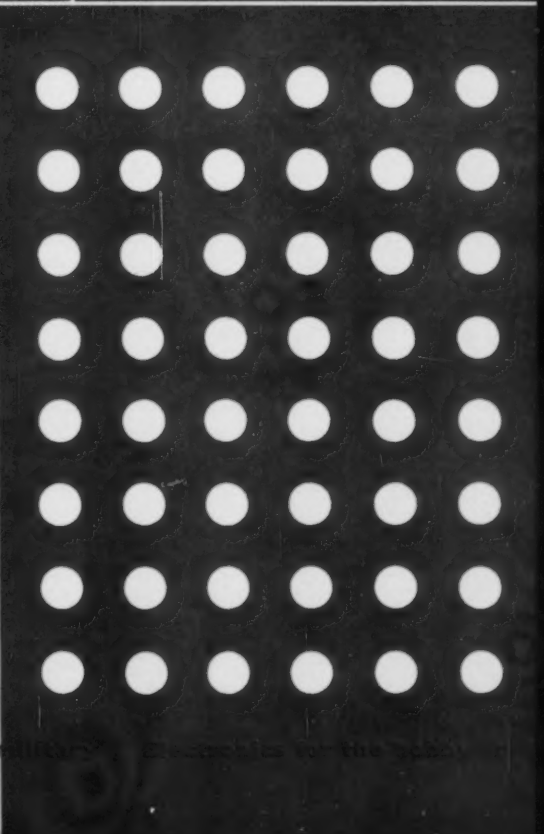
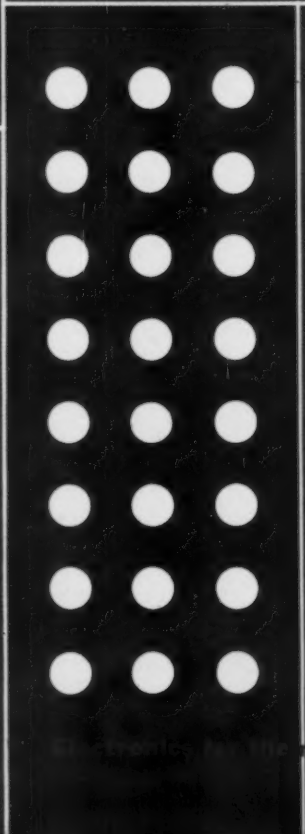
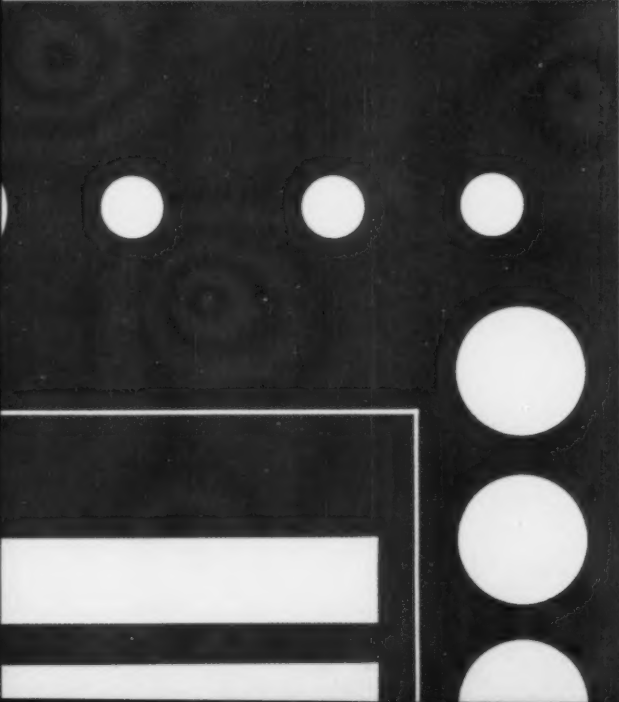
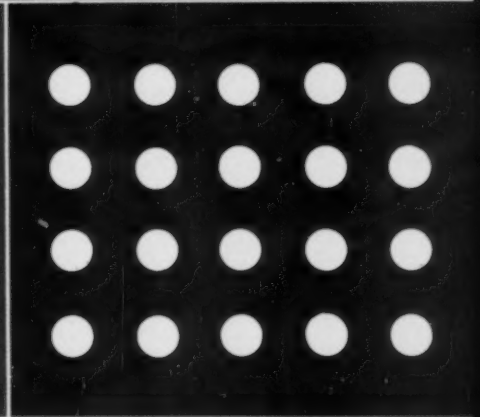
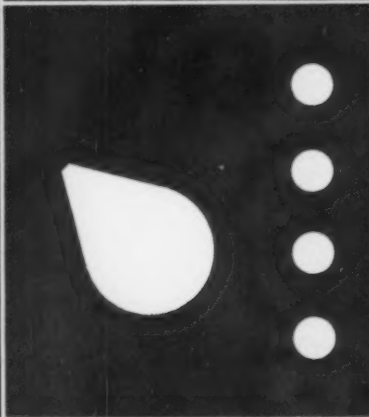
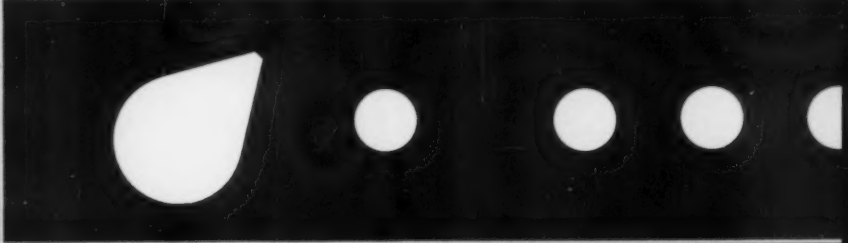
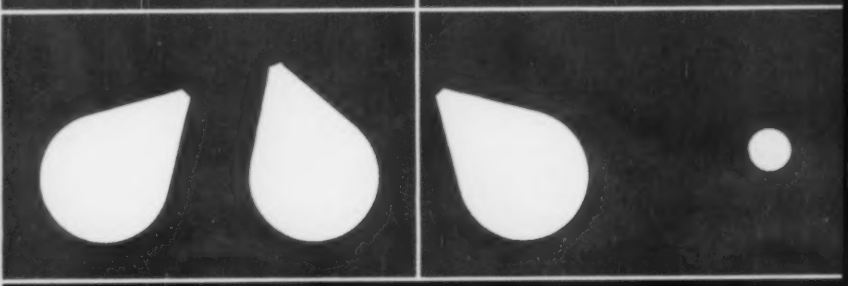
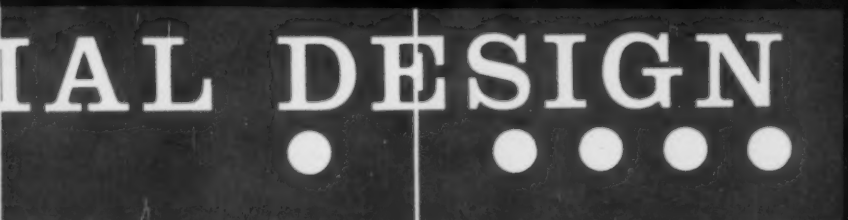
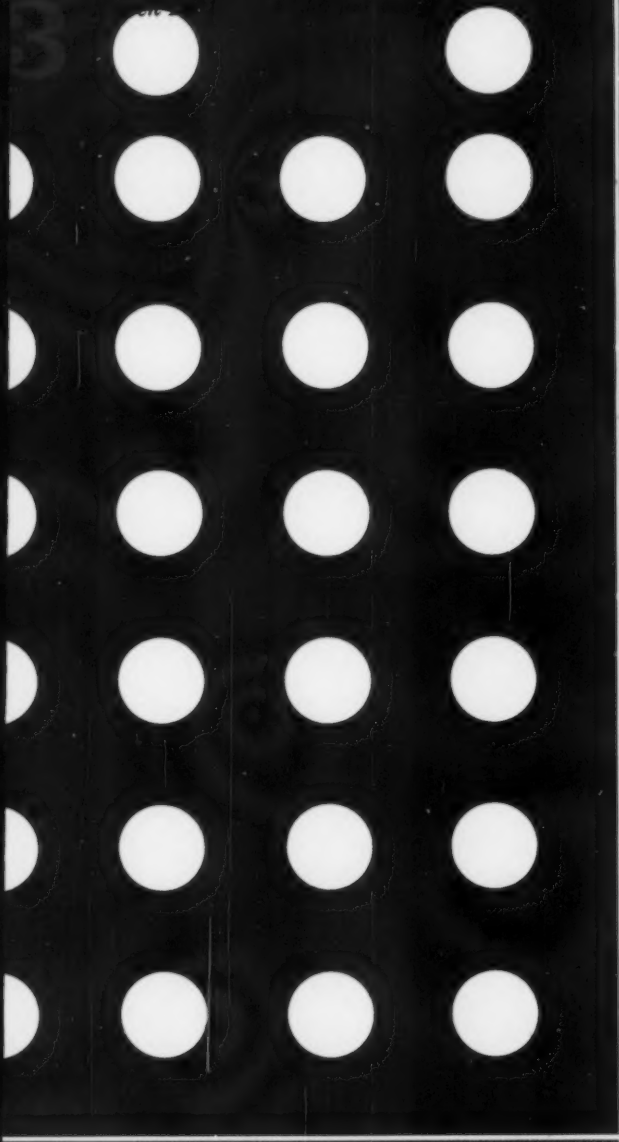


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A monthly review of form and technique in designing for industry. Published for active industrial designers and the executives throughout industry who are concerned with product planning, design development and marketing.

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COMING

IN APRIL—*Gallery IV: the fourth in a series of profiles; Design services by materials suppliers*

IN MAY—*Materials and technics for package design*

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17 awards for editorial excellence, and 10,164 subscribers (ABC) at \$10 yearly for 12 issues bear testimony to the fact that every issue of INDUSTRIAL DESIGN is much to the liking of both independent and company industrial designers.

Upcoming editorial features are mentioned in the interests of advertisers who may wish to attune their copy to the subject on which reader interest is being editorially centered.

It is suggested that all advertisers arrange their schedules to include the December Annual Design Review issue — A reference work enjoying cover to cover readership far beyond our subscribers and extraordinary long life.

IID

MEMO TO ADVERTISERS

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May MATERIALS AND TECHNIQUES FOR PACKAGE DESIGN

A review of the latest materials (papers, boards, foils, films, inks, etc.) and components (closures, spouts, labels, hinges, coatings, finishes, etc.) and processes (forming, filling, sealing labeling, etc.) in creating packages for both industrial and consumer use. This article will include a report on the AMA's 30th packaging materials show.

July URETHANE FOAM

As urethane foam continues to gain wider use in both industrial and consumer products, industrial designers find increasing need for an application manual directed specifically to them. Our article will examine a number of its specific production applications in such fields as furniture cushioning, automotive and aircraft interior design, packaging, insulation, kitchen products, and building construction.

August FOILS AND FOIL SUBSTITUTES IN PACKAGING

Foils offer so many advantages in both structural and surface design, and they can be so eye-catchingly "elegant", that even the most prosaic contents are now sold in (and, some experts believe, by) aluminum foils. But, despite insured sales increases, the cost of using foil is very high, and competing materials suppliers are not sitting still. Metallized papers, as well as specialized inks, are already in wide use as foil substitutes. Recent trends and foreseeable developments in this field will be discussed, including ways in which designers have effectively used foils and foil substitutes as a weapon in the competitive battle.

October PRODUCT GRAPHICS

Every product carries its own identification, and the ways of affixing it to the product vary greatly. Trim parts or name plates can be made from metallized paper with adhesive backing, from anodized metal sheets with embossed and/or etched markings applied by rivets. They can be part of a product's stamping, or can be separate parts used to take care of a product-function (the Royal typewriter label, for example, which also serves as a release mechanism for opening the machine's top). The methods for producing these trim parts also varies. This article will treat the production of nameplates and escutcheons as it relates to design.

November FINISHING METAL WITH METAL

This article -- comparable to those we have done in the past on plastic coatings and laminates -- will treat nickel, chromium, silver plating, plain buffing, and various methods available for metal finishing.

December THE 8th ANNUAL DESIGN REVIEW

For the 8th time the editors of INDUSTRIAL DESIGN present their selection of the best designs in products manufactured by virtually every industry in the United States. This is a critical selection, based on exhaustive product research. The 1960 issue had more than 300 products, with descriptive and analytical captions, plus a special section on the year's technological news. The 1961 Annual Design Review will be even more inclusive.

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Also publishers of INTERIORS

COVER: Art Director Peter Bradford's abstraction—loosely derived from the instrument panel of a missile computer field testing set—symbolizes the design at GE's Light Military Electronics Department (see page 28).

FRONTISPIECE: This printed circuit, which looks curiously like ancient stylus writing, is made by Synthane Corporation of laminated plastics and copper cladding.

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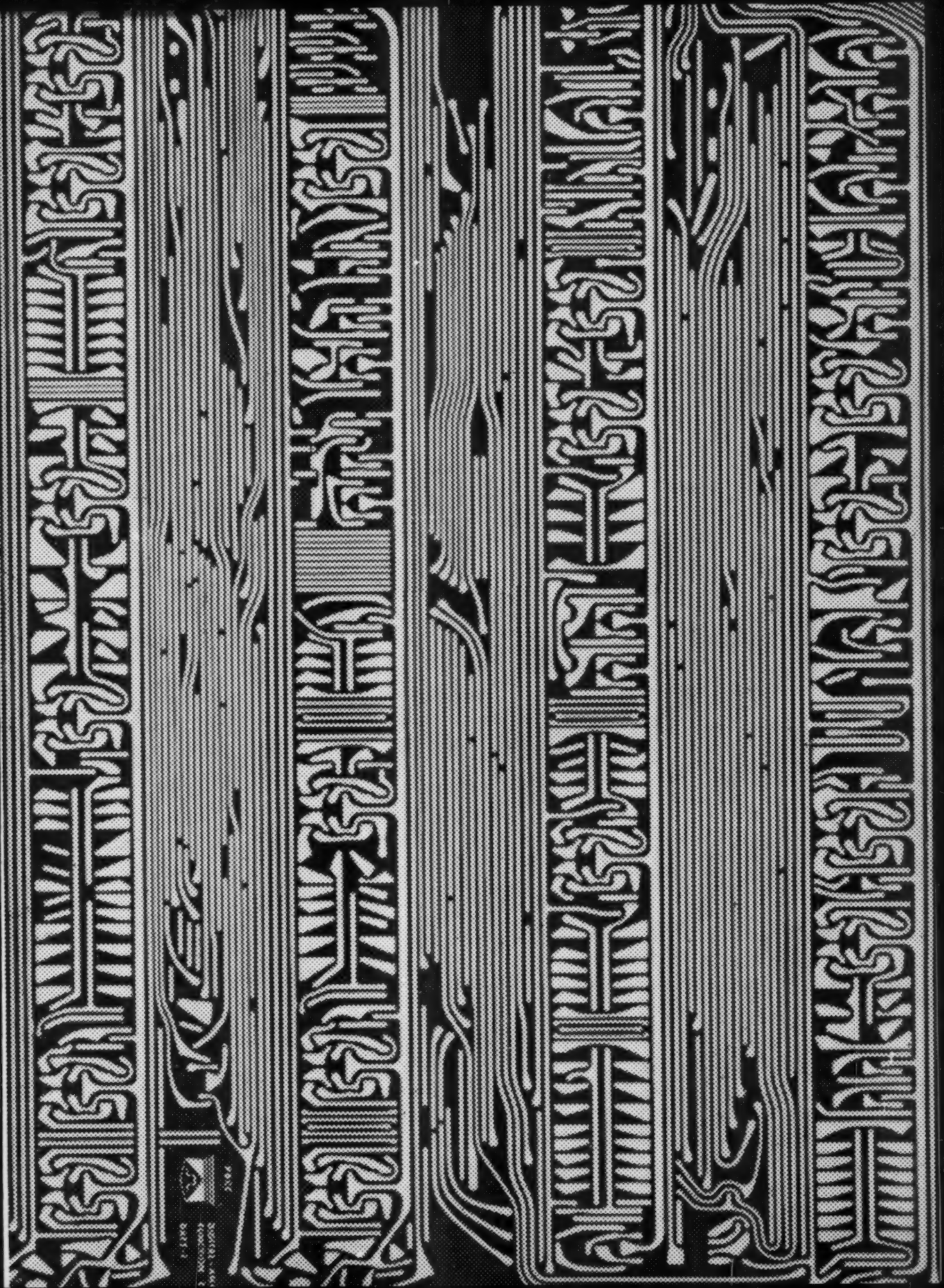
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BY
SARAH
WILSON



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"Your competitors may be switching to Nylon-6 right now," says Joe Foster

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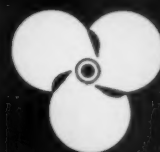
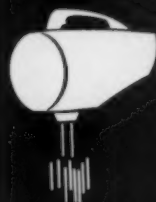
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IN THIS ISSUE

Paul Specht, who reports on the reinforced plastics conference and exhibition (page 62), is a designer and vice-president at Dave Chapman, Inc., in Chicago. Specht's interest in the conference subject is especially intense since he was senior project director on the Johnson Motors Outboard account at the time the company decided to make the outboard motor shrouds of fiberglass (ID, January 1959), and he has made a professional point of following developments in that material ever since. He is married to raconteur Arlene Specht, and lives in Indiana.

Ronald H. Marks, whose knit paper process is discussed on page 44, holds a bachelor's degree in law from the University of Texas. Since he began licensing the process last year, he has been flying to New York from his home in Dallas nearly every month, a commuter schedule that survived the blizzards (he caught the last jet leaving from Idlewild before the city was isolated by its last snowfall), but was stopped by the flight engineers' strike. Marks tries to return home by the week's end to catch the three football games he views each week. Marks says that, besides football, knit paper is his only hobby, and the pastime may spread, since a recent seminar investigating the field came up with 700 possible uses for knit paper.

Harry Lapow is a package designer from Monday through Friday, but as the pictures on page 66 indicate, come the end of the week he emerges from behind desk and drawing board and takes a vigilant stand behind the lens of his camera. Lapow insists that Harry Lapow, industrial designer, and Harry Lapow, photographer, are two different people. A third role may soon be added to this double life, for he is now studying painting with Evsa Model (he studied photography with Model's wife, Lisette, as well as with the late Sid Grossman). All of this may explain why, at the Package Designers Council (which he helped to found), Lapow says he is known as "the rebel." Some of his photographs are in the Museum of Modern Art's permanent collection, and the photograph on page 69 appeared in the museum's "Family of Man" exhibit.

Frank E. Robinson, who is responsible for the drawings and text of the student project design record on page 50, is chairman of the Department of Industrial Arts Laboratories of the New York State Teachers College at Oswego. His other teaching assignments have ranged from first grade through graduate school, covering almost all areas of industrial arts, and even including high school chemistry and physics. The idea for the sample record was conceived when, as a teacher of future teachers of industrial arts, Robinson wanted to show his students how to keep a record of the design process. His selection of a subject for the project was a human engineered device to meet the sociological needs of modern America.

John David Beinert, whose observations on the state of contemporary boat design are found on page 72, manages to combine many of his professional endeavors with his hobby—sailing. Aside from his own design office, where he handles such un-nautical lines as cosmetics, laboratory equipment, and burial caskets, he is also associated with a sail-making company owned by his daughter, for which he designs sails. Beinert is currently involved in a community project in which 20 people are building a boat he designed.

Specht



Marks



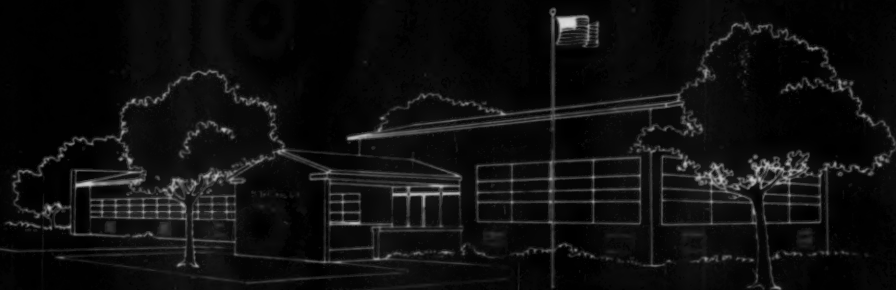
Lapow



Robinson



Beinert



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LETTERS

High price of humor

Sirs:

It is hard for me to believe that a magazine with the reputation of INDUSTRIAL DESIGN would print such absurd, inane remarks as those which appear on page 97 in your Annual Design Review.

I am referring to the item on the Grumman A.2F. "Intruder" (see cut).

Granted, the machine is not the most esthetic ever designed, but really, to say that the Grumman designers plagiarized Detroit's original ideas, i.e., swept wings, stylized bumper bow sprit, rocket trim, dual exhausts, etc. Why, you couldn't have been more idiotic if you had said that the airplane industry didn't use fins until after they appeared on Cadillac's fenders.

Tom Daniel
730 East Mission Drive
San Gabriel, California

We are not surprised that Mr. Daniel finds it "hard to believe," but we are disappointed that he did not find it impossible to believe. The caption was ironic, the airplane is lovely and honest, and the joke just plain backfired through those dual exhausts.—Ed.

The iceman goeth

Sirs:

To think that there is a simple and direct relation between automation and unemployment is to forget what has happened in the American kitchen. Where is the iceman of yesterday, the cook, the maid, the hired man, the delivery boy? What has become of all the household labor force? The garbage man has been eliminated by the garbage grinder unit under the sink. The trash man no longer collects ashes since an automatic gas furnace went into the house, nor does a coal truck rumble through the streets. The junk man collecting rags and papers went when the automatic incinerator came into the basement. An automatic dishwasher eliminated one of the tedious jobs calling for a hired girl, and the automatic clothes washer made it certain the hired girl would go. Prepared, packaged, canned and frozen foods took the gross labor out of kitchen labor. The automatic stove, oven and individually controlled electric cooking pots finished off the hired cook. No longer was water pumped into the sink by hand or carried to the tub in pots heated on a wood-burning stove. The kerosene peddler no longer called to oil the lamps of America. The roving knife sharpener and pot mender has been put out of business. One can go on in this manner a good



Grumman's A2F Intruder

deal longer and build up a premise that would seem to show that automation in the kitchen has put half of America and all of the housewives out of work. Then one could "view with alarm," call for "constructive legislation to deal with this menace to the traditional rights of labor." One could indeed wax metaphysical and insist that the iceman had a "human right" to deliver ice to the electric refrigerator and that his son had a hereditary right to continue his father's honorable labor. Without any necessity to point out the obvious fallacies in such an argument, it is apparent that such a position is a result of confusion compounded by ignorance.

Outside the kitchen door there used to be a family horse, and I doubt not that almost everyone is glad he has been replaced by the automobile. The horse breeder had the honest virtue of knowing his job was to breed and develop better horses at prices his customers could afford to pay and still give honest value for the price paid. Never in history, since the memory of man runneth, was there ever a horse breeder who considered it his honest function to breed a fish-tailed dragon of a horse in yearly varieties and then hawk each new mutant as the latest necessity in "status symbols." But then, perhaps I forget that there existed no considerable group of horse buyers who could have been duped into buying the yearly version of the mutant horse dragon. It becomes horrendously evident that the philosophy of selling the "sizzle" instead of the steak is intrinsically fallacious and basically contributory to violent fluctuations in the orderly rhythm of demand. Because there is at least a 50 per cent probability that it is contributory to such fluctuations, this perversion of design will return short-term market acceptance, utterly

misleading in projecting long-term conditions. Optimum desirability demands that design operate on the premise and condition that it help to reinforce a gradual and steadily improving demand directly related to the population, and the population's purchasing power be steadily enriched by the virtues of automation. It is the virtue and nature of automation to elevate the material and physical aspect of mankind, his individual wealth, and return a dividend of leisure. The increased leisure in terms of time alone is tantamount to giving the individual another life span. Because all this is done by automation, the individual and his community are tendered the leisure and means to display, on a stage never before possible to this world, their individual and communal paucity of intellect and spirit. Is this fruition of ignorance and confusion, so directly attributable to training and cultural environment, to be blamed on automation? Automation did not create these defects; it rather is the scalpel exposing the ulcer.

There is an ethic of design, and its first premise is simple and easily grasped. It asks only that the choice be made by the designer: "Shall I devote myself to the work that sells the 'sizzle' or the steak?" It follows that the rest will proceed more or less according to the intellectual integrity and spiritual stature of the one making that final decision.

Kenneth O'Meara
512 Grofscap Road
Holland, Michigan

File-O-phile

Sirs:

Certainly enjoyed the Annual Design Review!

Now, how about a feature telling us about the products that *didn't* get to market. There must be a story in the projects relegated to "File O"—why are they there and should they be?

Don Dirkse
The Dow Chemical Company
Midland, Michigan

No place to hide

Sirs:

This world does not have an unlimited amount of space for an unlimited amount of people. We do not even have an unlimited amount of fresh water. There are those who seem to think the answer lies in ignoring it.

William R. Sullivan
1116 S. Flower
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REVIEW: BOOKS

Che bella voce!

In Praise of Architecture. By Gio Ponti. New York: F.W. Dodge, 1960. 270 pages. Illustrated. \$6.95.

Gio Ponti doesn't write about architecture, he sings of it. Since he is an Italian with a lyric tenor writing voice, this is as it should be. And since he is in love with architecture—he approaches his subject as if it were Juliet on a balcony—you are not surprised to find him bubbling over with all the contradictory thoughts and all the mixed emotions of a young courtier before his mistress. This may overstate the spirit of *In Praise of Architecture*, but not by much.

Ponti has many loves. He loves old architecture and new architecture; he loves aluminum, glass, ceramics, paper, marble, steel, plastics, concrete, wood; he loves Lever House and Ronchamp, the Lake Shore Drive apartments and Falling Water; he loves painting, sculpture, poetry; and he loves his fellow architects: of Wright (as of Gaudi and Niemeyer) he says, "All his mistakes are allowable;" Johnson is "an Attic;" Mies "has raised technology to the sublime;" and Nervi "knows the secrets of the architecture of tomorrow." In his most enthusiastic moments, Ponti's thoughts turn to images: "The floor is a theorem; the obelisk is an enigma; the fountain is a voice; the stair is a whirlpool; the roof navigates the sky, its keel up; the vault is a flight; the balcony is a sailboat."

But if Ponti's thoughts are contradictory, they are not illogical, and if his emotions are mixed, they are not mixed up. With Walt Whitman he might say (and, in fact, as much as does say), "Do I contradict myself? Well, then, I contradict myself." A deeply religious man (in a way that we in America can no longer understand the word "religious"), he has feelings about architecture that are firmly idealistic. Thus, he settles the question of form/esthetics vs. function/utility by observing with his usual accuracy that beauty has a function. "Architecture that does nothing but function is not yet beautiful and is not even thoroughly functional. It functions entirely only if it is beautiful. Then it functions forever ('perpetuity,' says Palladio). It must function at the artistic level, at the level of enchantment ('*Qu'elle chante,*' says Corbu). It functions even when it no longer functions practically. It functions ultimately as a ruin. It functions poetically. It functions in history, in culture, in magic. This is the ultimate function of architecture—to surpass the



Client Pirelli, architect Ponti

function that originated it, to function at the level of art."

This is an attitude that few American architects have been able to persuade their clients to adopt. Until they do, as far as we are concerned, Ponti's is a voice singing in the wilderness.—R. M.

Green Pastures

Creative Playgrounds and Recreation Centers. By Alfred Ledermann and Alfred Trachsel. Frederick A. Praeger, Inc., New York, 1960. 176 pages. Illustrated. \$12.50.

The verbless title of this book conveys little of its energy. The authors, Alfred Ledermann, Secretary of the Swiss Pro Juventute Foundation, and Alfred Trachsel, a city planner, are vigorously campaigning for the development of those urban islands of leisure where the individual is free to amuse himself and relax with other members of his community. It is an idealistic book in that it hopes that these centers will offset the anonymity of the city, draw children off the streets, encourage families to play together, and generally re-establish a local community spirit. Many of these proposals, particularly those dealing with the older members of the community, are only briefly illustrated and merely re-



Building plot playground in Amsterdam

main statements in a master plan. It is the children who receive primary attention, and their needs are carefully defined, from safe play spaces near the home to more independent playgrounds and fields for competitive games.

The book is divided into individual essays followed by a portfolio of playgrounds, recreation centers and play equipment. Finding recreation space is one of the major problems treated in the text, and Trachsel devotes his piece to several examples of city planning that have dealt with dense urban areas and new suburban developments. Ledermann, in his introduction, appeals to city planners, teachers, parents, builders and landscape architects to provide (or sacrifice) space, either out of school grounds, private yards, rooftops, or new real estate. Even the narrow vacant lot can be transformed into a play area (see cut), and the main objective of the authors is to encourage the most imaginative divisions of whatever space is available to allow different activities to go on undisturbed and yet remain part of a whole recreation area.

Numerous examples of playground equipment are given throughout, and include a variety of designs in concrete, tubular steel, fiberglass, rope, and wood. The authors, however, stress that the necessary elements are very simple: sand, water, slides, tunnels, old vehicles, and benches. The primary aim is not to entertain but to stimulate the imagination and creative energy of the player.

The major part of the book is composed of case studies of playgrounds with plot plans, photographs, and full captions, which show how some of the problems stated have been imaginatively solved by different planners in a variety of nations. The book is beautifully illustrated and the examples clearly presented (almost cataloged) for easy reference. The individual essays suffer slightly from over-zealous repetition, but the problems of building children's playgrounds are lucidly stated, analyzed, theorized, summarized and exemplified, so that the reader has no chance of missing his lesson.—M. D.

it
talks*



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NEWS

IDI membership rules

IDI's board of trustees recently reviewed the Institute's membership rules and issued the following statement:

"Active members shall be persons who:

a) have had four years of industrial design education and four years' professional practice as industrial designers in more than one field, or persons who, in lieu of the four years' industrial design education requirement, have had two additional years of professional practice, or six years in all;

b) are primarily occupied in designing for industry, institutions and/or mass consumption;

c) whose professional qualifications meet the standards of the Institute."

The trustees also created a new membership category for design educators, with a reduced dues schedule. Members in this category may enjoy the rights of active members, except that they may not vote or hold office. The new membership rules provide that "present active members who would classify for the design educator category have the option of remaining in the active category."

PMCA celebrates

The Philadelphia Museum College of Art is celebrating its 85th anniversary with a design exhibit (held last month) called "Director's Choice," and with a series of forum discussions now under way. "Director's Choice" was an exhibit of the work of 28 artists, craftsmen, and designers (industrial, fabric, fashion, interior) selected by the heads of the various PMCA departments. Dave Chapman's Greenspot water sprinkler and Richard S. Latham's Ansul fire extinguisher (below) were among the products on view. These were selected by PMCA industrial design director Joseph Carreiro. Also included were films and furniture designs by Charles Eames and some of Florence Knoll's work. "Conversations with Ar-

tists" is a series of four evening discussions which concludes with "Where Do We Go From Here?" on March 20th. The first meeting was on "Art for Industry." Chairman was Peter Muller-Munk, while graphic designer Saul Bass, industrial designers Joseph Carreiro and Richard S. Latham, and textile designer Dorothy Wright Liebes did the conversing.

Finnish and U. S. design

Aarre Lahti, Professor of Design at the University of Michigan, has recently released the results of his sabbatical study, which, he explains, attempts to compare "how the Finnish and American designers feel about themselves and their profession." Aided by a research grant from the University, Lahti spent the second semester and the summer of 1957 talking to designers all over Europe, and, more particularly, in distributing questionnaires to a group of Finnish and American designers and craftsmen.

Lahti's special interest in Finnish design is natural. His family had emigrated to this country from Finland, his report explains, and in the Michigan ironing town where he grew up there was a vigorous Finnish community, regarded as radical by their neighbors, who fought for their cultural improvement with the same determination they brought to the campaign for better working conditions. Their achievements created Lahti's appreciation of what a motivated minority can accomplish, and his admiration for the work of designers in Finland led him to explore the motives that lie behind their drive.

Originally, the study was intended to utilize personal interviews as well as questionnaires. But when Lahti arrived in Finland, he found that almost all the country's designers had disappeared into the hills and forests for the summer vacation. Only 15 of them answered his questionnaire, and most of them were craftsmen rather than industrial design-

ers in the American sense of the term.

In the United States, his questionnaire was distributed to members of the American Craftsmen's Council and the Industrial Designers' Institute, since their membership seemed to be more nearly approximate to that of the Finnish design society than was the ASID membership. Among the American designers, 177 completed the questionnaire, which was identical with that sent the Finns, except, of course, for language and national references.

Lahti had had some previous experience with using rating scales for consumer research, and for this project he employed a 10-point scale, changing the wording to suit the question. (For example, following the question, "How would you rate the personal welfare of architects in Finland?" there were ten boxes, ranging from "very poor" to "exceptionally good.")

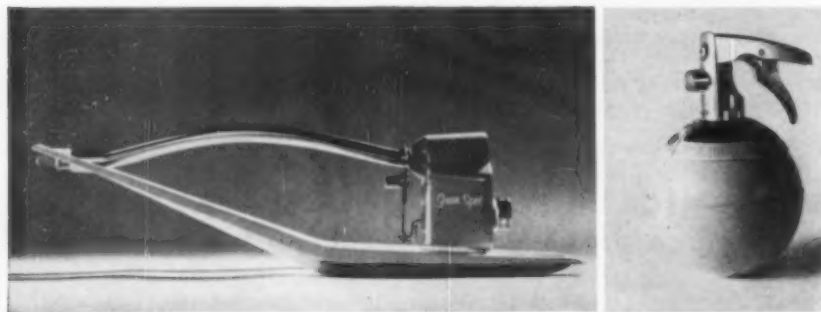
The first piece of evidence in the report is a table comparing area, population, national income, hourly wages, working hours and cost of living. By any standards, of course, the United States is far more prosperous than Finland. In 1957, the average male in Finland earned \$64 an hour and in the United States \$2.07. The Finn worked longer hours, and had seen his cost of living in the past four years rise four times as fast as that of the United States.

Yet in all respects the Finnish designer—who presumably shares the material lot of the average Finn—considers himself substantially better off than his colleague in the United States. Asked to rank the personal welfare of various occupations in his country, the Finn put architects at the top of the list (the American put business executives first) and designers in a medium-high position, while designers on the American list languished at the bottom, just above the clergy, school teachers, and artists (who were at the bottom of the list in Finland too).

Similar tables demonstrate that the Finnish designer considers his occupation to have much greater significance within the country than does the American, and the Finns feel that their status abroad is even higher (ranking the Finnish designer second only to the architect). As might be expected, the Finns rated the quality of their own design as the highest in the world (and American design as the lowest), while in the United States designers placed American design below that of Scandinavia (but above the rest of Europe.)

