ($59.00) required to sell such a machine to large segments of European business. Bohn saw an American market for such a low-priced machine, not to compete with heavy duty calculators but to reach the broad market of occasional users in home and office whose limited need for a calculator could be compensated for by its low price. When the first Contex did not "go over" here, Bohn soon perceived the reason. Like the standard non-listing key-driven comptometer, it required a trained operator, and as the supply of these dwindled, business was turning to the compact 10-key calculator that could be used without training. The occasional user, likewise, wanted something small, light and economical—but also something easy for a novice to use.

Bohn went back to his Danish manufacturer with this challenge from the American market: convert the Contex into a key-driven 10-key calculator for the same price. Henning Carlsen started from scratch, looking for new principles on which to construct a machine with as simple parts as possible.

The major difference between two types of calculators is expressed in the word "key-driven." On the basic full keyboard comptometer, each key is connected directly to the register dial in its own column, and turns it when touched without additional power. The 10-key machine has one set of digit keys (1-10), and introduces a complex device for registering them in successive columns. Usually this involves a shifting carriage with a "pinboard" of hanging pins corresponding to each digit in each column; after one pin is punched in a column, the board automatically shifts left to the next column. The activating handle then supplies power to transfer all the pinboard numbers to the visible dials through a transmitting system which usually takes up to 12 lbs. pressure to couple and operate. When this power is not supplied electrically, it comes from the effort of moving a side crank in a long arc—a motion that both slows the operator and prevents the rapid "touch" system of the electric. It was this leverage power that Bohn sought to eliminate in a "key operated" machine.

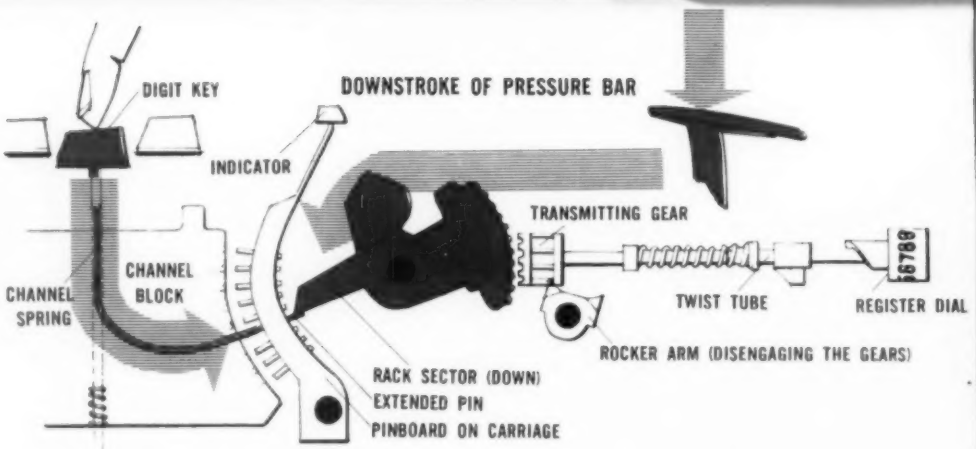
Tom Yee

Danish redesign transforms the 10-key calculator into a mathematical giant with a midget's physique

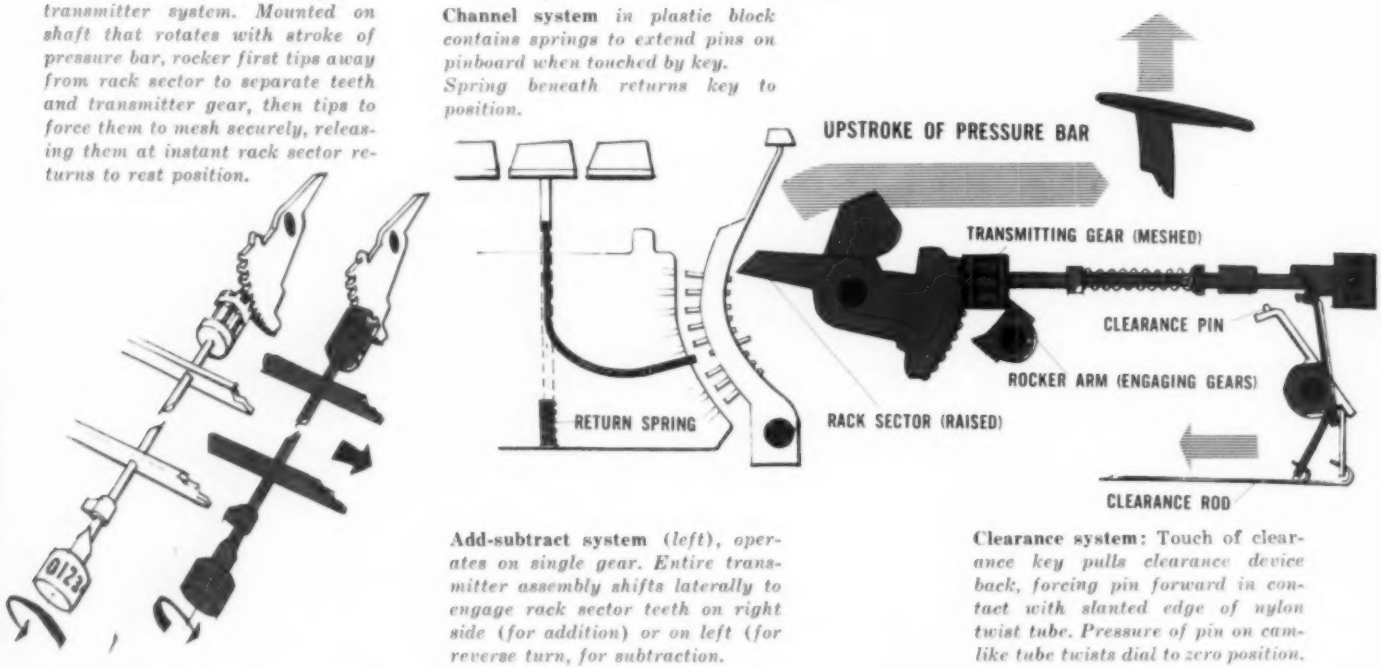
. . . pressure bar beneath sole of hand is activated without changing finger orientation. Machine fits into desk drawer, can be toted in plastic case.

Transmitter system *is incorporated in 11 horizontal shafts mounted as an independent sub-assembly. When key is touched, corresponding pin is extended. Downstroke of pressure bar rotates rocker arm so that it disengages gear and teeth; rack sector tips down until stopped by pin in its column. 5 rack sector teeth are then raised, ready to engage. As pressure bar is forced up again, rocker arm rotates in opposite direction, forcing rack sector teeth to mesh with transmitting gear, which moves 5 positions and turns register dial to number 5.*

Rocker arm *is at heart of simplified transmitter system. Mounted on shaft that rotates with stroke of pressure bar, rocker first tips away from rack sector to separate teeth and transmitter gear, then tips to force them to mesh securely, releasing them at instant rack sector returns to rest position.*



Channel system *in plastic block contains springs to extend pins on pinboard when touched by key. Spring beneath returns key to position.*



Add-subtract system *(left), operates on single gear. Entire transmitter assembly shifts laterally to engage rack sector teeth on right side (for addition) or on left (for reverse turn, for subtraction.*

Clearance system: Touch of clearance *key pulls clearance device back, forcing pin forward in contact with slanted edge of nylon twist tube. Pressure of pin on cam-like tube twists dial to zero position.*

Innovations in engineering create simplified, high efficiency operation

Carlsen and his colleagues never achieved the "key operation"—to date, they feel it is unobtainable with 10 keys—but keeping the moving pinboard system they accomplished an enormous reduction in operating pressure—down to 2 lbs. As a result, the BDC's handle could be placed on top of the machine, under the sole of the hand, where its 1-inch stroke is made rapidly, without moving the fingers from the keyboard. Like all of the major size and weight cuts, this is accomplished by the following major innovations:

Spring-loaded channels. In place of an assembly of hanging rods, keys relate to pinboard via simple plastic block containing ten spring-loaded channels.

Compact transmitter system. Four jobs done by separate systems are combined in 11 simple horizontal shafts that reduce stroke pressure up to 4 lbs.: transmitting pinboard numbers to register device; registry of product; clearing pins and dials; tens transfer, or automatic "carrying" of 1 after 9 is passed on any dial.

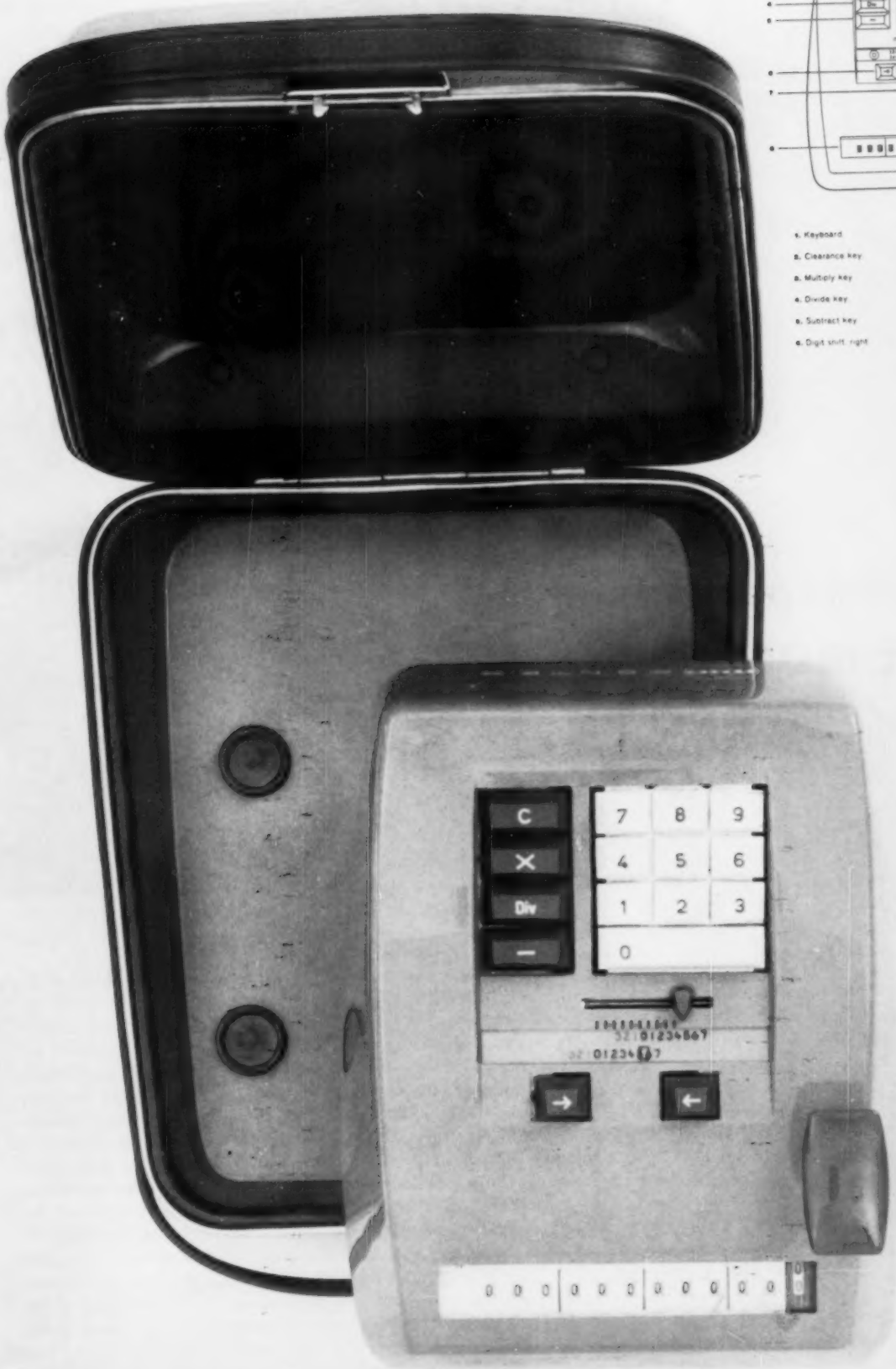
Engagement mechanism. While the transmitter system is being properly "set" by pins, it must be automatically disengaged from gears leading to dials, and it must be meshed when the entry is registered. A series of rockers on a single shaft do this job in place of a series of eccentrics, rollers, and clutches.

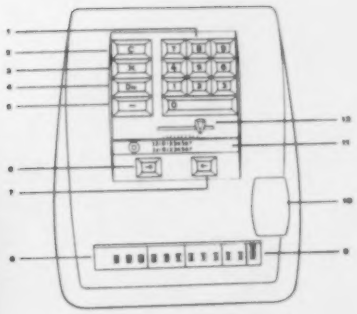
Single add-subtract gear. In place of two gears for producing opposite motion of add and subtract, BDC uses a lateral shift mechanism so that gear wheel engages rack sector on either side, for positive or negative rotation.

Clearance cams. In place of springs, to turn dials back to zero, Contex uses "key-powered cams."

Division: Just as all multiplication by machine is achieved by repeated addition, division is actually a series of subtractions of a divisor from the dividend to arrive at a quotient. Contex has two shift keys and an adjustable decimal table under the indicator for multiplication and division. The latter is achieved by depressing the pressure bar a number of times as a control window counts the number of subtractions in each step, thus recording the quotient one digit at a time.

It happens that the final appearance of the Contex is also Carlsen's. He submitted a design which, competing against those of two commissioned designers, was selected as most appropriate. It is a skillful combination of practical and sculptural considerations, from the workable slant of the front plate to the truly three-dimensional relationship of the sloped front and side edges. The shape of the shell expresses molding necessities—the slow curves that make material flow well combined with sharp corners for definition. Sharpened by the neat contrasts of the flat-sided keys, indicator, and bar, the overall form is brought out well by the mellow gloss of the cellulose aceto butyrate in warm gray.





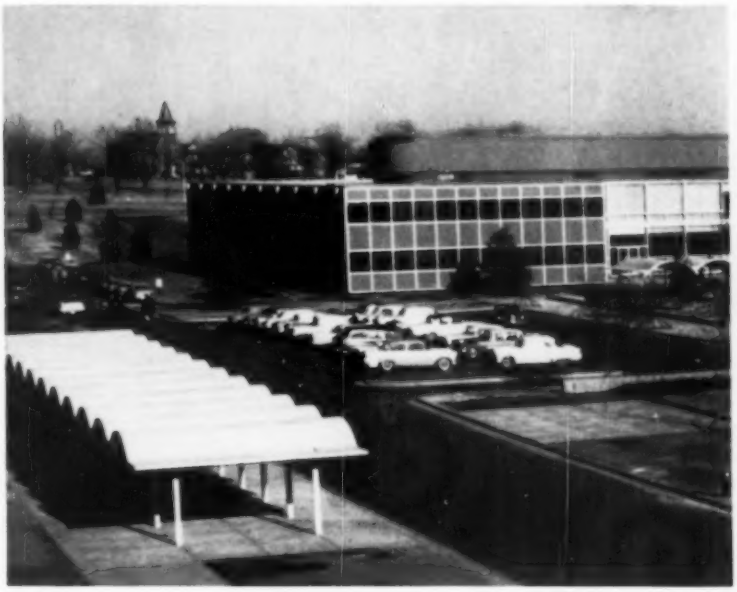
1. Keyboard
2. Clearance key
3. Multiply key
4. Divide key
5. Subtract key
6. Digit shift right
7. Digit shift left
8. Product register
9. Control window
10. Actuating bar
11. Decimal indicator
12. Keyboard correction key and Digit pointer

Staff Design Departments **1**

Beginning a new series: a survey of how the staff designer works in American industries, and his role as part of management in a wide variety of companies. Special problems to be taken up: how do company design departments differ from each other in meeting the needs of various products and markets? How do management policies—and individual managers— influence working methods and design relationships? Whom do designers work with, what can they learn from and teach the specialists in science, engineering and marketing? In this installment, ID leads off by describing an unusual department in a non-consumer-product industry, which exhibits some characteristic problems in—and some experimental departures from —the pattern of company design.

Design experiments at MONSANTO

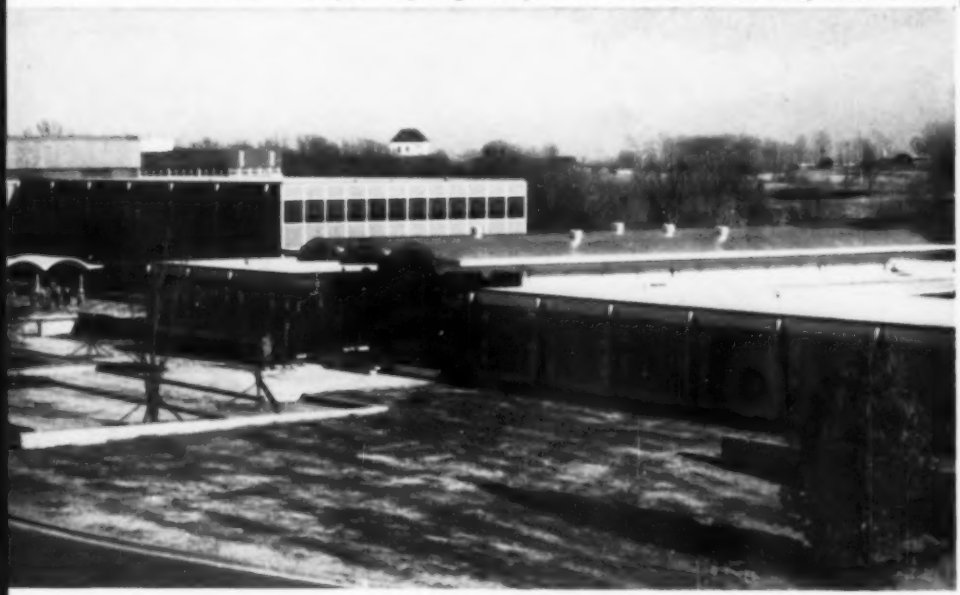
AVROM FLEISHMAN



Monsanto Chemical Company has grown over the past 57 years from an old-guard producer of industrial and commercial chemicals into a diversified manufacturer of countless varieties of plastics–some 30% of its sales volume. As its product line has grown, so has its awareness of the ultimate consumer of its products, and it is no accident that the company's management, marketing, and advertising policies have been updated to match its chemical research facilities. The corporate staff's move last year from its antiquated buildings in downtown St. Louis to open-plan suburban offices–designed in stainless steel, glass and plastics by the architectural firm of Vincent Kling (ID, News, Sept. 1957)–is only the most visible indication of Monsanto's changed thinking. It is a company in transition from an interest primarily in chemical *production* to a modern corporate philosophy that emphasizes *development* of materials, methods and men.

At the same time that it acquired the added scientific resources of electronic data-processing equipment for use in

Designers William Lang and Jack Crist (standing) install decorative plastic partition in cafeteria of new headquarters. Design Department consults and works on corporate appearance as well as research.



