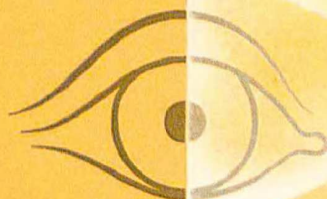
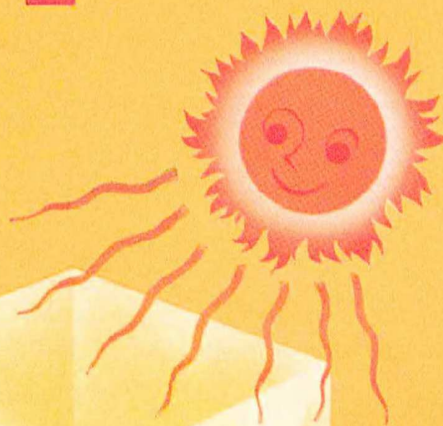


DU PONT

May • June, 1949



PACKAGING



Better Things for Better Living
...through Chemistry



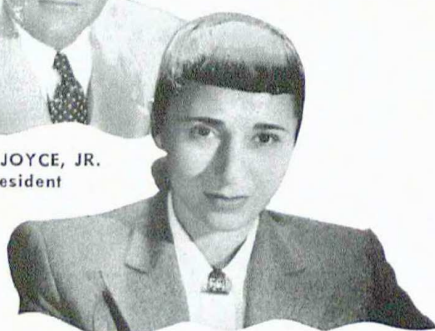


joyce 'TURF TOPPERS'

*were built
around colorful, durable
Neoprene Crepe Soles*



W. H. JOYCE, JR.
President



FAIE JOYCE
Designer and Stylist

SAY THE JOYCES OF JOYCE, INC.

"IN designing Turf Toppers, we had certain objectives in mind. We wanted a construction which would be unusually durable and have flexibility and springiness; a shoe which could be worn in wet or dry, hot or cold weather,

This was quite a target and required a superior type of sole. In the midst of our search for the best material, samples of soles made of Du Pont neoprene crepe were submitted for our consideration. Laboratory test results showed us that this material was just what we were looking for. But to be absolutely sure, we completed hundreds of wear tests on these soles. The results convinced us that neoprene crepe was the ideal sole for Turf Toppers."

HOW WELL DO YOU KNOW DU PONT NEOPRENE CREPE?

Look at these advantages listed below! They're your key to

profitable new designs . . . for campus, sports and casual styles. Because neoprene crepe offers a combination of durability and unusual, brilliant beauty that's bound to boost "buy appeal."

Permanent Shape—soles retain shape and smart appearance.

Brilliant Colors—can be produced in almost any hue.

Long Service Life—resists oil, grease, softening, abrasion.

Freedom from Tackiness—cuts down tracking and grit pickup.

Excellent Uniformity—your assurance of dependable quality.

So look into the possibilities of neoprene crepe for *your* line. It means styles that *sell* . . . customers that stay *sold* on your shoes. For more information, see your sole manufacturer or send in the coupon below. E. I. du Pont de Nemours & Co. (Inc.), Rubber Chemicals Division, Wilmington 98, Delaware.

For Style . . . Color . . . and Shape . . . use

DU PONT
NEOPRENE CREPE



BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

SEND FOR NEW FREE BOOKLET



E. I. du Pont de Nemours & Co. (Inc.)
Rubber Chemicals Division D-37, Wilmington 98, Del.

Please send me your new illustrated booklet "Neoprene Crepe Soles," containing full information on neoprene's unusual properties . . . data on comparative tests . . . detailed description of its superior qualities.

Name _____ Position _____

Firm _____

Address _____

DU PONT

MAGAZINE

Vol. 43 No. 3



BETTER THINGS FOR BETTER LIVING...
THROUGH CHEMISTRY

E. R. Manchester, Editor

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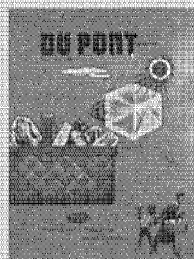
PHOTO CREDITS: Page 11, courtesy: top, Aluminum Company of America; bottom, General Outdoor Advertising Co. Page 18, bottom, right, courtesy: Barre Wool Combing Co., Ltd. Page 23, center, courtesy: Consumers Petroleum Co.; bottom, Kawneer Co. Page 29, bottom, center, courtesy: "Locker Management."

COVER: Ernest Capobianco and Domenico Mortellito were enthusiastic about an assignment to paint a "packaging" cover. "Good," Cappy said, "the packaging industry has come a long way in the last 25 years. Products today are protected better and at less cost, and packages have eye appeal."

We agreed, and asked what they planned. The main object on the cover could be a market basket, one of the artists said. "We'll fill it with chicken wrapped in polythene, cans painted with Du Pont finishes, food packaged in Cellophane, jars with "Cel-O-Seal" cellulose band closures . . ." He talked on.

When the first sketch was done, we saw an eye like the one on the previous "pigments" cover. We asked: "That eye again. Why?" Artists always have their answers ready. Simply to show that you can see through Cellophane, they said, that's all.

Printed in U.S.A.



There's a cowboy in Wyoming



There is a lawyer in New York . . . a retired businessman in Florida . . . a teacher in Vermont . . . a housewife in Illinois—in every state of the Union live stockholders who own the Du Pont Company. Adding them all up, there are over 94,000; and more than 45,000 of them are women.

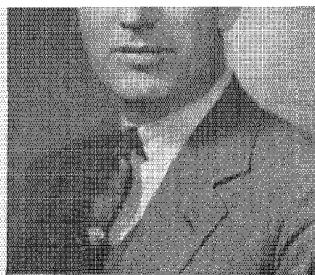
But there's a lot more to the picture. Banks, estates, trusts and organizations represent more than 200,000 persons who are direct beneficiaries of Du Pont stock ownership. Policyholders and stockholders of insurance companies which own Du Pont stock make up the millions more who share in the success of this Company.

Does this surprise you? It should not, since it is typical of the ownership of a large American business.

You know what a large business is. It is simply a business that has kept on growing—because more and more people are investing their money to pay for more tools and equipment. More and more people are working hard at their jobs to keep production high, costs low. More and more people, through research, are giving a lifetime of effort to develop new products to serve America better.

But beyond this, a large business is one that continues to grow, because more and more people show their preference for its products. By buying or not buying them, the public votes whether a company shall grow—stand still—or fail.

This, after all, is the American way . . . a partnership of free people working together for the benefit of all, abiding by the free choice of the buyer and the seller. So far, no nation has found a better way. Under no other system have men, women and children such a full share of better things for better living.



Crawford H. Greenwalt became the Du Pont Company's

10th president early in 1948. Here are highlights of special interest to customers and friends from his annual report to stockholders.

Our 147th year of business

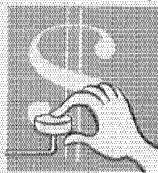
THE YEAR 1948 was for the Du Pont Company, as for industry as a whole, a year of exceptionally high production and industrial activity.

Dollar sales to customers amounted to \$968.7 million, some \$185 million larger than in 1947, the previous record year. Roughly two-thirds of this 24 per cent increase . . . was due to increase in physical volume of goods sold, and one-third resulted from higher prices . . .

Customers bought record amounts of a number of important products—for example: nylon, Cellophane, acetate rayon, pigment colors, methanol, antifreezes, and hydrogenated products. Larger viscose rayon production, resulting from more efficient utilization of existing facilities, made more of that product available to customers. Increased industrial requirements, particularly of the household equipment industry, and broader distribution of consumer paints, resulted in record sales of protective finishes. Sales of commercial high explosives reached an all-time peak, due principally to the larger requirements of the coal industry . . .

Sales were increased in part by the Company's entry into the manufacture and sale of tetraethyl lead, for its own account, to the oil industry . . .

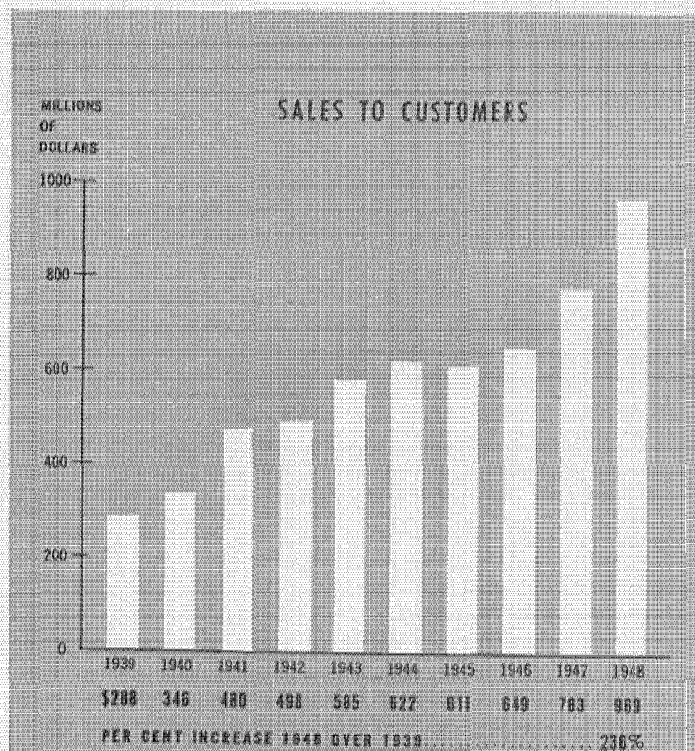
sales prices



The more important elements of the Company's manufacturing costs continued upward during 1948 . . . It was not possible to absorb the high operating costs and still maintain, in all products, a reasonable profit margin at the sales prices prevailing during 1947 . . . Changes

in sales prices, both increases and decreases, resulted in an increase of about 7 per cent in the Company's sales price index . . .

The adverse effect of higher operating costs on earnings was offset . . . principally by a larger volume of production accompanied by economies resulting from improvements in manufacturing processes and facilities. It should be remembered, however, that this gratifying performance has been achieved in a period of very high business activity, and there is no assurance that the Company can continue to absorb increased costs should an important decrease in sales volume occur.

