

## Both Fish And Fowl

... is the depression-weaned vocation of Industrial Design. Its three dimensions have confused the issue as much as its feats and failures—as much as Geddes' swoon, Dohner's locomotive for fat men, and Sakier's trek from camouflage to bathtubs.

WHEN Dr. Oliver M. W. Sprague left Washington in order to be free to express himself, nearly everyone expected an attack upon Administration policies. Instead, his first salvo scored a direct hit in the ranks of the "Tories" he was supposed to champion. Wrote he: "Failure of industries to adopt policies designed to open up additional demands for industrial products is, in my judgment, the chief cause of the persistence of the depression." In so saying he stated a perennial ideal of America's industrial leaders: constant ingenuity applied to making better products at lower prices, thus increasing the standard of living—an ideal

to which all give lip service, few adhere. Immediately upon the appearance of the Sprague article, many an industrial designer, many a client manufacturer, rose to make a bow of acknowledgment. "Recognition at last," they said, "of industrial design."

But nobody knew just exactly what industrial design meant. Among industrial designers there had been not too few but too many prophets.

The basic case for industrial design may be oversimplified thus: whenever two products are equal in point of utility and price, the one that looks most attractive to the purchaser will be bought first. When the

demand is sufficient to take only one of the two products, the maker of the attractive product stays in business, the maker of the other goes bankrupt. This state of affairs got industrial design started. That it has become a function far less simple will soon become apparent.

Many of the older industries, such as textiles, pottery, furniture, have always had the problem of appearance with them. Designers are on their regular payroll. The studio is a part of the plant. As long ago as 1767, when the École Nationale des Arts Décoratifs was founded, these industries were training designers. Today several hundred schools in this country give

instruction in applied art; the museum as an accepted cog in the industrial machinery of the present century was dramatized years ago. But all this activity serves merely to improve the technique of a traditional function. The technique has reached extreme and often justifiable forms of specialization: the stylist in textiles, the period expert in furniture, the layout man in printing. There has even been produced a specialist in specialists on design: Amos Parrish, whose self-appointed (and successful) function it is to analyze fashion and to tell designers what to design. The industries using this technique have a well-established name. They are called the "Art Industries."

The industrial designer's field is something else again. As a phenomenon he came into being as mass production raised output to where, one after another, industries hitherto without benefit of other than engineering design found their products matched by other manufacturers, and the market consequently glutted. Furniture and textiles, their usefulness taken for granted, had long sold on their design. Now it was the turn of washing machines, furnaces, switchboards, and locomotives. Who was to design them? Their own staffs, the



Courtesy Kemp Starrett from the "New Yorker"

"Gentlemen—I Am Convinced That Our Next New Biscuit Must Be Styled by Norman Bel Geddes"



hard, practical men who had built up the businesses, were incompetent—or felt they were. So they began to look to the outside world—usually introduced to it by their advertising agencies. The ebullient twenties, always ready to coin a new profession, minted one for them and, without knowing exactly what the term meant, stamped it "Industrial Designer." In the field of mass production the industrial designer is to the plant engineer what, in building, the architect is to the contractor.

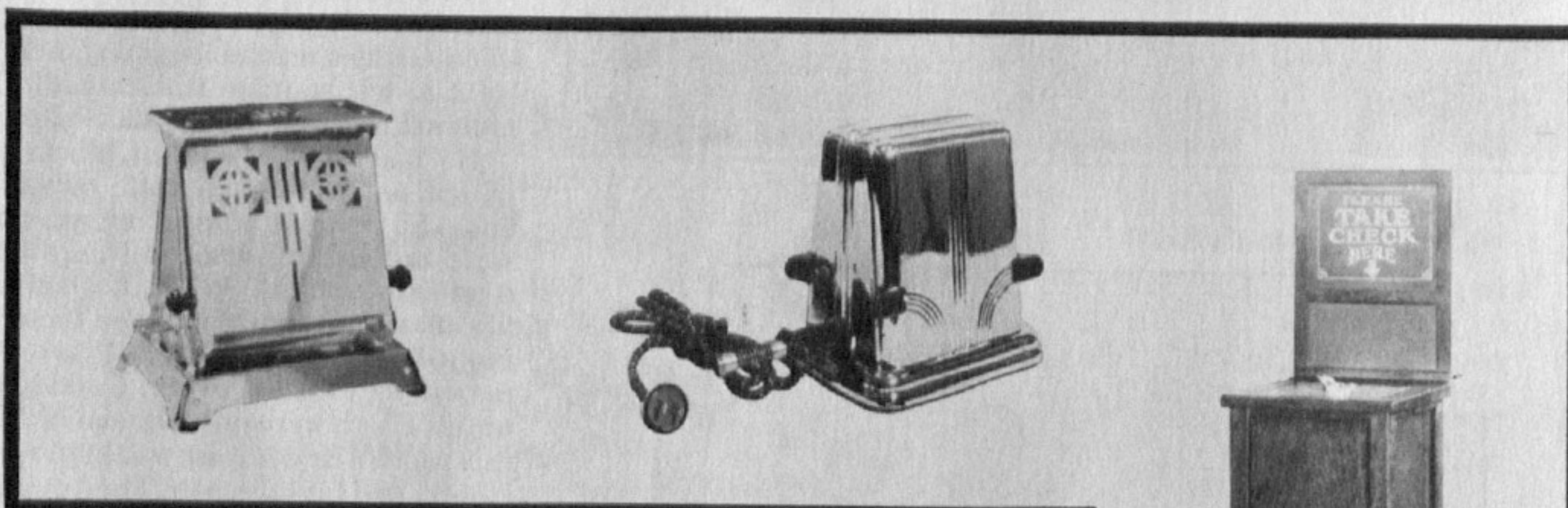
The industrial designer's job was to introduce art into industries hitherto artless (on page 98, a list of some that were affected). The people he did business with were bewildered by a situation foreign to their experience—a situation in which the homely merits of their products were not enough to sell them. They were without a sense of values for appraising their new associates. They rushed in, put up money, lost it, rushed out, talked. And they were soon hopelessly confused. The first thing the new profession acquired was a black eye. Not a nice, clean, round-rimmed black eye, but a splotchy purple one administered by innuendo. Some of the fiascoes were fantastic. One artist turned in a stove design drawn on rice

paper, a material which so enraged the plant men that they were delighted to find retooling costs for the model would be \$200,000, a sound reason for sending the artist packing. Another designer proudly put a foot lever as a door opener on a refrigerator, so that the housewife with her hands full of dishes could easily open the door. Result: housewife, balancing on one foot, is caught off balance by the heavy door, sent to the floor with her dishes. Trays designed for serving cocktails at Park Avenue parties were made in the standard cafeteria shape. Eighty per cent of their production cost was for applying the design and 20 per cent for the tray, yet they were intended to be made by mass-production methods.