Monsanto's new look: part of sprawling staff headquarters in St. Louis suburb of Creve Coeur.

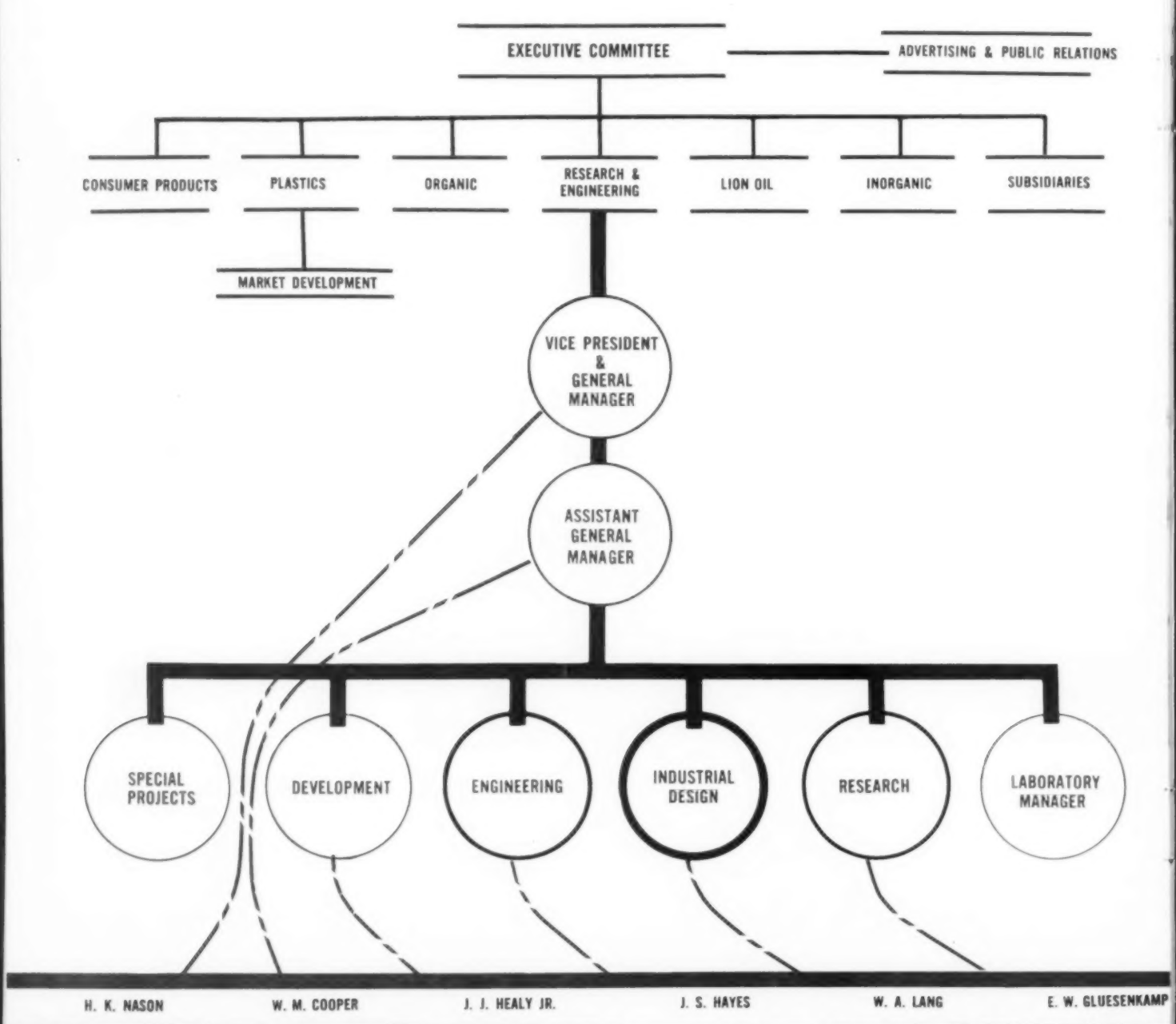
business programming and research development, Monsanto introduced a staff of avowed "artists" into the highly technological precincts of its Research and Engineering Division. Despite the accelerating use of its plastics for professionally designed consumer products, Monsanto could not have been described as design-oriented when it set up an industrial design department in 1955. But the nature of the field was such that freshness, experimentation, even upheaval were required if Monsanto was to consolidate its market position and public reputation as a fast-changing producer of original materials for the products of the future.

A company in competition for the future of plastics, Monsanto wanted to beat rivals to new markets by discovering new product-applications, materials and production techniques before the competition could – and before its product-manufacturing customers had to do it for themselves. To do this the company decided to embark on a new line of research, different from the mere development of tougher or cheaper materials for use in capital goods. In bringing graphic and industrial designer William A. Lang into the heart of its technical research, Monsanto's Research and Engineering Division acquired a researcher who was not just another specialist in the physical properties of plastics, but a generalist in the area of consumer requirements. Under Lang's direction, industrial design at Monsanto shapes up as an exploratory research activity, charged with discovering and creating materials to give the consumer a wider range of products, in plastics with a greater variety of sensory appeal.

Design grows up in the company

William Lang is no newcomer to plastics–nor to Monsanto itself. But although he has been with the company for almost twenty years, it is only in his current post that he has been able to fill what he conceives as the role of the designer in plastics – to design the materials themselves. During his ten-year stint in the Plastics Division (where Market Development Dept. Director Ralph Hanson and

Design in the Research and Engineering Division: where it sits at Monsanto



Lou Contini now plan products for the Division's customers to produce), Lang had ample opportunity to observe the designing of plastic products in and out of the company—and to practice it itself. At its worst, he found design in plastics irrelevant to the problems of production, since it often imposed repeated reshaping and refinishing on unfamiliar materials. At its best, he found it was directed toward the end-function of the product, but failed to exploit the latent potentialities of the material and the methods of producing it.

When Lang was reassigned to the Advertising and Public Relations Department under the Executive Committee, he began picking up the corporate thinking on long-range development and expanding markets. Here he used his contacts with top management individuals on his special design consultations for them—in addition to his work in exhibit designing—to sow the seed of his idea that design could make a contribution to materials research. One of the first to catch the point of discovering appearance qualities of pattern, color and texture—rather than limiting research to improvements in uniformity, clarity, and durability—was staff Vice President of Research, Development and Engineering C. A. Hochwalt, in whose province such experimental work lay. A consumer-oriented research program took another step ahead when Lang interested Vice President R. K. Mueller, General Manager of the Plastic Division, with the promise of new materials for new end-uses. Monsanto's management decided to set up the experimental design program in its Research and Engineering Division, outside the day-to-day operating schedules and profit-making needs of the production division, and a Design Research Department—under the wing of R&E's Engineering Department—was set up in 1955.

INDUSTRIAL DESIGN DEPARTMENT OBJECTIVES

1. To use original design techniques with initiative and ingenuity in order to devise new products which will be profitable to Monsanto. The activities of the Industrial Design Department will be related to the programs of the Research Department whenever possible. This does not mean that its activities will be restricted to new compounds, but that they will receive priority.

2. To bring worthwhile ideas and products to points of completion which will prove their value.

3. To present these proved ideas and products to operating divisions and staff departments in a convincing manner so that they may be put to use as quickly as possible, supported by equipment and personnel best suited to the effort.

Today, the newly-named Industrial Design Department is on a level with Engineering and (chemical) Research in the R & E Division. In its relations with other divisions, solid top management backing and a record of a substantial achievement during its short span have encouraged closer cooperation. The Plastics Division's design group was alerted to the potential value of experiments in plastic technology for their customers' needs, and today Lang's staff works with them on such projects as the "House of the Future" (ID, Aug. 1957), and gets calls to help on their more extensive—and expensive—research projects.

Allocations for research are not, comparatively speaking, tight at Monsanto, but Lang's proposal had to give an account of the department's proposed activities for one, two and three year periods; the final charter covered a five-year program. Design time is charged to the Research and Engineering Division under separate project accounts, while consultation with other divisions on their product developments, or with the executive staff on corporate appearance, is charged to them on paper.

Design research in action

In its work with other functions in the R & E Division, the Industrial Design Department begins by setting up target specifications for the materials to be developed with the Engineering and Research Departments' liaison men, under J. S. Hayes and E. W. Gluesenkamp respectively. For its actual experimentation by pilot-run production, the St. Louis-based department stations Lang's assistant Jack Crist at another Monsanto Research Laboratory in Dayton, Ohio. These sample materials are evaluated and tested on functional as well as appearance standards, in meetings with both production and research technicians. In the final evaluation stages, Director of Development J. J. Healy, Jr. is called in to study the most profitable further arrangements on each product development: for manufacturing (by one of the Monsanto divisions, its subsidiaries, or by a licensing agreement with an outside company); for promotion in the proper market; and for distribution through the appropriate channels.

Typical problems of communicating with technical specialists are illustrated in this characteristic conversation:

WILLIAM LANG, JACK CRIST ..... *Industrial Designers*
JOSEPH PASSONEAU, *Dean of the School of Architecture, Washington U.* ..... *Architect*
HOWARD BROWNE, *Engineering Dept.* ... *Structural Engineer*
HOWARD ADAMS, *Development Dept.* ... *Mechanical Engineer*

PASSONEAU: *We've constructed these architectural models in paper to show how plastic skins might be used.*

BROWNE: *What material are you planning to use to stand up in that kind of application?*

ADAMS: *We have a series of new polymers we might try.*

LANG: *Why don't we plan scale models for tests? That would give us a chance to determine the right resins and reinforcements.*

BROWNE: *Well, I could make up detailed specs from what we have here.*

ADAMS: *Of course, we'll have special handling problems and each stress analysis will vary, depending on the resins.*

LANG: *Maybe we could work out some of this information on the IBM 702, if we can figure out the right sequence of equations.*

CRIST: *I think we'll be in a better position to start that after we make our first test models.*

PASSONEAU: *In the meantime, we'll do a thesis problem on the various handling techniques you could use to arrive at these shapes.*

Bill Lang and Jack Crist have acquired something of a reputation as "radicals" in the Monsanto circles of white-coated chemists and white-shirted engineers. It stems, quite naturally, from the kinds of questions they ask: their "Well,

why not make use of it?" attitude when an impurity in the material is detected by the specialist's eye, their insistence that the technical men show cause for their cherished axioms, their willingness to switch in the middle of a research plan to follow up unexpected paths that open up. "Don't throw it out; let's look at it!" has become almost a motto in dealing with plastics men, for the industrial designer's aim in research is not simply to make plastics *better*, but to make them *better in specific consumer applications;* not just to strengthen them for demanding industrial uses, but to create new visual and tactile qualities for the consumer to respond to; not to approximate a predetermined standard of how a plastic should perform or what other material it should look like, but to discover what it can do and convey in its own terms.

As designers set up research programs to create new products that make use of such qualities, the question naturally arises: which comes first, the appeal or the application—which should we try for, the product or the potentiality? Designers Lang and Crist have a working method of flying in ever-narrowing circles around the facts and fancies they come up with, or zeroing in on what they can do with what they have—and determining what they need in order to do what they want to do. They have also stressed a principle of not limiting the application of their new materials to their own product ideas, but of giving the ultimate product designer something richly flexible to work with—of offering positive qualities rather than mere moldability to be exploited in solving his appearance problems.

table talk and his experience in designing informative exhibits. Lang feels that technical knowledge is the core of his design contribution, but that the best way to get it is to assimilate it in the actual process of designing, in order to keep free of the molds of technical training.

When Lang hired Jack Crist out of the University of Illinois (where Crist taught industrial design in the art department) it was primarily because he wanted someone who would ask, "Why do you do it that way?"—not naively, but from an interest in applying acquired knowledge. When he added a chemical engineer, Carl Ruscetta, Lang was on the lookout for someone with a broad point of view and few preconceived notions about what plastics should be, someone who could achieve a thorough knowledge of materials and techniques by working with them from the designer's viewpoint.

The design department often gets its ideas for new projects by reviewing other company activities in production and distribution. It then sets its research plan for a sequence of experiments, translating design goals into the terms of formulas and conditions for experimental runs of material.

Designers' problem-solving process for new materials and methods

Theoretical planning of experiments *Empirical testing by sample production* *Aesthetic and functional evaluation*

Design in plastics technology

Investigating the quality potentials of plastics requires the kind of designer who is both knowledgeable in the field and non-specialized in it. Design Director Lang has picked up the lore of plastics in his nearly twenty years with Monsanto, but he also has the feeling for visual appearance he acquired from his training at the Parsons School of Design and his art direction experience at Kenyon & Eckhart. Much of what he learned about plastics in the company came not in his first product design assignments but by way of lunch-

The production variables which a designer can manipulate are an almost infinite reservoir of appearance qualities, and in varying them—sometimes while the material is being run off—lies the creativity of these designers.

They work with fillers, which cause textures by expanding or shrinking at a different rate than the matrix. A volatile compound will change the appearance according to the conditions applied, and rippled or uneven patterns can be created. Fillers that are fibrous, granular or metallic will be very obvious in a transparent plastic. Combinations of plastics with different curing rates make possible glossy or mat finishes—sometimes both in the same pieces.

The physical form of the plastic material fed to the processing unit also contributes to variations in the finished products. Pellets or granules of different dimensions react with notable variations to the processing temperatures, pressures and speeds. Processing of plastics involves temperature and forming in a series of stages, and temperature variations can be achieved in a space relationship or a time

relationship. For example, the top of a sheet can be cooled and the bottom heated simultaneously, giving a different visual appearance from heating and cooling in sequence.

Finally, the surface against which a plastic is processed will influence the finished product. The plastic surface does not necessarily reproduce exactly the surface against which it is formed. Textured surfaces can be formed against polished rolls or dies with different effects by controlling the other variables.

Progressing toward the final product is a constant process of "backing-up" on the results of these trial runs. During the experimental stages, each factor is questioned to see what it might contribute to a unique appearance. But there are practical limits to this experimental attitude: when a material emerges that offers readily exploitable properties, the designers shift into working out the product application in finished form for presentation first to management in the R & E Division and ultimately to the divisions or outside companies that might be interested in producing it.

Appearance innovation is not the only goal toward which the Industrial Design Department works. Equally important to its search for new materials—in harmony with the aims of the other R & E development programs—is the discovery of methods for simplifying the processing operations. As in the diagram above, experiments with limited-run equipment led to reducing the number of handling operations in a new material. In this case, complicated production methods designed to make the plastic look like another substance were rejected in favor of processing methods appropriate to the flow of amorphous material. Central to this quest for better production techniques is the machinery itself, and in this sense the designers have become interested as much in new machine design as they have in material or product design.

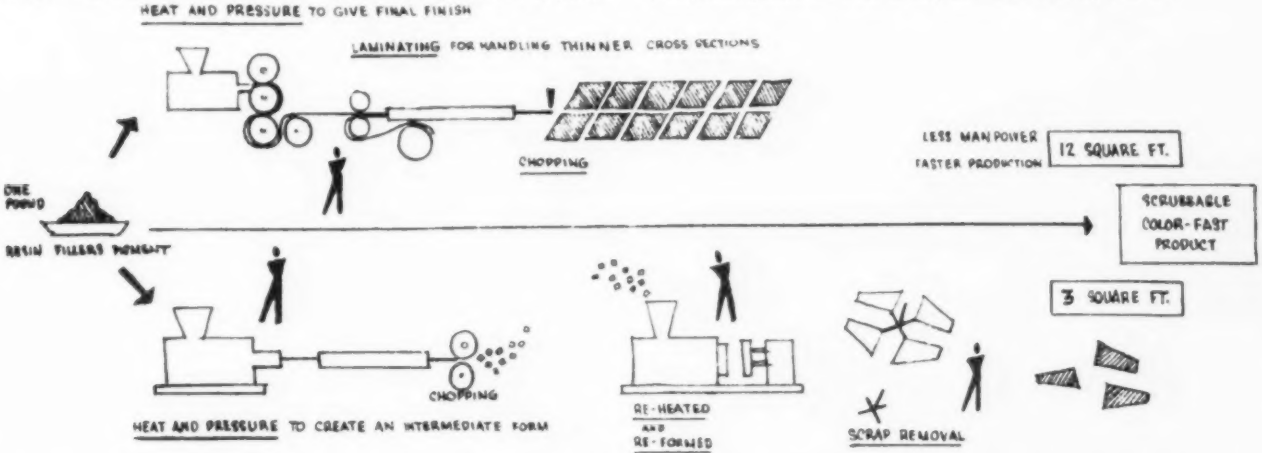
A further consideration in the Industrial Design Department is the creation of materials by which Monsanto can enter profitable markets, or strengthen its position in those it already has a stake in. Appearance, function and processing goals come together in the marketing approach to new products. For example, in its development of products for the building industry, the Department's thinking is reaching toward materials and processing techniques that will allow fabrication at the construction site—enabling it to outdo other pre-fab materials like reinforced concrete and laminated wood. Another large area on which Monsanto's designers are feasting their eyes is the market for synthetic webs. Here they feel they can make unique materials more efficiently by treating plastic webs as "fused" rather than as "non-woven," thus emphasizing the standard plastic forming methods. New products from design research grow at Monsanto not only from explorations in appearance and direction toward profitable markets, but by questioning and simplifying plastics production itself.

Designing a new material

"Teraise" is the first finished project of Monsanto's Industrial Design Department—a new material developed for texture, color and form, which finds immediate application as a wall covering. Although the product is being test-marketed by the Hamilton Company in St. Louis, Monsanto divisions are watching it closely. It has also been installed in the "House of the Future" and in test market displays, to sound out public reactions to the innovations in the appearance of plastics which it presents.

The Design Department set out to explore commercial possibilities of producing decorative textures in plastics. In order to demonstrate texture in a consumer's terms, they found themselves — as their experiments progressed — thinking concretely in terms of a wall-covering material. Instead of trying for something "just like" a natural material (in this case, wood), they wanted to create an appeal to the senses and a subjective reaction like that to wood—*without* slavishly following the pattern of "knots every 24 inches." At the same time, they thought in terms of simplifying the production of such thin sheet materials, by eliminating the operations designed to make them in predetermined shapes and substituting continuous flow operations. A case in point is shown in the diagram above, which indicates a characteristic method of simplifying the production of such materials.

Key design goal is simplifying production: Designers analyze continuous-flow processing to discover more efficient handling methods and increased yield of end-product; exploration of forming conditions often leads to new appearance qualities. New decorative sheet material (top) was developed by discovering an acceptable finish that could be finished in one operation.



Some 800 experimental samples and refinements were made before the product was ready for final presentation. In the first 200 tests, color was kept neutral while various materials were treated to develop textural effects. Fillers and formulas were changed, and temperature, speed of flow and pressure were varied. Samples 200 to 350 were experiments in creating unique color effects by varying processing conditions and pigments.