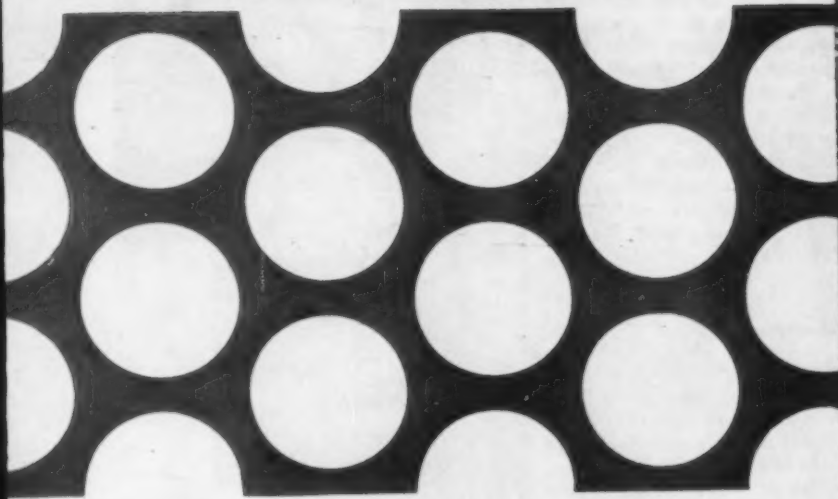
In other respects, differences between

(Continued on Page 16)

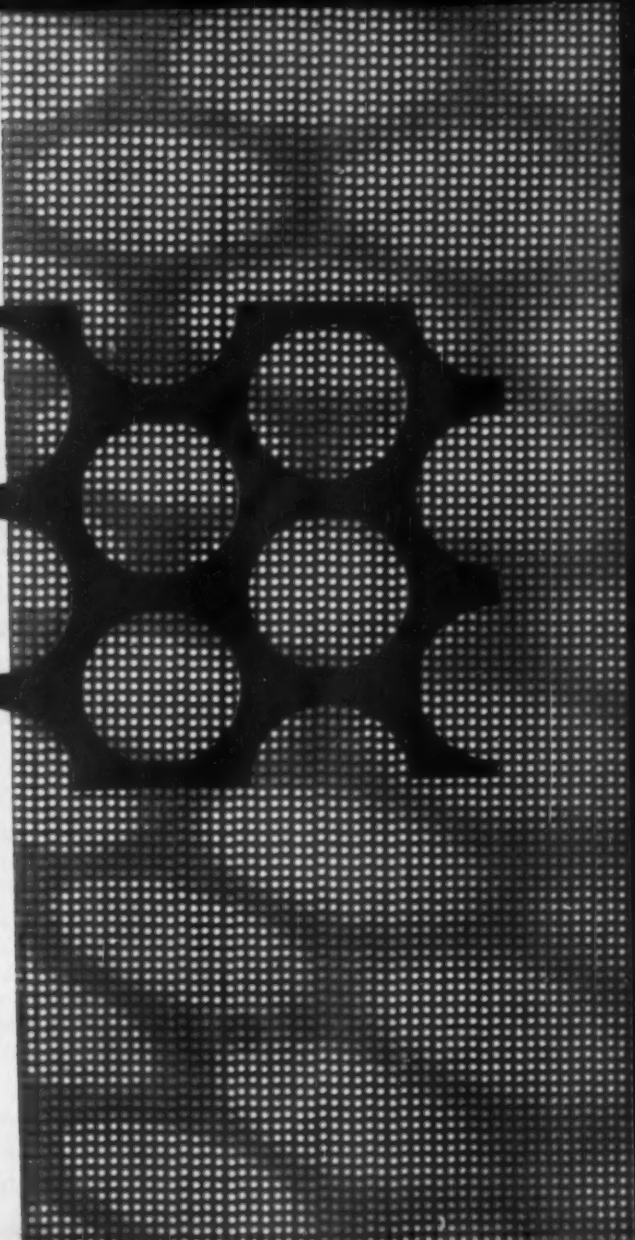
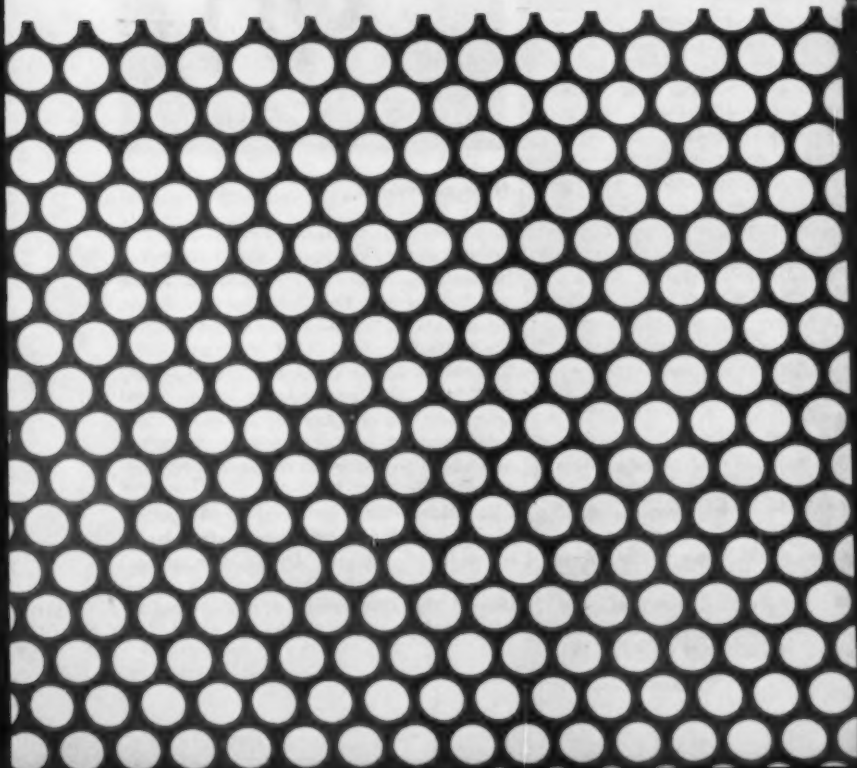


Chapman Lawn Sprinkler; Latham fire extinguisher

H&K



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the two national groups were less striking. Both Americans and Finns feel that designers in Scandinavia have both more professional freedom and more self-assurance than in the rest of the world. Both Americans and Finns rate "usefulness" as the most important design consideration, although the Finns, unlike the Americans, felt that "newness" and "impressiveness" were of almost no importance at all. Both, finally, felt that for the manufacturer the design quality of his product was the least important consideration.

Lahti observes that a greater percentage of the fathers of Finnish designers had art and design as their occupation, and, since "weaving and the decorative arts have always been considered a part of the woman's housework" in Finland, he says, "the family backgrounds of the Finnish designers indicate a greater involvement and interest in art and design." As a consequence of this, Lahti concludes, "the Finnish designers have had a better opportunity to develop a more objective and mature design philosophy at an earlier age than American designers." Lahti finds the source for Finland's greater self-confidence in her history, which is a succession of tragedy and recovery.

But, granted that this explanation is valid, Lahti says in his summation, our civilization is faced with a dilemma. If motivation results from the spur of material privation, will it exist in a period of material abundance? Or, in the concluding words of the study, "How can we continue to generate motivating energy while lessening the pressures which, at present, are our motivating sources?... How will we be able to convince the young people that to nurture their ideals, while surrounded by an environment with a materially adequate way of life, they must be willing to generate and to expend an amount of energy which the present need for survival does not demand?"

Aspen conference officers

H. U. Hoffman (below) was elected president of the International Design Conference in Aspen at the group's board meeting held recently in Chicago. Hoffman, a Kimberly-Clark advertising official, succeeds William W. Tara, Jr.



Cherry, Hoffman, Pinzke

Independent graphic designer Herbert Pinzke was elected program chairman. Burton Cherry (Burton Cherry & Associates), Jack Roberts (Carson-Roberts, advertising), and Bruce MacKenzie (IBM) were chosen as vice presidents. Bruce Beck will serve as secretary, and Albert Kner as treasurer. Other members of the Executive Committee are Saul Bass, Herbert Bayer, Bernard S. Benson, George D. Culler, Ralph Eckertstrom, Brian Heath, Joseph M. McGarry, Norman McLaren, R. Hunter Middleton, Cipe Pineles, Ted Rand, and William W. Tara, Jr. The theme of this year's Aspen conference, to be held June 18-24, is "Man/Problem Solver."

Packaging exposition

The packaging industry will hold its annual fair in Chicago next month. Over 350 industrial exhibitors will show their latest machinery, materials, methods, and services in the new Lakefront Exposition Hall (McCormick Place) during four days, April 10-13. The show is expected to draw about 30,000 visitors.

The concurrent National Packaging Conference will be held during the morning hours of the first three days of the exposition. The list of speakers for the Conference is not yet complete, but it will include officials in merchandising, advertising, design, and package production. PDC president Robert Sidney Dickens is tentatively expected to speak at the Conference.

The show is sponsored by the American Management Association.

Rosenthal speaks

When designer Herb Rosenthal told his Art Center School mid-winter commencement audience about the "real need for ideas and perceptive thought in the design world today," he was not saying anything new, but he said it well. "I think you will quickly discover," Rosenthal said, "that what occupies most of your time is not the design problems of form and color, but design ideas about communications problems, relating human beings to their environment, creating significant images and symbols for our society. Now these are not just fancy phrases, but rather indicate the deepening responsibilities of the designer today. These responsibilities are not only to his client, but equally as important to society and to himself.

"The commercial designer, by the very nature of his work, is tied closely to his society. The traditional detachment of the artist from the social scene is denied him. In addition, he is a significant contributor to the world around him. Perhaps more than any other single individual, the designer determines the shapes of images and things that sur-

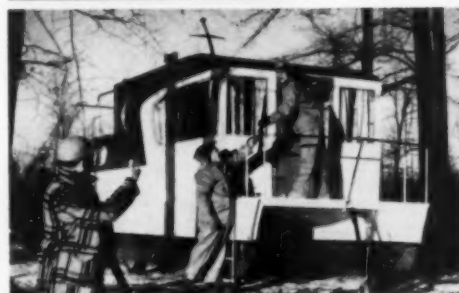
(Continued on Page 18)



1



2



3/4



New products

1. Chemex Corp glass "Vertikettle" for boiling water over gas or with immersion heater (as shown). Metal strap holds wooden handle. Designed by Dr. Peter Schlumbohm. Half-gallon model retails for \$9.50.

2. Howard Miller Clock Co. "Plantscape" is a room planter made up of modular trays and tripods, planters and poles. Can be assembled in various arrangements, and added to. Designed by George Nelson & Co. Basic unit: \$75.

3/4. "Merri Mac" convertible houseboat (in use as lodge, above; lake-craft, below) is made of Koppers Dylite expandable polystyrene panels. Introduced by MacDonald Manufacturing Co. in January, it sells for just under \$5,000.

CAMPCO / some practical IDEAS

Plastic Sheet and Film / for its use



Campco Styrene helps make Jr. Juke kid-proof

This Jr. Juke is a hit with kids and parents alike. That's because the base is formed with Campco S-540 Styrene, an extra high impact strength material, attractive yet durable and tough enough to resist children's rough treatment.

Economical In addition to strength and durability, Campco S-540 has excellent formability characteristics. This proved to be especially important in the deep drawing process used in forming the base. With S-540, complicated curved surfaces and debossed areas can be formed quickly and accurately. Higher production rates and greater economies result.

Special Finish Chanal Plastics Corporation of Rego Park, New York, who vacuum forms the Jr. Juke housing for Shell Electronics of Long Island, specified Campco's "GM" finish. This high-gloss surface, developed and pioneered by Campco, is achieved with a thin coating of compatible glossy material—applied in a manner that it becomes an integral part of the sheet itself. Even in extremely thin forming operations, the brilliant gloss remains unimpaired.

Other Finishes Campco S-540 rubber modified styrene sheet can also be sup-

plied with a mat finish on both sides (MM) and a polished-smooth surface on one side and a mat finish on the other (PM). Available in a full range of colors.



Campco Styrene lightens load in mobile homes

Du Call Miller Plastics Co., of Cicero, Illinois, uses Campco S-540 rubber

modified styrene sheet to vacuum form this mobile home sink for C. M. Hoof Co., Evanston, Illinois. Campco's GM high-gloss finish gives the sink a sparkling, china-like appearance, and its nonporous surface assures easy cleaning.

Strong, Light in Weight S-540's high impact strength properties make it possible to achieve dramatic weight reductions in many applications. The sink illustrated, for example, weighs less than one pound, a weight savings of at least 10 lbs. over comparable vitreous types. These high strength and light weight characteristics make Campco S-540 ideal for a wide variety of uses in appliances, toys, and housewares.

Planters formed from Campco Styrene



The Plastics Division of Kusan Incorporated, Nashville, Tennessee, selected Campco extra high impact styrene to form this handsome planter and matching tray, marketed nationally by Ferry Morse Seed Company of Fulton, Ky.

Low Moisture Absorption An important requirement for this application was a material with low moisture absorption properties. Campco Styrene easily met this requirement and offered, in addition, excellent formability and the ability to withstand wear. This same combination of properties has helped make Campco Styrene a popular choice in a wide variety of applications.

Received Your Campco Personal File? This data-packed reference file on thermo-plastic sheet and film is yours on request—just send name and address on your company letterhead to Campco, 2717-B Normandy Avenue, Chicago 35, Illinois.

CAMPCO Sheet and Film, a Division of Chicago Molded Products Corp.

NEWS *continued*

round us all. This is becoming increasingly true as the 'fine artist' becomes more and more subjective, and abdicates the role of image-maker to society. This is a vacuum that has to be filled, for people need imagery as visual discipline that translates outer reality into inner visions. If they can't find it in easel paintings, they will find it in television, films, advertisements, and in the magazines. If significant form in sculpture is missing, then toasters, washing machines and automobiles fill the gap. This frightening aspect is, I am afraid, a reality, and it points up the awesome responsibilities and tasks facing designers today."

Rosenthal is a member of Art Center's faculty, and is chief exhibition designer for the Century 21 fair in Seattle.

Fuller in Tokyo

R. Buckminster Fuller is now in Tokyo to confer with the architects and contractors who will participate in the construction of the dome-covered baseball stadium he designed for the Tokyo Giants baseball team. He will also lecture before professional and student groups in various parts of Japan, and confer with officials on city planning and the 1964 Olympic games. Fuller is in Japan at the invitation of Matsutaro Shoriki, publisher of *Yomiuri Shimbun*, Tokyo's leading newspaper, owner of the Nippon Television Network and the Tokyo Giants, and a member of Japan's cabinet. Shoji Sadao, Fuller's associate, is accompanying him and serving as translator.

Visual seminar

A nine-man panel of prominent New York graphic designers will review cur-

rent trends in typographic design at *Typographic Directions '61*, a "visual seminar" to be held by the New York Type Directors Club at the World Affairs Center on May 16th. The panel will informally discuss from 200 to 300 slides of current graphics. TDC promises that "there will be no formal speeches."

Members of the panel will be: Macy's A/D Morris Rosenblum, McCann-Erickson A/D Milton Zudeck, RCA Records A/D Bob Jones, Herbert Lubalin (of Sudler, Hennessey & Lubalin), designer Robert Sutter, Grey Advertising A/D Onofrio Paccione, George Lois (of Papert, Koenig & Lois), William Cadge (of Norman, Craig & Kummel), and Edward Gottschall, who is editor of *Art Direction* magazine.

Going places

Jack Collins Associates' most important project last year was to design their own new office building, and their biggest move was in. Of steel-frame, brick and



Collins Headquarters

glass construction, the building declares its internal modular system by repeating it in the form of open loggias along the front and rear sides (above). The first floor includes a two-story reception room, prototype laboratory, darkroom, utility room, and room for expansion. The design offices are on the second floor, along with executive offices and conference rooms.

Design Technics' new showroom in Manhattan provides a museum-like setting (above) for the firm's unusual wares: ar-



Design Technics showroom

chitectural and interior design ceramics (wall surfaces, space dividers, fixtures, etc.) produced by formulas that assure strict adherence to job specifications.

International design exchange

The Southern Illinois University design department is negotiating with the Nigerian government and the U. S. State Department for establishment of an African Design Research Institute. The proposal calls for a two-way student exchange between the SIU design department and Nigerian technical schools. Department chairman Harold Cohen proposes to establish an exchange of five to ten Nigerian students with a group of graduate-level design students at SIU. The Nigerians would study at SIU for five to six years with full economic support. In turn, SIU would send a small research team to set up a program at one of the Nigerian technical institutes to help local industry and government find ways of using native resources to solve the problems of a backward economy.

This student exchange, Cohen says, would be the first project of an SIU-based International Design Organization. One of the aims of the organization would be to create self-supporting design institutes in underdeveloped nations, helping them to use "the industrial equation to study problems relating to education, housing and feeding their citizenry." (Continued on Page 20)



Langston

New graphics

Recent graphics projects by designers include corporate symbols and logotypes for: Edwards Company (electrical and electronic control, communications, and protection equipment), by Van Dyck Associates, Westport; Systems Technology Films, Inc. (technical films for systems-developing industries requiring a filmed demonstration to describe their plans), by Ken Saco Associates, New York; Samuel M. Langston Company (materials supplier to industrial packaging manufacturers), by Philadelphia designer Albert Storz. National Merit Scholarship Corp. by DesignComm, Chicago;

People

APPOINTED: John DiGianni (below) as a vice president of Frank Gianninoto & Associates, New York. . . . J. Jean Vincent (below), founder of the Milk Carton Advertising Corporation of America and Beltaire, Vincent & Hull, Inc., as executive vice president and director of marketing for Robert Zeidman Associates, New York. . . . Pierre Brosseau and Thomas Abrahamsen to the design staff of Harper Landell & Associates, Philadelphia. . . . Henry C. L. Johnson as vice president and chairman of the plans board of Lippincott & Margulies, New York. He was previously general manager of the firm. . . . Niels Diffrient (below), of the Pasadena office of Henry Dreyfuss, to the design faculty of the University of California, Los Angeles. . . . Paul A. Witte, formerly with Cush-



Diffrient and son



DiGianni



Vincent



Allen



Jelliffe

ing & Nevell, New York, as head of an industrial design group in the Information Technology Division of Lockheed Electronics Company. Henry Leong, also formerly with Cushing & Nevell, has also been appointed to the group. . . . Otto Ehrenberg as vice president of Package Research Institute, affiliate of Lippincott & Margulies, New York. He was previously research director at L & M. . . . Robert R. Allen (above) as vice president for engineering, research and development at Donald Deskey Associates, New York. . . . George Schick, formerly with General Electric's Industrial Furnace Division, and Ken Shimasaki, formerly with the Loewy Chicago office, to the staff of F. Eugene Smith Associates, Bath, Ohio. . . . Charles Fulcher as senior product designer in the product development division of Schnur-Appel Design Consultants, Short Hills, New Jersey. . . . William B. Hall as new product development manager of Argus Cameras. . . . Sister Marlow, Chicago spiritual reader and advisor, as a consultant to Latham, Tylor, Jensen. She will help LTJ offer their clients "a more creative approach to forecasting and research." . . . Betty Lorish to the sales staff and as midwest area representative of Gould and Associates, Los Angeles. . . . Henry J. Muller, George B. Coulson, Hubert J. Fitzgerald and Arthur E. Kern as supervisors of the

four separate sections of the Armstrong Cork Company's Styling Center, with the title of chief stylist.

ELECTED: John Daniel Brophy as a general partner of Walter Dorwin Teague Associates, New York. . . . C. Gordon Jelliffe (below) as president and chief executive officer of Columbus Coated Fabrics Corporation, Columbus, Ohio.

AWARDED: To Earl W. Claus, a Canadian Award of Merit for his design of a serving cart for use in hospitals for the Meals-on-Wheels System of Kansas City, Missouri. . . . To Eero Saarinen and Ludwig Mies van der Rohe, honorary doctoral degrees by Wayne State University, Detroit.

Company news

ESTABLISHED: Bowden-McRae Associates, a consultant design partnership at 832 Evanston Avenue, Muskegon, Michigan, by Benjamin Bowden and Duncan McRae. . . . His own design firm by George

Patton Jr., at 75 Gristmill Road, Warwick, Rhode Island. . . . A department of product design, styling and packaging by the B. F. Goodrich Company to serve all divisions. . . . Names, Inc., a new subsidiary of Lippincott & Margulies, New York, to handle corporate and brand name selection. . . . Summit Plastic Industries, Inc., 40 Brown Avenue, Springfield, New Jersey, a firm specializing in popular product lines, by Benjamin Messing and Irving Starobin.

RETAINED: William M. Schmidt Associates, Harper Woods, Michigan, by Shwayder Brothers, Inc. (Samsonite) Folding Furniture Division, to conduct the company's new product design, research and development program. . . . Harper Landell & Associates, Philadelphia, by Sprague Metal Company, A. W. Faber-Castell Company, and General Atronics Corporation. . . . Howard Ketcham, New York, as color consultant to the dyes department of American Cyanamid Company. . . . DesignComm, Chicago, by National Merit Scholarships Corporation for its corporate identity program, corporate materials, and publications. . . . Alcott Associates, Islington, Massachusetts, by National Casket Company for the development of their line. . . . Jaap Penraat Associates, New York, to handle Polarad's entire line of electronic equipment. JPA has previously

designed or re-designed five of the company's products. . . . Henry P. Glass Associates, Chicago, by the Louisville Fireplace Corporation, as consultant for the company's regular line and for the development of new products. . . . Raymond Loewy/William Snaith, New York, as design consultant, to Dictograph Products, Inc. . . . Gerald Stahl, New York, by Minnesota Mining & Manufacturing Company to reorganize, re-design and coordinate corporate identification programs for the firm's 515 product categories, 121 trademarked lines, and 29 company divisions and subsidiaries; and by American Machine and Metals Corporation to develop a corporate identity program.

PURCHASED: The plastics division of Lakeside Manufacturing Company, Milwaukee, by Packaging Corporation of America, Evanston, Illinois. The new purchase, together with Worcester Moulded Plastic Company, Worcester, Massachusetts, which PCA bought recently, will form the nucleus of a broad

new plastics division. . . . The patents and license agreements of the Ultra-Pak tetrahedron-shaped flexible package and the machinery which manufactures it by the Bemis Brothers Bag Company.

INCORPORATED: Arnkurt Associate Engineers, New York, into Arnkurt Associates, Inc., product development, model making, and special equipment design firm.

GOING PLACES: Albert Woods and Carl Ramirez to 36 West 56th Street, N. Y.

Events

Martin L. Friedman is the new director of the Walker Art Center, Minneapolis. Mr. Friedman went to the Art Center in January, 1958, after a year's fellowship with the Brooklyn Museum, and held the position of senior curator at the time of his recent appointment. He succeeds H. Harvard Arnason, now with the Solomon R. Guggenheim Foundation in New York.

The Hanover German Industries Fair, an international exposition, will run April 30-May 9 in Hanover. As usual, the fair will be organized according to product, with no national pavilions, and will feature a special exposition of modern industrial design. END

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 FORTICEL... cellulose propionate
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 POLYESTER RESINS
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 TECHNICAL SERVICE



DESIGN ASSISTANCE

A design consultation with your Celanese representative is the best start to trouble-free molding, and better products. He can suggest ways to speed production by *avoiding* troubles at the design stage—where they often start. And when new and unexplored applications come up, he will help you make decisions based on experience, facts, and tests.



LABORATORY FACILITIES

The Celanese Technical Service Laboratory is the newest and finest of its type. It is complete with actual production equipment, color development departments, analytical and physical testing laboratories. From new or improved plastic formulations to better shop techniques—the range of our investigations is extremely broad. And it's all available to you through your Celanese representative.

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Celanese Polymer Company Service-In-Depth includes assistance with mold design, selection of materials, pilot molding supervision, and actual product testing. Celanese makes available to you all the experience gained as a major producer, and polymer pioneer. It adds up to the assurance that when *your* products go to market they are the best that can be made.



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Celanese is the only basic producer offering a full line of materials colored in its own plant, under a strict system of quality control. Celanese facilities are strategically located from coast to coast . . . you can depend on reliable delivery of the Celanese plastic you want, when you want it.



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Celcon is a new, high-performance engineering material. It offers excellent processability . . . superior heat and cold resistance . . . stability under long service . . . excellent resistance to chemical attack. Use Celcon as a replacement for metals and other plastics.

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Forticel—excellent balance of properties . . . toughness . . . dimensional stability . . . moldability. Acetate—rugged . . . versatile . . . economical. Both available in a variety of formulations, unlimited colors. The only thermoplastics combining both toughness and transparency plus economy.

POLYESTER RESINS

Celanese polyester resins are outstanding for formulating and molding pre-mix and matched die preform parts. They offer fast cure, low drainage, better wet-out for hand lay-up. Save time and labor on critical large area moldings . . . boats, doors, truck bodies, housings.

CELLULOSIC FLAKES

Celanese offers cellulose acetate, cellulose triacetate and cellulose propionate flake in a variety of grades, to basic industries such as plastics, sheet, film, fibers, coatings and adhesives.

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THIS IS GLASS

A BULLETIN OF PRACTICAL NEW IDEAS



FROM CORNING

YES, WE HAVE NO GASKETS

Gaskets cause countless problems in sight glasses, people told us.

Get rid of the gaskets, we replied.

Show us how, they retorted.

So, we did.

Two ways.



One. We can and do make valve windows wherein the glass is fused directly to the metal without aid of gasket or solder. The result is a one-piece assembly with an heroically hermetic seal rated at 700 psi and bursting strength around 2500 psi.

Two. When it makes sense, we can and do metallize a glass with a base coat of silver, electroplate it with copper, and face it with a coat of tin which accepts soldering to a bezel, which we also can and do do. The finished window is rated to take 15 psi inside or out.

Since we are as versatile as the material we work with, we can pull such tricks as pressing configurations into the windows. We've already done things like bull's-eyes and indentations.

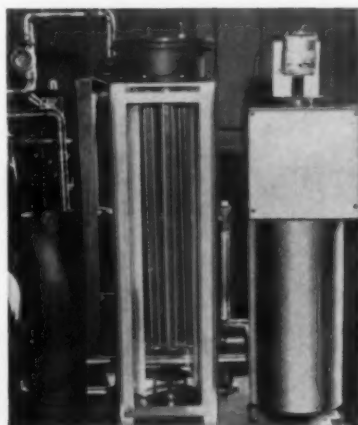
We had another job where we pressed



an optical lens into a glass. The focal length of the lens is such that you get a reflection of light back to your eye, except when the unit is full of liquid, in which case you focus on the liquid itself.

Look into our windows whenever you find a gasket a nuisance, whether from temperature or pressure or corrosive environment or any of the many other conditions which tend to make gaskets a nuisance.

You can begin looking by sending the coupon.



SOMETIMES GLASS IS SO OBVIOUS

Leafing our way through the 4th Annual Shirt Issue of "Cleaning Laundry World" (April 1960), we took note of an advertisement about a machine with a feature we consider the soul of genius.

The machine is a dry cleaner manufactured by Detrex Chemical Industries, Inc. The feature is a glass-enclosed filter which keeps the dry-cleaning solvent cycling unpolluted. The soul of genius, to our minds, is intelligent manipulation of the obvious . . . in this case, an application of the first known and longest respected of the myriad properties of glass . . . transparency.

When you locate such a place, it doesn't necessarily take a lot of custom fabrication to put glass to work, either. Detrex, for example, simply orders standard 6" O.D. PYREX brand Heavy Duty Tube for its filter wall.

The result is that the operator of the Detrex Cleaner can watch the filter at work. He can spot trouble while it's still potential, determine its cause exactly should it occur . . . all without any dismantling or shutdown.

Is there anything you're working on that you wish you could watch working? If there is, and you want to put glass to work, you can start by sending the coupon for a copy of Bulletin IZ-1.

HOW TO GET MORE USEFUL HEAT PER KW



It's not much to look at, but our new Vycor brand Radiant Heater is loaded with advantages for those involved with drying, baking, curing or pre-heating.

The basic appeal of this unit is the kind of heat it gives you—long wave; efficient because it's readily absorbed.

These long waves are emitted from wire coils enclosed in tubes of 96% silica glass. And the tubes (made from one of our rugged Vycor brand glasses) resist heat, heat shock, and corrosion.

Long wave output is just one reason why your kilowatts will yield more useful heat. This heater also has a reflector system that includes a platinum strip bonded to one side of the tubing, and two layers of aluminized steel with Fiberglas insulation in the housing.

Result: Between 85 and 90% of the available radiation is directed to your work.

With Vycor brand Radiant Heaters mounted horizontally above or below your process line, you average 20 watts per square inch of working space and get full heating (800-850°F) in three minutes, so there's no costly warm-up delay. These units cool quickly, too, so you don't need complex equipment for diverting heat after shutting off the line.

Heating tubes come in 14", 26", 38" and 54" lengths, mounted in twos or fours. You get each unit complete with frame, reflector sheet, junction box, mounting hangers and leads.

More facts? Use the coupon.



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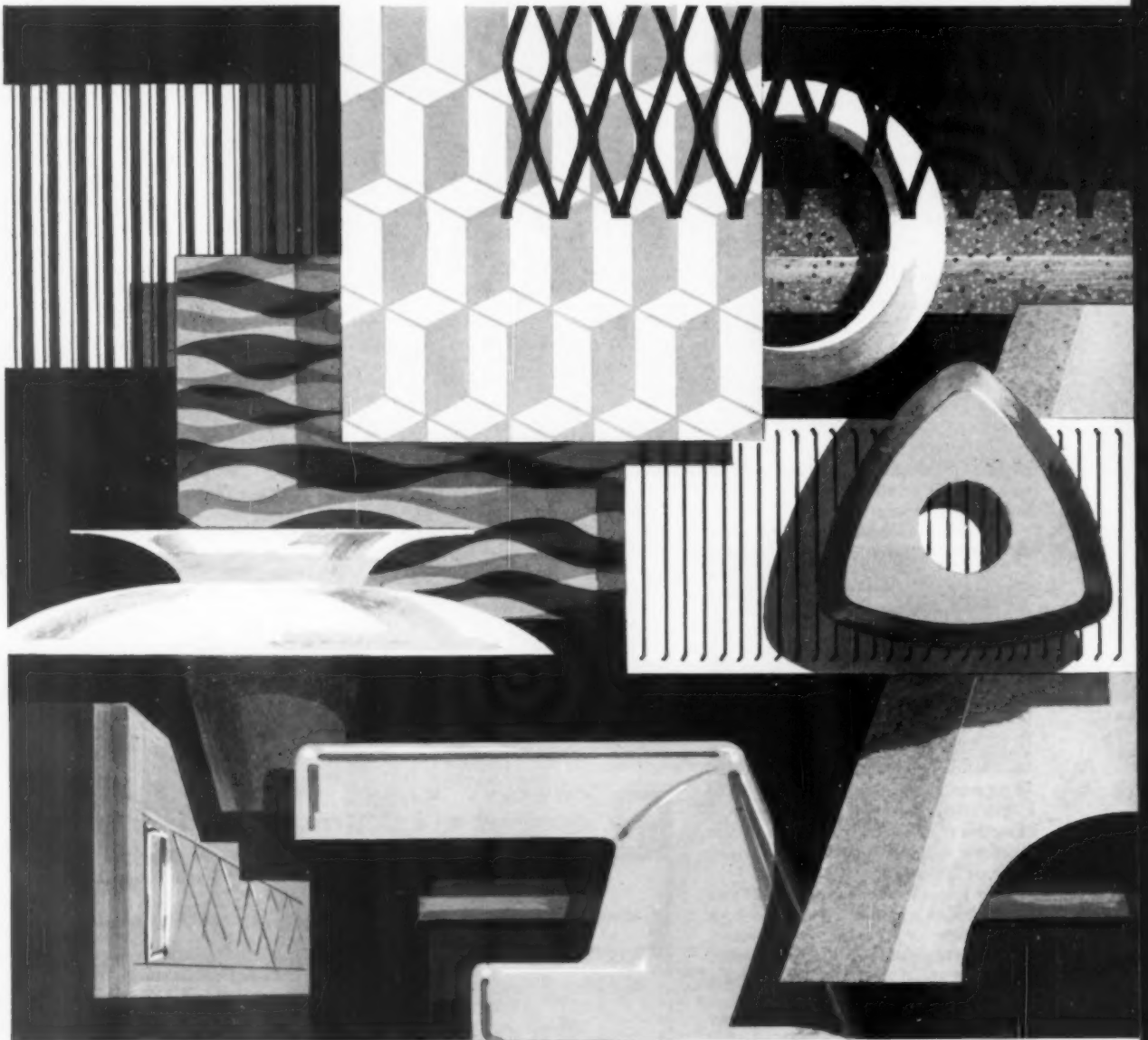
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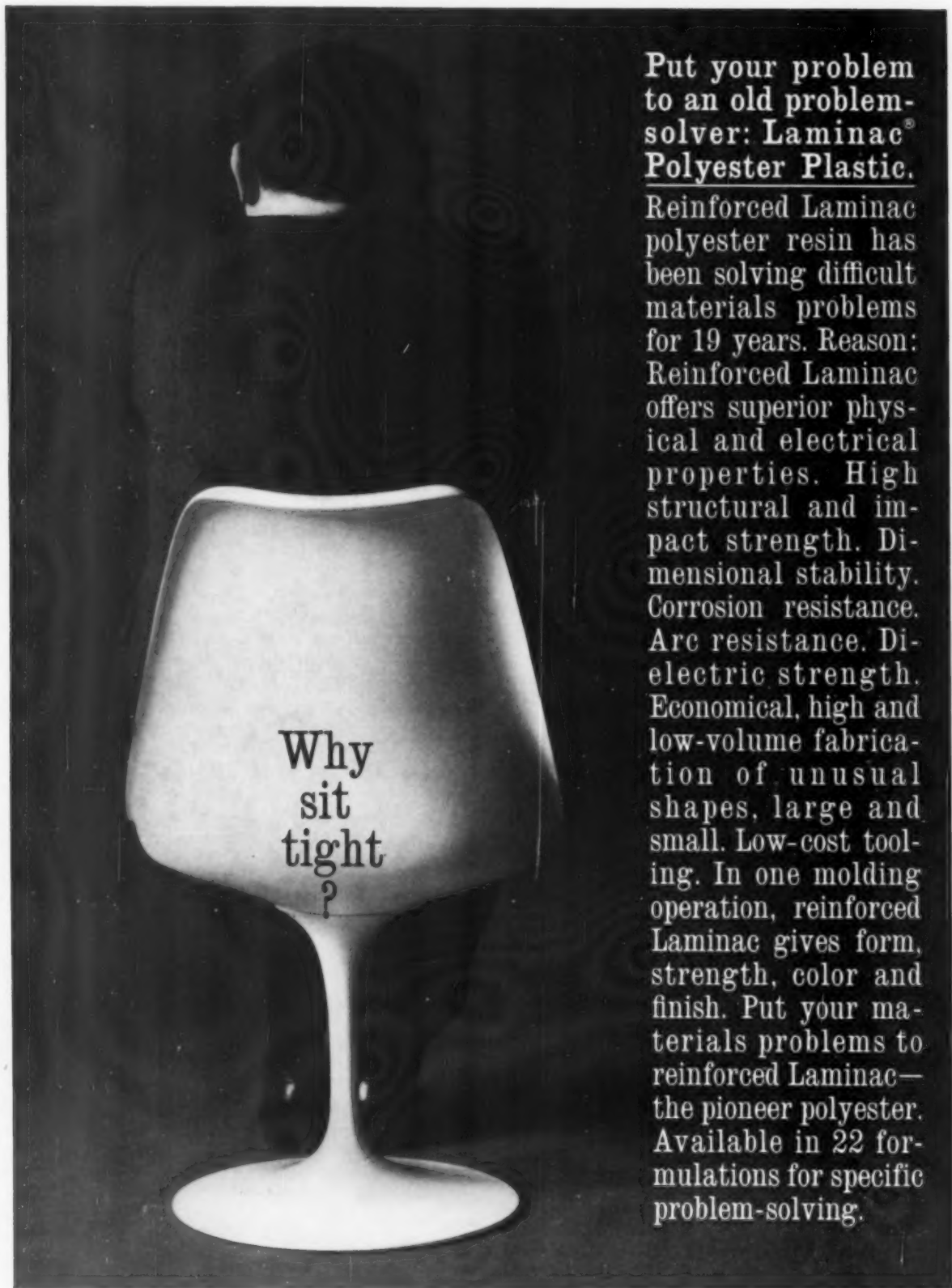
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Fair is (so far) foul

"All signs point to a superlative fair at Flushing Meadows," World's Fair President Robert Moses wrote recently, but the signs he saw have not yet been revealed to the world. In the meantime, all the public signs clearly and sadly (see cut) point to a fair that many important nations have already rejected, and that has itself rejected every opportunity to achieve distinction in design.*



Last month the fair corporation unveiled the symbol shown here, charitably absolving the designer from the deed by acknowledging that he "was simply the one to put down on paper what was in the mind of Mr. Moses and the Executive Committee." Thus exonerated, the designer admits: "It is proposed to insert glass lenses with cut facets (as in a diamond) at the locations of various capital cities . . . Lights would be behind each lens so as plainly to mark each capital city . . . these will flash at different intervals. At night the sphere will be suitably flood-lighted . . . to bathe the continents in an eerie light . . ."