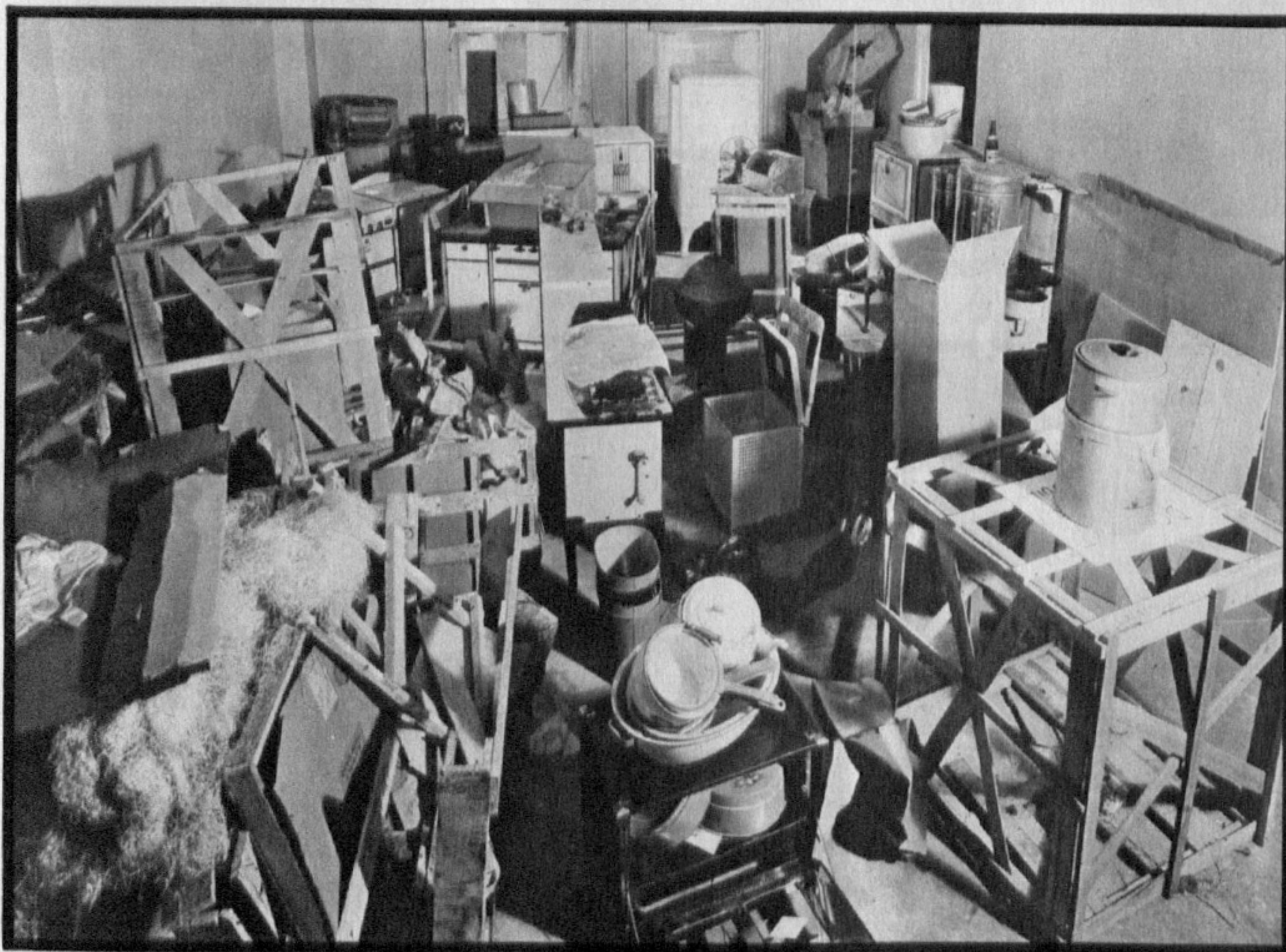
Apex of all fiascoes in design is the radio,

the home's most modern instrument, yet the product that has had more difficulties with its dress than any other. In the metal-cabinet era of five or six years ago, one plant employed 150 art students to paint pretty rural scenes on the cabinets. This music-box era gave way to a vertigo of period designs, which was followed by a game of hide-and-seek in which a radio pretended to be a console, a wine cooler, a bookcase, or a coffin stool.

The radio people have tried everything, or at least have started to try everything. Philco called in the great Norman Bel Geddes, was horrified by radios shaped like beer barrels, radios inclosed in glass; got a best seller out of him in the "Low Boy," a low cabinet of light walnut and ebony. Philco