Meanwhile, marketing studies revealed that architects and interior decorators wanted wall coverings in continuous rolls rather than cut shapes, and it was decided to produce the material in long vertical strips which could be cut and backed in a variety of color combinations. Starting with test 240, hand layouts were made to examine adhesives and methods of backing the plastic. Tests of installation ease were conducted with both tile layers and wallpaper hangers. Simultaneously, the chemical research department conducted tests of flame, aging, abrasion and moisture resistance.

From stages 350 to 400, production on alternative types of equipment was investigated, and new dies were introduced to create subtler textures. Finally, some 400 refinements of color and combinations of arrangement were made to open up the possibilities for application.

Teraise, a material developed for unique appearance, brought the designers into contact not only with the technical problems of producing the qualities they aimed for, but also with the need to apply the new substance to products for a particular market. From here, the Industrial Design Department plans to go on to more basic product areas in the building field, where not only appearance but structural problems are offered. With this challenge before it, design at Monsanto combines the talents of the scientist, engineer, decorator, architect and craftsman—as William Lang explains on the next page.

Case study: processing experiments lead to a finished consumer product

Samples of all experimental runs are filed for periodic review.

TERAISE REFERENCE SAMPLE FILE

64 *The initial attempts illustrate variations in temperatures, pressures and speeds.*
108 *A variety of fillers was used to determine some of the properties that could be achieved.*
124 *Several basic thermoplastics were investigated to observe the scope of texture variations.*
127 *Metallic fillers were tried.*
173 *Flame retardants were evaluated.*
213 *A variety of coloring techniques in transparent bases was checked.*
247 *The first sample of uniform laminated strips for wall covering.*
290 *Different widths of strips in a wide range of colors were combined and evaluated.*
339 *Translucent bases opened up a wider color range.*
379 *Additional textures and colors were checked in a standard formulation.*
454-B *Each pigment was tested for stability.*
519 *Color specifications were standardized.*
580 *Textures, colors and gauge were specified for pilot production.*

William Lang talks about the designer as artist-technician in plastics

Our Industrial Design Department was established in the belief that the relationship of the artist, the engineer and the chemist—once firmly established—would lead to worthwhile developments. We did not know, nor do we know at present, all the problems that will be brought about by this approach. We are interested in learning about the almost infinite combinations of materials and methods. The process is complicated: Start with the complex molecular structure of the materials; then relate them to the variable processing conditions; relate this product to combinations with other materials; now make all of this equal consumer acceptance. Obviously this is not a simple equation. We have found several indications that the optimum combinations can be discovered by electronic data processing equipment, but only if the simpler basic relationships can be determined. The designer can help with the ultimate visual problems only if he first immerses himself in developing this complex relationship of the elements.

Our design philosophy involves a familiarity with processing equipment and materials similar to the familiarity that the potter has with his wheel and clay. The potter automatically leaves his hand print, his individual mark, on the finished product. Using complicated machinery which must be operated from a control panel means that the plastic artist's contribution must result from planning rather than the actual contact of his hand. Yet the impact of individual manipulation—craftsmanship, if you will—is the same. Just as the craftsman creates smooth finishes or rough textures by what he does with his hands, so can we develop synthetic materials with such qualities by controlling the conversion techniques.

The implication of this comparison is not only that the designer can operate as a creative artist in this industry, but further, that design in plastics requires as much technical knowledge as chemistry or engineering. I have a feeling that this will be somewhat controversial, that the chemist and engineer will feel as though a dilettante is now trying to invade their privileged territory. Peculiarly enough, I am somewhat inclined to share their point of view. By and large, designers have been taking the attitude that their message must be intuitive, not logical. The artist may not be willing to be termed a *technical* man if this suggests logic rather than technique. But I feel that techniques indicate experiences built on logic, and that the artist must associate himself with technical men if he is to develop man-made materials.

I have been working with chemists and engineers for many years and I believe that it is possible to identify them either as technical creative men or as technical detail men. The former have not taught me the intricacies of their specialized language, but they have demonstrated their creativity by their actions. In working with such specialists, I have found that they appreciate the designer's creativity, while the detail men are apt to take safety in retreat when confronted with the designer's unfamiliar point of view.

What the designer has to contribute to materials development is an appreciation of form, color, texture, proportion —in other words, all of the characteristics of any material that would interest the artist or product designer. The chemist is apt to look at a material and think in terms of heat-resistance, flammability, impact-durability, flexing, and other functional qualities of the material. The engineer might see in the same material the impression of the die, the rolls, or the other mechanical units of production. The field of industrial design is quite familiar with the interplay of the engineer, the materials specialist and the designer himself in the development of functional products. The same kind of interplay exists in developing processed materials.

Possibly the greatest difficulty we encountered was getting men of different specialities to agree on a particular course of action. The designer, the chemical engineer, the mechanical engineer—each tended to favor action according to his own experience. We found the greatest need was for continuity of the objective. It sometimes seemed impossible to convey a sufficient amount of enthusiasm from one group to another. Procedures for relating our appearance goals to production indicated a team approach, but it is difficult for the designer to discuss his needs with the people primarily concerned with the day-to-day problems of sales and production. The relationship with research specialists is a little easier to establish, but even this takes understanding of their special points of view. It is this actual working together of people with different backgrounds that we feel to be one of the most important parts of our program, and the one that promises in the long run the most original results.

Recent and ingenious developments in visual aid systems make them more flexible and easier to operate for the presentation and maintenance of facts and figures in business and industry

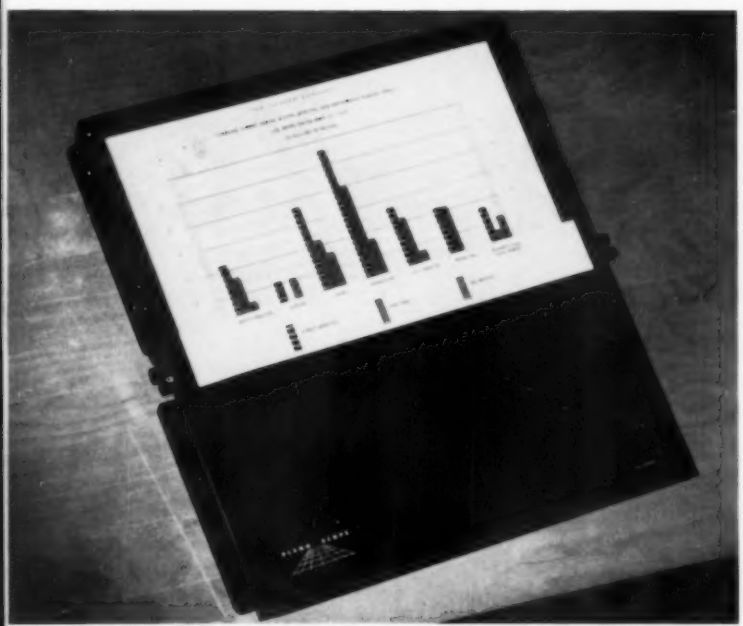
VISUAL AID SYSTEMS GAIN FLEXIBILITY

The debonair young man with an air of complete confidence and an outsized silver dollar is, of course, the late Robert Benchley as he was seen in 1936 in his classic Metro Goldwyn Mayer movie short, "How to Figure Your Income Tax." The cut-up cartwheel was one of several visual aids (the word "aids" is used advisedly) Benchley used in this movie: others were charts, graphs, and blow-ups of complex forms. In his inimitable way, Robert Benchley succeeded in getting himself hopelessly entangled (sometimes physically) in his material, ending with the utter and hilarious confusion of himself and his audience. Robert Benchley did not set out to prove, even with good humor, that graphs, charts, diagrams, visual presentations of all kinds are sources of confusion, but he did show vividly that all too frequently methods that are supposed to clarify the presentation of facts and figures end up by making them harder to decipher. Today, more people than ever must listen to and study more business and statistical reports. And these people do not accept such data without question unless it is perfectly clear and understandable. The nodding head, which supposedly indicated considered judgement, but more probably meant an approaching forty winks, is no longer a familiar sight at stockholders' meetings. The smallest shareholder is apt to ask questions and demand graphic proof. Even Robert Benchley would be hard put to gloss over an unclear situation by pulling out yet another chart to create further imperspicuity.

Literally thousands of visual aid systems have been developed for business and industry. One of the major problems encountered with most is that, while they can be effective for one business, one department, or one project, it is unlikely that they are flexible enough to be used widely. In recent years, however, there have been advancements in visual aid systems that are making important progress in the two major areas of their usefulness: for the *maintenance* of data, ready for immediate use in an up-to-date form; and for the *presentation* of information in a concise and digestable form that is also appealing.

The frustration of trying (yet knowing that he was falling short) to communicate a complex situation with clarity and authority was felt acutely during the war by Alexander Forest. But his predicament was not as amusing as that Robert Benchley shared with so many. While he was in charge of graphics for the U. S. High Commissioner for Germany, part of his responsibility was to devise elaborate systems for giving a unified picture of military or civilian situations in various localities. Frequently, even before he had finished the chart or graph, he would find that the situation had changed. Forest's interest in his immediate problem started him on a development program for mechanical visual equipment that could be readily adjusted to meet a number of diverse situations. He continued this work after returning to civilian life and ultimately formed the Planoscope Corporation in New York.

The range of systems to bring information together at a single station, to assimilate it in terms appropriate to a given situation, and to keep information transfer accurate and timely varies from familiar control sys-



Planoscope's Bar-Graphmaster has movable plastic bars in a variety of colors and patterns that can be readily moved into position (below) and locked for presentation or reproduction (above).

tems, such as panels, scheduling boards, visual filing, and so forth, to complex electronic data processing equipment. Until recently, more basic methods that utilize bar charts or graphs with the x-y system of plotting could not incorporate changing factors — each drawn graph could express only one situation. Planoscope Corporation is now marketing mechanical systems for making graphs and charts—new systems that are assembled in kits (left). Each kit has a selection of components with which an unskilled person can set up quickly and easily a graph or chart and, equally quickly, change it to make it current or represent a different situation. In the past, even the simplest bar or pie chart had to be drawn by a skilled draftsman and, once drawn, it was permanent. And the time taken (to say nothing of the cost) to make changes was excessive.

Obviously, if a system is to be changeable, the elements that make it up must also be changeable. Planoscope's group of bar, line, pie, and build-up charts shown on this page and pages 63-65 are known as Techno-Visual Systems. They have three-dimensional elements that can be easily moved into position and locked for use as a three-dimensional display or for reproduction in black and white or in color by most commercial methods such as photography, xerography, or photostatically. For a series of charts, it is possible, of course, to move the elements into position, make a photostat or take a photograph, change the positions of the elements, take another picture, and so forth. One of the greatest advantages of this type of visual aid system is that the resulting graphs or charts have a highly professional appearance, yet demand no skill for their use.

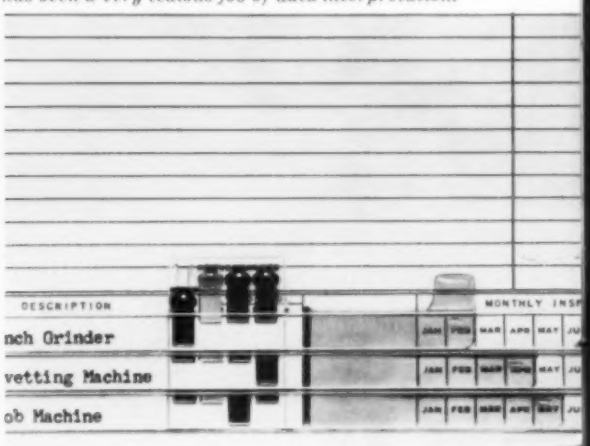
Many visual aid systems take advantage of the durability, colorability, and, in some cases, the flexibility of plastics. The Planoscope Bar-Graphmaster, shown in action on the left, has plastic bars that are available in a variety of colors, patterns and widths to provide a broad combination of graphic effects. Representative examples of other recent developments are shown on the following four pages.

The three systems on this page range from the highly complex to the most simple and basic. Two were designed for presenting data and one to maintain facts and figures in a current form. All three are used for entirely different purposes, but they do serve to indicate the extremes that can be reached in visual aid systems. The Benson-Lehner "Electroplotter," shown here with an IBM card punch machine, is used to plot curves automatically from information fed electronically from IBM cards. This is a direct contrast to the self-adhesive acetate fiber tapes (bottom), developed by American Chart Service, Inc. These tapes are available in a variety of colors and widths and can be applied to almost any surface to produce graphs and charts with a number of values and variables. The visual control panel on the right, by Acme Visible Records, Inc., is an example of a system for the maintenance rather than the presentation of information. These signals are available in several styles and colors and can be moved on panels to up-date posting of production schedules, equipment availability, plant loads, truck routing, and to keep tabs on countless other manufacturing, shipping, office, and sales functions. In spite of their broad application, these three systems, like any others, cannot claim to answer problems presented by all situations, but they are an important part of the development of new visual systems.

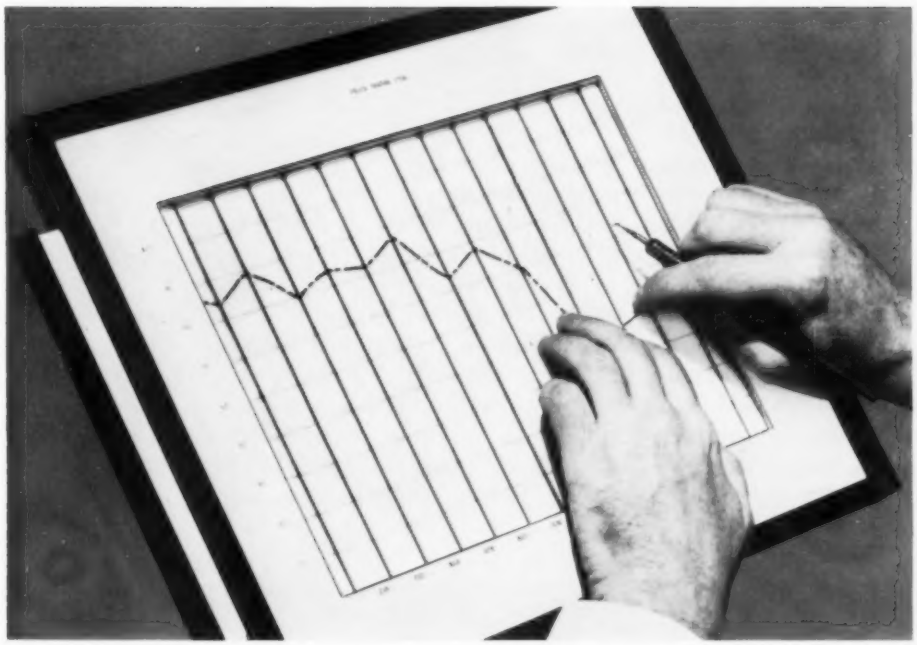
Radically different systems satisfy a wide range of visual aid problems

The Benson-Lehner Electroplotter works in conjunction with an IBM card punch machine to plot curves automatically.

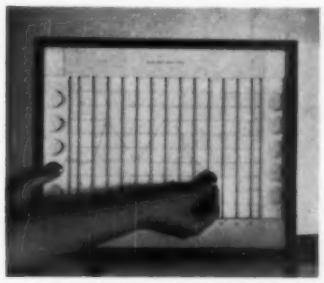
Acme Visible Records, Inc. produces visual control panel that can indicate trends, show results, indicate action through a system of movable signals that can be moved on charts. Color plays a vital role in these systems by indicating different functions, departments, etc. These control panels are not simple, but speed up what has been a very tedious job of data interpretation.



American Chart Service self-adhesive tapes are fed from a cartridge onto almost any surface.



Planoscope's Line-Graphmaster has all its components built into one kit capable of producing many different graphs. The picture below shows how the graph cords are stored on spools that are held in cavities in the case. A special tool facilitates the positioning of the cord on the pre-grooved tracks that form a grid. Very little practice enables anyone to produce graphs in a very short time that are suitable for presentation or reproduction and have a very professional appearance.



Mechanical systems offer highly professional results that are easily updated

If speed in preparing visual presentations is an important consideration, Planoscope's Techno-Visual Systems, like those on this page, designed for line graphs and pie charts, are easy to manipulate. The Line-Graphmaster (above) has a grid of pre-grooved tracks onto which cords of various thicknesses can be positioned. The cords themselves are stored in compact spools that are recessed in cavities in the case. To create a line graph, the case is opened, a length of cord is unwound and positioned where desired in the grooves on the tracks. Labels and legends can be typed on precut adhesive-backed strips that are part of the equipment and simply pressed into position. This kit (like the Bar-Graphmaster on page 61) costs $325.

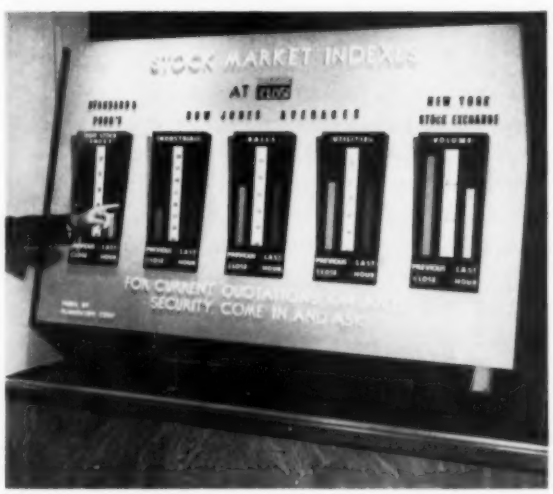
The pie chart is composed of several colored plastic discs that can be turned to reveal any portion of each. New settings can be made quickly and simply with this assembly. Letters and figures on the background panel (right) are precut in sheets of a special plastic material. They can be easily lifted from these sheets and transferred to their proper position on the panel. No adhesive is necessary to keep them in position since they stay in place by molecular attraction. The letters can be removed for reuse by pressing a sheet of vinyl film over them, lifting the film to which they will adhere, and then resticking them to the sheet from which they were originally removed.

Perhaps the simplest of all Planoscope visual aid ssytems is the pie chart. It is a series of colored plastic discs that can be adjusted to expose different areas. If desired, the sections can be adjusted during a presentation to show a changing situation.

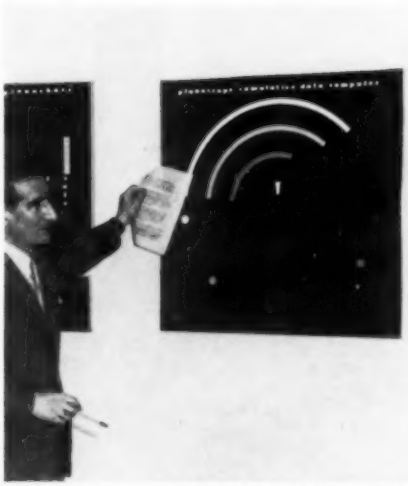
The ability to move components of visual aid systems adds to impact of presentation

For more specialized applications, Planoscope builds custom tailored visual systems that can be used for one-shot presentations or as permanent records that can be changed or supplemented to keep them up-to-date. The large management control board below was built for American Machine and Foundry to delineate management levels. Names and function plates are in color and have special shapes for different functions. They are held in place magnetically and offer a three-dimensional effect that makes the whole board more dramatic and easier to read. For Merrill Lynch, Pierce, Fenner and Smith's Rockefeller Center branch, Planoscope designed a bar graph in three dimensions for use in their office show window. This display (below) had to be changed every hour, demanding great flexibility and ease of adjustment. The design of the Merrill Lynch bar graph had to be sufficiently dramatic to draw the attention of people who are not experts on stock market indexes and clear enough to make sense to them at a comparatively fleeting glance. This was accomplished by emphasizing the three-dimensional qualities of the plastic components. Simplicity is, of course, the key to the clarity of these systems, and it is the responsibility of the visual aid designer to determine when and where a shape or color will be sufficiently informative by itself to get the message across.