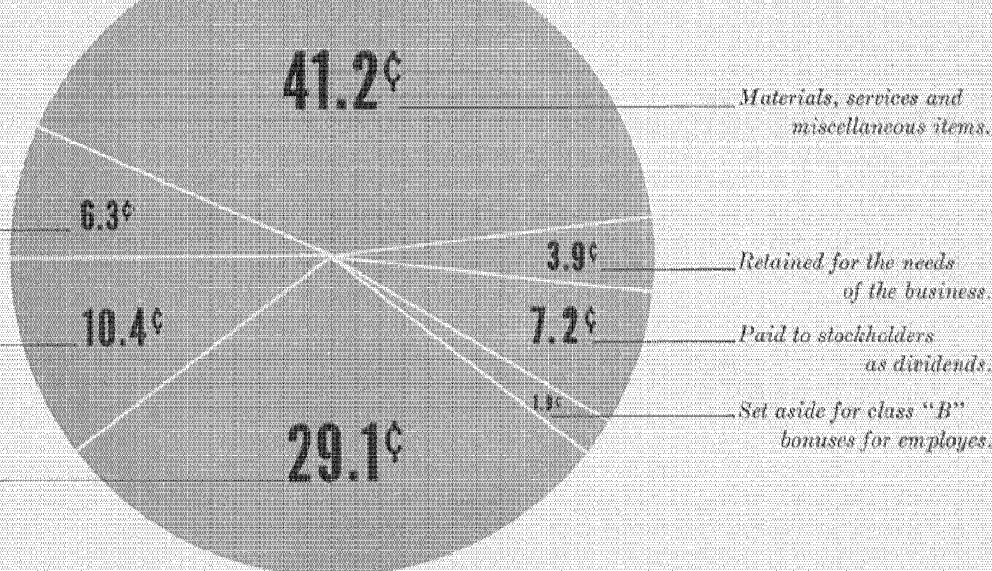


WHERE THE CUSTOMERS DOLLAR WENT IN 1948

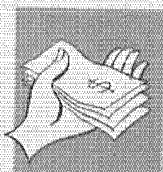
*Set aside for depreciation
and obsolescence of plants
and equipment*

*Set aside for
applicable taxes.*

*Wages and salaries—and
paid or set aside for
employees' benefit*



earnings



Earnings applicable to the Common Stock for 1948 were \$13.12 a share, compared with \$9.88 a share for 1947 . . . The year-end dividend for 1948 was the 177th consecutive quarterly dividend paid on the Common Stock . . .

There has been much public discussion of corporate profits in recent months. It has been argued that postwar profits have been too large, and that profit margins should be reduced through taxation or other methods of redistribution . . . This view

largely disregards the high volume of business, the price level and the basic importance of adequate profits to the growth and development of the American economy . . .

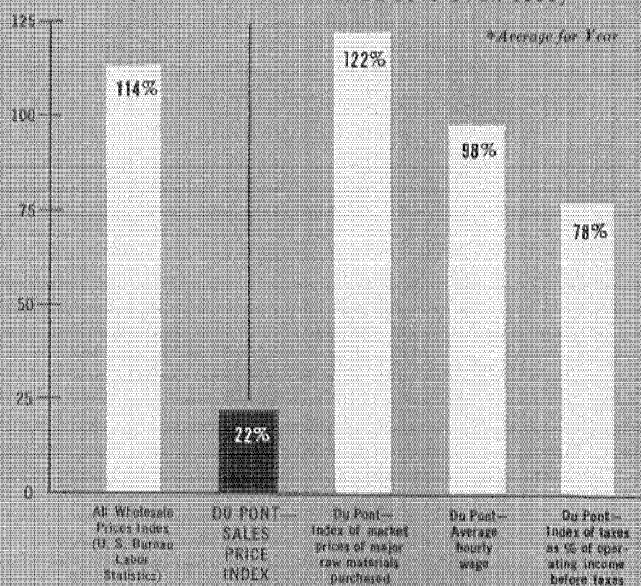
The Company believes that its profits can be most accurately expressed when shown in relation to the investment dollar as shown by the chart on the next page. This is because it is the return on investment which determines whether or not capital will be left in the business and new capital obtained for expansion, development and improved services.

The principal function of industrial enterprises is the production of needed goods and services in ever-increasing abundance and variety, and at ever-decreasing price.

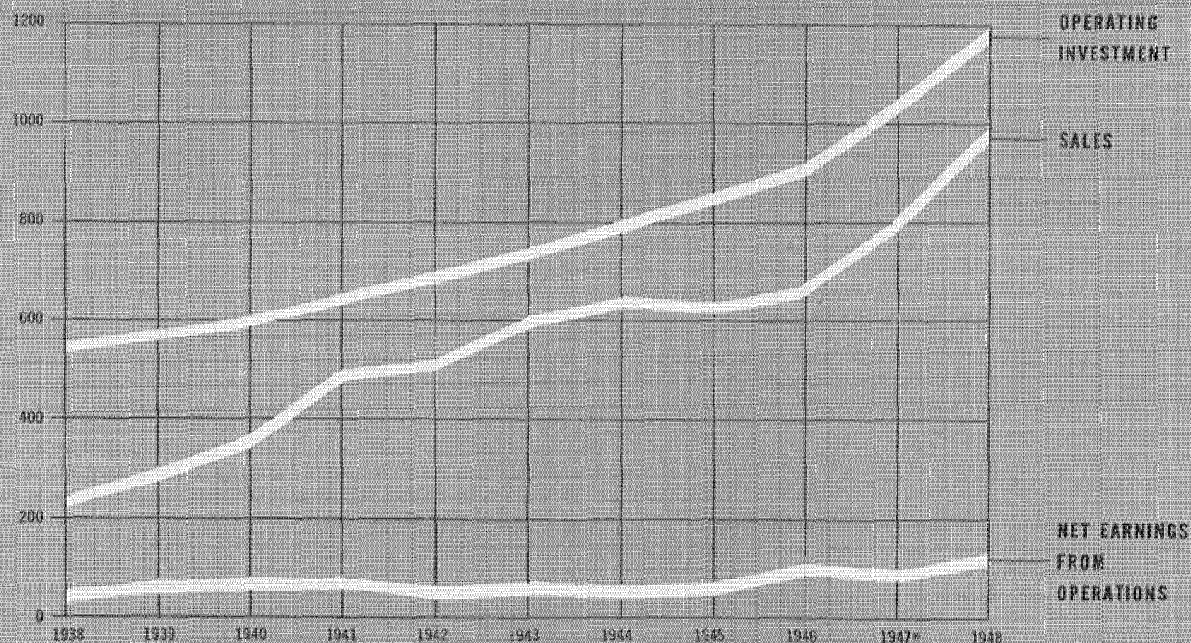
The Du Pont Company of today is the evolution of a typically American small enterprise . . . established near Wilmington, Delaware, in 1802. The original investment in that enterprise by six shareholders amounted to \$36,000, which financed the building of a small plant for the manufacture of a single product—gunpowder.

The Company, since its small beginning . . . has become a large enterprise with correspondingly large responsibilities. The Company considers those responsibilities to include adequate profits for stockholders, expanding opportunities for employees, and the development and production of a variety of useful products which can be bought at fair prices by the consuming public. To fulfill those responsibilities the Company must continue to have great resources—in manpower, capital, technical knowledge, and managerial ability—all of them functioning cooperatively under the incentive of the profit system.

INDICES* OF SALES PRICES AND MAJOR COSTS
(AS PERCENT INCREASE 1948 OVER 1939)

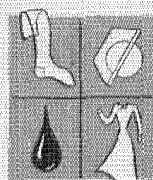


OPERATING INVESTMENT RELATED TO SALES AND NET EARNINGS FROM OPERATIONS



* The \$20,900,000 set aside to the reserve for excessive construction costs in 1947 is treated as an operating charge in arriving at Net Earnings from Operations.

construction

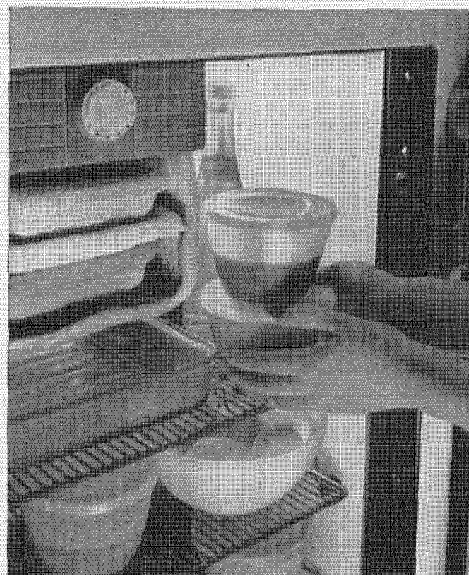


During the year, \$116.7 million was expended to provide additional manufacturing capacity and service facilities and to improve existing equipment to meet consumers' requirements . . . This program was required to meet the expanded demand for certain prewar product lines, and to commercialize new processes and products developed since the prewar years...

In 1948, the expenditures for additional capacity were principally for the manufacture of:

- Nylon products*
- Polythene plastics*
- Methanol*
- Titanium pigments*
- Acetate rayon yarn and staple*
- Synthetic organic insecticides*
- "Monastral" pigments*
- Urea for use in plastics and agriculture*
- Cellophane*
- Synthetic detergents*
- Acrylic resins for plastics.*

Additional capacity for the manufacture of neoprene synthetic rubber was provided by the purchase of the Government-owned neoprene plant at Louisville, Kentucky . . . This plant, the initial unit of which the Government acquired from the Du Pont Company in 1942 . . . was operated and considerably expanded by the Company since that time for the account of the Reconstruction Finance Corporation. Price of the plant is included in construction expenditures for 1948.



POLYTHENE PLASTIC (DISHES)

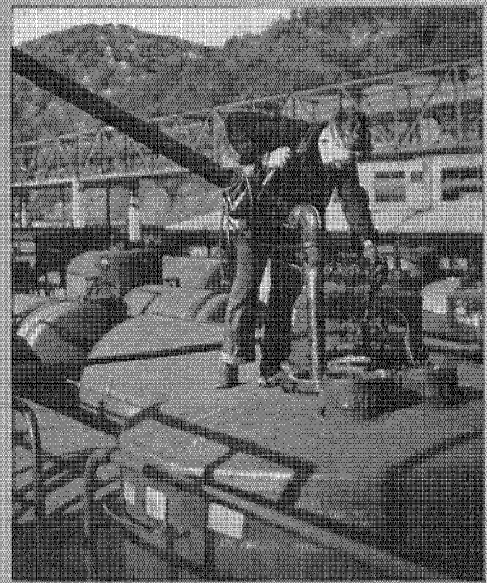


SYNTHETIC ORGANIC INSECTICIDES

In 1948, consumers wanted more of the chemicals, or articles made from them, pictured on these two pages. To satisfy this demand, the Company increased the facilities for their manufacture.