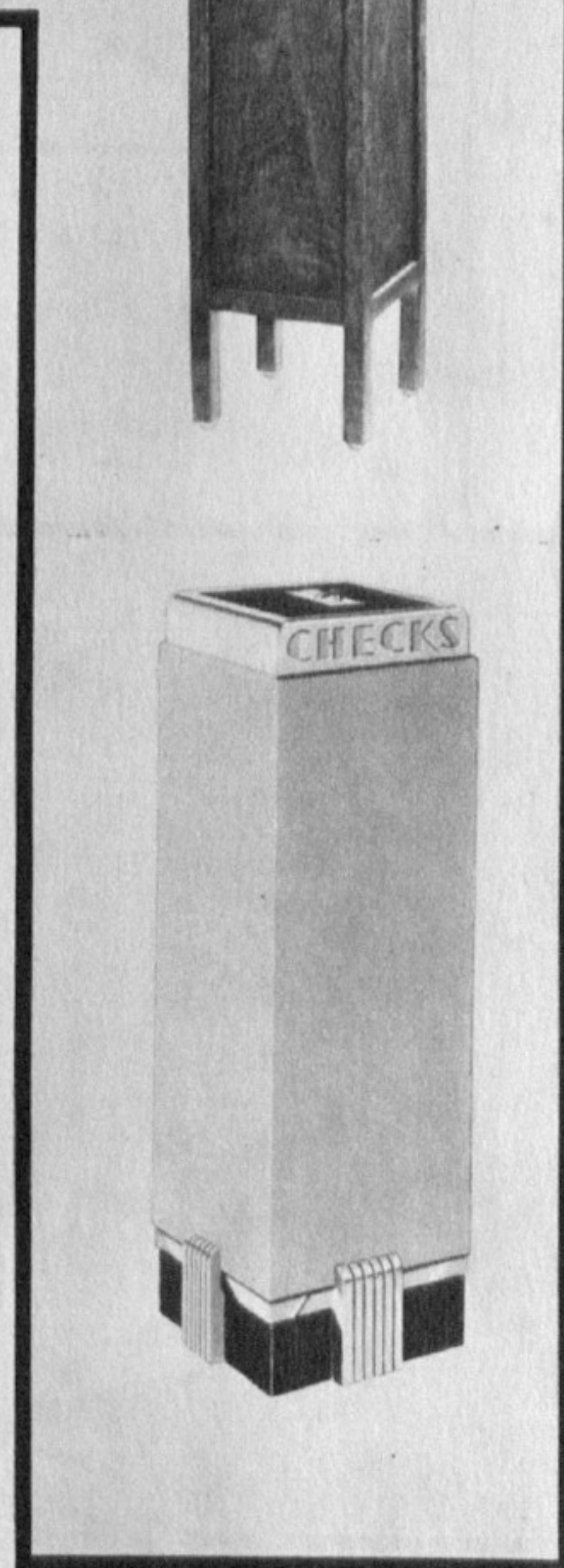
Courtesy Westinghouse



Aikins

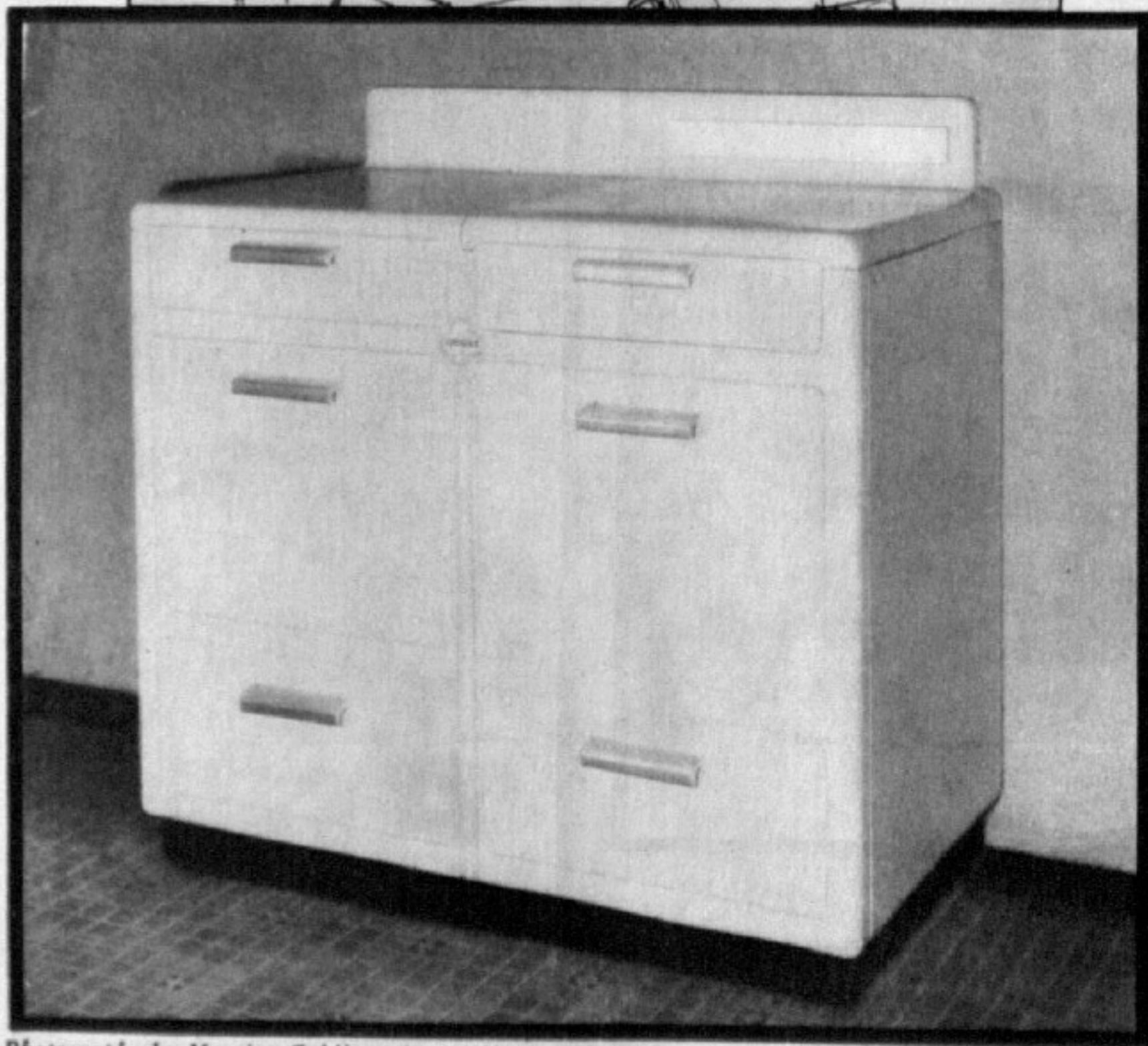
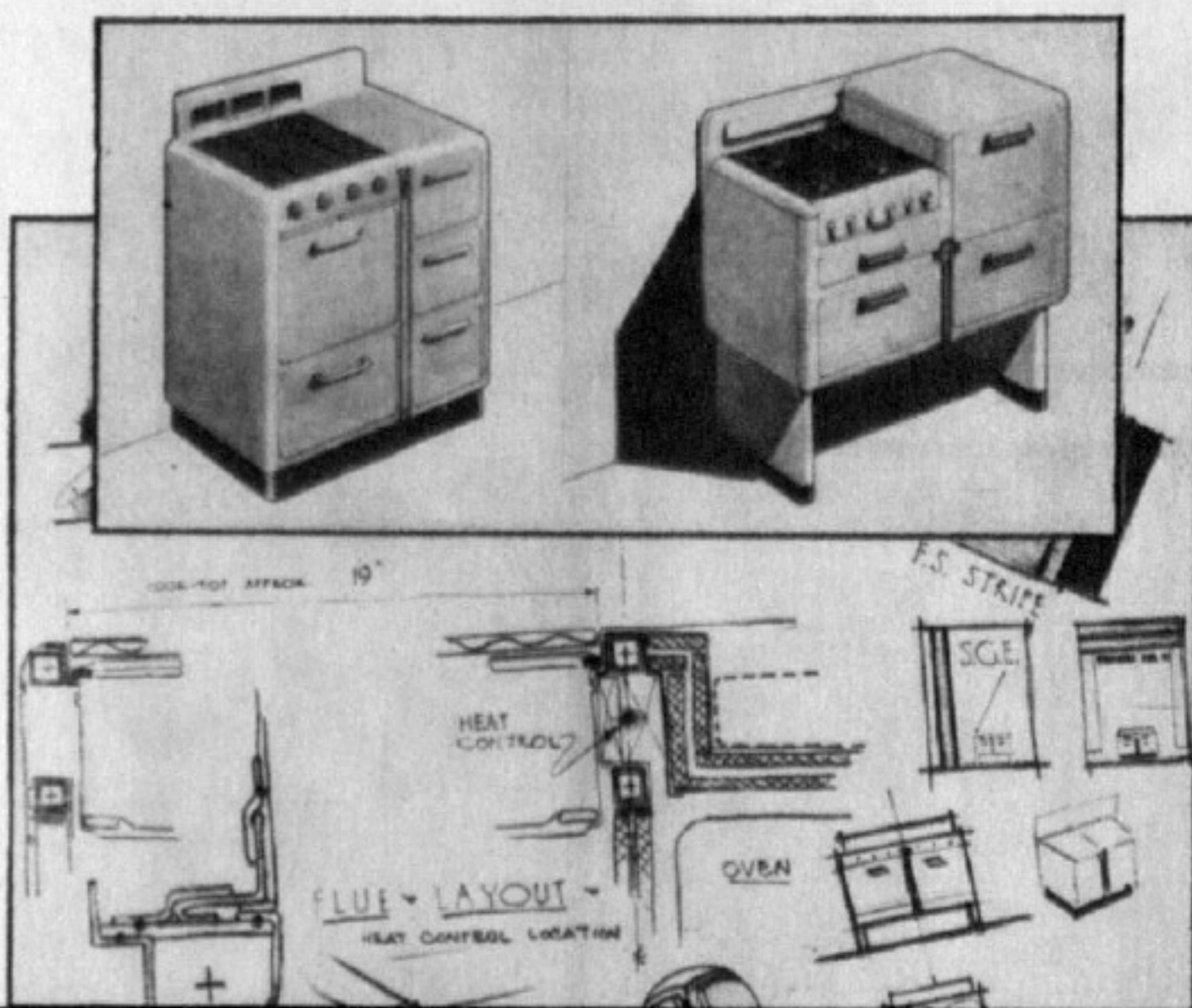
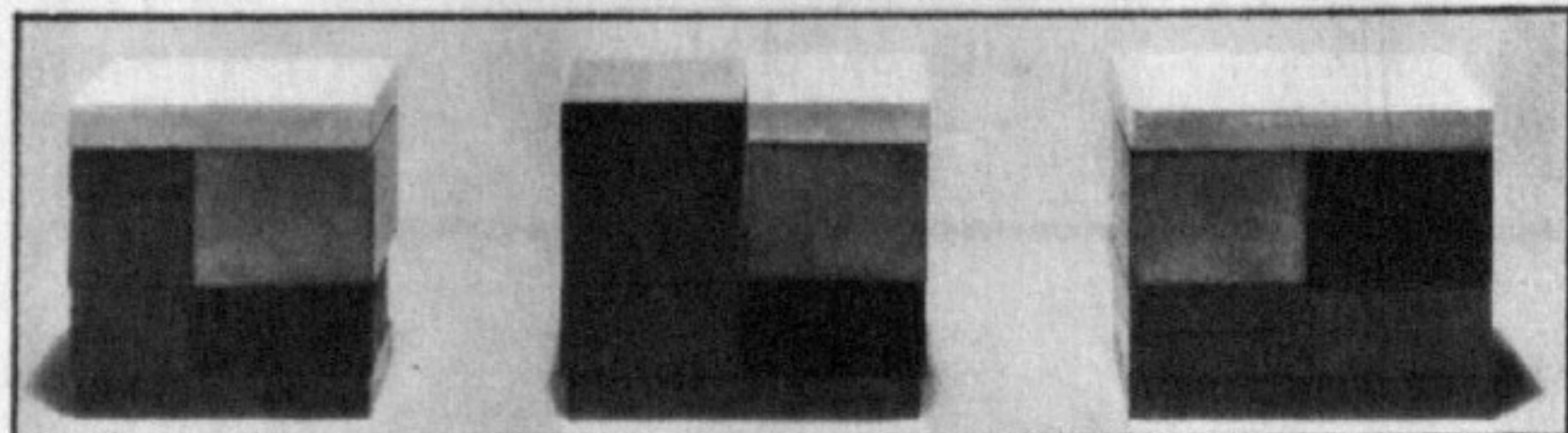
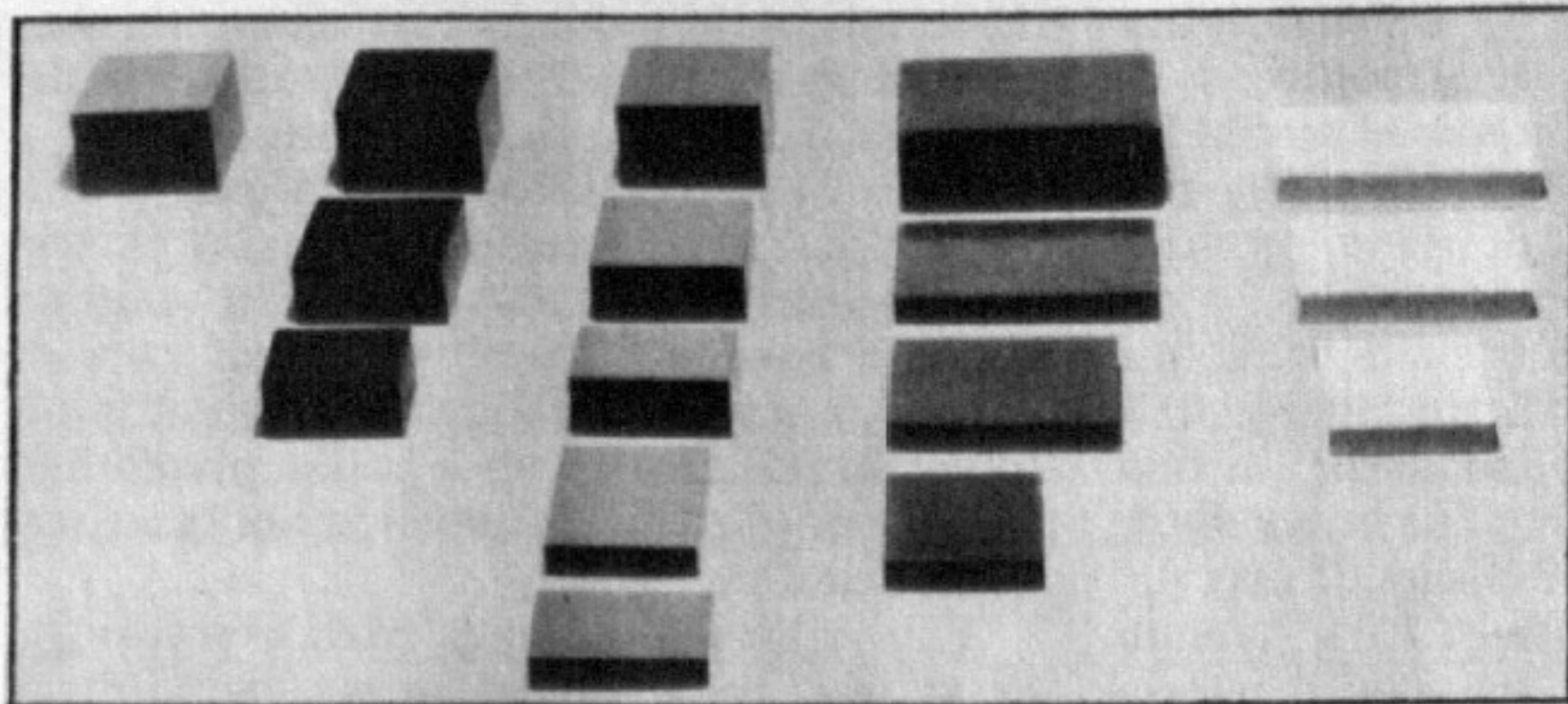
#### NEW CANDIDATES FOR FACE-LIFTING PILE UP IN MR. GUILD'S WAITING ROOM