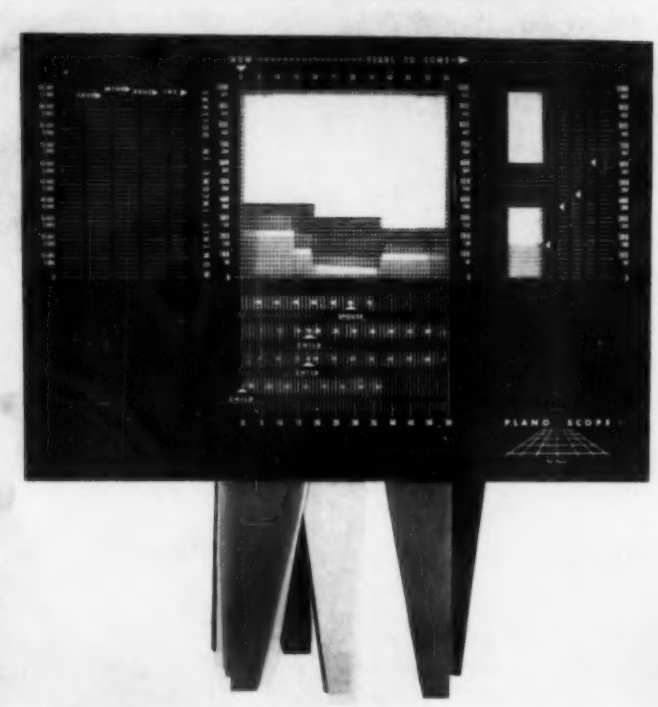
Management board for American Machine and Foundry shows organization structure at a glance by using colors, different shapes, and three-dimensions in the components.



Stock market indexes are displayed by Merrill Lynch, Pierce, Fenner and Smith on a Planoscope bar graph which must be changed every hour to keep it current.



Alexander Forest, inventor of Planoscope's Techno-Visual systems, demonstrates one of his cumulative data computers.



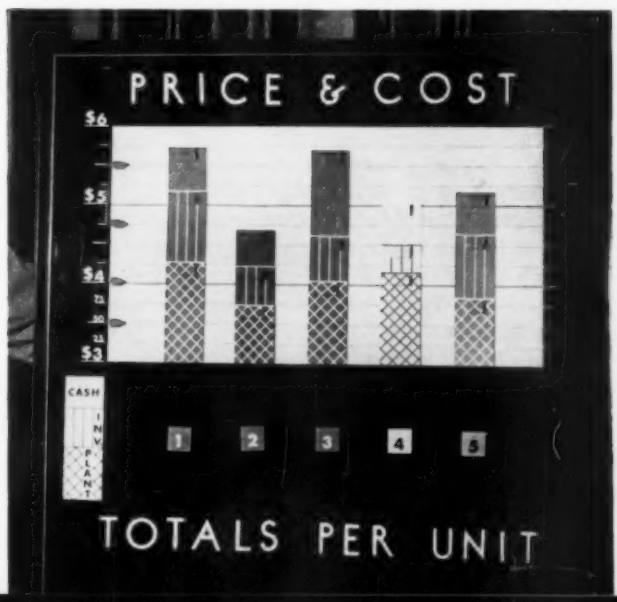
The ability to display visual presentations with changing elements is, of course, a great advantage in selling. Not only can individual presentations be easily prepared for specific proposals, but graphic projections can be made on-the-spot or photographed for a permanent record. The chart on the right uses movable curved bands that are in bright colors to show comparative growth progress. These bands can be moved during a presentation to emphasize the speed of advancement (or lack of it) in a way that adds impact through actual motion. This mobility with one chart is far more effective than the traditional method of showing a progressive series of charts.

The life insurance program computer (center) creates a multi-colored program and also automatically determines certain data through the manipulation of its mobile parts. Here again, an active presentation is performed before the prospect's eyes. Another form of Planoscope bar chart is shown at the bottom of the page which utilizes magnetism to hold its moveable units in place.

Obviously, there has been a needed and logical trend toward simplicity in visual aid systems. The incorporation of motion in some of these systems is an important step toward the elimination of multiple charts and graphs for many visual presentations. And incorporating color with motion can give such presentations greater impact or simply attract attention to important areas in a complex control panel. But, as the need to present more and more complex situations arises, more and more ingenuity is needed to keep the methods of visual presentation simple.

Life insurance program computer (left) has mobile parts that can be manipulated to determine data for the prospect.

Components of bar chart (below) are held in place by magnetism. They can be moved while demonstrations are in progress.



DESIGNS FROM ABROAD

Combined kettle and coffee pot is stainless steel with plastic handle.

Danish office with versatile, industry-oriented approach creates variety of designs

Contrary to Scandinavia's craft tradition, its largest design firm specializes in mass-produced goods and is closer in approach to many American industrial design organizations than to the handicraft studios Americans think of as typically Scandinavian. The Copenhagen office of Count Sigvard Bernadotte has in common with many American design offices a broad scope and a concentration on industrially produced goods. With his associate, Danish architect Acton Bjorn, Bernadotte solves a variety of design problems.

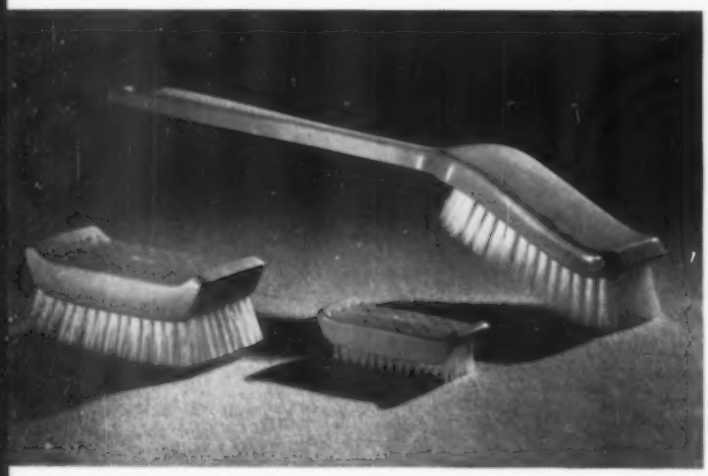
Like many American designers, Bernadotte has worked with diverse, far-flung clients. Among them: Elektro-Helios, a major European appliance producer; John Stuart, Inc., furniture; L. M. Ericsson, telephonic equipment; Atvidabergs Industrier, office equipment. In addition, his office often handles interior design contracts. Recently, they completed the interiors for the new office building of Baltica, a large Danish insurance firm, and for the Swedish-American Line's *Gripsholm*.

While his office has specialized in industrial design, Count Bernadotte himself has always been close to, and in fact part of, the Danish craft tradition. He has designed jewelry and silverware for Georg Jensen, Denmark, for 28 years and is now a director of their organization. The clean, rectangular appearance of his sterling flatware and containers may derive from forms characteristic of machine stamping and forming techniques. Certainly, the simple, yet carefully detailed design of such mass-produced items as the toaster (overleaf) have been influenced by Bernadotte's craftwork.

A redesign of a previous model, the black plastic and gold plate Ballograf pen has more pointed shape than former style.

The T-I typewriter for Facit, Inc., U. S. affiliate of Sweden's Atvidabergs Industrier, is one of several office machines, including calculators, which the Bernadotte office has designed for this firm.

The newly-marketed mild gray color and the broken lines of the machine create a lightweight impression for what is actually one of the lightest typewriters produced. Designers moved the Facit name, in a restrained, clearly legible type face, to the back side of the machine where it would be seen by the most people.



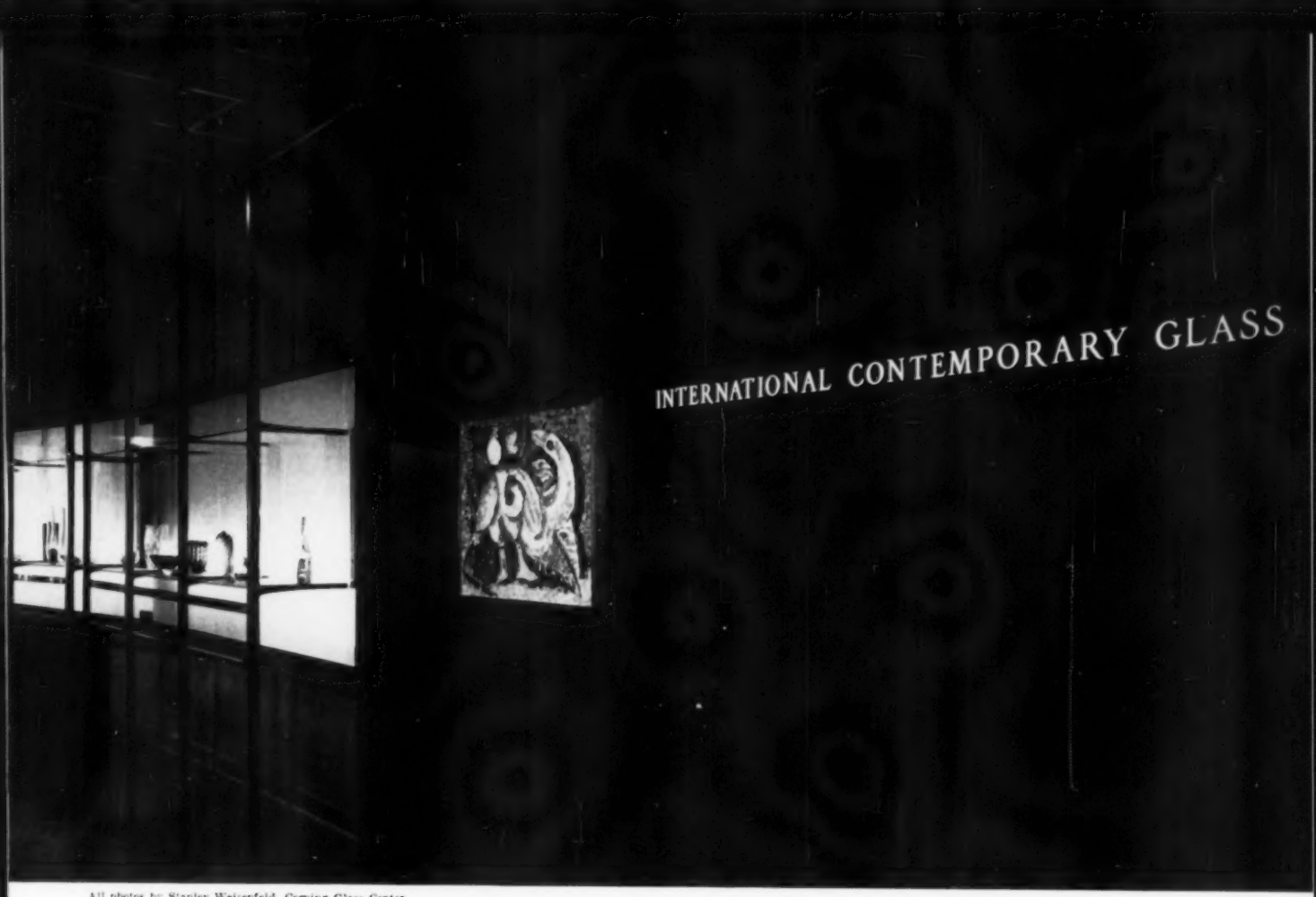
Plastic-handled, nylon bristle bath and nail brushes come in several colors, with black the most popular. The nail brushes are molded to fit the hand comfortably.

Designers planned this container for possible reuse as a flower vase. Grooved surface refracts color of fruit juice to give smooth color tone.

Bottle for Azymol, Swedish hair tonic, is designed to fit hand and will not slip when turned upside down. Label has restrained, quality format.

Elektro-Helios is first fully automatic toaster to appear in Sweden.

Products ranging from plastic brushes to stainless steel appliances represent the variety of design projects which the Bernadotte office has recently completed. For Bjaere, Swedish processor of fruit juices, designers developed a grooved, cone-shaped bottle (above) to meet the demands of a new automatic bottlemaking technique. The coffee pot (page 66) is built for the Swedish method of making coffee by simply boiling coffee and water together and then filtering it. The opening at the top allows plenty of room for the hand when cleaning the pot. A careful handling of details is evident in the use of a mat surface chromium which eliminates fingerprints on the lower surface of the toaster (right). Handles, one of which contains the controls, are of blue melamine plastic.



All photos by Stanley Weisenfeld, Corning Glass Center

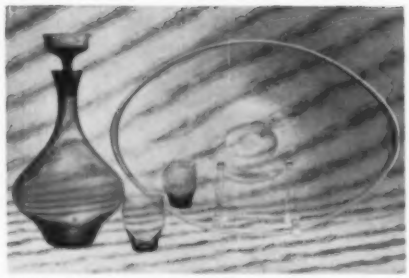
International glassware designs shown in Corning's

Gallery of Contemporary Glass

Now for the first time important trends and developments in contemporary glass design are being shown in one place—in a new gallery recently opened at the Corning Museum of Glass, Corning, New York, dedicated to the display of design in glass. The Museum's Director, Thomas S. Beuchner, states that the main goals of the new gallery are: to bring out the importance of the material in glass design, to emphasize the difference between designing in glass and in other materials, to make designers more aware of the nature of glass, to show contemporary glass in the light of 3,500 years of glass-making, to encourage the use of glass as an art medium, and to stimulate good design in utilitarian and mass-produced glassware. The selections on the following pages were made from glassware produced during the last five years and the exhibition will be brought up-to-date annually to make it a continuing international survey representative of current trends.

Sweden: *Vase designed by Vicke Lindstrand for Kosta Glass Works. Bottle by Ingeborg Lundin for Orrefors Glass Works.*

France: *Vase made by Cristalleries de St. Louis. Small fish designed by P. Sala. Large fish designed by Jean Sala.*

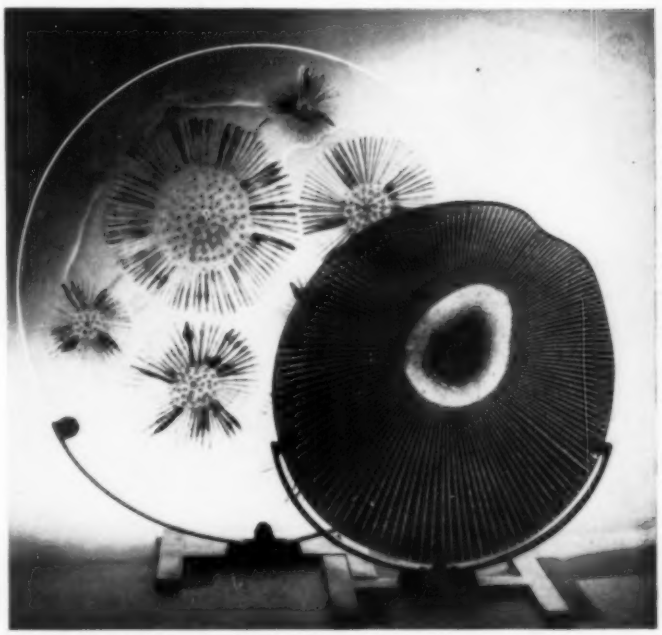


Holland: *Decanter and tumblers by A. Copier for Leerdam Glass Works.* **Norway:** *Dish by Hadeland Glass Works.*

Mass-produced and handcrafted glassware in exhibit

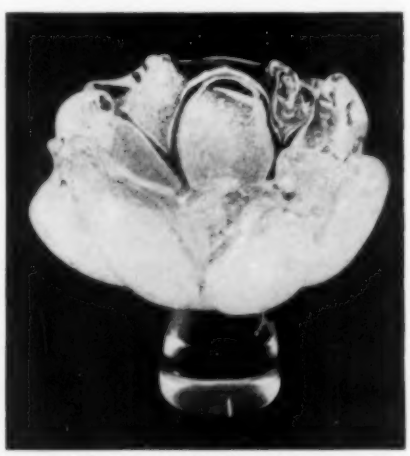
The selection committee for Corning's exhibit of International Contemporary Glass is made up at present of the staff of the Corning Museum. In choosing the glassware shown here, they took into consideration the utility, originality, imagination, and appropriate use of the material, as well as the evolution of forming techniques, decorative methods, and color control. For eligibility, all pieces must be available for sale to the public, or, in the case of art glass, similar items must be available.

Looking ahead, Corning plans to sponsor the first International Exhibition of Contemporary Glass in the summer of 1959, when their entire museum facilities will be devoted to current glass design. A jury of experts from a variety of related fields will act as judges, and it is anticipated that some of the members of this jury will be invited to become permanent members of the selection committee.



United States: *Plate designed and made by Michael and Frances Higgins. Bowl designed and made by Maurice Heaton.*

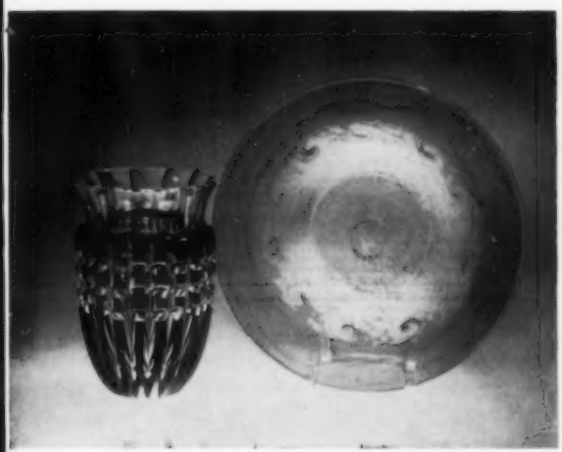
Finland: *Goblet by Notsjo Glass Works. Elk and bottle designed by Timo Sarpaneva for Karhula-Iittala Glass Works.*



Japan: *Vase by Asahi Glass Company, Ltd.*

England: *Vase designed by W. C. Farquharson for John Walsh-Walsh, Ltd., Soho and Vesta Glass Works.*

Germany: *Goblets (1st group) designed by A. F. Gangkofner. Goblets (2nd Group) by Krystallglasfabrik Frauenau.* **Austria:** *Champagnes by Oswald Haecdtl for Lobmeyer Glass Works.*



Belgium: *Vase by the Cristalleries du Val Saint-Lambert.* **Scotland:** *Bowl designed by Paul Ysart for Glassworks of John Moncriefr, Ltd.*

Switzerland: *"Dragonfly" plate designed by Gertrude Bohnert.*

Student project

Matrix at Cranbrook

AN EXPERIMENTAL DESIGN COURSE SHAKES STUDENT PRECONCEPTIONS

School: *Cranbrook Academy of Art*
Instructor: *Kenneth Isaacs*
Participants: *Design Department students.*

Harvey Croze

The young man on the left is leaving class. Possibly his head feels as blurred as it looks. Maybe he even wants to go out, sit near the pool and think. If so, Cranbrook Academy's Director of Design Ken Isaacs can relax a minute, step back from his slide projectors and tape machines long enough to order the next phase of his uniquely designed course.