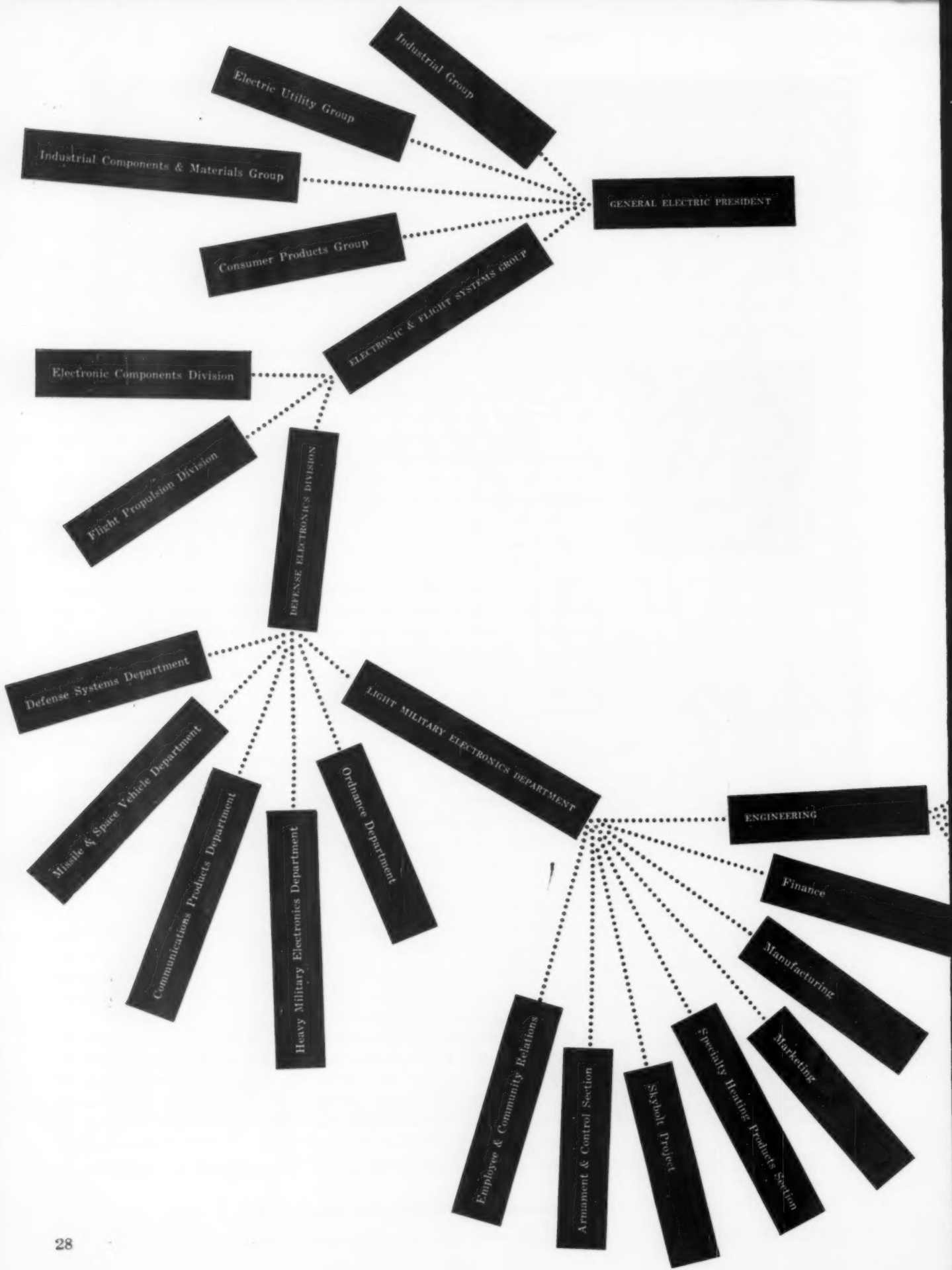
That isn't all (e.g. it doesn't mention the satellites or the statuary representing the 12 signs of the Zodiac), but it gives the flavor. It is a design unworthy of any spectacle more serious than that stirring moment in burlesque when the orchestra switches from "A Pretty Girl Is Like a Melody" to a syncopated march beat, and the girls prance out, saluting, in red-white-and-blue spangled halters and top hats. But the fair symbol lacks even the brassy excitement of such moments, just as the fair itself promises to lack all excitement. Mr. Moses' defense of the symbol is that he understands it (it is a globe, and stands for the world) and that for 20 years he he resented the mysteries of the Trylon and Perisphere. Since the introduction of the new symbol, Britain, France, Italy, and the Scandinavian countries have indicated that they are not free to attend the fair; and while, to be sure, it was not the symbol that drove them off, perhaps their absence is at least—well, symbolic.

Of course, designers have always overstated the case for symbols. It is possible to have a good fair with a trite theme object, and we hope that the New York World's Fair in 1964 will be a good fair, at least one whose design will not embarrass the United States. But it does not look good so far, and Mr. Moses' sanguine pronouncements ("The fair is going along nicely and does not require the support of the Bureau of International Exhibitions") do not inspire confidence.

Everyone in the nation respects the power of Robert Moses, but everyone in Manhattan knows that it is not absolute: in the past few years, on issues relating to public welfare, Mr. Moses has been defeated by concerned groups of mothers, folk singers, Shakespeare lovers, and upstate Indian braves—groups that had nothing in common but a passionate objection to being badly used. The lesson of history is that when Robert Moses is blatantly wrong he can be beaten by anyone who cares enough about what is right.

Do designers and architects care enough?—R. C.

* A full report on World's Fair progress to date appears on page 38.

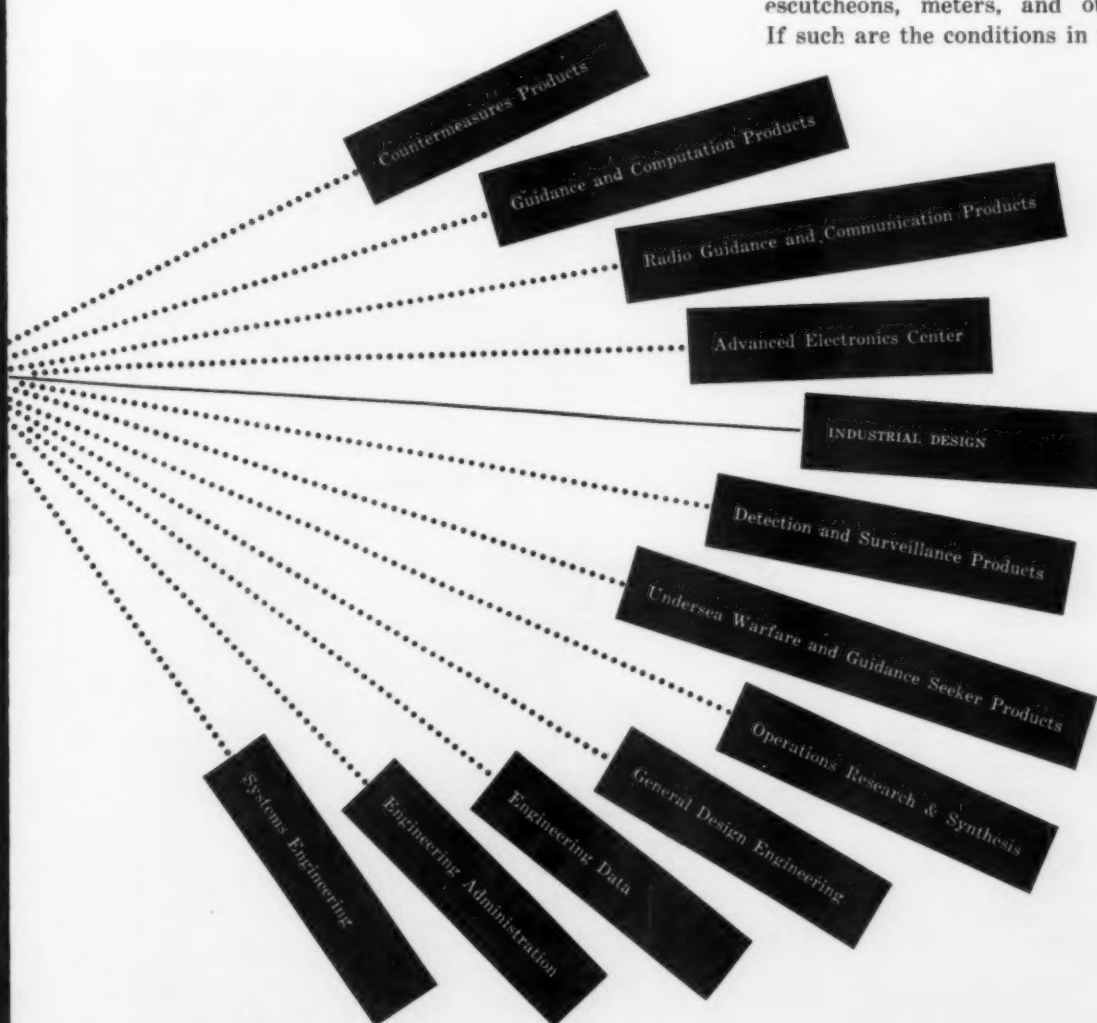


CONSULTANT IN THE HOUSE

G.E.'s light military electronics are designed to the best commercial standards by a design staff that acts internally as though it were an outside office.

Industrial designers have been courting the electronics industry for a long time. Some marriages have been consummated and some bright offspring—most notably in the fields of electronic data processing and industrial instrumentation—have been produced. But many manu-

facturers, conservative if not intransigent, remain aloof. Thus, while the annual WESCON (Western Electronics Show and Convention) industrial design competition turns up some surprising product designs each year, the external configurations of most of the electronics gear on display there convey little sense of the elegant circuitry inside. Designer Henry Keck, reviewing last year's WESCON competition (ID, September, 1960), said that the jurors, of which he was one, "were left with the feeling that many electronic manufacturers pay very little heed to the impression created by the external aspects of their products. They give the impression of having been made by home workshop methods and of using only standard parts for knobs, escutcheons, meters, and other external details." If such are the conditions in the electronics industry



as a whole, *military* electronics, which are necessarily no-nonsense, strictly workhorse machinery, would seem to be the last place to look for an appreciation of "the external aspects." But, perhaps on Oscar Wilde's theory that it is only superficial people who do *not* appreciate appearances, General Electric's Light Military Electronics Department has been conscious of the need for design even in products as far removed from the consumer market as its airborne electronic equipment and companion testing devices. One result is that LMED's products, some of which are shown on these pages, quite clearly escape Mr. Keck's criticism.

LMED's design team, which occupies one corner of one of GE's sprawling Utica (New York) plants, is small. It consists of nine young men, most of whom were originally hired out of design school, in an organization that employs over 7,000 people. But its contribution is unquestionably significant. At least, no one of importance any longer questions it. In the four and a half years since LMED General Manager H. F. Konig

LMED general manager Konig (second from left), Industrial Design manager Beck (standing), and Engineering manager Kuehl (right).

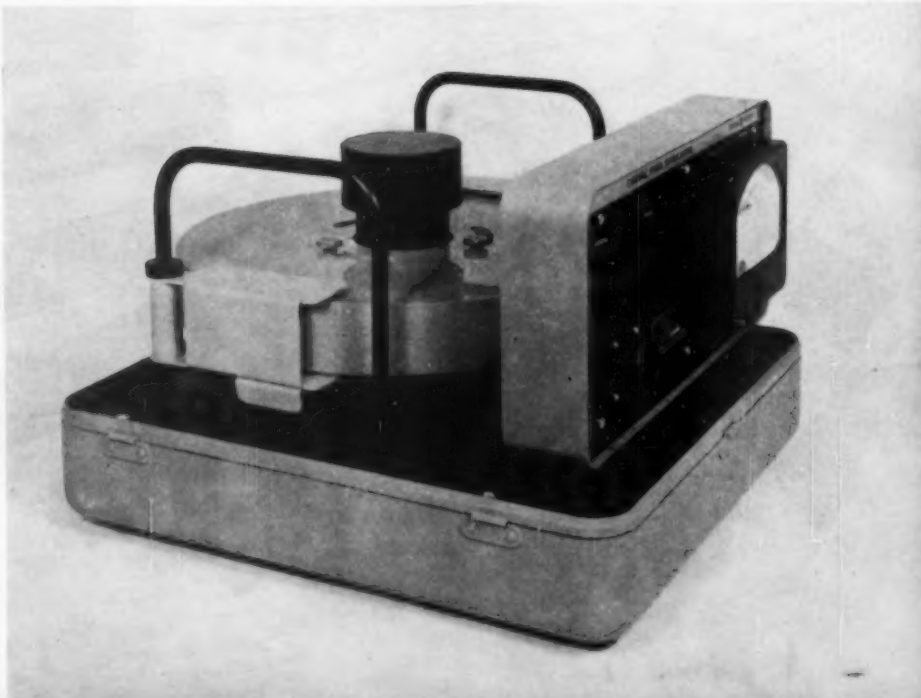
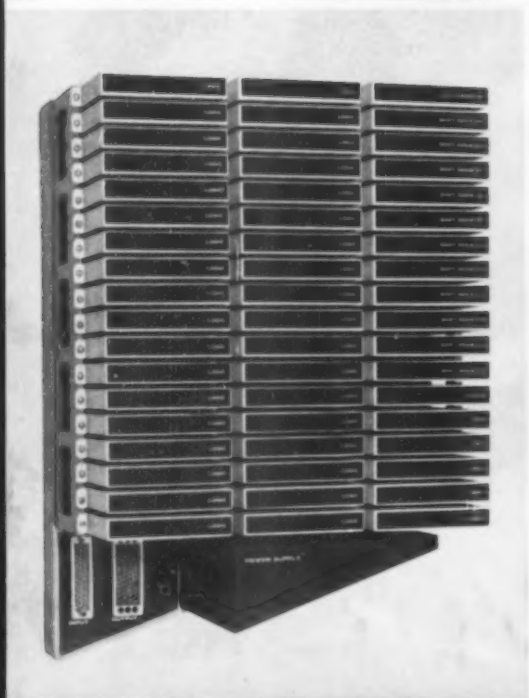


asked long-time GE design manager George Beck to set up an industrial design support team within the 2,000-man engineering section, the design staff has cut out a position for itself that, for the importance and variety of work it does, might well be the envy of many consultant offices. (In fact, and in some respects, it is a consultant office, for it acts as a consultant to a variety of other company functions.)

The design team's major effort is in the area of LMED's principal products. It has worked on (or is

1/2

3/4



now working on) devices for jamming enemy detection systems (page 32), computers and test displays for a Navy airborne radar picket system (page 33), test sets for missile tracking systems, undersea warfare products, ground support equipment for a flight control system (below), and guidance and testing devices for the Polaris and Atlas missile projects (opposite). In addition, Beck's designers prepare product proposal models (page 36) for LMED's Marketing section, which uses them in bidding for prime and secondary defense contracts being let by the three armed services and such aircraft builders as Douglas, Lockheed, and Republic. Other work of the design group includes appearance design for an assortment of special machines and devices (page 37) used for LMED's Manu-

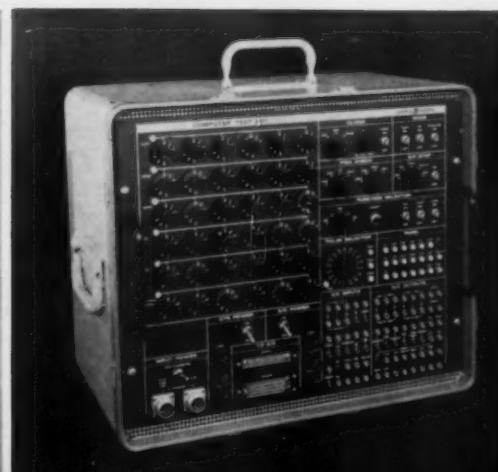
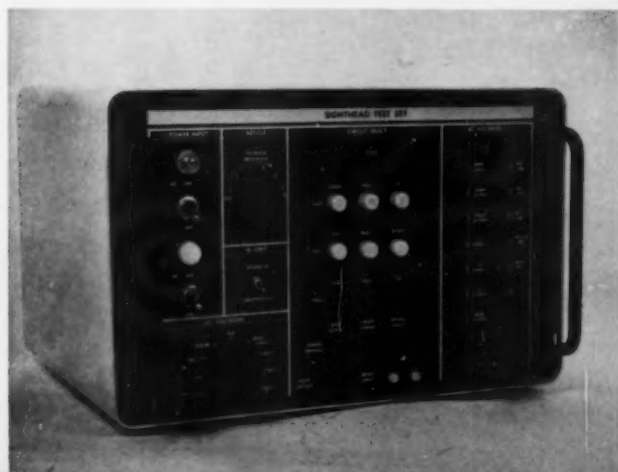


facturing section in its own plant, and interior design (page 36) of LMED executive offices, conference rooms, and lobbies.

When George Beck set up the design staff in 1956, LMED's main line of products looked like the haphazardly thrown-together "black boxes" that military men themselves were getting tired of looking at. His task was to update their "external aspects" so that they might, in the words of the Air Force's *Handbook of Instructions for Aircraft Ground Support Equipment Design*, "be pleasing to the senses." The design staff was also established to create efficient panel compositions using available human factors information, and

1. Magnetic shift register test set.
2. Computer power supply.
3. Missile system computer test set.
4. Missile system test instrument.
- 5/6/7. Test equipments for flight control system.

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Staff designers Paul d'Entremont,
Ernest Hansberry, John Gaska



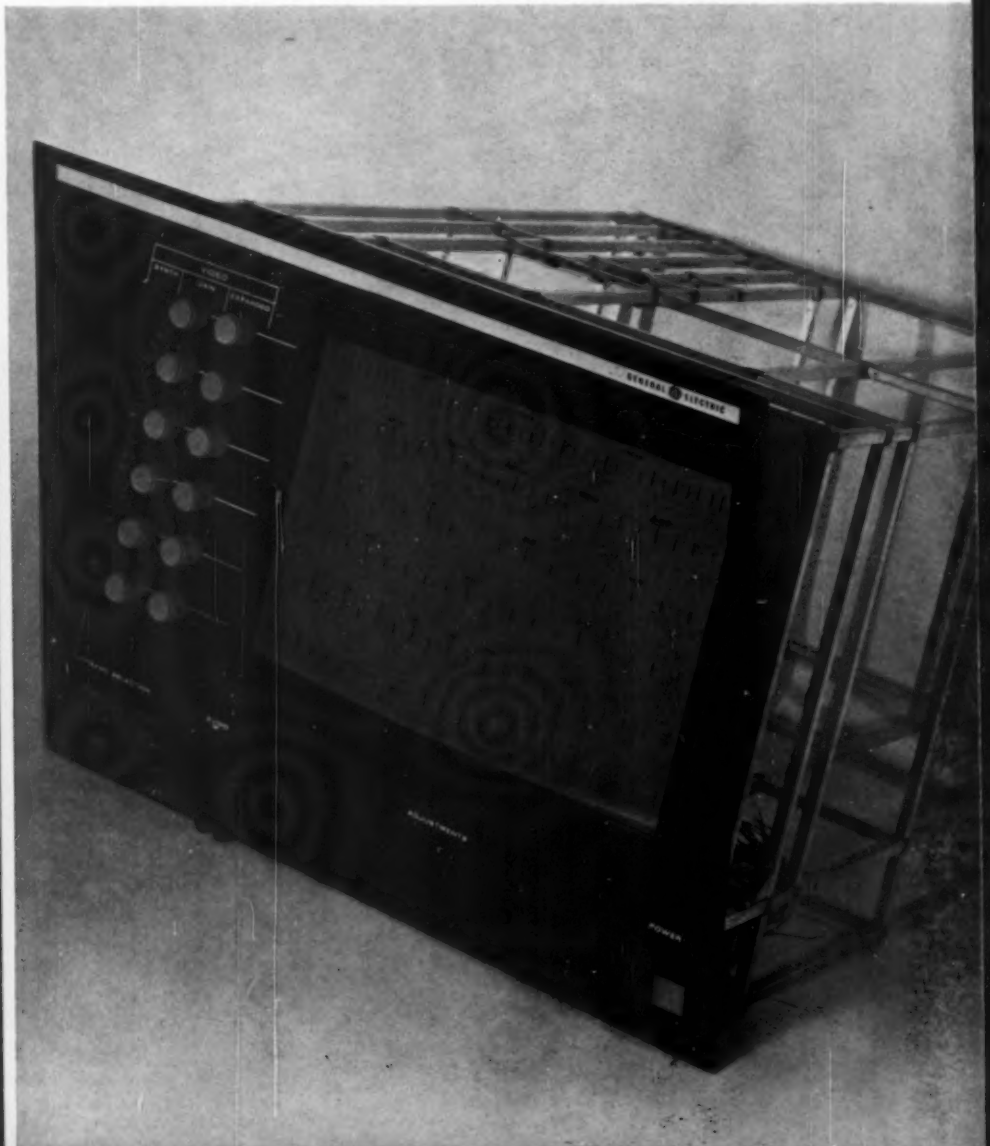
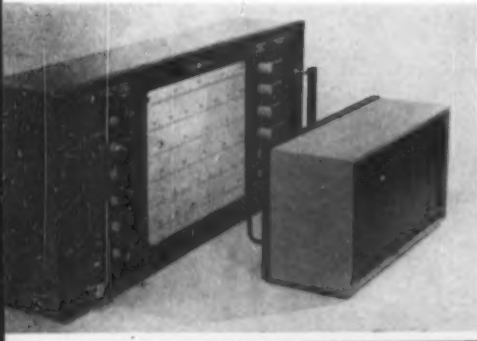
to give all LMED products a strong LMED identity. General Electric's top management tends to be as progressive as the GE curlicue logotype is old-fashioned. So it was natural that General Manager Konig give Beck all the freedom he needed, and for the top LMED engineers, if not the lower echelons, to show him a good deal of sympathy.

At the beginning, however, and particularly from the project engineers from whom Beck and his men had to get most of their work, there was some understandable resistance. They scarcely knew what industrial

design was. Moreover — and this is how it resembles a consultant design office—the LMED design group, like all units of the company, is required to “sell” its services to other units. Project leaders hold the strings of the all-important project purse, and to obtain work on any project the designers have to demonstrate their usefulness in each particular product program. (This is one way in which GE's fairly enlightened administration helps prevent bureaucratic rigor mortis.) At first, this wasn't easy. Bob Robb, whom Beck hired out of Art Center School four years ago, recalls having been barely able to get a “contract” for a day's work on an LMED manufacturing plant con-

LMED work in Electronics Countermeasures equipment includes this operating unit in initial stages (1), designers' revision of the concept (2), and the final version of the jacket (3). Opposite page (4), installation mock-up for units of airborne radar picket system.

1/2 3



veyer system which he thereupon spent a week completing. Other early investments of their own time have brought the designers dividends of confidence from project leaders who now call on the design group's help regularly.

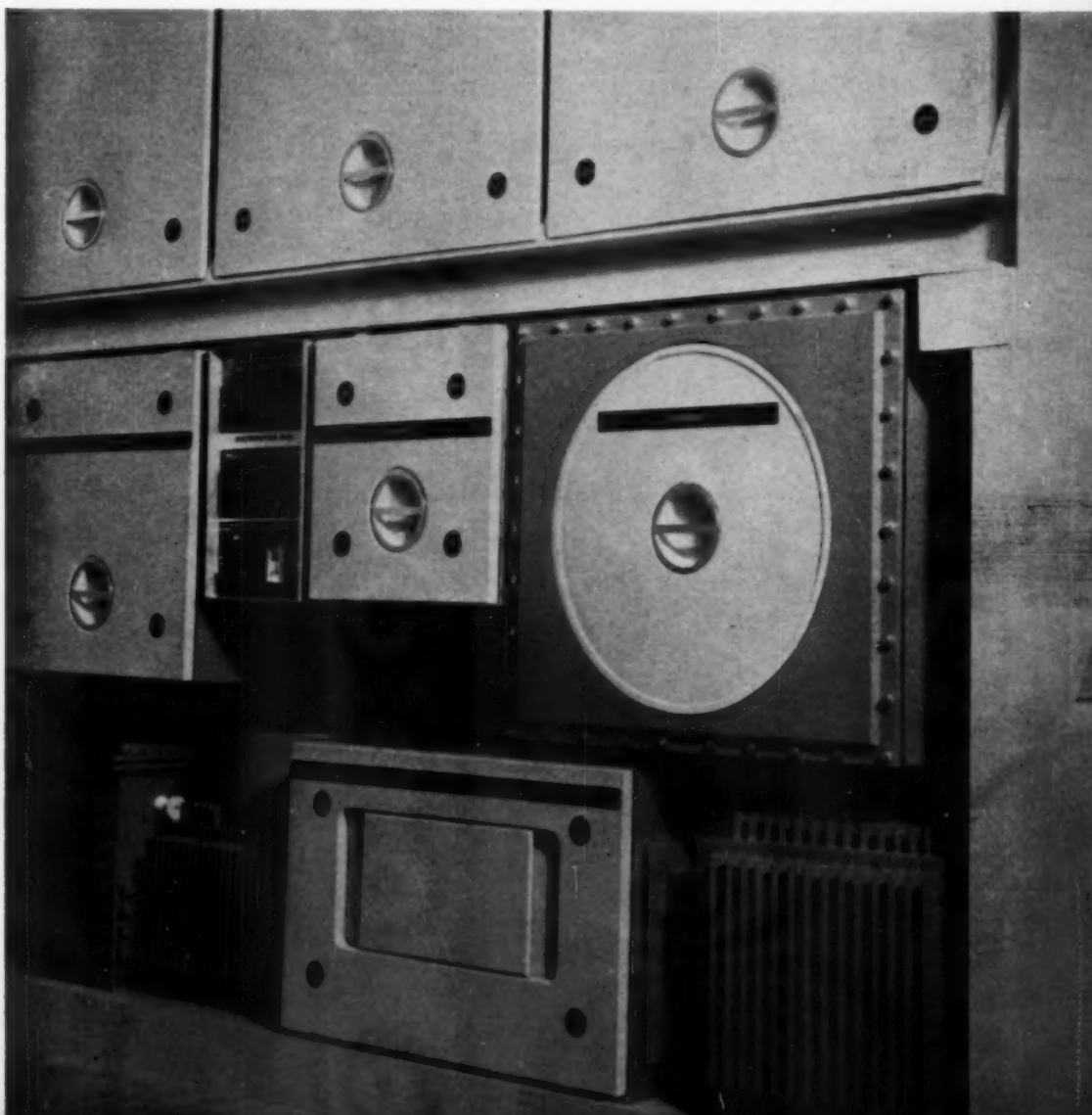
As any designer knows, creating legible and easily operable control panels is no great shakes. All you need is some ideas about legibility and operation (as well, of course, as the techniques for implementing them). Design engineers traditionally ignore these "external aspects," and this is where, for such products as testing devices for flight control systems and for missile guidance and computer equipment, Beck's designers have made themselves indispensable. They have given the old black box an LMED "look," and they have vastly improved its operability by standardizing the solutions to such recurring problems as case, panel, lamp, and indicator colors, and the arrangement and demarcation of functional areas.

Product jacketing is an important part of the LMED

Beck, staff designer Laird Pettit, and General Design Engineering manager C. Cadieux.



designers' regular work, but it far from contains the breadth of their product design activities. For they are occasionally asked to brainstorm pretty abstract over-all design problems; and these are sometimes exotic enough to propel a designer up to those blue-sky altitudes at which many designers, defying biology, find it easier to breathe. Bob Robb, for example, has lately been having a fling at conceptualizing the configurations of missile re-entry vehicles (i.e., the containers that will



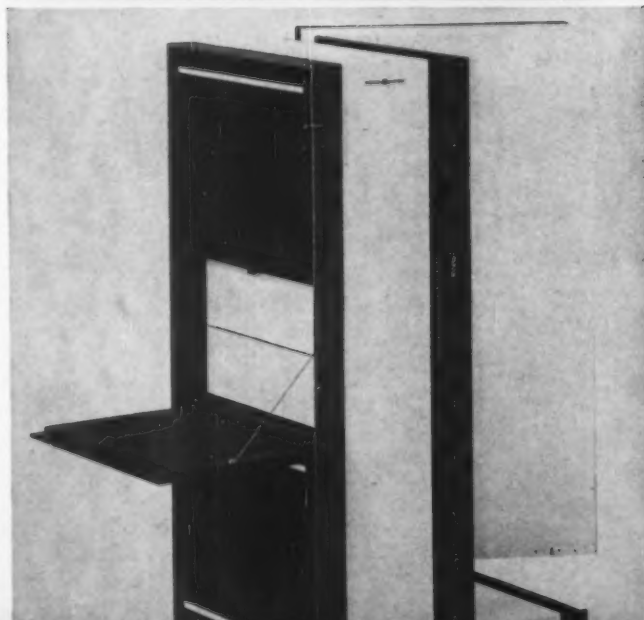


bring astronauts back from space). His work is highly classified, however, and cannot be discussed.

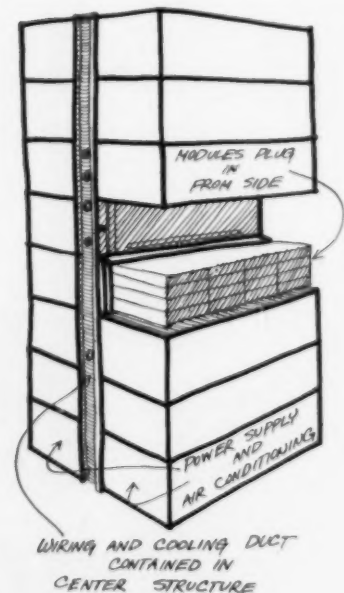
Back down in the Mohawk valley, designer Ernie Hansberry recently completed a concept study for a big piece of missile computer field test equipment (below) which provided an unexpected answer to a design problem which George Siegel and his computer field test engineers had not yet been able, in engineering argot, to "brute-force" to a solution. The product in question is a refrigerator-size cabinet with many drawers of electronic modules (i.e., circuit boards inserted in drawer racks). The problem was to design the drawer system so that individual drawers, in which

the modules were to be inserted like papers in a file cabinet, could be pulled out and serviced without having to shut down the equipment and without using extension cables. Robb provided an initial answer to the problem with a drawer (below left) which, when pulled out, swivels 180 degrees in the horizontal plane and has two plug-in units: one for normal operations, and one for servicing, when the drawer is pulled out, swiveled, and re-connected for continued operation during servicing of the exposed modules.

Hansberry's final answer began with a decision to see what could be done by assuming that the modules did not have to be held in the drawers vertically, which was one of the customer's specifications. For the concept of drawers that had to be pulled out and yet remain connected to the system without extensions, Hansberry



Field test equipment for missile computer, discussed above, shown in various stages of concept development. At left (top), Robb's initial idea for a swiveling drawer which exposes modules for servicing. Below left and directly below, Hansberry's idea for two doors of modules stacked horizontally. Lower compartment in later mock-up models of this concept (opposite page) are for power supply and air conditioning system. Doors open to allow servicing of electronic modules, and close for normal operation. Wiring and ventilation system are contained in stationary core frame.



Design staff meeting includes (clockwise from manager Beck, far left): Gaska, Hansberry, Gerald Adams, Pettit, d'Entremont, and Robert Robb.

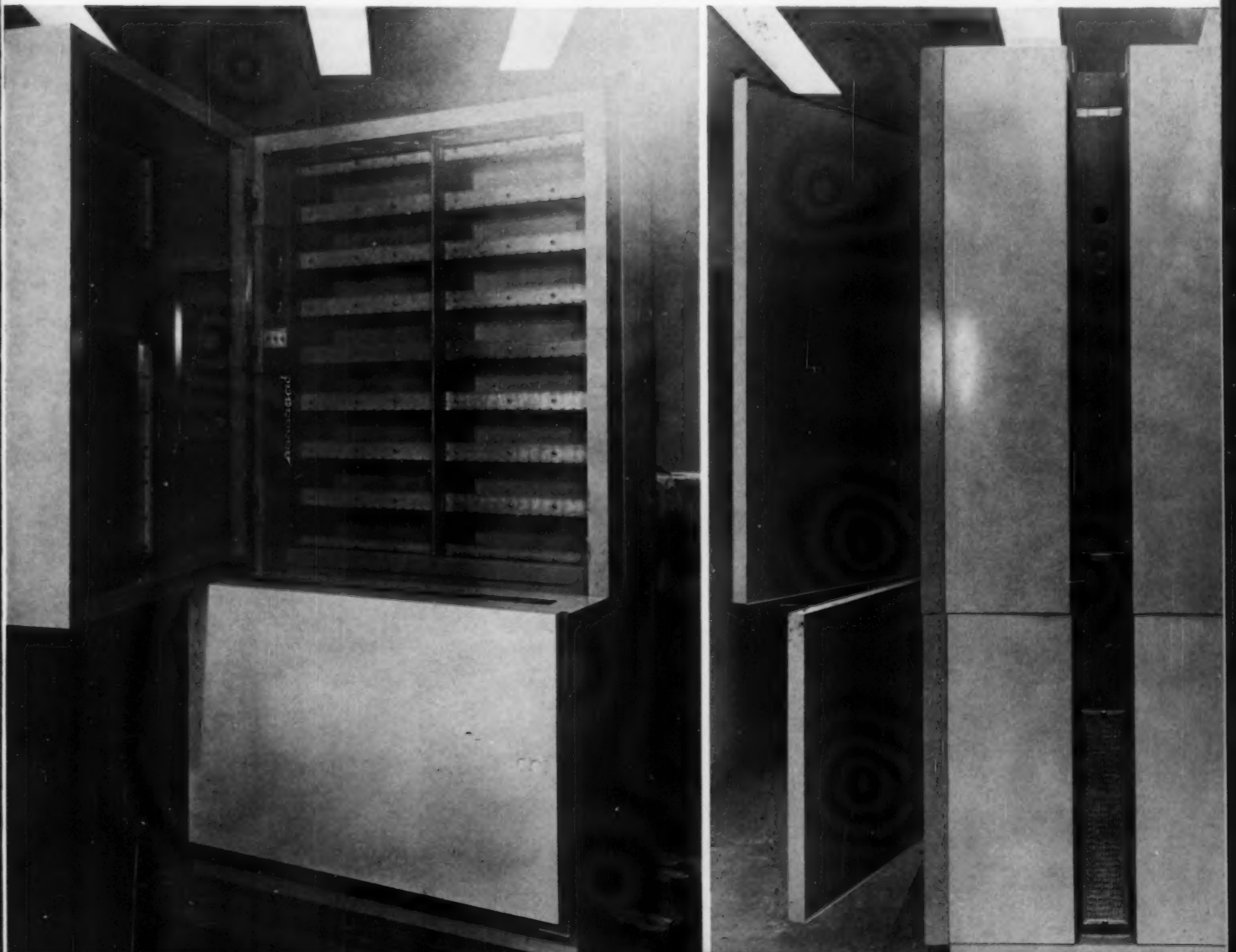


substituted the idea of a *door* full of modules, stacked horizontally. The final result (shown below) is like a refrigerator whose door compartments are as ample as the interior, except that in this case, both sides swing open. Closed, the unit is in normal operating condition. With the doors open, the electronic components can be easily serviced. Operation is uninterrupted because the power supply cabling is permanently installed along the hinge side of the core frame.

Another important field of LMED industrial design

activity is in preparing product proposal models to help LMED's Marketing section win contracts. It has been helped considerably. For big pieces of hardware, the designers use honeycomb cardboard to build models quickly and, by comparison with carpentry, extremely inexpensively. Before the design group was set up, LMED rarely used models in its contract proposals; but now, having seen the beneficial effects of often being the only bidder to present hard models of what it proposes to build, LMED uses them regularly. Examples are shown overleaf, along with some of the design group's work in interior design, and in creating the "external aspects" of LMED's proprietary items.