A few of the thousand products redesigned by Lurelle Guild in a year are here seen ready to take the art cure. Soon one of them will be pulled out, Guild will glance at it from his drawing board, make a dozen sketches, circle the best four, make finished drawings of these, send them to the client, who will select one, put it in production. In panel: two products before and after taking the cure elsewhere. Toaster by Dohner; check register by Teague.



Courtesy General Register Corp.





Photographs by Maurice Goldberg from "Horizons," Little, Brown & Co.  
THIS STOVE GREW FROM BLOCKS AND SKETCHES ABOVE

## Story of a Stove

Three years ago Mr. W. Frank Roberts, who is President of the Standard Gas Equipment Corp., walked into the office of Mr. Norman Bel Geddes, industrial designer. To Mr. Geddes he explained that his stoves, long standard sellers in the industry, were having a hard time meeting competition. From Mr. Geddes he wanted a design for a new stove and for it he expected to pay, say, \$1,500. And he saw no reason why he shouldn't have his drawings in a week or two.

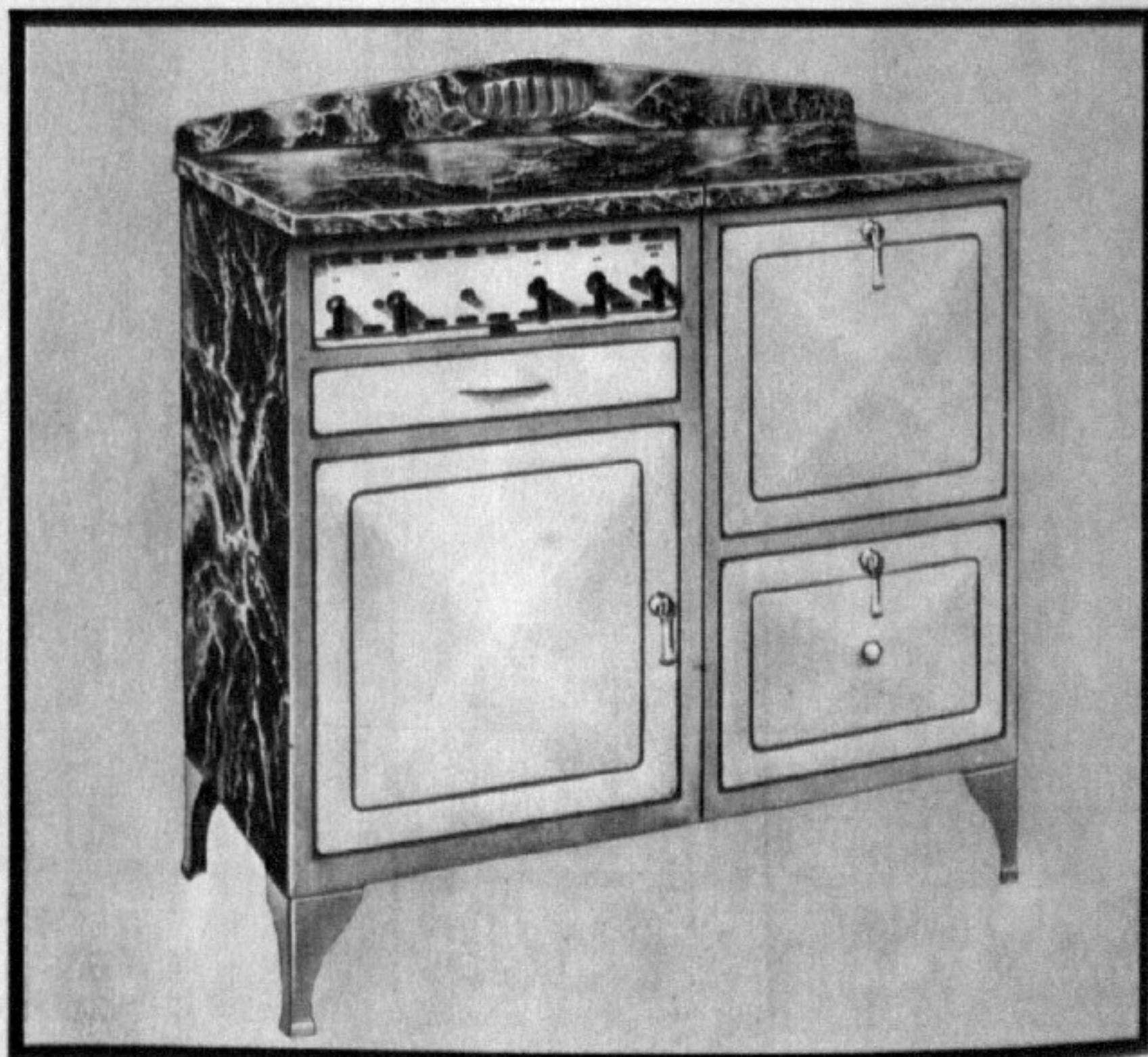
To Mr. W. Frank Roberts, Designer Geddes explained that he was not in the business of selling pretty pictures, that he would take the job only if he convinced himself that he and his staff could think up a better stove to be made for less. And that the job would take a year, would cost \$50,000 as an advance on royalties on the new product. Mr. Roberts returned to confer with his directors. But he had the courage to see it through, shocked though he may have been by his first encounter with the serious new profession of industrial design.

When Geddes finally agreed to take (and got) the job, his first move was to put an engineer in the Standard Gas plant, set others of his staff to work studying rivals' methods. Corps of investigators interviewed hundreds of housewives and stove dealers—the field reports made a book of 300 pages. The first major hitch came six months later when Geddes recommended standardized units. Despite its title, Standard Gas felt standardization could be overdone. So once more Geddes assumed the rôle of salesman—showman.

He made some wooden blocks to play a game. Each block represented on a half-inch scale one of the stove parts currently stocked. Some he painted blue; these were ovens. Some he painted green; these were broilers. And so on—hundreds and hundreds of them. It was a tremendous array. When he had set them out you couldn't get into his office for stumbling over them. Then, alarm in his voice, he summoned President Roberts. When President Roberts came, stubbed his toe on the blocks, swore, Geddes produced his own models for basic units. There were only sixteen of them and they are shown at the top of this page. The contrast was inescapable. Mr. Roberts summoned his engineers and his salesmen. They too were convinced. The work proceeded.

When the Geddes stove appeared on the market in January, 1933, the story had its happy ending. Mr. Roberts' judgment was vindicated: housewives wanted the Geddes stove. Utilities that had never heard about the line before welcomed it. Sales rose, doubled, held their gains.