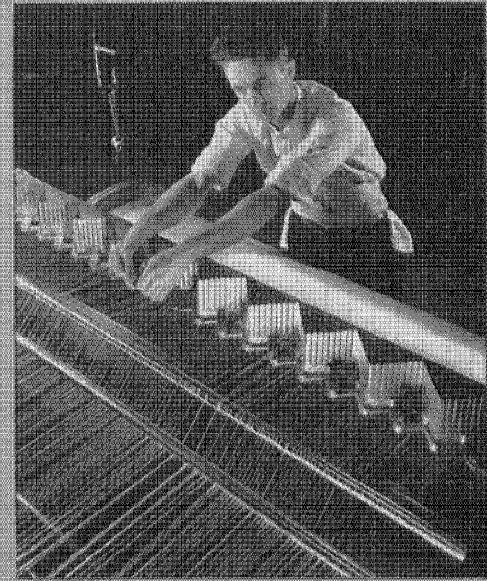
NYLON FABRIC



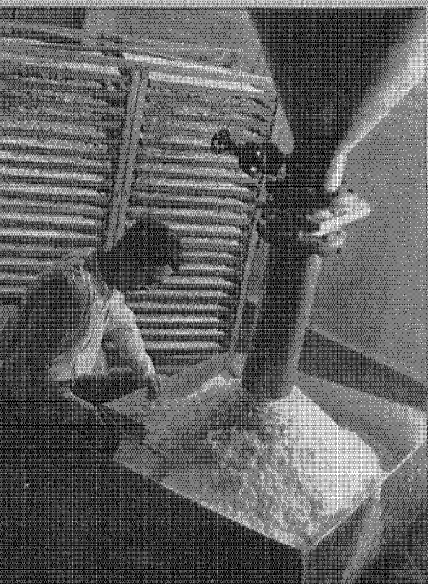
METHANOL



NEOPRENE (CONVEYOR BELT)



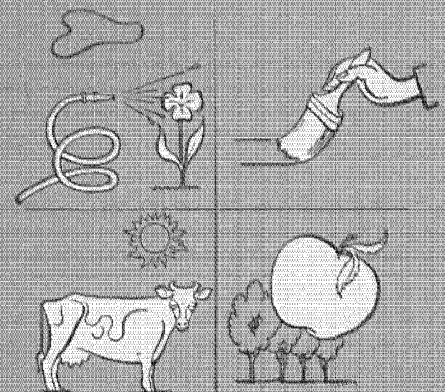
RAYON

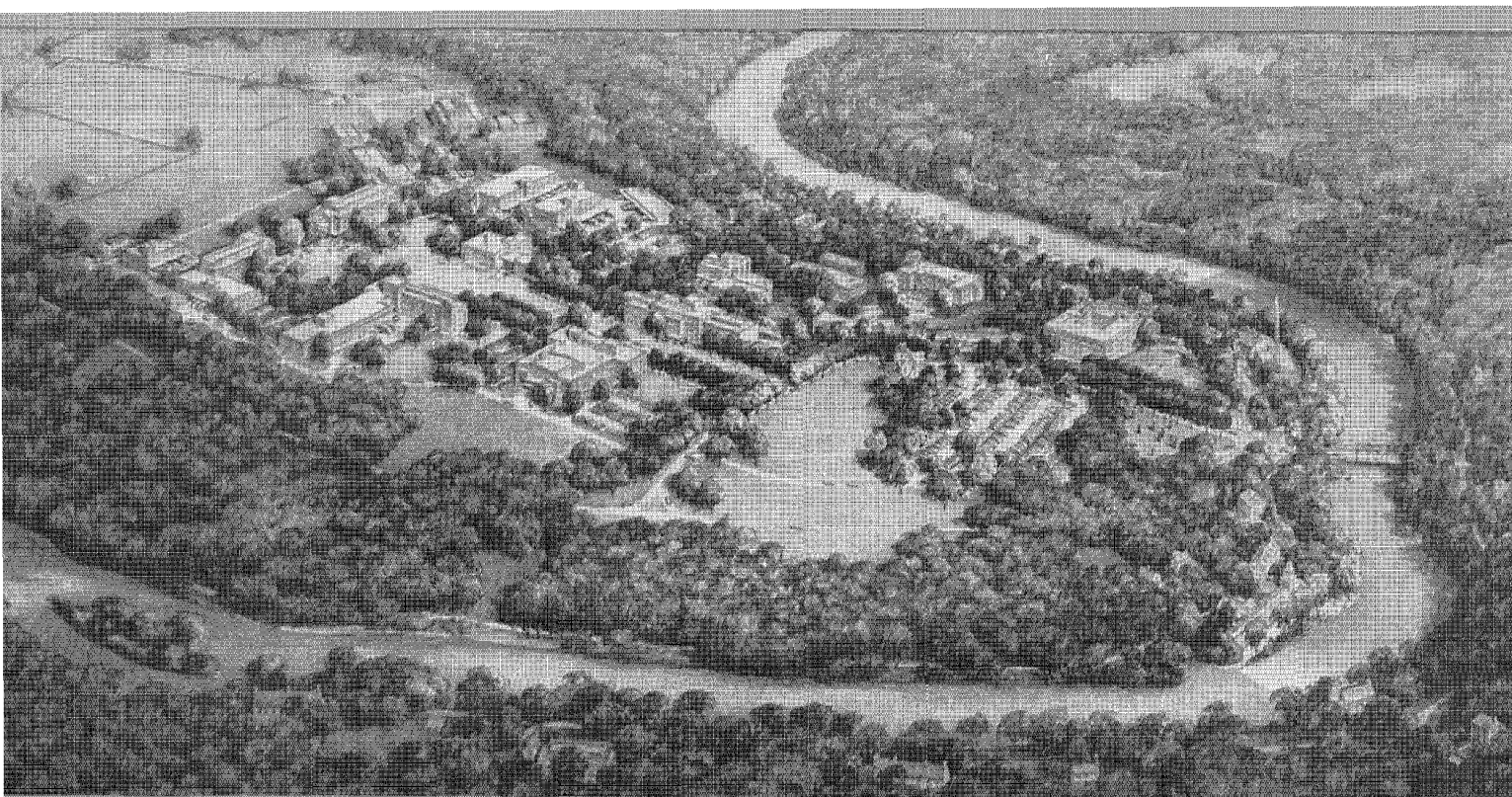


UREA FOR PLASTICS, AGRICULTURE



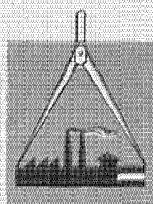
SYNTHETIC DETERGENTS FOR INDUSTRY





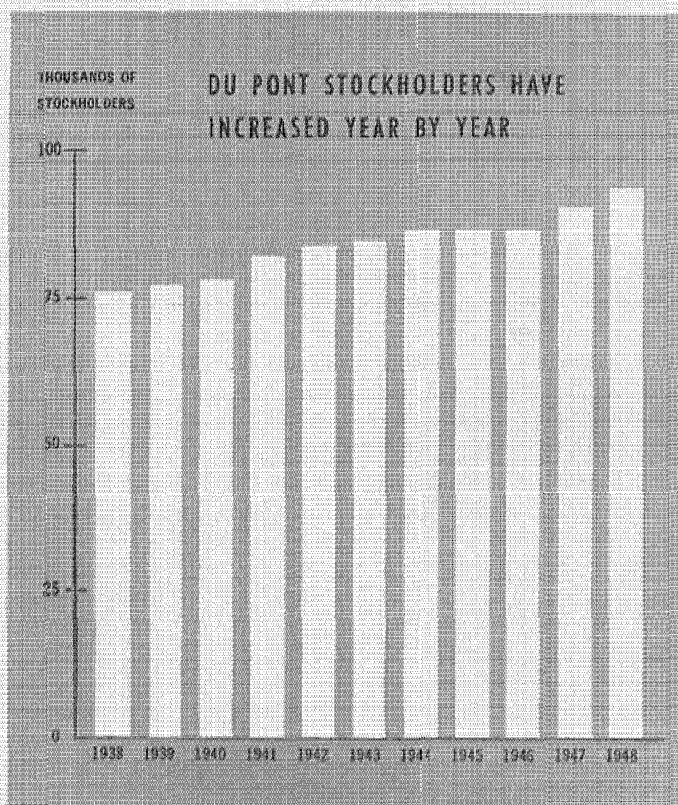
AN ARTIST'S CONCEPTION OF HOW THE ENLARGED EXPERIMENTAL STATION AT WILMINGTON, DELAWARE WILL LOOK WHEN COMPLETED ABOUT 1950.

more research facilities

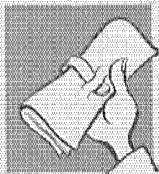


The Company believes that an aggressive and forward-looking research program is the dominant factor influencing the sound growth of its business. Accordingly, the management is continuing to stress fundamental research and pioneering-applied research, with a view to the development of new processes and products . . . New research facilities have been completed at six locations since the war, and enlarged and improved laboratory facilities are authorized or projected for ten locations.

The enlargement of the Experimental Station at Wilmington, Delaware represents the most ambitious laboratory project ever undertaken by the Company. When completed about 1950, at an estimated cost of \$30 million, the expanded Station will accommodate approximately 2,500 employees, of whom about 900 will be technical personnel engaged exclusively in research . . .



ownership of the company



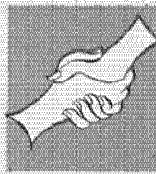
At the end of 1948, the stockholders numbered 94,901. This is an increase of 3,700 over the previous year and more than 18,000 in the past decade.

Du Pont stock is owned by residents of every state in the Union, the District of Columbia, several territorial possessions, and of 40 foreign countries. About 1½ per cent of the stock is held by residents of foreign countries.

The actual number of stockholders is only a small fraction of the total number of persons having direct or indirect interest in the earnings of the Du Pont Company through stock owned by insurance companies, banks and charitable and fraternal organizations . . . There are, in fact, millions of persons who have a beneficial interest in the earnings of the Company.

This illustrates to the people of the country the importance of the sound and profitable operation of a company whose securities are so widely held as those of the Du Pont Company.

employees increase

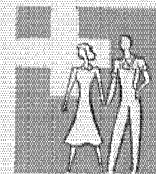


At the end of the year, 76,470 employees, including employees engaged in construction, were on the rolls of the Company and its wholly-owned subsidiaries, compared with 75,945

at the end of 1947.

The Company's monthly separation rate is only 18 per thousand employees, as against a national industrial average of 45 separations per thousand.

safety record improves



Preliminary figures indicate a rate of about one time-losing injury for every 1.2 million man-hours worked.