The student in this case is in the midst of one phase of the MATRIX STUDY COURSE, an unusual experimental program at Cranbrook Academy of Art. Based on Isaac's belief that design—or for that matter, medicine, politics and even plumbing—is best experienced and practiced by those who have first come to grips with the nature of the world around them, the Matrix program is aimed at investigating and rephrasing the student's set attitudes toward his world. The Matrix course may make the incoming student feel that he is in an entirely new world, as he finds himself faced with circular classrooms, simultaneous slide projections, and often with an unfamiliar English language punctuated with references to, " . . . Information Equivalents, . . . Coded Symbol Systems Communicating Information . . . Sensory Stimuli . . .", and few allusions at all to that old friendly reason for his being there: the finished, merchandisable product. To understand the unique educational technique of the Matrix, it is necessary to understand something about the academic climate in which it exists, and how it came to be.

Cranbrook in the past made its contribution to design education in an independent, almost inner-directed way. In the thirties, the school's rejection of fixed curricula and accepted teaching methods not only relegated it to an almost unknown position among schools of design, but also produced the unique situation in which an American school was better known in Europe than here. Founded on Finnish architect Eliel Saarinen's conviction that people learn best by practicing under the guiding eye of "master artists", the school expanded into seven closely meshed departments of the visual and structural arts. It became a work place for advanced artists, architects, and designers who could work independently and who had the depth and will to exchange ideas with those in their sister arts. World War II and the post war period brought fewer professional-level students and a closer alignment with other educational methods. Still, because of Saarinen's originating philosophy, Cranbrook remains the seat of the think-it-yourself, do-it-yourself design education.

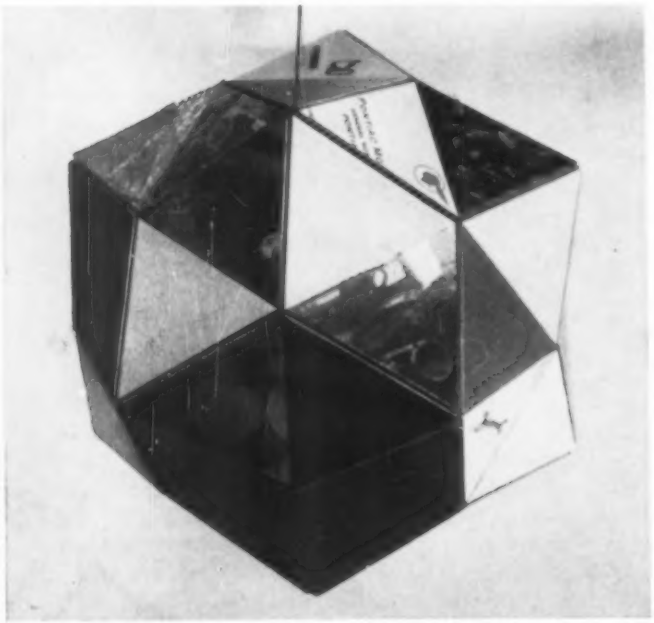
In 1956, Isaacs was asked to develop a new frame for the education of a designer. (At the time engaged in a New York design practice, Isaacs was first recognized for his design of the "Living Space", an abbreviated, reorganization of all interior furniture and equipment into a single geometric unit.) Again steering clear of everyday educational formats, the Matrix course was evolved as a universal requirement for design degree candidates. Now, a year and a half later, the intention of the experiment is most clearly expressed in Isaac's statement of the need for a new educational structure. "A great deal has been said about the designer as the *whole man* . . . yet the problem has been to design and develop a processing *environment* to make the possibility actual and available to those who can assimilate the necessary information . . . "

The mention of the word "environment" is not made lightly here, for as the planning of the course progressed, it became evident that one of the factors missing in general design education was a set of environmental teaching tools as advanced as the attitudes they were to convey. Isaac's aim was to create and construct a new and special environment whose sole purpose would be to educate. The first of the tools completed was an eighteen-foot drum-like space, (seen at left and below), equipped with a multiple slide and sound projection system. It is, in effect, a group-isolation booth *into* which information is fed by three projectors which simultaneously cast their images around the 360° wall. Students sit on low, swivelling pallets to get their lessons in "simultaneous phase . . . the way life happens." One of the hopes for the Matrix Drum Experiment is that as students are exposed to torrents of multiple information in a purposely bland space, they will become aware of one of " . . . the key paradoxes of life: that any situation is made of components, but only when these components are taken collectively, can the true characteristic of the activity be described."

Inside the Matrix Drum, students are challenged to keep up with the flood of rapid-fire "lessons" presented in their detached space.

Students man two of the three slide projectors which simultaneously feed information into the new experimental classroom.

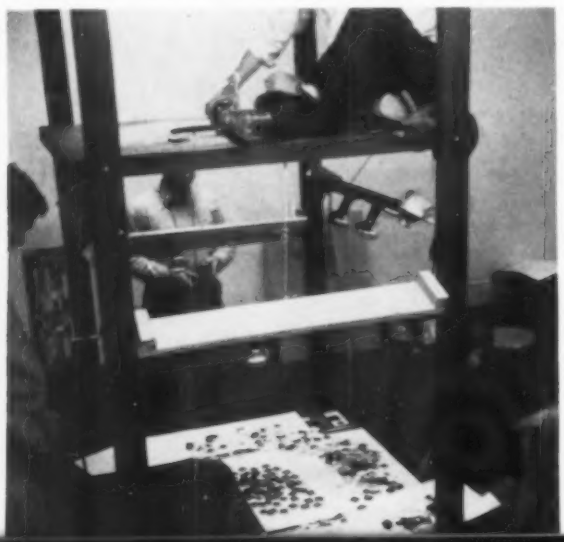
"Investigation," "Invention" and "Translation" become passwords to the Matrix



Students start the Matrix with a non-verbal autobiography. Here David Tompkins' Fuller-like sphere displays bits of personal history in three dimensions.

Later, each student "translates" a contemporary event. Below the problems of Little Rock, Ark. are characterized in a grim, nervous group portrait.

Matrix documentation of the Civil War became the next project, with students joining as a group to create an abstract film. Camera shoots from above in a new "studio."

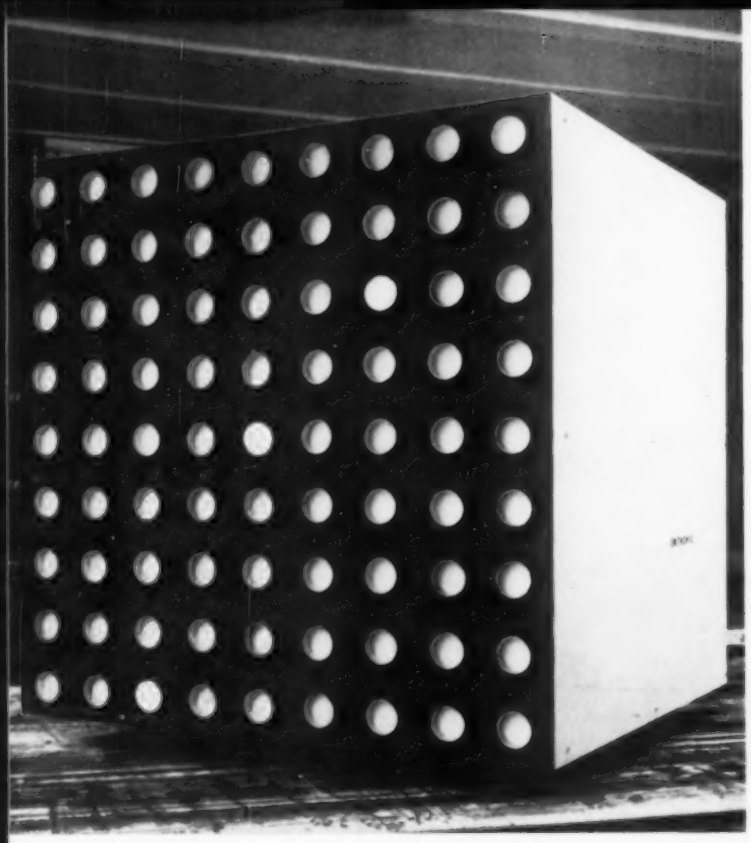


In the attempt to challenge what Isaacs considers a student's allegiance to his present, and possibly haphazard, collection of notions about the meaning of design, the Matrix is framed on an expanding series of problems starting with the student himself. The first problem given is related to autobiography or resumé: ". . . by direct description, it is a translation of self from the actual to another quantity, using any means or technique other than language." One student built a triangularly faceted sphere (shown at left) to carry bits of biographical information: a picture of the Model "A" Ford he once owned, stationery from the Pontiac plant where he had spent a summer, etc. Excited by his first attempt, he made a second structure, casting the translation into time and space by utilizing all dimensions of the sphere form and building the story of his life from the inside of the structure, where early life material was placed, to the outside where present day fact was recorded. In effect, the result was not unlike the actual stockpiling of information in the human mind.

Following the problem of personal question and statement, the second project takes the same means for translation and applies them to another person. Students look outside themselves, usually to a fellow student, to construct a non-verbal portrait. By this time, they should be becoming familiar with the Isaacs thesis that much of man's advancement is centered on how he processes, codifies and transfers the information he puts together in his own mind. Isaacs states that language itself is the universal example of the coding and processing of information; at the same time, his feeling that language will not be the tool of the practicing designer causes him to deny it as a means of solving Matrix problems.

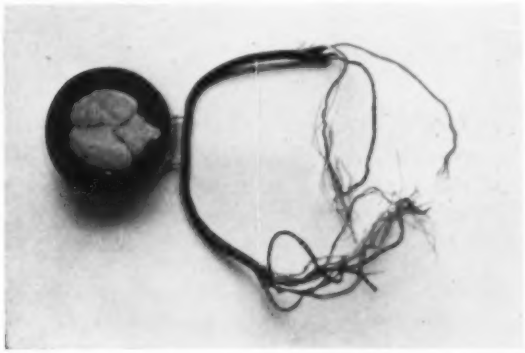
Traveling farther away from self, succeeding translations are made in terms of groups of people. A contemporary situation—Little Rock, Arkansas—was the subject of one "recoding." Another group of student film-makers, working in their newly constructed filming structure (left), focused on the American Civil War. Among subject elements utilized were iron filings moved by magnets across a map of Gettysburg, engravings of Lincoln and Lee, hundreds of moving colored paper squares. These and other ingenious symbols were brought together as organized fragments in the abstracted documentary.

Because an understanding of traditional physical phenomena is so important, the physical qualities of light, heat, and sound are investigated next. Students are faced with the problem of making a device to describe their characteristics. One girl, discovering that sound was the vibration of matter in space, and that these vibrations could move other matter, built a sound-driven kaleidescope by mounting a conventional automobile horn in a two-segment enclosure, one part of which housed small bits of colored paper. Every time the hidden horn blew, the scraps realigned themselves in new graphic patterns.



A complicated device displaying the cybernetic theory of entropy was constructed jointly by students S. Monroe, J. Urbank.

Using a calf's brain and electric wire, Edward Agnostini symbolizes another cybernetic relationship of man and machine.



Up to this point, the Matrix instruction had demanded solutions drawn almost entirely from the student's ability to think the problem through individually, with the help only of information available in standard reference manuals. The next phase was perhaps the most difficult to grasp, and most abstract in its demand. To bring the student into contact with present-day thinking in the field of information processing, the group was required to read Norbert Wiener's book on cybernetics, "The Human Use of Human Beings," and make an interpretation of any part of the book. The large illustration, (left), is a Matrix statement on entropy, Wiener's term which describes the complex of matter's progression in space toward vacuum or nothingness. The box houses a complicated circuit of lights which perform in a phased sequence to present a graphic picture of the Wiener theorem. Below it is shown a simpler, almost cartoon-like translation of Wiener's idea that much of Cybernetic systematizing is rooted in the study of information transfer as it occurs within the human body. Not able to secure an actual human brain, the student cast a calf's brain in clear plastic and connected it to an apparently complicated wiring harness illustrative of the man-machine relationship.

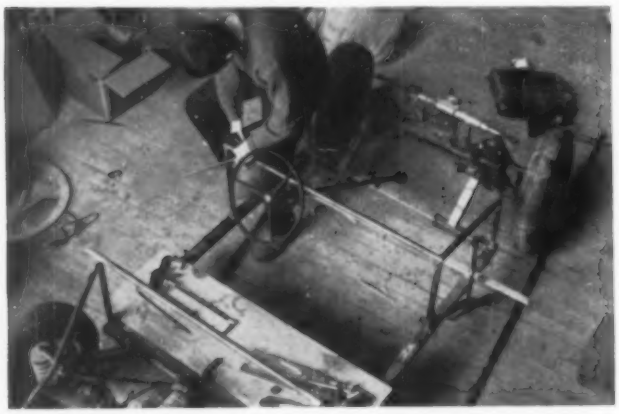
For all intents and purposes, the students complete the construction-problem-solving period of the Matrix study with the Wiener effort. The final phase is one of expanding their growing body of information through contact with a variety of people from the "larger community." This contact takes the form of a series of seminars with anthropologists, industrial management specialists, and other professionals who, though not directly involved with the design problem, have in their own fields evidenced an awareness related to the concepts of the Matrix. One of the first participants in these culminating seminars was Dr. Daniel Crowley, Research Associate at Northwestern University's Department of Anthropology, who wowed not only the design majors, but students from all departments with his three-seminars-a-day on calypso music, ethnocentricity, and the origins of man.

Guest anthropologist Dr. Daniel Crowley of Northwestern University sits in the Matrix Drum, discussing with avid students their interests and his.

Advanced problems give students a chance to practice what's been preached

Shown before the mounting of motor, canopy and rotor units, is C. Holzbog's design of a low-cost helicopter. Projected cost, $1000.

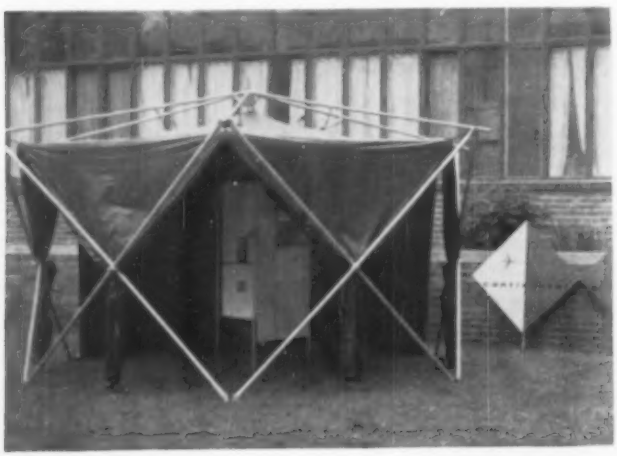
William Hopkins fuses the Renault and the scrap pile to make a working test of his belief that cars can carry more, be smaller.



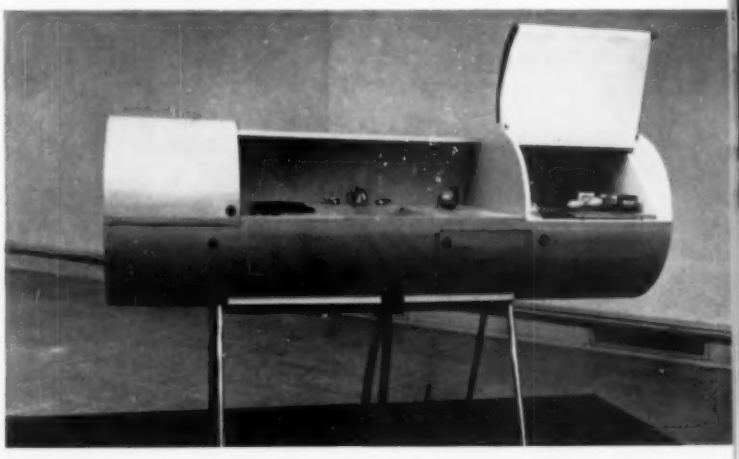
Not until the Matrix experience is complete do the students devote their full time to the design of objects. Curiously enough, in Matrix terminology these efforts are described as "peripheral activities," indicating that they are the result of insights gained in the Matrix. In a visit to Cranbrook's studios, one sees little evidence of students applying "finish" to their work, in the normal product sense. In fact, one is not apt to find Cranbrook's students collectively in any one place at any one time. Since the school leaves much academic discipline up to the individual students, and since "classes" for advanced candidates are all but non-existent, students are at liberty to schedule their own time. For hard-working students, the only limitation imposed is that studios do not open until 7:00 in the morning and are closed at 11:00 PM when a resolute night watchman shoos everybody out. Students may spend weeks at a time building and designing in the school workshop, using their studios only for brief corroboration of their trials. As far as advanced research facilities are concerned, Cranbrook students are fortunate in having much of the industrial variety of Detroit at their disposal. Preliminary field trips for information about a particular production technique have in some cases developed into long and profitable associations between students and the manufacturers who have helped them.