The story of the stove is typical only of the three-dimensional quality of the new industrial design which is concerned not only with appearance but also with improvement of product and lowered costs. Geddes is unique in the thoroughness of his approach, in his theatrical gestures. Most designers are less radical; they supplement, do not duplicate company engineers, are more interested in reform than in revolution. But a characteristic of the profession is that no two protagonists work alike.



Designed by Standard Gas Equipment Corp.

...AND THIS STOVE WAS LABORIOUSLY OUSTED BY IT



has approached nearly every leading independent designer, has designed at top speed itself. Even Leopold Stokowski, Philadelphia Orchestra leader, sent in a design. It was not produced. Philco has accumulated a gigantic dead-man's gulch of radios, storing hundreds of outmoded models, but has gained little real knowledge from it. The latest radio success was designed for Colonial by Loewy. It is a globe, ties up with a current fad for globes in gift and drug stores, yet sells in the high price range. Vassos is now tackling the radio-design problem for R. C. A. by what he calls the law of averages, about the only method not yet tried. The industrial designer has been

fair game for satire, easy to turn a crack on. Even the *New Yorker*, whose paths are not those of reality, discovered the industrial designer, had a shot at him in such cartoons as the one on page 40.

But the fact that he persisted, despite his often exaggerated sense of his own importance, was testimony to the soundness of the need. And in 1927 came a historic conversion, the greatest single recognition of change. Henry Ford, dedicated to the sale of transportation and transportation only, was forced, in the redesign of his car, to acknowledge appearance as a sales factor. The movement had other victories, but in the twenties it was a decade ahead of its

time. It is in the depression that the industrial designer has made his comeback. The sales curve would not respond to the old forms of pressure. Pep meetings petered out. The product had to be made to sell itself. The designers were called in.

These men came to redesign the surface of the product, often stayed to suggest practical improvements—sometimes gadgets, sometimes fundamental changes. The shelf of an oven might be made to slide out without the risk of burning the cook's fingers, a penny-in-the-slot scale might be made so that loungers could not look over the shoulder of the lady being weighed and read

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### Comparisons of a Few Leading Industrial Designers†

	AGE	YEARS AS INDUSTRIAL DESIGNER	PREVIOUS EXPERIENCE	COMPENSATION (royalties are subject to special arrangements)	STAFF MEMBERS	TYPICAL ACHIEVEMENTS (starred item is work in progress)	CLIENT MANUFACTURER
Dohner	41	7	University design teacher Free-lance designer	Cost of design department: \$75,000 per year	8	Vacuum cleaner Mechanical water cooler  *Air-conditioning units	Westinghouse " "
Dreyfuss	29	5	Theatre sets	Flat fee: \$1,000 to \$25,000. Hourly consultation: \$50	5	Washing machine Alarm clocks Check protector	Sears, Roebuck Western Clock Co. Todd Co.
Geddes	40	7	Theatre sets and costumes	Flat fee: \$1,000 to \$100,000. Royalties	30	Gas range Telephone index Radio	Standard Gas Equipment Corp. Bates Mfg. Co. Philco
Guild	35	10	Art director Furniture expert	Retainer fee up to \$25,000. Fee per day: \$100 to \$200. Flat fee: \$300 to \$25,000 Royalties	4	Refrigerator Cooking utensils  *Stoves to roller skates	Norge Corp. Wear-Ever Aluminum Co. Montgomery Ward
Jensen	35	6	Artist	Retainer fee: \$500 to \$20,000	3	Telephone Metal kitchen sink Water heater	A. T. & T. International Nickel Co. L. O. Koven & Bro.
Loewy	40	6	Electrical engineer Free-lance advertising	Retainer fee: \$10,000 to \$60,000. Flat fee: \$3,000 up. Royalties	1	Motor car Duplicator  *Kitchen sink and bathroom units	Hupp Motor Car Corp. Gestetner Co. (British) Sears, Roebuck
Sakier	36	11	Mechanical engineer Art director	\$15,000 to \$25,000 income from design work Retainers	11	Bathtubs Wash basins, etc. Bathroom units Vacuum equipment	American Radiator & Standard Sanitary The Accessories Co. Schellwood-Johnson Co.
Teague	48	6	Advertising designer	Retainer fee: \$12,000 to \$24,000. Flat fees: \$500 to \$10,000	4	Cameras Furnace *Mimeograph	Eastman Kodak National Radiator A. B. Dick Co.
Van Doren	38	4	Painter Ghost writer	Consultation fee: \$100 per day. Jobs executed: \$500 to \$5,000	8	Scales Kitchen grill Paint gun	Toledo Scale Co. Swartzbaugh Mfg. Co. DeVilbiss
Vassos	35	7	Advertising agency Illustrator	Retainer fee: \$12,000. Flat fee: \$1,000 to \$7,000	3	Drink dispenser Turnstile *Radios	Coca-Cola Perey Mfg. Co. R. C. A.

†This list does not pretend to cover the field of industrial design; it merely presents ten designers chosen arbitrarily as typical and illustrative.



her poundage, certain parts of a stove might be standardized.

It was precisely at this point that industrial design turned blushful mystery. If industrial designers were merely decorative artists, as the manufacturers often conceived them to be when they called them in, then the subject would have little mystery and designers would be ranked on their artistic merit or their ability to catch popular styles. But the cost of making the product and the use to which it is to be put add two more dimensions to the original idea of surface appearance. Hence the hurly-burly, hence the soreheads, hence the welter of theories.

All pictures cost about the same to paint; the price of paint, brushes, and canvas does not vary much. But a product designer, Dohner, one of the brightest of the profession, found a way to save \$40,000 on tooling costs by making a few negligible changes in his model. He also, by changing from a metal to a plastic, made a vacuum cleaner lighter, quieter, and gave it a draft much greater than any similar model. The fact that he improved its appearance was incidental to these other accomplishments, even in the eyes of the most finicky consumer. This cleaner was easier to make, took Westinghouse out of the low-profit business of making vacuum-cleaner motors, put it in the higher-profit business of making vacuum cleaners.

Another designer, Vassos, originated a hook for a wall telephone which the company found patentable. Dreyfuss put all the controls of a washing machine in one place on top (the Toperator), Guild reduced the controls from five to one, Teague sank the machinery into the legs, eliminating a clumsy apron.

Dohner found that locomotives were run for the most part by fat men. Riding the road pounds the kidneys out of a skinny man. So passages must be designed for fat men to pass through, parts to be oiled must admit fat shoulders, levers and wheels must be spaced for fat hands. These examples begin to define the three dimensional quality of today's industrial design, expressed in the appearance of the article, the cost of the article, and its usefulness. As if it were not enough that the profession is new, filled with pretenders and visionaries, the final confusion as to just what an industrial designer is arises from the fact that different designers lay different emphasis on each of these dimensions and on the last two frequently run afoul of engineering and sales departments.

**T**HE designers of established reputation who are stimulating this industrial change are a small group, hardly more than twenty-five in number, operating either alone or with small staffs. They have been specializing in their work for from four to ten years; have redesigned products in industries with a normal (1927) annual volume of over seven billion dollars; have earned for themselves up to \$150,000 apiece a year. A table listing ten of them, their names and deeds (on page 43), indicates the direction