This is the best performance for any year in the history of the Company

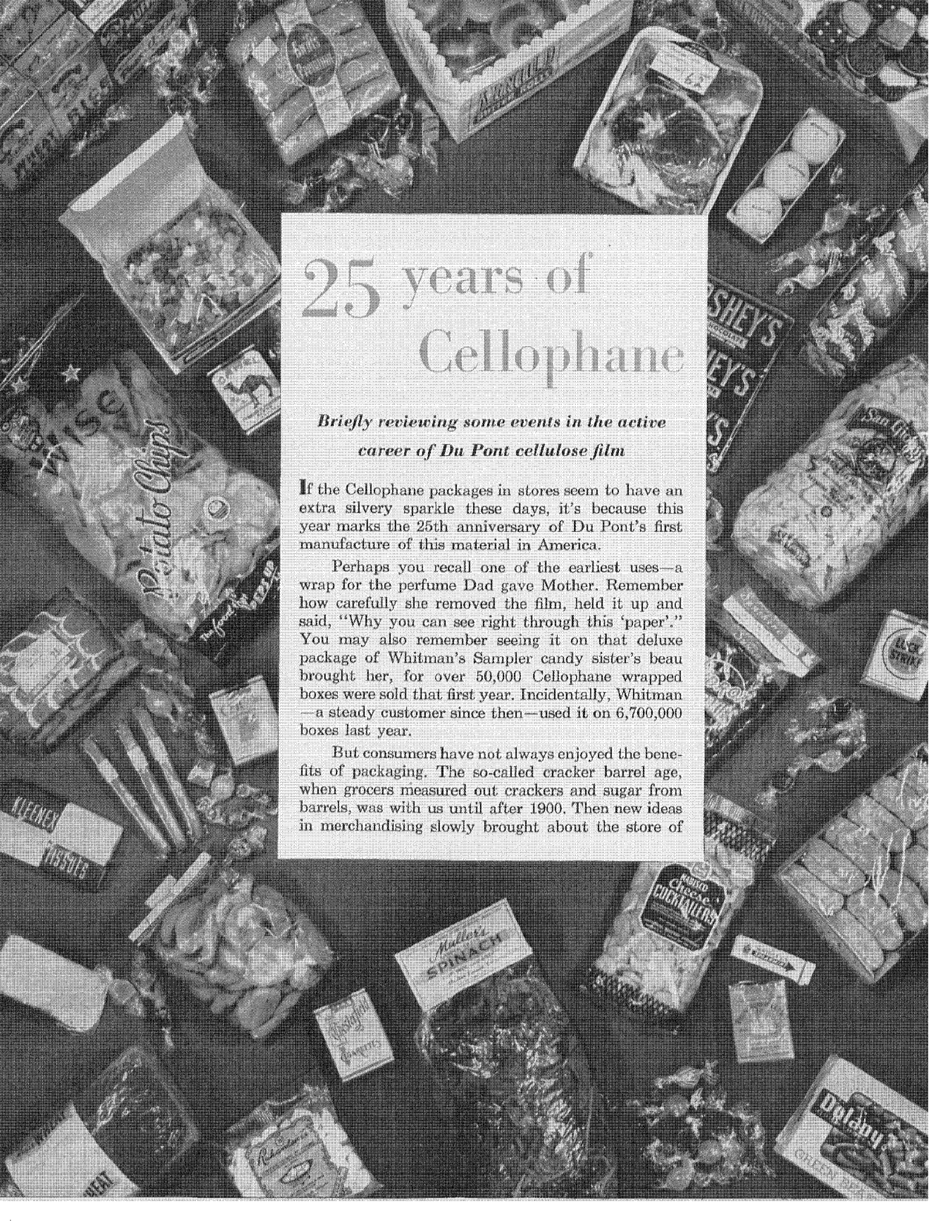
—and an improvement of about 10 per cent over 1947 . . . The Company's injury rate is less than 10 per cent of that experienced by the country's chemical industry as a whole . . .



EXECUTIVE COMMITTEE

Composed of the president as chairman, and the eight vice-presidents, this group sets the policy of the Company and is responsible for its management and direction, except for matters specifically reserved for other committees.

President Greenewalt, far end, presides. Others, reading clockwise, are: Roger Williams, C. A. Cary, H. B. du Pont, W. J. Beadie, Walter Dannenbaum (talking), W. H. Ward, J. W. Kinsman, A. B. Echols, Secretary F. G. Hess.



25 years of Cellophane

*Briefly reviewing some events in the active
career of Du Pont cellulose film*

If the Cellophane packages in stores seem to have an extra silvery sparkle these days, it's because this year marks the 25th anniversary of Du Pont's first manufacture of this material in America.

Perhaps you recall one of the earliest uses—a wrap for the perfume Dad gave Mother. Remember how carefully she removed the film, held it up and said, "Why you can see right through this 'paper'." You may also remember seeing it on that deluxe package of Whitman's Sampler candy sister's beau brought her, for over 50,000 Cellophane wrapped boxes were sold that first year. Incidentally, Whitman—a steady customer since then—used it on 6,700,000 boxes last year.

But consumers have not always enjoyed the benefits of packaging. The so-called cracker barrel age, when grocers measured out crackers and sugar from barrels, was with us until after 1900. Then new ideas in merchandising slowly brought about the store of

the 20s where grocers sold more products put up in cartons or bags. They learned that customers liked the greater cleanliness and convenience of unit packages.

In the early 1920s Cellophane came into the packaging field as a most significant improvement. This tough, transparent film satisfied the shopper's age-old desire to "see what I buy" and also assured sanitary protection against dirt and handling. Many of the good things of life were wrapped in this film, but it wasn't yet altogether satisfactory for certain kinds of food and other products that were sensitive to moisture. So chemists were asked to develop a film that would do a better protective job.

MOISTUREPROOF CELLOPHANE

In 1927, after more than 2,000 experiments, Du Pont announced that a moistureproof Cellophane had been perfected. It kept moisture in, or out, as desired—preserving freshness and flavor.

The cigar industry was one of the first to accept this better material. Smokers' demands for cigars wrapped in the new film became so insistent that some manufacturers had to recall shipments from the market and repackage them. Today, this Cellophane protects thousands of products—from baked goods, cigarettes, frozen foods and fresh vegetables to paper napkins, hosiery and even clothespins.

For many packaging needs, Du Pont has developed special types of film. At present there are more

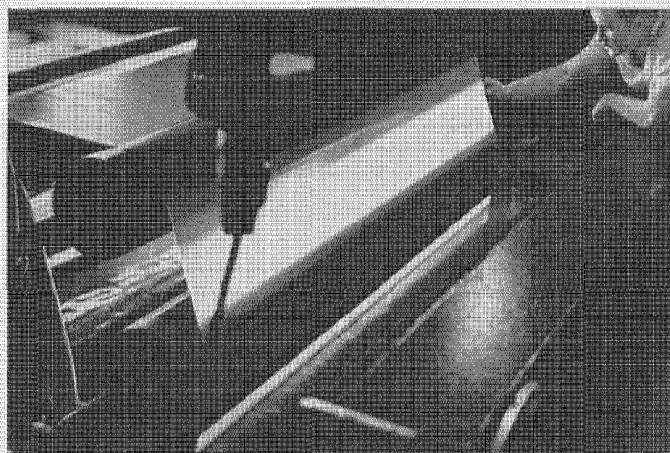
than 50 different kinds available. For instance, there's a special type for sugar-coated doughnuts. It retains enough moisture to keep the doughnuts fresh, yet allows excess moisture to escape so that the sugar coating won't dissolve.

PRICES CUT 21 TIMES

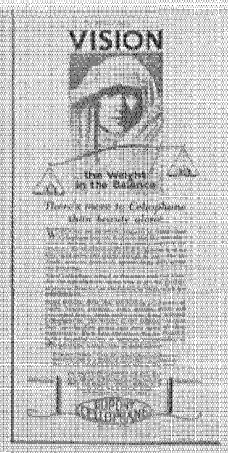
As uses and production increased, manufacturing economies made possible 21 price reductions prior to World War II. Today, Cellophane is so inexpensive that even individual pieces of penny candy are wrapped in it.

During the war years our government made full use of its protective qualities. Large bags were made to cover a soldier's body if the enemy decided to fight with gas. Field rations and medical supplies were protected in moistureproof film and shipped overseas to our armed forces everywhere.

But this story would be incomplete without mentioning a number of important contributors. Converters made Cellophane into bags so that packaging candies, dried vegetables and many other products was easier. They also developed means of printing on the slick film to make the package even more attractive—complete with brand name and informative labeling. Fabricators brought out specialties such as mending tape, Christmas decorations, household rolls and braid for women's hats. Important, too, were the contributions of machinery manufacturers who first



• First American Cellophane came off casting machine in specially-built plant at Buffalo, N. Y., in 1924.



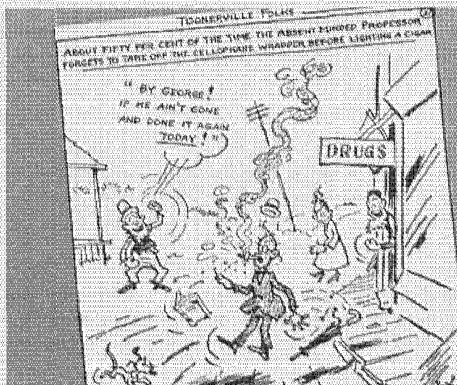
• First national ad stressed visibility.



• Initial major use of Cellophane was an eye-catching wrap on boxed candy like this one.



• Among first unusual uses for the film was real estate man's stunt of wrapping house.



• Cartoons, such as this 1934 one, used the visibility of Cellophane as a prop.



• At original price, film was often locked up. Now it sells for one-sixth the price.

special machines were developed to provide packaging economy through speed and precision wrapping.

Paralleling these developments has been the growth of the self-service market that many American shoppers find so convenient and economical. From its beginning, Cellophane packaging proved an ideal way

the latest self-service item is prepackaging fresh and luncheon meats. To help make this shopping time-saver possible, Du Pont developed two special types of protective Cellophane.

There are still other new and better kinds in the development stage that may soon show up in our everyday lives—further contributions of chemistry to packaging progress.



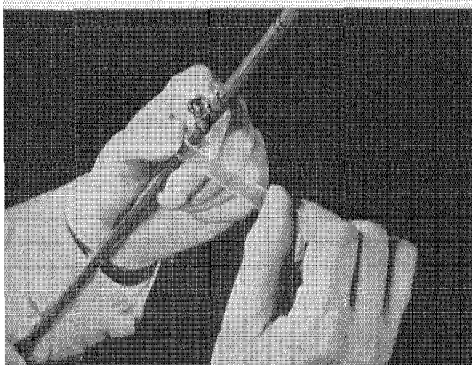
It took 2,000 experiments to develop a moistureproof film to keep food fresh.



Cellophane even took part in a stage play along with Jimmy Durante and chorus girl.



During war, film was required to protect the food and equipment of armed forces.



Pressure sensitive tape is just one of many uses of the converted film today.



Consumers prefer Cellophane packaging. Now bakeries are one of biggest users.



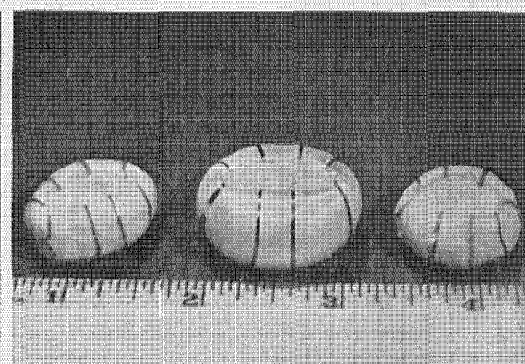
Packaging machinery helped broaden uses for film by speeding up wrapping methods.



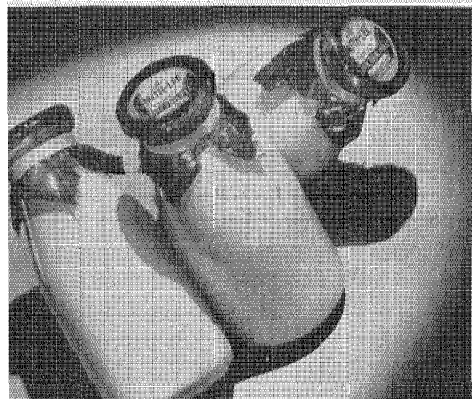
Cellophane "Shows what it protects—protects what it shows" in recent ads.



Printed Cellophane overwrap adds "tempting look" to frozen food, other products.



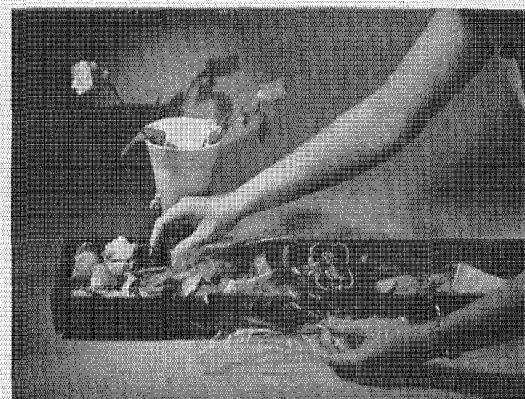
Center piece of candy was protected by moistureproof Cellophane; others weren't.