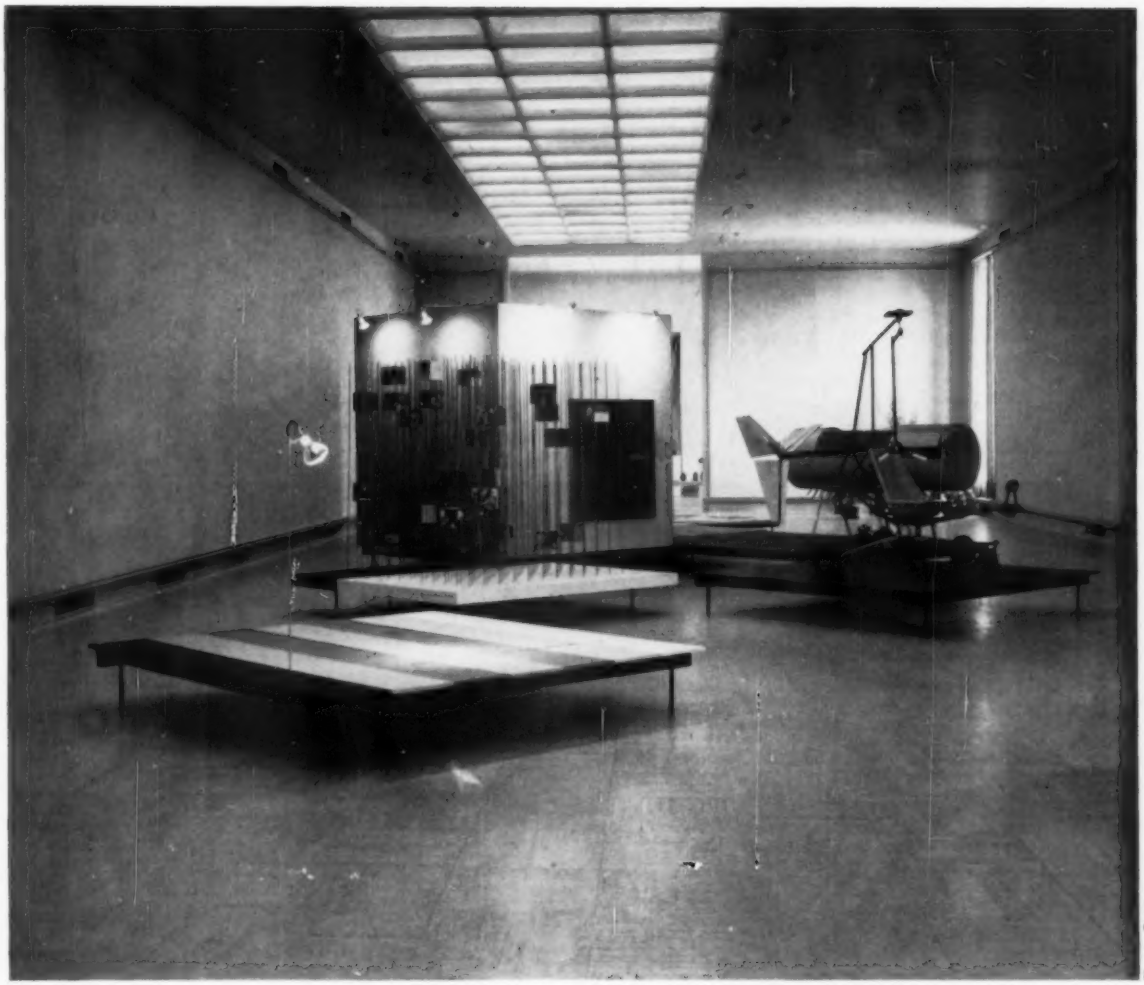
Influenced by the Matrix exposure, students seem to be chiefly concerned with communicational, man-oriented design. Low-cost helicopters, compact automobiles capable of transporting a family and all its attendant equipment over transcontinental distances, are actually built as a more complete expression of the inquiring student-designer's role. The moral of the Matrix is not unfamiliar. But its practice, even in an educational environment is: . . . "It is the intention of the Matrix investigation that product solutions be made in terms of the total environment rather than the arbitrary whim of superficial stylistic preference." For

Thin-wall aluminum tube and vinyl impregnated cotton are basic material in John Adams' collapsible folding tent structure.



Transportability recurs as a factor in the Monroe and Urbank kitchen unit. Cylinder houses oven, sink, workspace, refrigerator.





Harvey Croze

The annual Student Show displays the total of the year's effort. Shown above in geometrical arrangement is the entry to the design department area.

the student pushing through the rearranged world of the Matrix, the question, "What's it all for?", must recur. Certainly he is aware of the practical demands of the professional life ahead of him. Certainly by mid-semester he feels the sharp difference between the Cranbrook-Matrix style of making an educational point and that of a state university. Though bewildering times must come, perhaps his own "degree show" makes an answer, and teaches the last lesson. This gathering of his total work, piled atop the myriad of Matrix experience, begins to show not only that he *has* been trained in a different way, but more important, that his new knowledge and skills are of an inventive, rather than a form-for-form's sake sort. As one student put it, ". . . tail fins you can get anywhere."—*J.S.W.*

Experiment in efficiency is unit that uses power from heat-pump water heater (bottom) to run air conditioner (top) which chills food compartment (center).

Design Review: the '58 appliances

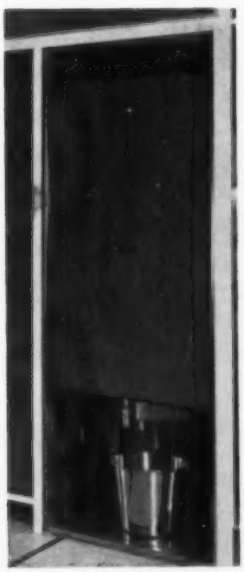
Hotpoint experiments

Compact cooking package combines standard oven, new smaller electronic oven (whose doors slide upward to recess in soffit) and range surface in drawer at new low 32" from floor. Public will decide whether placing ovens behind burners is a boon or a hazard.

A suggested return to the oven-range arrangement that was the style until the middle thirties. Red mahogany cabinets, straight lines and mechanized controls reflect current style.

Eleven-foot modular kitchen has many improvements in detail and arrangement over first production model introduced in 1956: *oven and dishwasher are set on wood cabinets to put them at more convenient height (both are standards of* 1958 *line); seven-foot counter top has two-level sink, sliding maple cutting board, four burners; swing-out stool lets the housewife sit at her tasks. Light is provided by three overhead drawers which automatically turn lights on when pulled out. One includes a ventilating hood.*

with prepackaged appliance combinations



Built-in water heater is adapted to dispense hot water and detergent for household cleaning.

Hotpoint took a calculated guess (based on the current rash of built-ins and the growing trend to combination packages), as to what would be needed in the kitchen of the near future and came up with nine experimental appliance packages, most of them to be built in, a few to stand alone. In keeping with the good sense of the project, the units are made up of Hotpoint appliances now on the market and could conceivably be produced today. In fact, if the public (who had a first chance to express opinions at the Home Furnishings Show), evinces enough interest, Hotpoint promises to go ahead with a limited production, test further and mass produce the units as they are or with suggested modifications.

As the use of standard appliances would suggest, these units represent not technical innovations but experiments in combining and arranging for greater convenience, neater appearance, saving of space and more varied use. In the case of the conditioner-chiller water-heater (opposite page), the combination means an economical and more efficient use of space and electric power. Another space saver (not shown) combines an oven with a range unit that folds into the oven's side when not in use.

Adaptation of the water heater (left) makes a working appliance out of a service unit and gives it a place in the kitchen. It may be startling to see the galvanized wash pail in the kitchen of the future, but it attests to Hotpoint's concern with even the most prosaic of kitchen jobs.

Many of the built-in units are provided with doors, drawers and lids which close down to give a clean, smooth wall surface, which is, after all, the ultimate purpose of building in.

Built-ins were welcomed by builders as a solution to many of their problems, and now command a respectable percentage of the appliance market each year. The built-in package amplifies its advantages: it simplifies installation and plumbing and electrical connections, saves space, and reduces kitchen planning to a choice of a limited number of boxes. As built-ins are becoming more detailed, all kinds of packaged units are already making their appearance, as you can see on the following pages.

Built-ins

The only bright spot in last year's appliance merchandising was a 10.4% increase in built-in oven sales, bringing the number of units sold to almost half that of standard ranges. With this coming of age, built-ins have acquired the complicated control panels, meat thermometers and rotisseries of the consoles.

Philco's step oven (A) is first to make a distinction between roasting and broiling (top oven) and baking (drawer below). Hotpoint controls (C) suggest a similar division of functions, but in fact all but two controls are for upper oven. Frigidaire (B) boxes a clock, setting devices, instructions, and meat tender to the left of ordinary oven controls. Oven door drops down to simplify cleaning. (E).

Philco surface-burners (A, left) have the flexibility of range units, with time control and choice of 6" or 8" coil. New seven-foot unit from Whirlpool (F) combines sink with range top, has continuous backsplash with electric outlets. Controls stand behind workspace for safety. GE offers push-buttons on a separate raised panel of range unit (D). Entire unit drops into place in user's countertop, making installation simple.

A

B

C

D

E

F

Appliance packages

Designed for different needs but both seeking a place in the home are two new types of packages. One is the compact, furniture-finished, free-standing one-piece kitchen. Derived from units made for motels and summer cottages, it is now being touted as a second food preparation area for the home. The other type is the full-sized kitchen unit, built-in or free-standing, which may pack many cooking steps into one easily-installed unit (J) or elaborate the usefulness of a single appliance, as the range (G). The experiments on the preceding pages suggest that these distinctions will fade as more and more appliances become packaged.

G

H

I

With the Youngstown Servicenter (J), the housewife can wash food in sink, prepare it on counter, cook it in a portable cooker using one of two outlets (one is clock-controlled), without leaving the center. Storage bins, built-in detergent and lotion dispensers and garbage disposer add to its versatility.

The cooking package from Western-Holly, (G), designed to fit a space no wider than that taken by standard range, offers gas oven and burners, electric outlets, ventilating fan, fluorescent lights and warming shelf.

Acme National Refrigerator Co. (H), puts electric burners in drawer to free top for serving. Entire unit, which includes refrigerator, is only 36" high, 27" wide, 25½" deep. With similar dimensions (29" wide), General Air Conditioning's unit (I) also includes sink. Top closes down to disguise its purpose. Both packages carry on trend toward auxiliary cooking centers in the home.

J

A

B

Refrigerators

New Norge (A, B, C) designed by Mel Boldt, not only sports the square lines that are **de rigeur** today, but offers new solutions to storage and ice-cube problems. Shelves (A) (adjustable even when loaded) and crisper are attached only to rod at front right corner, and swing out for easier access. Ice-cube maker (C) is automatic once it is filled; when cubes are formed, bottom opens to drop them into plastic bin. Interior is well lighted from two sources.

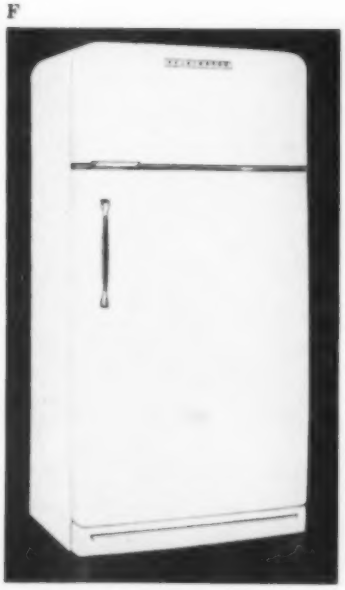
Placing of decorative panel on Westinghouse unit (D), gives impression that refrigerator and freezer are equal in size. Actually, freezer volume is half that of cooler. Door storage (E) includes cheese and butter servers (behind closed doors) and "leftover" boxes designed to be used at table. Simplified construction utilizes separate plastic sections to hold shelves. Refrigerator-freezer unit was designed by Peter Muller-Munk Associates.

C

D

E

F



G

Kelvinator this year aims at two markets and accordingly offers two lines. Smaller line, with five models, has the new square look (G), for people who are remodeling their kitchens. For replacement-buyers, a far larger group, Kelvinator offers eight models with rounded lines (F), on the theory that these people are unconcerned about built-in look.

H

I

Specialized storage

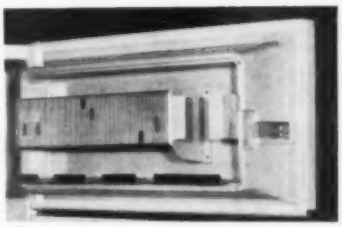
As they add new conveniences each year, manufacturers add new labels to show there is a place for everything, overlooking the fact that no two families' storage needs are alike.

Both Philco (**H**) and RCA Whirlpool (**I**) offer new separate compartments for keeping meat at 33°, a temperature recommended for several days' storage. Their shapes suggest that they are more convenient for chops and steaks than for bulky items.

In door, Philco (**H**) has tumble crisper with atomizer that sprays vegetables each time door is closed. If it is closed often, excessive watering might speed up rotting. Whirlpool has two crispers in door (**I**) which hold the staggering total of 58 pounds of food. Kelvinator crisper drawers are placed at new waist height. (**L**). Removable bottle basket is stored in door.

New Gourmet refrigerator from Revco (**K**) has fewer labeled compartments, giving user flexibility of food placement. Egg, cheese and butter shelf has clear plastic door for protection.

Freezer compartments grow larger each year and begin to rival the refrigerator in size and complexity. Philco's top model (**H**) has freezer capacity of 242 lbs. Its door has tilt-down rack for packaged goods, special place for cans. Norge freezer door (**J**) has dispenser that holds double row of cans, and a package shelf which releases packages one at a time.

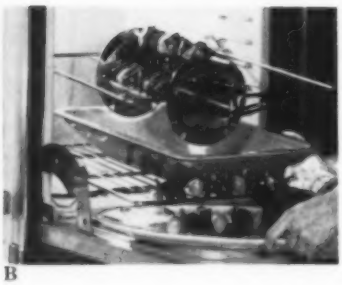


J

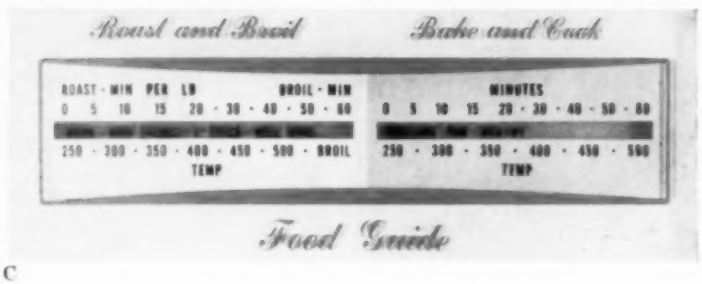
K

L

A



B



C

D

Ranges

Continuing the move toward the flexibility of the gas range, the majority of electrics this year offer four infinitely variable burners; thinner coils on some (Whirlpool, Philco) provide quicker response. At least one surface unit in most ranges is thermostatically controlled and Admiral offers this control on all four. Roast thermometers, which do everything from playing music (Hotpoint) to turning the oven off (Whirlpool), are standard on every oven. A new insulation system which inserts a cushion of air between the oven walls (Hotpoint) ensures a cool oven exterior.

RCA Whirlpool (A) has reorganized its controls on rectangular raised panel. Wedge-shaped indicators slide from right to left, but progress is actually circular—from off to boil to low. A plentitude of burner conveniences—right front is thermostatically controlled and has a size choice, left front is fast, left rear is clock-controlled—is convenient only if you have a good memory. Food Guide (C) is similar to Fabric Guide of Whirlpool washer, but seems more difficult to com-

prehend. Oven features like self-basting rotating spit and holder for five skewers (B) attempt to steal thunder away from the portable rotisserie.

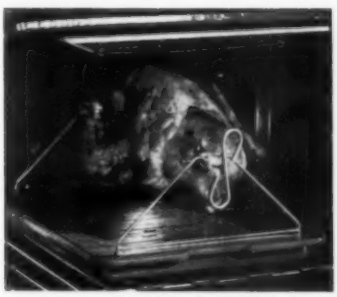
Frigidaire (D) has a new broiler pan, designed for smokeless, spatter-free broiling, with high sides to protect oven walls; water in drip pan keeps fat fluid. Despite multitude of controls, Frigidaire panel is orderly, with instructions printed right next to controls. New overhang holds light and creates shelf space.

Kelvinator (E) has repealed the many choices its range panel offered last year in favor of the simplicity and appeal of old-fashioned pushbuttons. Only one of four

E

F

G

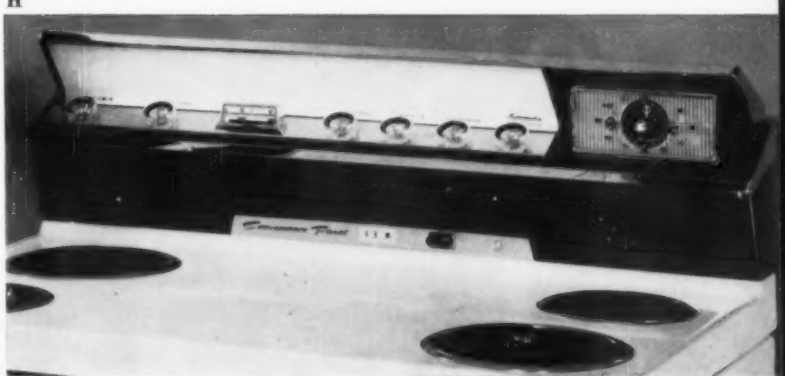


burners has infinite control.

All chrome and gold, new Philco panel (F) bristles with efficiency. Position of pushbuttons immediately conveys which burner is on; but squared clock numerals may cause momentary confusion. In oven is rotisserie (G) which rotates as soon as placed in position. Glass shield protects broiler coils from fat.

Surface units as well as oven coils plug out for easy cleaning in Westinghouse ranges (H). Color keying simplifies setting of oven controls. In addition to electric outlets, panel has retractable cord.

H



Decorative panels

A neat solution to the thorny questions raised by colored appliances and the growing interest in wood finishes is to let the consumer choose and change for herself.

For the second year, Westinghouse (A) designs its refrigerator to accommodate a changeable panel. With eleven textured materials and wood finishes available to be combined with five cabinet colors, Westinghouse boasts of a choice of 55 schemes.

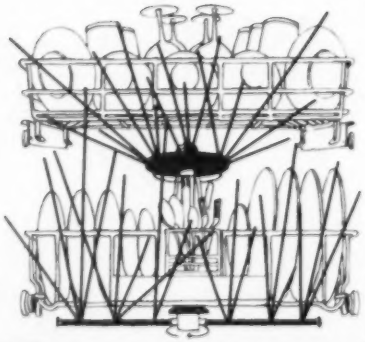
For its built-in dishwasher, freezer, and refrigerator-freezer, Philco (B) offers laminated plastic in colors, patterns, and wood finishes, and aluminum panels, color-anodized or polished. Units can even be had with reversible aluminum panel, copper anodized on one side, satin finish on the other.

Reversible wood panels, in three colors and two wood tones, snap in and out of gold-framed Whirlpool kitchen cabinets (C). Special hinge permits the panels to be changed without the use of tools.

A

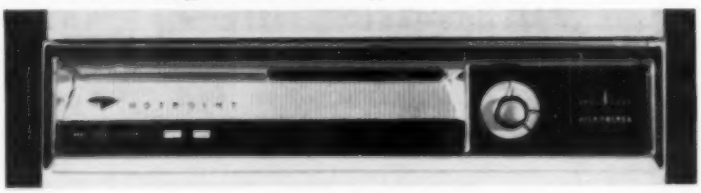
C

B



D

New Hotpoint dishwasher (E), also available with a choice of snap-on decorative panels, makes news with two revolving rotors, one under each rack (D). Normal washing cycle includes two separate washes, two rinses. Detergent dispenser in door injects new supply each time. A second washing cycle for pots and pans is sixteen minutes long. Control panel makes it possible to vary cycle, use machine as dish washer.