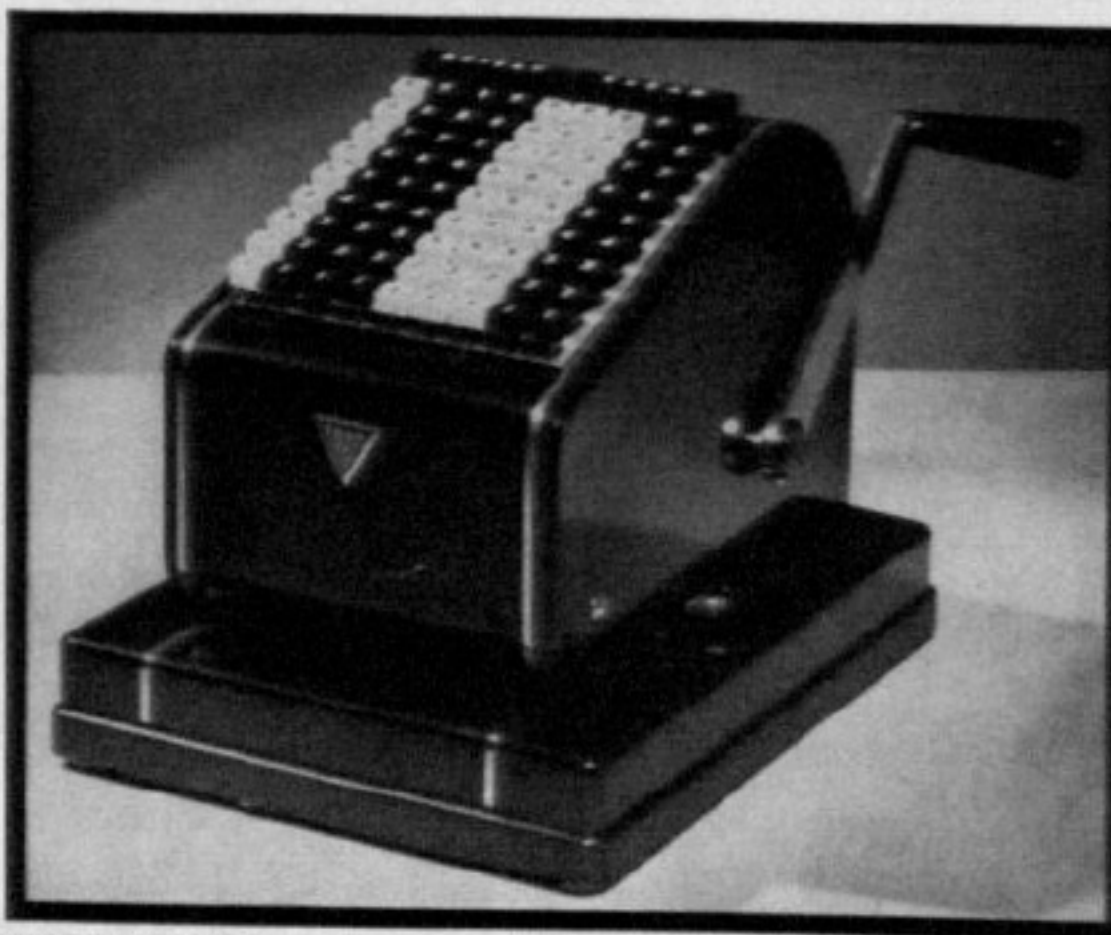
## Industrial Designers

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of the movement. A group we've called them but a group they are in occupation only. For they come from all points of the compass and the only common denominator of their personalities is their individualism. The list given is far from complete, but the men are typical. Many an artist has done one or two industrial-design jobs, is thinking now about doing one or two more. Donald Deskey, with an imposing reputation in furniture design, is now getting into the industrial field. Joseph Sinel, top trademark and package designer, has done a few strictly industrial jobs, may do more. The Russel Wrights have jumped into the radio maelstrom. A number of artists have organized in groups for industrial-design work. Two such groups are Design Engineers, Inc. and Industrial Design, Inc. These organizations include designers, architects, technical advisers, etc. Their aim is to give a complete design service to industry. The list that follows is limited to specialists in the field defined—and even with these limitations makes no pretensions to completeness.

Suave, able, successful Walter Dorwin Teague is the generally acknowledged doyen of the profession, its most diplomatic representative at the councils of the manufacturers. His tact, his well-known record in advertising (illustrator of Community Plate and Phoenix Hosiery campaigns), his ability as an artist, all conspire to give him an almost academic standing. He is one of the top earners, has done a wider variety of work than any designer, deplores specialization as deadening. He is direct and practical, has an unbroken record of commercial successes.

Gustav Jensen (no relation to the silver-smith) is generally regarded as the top man from the purely artistic point of view. He believes that every article has a certain best basic design, which the public will recognize, and this he tries to find. His Monel Metal sink has had a great artistic success, has aided International Nickel Co. in popularizing the metal. Jensen believes the value of the industrial designer is vastly over-



Adams Studios

### PROTECTOGRAPH

To beautify banking young Henry Dreyfuss designed this check protector for the Todd Co.

rated at present, that eventually the designer will take his place as a link in the chain of mass production.

Raymond Loewy, foreign-born designer, is the least publicized and one of the largest earners. He studied to be an engineer, fought for his native France, sailed to look for an engineering job in America. On the ship he drew a sketch to be auctioned for a seaman's benefit. It brought \$150. His fellow voyagers persuaded him to get into that curious American business, advertising. He did. As a free lance he worked for Saks. Still interested in engineering, he got into industrial design, did the Hupmobile '30, '32, '34. As a foreigner Loewy looks at Americans objectively, is good at determining their tastes. It was he who discovered that all Americans like the color green and the smell of lilacs.

Youngest of industrial designers is Henry Dreyfuss; yet he has achieved a Profile in the *New Yorker*, a personality article in the *American Magazine*, a big hand in the *Saturday Evening Post*; he likes to design one show on Broadway every season because his clients like to see his name in theatre programs. Dreyfuss stresses tact in dealing with plant engineers, admits his own engineering limitations. It was perhaps for this reason that Sears, Roebuck recommended him to their washing-machine maker. He did the Toperator. The manufacturer then reëngaged him, with Sears's permission, to do another washer for A. M. C., a buying syndicate for a group of large department stores. He is consultant to the Bell Laboratories, is particularly interested in office-equipment machinery, one of the "American specialties" on which our export trade in manufactured articles is built. He points with pride to his Todd Protectograph.

Working the Middle West out of Toledo and conceded to have the business there sewed up is handsome Harold Van Doren of the firm of Van Doren & Rideout. He caught Toledo Scale on the rebound after that company had ordered a number of designs from Geddes, failed to use them. The Van Doren Toledo Scale permitted lower costs, multiplied sales by ten. The company cannot say enough nice things about him to its manufacturer friends.

John Vassos might claim to be the most inquiring of industrial designers on the ground that he investigates two worlds for his ideas, the conscious and the subconscious. His subject is psychoanalysis. He draws pictures of people's phobias, their recurrent dream symbols, publishes them in books. He designs products to titillate the subconscious of purchasers, to cause them to reach impulsively for their pocketbooks. His Coca-Cola dispenser is an example. The chromium coils at the bottom of the little barrel that sits on the soda counter are there to suggest coolness. But the body of the barrel is made of red and green bands to give a sense of treasure guarded. A persuasive salesman, he can sell psychology and make people like it.

Sharply contrasting in character, method,  
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and purpose, these men have, once more, little in common save the title of industrial designer. Others, not described here, show a similar variety. The contrast reaches extremes in the cases of four others—four whose methods and ideas are far enough apart to indicate the boundaries of industrial design: Guild, Dohner, Geddes, and Sakier.

**LURELLE GUILD** (pronounced Guyld) started in furniture. He wrote an average of five articles a month for the women's magazines, turned them into 200 books and pamphlets. He scoured the country for antiques, wrote them up, sold them. His interest in early crafts led him to study Chauncey Jerome, New Haven clockmaker, inventor of stamped, interchangeable parts and thus one of the fathers of modern mass production. Guild took his interest in crafts still further. He moved an entire Early American village from New Hampshire to Darien, Connecticut. There he makes models so that he may present his designs in three dimensions and in the final materials.

In design Guild is as prolific as he was in writing. He redesigns about a thousand products a year, the numerical majority of which are art-industry products, makes an average of four finished drawings of each product. To maintain this high output he works almost entirely at his drawing board. His knowledge of mechanical drawing and of machinery enables him to deliver drawings from which plant engineers can work directly. Often he sends along a model from his village shops so that the sales department can judge the idea too. He sticks to his job as a designer, leaves engineering to the engineers. If he hits upon an invention in the course of his drawing and modeling of a product he patents it himself, assigns the patent to the manufacturer. He charges a fee based upon cost of service, takes a royalty for his profit. He claims that he has never designed a product that was a commercial failure, has never lost a client.

Guild is essentially practical, up-to-the-minute, never ahead of his time or behind it. "Beauty alone does not sell," he says, and often designs deliberately for people without taste. He is more interested in sales points than in classic grace. Many of his designs are pre-tested by the exhibition of finished models in department stores. Al-

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though in method, and in much of his actual work, Guild is closer than many other designers to the art industries, especially furniture and decorative metal work in which fields he has been active, he has quietly contributed a good number of genuine engineering improvements to the products he has worked on.

**FAR** indeed from the art industries is Donald R. Dohner among the dynamos of East Pittsburgh, where during the last four years he has made the title of Director of Art in the Engineering Department of Westinghouse serve as a passport into realms of which most artists have never even heard. He came well prepared, having previously been a teacher of design at Carnegie Tech, one of the liveliest centers of artistic instruction in the country, having also been consultant to Westinghouse for three years before taking on a full-time job.

On product design he works in close collaboration with the company engineers. After several days of drawing and discussion a model is made. Then the cost finders are called in. They estimate on every production operation involved, both tools and time. A number of compromises are effected. Another model is made and then Dohner goes to work on the sales department.