Bottle hoods add extra sanitation by keeping the inner bottle cap clean.



With help of special films, self-service meat operations now number more than 800.



Still in the experimental stage is the prepackaging of flowers in Cellophane.

High sign on the Hudson

Manhattan residents are attracted by a new one finished in brilliant "Dulux" enamel

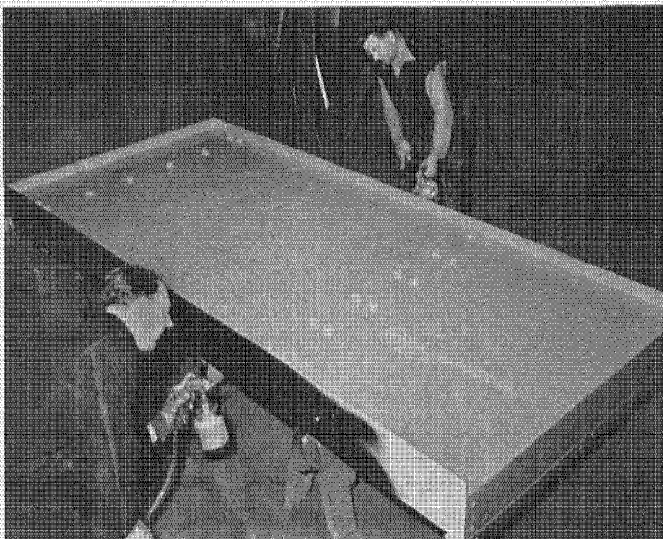
By ARTHUR M. VALZ

On the New Jersey side of the Hudson River, almost directly opposite Grant's Tomb, has been erected the largest aluminum sign in the world. This structure is mounted on the Edgewater Works' roof of the Aluminum Company of America. If laid on a football field, it would cover more than one fourth of it.

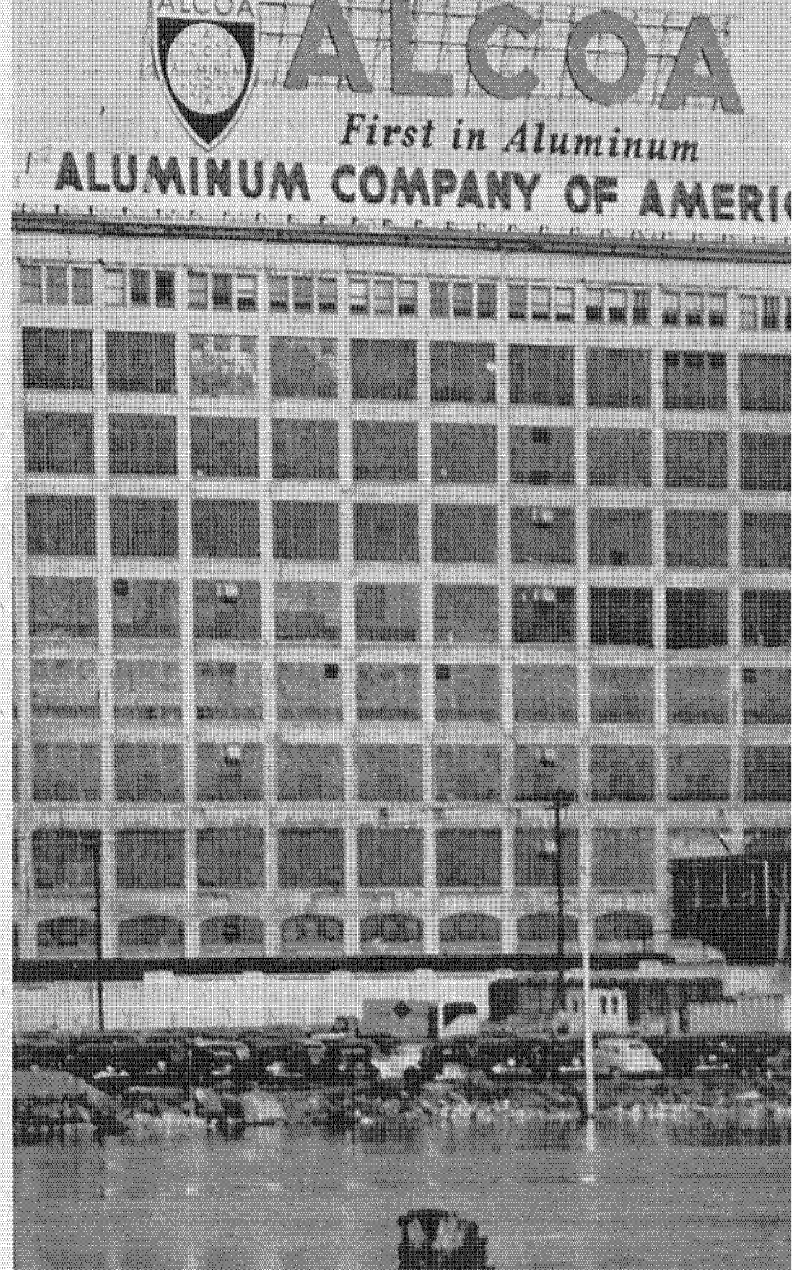
Pedestrians, motorists and others in New York City can see this sign from about 85th Street to the George Washington Bridge—a distance of about five miles—and it's visible to boat and air travelers as well. Traffic figures for Gotham's West Side Highway indicate that 75,000,000 people annually can see this huge sign from that section of Manhattan.

The display is constructed entirely of aluminum and is coated with Du Pont finishing materials to obtain distinctive coloring and daytime visibility. It was developed jointly by the Aluminum Company and the General Outdoor Advertising Company over a two-year period.

Elements of the design include the familiar blue "ALCOA" shield, which is large enough in area to park eight automobiles. The tradename appears in red letters as high as a two-story building. The company's name is spelled out in blue letters eight feet tall. The legend "First in Aluminum," in blue on a yellow background, was painted by hand, billboard fashion,



• Parts of huge sign were fabricated and finished before erection. Here side of a letter is sprayed with "Dulux."



• This is how the towering 216-foot-wide sign atop Edgewater Works looks to approaching ferryboat travelers.

after the sign was erected. All of the other coating work was done with spray guns, letter by letter, in the G.O.A. shop in Philadelphia.

The first coat was Du Pont zinc chromate primer on the clean aluminum, while the final coat was "Dulux" enamel. Altogether, about 120 gallons of finishing materials were used—enough to paint the exteriors of about 16 detached six-room frame houses.

The sign is illuminated at night by means of neon tubing arranged in multiple rows.

The Aluminum Company of America already maintains a smaller sign of this type near Pittsburgh, and has planned to erect others at its various plant sites. They, too, will be of aluminum construction, finished in "Dulux."



Stretching land

Weed control with chemicals makes farms produce more

By J. T. KANGAS

How far can you stretch an acre? Throughout the country, farmers and ranchers are finding out. Southwestern livestock men are among those who are doing it with chemicals. By spraying their rangeland with the weed-killing compound called 2,4-D, they rout out sagebrush, loco weed and skunkbrush—thereby doubling the grassland available for their cattle and sheep.

What does this mean in dollars? There is still a lot to be learned about this, but here is what the Colorado Agricultural Experiment Station reports: "If additional research proves that sagebrush can be controlled economically by chemicals, then about four million of the seven million acres of sagebrush land in Colorado could be made to produce \$7.00 worth of beef, lamb and wool per acre. The present income from this land is about \$2.00 per acre."

Elsewhere, weed control with chemicals is also paying big dividends. Wherever men have attempted to manage the land, they have had to keep out unwanted plants and brush—whether on the vast prairie wheatlands or the city-dweller's patch of lawn. Until the development of chemicals which would kill weeds without spoiling the land for other plants, weed control was a laborious and never-ending task. Landowners had despaired of ending the weed problem with hoes, cultivators, harrows, weed-burners or even caustic chemicals. Many acres were actually surrendered to bindweed, quackgrass, sagebrush, scrub oak or other weeds.

Now, with chemicals, the weeds are being beaten back. Land is being reclaimed and income from land is being increased by millions of dollars.

Most chemical weed-killers are known by their nicknames—such as 2,4-D, TCA, Dinitro and "Ammate"—weed-killer—rather than their jaw-breaking scientific names, 2,4-dichlorophenoxyacetic acid, sodium trichlo-

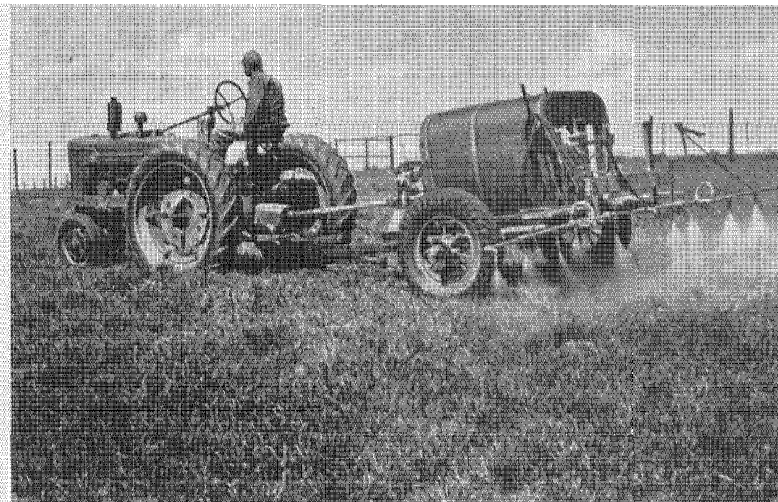
roacetate, dinitro-o-secondary-butylphenol and ammonium sulfamate. One of the most spectacular of these is 2,4-D, which will kill many weeds in certain growing crops and grasslands without hurting the crops themselves. The others usually can be used only where all plant growth is to be killed—as in weed patches or in croplands before planting or after harvest. In some cases, the chemical can be sprayed on the land after planting the seed and before seedlings break through the ground.

Probably the greatest benefit from chemical weed-killers is in increased food production at lower cost. The average cost of using chemicals to keep croplands free of weeds runs \$2.50 to \$5.00 an acre. This is far cheaper than hand-hoeing or machine cultivation. For such an investment in the wheatlands of Judith Basin County, Montana, 2,4-D sprays cleared 3,000 acres of fanweed and mustard. Result? The wheat yield was increased 25 per cent, or nearly six bushels per acre. Furthermore, this grain was free of weed seed. So no weeds went back in the soil at the next planting time.

Let's look at a couple of other examples. On Illinois bottomland, corn plants *too wet to cultivate* were growing up in weeds. The crop looked like a total loss. One application of 2,4-D withered the weeds, and the corn paid off with yields as high as 90 bushels to the acre.

In New York and Michigan peach orchards, chemical weed control is saving crops from "X-disease." This infection is spread by wild chokecherry bushes. Orchardists have checked the disease by killing the shrubs with Du Pont "Ammate."