Engineer George Siegel recalls having wondered out loud to himself, when George Beck and his designers set up shop at LMED, "What on earth do we need them for?" Today, having worked intimately with the design group, Siegel talks like an industrial designer's public relations man, except that his enthusiasm is more convincing.—Richard Moss

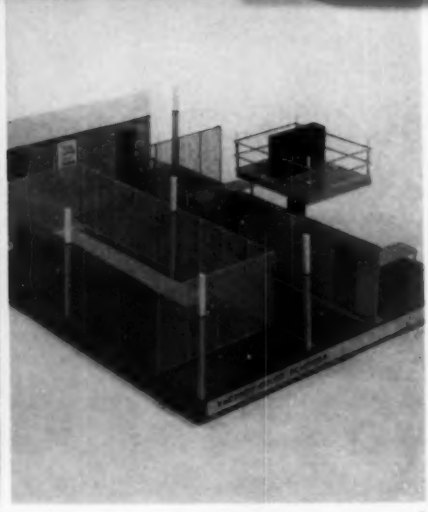




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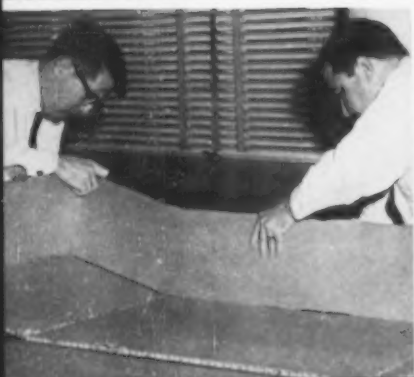


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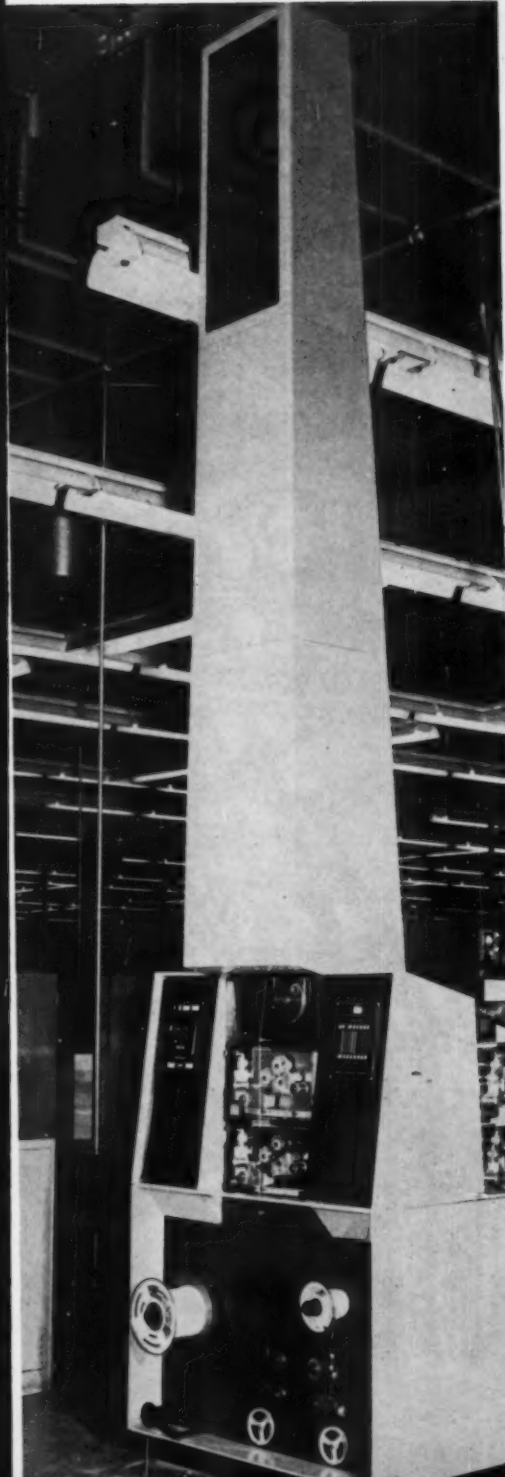
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LMED design staff, filling the functions of an outside consultant, gets its versatile fingers in many pies, including interior design of LMED offices, lobbies, and conference rooms (above), preparation of proposal models for the Marketing section's contract bids (left), and the appearance design of an assortment of LMED proprietary items (i. e., designed and built by and for LMED use), some of which are shown on the opposite page. (1) Bob Robb puts finishing touches on mural for executive conference-room. ((2) Recently redesigned main LMED reception lobby includes Robb's painted aluminum sculpture intended to evoke LMED's space products. (3) Model of color-coding system for Manufacturing section's sprawling facilities. (4) Proposal model for airborne IFF radar instrument. (5) Pettit and Robb preparing honeycomb cardboard mock-up, on the spot, to show potential customer what his product will look like in three dimensions. (6) Full-scale hard model of missile guidance system. Proprietary LMED products include: (7) salesman's traveling demonstration kit, (8) machine for semi-automatic placement of electronic components on circuit boards, (9) wire color-coding machine, and (10) a visual-aid device for training electronic circuit production-line workers.



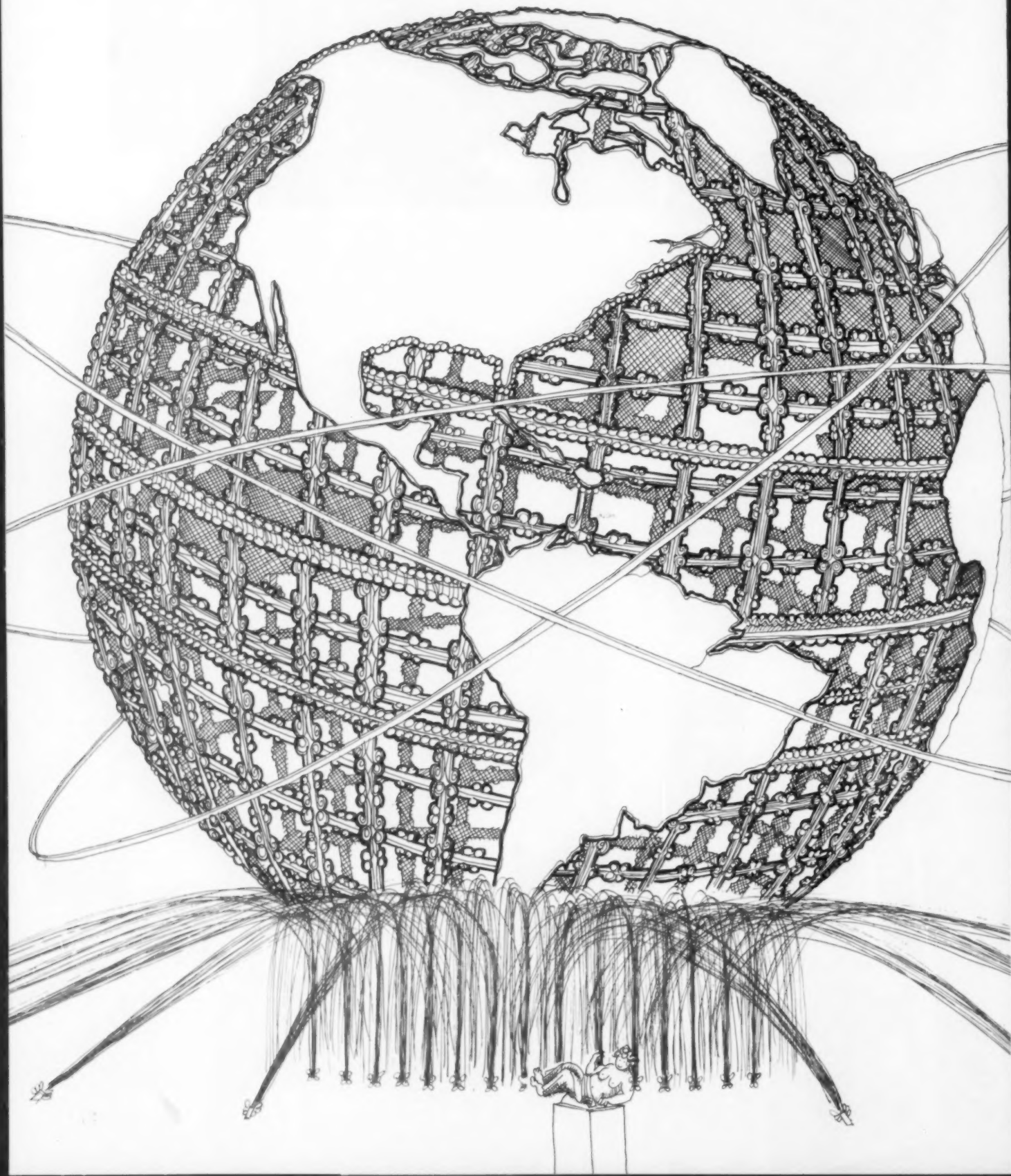
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FAIR AND SQUARE

The 1964 New York World's Fair has just begun to take form in Flushing Meadows, but it is already running into serious problems at home and abroad. The moral of this first progress report: "The best things in fairs aren't free."

By URSULA CLIFF

The globe opposite*—symbol and center of the 1964 World's Fair in New York—symbolizes, its creators say, "Peace through understanding in a shrinking globe and an expanding universe." At last reports, the globe was shrinking more rapidly than Robert Moses, the fair's president, realized: Italy, France, Great Britain and Austria had announced they would not participate; the Scandinavian countries had indicated informally that neither would they, and there were signs that most of Western Europe would refuse to join in the little world of Robert Moses. Similarly, American companies have been slow to sign up for the 66 acres of rentable ground space in the industrial section—as of two weeks ago, only General Motors, the American Gas Association, and Rheingold Beer had signed contracts. Yet fair officials estimated that attendance in 1964 and 1965 would be 70 million, that total investment in the fair would be one billion dollars, and that investors, as Moses promised, "are going to get back all of their money, and there is going to be a surplus—that's the way this fair is going to be run."

He was comparing the present enterprise to the last New York World's Fair, when investors got less than a third of their money back. The shadows of the Trylon and Perisphere hang over this fair in other ways. Many senior members of architecture and design offices first made a name for themselves at the '39 fair, which was almost the only major design project of the depression years. For

those of the present generation who visited that fair when they were considerably younger and more impressionable, it remains an image of the glamor and excitement that it promised the future held for everyone.

The 1964 fair was originally conceived as an act of nostalgia. Robert Kopple, a New York lawyer, was telling his children about the '39 fair, at which he and a friend were co-proprietors of a voice-recording booth. During the two-year run they lost a total of \$1.75, but Kopple felt the experience so valuable that he began to reflect on the possibility of another World's Fair. When he proposed the idea to some of his friends—mostly men involved one way or another with state and city government—the encouragement he received from these associates was cheering. But Kopple seems to have been borne along chiefly by the impetus of his own enthusiasm, for he swung into action at once, devoting nearly all of his time, and that of his clerical staff, to creating a World's Fair.

There were two problems to be overcome at the outset. The first was created by the three other cities which were also planning fairs—Chicago, Los Angeles, and Washington, D. C. Kopple put together a committee, consisting of Mayor Wagner, Governor Rockefeller, and Commissioner Moses, fortified by a number of other expert witnesses, to make a pitch for New York before a special commission appointed by the president. Under such a barrage of distinguished testimony, New York's case was assured.

The next difficulty was an international one. The United States is not a member of the Bureau of International Exposition, but a great many potential exhibitors are, and these countries would require recognition of New York by the BIE before they could agree to exhibit. The United States

* Freely redrawn by Peter Bradford

had not been a member of the BIE in 1939 either, but Grover Whalen had persuaded the foreign countries to come anyway, and the experience had not been an altogether happy one for them. They had been plagued with labor troubles and what they considered harsh rates, and they resented having to deal with officials of a private corporation instead of with the American government.

Despite this past history, there were indications in 1959 that these obstacles might be overcome. The President created an ad hoc committee to study how the BIE treaty might be revised to permit United States participation, and in November of 1959, Thomas Deegan, who had taken over as chairman of the Fair Corporation, returned

from Paris announcing jubilantly to the press that he had received "the green light" from the BIE, and that the BIE had promised New York "all cooperation."

The fair next needed a president, and it is at this point that Robert Moses—New York City's controversial Commissioner of Parks—enters the picture. His election was not entirely expected, at least not by Robert Kopple, who was still acting as the chief executive force behind the fair. When, to his astonishment, Moses' name was raised at the election meeting, Kopple declared his opposition on the grounds of Moses' age (72) and rather authoritarian temperament. Nevertheless, Moses was elected, and telegraphed his acceptance that night,

on the one condition that Kopple resign from the fair. (Kopple, an optimistic man with a healthily resilient spirit, is now writing a book about his experience. Title: "None but the Brave Deserves the Fair.")

Before he could take over the presidency, and the \$100,000 salary that went with it, Moses had to resign from his New York City jobs, arousing mixed feelings among those who had regretted his apparent insensitivity to the more subtle esthetic considerations of his work. "It's a hell of an expensive way of getting rid of him," one architect was quoted as saying. There were those who claim, finally, that the Mayor's office had been similarly eager to change the theater of Moses' operations.



The Trylon and Perisphere (opposite, in an aerial view of the 1939 New York World's Fair, and below) were theme objects for that fair, symbolized aspiration and the world. Perisphere contained city of the future.



Moses at once outlined his policy. "This is not a philanthropic enterprise," he declared, emphasizing his intention to run a financially successful fair. "There will be only a small, well-paid central planning and operating force. All work which can be performed off the premises will be done by contract with competent consulting engineers, architects, and others . . . Those who anticipate the hiring of a large force of fair employees and would like to be numbered in this army will find it futile to submit applications for jobs fortified by the usual letters from influential friends. We are not running that kind of a show."

What kind of a show is Moses running? A cautious one, in any event. The fair is probably the only (potential) billion-dollar enterprise in existence whose board of directors outnumber the employees. (There are 148 names on the board of directors and, at last count, 91 fair employees. At the same point in the history of the '39 fair, the staff occupied five floors

of the Empire State Building.) In addition, there are a large number of special committees filled with distinguished names, which change from time to time. Despite his warning that the work force would be no army, Moses is being assisted by no less than four generals: General William E. Potter, his executive vice president, General William Whipple, Jr., his chief engineer, Major General Thomas F. Farrell, an engineering consultant, and General Harry F. Meyers, chief of security. The only name from the area of architecture and design is that of Wallace Harrison, a co-designer of the 1939 Trylon and Perisphere, and a member of the executive committee for this fair.

In accordance with Moses' first announcement, the Fair Corporation is limiting itself very strictly to a bare minimum of responsibilities. They have erected the administration building in which the staff is now housed—(Skidmore, Owings & Merrill were the architects) and plan to erect, in addition, only press and maintenance buildings, information booths, comfort stations, and the like. The present building (see above) is, General Whipple says, the most ambitious structure the Corporation plans to put up—the others will be simply "bread and butter buildings" for extremely temporary occupancy. In addition, the fair is doing the heavy landscaping for the fair grounds, building the roads, and providing the gas, water, and electric facilities. The Fair Corporation has announced it will bury Flushing River for 1900 feet of its course, and will move 138 large trees to new locations on the grounds.

In substance, then, the major portion of the fair will not be the work of the Fair Corporation. (In 1939, many of the pavilions were built by the fair itself, and this is now looked on as the cause of that fair's financial failure.) This fair did, of course, first appoint a Design Committee, whose resignation has become the Dreyfus Affair of

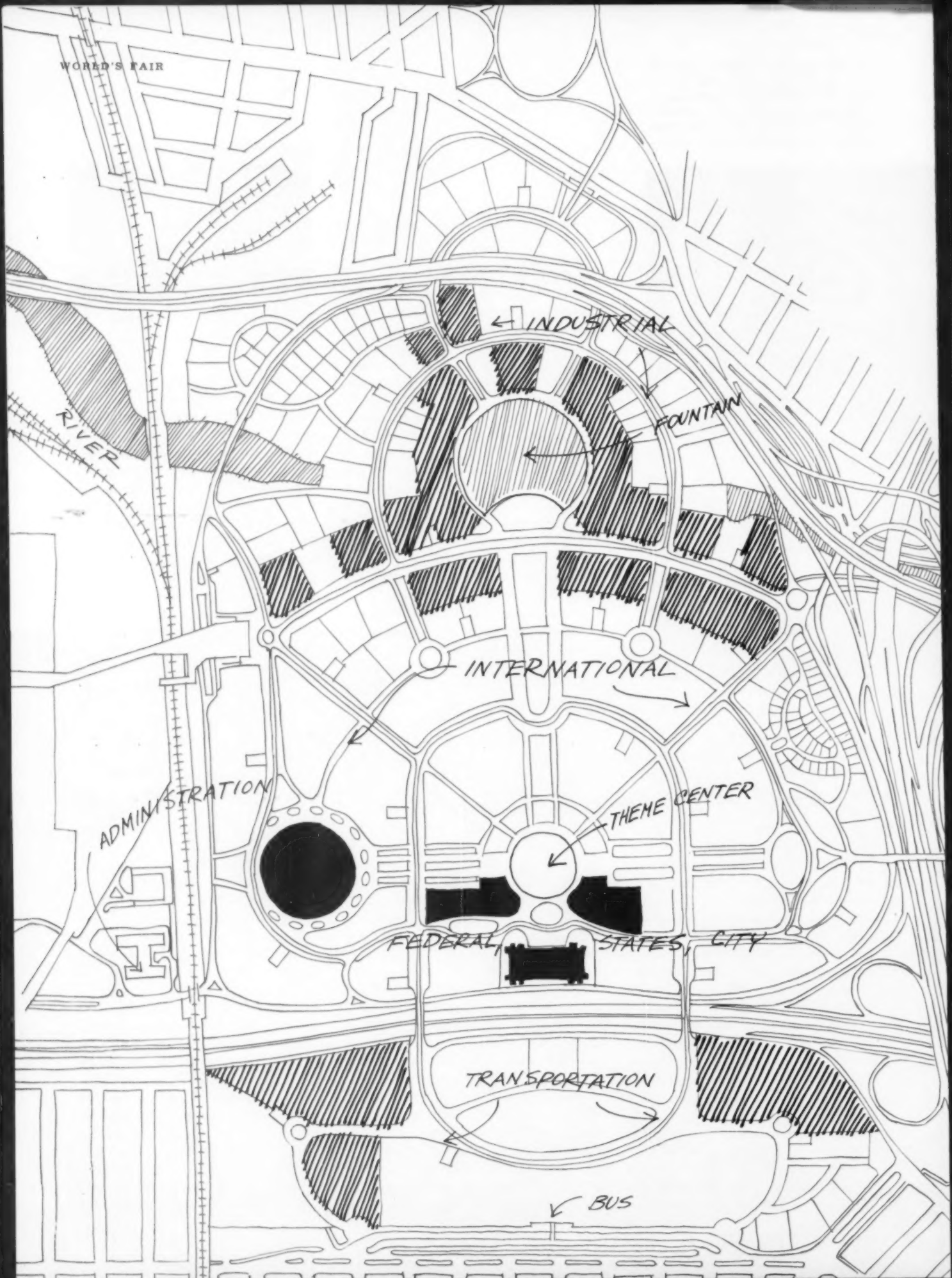
Administration building for '64 fair



contemporary design. Its members were Henry Dreyfuss (no relation), engineer Emil Praeger, and architects Gordon Bunshaft, Edward Stone, and Wallace Harrison, the chairman. Gordon Bunshaft resigned several months before the others, but his reasons were the same as the others: their proposals were rejected by the fair. The layout they had finally decided upon—a single huge doughnut-shaped building to house all the exhibits—would, the Fair Corporation asserts, have cost \$140,000,000: more than twice the \$67,500,000 worth of promissory notes the fair is now trying to finance. Bunshaft said in a newspaper interview: "We were trying to design a plan that would be an expression of our times. Mr. Moses and the Committee wanted a repeat of the old World's Fair plan of 1939. Why should architects hang around four years beating an old cat?" Minus Bunshaft, the defeated design committee submitted a revised plan—substantially the same as the '39 plan—and then resigned.

The Fair Corporation insists that there are excellent reasons for reviving the old plan, all of them reasons of economy: fewer trees would have to be moved, three-quarters of the existing water and sewer lines and an undetermined number of the existing electric conduits can be used.

In place of its design committee, the fair has created a Committee on Conformity (that is its name), to exercise some sort of supervision over the designs of the individual exhibitors. Members of the conformity committee are W. Earle Andrews, an engineer who has been involved in the construction of the New York highway system, Gilmore Clarke, the fair's landscape architect, and Major General Thomas F. Farrell, engineering consultant



to the fair, and a former chairman of the New York City Housing Authority and deputy commander of the Atomic Bomb Project. General Farrell is chairman of this committee.

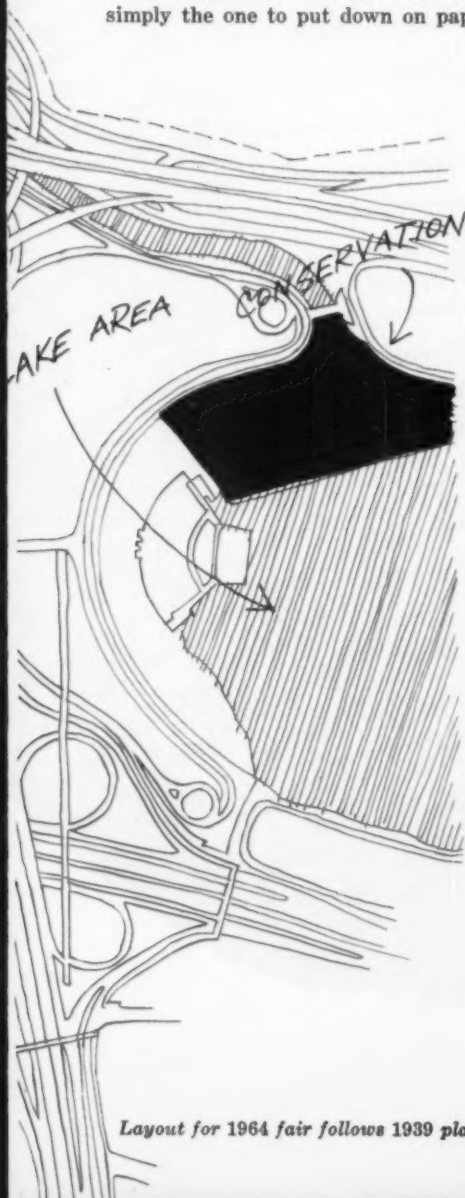
Gilmore Clarke is also credited with the design of the Unisphere, the theme object. When the fair was in its early stages, there had been some talk of an international competition to design the theme, and the Design Committee had also produced some suggestions. But there was never either a general invitation or a specific commission to design a theme object. Mr. Clarke, the Fair Corporation explains, "was simply the one to put down on paper

what was in the mind of Mr. Moses and the Executive Committee." The globe, to be built by U.S. Steel (which did not participate in the design), will be erected on the foundations of the Perisphere, which are still in excellent condition. Mounted on a base in the center of a 12-sided pool, the sphere will be 135 feet high, with a diameter of 120 feet. It will be tilted at an angle of $23\frac{1}{2}$ degrees. In announcing the Unisphere, one official, who apparently did not know that this was the angle of inclination of the earth on its axis, said that this was to provide a better view of the United States, "and we're all interested in the United States, aren't we?") The continents and principal islands are executed in stainless steel mesh, with mountains pressed into relief. These will be attached to stainless steel hoops representing some of the lines of latitude and longitude. The earth will be circled with three stainless steel orbits, which will serve as tracks for lights representing satellites. There will also be floodlights and, to complete the picture, stainless steel statues, representing the twelve signs of the zodiac, will be erected at the corners of the pool and fountains will play at the base of the sphere. This mise-en-scene for the Unisphere is to be provided by the Fair Corporation, although the Executive Committee has not yet translated its thoughts on this subject to paper, or commissioned the statuary. It has, however, just appointed a committee to oversee this and other artwork for the fair. Members are Rene d'Harnancourt, James J. Rorimer, and Thomas S. Buechner, directors of, respectively, the New York Museum of Modern Art, the Metropolitan Museum of Art, and the Brooklyn Museum.

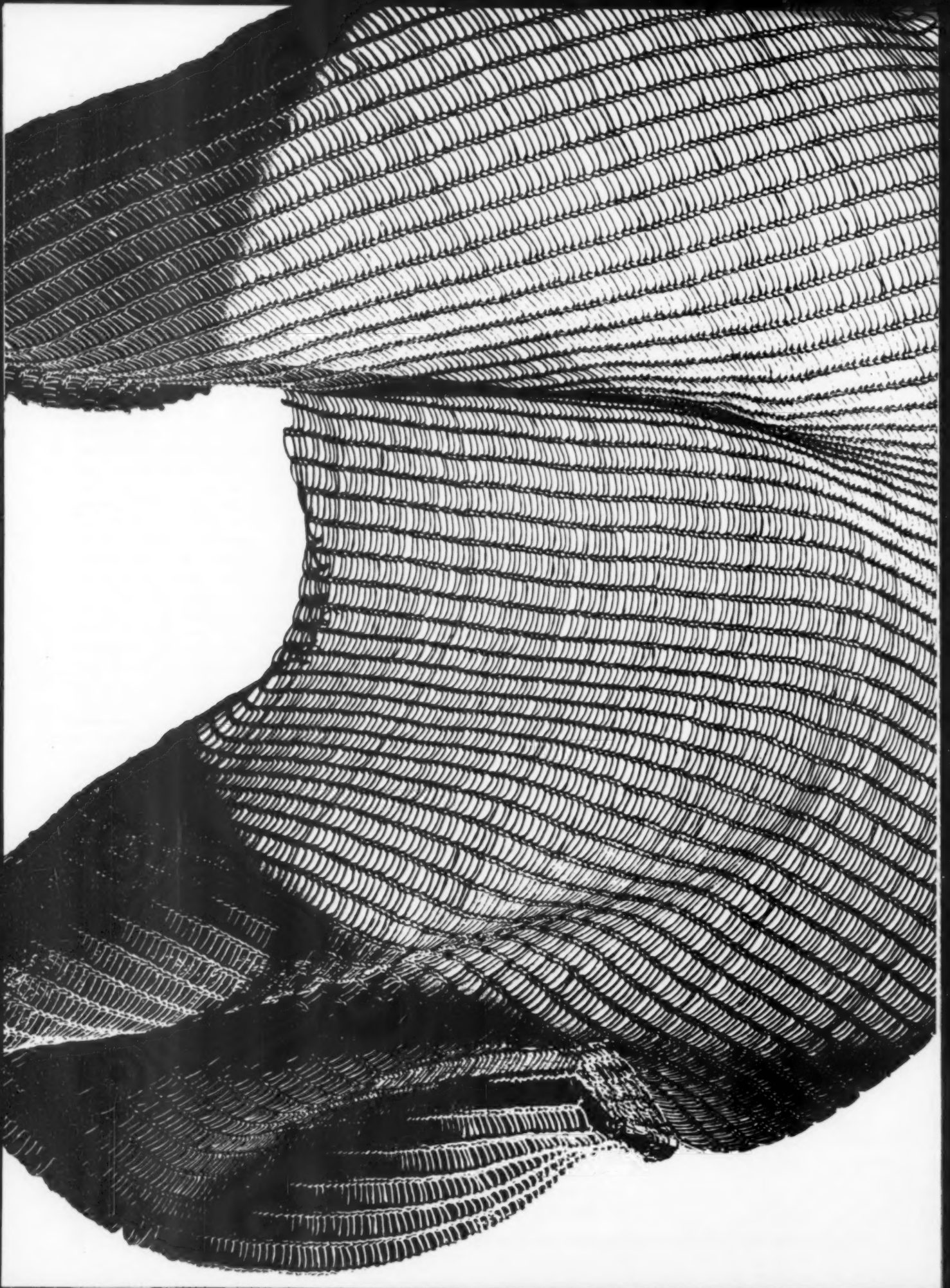
This symbol of "Man's achievements on a shrinking globe" has been received with mingled horror and nausea by designers. The kindest comment yet recorded is, "Well, what did you expect from them?" So far Robert Moses has not issued one of the fiery blasts with which he customarily retorts to criticism. He has, presumably,

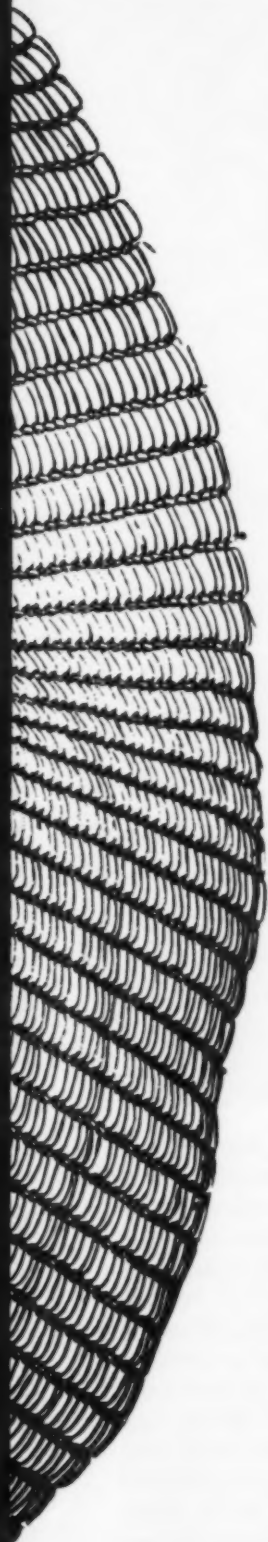
been too involved with the fair's other difficulties. The BIE ban is apparently unavoidable, on three different counts. The international bureau says that world fairs shall not last more than one year, but the Fair Corporation insists that two years are financially necessary. The BIE stipulates that foreign governments should receive the first 5,000 square feet of exhibit space rent-free, and the Fair Corporation's position on that goes without saying. And, finally, the BIE says that within a single geographical zone there may be only one world's fair every ten years, and Seattle's preparations for its 1962 Century 21 fair are far advanced. (Seattle has received BIE approval, and Thomas Deegan's office cannot explain his "green light" statement of 1959.)

Designers, meanwhile, are not being besieged by an army of potential exhibitors. Many of them report that an initial lively interest on the part of their clients has slowly turned to near apathy. Some of Peter Schladermundt's present clients, for example, have said definitely that they want an exhibit, but see no reason to forge full-speed ahead with plans. The Teague office is doing exhibits for the American Gas Association and Schaefer Brewing Company, both regular clients. Loewy has submitted a proposal to the American Petroleum Institute, and expects to undertake only two or three additional projects. Dreyfuss is doing AT&T's exhibit, for which the firm of Harrison and Abramovitz are the architects, and George Nelson's office has completed an exhibit for the Institute of Life Insurance Companies. One of the big exhibit houses reports a considerable number of clients interested in taking space in the group pavilions presently being organized by private entrepreneurs. In this case the lack of design coordination in the fair as a whole presents a particularly obvious danger, but, as one designer reported after a trip to Flushing Meadows to confer with fair officials "Out there they want to get everything for free."

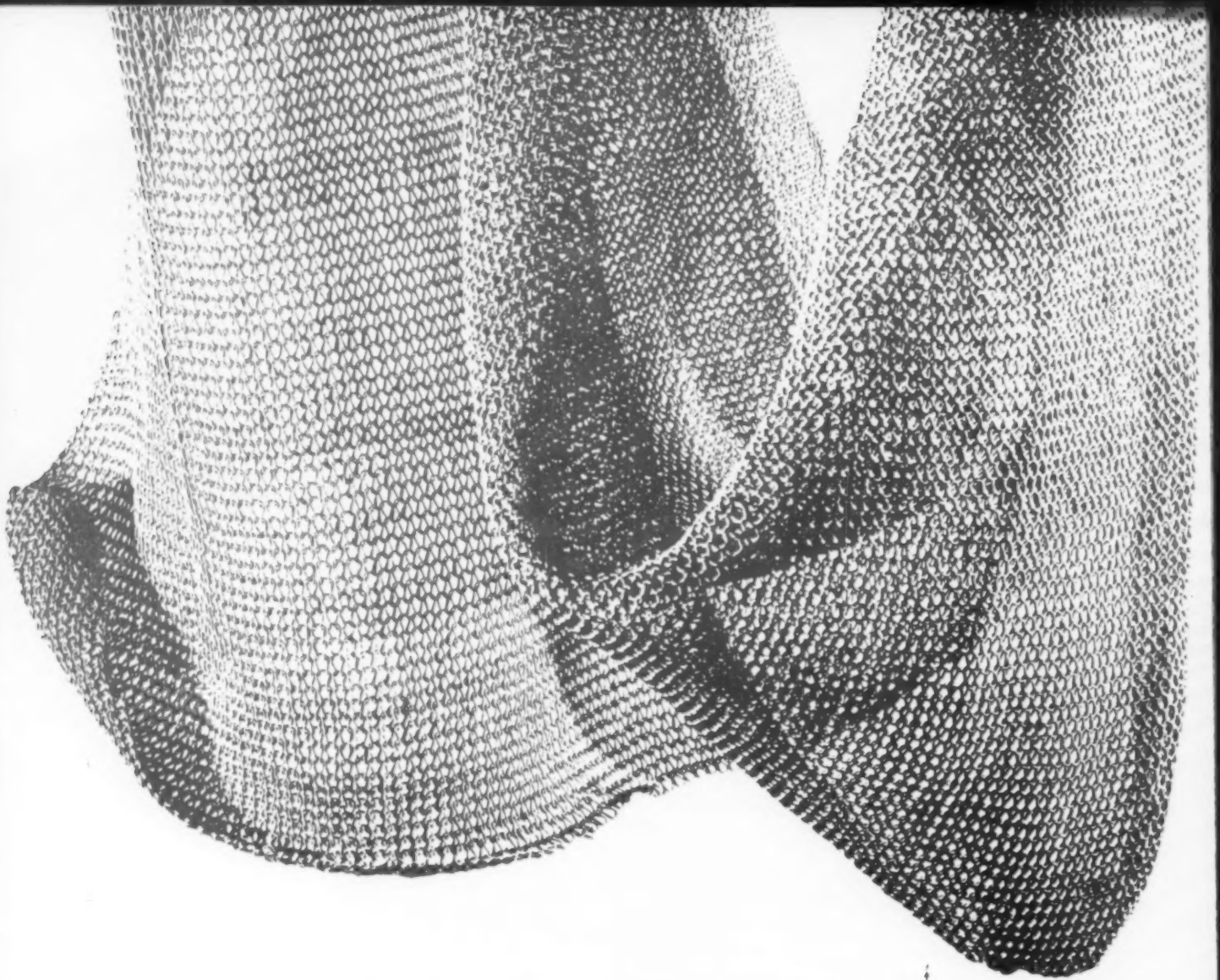


Layout for 1964 fair follows 1939 plan very closely (see page 40).





The pattern opposite is reproduced from **KNIT PAPER,**
a versatile new fabric that is exactly what its name implies. Accord-
ing to its developers knit paper will • form unlimited patterns
through combination of yarns, colors, and knitting techniques •
stand up under repeated washings and dry cleanings • combine
with plastics and other materials • support a minimum of 30
pounds dead weight • withstand 350 degree heat and over 5,000
pounds of pressure • resist salt water, outdoor weathering, and
punctures • sell for prices starting under a dime a foot.