Such a program requires tact as well as talent. Dohner has both. It also requires something of a sales sense. Dohner got this from his father who was a liquidator of bankrupt merchandise stocks. As a boy, Dohner traveled around Indiana with his father helping to clear out inventories of hardware stores, clothing stores, drugstores; turned down offers to go with Marshall Field, Carson Pirie Scott. In an organization the size of Westinghouse the design job also calls for an ability to teach. Promising young men must be selected, trained, sent to other plants. This ability, proved at Carnegie Tech, Dohner continues to exercise.

In his time at Westinghouse Dohner has contributed to the design of 128 products: everything from micarta ash trays to Diesel-electric locomotives. His electric range out-sold previous models seven to one. His water

cooler captured 40 per cent of the national market in a few months. The Diesel-electric locomotive, a stubby, high, clumsy-looking affair, he painted so that it appeared longer, lower, more elegant. It was intended merely for an exhibit, was actually sold right off the exhibit floor. His design and paint job on a mercury-arc-rectifier—red body to signify danger, gadgets painted warm gray of a similar color-value to fade them away, aluminum top for swank—delighted utility engineers when it arrived, caused them to do general interior-decorating work on their station, then to invite the inspection of the citizenry. Paint, in short, did a public-relations job for a good customer.

**FROM** the quiet labyrinths of Westinghouse to the dazzling glare of international fame is the length of the gap between organization-man Dohner and bomb-thrower Geddes, "the man who has cost American industry a billion dollars"—presumably by making such visions of sugar plums dance in industrial heads that staid manufacturers needlessly scrapped perfectly good plant equipment to join the redesign movement. Geddes' ideas, founded on engineering principles and framed to fit the popular imagination, can destroy plants by making them obsolete as surely as would a ton of dynamite. If obsolescence is indeed a cost, then, Geddes boasts, he will have cost American industry far more than a billion dollars by the time he is through.

Norman Bel Geddes has always been a hard man to explain, to evaluate. Industrial design is his second career. His first was theatrical design. The sequence has left the world undecided as to just what Geddes stands for and the fact that he is a dynamic, volubly articulate individual only adds to the confusion. Moreover, as a stage figure he early lifted himself into the "professional-celebrity," "man-about-town" class, a category not immediately reassuring to the industrialist. He is a born showman, the P. T. Barnum of industrial design. Yet of all designers his is easily the most highly systematized shop, the nearest approach among the independent designers to industrialized industrial design. In his drafting rooms are twenty engineers, architects, and draftsmen; his record-keeping devices defy satire.

At the age of twenty-four Geddes made his first mark when he challenged the whole

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Bachrach  
**DONALD DOHNER**



N. Y. Times Studio  
**HENRY DREYFUSS**



Maurice Goldberg  
**NORMAN BEL GEDDES**



Rudolf Hindemith  
**LURELLE GUILD**



Ruth Bernhard  
**GUSTAV JENSEN**



system of Grand Opera production with his production of *La Nave* for the Chicago Opera Company. Climax of the opera is the launching of a ship. A conventional, painted backdrop of a ship as was used at La Scala, Milan, was considered. Geddes held out for a real ship, got it. His structure, towering seventy-five feet from the stage, appeared to jut out over the audience, bearing Rosa Raisa and supporting cast in full song on its prow. It was to be "launched," sliding back into the recesses of the stage away from the audience. Geddes engineered this mechanical *coup de théâtre* by building the ship in four sections. As the ship slid down the ways on tracks, the rear section, as soon as it was out of sight, was to be shunted off at right angles and the remaining sections were to follow the same course. Geddes had made the device work perfectly in model form, but, because a freight car bringing one of the ship's sections had lost its way, there had been no dress rehearsal of the launching. Geddes stood in the wings, his hands clenched till they were white, with red splotches at the knuckles, waiting for the orchestral burst, the clink of the sledges as the ship was launched. Everything had been calculated at reduced scale, nothing tried. The ship stirred, moved. The rear section made the switch, trundled off; the rest followed exactly as planned. Geddes fainted dead away, was unconscious for twenty-two hours.

As he had turned a theatre into a shipyard for *La Nave* so he turned a theatre into a cathedral for *The Miracle*. He has designed nearly 200 productions, over 4,000 costumes. He has originated plans for the architectural design of stages and auditoriums which have been widely adopted.

As a pastime, Geddes developed an elaborate war game, played by the movements of symbols on a large raised-contour map. Each side was played simultaneously by a staff of fourteen men. They met once a week to play, once a week for consultation. All orders were written on printed forms. At the end of a game the records made a book eight inches thick, a year and a half had passed. At one time of the twenty-eight players, seven were officers of high rank and representing five of the world's great armies.

In 1927, at the suggestion of his friend the late Ray Graham of Graham-Paige Motors Co., Geddes began his second career and became an industrial designer. He felt that the theatre was not the center of our

## Industrial Designers

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national life and by temperament he wanted to be in the thick of things. Gradually he carried his revolutionary theatre ideas, his military-staff methods into industrial designing. He added engineers, draftsmen, trade and consumer investigators to his staff, laid out their work on a carefully organized schedule. There have been as many as fifty, as few as fifteen people on this staff. The work is laid out in stages, apportioned, scheduled on job tickets. At stage three of a job, a large number of people may be at work. If two jobs are at the peak stage at once, many hands and brains are required. At a further stage only part of the staff may be working. It is the essence of the Geddes credo that a client who comes to him tacitly admits the failure of his own designing engineers to do what he asks Geddes to do. Hence the staff, which with the close co-operation of the client must succeed in beating competitors at their own game. Geddes claims his staff must exist to prove the radical practical.

Hiring people and letting them go did not secure the high type of coöperative talent Geddes requires. To employ the idleness his method forced upon his regulars, Geddes several years ago started what he calls "development work." He would set a problem: "Build a body to carry people over the ground in safety at a high speed, or else get a thousand luxury lovers from New York to Paris fast. Forget the limitations. Think of people, the earth's surface, basic engineering principles." The job would then be regularly scheduled to fit in otherwise slack time. Out of this sort of program, now six years in operation, have come the designs of ovoid ships, cars, and trains, nine-deck airliners, multicellular houses, which put Norman Bel Geddes in the small company of Sunday Supplement subjects along with his admirer Stratosphere Piccard, Hugh (City-of-the-Future) Ferriss, and the rocket trip to Mars. These drawings have built the Geddes myth. But these drawings, Geddes insists, are made from the inside out, depict thoroughly practical projects, have many patentable features.

Going over an accumulation of "development work" with his lawyers just prior to

its publication in a book, Geddes found the expense of the hundreds of possible patents too great to pay for at once. He asked the lawyers to select and patent the most practical devices. Considered by the lawyers too remote to bother patenting at once was Geddes' streamline train. Six months later Union Pacific announced plans to build such a train. Newsmen, thinking they recognized the Geddes design from his well-publicized book, called him for a further story. There was none. The U.P. train was news to Geddes too.

If Geddes, as some say, has cost American industry a billion dollars the stimulus that he has given to American industry may show more than a billion-dollar profit when the account is finally balanced. His book *Horizons*, lies on many an important desk in Detroit and in Wall Street. The book pictures the Parthenon cheek by jowl with grain elevators. In 1921 Corbusier, the architect, did the same in his book but not many industrialists have read Corbusier. It has been old stuff ever since. Geddes, in his artistic criticism, is far from original, rather a popularizer of the H. G. Wells type. But as such he is effective, forceful. At present a train like the one he pictured in the book is being built; new motor cars just announced resemble his designs; his airliner, his ocean liner, his revolving airport have the appeal of logic. When he turned aside to design store windows he started a national fashion; his treatment of metal as metal and not as imitation wood started another. He is often embarrassed by being called the father of streamlining, especially when such bastards as streamlined stoves are laid at his door by trade-paper editors. Streamlining of anything that moves at a speed of less than forty miles an hour is merely a senseless style. Yet Geddes' radical achievements still remain chiefly in the future. In the industrial field he has had less produced than any designer of similar reputation.

Geddes is often ahead of his time, but not so very far ahead. Often he strikes terror to industrialists not because his ideas are visionary but because they may prove practical. The adoption of his ideas might render plant obsolete. Those who attack him are usually those who resist any write-off to obsolescence. They are of the same mind as those who approve the paying out to a famous inventor by a big manufacturing

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ital Phylle

RAYMOND LOEWY



GEORGE SAKIER



Lazarnick

WALTER D. TEAGUE



Souren

HAROLD VAN DOREN



JOHN VASSOS



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company of \$20,000 a year on condition that he stop inventing, so devastating were his inventions to the even tenor of their ways. They are those who believe in the sabotage of invention for the benefit of existing plant.