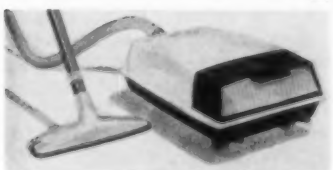


E

F

G

H



I

The miracle revisited

With the mounting of a 1958 version, it appears that the RCA Whirlpool Miracle Kitchen (F) is as much an exercise in futuristic styling as a bona fide test of experimental equipment that may revolutionize the kitchen. The laboratory just does not give up secrets on a yearly schedule.

Most striking feature of this version are the mushroom control center and stool, and the seating units cantilevered from the dining table. Table includes a glass hot plate for warming food.

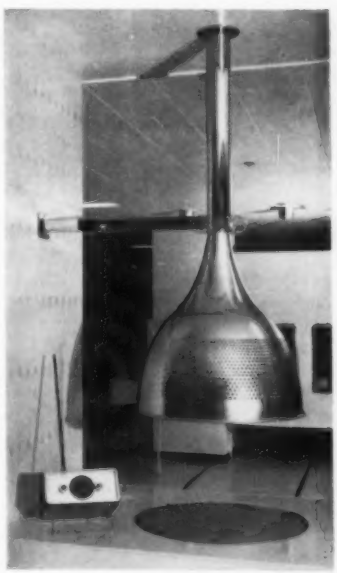
Control center has new combination of virtues — sink, automatic vegetable peeler, electronic purifying system, electronic surface unit —and it revolves.

Also new is an undercounter freezer (G) which revolves to provide complete access to stored food. Detail of refrigerator storage (H) shows eggs gaily held on pole.

Cooling system works like central air conditioning: cool air is piped into a number of compartments which maintain proper temperatures for various foods. Styling by Sundberg, Ferar, Inc.

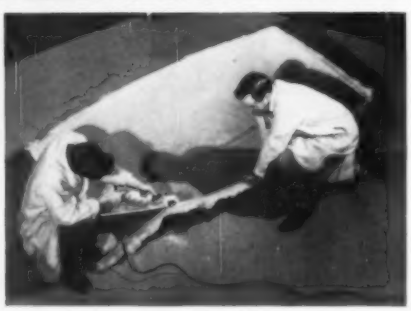
Sad ending for the little cleaner that noses around the Miracle Kitchen by remote control: now it is sold as a standard vacuum with standard nozzle, cord and plug (I).

Westinghouse is experimenting with remote control and electronic surface units (J). Little remote control unit transmits signal to receiving set, which controls oven switch and thermostat on otherwise conventional oven. Electronic surface unit works like electronic oven with hood coming down to confine microwaves.



J

TECHNICS *a catalog of new products, materials, processes and finishes*



New process provides reinforced plastic speed-up

Greater manufacturing speed and economy for a variety of reinforced plastic products are the promises of a spray gun process called the Rand Fiber-Resin Depositor. The Depositor chops glass fibers from continuous strands and sprays them, along with plastic resins, onto any mold or surface. Two jets of resins and a stream of fibrous glass combine outside their separate nozzles and deposit on the mold a resinous mass that compacts to form the laminate.

The construction of large reinforced plastic products has heretofore involved building up successive layers of plastic resin and fiber glass, thus making it an expensive procedure. The continuous operation of the Rand gun is both faster and cheaper. The 9-pound gun is said to deposit up to 15-pounds of high-strength laminate a minute and can reduce the cost of laminating large parts, such as the boat hull pictured above, by 40%.

Among the successfully tested products which have been made with the spray gun technique are boats, motor shrouds, truck bodies, chemical tanks, bathtubs and sinks, shower floors, chemical and moisture-resistant floors and walls, and swimming pool liners. Other promising applications include the manufacture of flat and corrugated plastic sheet for curtain walls and skylights, and custom automobile bodies and truck fenders.

The time required to compact the laminant is reduced because of the elimination of most of the entrapped air. Important reductions in the cost of raw materials are achieved because roving is used instead of more costly forms of fiber glass, such as mat or cloth. Cost per pound of fiber glass is therefore reduced from 30% to 50%, depending upon the type of fiber glass used. Physical properties can be improved as much as 15% over conventional fiber glass materials. This is the result of improved whetting and the high glass contents which can be achieved with the gun.

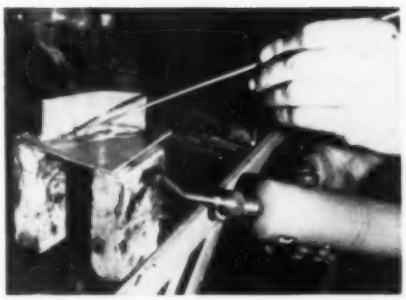
There is considerable saving in waste of fiber glass and resin. It is estimated that in the re-tailoring of fiber glass in conventional hand lay-up 10% is wasted in trimming and fitting. Conventional low-pressure molding techniques including hand lay-up, vacuum, and matched-die processes result in waste of raw materials estimated as high as 15% to 20%. With the gun this figure can be reduced to 5%. Manufacturer: Rand Development Corps., 13600 Deise Ave., Cleveland 10, Ohio.

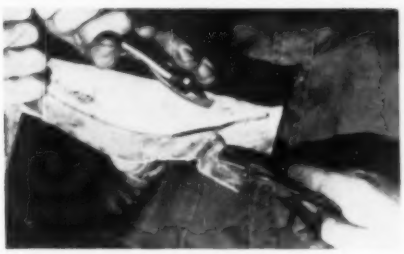
Giant press prints linoleum

What Congoleum-Nairn, Inc. calls the largest rotogravure press in the world, is printing designs for a new kind of floor covering. The giant press and its auxiliary equipment reportedly make possible a vinyl plastic floor covering that is less expensive than the conventional variety. Called Forecast, the new covering has a design which is printed at high speed on a specially prepared vinyl coated backing and is then covered with a transparent vinyl plastic protective film.

The rotogravure printing is accomplished by drawing ink out of designs engraved on cylinders, thus differing from other printing methods that deposit the design by relief or offset methods. The process runs at what the manufacturer describes as "very high speeds."

Manufacturer: Congoleum-Nairn, Inc., 195 Belgrove Drive, Kearny, N. J.





Novel joining material

Ion exchange, forming a chemical bond between both similar and dissimilar nonferrous metals, is the basis of the new material, InterAct, by Intertectics, Inc. The resulting joint is said to be stronger usually than either of the metals joined. It is asserted by Intertectics that the bond is frequently greater in corrosion resistance than the materials joined and has electrical, physical, and chemical properties similar to theirs.

According to Intertectics, the joints formed by InterAct represent a totally new concept in the joining of metals, and the process cannot be classified as soldering, welding, or brazing.

Chemically, InterAct is a reaction eutectic—that is, a material which, under the influence of heat, causes two similar and dissimilar metals to flow together at temperatures lower than the melting point of either, by creating an inter-surface eutectic solution.

In a solder joint, a third material is placed between two metals and, under heat, it binds either metal to itself, creating a joint. But since there is little ion exchange between the metals joined, the joint formed is only as strong as the soldering material itself. InterAct, on the other hand, is said to effect an actual "flowing together" of the two metals so that they are more nearly one.

Welding is limited to the joining of like materials. Additionally, welded joints have a cast structure which gives them a high electrical resistance. They are also susceptible to atmospheric corrosion, because of the foreign material pockets created when the weld is made. Welding can cause deformation of the metal and lead to stress rupture under severe use conditions.

Brazing is unsatisfactory in many nonferrous applications because the resulting joint is vulnerable to corrosive attack.

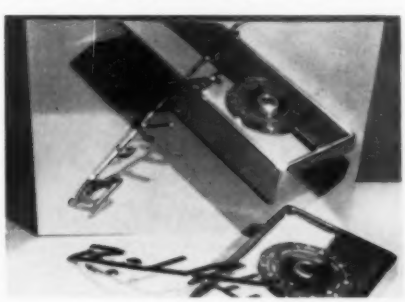
InterAct is expected to have important applications in the automotive field, in structural sheathing, in marine construction, and in the canning industry. In making such articles as fry pans with self-contained heating elements, appliance makers have had to use involved casting techniques to attach the heating element. With InterAct, the shapes can be joined after forming.

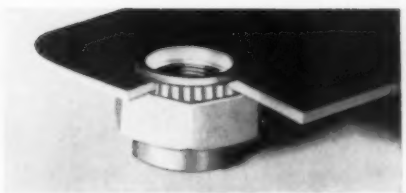
Manufacturer: Intertectics, Inc., Northfield and Forbes Rd., Bedford, Ohio.

Highly reflective aluminum

A super-bright anodized aluminum alloy is now being produced by Alcoa in sheet form. When polished, brightened and anodized, the moderately priced sheet, designated alloy X5457, has a mirror-like surface. A companion to Alcoa's high-luster extrusion alloy X6463, the new alloy is expected to replace alloy 5357 in various decorative trim applications where optimum brightness is desired. Products fashioned from the new alloy show mechanical properties similar to those of alloy 5357; can be rolled to the same specifications.

Manufacturer: Aluminum Co. of America, 730 Alcoa Bldg., Pittsburgh 19, Pa.



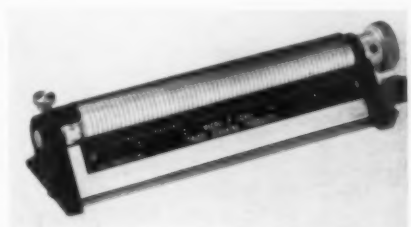


Controlled torque locknuts

Special self-locking clinch nuts, made by the Standard Pressed Steel Co., hold a Gillette razor blade display-and-dispensing case on top of cash registers in an unusual point-of-purchase advertising display. Finger tightening is all that is needed to install the locknuts which are made with a controlled torque of one to two inch-pounds.

A wrench would be required to install standard Flexloc nuts of the same size and would require about 10 inch-pounds of installation torque, possibly resulting in damage to the display. Conventional nuts would undoubtedly work loose under the repeated shocks and vibrations caused by the ringing of sales on the cash register to which the display is attached.

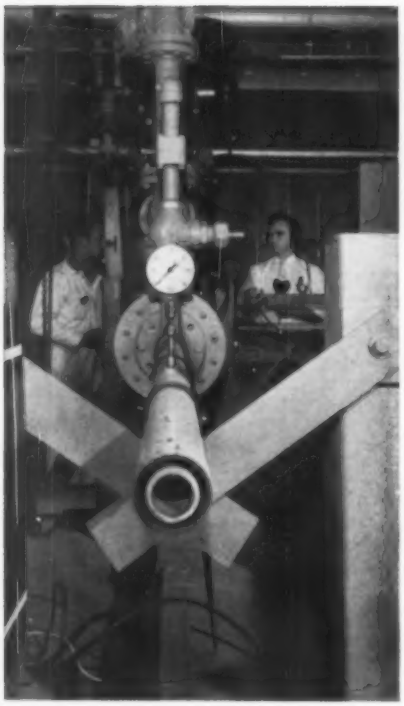
Manufacturer: Standard Pressed Steel Co., Jenkintown, Pa.



Layout instrument setting

Precision setting of layout instruments is facilitated by the Micro-Scale, which permits setting dividers and similar tools to three-place decimal accuracy without gage blocks or other standards. It combines a direct-reading scale and a graduated dial, calibrated in .001 increments from 0 to 6, 12, 18, or 24. A knurled knob actuates a helical scribed line on the barrel to provide the two fixed points for layout instrument settings.

Manufacturer: Trico Machine Prods., 2664 Grand Ave., Cleveland 4, Ohio.



Raising a storm

Compressed air blowpipe hurls hailstones the size of golf balls against a Convair 880 wing section to test the structure's durability under severe weather conditions. At left, a technician is loading the gun with 1¼-inch hailstones, while, at right, the test engineer signals wind tunnel controller for a desired air blast.
Source: Convair, Division of General Dynamics Corp., San Diego 12, Cal.

Electric carpet

A carpet that can take the place of central heating in mild climates is the result of the collaboration of a group of British electrical engineers working with the Shelf Mills, a textile firm. Called Thermalay, the rug is actually an electrically heated carpet underlay from which a connection can be plugged into the wall.

The Thermalay carpet is designed to give a floor temperature of 70-75° F. It is claimed by the developers that it will heat all the air in a room evenly and so provide maximum comfort in a normal English living room for about a penny an hour—slightly more than one U. S. cent.

The carpet consists of two layers of underfelt between which a p.v.c. insulated high tensile stranded steel element is placed. The two layers of felt are bonded together by means of a special adhesive, and this has the effect of fixing the element in position.

The wire in the element is enclosed in a tough casing of an undisclosed plastic which is an excellent insulator and can also withstand the normal movement of furniture over the carpet. It is claimed that even a nail will glance off rather than penetrate the wire.

Room temperatures need not be so high when the Thermalay carpet is used, it is said, because the room air is evenly heated and there are no drafts. If about 80% of the total floor surface is heated by Thermalay, no other form of heating is necessary in mild winter weather.

Thermalay is manufactured in standard carpet sizes.
Manufacturer: Thermalay Ltd., Halifax, Yorkshire, England.

Cellulosic finishes

The list of plastic finishes that can be successfully bonded to metal parts by means of the Whirlclad process (National Polymer Prods., Inc.) has been increased to include cellulosic finishes. (For an explanation of the Whirlclad process, see pg. 85, ID Sept. '57). The new finishes are now part of the Corvel line of powdered resins specially processed for use with the Whirlclad process which already includes nylon, polyethylene, and K-51 (chlorinated polyether).

Coatings of 8-to-15-mils can be obtained in a single dip. Castings, steel-wire fabrications, and stampings in a wide range of sizes are coated uniformly, unmarred by sags, or irregularity in material flow.

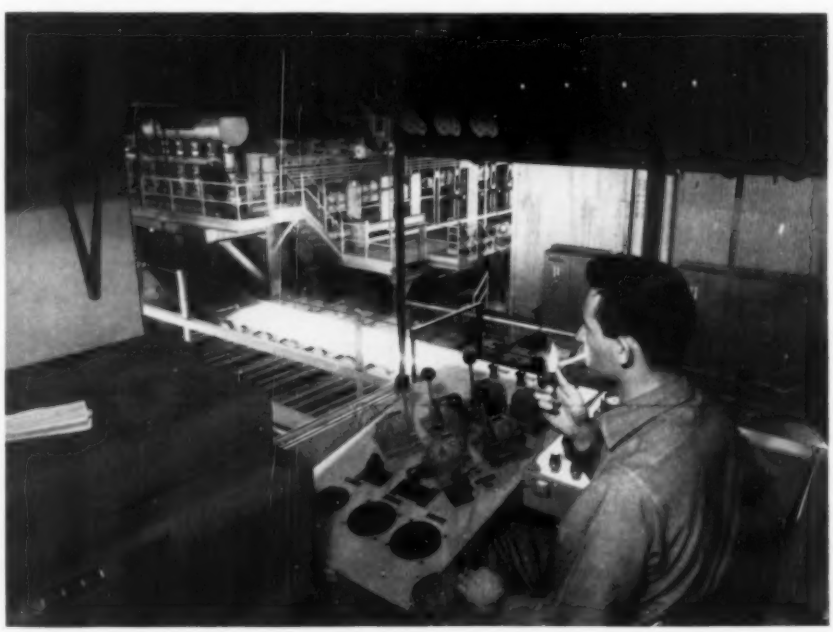
The cellulosic finishes are said to have outstanding gloss and color retention.
Manufacturer: National Polymer Prods., Inc., 125 No. 4th St., Reading, Pa.

Robot steel mill

A card-programmed control system, called Prodac, is making the robot-run factory of the future seem already present in the first fully automatic control system for a steel mill at the Jones and Laughlin Aliquippa, Pa., plant.

With Prodac, the operator can insert an IBM card and press a single button to initiate the complete rolling sequence for a given slab in the roughing mill. Prodac was designed and developed by Westinghouse Electric Corp., in conjunction with Jones and Laughlin engineers.

The new facility will be able to roll over 100,000 tons of coiled strip steel a month. The coiled strip steel, in varying gages and up to 40" wide, will be used primarily in the electriweld and continuous weld pipe mills, and in the manufacture of tin plates. The new facility can be set to enable the mill to roll materials, coils for example, weighing up to 20,000 pounds.
Source: Jones and Laughlin Steel Corp., 3 Gateway Center, Pittsburgh 30, Pa.



Direct-reading caliper

The Master Caliper gives a direct reading on an integral black and white scale, unlike conventional calipers which must be matched against a separate scale. The Master Caliper measures round or flat objects and irregular shapes up to 4" thick. Caliper legs reach over flanges and other obstructions to measure the thickness of sections up to 3" in from the edge of a part. The tips are narrow enough to penetrate to the bottom of grooves and slots only 1/16" wide. A thumbscrew locks the caliper at any mid-scale position for use as a gage.
Manufacturer: Master Specialty Co., Inc., 3725 Monitor Ave., Minneapolis 26, Minn.

Heat-sealable protective film

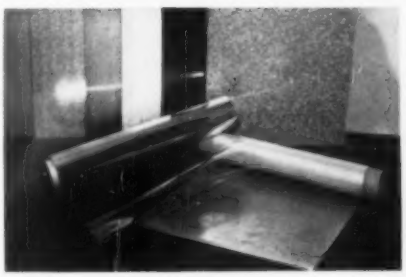
Heat and pressure are all that is required to adhere Videne, a polyester laminating film by Goodyear, to a variety of end products in a number of industries. Two varieties of Videne are now in production: Videne A was perfected for direct applications in the textile, metal, wood, paper, plastic, and automotive fields. Videne TC is a special packaging wrap designed for use in high-speed machine packaging of meat and other food products.

Experiments by Goodyear indicate that the new film has extremely high abrasion resistance and that it resists outdoor aging to a high degree. Videne is said to have good adhesive, electrical, and forming properties. The film will vacuum-form or draw to the limits of supporting materials. Goodyear visualizes future homes, automobiles, furniture, and appliances protected and beautified with some form of Videne, which can be laminated to glass fabric, cotton, wool, Dacron, Orlon, nylon, and Vinyon without use of adhesives. When laminated to fabric, Videne is said to intensify background colors in addition to giving a protective surface to the fabric.

As a laminate to plastic, Videne (which can be adhered to rigid or semi-flexible plastics) has potential use as a wall covering and furniture topping. The film can be embossed and printed. Gloss or reflection of the finished surface runs from high to low, depending upon the type of Videne film used, and is controlled by the lamination technique involved.

Dry laminations (top picture) of Videne A to foil and paper represent one major area of use for the new film. The film is normally hidden from view in packaging applications because it is used as the inner protective liner.

Videne-metal laminates (bottom picture) include the protective and/or decorative surfaces obtained by lamination and embossing of either clear or satin-finish Videne A. The protection and decoration of building materials, household items, auto-



motive trim are among the possible uses of these laminates.

Unlike Videne A, from which it is derived, Videne TC is said to have unusual strength in an unsupported state, even at extremely low temperatures. It is described as an oriented or stretched thermoplastic coated material which is heat-shrinkable within a controlled temperature range. Heat sealable, it is believed by Goodyear to be the first shrinkable film with enough inherent rigidity and dimensional stability to be run on commercially available automatic packaging machines. The film is being produced in .0004 inch.
Manufacturer: Goodyear Tire and Rubber Co., Akron, Ohio.