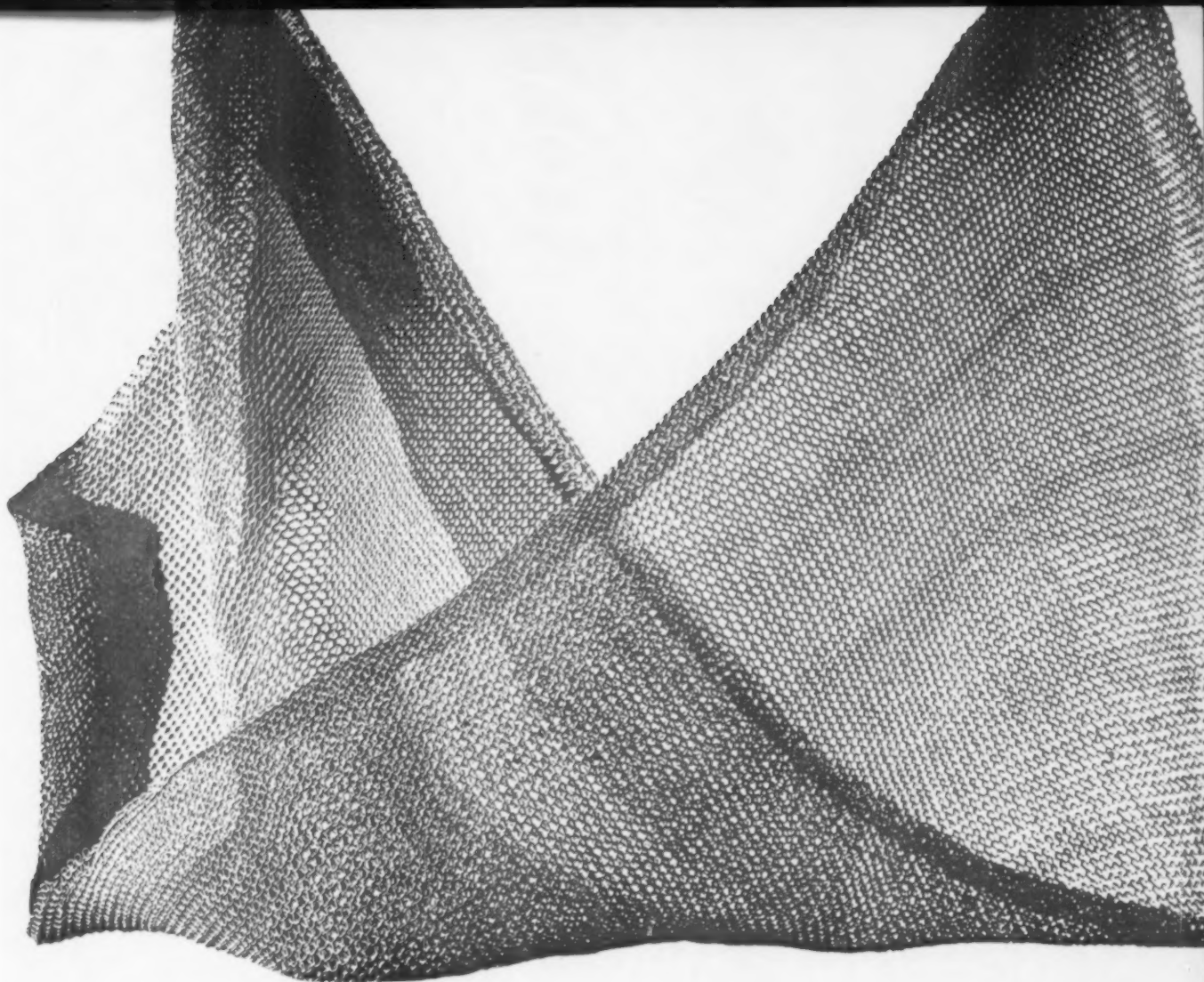


Knit paper promises—if not a design and manufacturing revolution—at least a serious jolt to paper and textile markets, and the jolt may not be long in coming. A growing inventory of knit paper products is already on the market. Ronald H. Marks, the machine-minded Texan responsible for making this possible, first got snarled in knit paper eight years ago while looking for new ways to expand Enterprise, Inc., the 56-year-old Dallas meat packing equipment concern he inherited from his father. In an effort to develop completely expendable ham sacks and other meat wrappers, Marks became intrigued with the idea of using knit paper.

Before he could tackle the problem of actually knitting the paper, however, Marks had to find out how to produce the right kind of yarn: all the available paper yarn was too large in diameter and too inflexible to be knitted easily. He went through a tedious four year period of trial and error to get the kind of yarn he wanted, and he recalls bitterly the discouragement of hearing “it can’t be done” from the dozens of experts to whom he took his problem. When Marks started work on the project, the standard method of making paper yarn required unwinding a roll of paper, slitting it into

ribbons, rewinding each ribbon onto a separate roll, and placing it on a twisting machine which spun it onto large bobbins. Not only did this method involve many steps, but the rewinding process limited the size of the ribbon — if it was too narrow, it broke.

Marks’ solution was to slit the paper and twist it into yarn in a single, continuous operation. When he succeeded in slitting it down to $3/64$ of an inch, he knew he could make the kind of fine yarns he needed for his knitting process. “Essentially,” says Marks, “we simply put the paper roll, and the circular blades that slit it, above the bobbins, and then let the individual ribbons of paper slide down onto them.” As the paper unrolls on its way to the bobbin, it passes through a trough where chemicals can be added. “For instance,” says Marks, “if the customer wants either greater flexibility or more stiffness in his final product, we can add the suitable chemical treatment at this point.” In addition, chemical treatments may be added either after the yarn has been knitted or when the paper itself is made. For example, Marks has used American Cyanamid’s Melostrength, a melamine resin, to add greater wet strength to some of his papers.

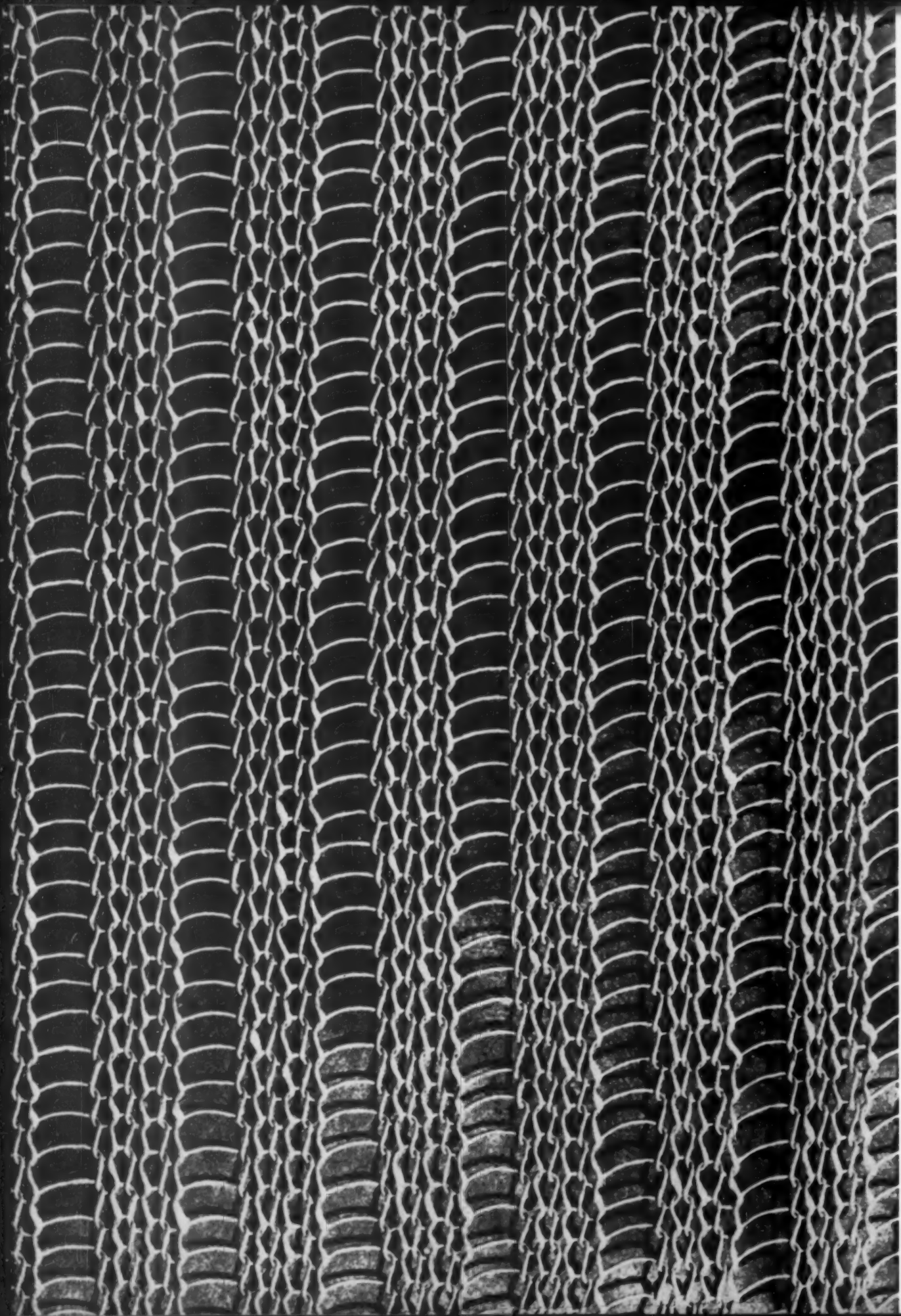


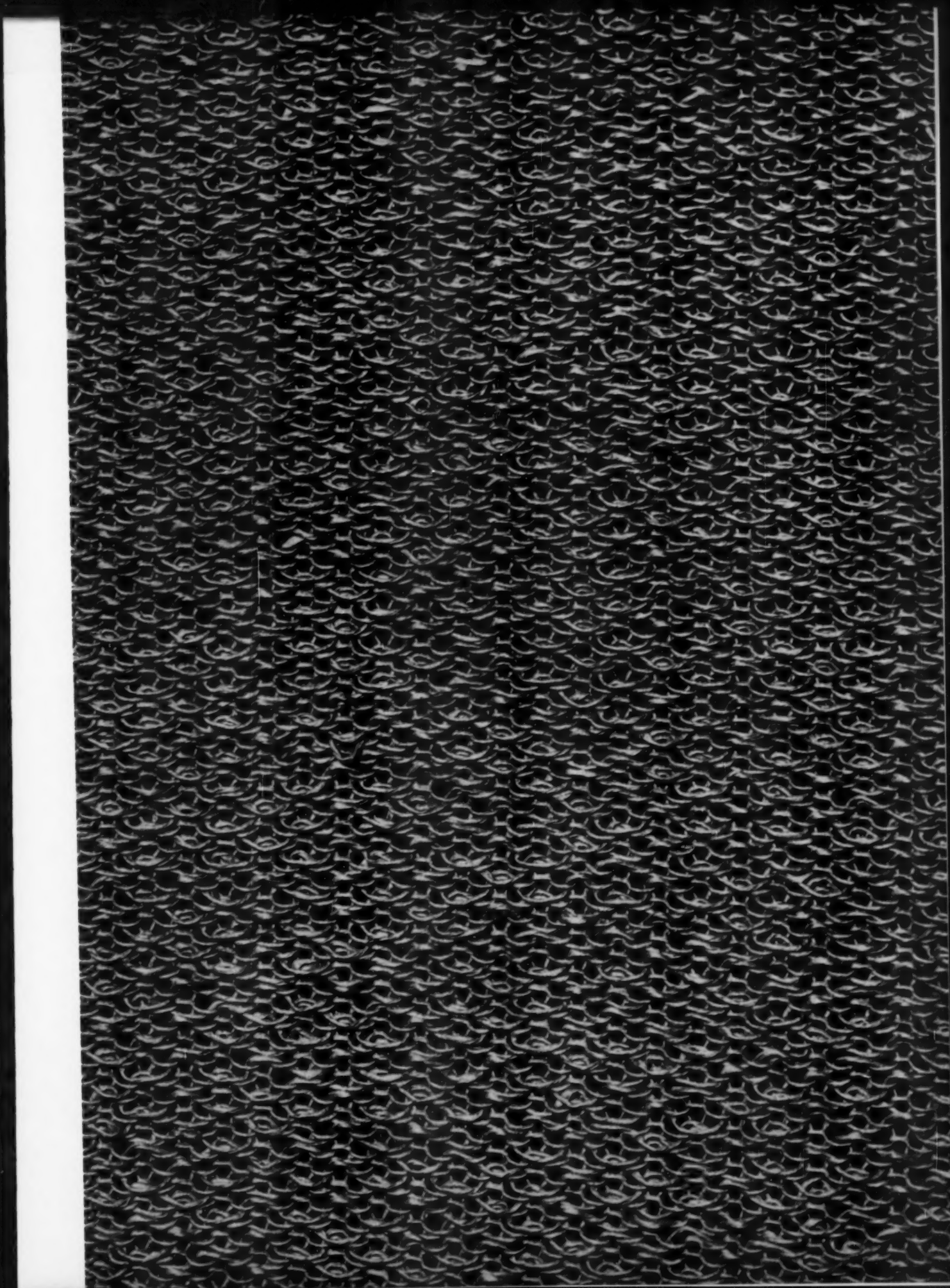
After the bobbins of yarn are mounted on circular knitting machines, tiny needles convert it into a fabric.

Already Marks has licensed his process to nearly a dozen corporations. In addition to the ham sacks which Enterprise itself has been manufacturing, knit paper for many other uses is now coming onto the market. Dobbie Specialties Ltd. of Ontario markets a knitted paper "scrim" carpet backing, and in Montreal the Form Craft Fabrics Company sells knitted paper fabrics to the meat packing industry. They want to expand to automobile trunk and interior linings, tile, plastics and carpet backing, and drapery material. In the United States such major firms as Armstrong Cork Company, Continental Can, Dan River Mills, Cone Mills Corporation, and Bigelow-Sanford have all picked up licenses for Marks' process. While these companies talk cautiously, the future for knit paper looks rosy. Cone Mills, for instance, also expects soon to introduce a line of knit paper fabrics for carpet backing. This will be a major application for knit paper, along with its use as a cheap and reusable-or-disposable packaging material, and — combined with more expensive nylon and rayon fibers — as a fabric for low cost draperies and

slipcovers. From the marketing standpoint, the most exciting fact about knit paper is that it is both cheap *and* reusable. Estimates show that a 9 by 12 foot rug lasting several seasons can be designed to sell at \$15 to \$20.

Knitted paper may eventually win more glamorous roles. Marks has actually made reusable knitted paper dresses, sports coats, and undershirts. While they have stood up well under repeated washing and dry-cleaning, these clothes are still rather coarse and, at present, might cost as much to design and produce as other clothing. Also, Marks, who is normally not given to expressing his personal views, strongly believes that the real significance of knit paper could be social and political. He likes to think of it as a new weapon in the revolution to thrust Asia and Africa into the 20th century. "Can you imagine what a man like Nkrumah could do with knit paper?" he exclaims. As an inexpensive means of providing for "the lower half of the population," Marks calls it the Volkswagen of fabrics, and he imagines knit paper making available a host of low-cost products—from clothing to pipe sections and parachutes—to nations around the globe.—A. F.





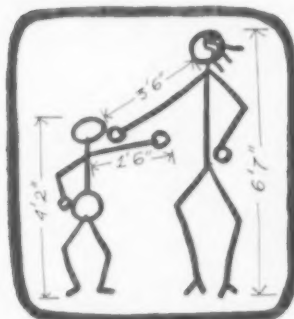
RECORDING THE PROJECT

To show students how to keep a record of their designs, Frank E. Robinson, chairman of the Industrial Arts Laboratories at New York State Teachers College in Oswego, wrote this mythical history of an absurd design problem: how to develop an all-purpose, all-weather matrimonial equalizer.

We have been asked by a friend to help him in a delicate situation. His wife invariably takes his most interesting new books from him and reads them first. She opens his personal mail, and she always gets the newspaper before he does and reads that. To complicate the situation, his wife is six feet seven inches tall and weighs 90 pounds; he, on the other hand, is only four feet two inches tall and weighs 300 pounds.

An analysis of the problem reveals one obvious functional need: a device by which a short, fat man can discipline and control a tall, thin woman.

Many human factors are immediately apparent. The woman has reach and mobility, while the man has weight and relatively greater strength. Before we can go any further, we need certain additional information that may be gained through research in human engineering. (Note suggestive sketches which follow.)

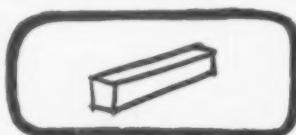


By studying the data produced through this research, we find some interesting points of comparison. In the length of arm, for instance, notice

that the difference between the arm length of the figure labeled "her," 3'6", minus that of the figure labeled "him," 1'6", leaves a differential of 2'. This two-foot difference must be overcome. Let us now assume that of the many disciplinary actions that could be taken, the one preferred is a thumping blow to "her" anatomy by "him" in the heat of passion.

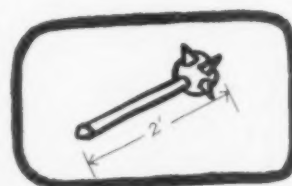
But the 2' differential is not the only factor to be overcome. Recall that "her" has mobility and "him," by reason of his dimensions, is quite limited in this respect. Further, the disciplinary action will, in all probability, take place in a room of the house. We note from further research that the limiting dimensions of rooms in houses varies from 4' wide, 8' long and 8' high to 14' wide, 30' long and 8' high. Even in the smallest room, the differential of 2' must be considered simply as a minimum, unless "her" can be lured close.

The following sketches may offer some initial suggestions for a device that could be used in the situation as it has been analyzed to this point:

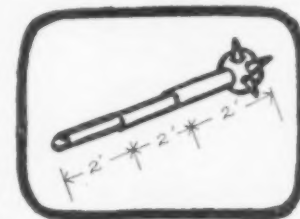


A. Section of 2" x 4" two feet long. Effectiveness limited because of the poor grip it provides. Useful only for "in-fighting."

B. Better grip provided, more effective in action. Length is



still a limitation.
C. Telescoping handle extended by releasing spring tension.



This increases reach but may prove difficult to swing. Weight and balance become problems.



D. A solid disciplinary device made to appear like a bunch of flowers. Flowers are presented to "her" to get "her" within range. Would be useful only once, however, and therefore is unsatisfactory. (This idea would have to be discarded anyway since it is dishonest in a design sense.)

Weight and balance have entered our consideration; therefore, we must pause and consider them. Research comes again to our aid, to show that "him" can effectively swing five pounds at arm's length extended by two feet. Whatever the disciplinary device

may finally be, it must not exceed five pounds.

Since we have not as yet found an effective device to solve our problem, maybe what is needed is a fresh approach.

Suggestions:

1. A feather to tickle "her" into submission (the soft approach).
2. Have "him" stop reading.
3. Each time that a new book is available, offer it to "her." As soon as she is absorbed in it, activate the disciplinary device. In this way, the length of the device will serve only for good leverage, not to overcome any differential in arm length.

Suggestion 3, above, seems to have the greatest potential. In addition, it may be necessary to modify our original thinking about the device. Sketches A, B, C, and D, above, may be more drastic in their effect than required. "Him" wishes only to discipline "her," not disintegrate "her."

Modified solutions come to mind as follows:



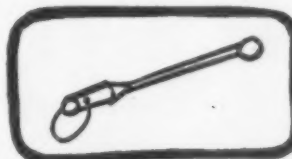
I. Handle shaped to fit hand. General dimensions: $\frac{1}{2}$ " thick, 30" long.

II. Same over-all dimensions as in I. Holes drilled through as indicated to allow passage of air, thus avoiding air cushion offset.



ion offset. (Tailfins optional on de luxe models.)

Note to I. and II. Assume that the blow administered is to be delivered to posterior surface. This may prove difficult since "her" will be sitting on it.



III. Here we may have the answer to the problem. This is a device by which a tap can be administered to any exposed portion of the subject's anatomy. Distracted in this manner, who can read? A leather thong at the end of the shaft goes over the wielder's wrist; prevents subject from jerking it away.

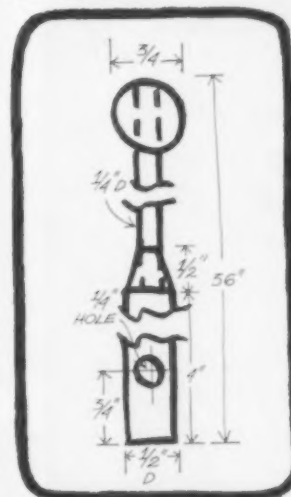
The technical requirements involved in this device are not extensive. The shaft must be rigid enough to support its own weight, plus weight of ball on end, yet flexible enough not to break under the strain of the blow. Shaft could be of ash or lemon wood; in the area of plastics, nylon or Plexiglas. Since only one of these devices is to be produced, production methods for large numbers need not be considered.

The ball on the end could be of hard rubber, plastic, or

wood, depending on what is available. (If you have any extra balls around the house, use one of them.)

Glue appears to be a suitable fastening method. No finish is required.

A dimensional sketch is presented below recording complete details:



Cost of the object is of no concern since a principle is at stake.

Because the object will be used indoors (since "him" wishes to project a favorable corporate image throughout the neighborhood, he will observe maximum security precautions), it must withstand changes of heat and humidity without shrinking or swelling unduly. It can be stored by hanging by its thong on a hook in the closet.

The psycho-social implications are indeed broad.

There are five possibilities for an ultimate solution.

A.. "Her" can ignore the use of the disciplinary measures administered and continue to



- B. "Her" can actively resist the disciplinary action and become the disciplinarian.
- C. "Him" can continue to try for dominance, no matter what.
- D. "Him" can give up and take a what-the-hell attitude.
- E. Both parties can face the situation more realistically and try to work out the formative principles that structure the situation and, in so doing, live happily ever after.

Possibility "E" seems to be the mature, sensible solution to the whole problem, but since we have gone to all this trouble, there must be some use for the device. It can serve as a symbol to remind both "him" and "her" of the need to continue the search for truth.



DESIGNS FROM ABROAD *S.S. Oriana*

England's P&O-Orient Line has been connecting London, Bombay, and points east for several generations, but unlike some shipping concerns it does not feel that what was good for one generation is good for the next. As a matter of policy its ships are always designed in the *dernier cri* of their day, and the S. S. Oriana, which sailed on her maiden voyage in early December, upholds this tradition. The London design firm, Design Research Unit (Misha

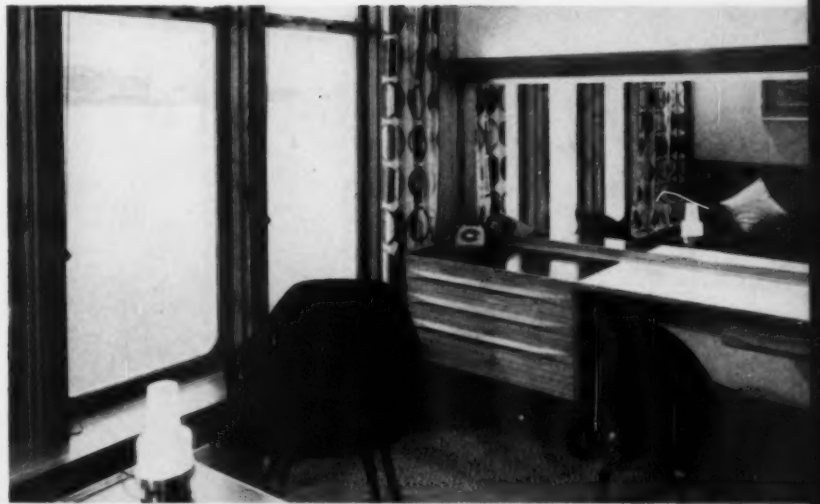
1 2/3



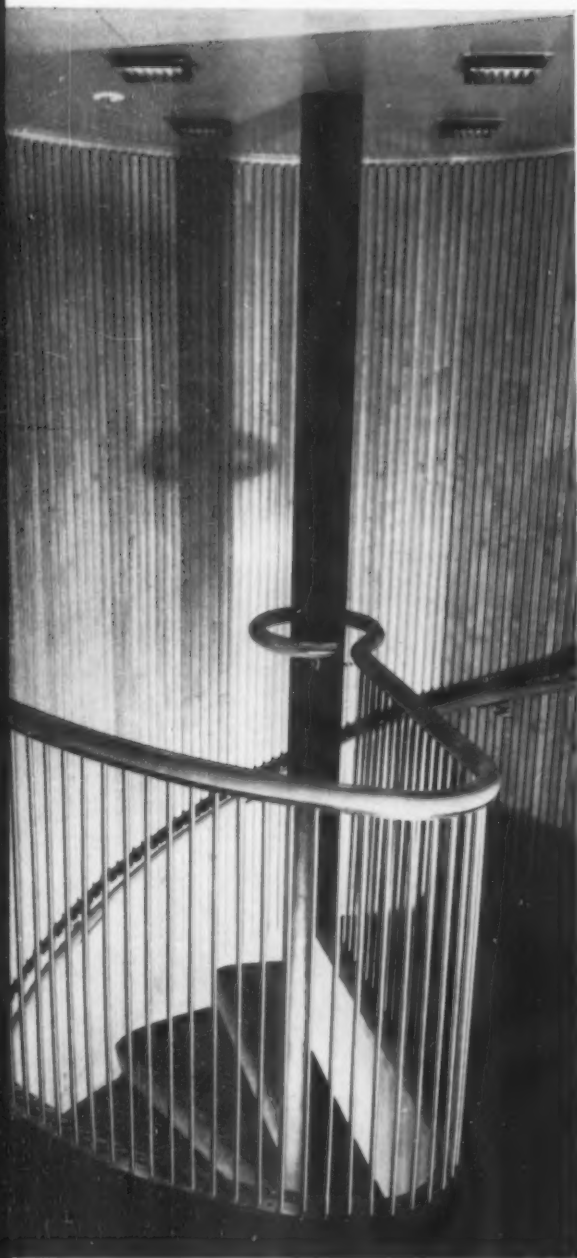
Black, Milner Gray, J. R. M. Bramwell, partners), established the Oriana's theme and was responsible for all public areas. Because she will sail an extended route, crossing the Pacific to America, and then returning home through the Panama Canal, the Oriana's design problems were complicated by the exigencies of long travel (people get bored in constricted quarters) and various climatic changes. A selection of the solution appears on these pages.

- 1—Oriana's tall prow bears the ship's badge and crown, designed by DRU.
- 2—One of Oriana's enclosed decks. Cane chairs designed by K. F. Taylor of the Royal College of Art.
- 3—Shelving and decorative panel of tourist-class library were designed by Laurence Scarfe.
- 4—Tourist-class purser's hall has bulkheads paneled in elm and ceilings in elm and acoustic tile.
- 5—Wall surfaces and ceiling of first-class Plough Tavern are in cedar, floor is white mosaic, bar top is copper.
- 6—Oriana's veranda cabins convert to living rooms during the day. All cabins designed by R. D. Russell & Partners.
- 7—Service station in first-class restaurant is topped with white laminated plastic. Doors of hot cupboard are faced with black laminated plastic; wall paneling is Brazilian rosewood.

4/5 6/7



1



1—Staircase in theatre connects orchestra with balcony. Wall paneling and woodwork is weathered sycamore; floor is carpeted in dark green to match theatre seats.

2—Design Research Unit designed this compass mounting. Pedestal is stove-enameled metal in matte black, and the hand rail is teak. Compass stands in first-class look-out.

3—Reclining and folding deck chair.

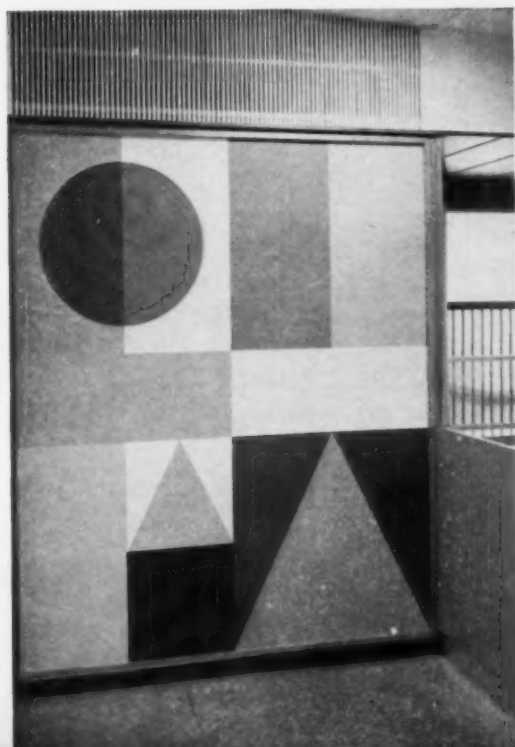
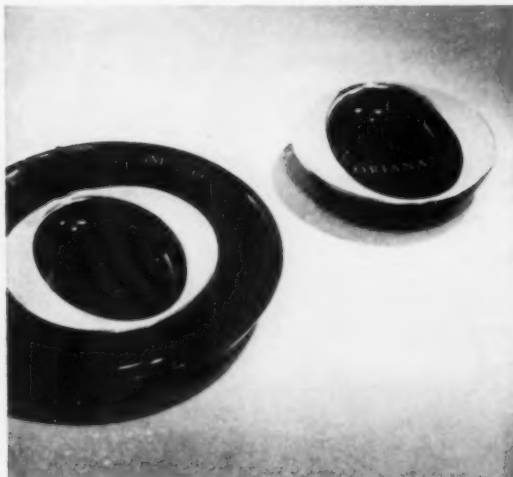
4—June Lyon of the Design Research Unit designed this climbing-frame for children's recreation room. It is made of teak mounted on aluminum supports.

2/3 4



- 5—Ronald Armstrong of Design Research Unit designed these ashtrays in two sizes for public rooms and cabins. Ashtrays are sea-green slipware with gold lettering and decoration.
- 6—Oriana has murals, bas-reliefs, paintings from 30 artists. This is a detail from a plastic mural by Robert Perritt of DRU; it decorates bulkhead in first-class Junior Club.
- 7—Oriana's stern bears ship's name in modified classical Roman letters.

5/6





PACKAGING HELPS GE TACKLE THE HOBBY MARKET

Flexible organization speeds GE's marketing of educational projects whose convertible package lids give the customer a built-in bonus

"Here's a company that knows how to kick the glue from its wheels," comments one admiring lieutenant in General Electric's blitzkrieg invasion of the educational kit market. Although until last June GE had no thought of making or marketing science kits, they unveiled a line at the national hobby show in Chicago on February 12 that rocked buyers back on their heels and that buyers at New York's International Toy Fair are now reviewing. Major credit for this accomplishment goes to merchandising manager Norman Huey (photo below), whose astute direction sliced the time schedule on GE's program from a normal two years down to six months. In addition to Huey and a smoothly coordinated GE staff, much credit also goes to the packaging ideas of a new design firm called Visual Marketing

(photo opposite shows president Arnold Copeland, in background, with associates Robert Kimura, left, and Robert Baker).

The project really began last Spring when GE announced a company-wide sales boost campaign called, unimaginatively enough, "Breakthrough '60." At the Radio-Receiver Department in Utica the campaign included a contest in which employees received cash awards for the best ideas for new company projects. More than a dozen volunteer teams came up with brief proposals for projects which the Radio-Receiver Department might profitably undertake. Robert Whitehouse, from the department's personnel section, was spokesman for a team which suggested marketing an educational science kit: with the same components used in regular GE radios, the team made a receiver which—theoretically, at least—a child could put together. The set won a \$50 prize for each team member, and marked GE's first tentative step toward a brand new market.

In early August, Norman Huey, the Radio-Receiver Department's manager of merchandising, officially assumed responsibility for what is still called simply the New Products Project. Almost immediately Huey called for a study of the entire educational kit market. And he hired the Flushing, New York, research firm of Marketing, Merchandising and Research, Inc., to report on consumer and trade attitudes toward science kits and to survey the market. Among their findings were such problems as flimsy boxes, lost parts, buyer



Norman Huey (above) talks with GE engineer while writer Leonard Engel and assistant Whitehouse look on. Opposite page: Visual Marketing president Arnold Copeland is flanked by associates Kimura and Baker.

uncertainty in matching the difficulty of the kit to the development of the child—problems that Huey believed could be solved through imaginative packaging. With this in mind, he telephoned designer Arnold Copeland, whose work he had used before and who two years previously had set up his own design firm in New York. The firm name, Visual Marketing, says a lot about the kind of design Copeland does. "We are interested in the seeing part of selling," Copeland likes to say, and includes corporate identity programs, packaging, exhibit design, direct mail, and point-of-purchase material within the firm's scope.

What Huey presented to Copeland on their first meeting late last August was the breadboard circuit and proposal prepared by the Whitehouse team for the company contest. What Huey wanted from Copeland was a series of finished prototype packages for a line of seven scientific projects ranging from a transistor radio at \$10 to an advanced electronics laboratory at \$40. And he wanted them by October 12, in time for a decisive policy meeting called simply 20.7, an esoteric term that in GE language refers to the policy set up to govern which department will market a new product. In this case, the policy was carried out at a meeting—presided over by GE President Robert Paxton—of all appropriate division and department heads, each of whom had the opportunity to show how the projects fitted the scope of his unit and to bid on marketing the line. Huey's job was to win permission for his own division to market the projects, so that he could move ahead on actually making them. On October 12, the Visual Marketing team arrived in Utica with seven prototypes, but to do this they had accomplished a designer's prodigy of work in little more than a month. Here's how they did it.

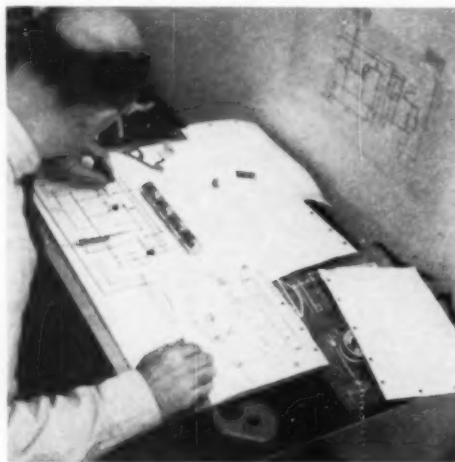
After his initial Utica visit, Copeland had plunged his staff immediately into planning. Splitting the assignment with associates Bob Kimura, who did much of the actual model building, and Bob Baker, who was responsible for graphics, Copeland called for a spot check on what hobby store dealers, their biggest poten-

GE engineers John Edwards and William Ferringo examine with Copeland a diamond shaped antenna, later rejected in favor of a more modern looking circular one.



tial customers, wanted in educational kit packaging. In all they covered 20 retail outlets, discussing packaging and display for about half an hour in each place. They also studied competitive kits. Commenting on their safari into toyland, Copeland recalls hobby dealers as a special breed. "Many of them," he says, "are grown-up boys with a dedication to hobby kits and strong opinions about what makes a good one. We found," continues Copeland, "that they objected most violently to hobby kits with cardboard lids—lids which hide the appealing 'hardware' inside and which take precious extra space in jammed display windows." And dealers wanted a package clearly describing the product to make it easier for inexperienced Christmas help to sell.

It was on the basis of these findings, and with clues from GE's initial studies, that Visual Marketing prepared their first prototype models. What Copeland hit upon was a new kind of package for this field: a see-through package whose lid serves as the housing for the assembled projects (see photos page 60). Copeland realized that a clear plastic lid would completely seal in the contents, yet enable customers to see the fascinating stuff inside. In fact, brightly colored wires and knobs became a main visual element in the design of each kit. And since the components were not only sealed



Robert Baker works on breadboard circuit based on original circuit (hanging on wall) submitted by the Whitehouse team for GE's Breakthrough '60 contest.

in the box but also sealed to a cardboard base beneath a thin, clear vinyl skin, no parts could be lost.

Huey is pleased with Visual Marketing's packaging solutions. "We feel that this is a new approach for the hobby industry," he says. "Previously, electronic kits were mainly components in a cardboard box. But we think the idea of a see-through lid that becomes part of the assembly is so good we're putting a patent on it. Another big advantage of our line is that once the box is sealed at the factory it never need be opened again until the customer gets it home. And since we are already in the electronics business, we hope to offer better quality than companies who normally manufacture lines of toys. The same engineering skill will go into these sets that goes into our regular lines. And we expect few complaints on operational effectiveness, since we're using 100 per cent quality control—each component will be tested before it leaves the factory."

The prototypes which Huey presented at the 20.7 meeting already had many of these elements incorporated into them, but a backbreaking amount of work still remained to prepare final models for the crucial Hobby Industry Association Trade Show in Chicago last month. (Since the bulk of the year's sales are made here and at the current New York toy show, it was imperative that final models be ready for them.

After the initial prototypes were approved early in



Huey examines see-through plastic lid which serves as housing for most of the assembled projects.

Photographer William Noyes helps Kimura and rest of Visual Marketing group load prototypes for decisive GE policy meeting in Utica.



October, Visual Marketing kept in regular touch with GE packaging engineers on dozens of problems concerning structure and technique. They also had to make sure the kits would meet quality control specifications on shipping, handling, etc. And, above all, of course, the projects had to work. Engineers determined physical design of circuits and mechanical parts, then checked each step of the assembly process to make sure the completed units worked. With the accounting section, Huey made final decisions on what could be included in each project. And Copeland, too, reported important production savings in art work and packaging: for example, he reduced four different lids to the same module so that a single size of plastic lid fits each of four projects.