• "Ammate" weed killer is recognized as an outstanding control for poison ivy. It kills both the vines and the roots.



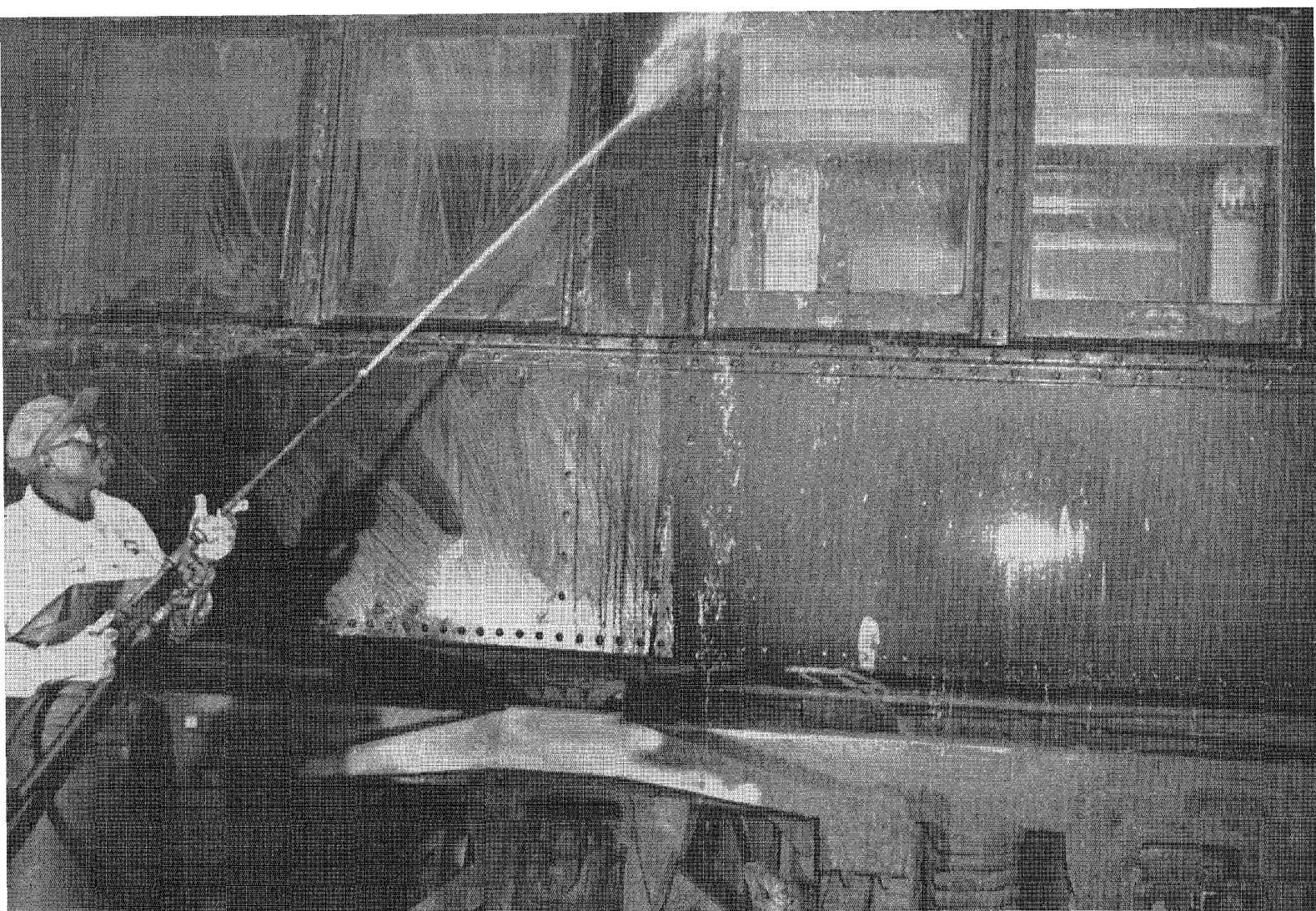
• 2,4-D controls many weeds in grassland without harming most grasses. It is widely used for pastures and lawns.

Small wonder that hoes and cultivators are beginning to gather rust—while chemical and weed-killing sprays are being used on millions of acres of grain, grazing land, sugar cane, orchards and vegetables, as well as home grounds, parks, golf courses and waysides.

Today, there are no new frontiers of arable land in this country to be developed. Weed-killing chemicals, however, are helping to reclaim millions of acres. They are giving new leisure and new income to millions of people who live close to the soil. By preventing weeds from competing with crops, they are stretching the land where food must be produced for our growing population.

• Weeds are choking out this corn, robbing the farmer of his time and labor, and using up fertility and moisture.





● Flushing off the chemical cleaner is done quickly with a water jet from a pressure hose.

“Chemical scrubwoman”

Du Pont's newest cleaner easily takes stains off most metal, ceramic and enameled surfaces

By SHIRLEY M. JOHNSON

“Tranox” cleaning composition has found many applications, but it was developed as the result of a specific problem. Here is how that came about:

Just prior to D-Day, a large railroad maintenance shop was finding it hard to clean the finished surfaces of passenger cars used by the armed forces. These cars had to be cleaned while in service, and reconditioned and refinished periodically. Because of the time and work involved in removing soilage, schedules were quite often delayed.

The Du Pont Company was asked to assist in the development of some method or product that would speed the clean-up job. As a result, this particular

railroad maintenance shop has been using “Tranox” for over two years on cars covered with grime, carbon, rust, oils and grease. It is reported that car surfaces can be cleaned 25 to 50 per cent faster, and that cars are smoother after being cleaned with this agent, making possible a better bonding of new coats of enamel.

Since it is specially designed for heavy-duty work, “brushing” on two or three coats of “Tranox,” mixed with water, is enough to take off most soils. However, extra attention may be required in those places where foreign substances tend to collect, such as around window frames, around bolt heads, and on car ends. After the final spot has been touched up and the cleaner has been allowed the required time to work, either warm or cold water from a pressure hose is used for rinsing.

People in the antique business have found the new acidic cleanser good for taking rust off iron grille

work, lawn ornaments and old iron hitching posts before refinishing them. The old method of cleaning grilles was to take a steel brush, use plenty of elbow grease and scrub the rust out of the intricate designs. Now antique restorers simply put "Tranox" on with a brush and, after a half hour, rinse it off with a hose. If the amount of rust on the grille is excessive, it may need more than one application. The final result is that the iron is left rust-free and ready to be restored to its original decorative beauty.

Metals cleaned with the new composition will not show "burn marks," white deposits left by some acids on metal surfaces. Nor does the cleaner leave a film or streak, even though the equipment is washed out of doors and inspected in sunlight.

Indoors, "Tranox" can be used to clean vitreous enamel, acid-resistant porcelain and glass or lacquered surfaces. It is also utilized in cleaning sanitary equipment because it quickly removes stains and odors. Since "Tranox" is a concentrated paste, the hazard of spilling liquid acid is eliminated.

One note of caution, however—anyone employing the new compound should wear rubber gloves, eye protectors and, in some cases, special clothing. Since the cleaner contains oxalic acid, it should not be allowed to have prolonged contact with one's skin.

"Tranox" is applied to cars with a brush before they are refinished, and it's also used to keep them clean while in service.

More detailed information on "Tranox" may be obtained by writing Du Pont, D-32, Room 2506 Nemours, Wilmington 98, Delaware.



Occasional cleaning of white terrazzo floors restores their natural beauty, removes waxy film left by soap.

In refinishing iron furniture, such as the bench pictured below, "Tranox" can be used to clean off rust.





These balls of wool are called "tops," and have been vat-dyed in these beautiful colors.

Dyed in the wool

*Now vat dyeing wool fibers can be done better
by a new and improved Du Pont process*

The art of dyeing natural fibers has been practiced for centuries, in fact, long before the Christian Era began. So one might suppose that nothing new could be said about it at this late date. But we have good news to report here. At long last, a better way has been found to apply vat colors to wool.

These bright, tub-fast dyes have been used for many years on cotton, linen and viscose rayon. Vegetable fibers will accept vat colors readily. But wool, an animal fiber, hasn't ever shown any disposition to be cooperative. Many processes have been tried—some on a mill scale—to make this fiber behave with these dyes. Results have been satisfactory on some counts—not so good on others. Weak shades, inability of wool to withstand processing without deterioration, have been the chief drawbacks to the extensive use of vat colors on wool.

To understand the processing limitations, we'll have to explain that these complex organic compounds are not like ordinary dyes, which a housewife can apply merely by dipping a fabric or a garment in a pan of hot water containing the coloring material. In the first place, a vat dye won't dissolve in water; a chemical reaction in a strong alkali medium is required

to make it soluble. Then follows a whole series of chemical operations carefully controlled as to bath time, temperatures and concentrations of the materials used. If the work is done well, the dyed fiber comes out in a water-insoluble color that is both fast to light and laundering.

For years it has been troublesome to apply vat dyes on wool without injuring the fiber. This was primarily because attempts were made to use the higher dyeing temperatures so successful on cotton. Dyeings of inferior fastness and color value resulted. Now it has been found that wool can be dyed without damage to the fiber, even with high concentration of alkali, if the dyeing temperatures are kept relatively low.

This new technique can be applied to wool "tops" and "rawstock"—and the work can be done with conventional dyehouse equipment, an advantage of note.

But there is more good news. The Du Pont process opens the way to apply vat dyes on wool and also to obtain as much color strength as is normally expected when these same dyes are used on cotton. Thus far color evaluations have been made for 30 different "Ponsol" dyes. Results have generally been satisfactory, and this work is continuing. Du Pont laboratories are currently at work on the problem of applying vat dyes to certain wool yarns as well as to tops and rawstock. This process, together with the further development of shrink resistant wool, will make possible woollen garments that can be washed right in the laundry tubs—over and over again—with no fear of loss of color or shrinkage. In the experimental stage, too, are processes for applying vat dyes to woollen piece goods.

Of course, vat dyes are not required on wool for all purposes. In women's dress goods, for example, acid and chrome colors are usually satisfactory. But

One of the first and most important uses of vat-dyed wool was in upholstery for automobiles.



automobile fabrics, furniture upholstery and drapery fabrics, summerweight men's suitings, blankets, bathing suits, woolen sport shirts, sweaters and socks should be light fast, or wash fast, or both. For these uses vat dyes best meet the service requirements.

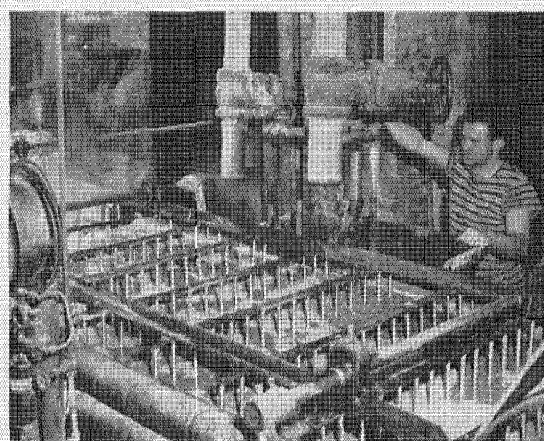
By improving the technique of vat-dyeing, articles of wool have been made colorful and fast without appreciably harming the fiber. The new process was pioneered on a commercial scale on wool tops at the

Barre Wool Combing Co., Ltd., South Barre, Mass., where Du Pont technicians collaborated in mill-scale development work. Glance at the accompanying illustrations and you'll see the many bright colors on wool top that have been achieved. It's another contribution to the textile industry.