Stretchable paper

Stretchability as opposed to tensile strength is the special asset of Clupak, a tough paper being manufactured by the West Virginia Pulp and Paper Co. under a patent by Cluett, Peabody and Co.

Said by the manufacturer to be five times tougher than the conventional kraft

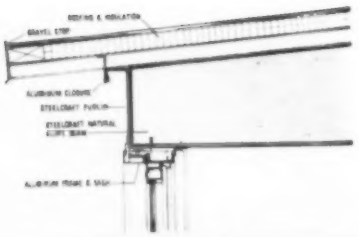
paper now being used in such items as shopping bags, Clupak achieves its superiority by a greater stretchability rather than an increased tensile strength. Its tensile strength is, in fact, less than that of ordinary kraft paper, but the stretchability is said to be more important in bags than resistance to tearing.

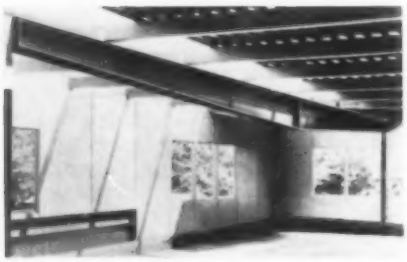
Initially, Clupak will be limited to applications in the kraft paper field, the utility grade of coarse paper used for shipping sacks, grocery bags, wrapping paper, and other packaging products.

Reduced to its simplest physical principle, Kraftsman Clupak paper's toughness can be measured as the force (inch-pounds of tensile strength) multiplied by the distance the paper is stretched under constant strain to the breaking point.

Substantially less paper will be required to obtain strength requirements effecting an economy despite a premium price. Tests by West Virginia have shown that supermarket checkout bags made of Kraftsman Clupak paper can withstand 20 or more suspension drops with an average checkout load of groceries. This compares with bag failure after one or two drops when conventional kraft paper is used.

Although production at the outset will be limited to kraft papers, product development work being carried out by West Virginia indicates a wide potential range of uses for Clupak papers.
Manufacturer: West Virginia Pulp and Paper Company, 230 Park Ave., New York 17, N. Y.





Steel framing system

Low-slope roof structures less expensive than before are said to be possible with a framing system that lessens the steel tonnage requirements for such structures. Key to the system is the Steelcraft Slope Beam, a welded assembly of structural steel plates fabricated in an automatic continuous welder. This method of fabrication results in beams that require less steel than rolled beam sections for equivalent loads. Tests by the Steelcraft Co. have shown a high ratio of reserve strength, the equal in every respect to the load carrying capacities of rolled milled sections.

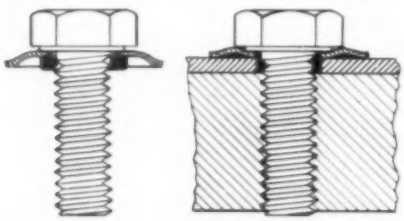
The Slope Beam may be inverted so that the vortex faces downward to provide a flat top, or the beam can be used with the vortex up for a shallow peak. Another application involves the longitudinal tilting of the Beam to create a shed effect or a large overhang. The framing unit package, which includes both beams and steel purlins, can be used with most types of roof deck. Since most steel erection is based on tonnage, the lightweight slope beams also reduce construction costs. In addition, the low heel of the slope beam reduces the height of the sidewalls, resulting in material and labor savings. It is said that further savings can be made through the elimination of heavier columns and foundations, since the dead load of the structure is reduced by the slope beam construction.

Unlike many open or joist constructions, lengths are not limited to a series of standard sizes. Slope Beams are available in a variety of sizes for spans from 25′ to 60′, and they can be produced in special sizes at no increase in cost. Purlins are available in sizes 8″ to 10″ deep.
Manufacturer: The Steelcraft Mfg. Co., 9017 Blue Ash Rd., Cincinnati 42, Ohio.

Fastener for irregular surfaces

Trademarked Spin-Seal, a sealing-style fastener by Russell, Burdsall and Ward Bolt and Nut Co. provides a triple seal on irregular, corrugated, curved, or flat surfaces. Spin-Seal is a hardened washer spring with a permanent flowed-in gasket sealant which is preassembled to any type of standard machine screw, cap screw or bolt.

Because the washer does not turn when the screw or bolt is tightened, the fastener is said to overcome a common problem of sealing fasteners – subjecting the seal to twisting and tearing action. Spin-Seal fasteners are supplied in screw sizes from No. 6 to ½-inch, with washers ranging from .56″ to .92″ in diameter, .025″ to .040″ thick, .065″ to .090″ high. Carbon or stainless steel

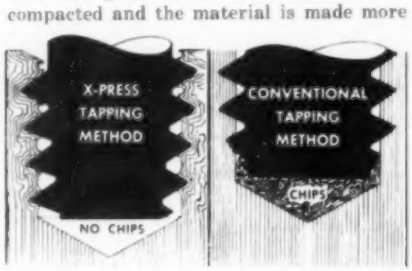


fasteners are available. Any type of head except flat can be furnished in tapping screws.
Manufacturer: Russell, Burdsall and Ward Bolt and Nut Co., 100 Midland Ave., Port Chester, N. Y.

Taps uncut threads

The new X-Press Taps cold-form or swage the thread in ductile metals such as aluminum, zinc (including die casting), brass, copper, lead, leaded steels. Threads are rolled internally by the X-Press, reducing tap breakage due to chips because there are no chips to jam or cause loading. In the absence of flutes, the tap is said to be stronger than conventional fluted taps and therefore not easily broken. The manufacturers point out that this aspect of the design is especially important in the smaller sizes where breakage, rather than wear, is an important element in tap costs.

Because the X-Press Taps cold-form the material, the thread generated is said to be stronger than cut threads. Microphotographs of sectioned pieces are said to show that the grain lines are compressed or compacted and the material is made more



dense. Pull and torque tests, carried out by Besly-Welles, the manufacturer, indicate that X-Press threads are from 15% to 20% stronger than cut threads.
Manufacturer: Besly-Welles Corp., South Beloit, Ill.

New grade of polyethylene

Greater stiffness, higher heat resistance, and greater resistance to abrasion are the touted assets of a medium-density polyethylene, by Eastman Chemical, as compared to the qualities of low-density, conventional polyethylene. Designated Series 100, the new variety of polyethylene is in production at the Eastman plant in Longview, Texas, boosting that plant's production of polyethylene by more than 50%.

The use of Series 100 is said to avoid the limpness of some items with thin walls heretofore molded from conventional polyethylene. Its higher heat-resistance permits sterilization of vessels in boiling water and the washing of housewares in automatic dishwashers.

Film extruded from the plastic is said to be stiffer and therefore has less tendency to stick together, making it suitable for use in bagging and packaging machines.
Manufacturer: Eastman Chemical Products, Inc., Kingsport, Tennessee.

Blind fastener

A new blind fastener, called the Jack Nut, is capable of gripping securely any kind of material up to ⅜″ thick. Self-adjusting to grip evenly on rough, curved, smooth and level surfaces, Jack Nuts can be used as rivets and/or blind fasteners in expansion space as small as ⅜″. They provide firm nutplates for attachment screws, and anchorage is permanent, permitting screws to be removed and replaced. Jack Nuts allow holes to be fashioned before, during, or after fabrication. They do not require special holes and hole size is not critical.
Manufacturer: Molly Corp., 230 N. 5th Ave., Reading, Pa.

Manufacturer's Literature

Production and Maintenance Chemicals. Permatex Company, Inc., 300 Broadway, Huntington Station, N. Y. Illustrated catalog describes production and maintenance chemicals for industrial, marine and aviation use. There are sections on special purpose sealing compounds, cements, oils, hydraulic fluids and cleaners.

Rubber Company's Facilities. Stillman Rubber Co., 5811 Marilyn Avenue, Culver City, Cal. 24 pp., ill. A three-piece literature kit describes the products and facilities of Stillman Rubber Co., including Stillman's line of custom molded parts.

Self-Adhesives. Fasson Products, Painesville, Ohio. 4 pp., ill. The many types of adhesives—colorful papers, metallic foils, plastic films—are discussed in this brochure.

Services of Coating Division. Protective Coatings Division of Metalweld, Inc., Philadelphia, Pa. Two bulletins describe the division's services: the first deals with metallizing, the process of spraying molten metals onto a base surface; the second concerns welding repairs of structural and processing equipment as well as fabrication of the equipment.

Socket Screws, Plugs and Pins. Standard Pressed Steel Co., Jenkintown, Pa. 32 pp., ill. Manual reviews the company's line of standard socket screw products, pressure plugs and dowel pins and gives specifications.

Stainless Steel Hinges. Star Stainless Screw Company, 655 Union Boulevard, Paterson 2, N. J. 1 p., ill. Bulletin lists sizes and types of hinges in stock and points up proper specifications for hinge practices.

Stud Welding. Nelson Stud Welding Division, Gregory Industries, Inc., Lorain, Ohio. 24 pp., ill. Design Manual contains complete list of stud welding applications and describes physical properties of stud types.

T-1 Steel. United States Steel Corp., 525 William Penn Place, Pittsburgh 30, Pa. 66 pp., ill. Book contains engineering data, metallurgical characteristics, applications and fabrication methods for this high strength, low carbon steel.

Time Saving Tips for the Draftsman. Frederick Post Company, Reader Service Division, 3650 N. Avondale Avenue, Chicago 18, Illinois, 34 pp., ill. Booklet, compiled from leading engineers and draftsmen, shows 59 shortcuts to speed drafting and computation work.

Wheels. R & K Industrial Products Co., 1945 North 7th Street, Richmond, Cal. 8 pp., ill. Catalog describes complete line of R & K wheels with full specifications on each.

Classified Advertisements

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Index to Advertisers

For Your Calendar

March 16-20. Aviation Conference of the American Society of Mechanical Engineers and the American Rocket Society at the Statler-Hilton Hotel, Dallas.

March 17-21. The 14th annual conference and exhibition of the National Association of Corrosion Engineers at the Civic Auditorium, San Francisco.

March 17-21. "Industrializing the Atom"—the 1958 Nuclear Congress, accompanied by the 1958 trade show of the atomic industry, International Amphitheatre, Chicago.

March 25-26. Inter-Society Color Council's 27th annual meeting at the Sheraton-Park Hotel, Washington, D. C.

March 29-31. The 12th annual convention-exhibit of the National Office Furniture Association in Convention Hall, Philadelphia.

April 1-10. The 37th annual exhibition of advertising and editorial art and design, sponsored by the Art Directors Club of New York, at the Waldorf-Astoria. Communications Conference, April 2-3, on creativity.

April 2-4. Conference on automatic controls. Sponsored by the American Society of Mechanical Engineers, the American Institute of Chemical Engineers, the Institute of Radio Engineers, the Instrument Society of America, and the American Institute of Electrical Engineers. University of Delaware, at Newark.

April 11-May 18. The Society of Typographic Arts' Exhibition: Design in Chicago; at the Art Institute of Chicago.

April 14-17. Design Engineering Conference, sponsored by the Machine Design Division of the American Society of Mechanical Engineers, concurrently with the Design Engineering Show, at the International Amphitheatre, Chicago.

April 17-October 19. The Brussels Fair: the first world's fair since World War II.

April 18-June 1. A survey of decorative art and design by recipients of Fulbright grants, at the Museum of Contemporary Crafts, New York.

April 21-23. The American Management Association's seminar on "The Uses of Marketing Research in New Product Planning" at the Sheraton-Astor Hotel, New York.

April 21-23. The 7th annual meeting of the Building Research Institute at the Shoreham Hotel, Washington.

April 26. Type Directors' Club meeting on "The Art and Science of Typography," at the Silvermine (Conn.) Guild of Artists.

April 28. Opening of the Design Center for Interiors, 415 East 53 St., New York. A permanent exhibit hall.

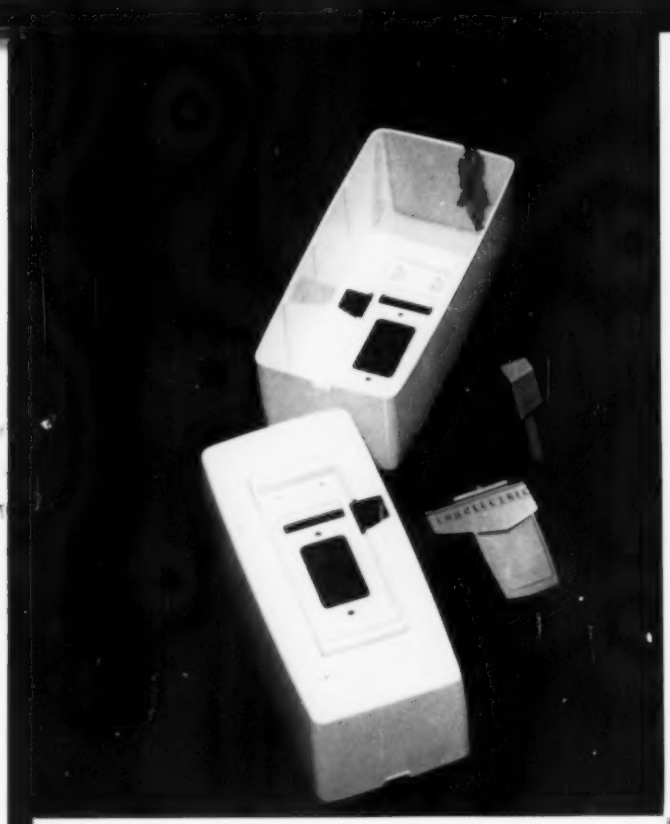
May 1-8. American Society of Tool Engineers' show and 26th annual convention at the Philadelphia Convention Center.

May 7-17. The United States World Trade Fair at the Coliseum in New York.

May 21-23. The American Management Association's seminar on "The Product Planning Function in the Small Company" at the Sheraton-Astor Hotel, New York.

May 25-28. National Office Management Association's International Conference and National Office Show at the Conrad Hilton Hotel, Chicago.

May 26-30. American Management Association's 27th National Packaging Exposition at the New York Coliseum. The 27th National Packaging Conference May 26-28 at the Hotel Statler, New York.



Proof: Styron 475 lends itself to good design, low production costs

ANSWERS EVERY REQUIREMENT. The designer of this electric can opener took advantage of the many excellent characteristics of Styron® 475M. Used for the housing, flip-up lid and push button, this popular Dow hi-impact plastic resists abrasion and food stains. It provides good electrical properties and a long-lasting, easily cleaned finish in a wide range of colors. Styron 475M products like this can be economically injection molded.

COLOR, STYLE APPEALS. Good design combines rich color and smart styling in this slide viewer made of Styron 475. This versatile Dow hi-impact polystyrene offers strength, lightness and durability in an almost unlimited choice of colors. Designers and production men alike find Styron 475 keeps costs and technical problems to a minimum.

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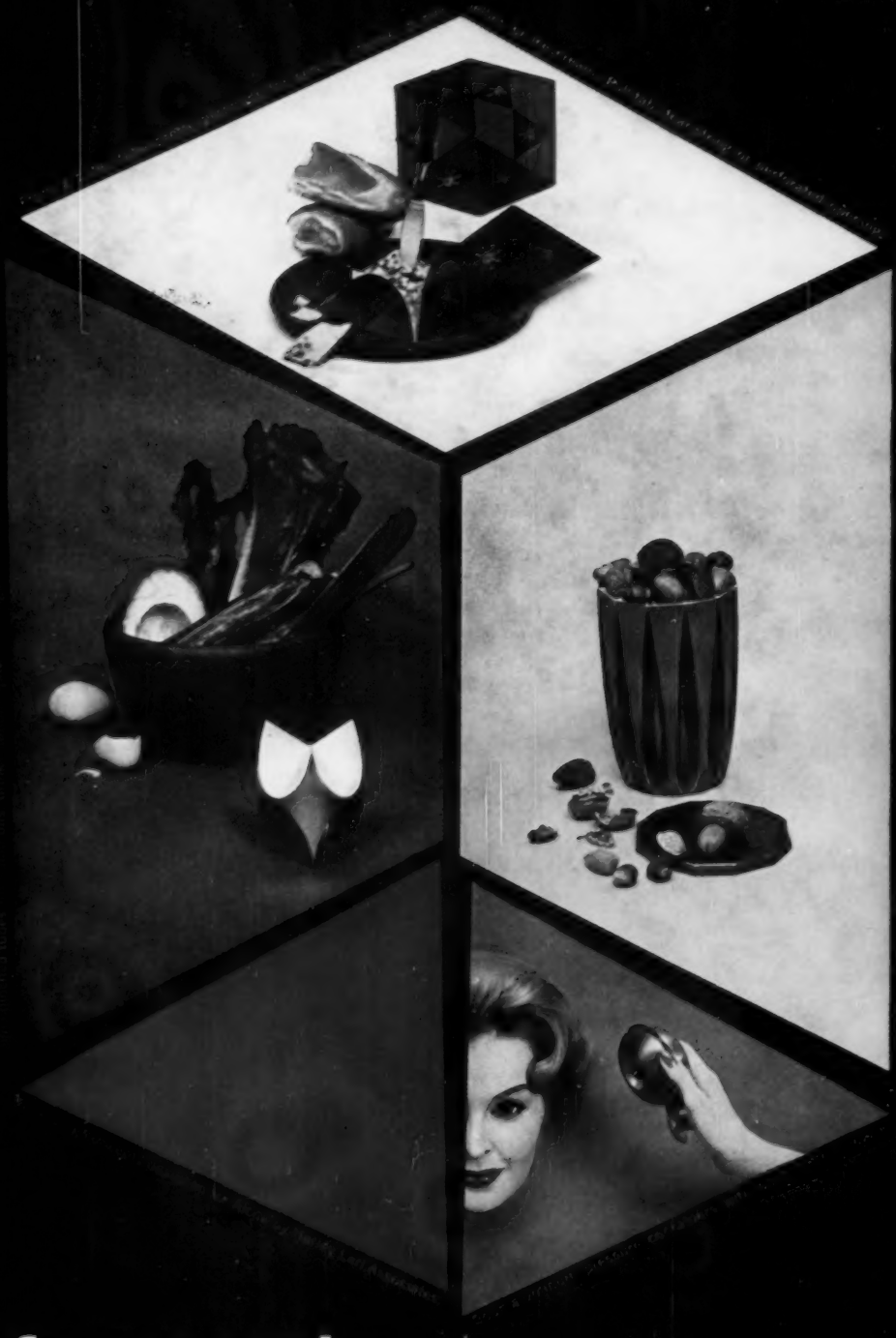
Photographed by Ben Somoroff



Drum containers in sizes and shapes for candy coffee flour cereals liquids—various openings include sifters.

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ALCOA ALUMINUM Aluminum Company of America, Pittsburgh