In mid-November, Huey tapped popular science writer Leonard Engel to lead a task force of seven writers in preparing top grade instruction manuals that would combine assembly instructions with basic electronic principles. Engel, well known for his contributions to the *New York Times* magazine and to *Harper's*, assigned a specialist to work on each of the seven books. Like others who participated in the assignment, Engel and his writing team contributed some design ideas, too. For instance, from their special knowledge of children and teaching they pointed out that the transistor radio's original diamond-shaped loop antenna (above left) might be too difficult for a child to wind. The switch to a round loop antenna (photo, page 61) solved that problem and gave the set a more modern look, too. And Engel's team was especially enthusiastic about presenting the projects not as toys but as "real elec-

tronics." (This point was supported by one of GE's marketing studies indicating that in this field gift purchases above \$15 are often made by grandparents who want to help educate, rather than entertain, a youngster.)

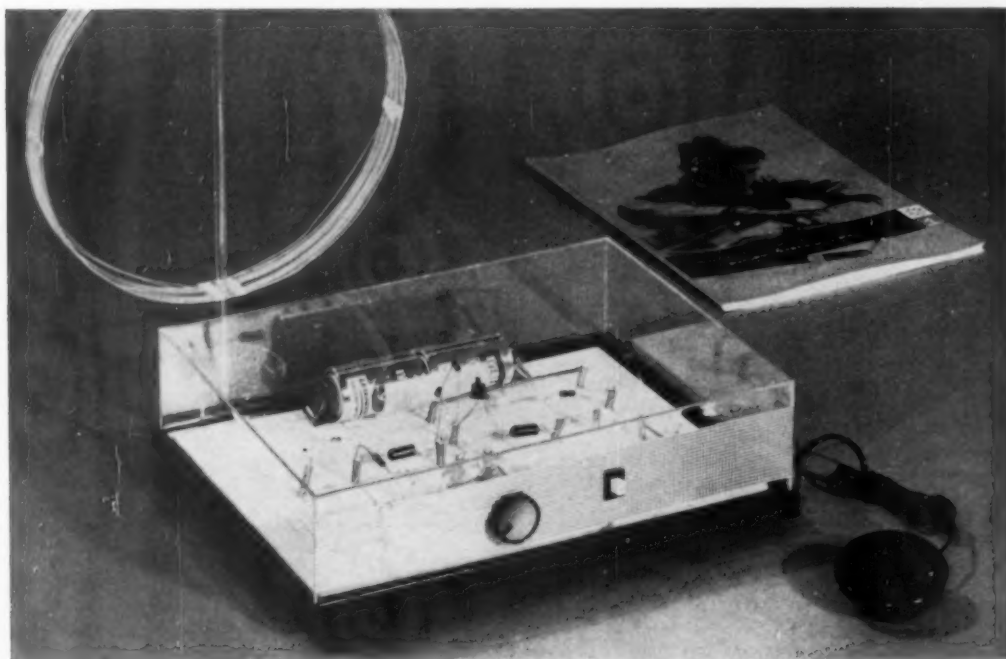
Although the line is now making a second debut at the toy fair in New York, Visual Marketing continues its involvement with such details of the assignment as point-of-sale material and exhibition stands used to present the line, while Huey and assistant Whitehouse are just beginning to face the not unwelcome problems of how to expand a promising line once it is launched.

The essential packaging concept for General Electric's educational projects is a clear plastic lid which allows the customer to see what's inside the package without opening it, and which becomes the housing for the project after the child assembles it. (In two of the laboratory projects, the lid becomes a tray for components.) To carry out the concept, designers at Visual Marketing resorted to a remarkably broad range of materials and packaging techniques. In the

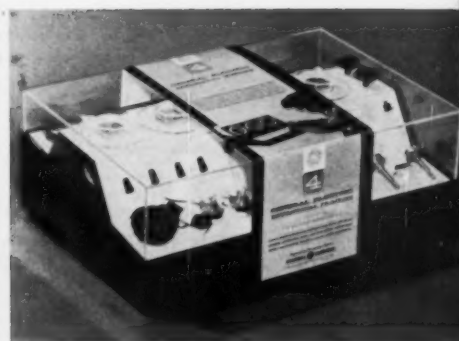
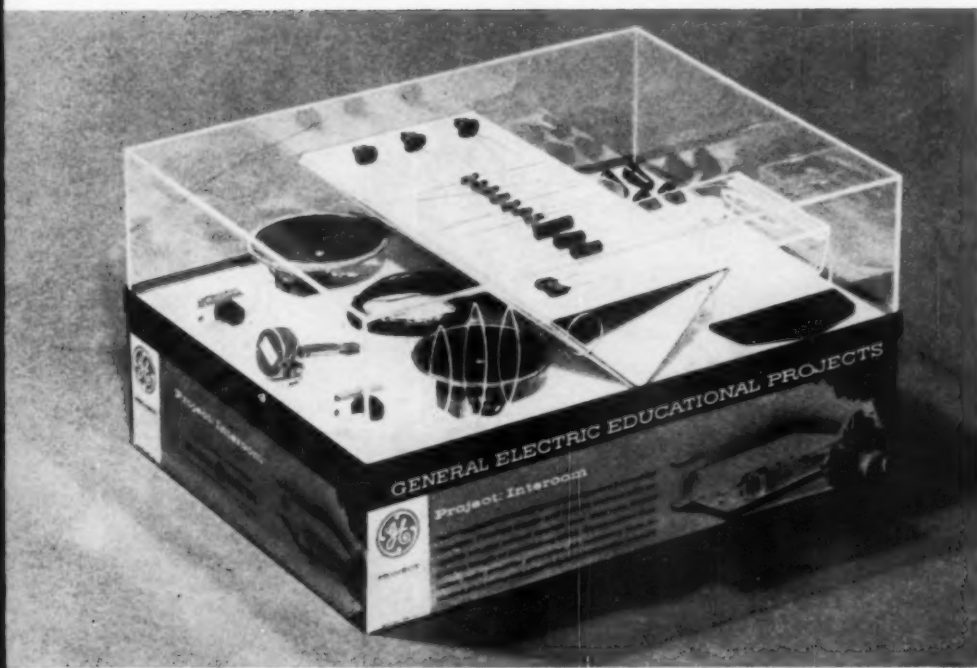
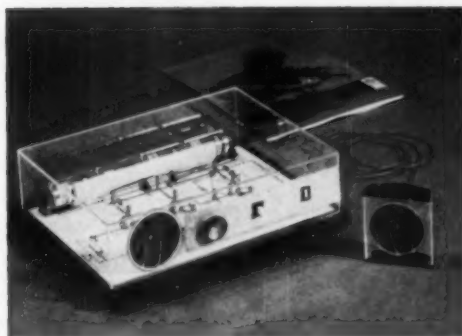
final models, Visual Marketing's packaging techniques include folding box, stripping, injection molding, and skin packaging. And the materials they specify range from polyethylene and chipboard to sheet steel. Typically, each package is covered with an injection-molded see-through lid which closes over a black, sheet steel frame. The frame holds a masonite work-board with, for some of the projects, a silk-screened breadboard circuit pattern. Within most of the kits, the designers have arranged components on a white perforated cardboard sheet placed on top of the work-board. When air is pulled through the perforations, a thin vinyl sheet is sucked, literally, skin-tight over each component. This has the effect of making each component stand out as though uncovered. More practically, it prevents parts from rolling around or getting lost. A chipboard set-up box also attaches to the steel frame, and inside of it a skin-packaged bottom tray holds additional components and an instruction manual. Ochre, olive green, red and blue shades on the graphic material differentiate the projects.—Ann Ferebee



Transistor radio below; package right. \$17.95.



Intercom set with package below. \$24.95.

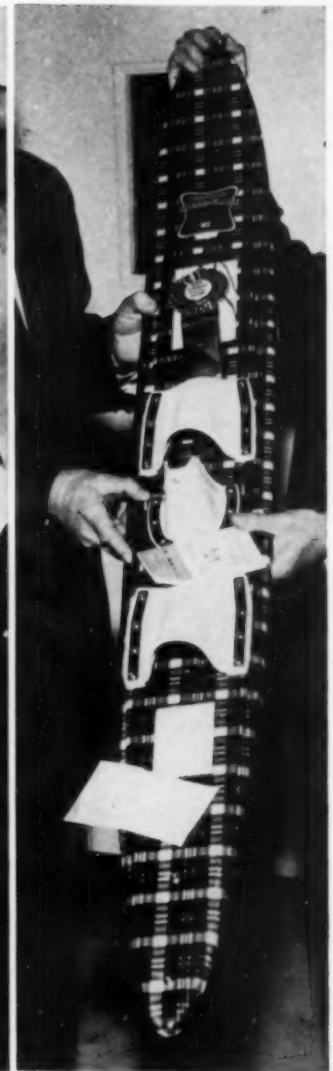


Analog computer package above; computer, left. \$29.95.

Design judges Waltman, Brennan, and Painter with model of Grand Prize-winning whaleboat

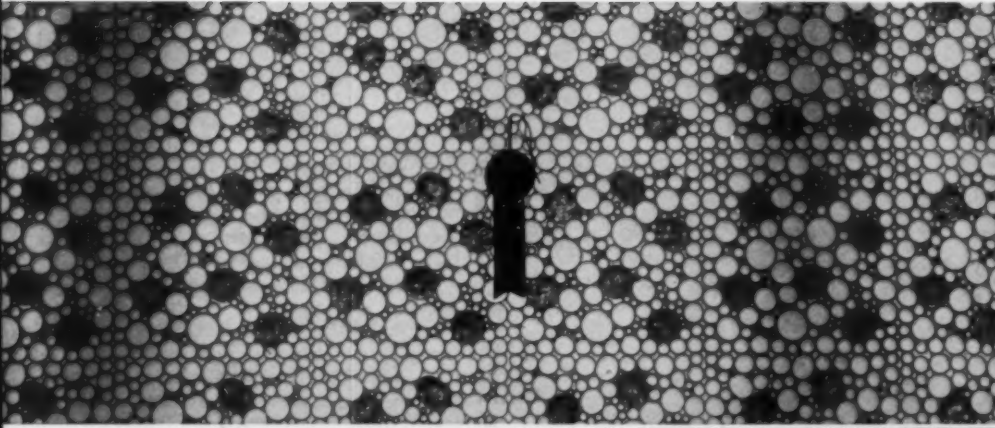


Award-winning water ski



REINFORCED PLASTICS ON SHOW

Bamboo-patterned panel and foghorn housing won category awards



Award-winning milk truck body dwarfs judge's hand; blue ribbon also went to contour chair

*"Some real advances but no marvels"
sums up the impression of both the
verbal and visual presentations at
this year's meeting of the Reinforced
Plastics Division of the Society
of the Plastics Industry*

Thirteen hundred people from the United States and nine foreign countries paid an average of \$30 apiece to absorb as much as they could of 90 technical papers presented at the 16th annual conference and exhibit of the Reinforced Plastics Division of the Society of the Plastics Industry, February 7th through 9th, at the Edgewater Beach Hotel, Chicago. The papers treated such subjects as the molding of space ships, building panels, and boat hulls, and data on materials research, properties and testing, premix, glass-resin interface, and new applications for reinforced plastics. For the

most part the papers tended to be pretty abstruse for non-plastics engineers (e.g. the award-winning "New Qualitative and Quantitative Analytical Methods for Coupling Agents on Glass Cloth"), although Brooks Stevens did speak in more familiar language on "Industrial Design in the Boating Market Place."

Between conference sessions the registrants wandered through an informal ballroom exhibit of each other's most noteworthy (but not necessarily most recent) products. The exhibit is by invitation to all the firms participating in

Man-in-space couch molded for NASA by McDonnell Aircraft



the conference, and is a strictly intramural affair. But for the third year in a row, acknowledging the need for a wider audience, the Division's exhibit committee asked three industrial designers to serve as judges in a design competition to pick the most interesting new products in nine categories and to select a Grand Award winner. All 10 were selected for utility, moldability, appearance, material selection, color, and originality of application or design. The three judges were Frederick S. Brennan of Latham, Tyler, Jensen; David Painter of Painter, Teague & Petertil; and Charles

T. Waltman of Waltman Associates.

For Grand Award they picked Lunn Laminates' whale boat for the Navy. This earned Lunn a specially designed Steuben Glass crystal sculpture, Counterpoise, donated by Owens-Corning Fiberglas. The nine categories and their winners were: Aviation, very high frequency radio antenna molded by Collins Radio Company; Building and Construction, translucent sandwich panel by Russell Reinforced Plastics Corp.; Consumer, George Nelson's contour chair for Herman Miller, molded by

Cincinnati Milling Machine Company; Materials Handling, stacked tote boxes, G. B. Lewis Company; Military, missile-like tow target, Hayes Corp.; Process and Industrial Equipment, motor cooling fan, Fiberte Corp.; Sporting Goods, water skis, Kimball Manufacturing Company; Transportation, dairy truck, Dairy Equipment Company; General, fog-horn housing by Wallace &

and this was a help.

The *pièce de résistance*—judging by the official excitement that introduced it—was a genuine astronaut (human, not simian) couch.

The individual displays were apparently subject to the sketchiest kind of planning. Perhaps this could be excused on the grounds that the exhibit was only incidental to the conference, but it does seem that an industry actively seeking to enlarge its role—to sell itself as a production technique—could have made more than a passing effort to make its exhibit "read" visually. It was a rather dismal failure in design communication. Of course if the reinforced plastics people wish to talk only to their kind, that's their business. But this would seem to be contrary to the stated aims of the industry, i.e. stimulating the use of reinforced plastics.



Bus part, Orrville

Tiernan, Inc. A selection of these winners appears on the preceding pages.

So much for facts.

In the opinion of most of the participants the show indicated that the past year had produced general refinements in the physical properties of the material, and in techniques and systems, rather than any startling innovations. The display as a display—i.e. as a spectator sport—left something to be desired. No attempt was made to explain why the various fiberglass objects and components were there, or to suggest what conclusion one should draw. One was left with the uneasy suspicion that either knowledge of a secret code was required, or that the reasons were too obvious to need explanation. There was, of course, publicity material that explained some of this, after a fashion. But who reads it?

Although awards were made in all 10 categories, including the "Best-of-Breed" or grand prize-winner, no explanations were given for the choices. However, they were clearly marked with blue ribbons similar to those used at 4-H fairs,

There were, however, some points of interest. One was the industry's increasing capacity to deal with large forms in several techniques. Finishes, particularly, are improved. The large gear housing molded by Glasply Corp. (right), the bus front-end panel by Orrville Body Company (above), and



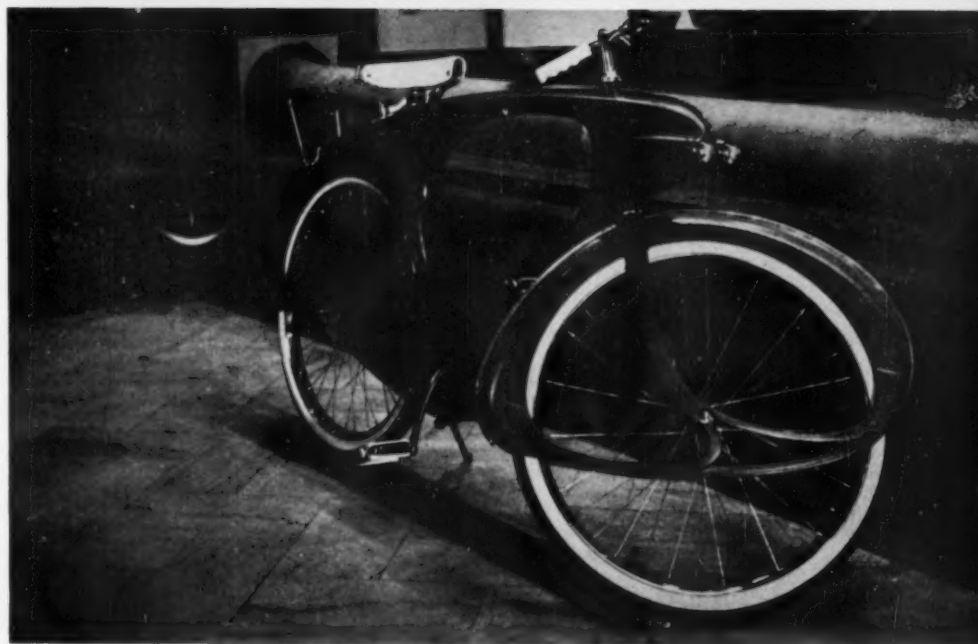
Casket, Polycrest Plastics

the burial vault by Polycrest Plastics, Inc. (above) were good examples. Another outstanding item in terms of material was a bicycle by George Morrell Company (right). Although it may not be the best expression of what a reinforced plastic bicycle could look like, it nonetheless represents an interesting break with

tradition. Still another new material-use was the award-winning Kimball water ski (page 62) with an integrally molded plaid pattern, marking the entry of plastics into an area previously dominated by wood.

Some products displayed complex and highly sophisticated molding techniques. The Wallace & Tiernan fog-horn housing (page 63) was an outstanding example and deserved the award that it got. But I could not always agree with the judge's choices. In particular, I felt that the selection of the translucent sandwich panel (page 63) was a poor one. The colors are bad, the repeat pattern is painfully obvious, and it is altogether a dull copy of a bamboo section screen. (I make this judgment in full recognition of the fact that I do not know what special criteria may have been applied to its selection).

The only technical information of interest to me was, strictly speaking, not a technique. It has to do rather with a means of putting a technique at the service of a user without saddling him with high initial investments. IDEA, Industrial Development & Equipment Agency, is a new firm that leases fiberglass and foam spray equipment to small industries using plastics. Its four major pieces of equipment are the Peterson Foam Head, a portable unit for "pouring" applications of foam; the Graco Hydra-Cat, a single-unit mixing system capable of handling polyesters, polyurethanes, and epoxy resins for spray or extrusion techniques; the Peterson Glass Chopper and Twin-Tip Gun; and a portable fiberglass-resin supply system by Chrom-O-Lite. IDEA's idea seems a new attack on a recurring problem. Despite all the blandishments of prime materials producers aimed at creating larger areas of use for their products, little has been done to solve the problem of initial tool costs. This approach seems a good one.

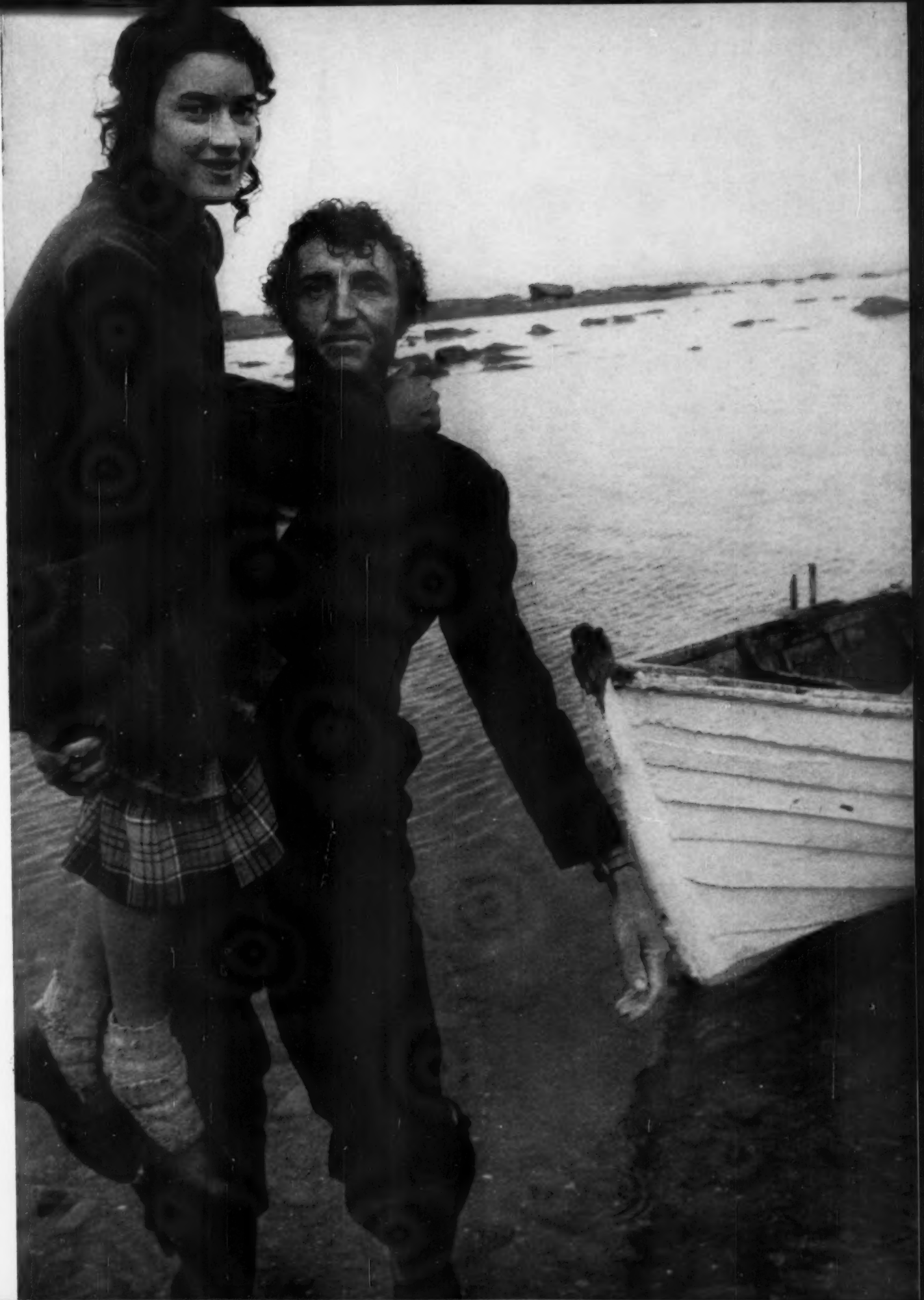


Bicycle, George Morrell

PICTURES WITHOUT TITLES

To most designers photography is a hobby so natural that it can almost be taken for granted. But to package designer Harry Lapow it never was a hobby (he never even took a picture until eight years ago) and now it is much more than that—an important means of expressing personal involvement. “I don’t go around *looking* for pictures,” Lapow says. “Something affects me, and I just begin shooting—very fast and very nervously because that’s the way I am. I never plan what I want to do, but when I see what I’ve got I try to strengthen the effect through the printing, which I always do myself.” Most of the photographs shown on these pages were taken on trips to Europe and Nova Scotia.







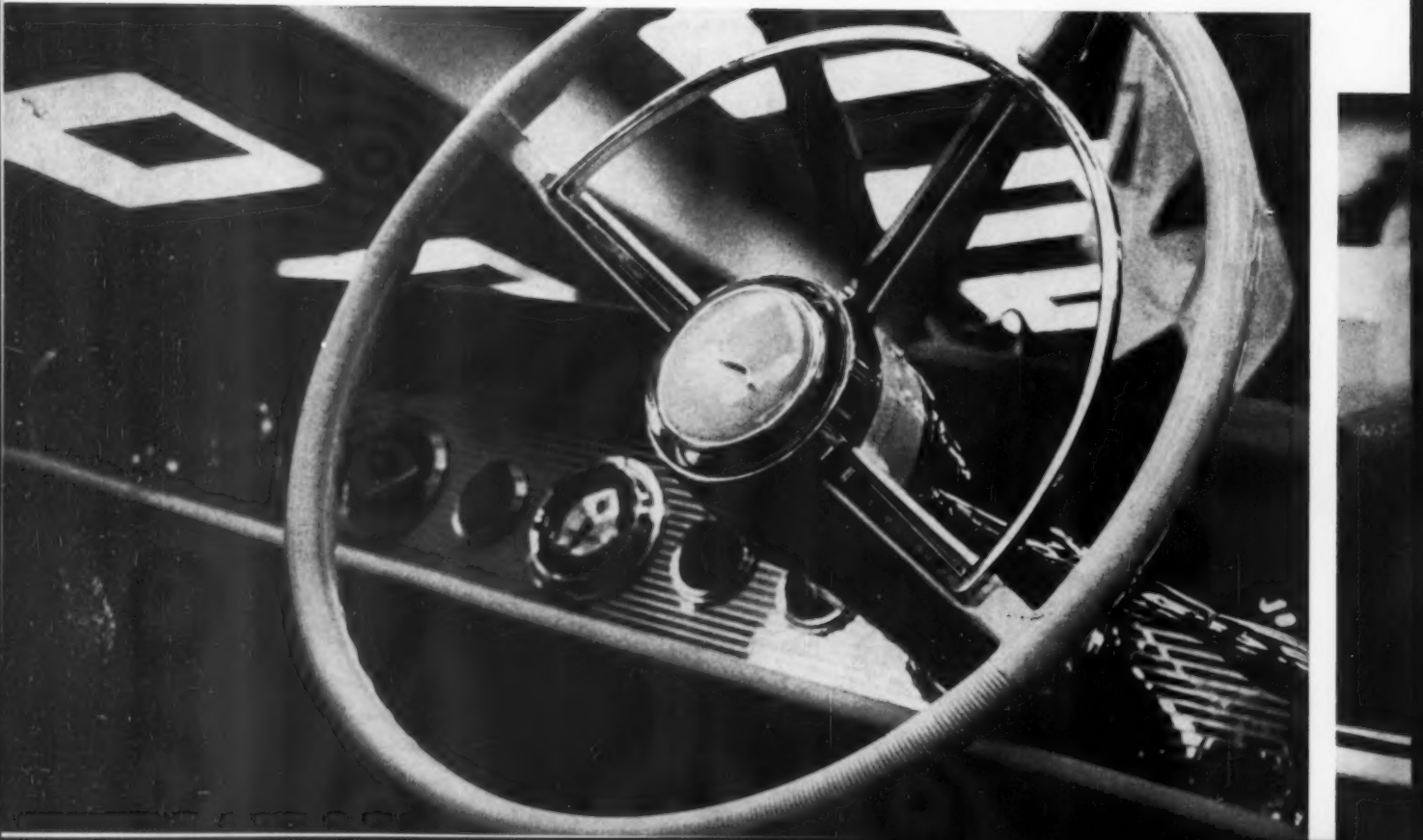
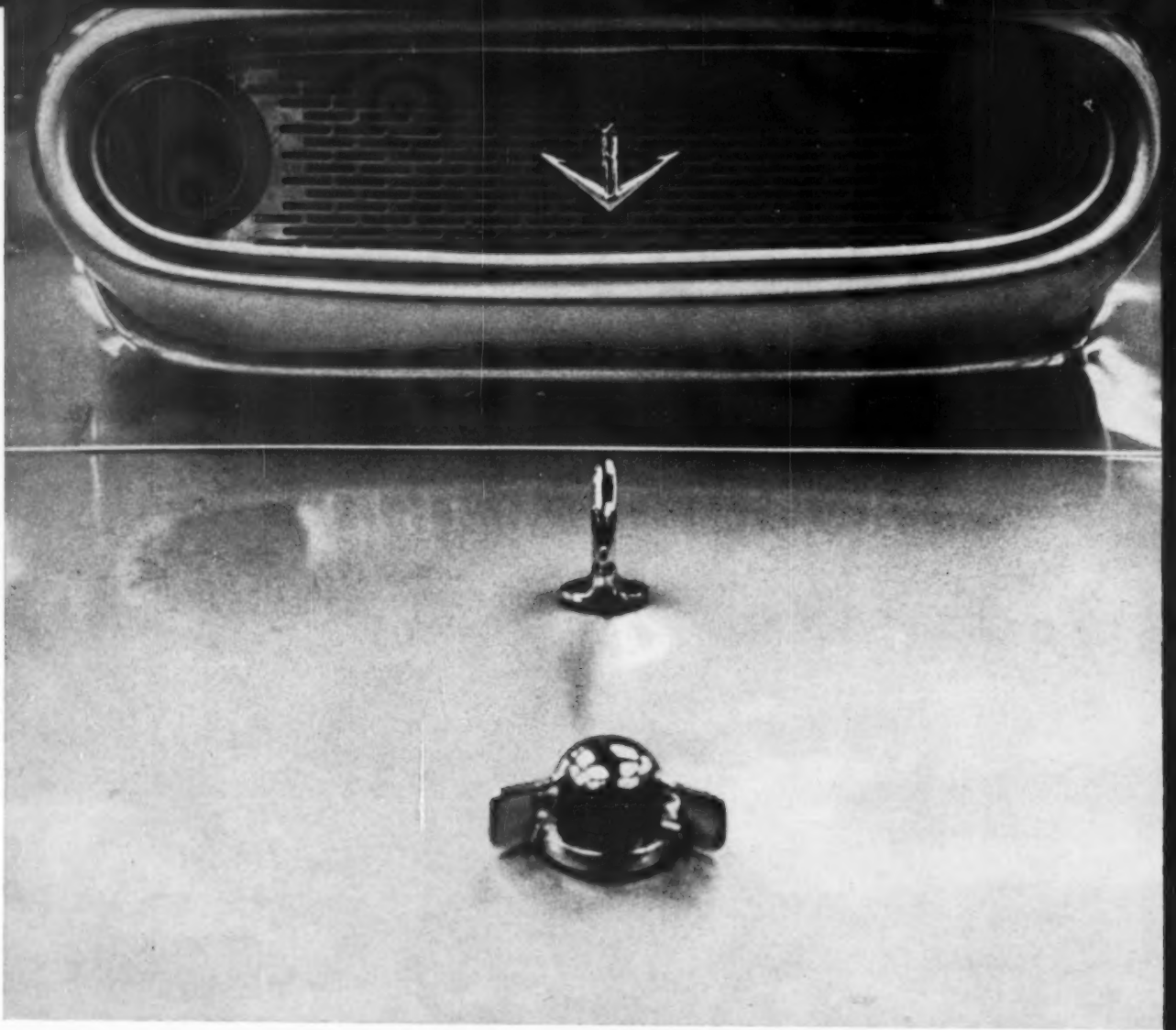
LAPOW

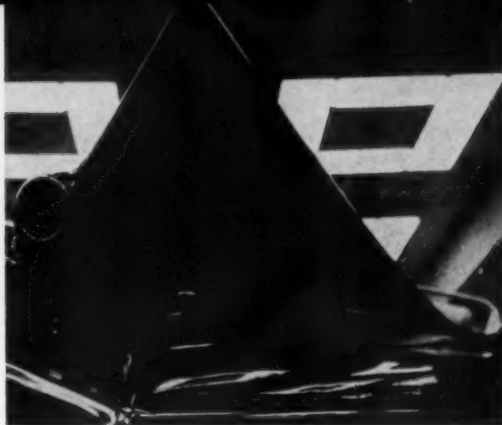
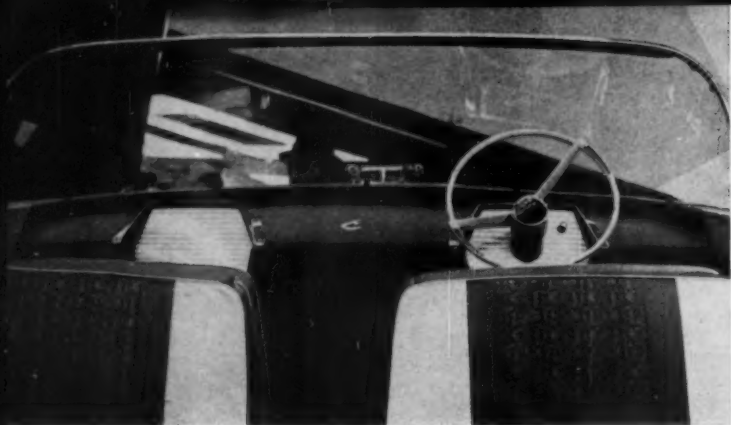


LAPOW









BOAT STYLING still hasn't come far from shore. These photographs of dashboard details, dual exhaust units, air intakes and fins were not taken at an exhibition of the automotive trends of the fifties. They were taken at the 51st annual National Motor Boat Show, sponsored by the National Association of Engine and Boat Manufacturers. Some knowledgeable observers ridicule the NAEBM's official boast that there are now 8,025,000 pleasure boats in the United States, but the 1961 show nevertheless makes plain that there's gold in them thar hulls. Much of the gold is liberally sprinkled around as trim and upholstery too, which is one reason that the most refreshing, if not the most radical, vessel on display was Whirlwind Boat's outboard-powered tugboat, shown overleaf. Like an electric train, the tug was ostensibly designed for children, but shrewdly marketed with the conviction that its authentic charm would also appeal to those nostalgic fathers who long for boats that look something like boats.



Photographs on this spread by Maude Dorr



Brooks Stevens and Heli-Bout



Whirlwind's junior tugboat

A marine turbine engine, aluminum planking, and a boat designed to take to the air in case of emergency, impatience, or a mere whim—these are some of the developments that interested designer John Beinert, whose observations on the boat show follow:

The general appearance of all but a handful of boats on the market this year would seem to indicate that anyone interested in making a quick killing on the market might do well to investigate metal polish stocks. In anticipation of the increasing demand for this most necessary ingredient to smart boating, the Simonize Company, for the first time in my memory, took a booth at the Boat Show, and displayed a complete line of polishing and cleaning agents. There was not a holystone to be seen anywhere.

Boating this year leaves little undesigned. I could find only one basic item of equipment that remains recognizably in its original, somewhat primitive form—the “head.” I intend to claim this as my territory, and warn interlopers that a Dutch curse will be hurled at anyone undertaking to revamp this plumber’s nightmare. *Something* has to be left to the old. [Heads remain heads, but some of their components have been conveniently redesigned.—e.g. Raritan’s “High-boy” electric toilet made of Implex.—ED.]

As in past years, reinforced plastics dominate small-hull construction and most hulls show signs of improved molding techniques. Winner, for example, has achieved a textured finish that would have been impossible only a few years ago; compound curves, once the molder’s curse, are used in abundance, and any designer who expects to be working in this medium ought to study the results.

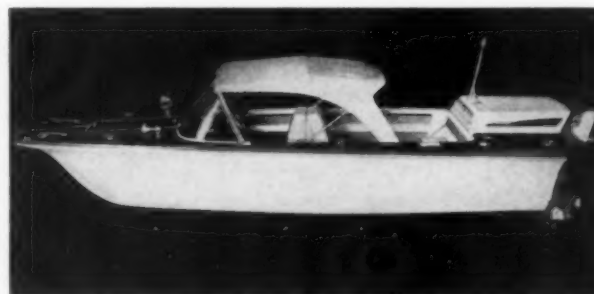
As fiberglass surges ahead, aluminum fabricators try to catch up. Avro Limited has introduced a new technique—aluminum planking. This is not quite as illogical as it seems. The metal does offer such practical advantages as imperviousness to rot and resistance to corrosion, and if expensive forming dies are not needed it is quite possible to use conventional building techniques by substituting aluminum and riveting for wood and screws. The metal planks bend

as easily as wood does, and the riveting assures a watertight joint when backed up with longitudinal battens and faying compound.

Any reporter on the boat show would lose his license if he failed to mention the latest jape of the Evinrude people. Brooks Stevens has once again created a noteworthy conversation piece (this is in fact what the manufacturer candidly calls it)—a combination runabout and helicopter called the Heli-bout.

Scott has now integrated its motors with a reinforced plastic hull of its own design and manufacture, the first time a manufacturer has done this. Designed to match the motor, the hull sports such conveniences as a bow ladder for skiers, a seat that converts to a chaise longue, and an enclosed motor well.