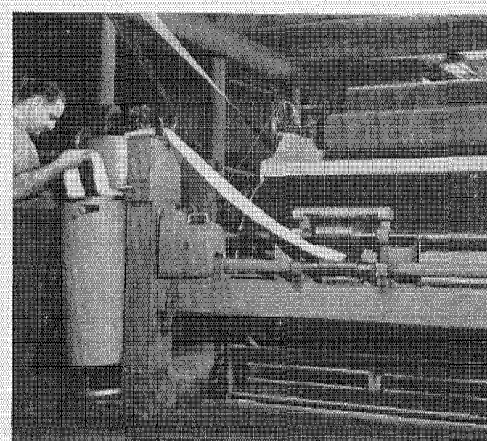
Dyers who want detailed data about the process can obtain it by writing to the Du Pont Dyestuffs Division, D-36, Wilmington, Delaware.



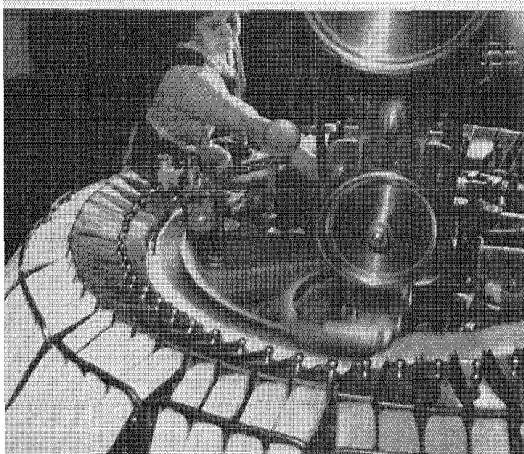
"Trapping" raw wool. It is like dividing a side of beef into steaks, roasts, etc.



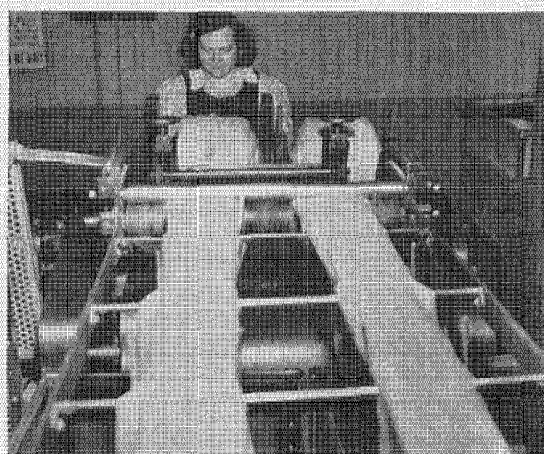
Fleece is then scoured in series of "wash bowls" containing water, soda and a soap.



Wool is a curly, twisted mass of fiber. Carding operation straightens them out.



This Noble comb further straightens out wool and removes the too-short fibers.



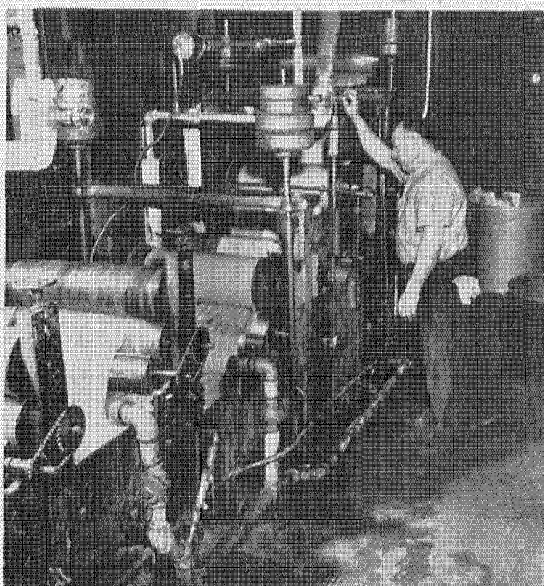
Wool "ropes" from the combing operation are wound into 10-pound "tops" for dyeing.



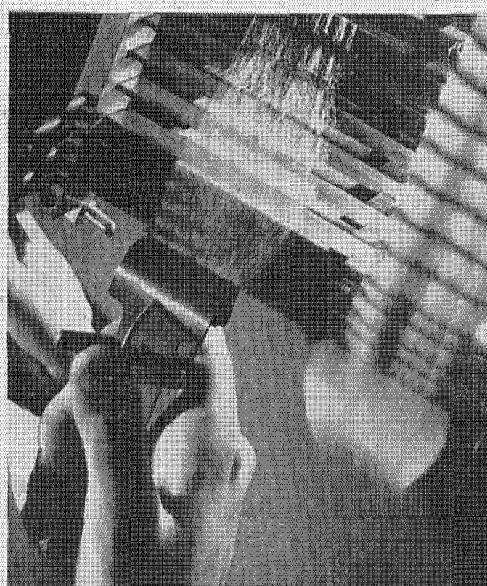
Worker on platform makes up batch of dye; another adds chemicals to dyeing bath.



Dyed "tops" are lifted from kettle. New method now makes vat-dyed wool feasible.



"Backwashing" follows the dyeing. Next, the wool is dried and rewound into "tops."



Checking length of wool fiber. Quality is determined by length and diameter.



Easier car washing

A recently announced Du Pont product saves time and effort for the car washer

Housewives know by now that they can wash dishes with a "soapless soap," rinse them, and leave them to dry to a bright shine without any assistance from the dish towel. Even when the water is hard, glasses don't end up with soapy streaks on them. But while this revolution in dishwashing was going on, many a man was still using lots of energy in washing the family car.

Now there is a way for him to take the same short cut that saves his wife so much time with the

dishes. He merely puts a tablespoon of Du Pont Car Wash in a pail, gets the hose out and directs a strong jet of water on it until the pail is half full of the foaming solution. Then he can clean away grease, oil and dirt quickly and safely. This detergent is easy on the hands, and harmless to the car finish and tires.

Best of all, he doesn't need to dry the car after washing it. He just rinses away the suds, wipes off the windows and chrome fittings, and lets the rest "drain dry." There is no need to use a chamois, for this detergent, when used according to directions, leaves no streaks or spots.

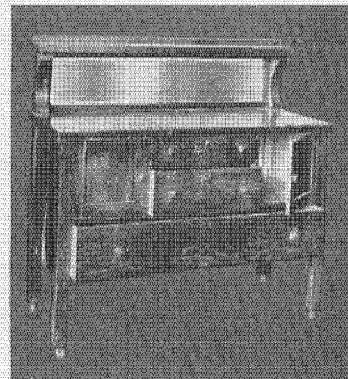


Young ideas for tired furniture

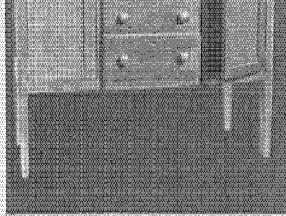
A paintbrush can be the wand that turns old pieces into objects of beauty

Ever hear of "Transformagic?" It's a way to change old, discarded objects into things of beauty and usefulness. A little ingenuity, some elementary carpentry, a coat of "Duco" enamel—and you can turn Grandma's old furniture into conversation pieces.

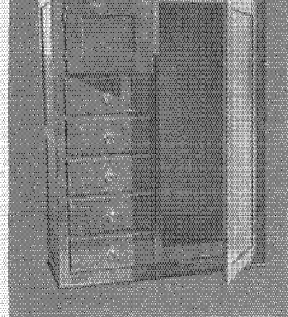
Relics that don't qualify as antiques are the raw material of this magic transformation. You might



Here's "Transformagic"... Shorten legs of old buffet, hang mirror upside down, and enamel it with "Duco."



Buffet and wardrobe
are junk, but look . . .



start in the kitchen, where a woman spends so much of her time. It can be made cheery and individualistic. Color and gay designs are the secret.

Originator of this idea is a Provincetown, Massachusetts artist, Peter Hunt, who in his wanderings through Europe was excited by decorations made by peasants on their furniture. From his experiments with the dramatic use of paint and variation of designs, he discovered that shabby pieces of furniture could be changed into new and useful ones. He didn't copy the folk-art he had seen, but in his work he did capture its simplicity and spontaneity.

PERSONALITY IN PAINTING

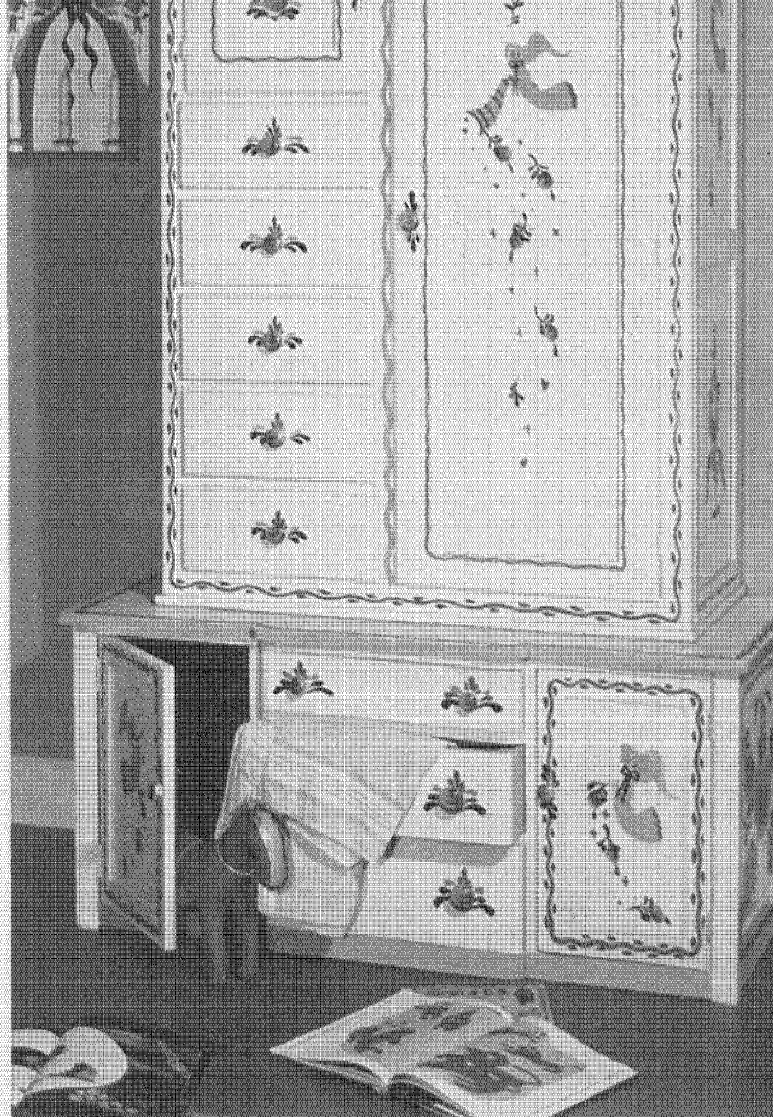
Design, Peter Hunt contends, should be an expression of your own personality rather than a slavish copy of someone else's work. Another tip: ignore perspective and normal proportions as do the European peasants.