The cry of industrial sabotage, the protest against hiding useful inventions behind locked doors in deference to existing capital and in defiance of the consumer, is more often raised than it is merited. Competition is seldom under such control as to permit the practice. But the charge is most frequently raised in the building industry, the large industry least touched by the industrial revolution.

THE conflict, as it concerns industrial design, is brought into sharp relief by the philosophy and practice of George Sakier, head of the Bureau of Design Development of American Radiator & Standard Sanitary Corp. and an independent designer as well. Sakier is probably the purest type of industrial designer among those here described. He started life in New York as an engineer, designed automatic machinery, got into art by painting camouflage during the War. After the War he taught machine design and engineering mathematics. As a contributor to European art periodicals one of his achievements was to stimulate the rescue of the Mayan collection from the cellar of the Trocadéro in Paris. He proved to the French that America had an ancient art. The Mayan collection is now on exhibition. As a "pure" artist, his position is attested by the fact that his paintings are shown at Julien Levy's ultra-modern gallery. As a practical artist he won his spurs in a spectacular manner: with the introduction of his designs in glassware, American open-stock glass for the first time took precedence over European, and finally he won the distinction of having his own designs for glass pirated in Europe.

Sakier believes in giving the public what it wants, not what some artistic individual thinks it ought to have, has carried the technique of doing this further than any other designer in the

new industrial field. He says there are more unsung triumphs of industrial design in Woolworth's than elsewhere, feels elated when one of his designs eventually is copied in the variety chains. He draws his designs ahead of popular demand, says he waits for the lag between designers' fashions and popular fashions before he releases them. For this he has been criticized as having a "locked door" policy—a locked door behind which new designs must await their turn. Sakier's answer is that the locked door represents not sabotage against the public but his own mature and human consideration for the public's tastes.

In the business of American Radiator & Standard Sanitary the problem becomes more complex; the lag in design is between three and ten years, as compared to the six-month cycle in glassware. Radiator's philosophy runs like this: as a maker of boilers, furnaces, bathtubs, basins, it is essentially a parts manufacturer, serving architect and builder. The final product, the house, costs a lot of money, is made to last a long time. If a rapid rate of obsolescence is maintained in the parts supplied, the company points out, the value of the whole investment is impaired. The obsolescence must proceed slowly and fairly evenly as between one part of the house and another. A brand-new range may make the rest of the kitchen look shoddy, force an unwarranted expenditure in bringing the other equipment up to date. Which is all nicely logical, but leaves untouched the basic indictment of the reactionary building industry which, in an industrial capitalistic country, is technologically unable to build houses cheap enough to house two-thirds of the people above a minimal standard of decency.

American Radiator has taken the lead among the old-line corporations of the building industry in seeking some answer to this indictment which will be consonant with a profit economy, though many question whether any such answer can be found. Sakier supports the corporation's point of view, likes to point out

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### The "Art Industries"

... being the classification used at the Twelfth Exhibition of Contemporary American Industrial Art at the Metropolitan Museum of Art, New York, 1931

Ceramics, glassware, enamels  
Furniture  
Leatherwork  
Metalwork and lighting fixtures, including lamps  
Plaster work  
Rugs, carpets, and linoleum  
Silverware  
Synthetic materials and applications  
Textiles  
Wallpaper

To which list should be added:

Jewelry (*original art industry*)  
Printing (*oldest machine mass production industry*)

### The Formerly Artless Industries

Some of the industries, as classified by the U.S. Census of Manufacturers, in which a representative company has employed an artist to assist in product redesign:

Aluminum manufactures  
Carriages and sleds, children's  
Cars, electric and steam railroad  
Cash registers; adding, calculating, and card-tabulating machines  
Clocks, etc.  
Electrical machinery, apparatus and supplies  
Food industries\*  
Gas machines  
Locomotives  
Motor vehicles  
Optical goods  
Pens, fountain and stylographic  
Refrigerators, mechanical  
Scales and balances  
Sewing machines  
Stoves and ranges  
Washing machines, wringers, driers, and ironing machines for household use

\*Most of the thirty-two industries in the food group as well as drug products and soap are receiving artistic treatment in design of package, label, container, or dispenser. Industrial designers do not regard such work as "industrial design," call it "packaging."

that his new unit bathrooms, stamped from metal, are the first prefabricated house units actually in production. They can also be used for modernizing without causing obsolescence in the rest of the house. The entire bathroom with the three major fixtures and the walls and floor can be assembled as a single unit or the parts can be used separately. One hundred and thirty-three of them are now being put into a Washington, D. C., apartment house. Four hundred more have been specified in a building soon to be erected. There has been no display, no advertising. The merit of the product has sold it, and Sakier is certainly entitled to his boast that it is an evidence of sound initiative.

Thus in every instance one returns to the three dimensions of industrial design: appearance, cost, use. Again confusion attends the varying emphasis put on each

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of these factors. Yet for all the complexity of its three dimensions, industrial design is certainly here to stay in a number of industries that knew it not before. But the varying methods by which similar products are being designed raises the question of how this designing is going to be done.

Few companies are big enough to keep a first-class designer and his staff fully employed, so long as a design job once done is good for a number of years. These few big companies, however, in the new fields in which design matters, will probably follow the lead of Westinghouse and American Radiator & Standard Sanitary. The contrast between General Electric and Westinghouse in this particular is significant. General Electric has employed a number of well-known designers on a number of different jobs, believes the work has proved valuable, cannot prove the value in dollars and cents. Westinghouse, having gone through a similar experience, now can at last demonstrate with Dohner that design is worth money.

For the smaller companies journeymen designers will probably continue to serve. There is a feeling that since design is a competitive weapon no one designer should serve more than one client in any field. At present there is being waged a "war of the washing machines" in which Guild, Dreyfuss, and Teague are the leaders, there is a free-for-all struggle in stoves, and the makings of a lively conflict of talents is now brewing in the office-machinery field.

As far as single manufacturers are concerned, a company will probably get one designer and stick to him until its entire line is done, because the methods and personality of one designer will fit the organization better than another's and because there is thought to be a merchandising advantage in having a family likeness among products in a line. Such jobs have already been successfully undertaken by independent designers: Teague has been retained for six years continuously by Eastman, has designed cameras, is designing the stores in which to sell them. He has also done a line of Taylor instruments, of Pyrex ovenware. Guild has redesigned the Aluminum Co.'s Wear-Ever line, did a similar job for Chase Brass, is undertaking others. In industries large enough to warrant, industrial design is gradually being assimilated. Dohner and Sakier are already on the inside. Teague and Guild, who have done the greatest volume of work, play very close to their clients.

The relation of the designer to the engineering and sales departments is neither simple nor clearly defined, for the problems of designer, engineer, and salesman meet and overlap. Admittedly the designer must know enough about engineers and salesmen to work with them intelligently and the presence of such necessary knowledge and

### A Page From Industrial Design's Dividend Account

*A few authenticated cases of success*

#### *Westinghouse's Electric Range*

Sales increase: 600 per cent  
Tool cost: 25 per cent of former model  
Production cost: lower  
Designer: D. R. Dohner

#### *Aluminum's Coffeepot*

Sales increase: 40 per cent  
Tool cost: higher  
Production cost: lower  
Designer: Lurelle Guild

#### *Parker's Vacuumatic Fountain Pen*

Sales increase: 100 per cent  
(Retails at \$7.50 and outsells equivalent undesigned \$5 pen in the ratio of two to one)  
Designer: Joseph Platt

#### *Toledo's Scale*

Sales increase: 900 per cent  
Factory costs: lowered  
Designer: Harold Van Doren

#### *Dictograph's Acousticon*

Net profit increase: 50 per cent  
Selling price: reduced  
Designer: Joseph Sinel

#### *American Gas Machine's Oil Heater*

Sales increase: 400 per cent  
Cost increase: 12 per cent  
Price increase: 12 per cent  
Designer: Walter Teague

#### *Perey's Turnstiles*

Sales increase: 25 per cent  
Factory costs: lowered 15 per cent  
Designer: John Vassos

#### *Colonial's Radio*

Sales increase: 700 per cent  
Tooling cost: \$15,000  
Designer: Raymond Loewy

tact is about the only common denominator of the four designers mentioned immediately above—four men who are also distinguished for their commercial success.

Whatever the immediate results of his contact with the plant, whether headaches or triumphs, most manufacturers agree that the industrial designer has stimulated all those he has met in the company's organization, given them new ideas, new energy, a new attitude. This stimulation has often led ultimately to profits which cannot always be directly traced to the designer but which are in a measure due to his influence.

Designers will not cure our industrial ills, for our ills lie deeper than design. But the success of industrial designers is symptomatic of a changing attitude on the part of the manufacturers, a growing recognition of the old American ideal of progress: cheaper and better goods for all.