Boeing Aircraft was at the show with its new turbine. Originally and successfully designed for trucks and cars, the engine is applicable to large boats, and



1961 Flying Scott



Avro's planked aluminum hull

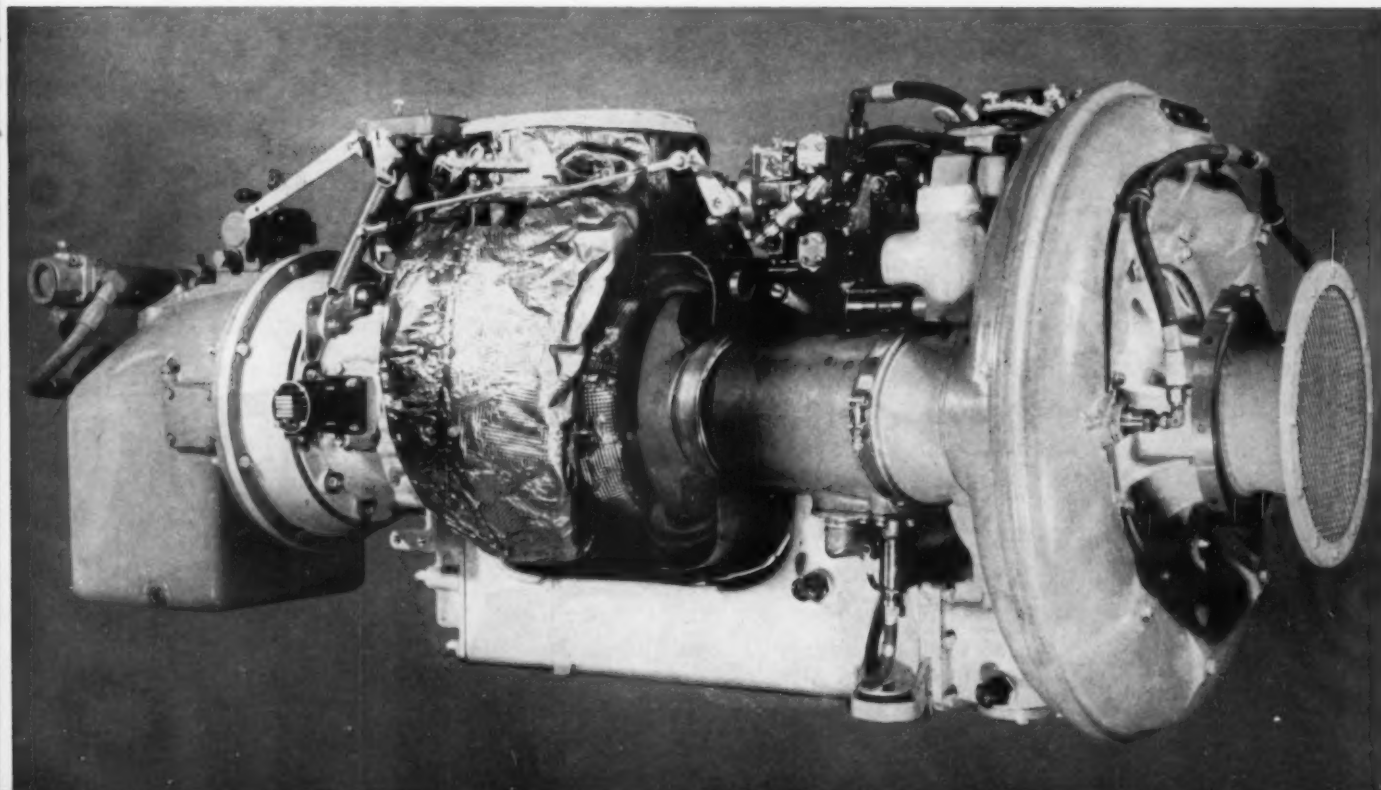
unquestionably smaller units will be made available. When they are, they will be a real threat to the outboard up-and-down engines.

Paint manufacturers have widened their palette range: Smith-Valspar has a dispenser bar something like the one Raymond Spilman did for Standard-Toch a few years ago. Urethane and epoxy paints are not emphasized quite as much as they were last year.

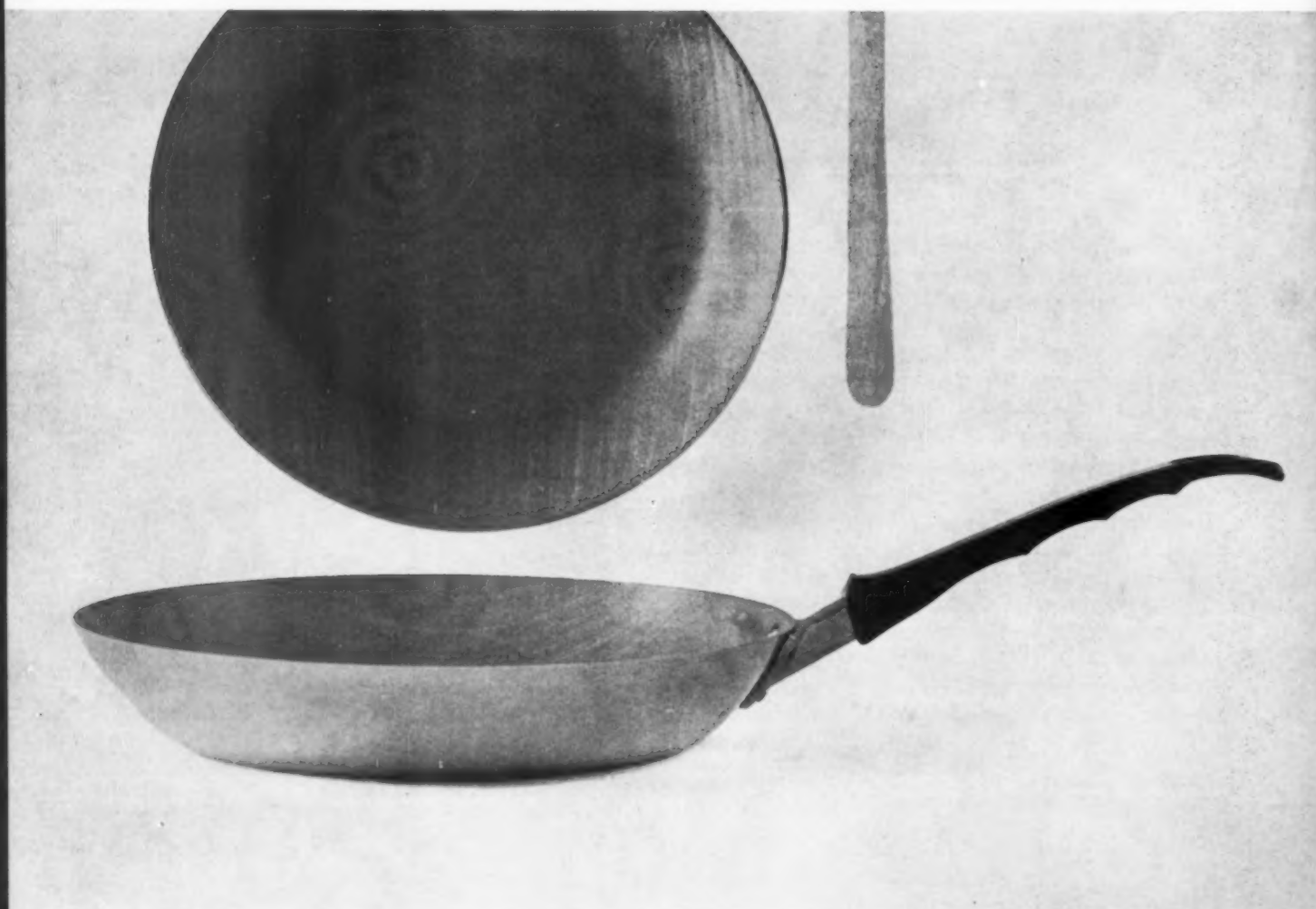
The electronics industry is well represented, with fine utility design featured by most manufacturers. One outfit has developed a ski phone that permits talk between skier and driver. In the same vein, Capitol Copter has a low-type helicopter that can be hooked up to a runabout. This thing actually works; it can hold two people, and starts ascending when speed reaches 15 miles per hour. It's possible that the next America's Cup race will be covered by reporters sending stories back while coptering over the course.

Boeing's turbo-mariner

Raritan's "High-boy" electric toilet

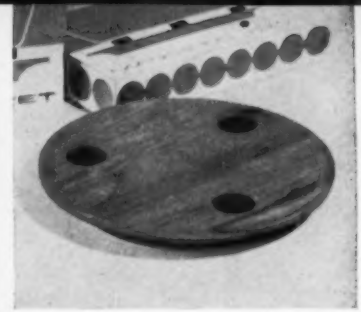
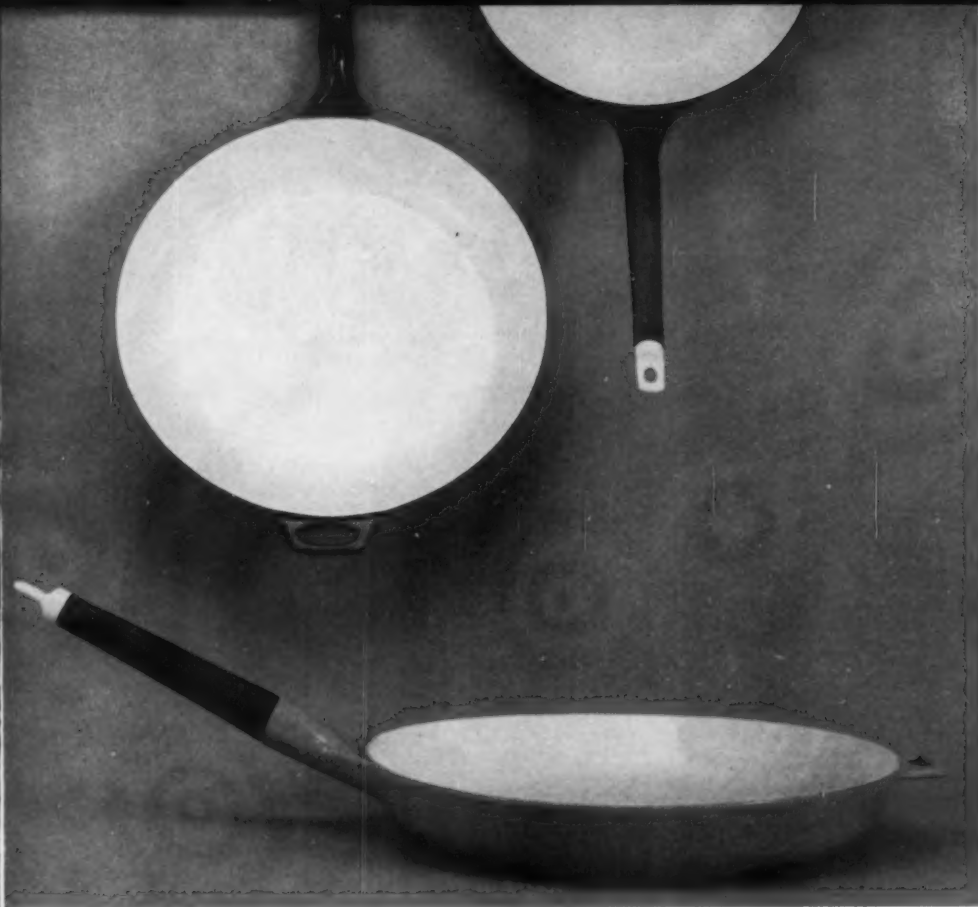


DESIGN REVIEW *Housewares*



1. Frying pan, T-Fal Corp.

If January's big housewares market is any indication, the gimmick is still king and design judgments are based on such criteria as the number of holes in a steam iron (no one seems to question whether more holes mean more efficient ironing). Now that everyone has produced an electric can opener, air purifiers and deodorizers are the big thing. They come in table to console sizes, but almost all of them are square (for an exception, see page 80). The other big thing is an old favorite, the barbecue, now factored out to standard model—circular firepan, semi-circular windbreak, tripod legs. It is apparently being produced by everyone with tin snips. To go with the barbecue there is a proliferating family of outdoor cookware distantly related to the old agate-ware, but done up in decals of rustic Americana. Possibly the most novel "houseware" is Westinghouse's window-sill-size electric greenhouse.



4. Trivet, Copco.

Pots and Pans



2/3. Skillets and casseroles, Copco.

1. T-Fal aluminum fry pan, made in France, is coated on inside with du Pont's Teflon; the coating eliminates or cuts down need for cooking fats, makes for easier cleaning due to non-stick quality. Teflon is silver-gray, has a grained pattern. Handle shoots off at a sharp angle and has elegantly contoured grips, which look more ergonomic than they are. Joining hardware on stem is rather clumsy. Designer: Marc Gregoire.

2/3/4. Copco cast iron and porcelain enamel skillets have unusually shallow sloping sides. Shank of handle is cast in one piece with body, wood grip tapers to enamelled-metal hanging loop. Small auxiliary handle is also cast with body. Copco casseroles belong to same family as skillets, have exceptionally thin casting, look more like serving dishes that can be used for cooking than pots that pass for serving pieces. Graceful rim is actually extension of sides, turned to reveal white porcelain lining in contrast with colored exterior. Cover fits below rim, hiding juncture, thus emphasizes rim curve. Pedestal warming stand is 7 inches high, separates in middle (top contains wick, bottom holds alcohol); protruding handle is flame control. Teak trivet is inset with raised magnetic circles that clamp trivet to bottom of pot—a neat way to take it with you. Designer: Michael Lax.

5/6. Casserole and pot, Prizer-Ware.



5/6. Prizer - Ware porcelain - enameled, cast-iron cookware line is notable U. S. example of a kind of ware whose market appearances have been dominated by European producers. Skillets have laminated wood pistol-grip handles; pots have neatly scaled self-handles, heat-proof knobs. Line looks nicest in solid colors—turquoise and an Indian red—but it is also available in Ivy and Dutch Tulip patterns, and as such patterns go, these come off rather nicely. Designer: Staff, with Philip Johnson, consultant.



1. Broiler, Mirro Aluminum Co.

2. Broiler-Server, Gala Appliance Mfg.



3. Broiler, Gala Appliance Mfg.



DESIGN REVIEW

Electric Kitchenware

1. Mirro dome-top broiler has heating unit in cover. Its shape is fine, but the graphics are nondescript, the cord unit is awkwardly placed, and the handle on the cover—designed to hold lid steady when it rests on table—adds nothing to the unit's appearance.
Staff design.
2. Gala cooking grill is a new idea in cook-and-serve field. Like Mirro broiler (above), cover holds heating unit. Grill rests in cast aluminum base which, in turn, rests on hardwood platter. Unit can be used without cover, as a serving piece.
Staff design.
3. Gala broiler avoids decoration, illusions, complicated control panel; is sturdy, simply operated. Dome top fits over warming-frying area to make baker and ovenette. Unit utilizes all surfaces, performs many functions.
Staff design.

4. Casco Chef-Mate portable power base runs five (to date) attachments: mixer, juicer, blender, knife sharpener, coffee grinder. Base and mixer unit are cast zinc coated with Cymel in natural beige, aluminum bases of sharpener and blender are enamelled to match. Bowls and reamer are polystyrene, juice strainer is aluminum. Blender body is transparent amber polystyrene with brown hard rubber cover, amber polystyrene knob—and is just about the best-looking blender on the market.
Designer: Loewy and Snaith Inc.
5. Iona electric drink mixer of enameled steel has only one thing to do, is designed to do it. Motor housing is unpretentious; graphics are unassuming. In white with brushed aluminum wrap-around.
Designer: Gordon Florian.
6. Dominion mixer hangs on wall, provides storage for all parts. Cord wraps around shank of handle, beaters fit into special compartments on side. Idea is good, but fin shape unfortunate.
Designer: Gordon Florian.

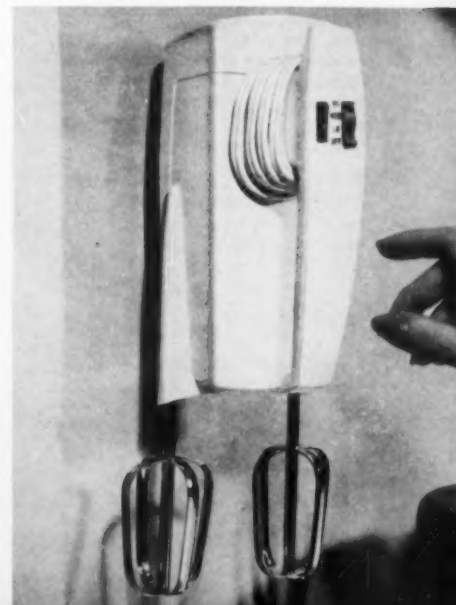


4. Appliance center, Casco Products Corp.

5. Drink mixer, Iona Mfg. Co.



6. Portable mixer, Dominion Electric Corp.



DESIGN REVIEW



1. Can opener, Ekco Products Co.



2. Camp lantern, American Thermos Products Co.

Odds and Ends

1. Ekco nickel-plated manual can opener is a plebian tool treated to some very subtle curves and angles. Plastic handles come in red or black, bearing is Delrin. Staff design.

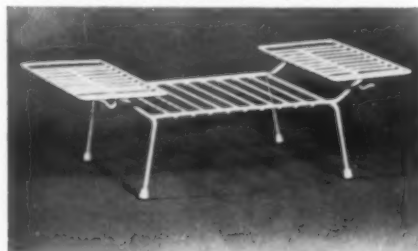
2. American Thermos gasoline camp lantern is a beautifully organized utilitarian object, from ventilating grille to soap-bubble-shaped globe. The only flaw is the trademark. Designer: Harold Hoenisch, staff.

3. Ekco beater has a re-designed grip with continuously rounded contours; ignoring secondary use of handle itself, it has hole for hanging. Plastic parts come in either black or beige. Stainless steel beaters are bell-shaped. Staff design.

4. Rival meat grinder/food chopper has vacuum-base lock, stands less than nine inches. Curved arm and extra long handle make cranking easier. White with chrome trim. Staff design.

5. Artistic Wire cupboard caddy uses split-level shelves to fit a maximum of china into a minimum of space. Large plates fit beneath it; smaller plates, on main shelf; saucers and dishes on wings; cups hang beneath them. Designer: Kurt Christoffersen.

5. Cupboard dish rack, Artistic Wire Products Co.
6. Air freshener/deodorizer, Cory Corp.



6. Cory air freshener/deodorizer has gray and white polystyrene body; small red push-button is treated as element of graphics. Variation of shapes corresponds to function, especially in elongated exhaust grille. Designer: James Boulfy.

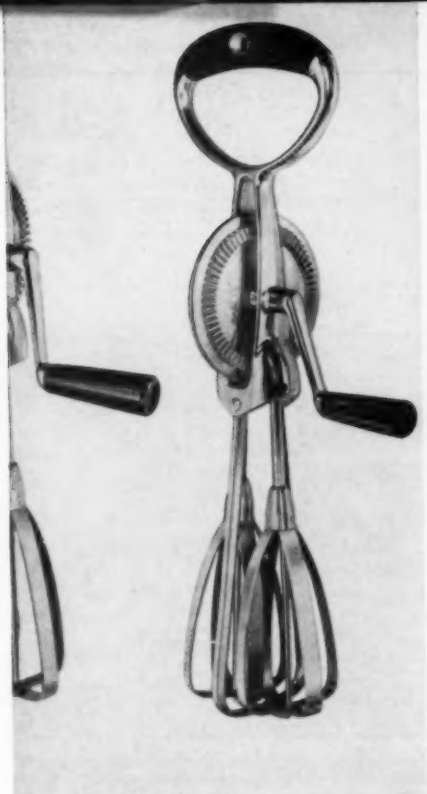
7. Richmond Cedar Works ice cream freezer substitutes a Marlex tub for the iron-bound bucket, and modernizes the churning mechanism too—crank, shaft, and gears are housed in continuously-curved crossbar. Staff design.

8. Elcond electric dish drier uses ordinary dish rack set upon drying unit. White enameled steel motor housing in canister shape is extension of flat drying area. Designer: Julius LaRaus, staff.



7. Ice cream freezer, Richmond Cedar Works Mfg. Corp.



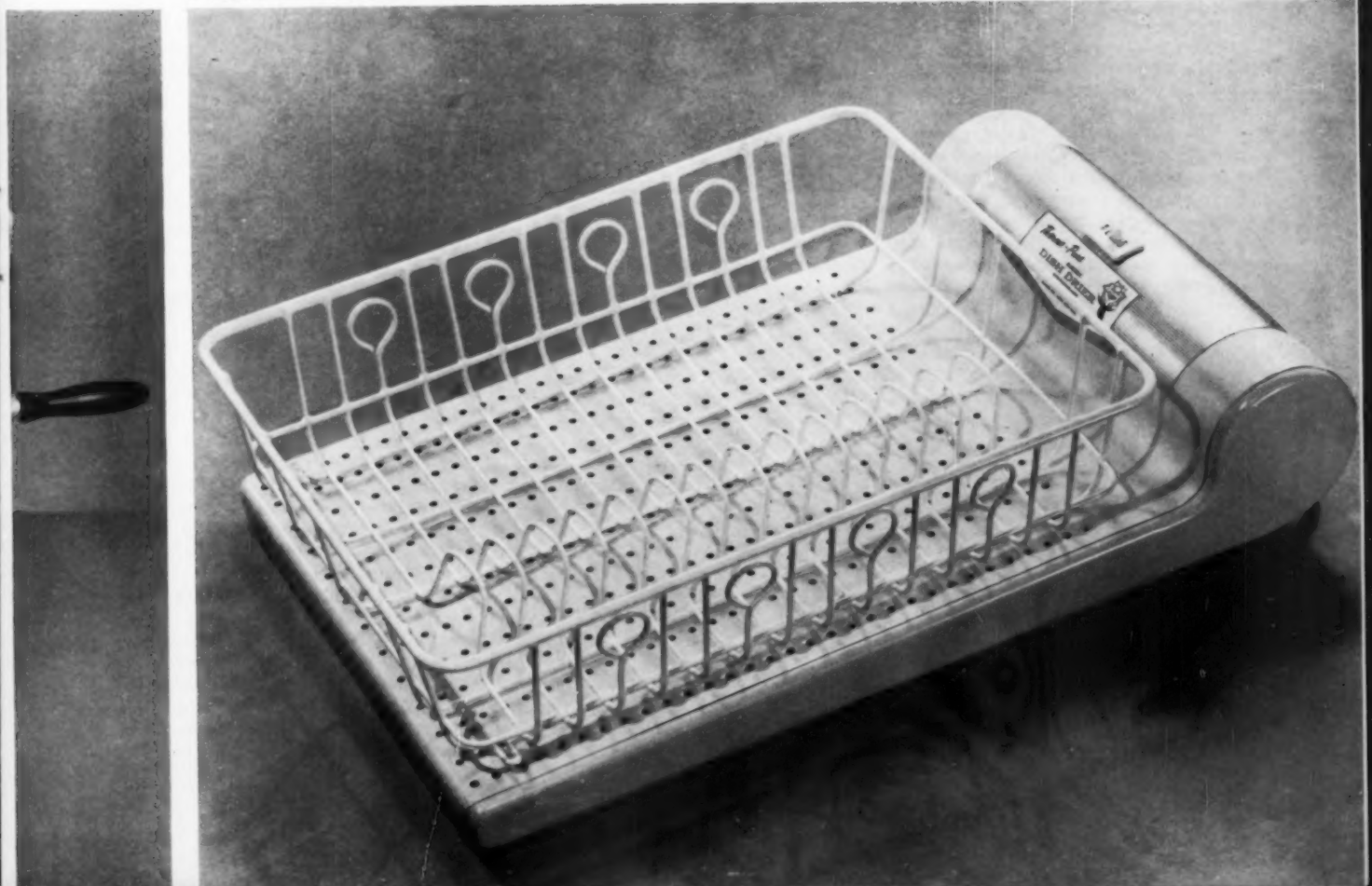


3. Beaters, Ekco Products Co.



4. Grinder/chopper, Rival Mfg. Co.

8. Electric dish drier, Elcond, Inc.



Computer-designed computer

Ascension Island, in the South Atlantic, will soon be the home of the first computer-designed computer. It will be used in connection with target tracking tests for Nike-Zeus, the Army's anti-missile defense system.

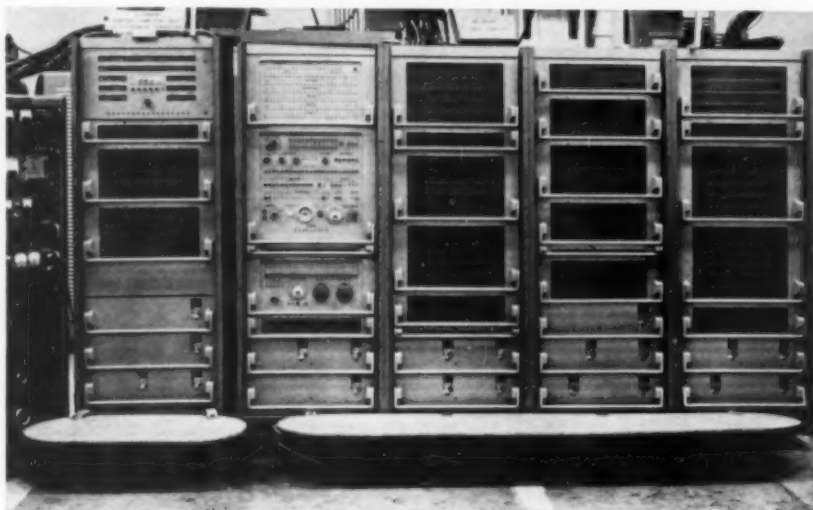
The entire logical network of the digital computer, consisting of 47 sub-assemblies, was built from wiring diagrams, assembly information, and parts lists produced by a specially programmed digital computer. The automatic process required less than 25 minutes per sub-assembly to produce manufacturing information which would have consumed four man-weeks of manual effort with conventional drafting methods. Known as BLADES, an acronym for Bell Laboratories Automatic Design System, the process is expected to save thousands of man-weeks of time in the design of missile defense equipment.

In addition, manufacturing information obtained from the "designing" computer can be converted into a control program for an automatic wiring machine, which would do the actual assembly work. Initial experiments on this aspect of the program are under way, and results are said to indicate that automatic wiring of the electronically-designed computer is feasible.

The BLADES process starts with engineers determining the logic network that will perform the necessary data processing operations. The network is then converted into a set of equations and given to the computer in the form of punched cards or tape. The computer uses the equations to produce sheets of instructions specifying the number of logic packages to be used in a sub-assembly. The instructions further detail the pins to be connected, the size and length of wire to be used in connecting them, and the wire paths to be followed for minimum path length. *Manufacturer: The process was developed by Bell Telephone Laboratories, Whippany, N. J. The computer was built by Western Electric Co., Burlington, N. C.*

Fluxless aluminum solder

A new aluminum solder has been developed for joining a number of dissimilar metals. When used on aluminum and its alloys, and on zinc, tin, pewter, and magnesium, it does not require the fluxes necessary with conventional solders. The solder can also be used on copper, brass, and the ferrous metals

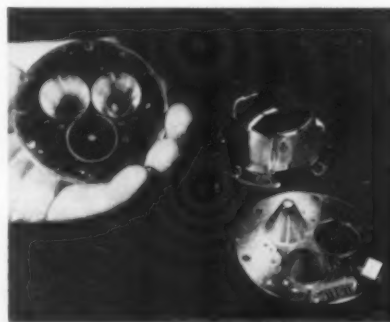


Computer-designed computer

with the aid of normally applied fluxes. Trademarked Tin-A-Lum, the solder melts at a temperature low enough (210 degrees C.) to eliminate the danger of metal destruction under heat. It may be used with an ordinary soldering iron or a light flame. Tin-A-Lum is said to be less corrosive than aluminum, and to yield a joint with a tensile strength of 27,000 psi. *Manufacturer: The product was developed in England by an independent inventor and is distributed in this country by Metals for Industry, Inc., Jersey City, N. J.*

Earth thermometer

Taking the earth's temperature, a global job, is being handled by a tiny (one-and-one-half ounce) device, a radiometer, in the Tiros II weather satellite. The device also determines the efficiency of the earth's metabolism by comparing the total energy received from the sun with the total thermal energy emitted by the



Earth thermometer

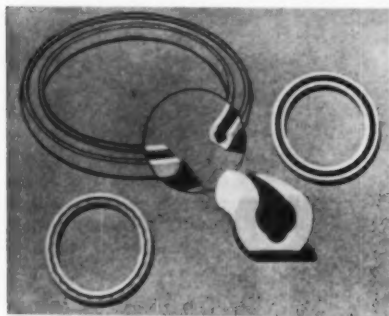
earth. This factor, known as heat balance, is a major influence on the weather, and is being studied in the hope of making weather forecasting more reliable.

Except for several minute electronic components and an aluminum base plate, the radiometer is all plastic. Even the conical-shaped optical elements which gather heat and other radiation from the earth are formed from a thin polyester sheet. Plastic is used because it is stable, strong, light, readily cemented to itself and metals, and because high-intensity random vibration does not harm it, so that the shock of take-off will not destroy the instrument. The functioning elements are two minute thermistor detector flakes which absorb the earth's radiation. Each is mounted on a tiny grid formed by six 3-mil strands of acrylic fibers. This information is eventually telemetered to monitoring stations on the ground. *Manufacturer: Barnes Engineering Company, Stamford, Conn.*

Teflon seals

Because of Teflon's chemical inertness, low friction, and resistance to high and low temperatures and pressures, it has frequently been considered for a seal in hydraulic mechanisms. But the material lacks resilience. This problem has now been solved by inserting a stainless steel wire expander into a Teflon ring; the metal holds the ring against the surface to be sealed, and overcomes the plastic's tendency to shrink away from the sealing surfaces when temperatures are reduced.

When used as a seal for hydraulic rods, the Teflon-and-metal insert, known as Tec-Ring, is said to have permitted no perceptible leakage after 400,000 cycles at 3000 psi and at 400 degrees F. Besides hydraulic applications, Tec-



Teflon seal with spring expander

Ring is recommended for use in the electro-mechanical field as static seals on connectors, actuators, etc. *Manufacturer: Tanner Engineering Company, Los Angeles, Cal.*

Abrasion-resistant material

A new sheet material which combines a brightly colored vinyl face with an asbestos backing has been developed for use as flooring in station wagons and boats, and as surfacing on appliances, vending machines, folding doors, and counters. Called Armstrong Autocord, the material is said to be particularly resistant to abrasion; it is also highly flexible and bondable to all surfaces with a variety of adhesives. Autocord is available in green, blue, fawn, turquoise, gray, maroon, and red in die cut parts up to 54 inches, or in standard 60 square yard rolls. *Manufacturer: Armstrong Cork Company, Lancaster, Pa.*

Keeping up the heart beat

An electrical cardiac emergency resuscitation system combining two new transistorized devices has recently been marketed. One device is a small portable self-powered (by mercury batteries) "cardiac pacer" that electrically stimulates the heart with a pre-set pulse rate amplitude. Each of these factors can be varied over a wide range simply by adjusting a control knob; the wide range of pulse settings is also expected to be useful in experimental cardiac surgery involving animals. To insure proper operation, the pacer's circuitry can be tested by touching its output leads to a self-test terminal. Another indicator of proper performance is a small, bright lamp which flashes in synchronism with the pulse rate. The unit weighs two pounds and measures 3 by 5 by 2 1/2 inches.

The second half of the system is a

"cardiac monitor," a bedside unit which constantly monitors the patient's heart beat and, in the case of heart failure, causes the pacer to stimulate the heart at the pre-set pulse rate and amplitude. An additional feature of the monitor is the inclusion of an integral radio transmitter that broadcasts a coded alarm signal in case of emergency. *Manufacturer: Westinghouse Electronic Corporation, X-Ray and Industrial Electronics Division, Baltimore, Md.*

New welding process

A number of advantages are offered with a new process for welding medium strength steel. The process, called the Aircomatic CO₂ Sprayarc, combines the use of carbon dioxide with a low-alloy steel welding wire. Carbon dioxide is relatively cheap, and the process produces a quiet, spatter-free arc that yields sound welds with good appearance. Typical applications for the process are in tubing, landing mats, die posts, piping, car frames, compressor casings, farm machinery, etc. When made with the specified welding wire, the joints showed an ultimate tensile strength of 70,000 psi and a yield strength of 60,000 psi. *Manufacturer: Air Reduction Company, New York, N. Y.*

"Drawing" with tapes

A special beam compass for drafting circles and arcs has been added to the Chart-Pak drafting system. This system substitutes pressure-sensitive tapes with pre-printed patterns—including lines, bars, shapes, and symbols—for routing inking-in work on layouts, graphs, charts, and other visual presentations. The device for applying the tape, known as the Tape-Pen, is positioned at the circumference end of the beam compass. The



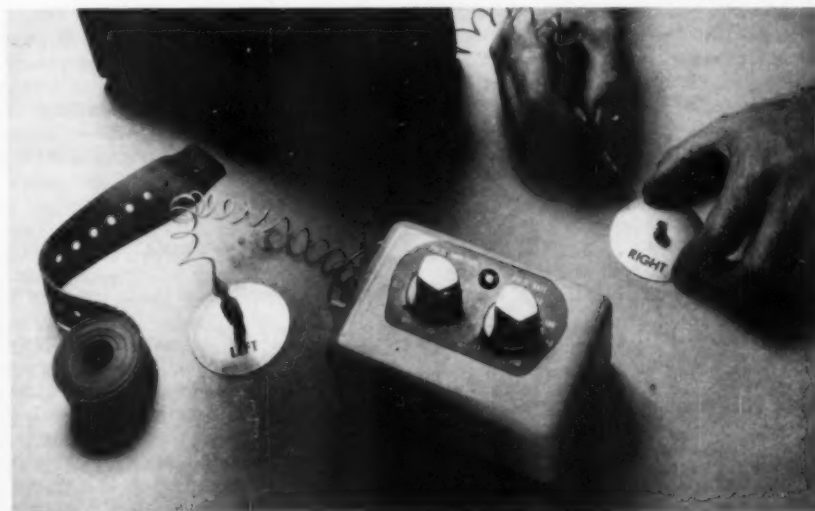
Compass for applying tapes

tape, which is flexible enough not to buckle or lift, may be rolled on the layout either free-hand or along a guide. When pressed down, it sticks to the layout; for corrections, it may be easily peeled off. The standard beam compass can apply circles of from one to nine inch radii; for larger circles, additional sections can be coupled to it. The unit, made of aluminum, sells for \$9.50. *Manufacturer: Chart-Pak, Inc., Leeds, Mass.*

Stronger honeycomb

Redesign of the cell structure of aluminum honeycomb core material, used in sandwich panel construction, offers panels that resist 25 times more crushing force—applied perpendicular to the cell axis—than an equal weight of conventional honeycomb. The new product, called Trussgrid, promises to improve the efficiency of present honeycomb designs, and permit the use of the material in new fields. The improvement results from the use of cross-laminated layers of corrugated aluminum foil, with the corrugations of each foil layer form-

Heart resuscitator



TECHNICS *continued*

ing a 90 degree angle with its neighbor. Thus, channels in alternate layers run in the same direction, providing strength and rigidity in three planes.

The material, said to have excellent machining characteristics, can be shaped by roll forming and by crushing. Cell reinforcement, usually required to permit machining, is not needed. It is available in blocks, tapers, contoured shapes, slices, and other shapes. *Manufacturer: General Grid Company, Army Chemical Center, Maryland.*

Custom wrenches

A new process makes it possible to produce special wrenches and similar hand tools to custom designs and in production quantities, at less than the cost of forgings or castings. The tools are flame-

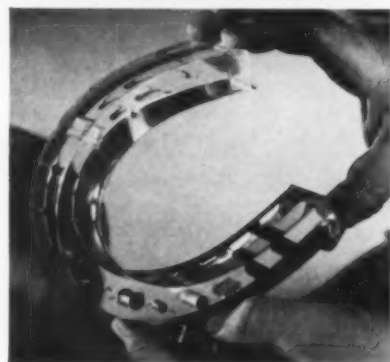
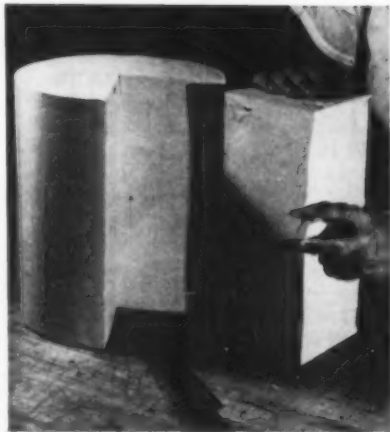


Custom wrenches

cut by a natural gas and oxygen process which is said to provide close tolerances and fine surface finish. The process is cooler than conventional oxy-acetylene flame processes, and therefore does not harden the surface of the part. This eliminates surface brittleness and reduces the cost of any machining that may be required. Any jaw configuration is possible, and no tooling is needed. On the wrench shown, contour and dimensional tolerances are held within 0.50 inch. *Manufacturer: Reliable Steel Plate Company, Cleveland, Ohio.*

Silicone improvements

Two new silicone product improvements have been announced by Dow Corning Corporation. One is a free-flowing fluid silicone rubber that vulcanizes at room temperature in sections of unlimited thickness. Identified as Silastic RTV 601, the new material cures without heat, pressure or moisture—even under totally confined air-tight conditions. Variations in thickness are said to have no significant effect on curing rate and uniformity. Venting during the cure is also unnecessary because no volatile by-products are



Silicones thick (top), flexible, transparent

released. After vulcanizing for 24 hours, parts made from the material can be put into full service at temperatures from minus 100 to 500 degrees F. Potential applications include flexible mold-making and casting of prototype parts, and encapsulating of totally enclosed electrical components.

The other development is a transparent silicone resin encapsulating material, Sylgard 182, that permits visual inspection of circuits and components within encapsulated assemblies. Replacement and repair procedures are simplified because a defective component can be spotted and the resin around it pared away with a knife. The component can then be replaced and new resin poured over the repaired area to restore the encapsulant to the original condition. *Manufacturer: Dow Corning Corporation, Midland, Mich.*

Cheap stainless steels

Ordinary, low-carbon steels can now be given the properties of stainless steel at a fraction of the cost of solid stainless. Known as Alphasizing, the process diffuses chromium into steel through a gaseous method, creating a chromium-rich surface and a true metallurgical alloy. Surface chromium content is reported to be in excess of 40 per cent, as compared to an overall maximum of

18 per cent in true stainless steels.

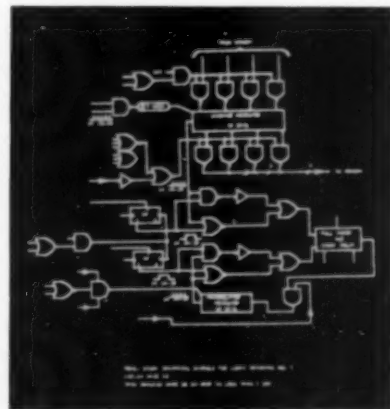
The new material, which can replace stainless steels in many applications at great cost savings, has excellent corrosion resistance, extreme surface hardness, heat oxidation resistance, and the same magnetic properties as annealed magnetic iron ingot. Its hardness is not destroyed by subsequent heat treatment, spot or seam welding, or arc welding.

The diffusion of chromium into metal has been studied both in Europe and the United States since the 1920's. However, it was only early last year that the process was perfected, and since then, leading commercial heat treaters have been licensed to use the Alphasizing process. Lukens Steel Company, Coatesville, Pa., is producing, on an experimental basis, plates, dished heads, and fabricated chemical vessels of Alphasized steel.

Hoeganaes Sponge Iron Corporation, Riverton, N. J., is offering the process to powdered metal part manufacturers. And one of the major automobile manufacturers is said to have contracted for the production of an engine part of Alphasized steel to replace stainless steel. The process has also been evaluated and approved for applications by Detroit Arsenal, Mack Truck Company, and others. *Manufacturer: Alloy Surfaces, Inc., Wilmington, Delaware, subsidiary of Reeves Soudcraft Corporation, New York.*

Drawing with electrons

Complex engineering drawings can now be produced by electron beams from information supplied by a computer in less than half a second. The Stromberg-Carlson S-C 4020 High-Speed Microfilm Recorder uses a computer-supplied mathematical code to direct electron beams to draw lines, curves, symbols, and dimensions. This automatic drafting method will substantially reduce design time, and eliminate costly mistakes in drawings for automated manufacturing. At present, several days are needed to translate the designer's ideas into engi-



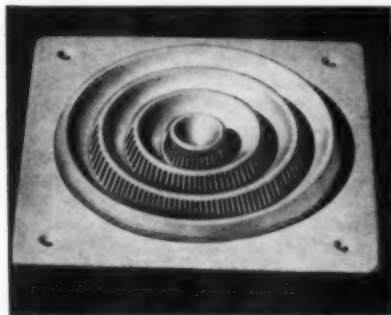
Electron-drawn diagram

neering drawings to be used by a machine tool operator to make parts.

The information is recorded by the computer on 35 mm film. Printing is accomplished by photographing displays on the face of a special electron tube, which presents impulses much like a television display. The compact size of the film also means minimum storage space. *Manufacturer: Stromberg-Carlson, Division of General Dynamics Corporation, San Diego, Calif.*

Plastic speaker baffles

Manufacture of plastic speaker baffles has taken an important step forward with the introduction of the first injection molded models. The new baffles, designated Coloramic, are available in three initial models—two 8-inch models for recessed mounting, and a wall intercom plate that accommodates a 3½-inch speaker. Molded of Monsanto Chemical Company's Lustrex Hi-Test 88 high-impact styrene, the baffles are said to have excellent sound reproduction. In addition, they will not chip, are corrosion resistant, can be easily drilled, and can



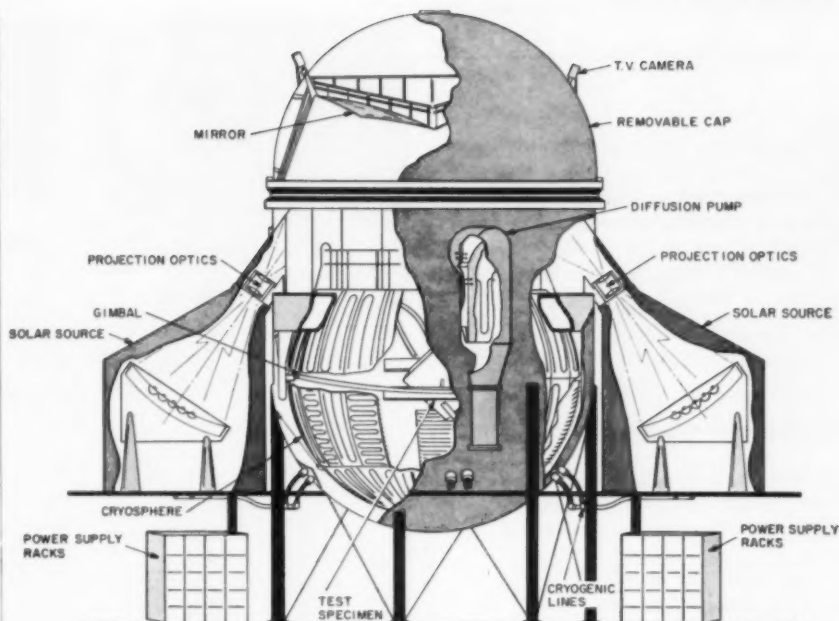
Injection molded speaker baffle

be painted with latex paint. In the model shown, used primarily as a ceiling baffle, slots in the concentric deflectors provide full 360 degree sound dispersion. *Manufacturer: Lowell Manufacturing Company, St. Louis, Mo.*

Simulating space

Two characteristic conditions of outer space will be duplicated in an earth-bound laboratory at a cost of \$6 million. The two conditions are: the sun and its radiation, and the vacuum that exists between astronomical bodies. Both are relevant to space travel. The laboratory device which reproduces them will be known as a "space simulator," and will be the largest of its kind. It will test the reaction of full size space vehicles to the changing conditions of heat and cold which they will encounter during space travel.

The simulator will have what is known as a "cold sun." This means that the radiation, ranging from ultra-violet to



Space simulator

infra-red, transmitted from the artificial energy source, or sun, to the vehicle under test will not be reflected back to its source, and therefore will not upset the delicate and precisely measured emission of radiation. This will be accomplished by beaming the energy from four banks of 37 xenon arc lamps each through special lenses to a 22 foot mirror at the top of the dome-like simulator. From the mirror, the energy will be reflected to the test vehicle. The position of the mirror and of the test vehicle will be so arranged that the radiation is deflected away to the walls of the simulator and dissipated.

The space within the simulator will be a nearly perfect vacuum, which has no temperature (only objects introduced into it have temperature). The walls of the simulator will be hollow and will be kept at extremely low temperatures by pumping liquid gases through them. They will be maintained at these low temperatures so that any atmospheric gases that remain in the vacuum within the simulator (achieved by pumping the air out) will condense on their surfaces and be drawn away.

When the test vehicle is positioned in the simulator, and the artificial cold sun turned on, a beam of light and heat, like that from the real sun, will be beamed towards it. The side of the vehicle away from the sun will not be heated and will remain cold. By studying the transfer of heat in the vehicle from its hot to its cold side, scientists will learn a great deal about the behavior of metals. They will also study the behavior and functionality of the electronic instruments packed within the vehicle.

The unit is 32 feet in diameter and

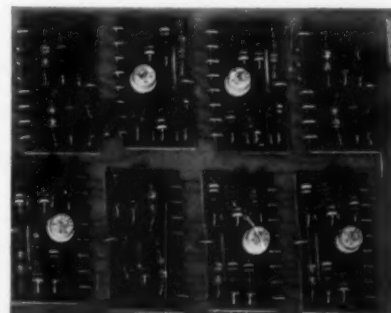
54 feet high; it will be housed in a building 100 feet square and 88 feet high. *Manufacturer: General Electric Company, Missile and Space Vehicle Department, Philadelphia, Pa.*

In-plant name plate manufacturer

A recent innovation in name plate manufacture is said to enable customers to produce their own short-run quantities of etched printed parts quickly and with little investment in equipment. Trade-named Fotofoil, the process can produce finished parts in seven minutes without need for skilled labor or darkroom facilities. In addition, a variety of colors are possible. *Manufacturer: Miller Dial & Name Plate Company, El Monte, Calif.*

Speedier computers

Although the problems man sets out to solve are becoming bigger and bigger, the tools he uses to solve them are getting smaller (and speedier). Another basic improvement in computer circuitry has been completed, permitting electronic



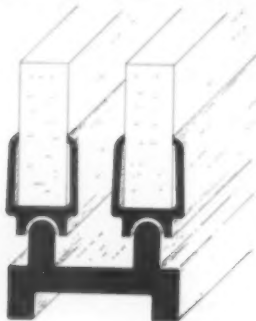
Speed-of-light electronics

TECHNICS *continued*

action to take place at 186,000 miles per second—the speed of light. The major advance, said to be 100 times faster than any existing system, results from the employment of the latest member of the semiconductor family, the tunnel diode, a solid-state device the size of a small pill. The new circuitry is the first step towards a new computer for the Navy. *Manufacturer: RCA, New York.*

Sliding-door track

More uniform sliding action for cabinet doors results from a new two-part sliding-door track that does away with all



Sliding door track

metal-to-metal and glass-to-metal contact. Sliding doors conventionally ride directly on a track; in the new design, a female profile on the bottom of the sliding door rides on a male track fastened to the cabinet. The tracks are extruded from high-impact styrene and are snap-fitted to the glass or metal doors, eliminating all fasteners or cement. *Manufacturer: Anchor Plastics Company, New York, N. Y.*

Improved optical maser

The achievement of a continuously operating optical maser, a goal long sought by many industrial and academic research laboratories, has been announced.

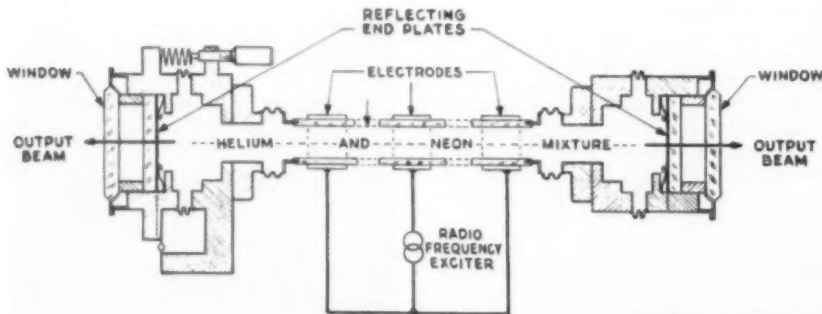
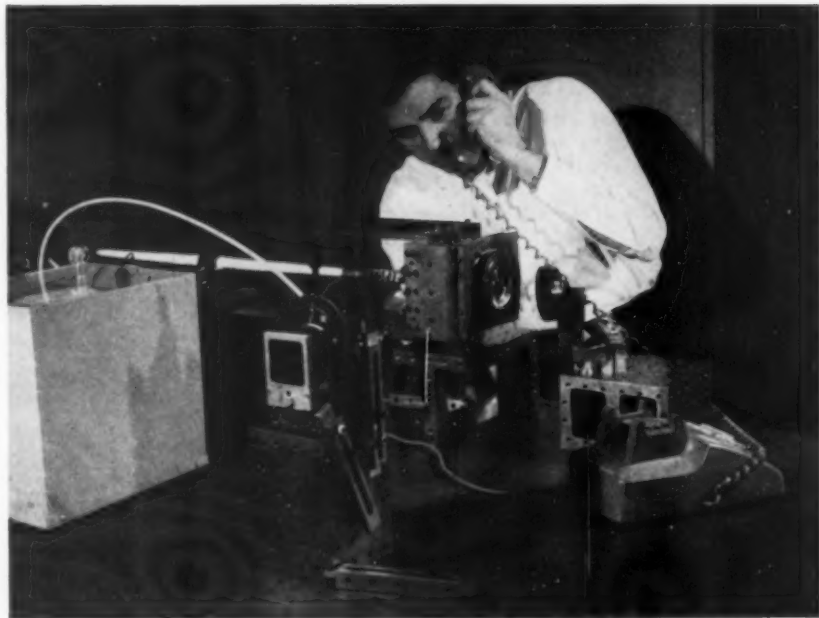


Diagram of new maser



Continuously operating optical maser

This is highly significant because it will permit a great deal more information to be sent via the device than by the previously announced intermittent, or pulsed, optical maser (see ID, November 1960, page 96). The new system takes a radically different approach—using a gaseous discharge instead of a ruby, or other crystal, excited by a high-powered flash of light to produce a coherent light beam. Emitted radiation is in the infrared portion of the spectrum, and invisible except through a special converter.

The new maser is essentially a 40-inch glass tube filled with neon and helium gases. As current is fed into the tube, the helium atoms are excited to a highly energetic state in which they transfer their energy to the neon atoms by colliding with them. The neon atoms, now stimulated, radiate this energy on demand as a highly coherent beam of infrared light. The beam is reinforced by being passed back and forth by mirror through the length of the tube. When the beam reaches a certain strength, it flashes out in a very narrow beam—so narrow that at a distance of 100 miles

the spread would be no more than one foot.

The line frequency width of the output beam is one hundred thousand times narrower, or purer, than that from any other coherent light source. This triumph means that when used for telephone and television communication, the number of channels that can be squeezed in a frequency band will be increased 1,000 times. The narrowness of the spectral line will also afford an accuracy hitherto unattainable in spectroscopic study of the structure of the atom.

Contrasted to the great power needed to operate the original ruby maser, the power required for the gaseous maser is in the tens-of-watts range. *Manufacturer: Bell Telephone Laboratories, New York, N. Y.*

New sewing thread

A sewing thread has been introduced that is completely transparent and assumes the color of any fabric in which it is used. Even multi-colored fabrics blend and match with it. Use of the thread, called Transite, will not only reduce thread inventory, but, more important, will eliminate the need of color matching.

The thread is neither plied nor twisted. It is extruded from pure nylon to produce a glass-clear monofilament with high strength and abrasion resistance. There is no fuzz or lint to clog needles, and no twist to tangle and break. Because of its lighter weight, the thread yields twice as much yardage as cotton thread of the same strength. *Manufacturer: Western Fishing Line Company, Glendale, Cal.*

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

Methods

Exhaust fan selection. Home Ventilating Institute, 1108 Standard Building, Cleveland 13, Ohio. 12 pp. Ill. Guide tells how to plan correct exhaust ventilation, where to locate fan in room, how to select proper equipment, and how to duct it. The various types of fans for kitchens, bathrooms, utility and recreation rooms are illustrated.

Plastic tooling technology. Ren Plastics, Inc., 5422 S. Cedar Rd., Lansing 9, Mich. New bi-monthly publication, titled Ren Tech-Ni-Tips/Tooling Digest, presents techniques for the proper use of epoxy plastic materials in tooling, master model, and pattern making.

Foil welding. Air Reduction Company, 150 West 42 St., New York 17, N. Y. 12 pp. Ill. Reprint ADR 125 provides information on the problems and critical variables for the successful welding of foil by the tungsten-arc process.

Molding or machining. Cadillac Plastic & Chemical Company, 15111 Second Ave., Detroit 3, Mich. 6 pp. Ill. Reprint studies the factors that determine when to mold and when to machine a plastic part. Break-even point between the two processes varies according to part size, contour, tolerance, and material. Specific break-even points for 10 different categories of thermo-plastic parts, and five case histories are presented.

Roller hearth furnaces. General Electric Company, Schenectady 5, N. Y. 8 pp. Ill. Bulletin GED-4304 describes GE's gas or electric roller hearth furnaces for high production, high quality, economical annealing, hardening, brazing, sintering and general heat-treating. Diagrams show furnaces most suitable for each treating process, and specifications chart gives applications data.

Materials—Metals

Forgings. Harvey Aluminum, 19200 S. Western Ave., Torrance, Cal. 20 pp. Ill. Brochure reviews the production of all types of aluminum forgings including precision, conventional, no-draft, hand, smith, and impact, as well as rolled rings and forged fittings. In addition, the company's facilities, equipment, and products are discussed.

Alloy steel specification chart. Peter A. Frasse & Company, 17 Grand St., New York 13, N. Y. Chart lists and identifies specifications for alloy steel used by the government. Chemical analysis requirements and forms are listed.

Beryllium-copper casting alloys. Brush Beryllium Company, 4301 Perkins Ave., Cleveland 3, Ohio. 4 pp. Ill. Bulletin presents properties, applications, and casting procedures for beryllium-copper alloys. The alloy is made by the addition of small quantities of beryllium to copper. Copper's high thermal and electrical conductivities are maintained; and the alloy is said to have excellent wear and abrasion resistance—useful in pattern and mold making—and can be heat treated to strength and hardness comparable to steel.

Steel. Climax Molybdenum Company, 1270 Sixth Ave., New York 20, N. Y. 77 pp. Ill. Handbook is a guide to combining design, proper selection of steels, and heat treatment to obtain optimum economy and material performance. Steels treated are mainly alloy steels with tensile strengths below 200,000 psi. High strength structural, stainless, and tool steels are not included.

Materials—Plastics

Polyethylene. Rexall Chemical Company, P. O. Box 37, Paramus, N. J. 6 pp. Brochure describes properties and applications of Elrex polyethylene film resins.

Vinyl. Union Carbide Plastics Company, 270 Park Ave., New York 17, N. Y. 24 pp. Ill. Brochure describes Bakelite vinyl plastisol and organisol technology, and covers all aspects of formulation, processing methods, and applications.

ABS plastic. Naugatuck Chemical Division, United States Rubber Company, Naugatuck, Conn. 20 pp. Ill. Booklet gives complete physical and chemical data on Kralastic MM ABS plastic, which is currently being used for home appliances, auto parts, and many other applications.

Plastic-coated packaging materials. Marvellum Company, Holyoke, Mass. File folder contains a variety of Marvelene polyethylene coated packaging materials including pouch paper, blotter paper, gold metallic, and a number of different kraft papers. A detailed applications list is part of the folder.

Diallyl phthalate. Food Machinery and Chemical Corp. Dapon Department, 161 East 42 St., New York 17, N. Y. 8 pp. Ill. Technical bulletin 32 discusses techniques for utilizing diallyl phthalate resins in coating, sealing, dip encapsulation, and laminating applications.

Components and Machines

Instrument bearings. Fafnir Bearing Company, New Britain, Conn. 40 pp. Catalog offers data necessary for the selection and specification of ball bearings for modern instruments.

Machine paint spraying. Conforming Matrix Corporation, 824 New York Ave., Toledo 11, Ohio. Foldout illustrates and describes nine automatic machines for high production product finishing.

Custom control cabinets. General Electric Company, Schenectady 5, N. Y. 12 pp. Ill. Bulletin GEA-7080 gives data on Cabinetrol Centers, which group all power components in one cabinet structure built to customer specifications.

Electronic wire makers. W. H. Brady Company, Dept. 130, 727 West Glendale Ave., Milwaukee 9, Wis. 8 pp. Ill. Bulletin contains a list of over 400 different miniature wire markers for permanent or temporary identification of small wires and electronic components.

FREE LITERATURE *continued*

Outdoor lighting. Stonco Electric Products Company, Kenilworth, N. J. 8 pp. Ill. Catalog S-61 presents line of cast aluminum outdoor floodlights and fixtures including prismatic and opal luminaries, decorative outdoor bullet designs, underwater lighting, incandescent and mercury vapor floodlights, and decorative and industrial vaportight fixtures.

Hardware catalog. Weiss Hardware and Manufacturing Company, 169 Bowery, New York 2, N. Y. 24 pp. Ill. Catalog describes hundreds of different hardware items ranging from brackets to tubing to door locks.

Hole punching and notching equipment. Punch Products Corp., 370 Babcock St., Buffalo 6, N. Y. 10 pp. Ill. Brochure describes Unipunch tooling for use in presses and brakes for hole punching and notching.

Lighting. Sylvania Lighting Fixtures, Wheeling, W. Va. 12 pp. Ill. Bulletin VS-900 presents lighting terms, formulae, and design factors for determining proper illumination levels.

Optical maser. Bell Telephone Laboratories, Murray Hill, N. J. 8 pp. Ill. Booklet describes theory and design of the solid state optical maser, a device for producing narrow beams of coherent light.

Air filter. Union Carbide Development Corp., 270 Park Ave., New York 17, N. Y. 4 pp. Ill. Bulletin describes performance and advantages of a newly developed Ulok panel-type air filter, said to offer 100 per cent longer service life than other throw-away filters. Dynel is the material used in the filter.

Bolts. Standard Pressed Steel Company, Box 883, Jenkintown, Pa. 24 pp. Ill. Guide contains silhouette sketches for rapid identification of 120 different aerospace bolts. Other sections discuss heading practice, heat treatment, grinding, thread rolling and plating.

Fork trucks. Clark Equipment Company, Industrial Truck Division, Battle Creek, Mich. 8 pp. Ill. Bulletin SS-2045 presents specifications for the Ranger 600 and 700 general purpose fork trucks which are designed for heavy lifting work at steel yards, lumber mills, and similar outdoor operations.

Magnet-operated limit switch. General Electric Company, Schenectady 5, N. Y. 4 pp. Ill. Bulletin GEA-7305 describes a new magnet-operated limit switch for highly accurate position detection, without physical contact, of objects moving in erratic paths.

Glassed-metal pipe. Pfadler Company, 1126 West Ave., Rochester, N. Y. 16 pp. Ill. Bulletin 987 describes properties and applications of glass-and-metal pipe, valves, and fittings for use in highly corrosive atmospheres.

Rolling doors. Cookson Company, 1525 Cortland Ave., San Francisco 10, Cal. 20 pp. Ill. Catalog 6101 describes features and applications of line of rolling doors and partitions. The line includes steel and aluminum rolling service doors, fire doors, steel and aluminum rolling grilles, counter doors, and wood side-coiling partitions.

Gears. Perfect Gear and Instrument Corp., 339 S. Isis, Inglewood, Calif. 130 pp. Ill. Catalog gives technical data on line of stock gears and instrument clamps.

Control knobs. Raytheon Company, Industrial Components, 55 Chapel St., Newton 58, Mass. Brochure describes more than 345 styles of precision engineered control knobs for industrial and military use.

Miscellaneous

Blister packaging. Lawrence Packaging Supply Corp., 859 Summer Ave., Newark 4, N. J. Illustrated folder provides a guide to modern blister packaging of precision bearings and miscellaneous small parts.

Electrical tapes. Minnesota Mining & Manufacturing Company, Det. WO-482, 900 Bush Ave., St. Paul 6, Minn. 4 pp. Folder gives a property chart and specifications for all Scotch brand electrical tapes.

Chalkboard installation. Metal Lath Manufacturers Association, Engineers Bldg., Cleveland 14, Ohio. 2 pp. Ill. Bulletin sheet shows varied cross-sections of chalkboard and bulletin board installation, and explains how to attach boards directly to wall by means of metal casing bead or wood trim.

Adhesive bonding films. Girder Process, Inc., 102 Hobart St., Hackensack, N. J. Actual samples of more than 40 adhesive bonding films and a method of selecting the proper film for the job.

Aluminum high heat paint. Speco, Inc. 7308 Associate Ave., Cleveland 9, Ohio. 3 pp. Bulletin 1206 describes H-120A aluminum high heat paint which can resist temperatures up to 1200 degrees F.

Glass fiber for packaging. Fibrous Glass Products, Inc., Alpa Plaza, Hicksville, N. Y. 4 pp. Ill. Brochure describes Glas-Cushion, a resilient padding fabricated of very fine glass fibers held together by a plastic resin. The material can be molded to shape or cut in the packaging department.

Plywood sandwich panel. Weyerhaeuser Company, Silvatek Division, Tacoma 1, Wash. 8 pp. Ill. Booklet describes properties and applications for Ply-Veneer kraft-overlaid-veneer sandwich paneling for wall panelling, ceiling tile backing, room dividers, partitions and screens. The panels are now available in natural kraft surfaces and in a clean white.

Protection against rust. Sealube Company, 14 Valley St., Wakefield, Mass. 4 pp. Ill. Brochure describes how a zinc-rich coating can be brushed or sprayed on iron or steel surfaces to provide galvanic protection against rust and rust creepage.

Steel-bonded carbides. Chromalloy Corp., Sintercast Division, West Nyack, N. Y. 10 pp. Ill. Manual describes features of Ferro-Tic C, said to be the only machinable and hardenable carbide on the market. The material is used for making various punches, dies, and molds.

Abrasive products. Carborundum Company, P.O. Box 337, Niagara Falls, N. Y. 42 pp. Ill. Brochure catalogs a complete line of abrasives and related products for the masonry and concrete trade.



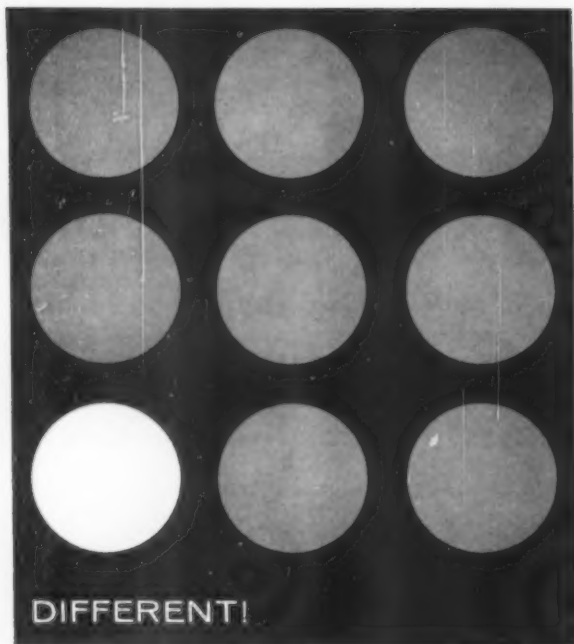
THE INDUSTRIAL DESIGNERS INSTITUTE ANNOUNCES THE 11TH ANNUAL DESIGN AWARDS PROGRAM

The IDI Design Award is a token of recognition bestowed on a designer or a team of designers for outstanding design of any product mass produced prior to May 14, 1961. The award is open to all designers, regardless of affiliation.

submissions Entries may be made either by the designer himself, or by anyone else on behalf of the designer. Copies of the submission form are obtainable from the address below. Forms must be returned postmarked not later than May 14, 1961.

presentation Announcement of the designers to be honored and presentation of the award medals will be made at a luncheon on June 22, 1961 at the Four Georges Room, Hotel Ambassador East, Chicago.

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Graphics and the written word

No one any longer seriously believes that one picture is worth a thousand words, but at least one design firm is prepared to supply both. John Peter Associates is a unique office that designs exhibits, writes books, and performs other editorial services. Graphic designer-writer-editor John Peter believes that because of the unusual editorial background of his small staff, his firm is equipped to make a unique contribution to aspects of corporate imagery normally not professionally attended to. *ID*'s article investigates JPA's "editorial approach" to exhibit design and layout.

Gallery IV

The fourth in *ID*'s series of profiles of industrial designers describes the personality and career of a designer who is responsible for originating or encouraging most of the classics of modern furniture design.

Design review

Next month, *ID* will present a review of some of the recent developments in ranges, ovens, refrigerators, home laundries, and other major appliances.

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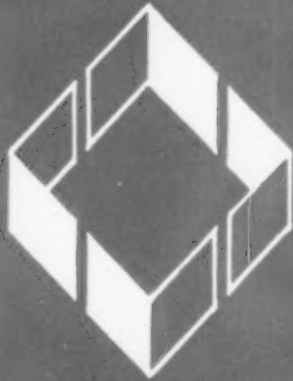
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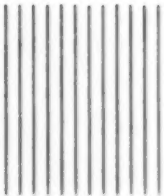
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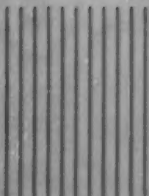


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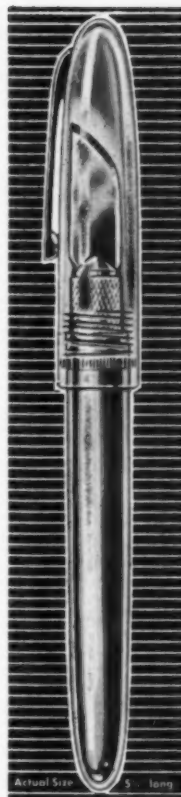
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CALENDAR

- Through March 26.** "Brasilia—A New Capital." An exhibition traveling under the Smithsonian Institution. University of Illinois Art Gallery, Chicago.
- March 8-April 20.** "The Splendid Century." An exhibition of French painting, sculpture, drawing and tapestries from the 17th century. Metropolitan Museum of Art, New York.
- March 11-14.** Annual meeting of the Steel Founders' Society of America. Drake Hotel, Chicago.
- March 11-31.** "Fibers, Tools and Weaves." An exhibition traveling under the Smithsonian Institution. Skinner Hall, University of Massachusetts, Amherst, Massachusetts.
- March 14.** "Plastics Finishing Seminar" sponsored by the Society of Plastics Engineers. Roger Young Auditorium, Los Angeles.
- March 15-16.** Seminar on the economics of plastic tooling co-sponsored by the American Society of Tool and Manufacturing Engineers and the Society of Plastics Engineers. Statler Hilton Hotel, Detroit.
- March 20-23.** International radio and electronics show sponsored by the Institute of Radio Engineers. New York Coliseum.
- March 20-24.** 12th western metal congress and exposition sponsored by the American Society for Metals. Pan-Pacific Auditorium and the Ambassador Hotel, Los Angeles.
- March 20-31.** Industrial packaging short course sponsored by Purdue University division of adult education. Purdue University Campus, Lafayette, Indiana.
- March 22.** Workshop on increasing the effectiveness of shows and exhibits sponsored by the Association of National Advertisers. Plaza Hotel, New York.
- March 24-May 14.** "Modern Mosaics from Ravenna" designed by various artists and made by the craftsmen of Ravenna; an exhibition traveling under the American Federation of Arts. Museum of Contemporary Crafts, New York.
- March 27-31.** Third symposium on temperature—its measurement and control in science and industry, sponsored by the Instrument Society of America, the American Institute of Physics, and the National Bureau of Standards. Veteran's Memorial Hall and Deshler-Hilton Hotel, Columbus, Ohio.
- March 30.** "The International Style—Death or Metamorphosis," a discussion by Philip Johnson and others; part of a series on "The New Forces in Architecture," sponsored by the Architectural League of New York. Metropolitan Museum of Art, New York.
- April 1-9.** Fifth international automobile show. New York Coliseum.
- April 5-7.** Symposium on materials and electron device processing held by the American Society for Testing Materials. Franklin Institute, Philadelphia.
- April 10-12.** 30th annual meeting of the Inter-Society Color Council. Sheraton Hotel, Rochester, New York.
- April 10-13.** 30th national packaging exposition and national packaging conference of the American Management Association. McCormick Place, Chicago.
- April 10-21.** 42nd annual convention and welding exposition of the American Welding Society. Sheraton-Atlantic Hotel, Commodore Hotel, and Coliseum, New York.



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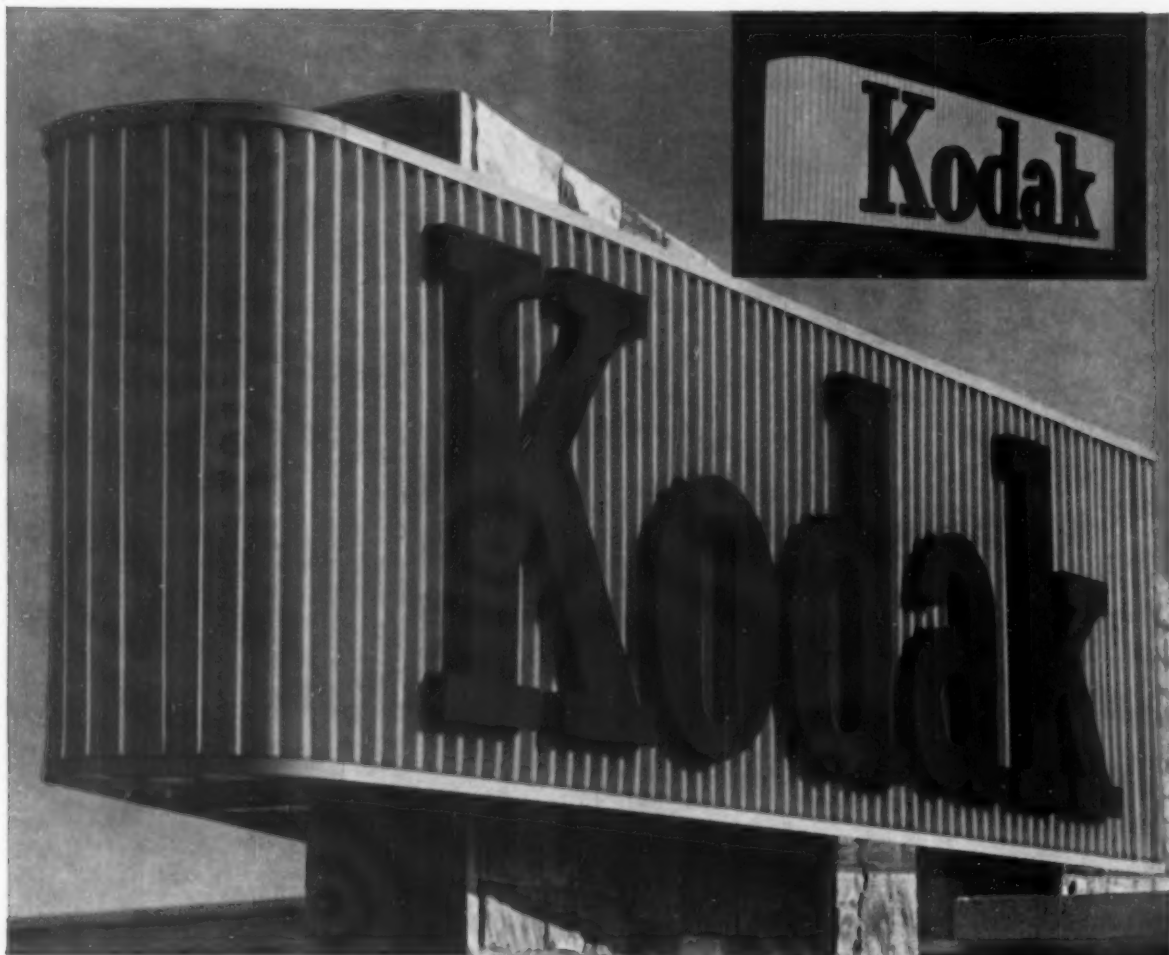
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