Painting is paramount in transformagic. A solid color with a simple trim—perhaps just a contrasting wavy line—may be enough. Bureau drawers may be painted in alternating colors. You don't have to decorate them with hearts and flowers.

But first you must find something to rejuvenate. It may be in your own home. Yes, it may be an old-fashioned dresser that you could never quite bring yourself to throw away. If perchance the attic and basement are empty, you can always pick up inexpensive second-hand furniture in shops or at auction.

Simple carpentry often can change the appearance of an object entirely. A spindly-legged radio cabinet, for example, can be converted into a bright little chest by sawing off the legs and painting simple peasant designs over a light base coat. Sometimes a new finish with "Duco" is all that is needed to enhance its beauty. Of course, the furniture must be thoroughly cleaned first, and if the old finish is still good, a coat of "Duco" should be applied. A touch of contrasting color brings out new beauty. On the other hand, a simple design—a spray of ivy, or fruits and flowers—can often disguise a flaw or construction defect.

This is the story, in brief. If you want to see more "before and after" pictures of how furniture was rejuvenated and read how this was done, you can get a copy of the new "Transformagic" booklet from your local Du Pont paint dealer.



Yes, a little carpentry, and painting with "Duco" enamel, turns these old pieces into this gay one for the nursery.

You can make an out-of-door showplace . . . pieces from an old wicker set plus a little originality in decorating.





Aluminum gets a new face

A long-felt need is met as Du Pont research finds a way to coat aluminum with porcelain

Porcelain enamels for aluminum are so new that they are still in the development and testing stages. This announcement mentions a few likely uses for these enamels. Others now being studied in the laboratory may become tomorrow's commercial applications, but it's too early to discuss them in this article.

It's an irresistible urge—in a class with snowballing silk hats and sticking pins in doorbells—for the small boy to let fly a rock at a "No Parking" sign. There's something so satisfying about the loud clank. This playful venting of emotions is hard on the signs, of course.

What happens when a missile strikes a steel sign with an enamel finish? First of all, it's likely to shatter the surface coating of vitreous enamel pretty badly,

exposing the metal to the weather. In contact with the moisture of the atmosphere and rain, the metal rusts and soon there's a bad stain streaking the surface. The same kind of trouble, brought on by various causes, may be seen on exterior and interior tile, outdoor furniture and other enameled surfaces.

Now, as everybody knows, aluminum won't form this ugly rust. It just develops an inoffensive whitish coating when exposed to air. Taking this and other facts into account, folks in the aluminum and enameling industries started wondering several years ago, "Why not put porcelain enamel on aluminum or its alloys, and get the advantages of both the hard, fused coating and the non-rusting, lightweight metal?"

Only last fall "Ceramic Industry" magazine was lamenting: "We are frequently asked by large processors of aluminum gadgets and structural parts for someone to porcelain-enamel the surfaces. All efforts to make contact for the interested parties failed primarily because the porcelain enamel industry is not ready with the enamel."

That was November. On January 3, 1949, a newspaper item reported: "Development of enamels for some alloys of aluminum, to enhance the metal's durability, utility and beauty, was announced today by the Du Pont Company. After six years of research in the laboratories of the Electrochemicals Department, the new coatings are ready for large-scale testing by the aluminum and enameling industries."

Acceptance of these coatings has been encouraging. They have the properties common to porcelains. That is, they're hard and gouge-resistant, retain their gloss for a long time, and the colors resist fading exceptionally well.

But they have some unusual advantages. As we've indicated before, articles made of enameled aluminum will not develop unsightly stains if their usually mar-resistant surfaces happen to be chipped. Just like lumber, the coated metal can be made into standard lengths, shipped all over the country, and distributed to contractors who can cut it to required sizes with a hacksaw. The enamels resist damage from sudden temperature changes, and can stand considerably more flexing than the older coatings. It goes without saying that for many purposes the lightness of aluminum is often an advantage.

Enameled aluminum is already in use as colorful, sturdy, store-front panels and as light, strong, weather-resistant advertising display letters. Traffic signs, exterior tile for buildings, tile for bathrooms and kitchens are in the offing. Other prospective applications are in sanitary ware, washing-machine tubs and agitators, outdoor furniture, bathroom scale frames, dental chairs, and stove parts.

Porcelain enamels are under consideration for aluminum frames for doors and windows in railroad passenger cars. There are, of course, many other pos-

sible uses including hand rails in buses, door frames and windows for buildings, and even telephone dials. Applications that are eliminated are those where articles come in contact with foods, since the enamels contain a high percentage of lead.

Research at the present time has developed satisfactory enamels for two aluminum alloys. Test panels exposed for two to three years on the roof of a large city building, however, indicate that the enamels will probably be satisfactory on certain other alloys, too.

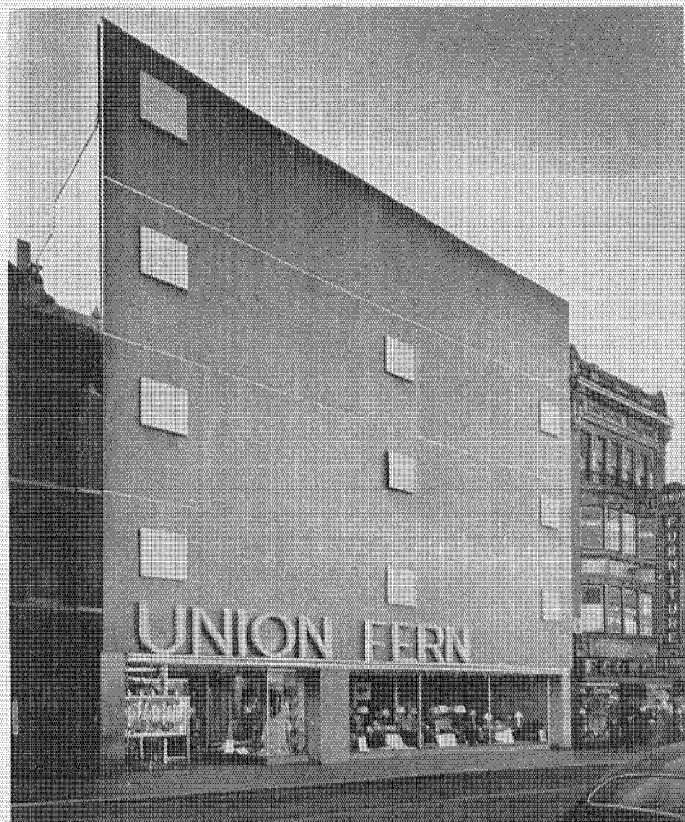
There's no doubt about it—porcelain-coated aluminum is here to stay. For, like all successful research developments, this material fills a need, one that the enameling and aluminum people have been conscious of for years.

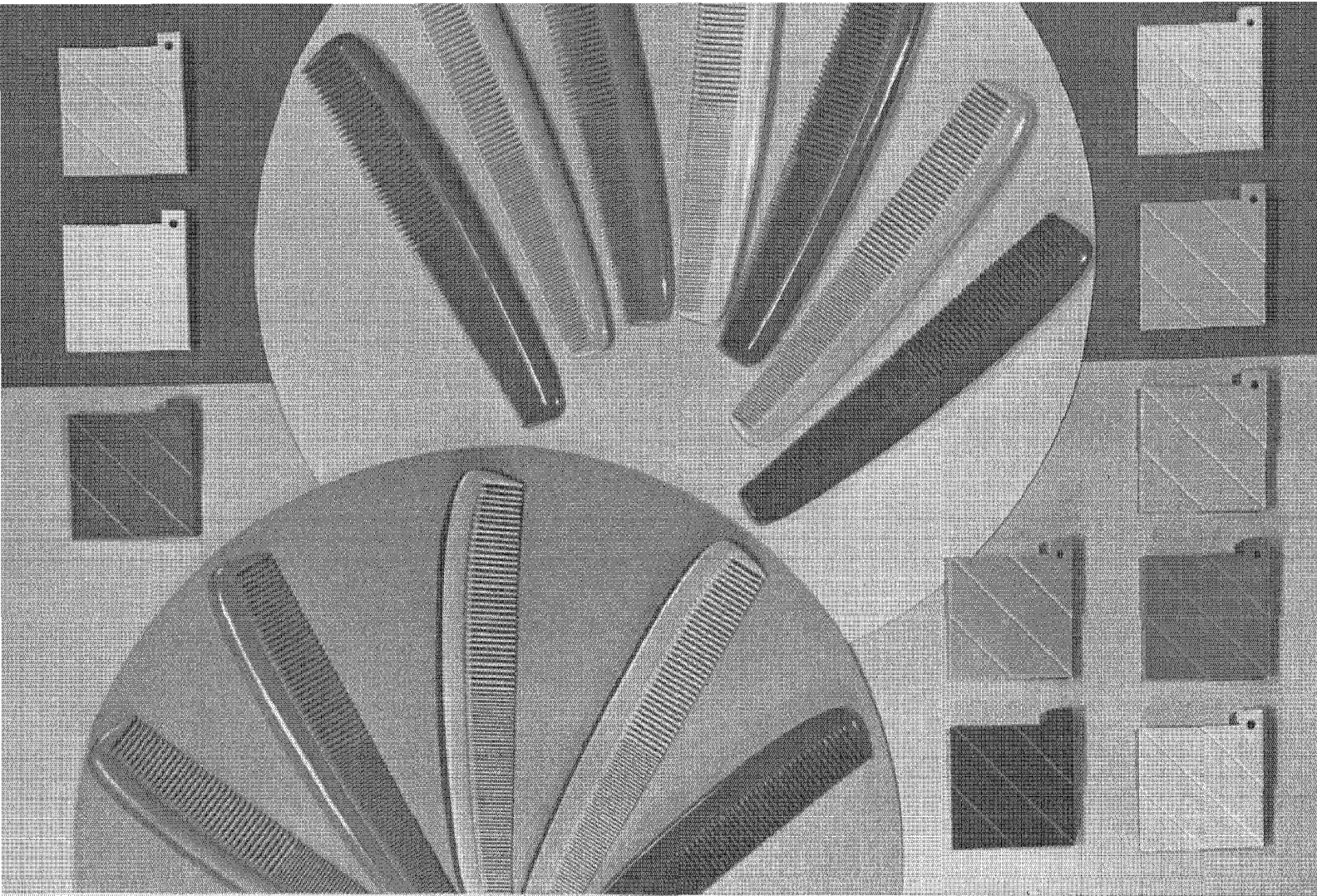


• The enameled sign letters, used here to identify a service station, represent a popular new use for coated aluminum.

[23]

• Durability and beauty of the enamels, plus the lightness of aluminum, make these panels the latest in store fronts.





Accent on color

Sixteen colorful newcomers to the nylon plastics family are now ready to meet the public

By PEG MINER

Lost in the shuffle of more modern imaginary animals, like the six-foot rabbit, "Harvey," is a winning character out of childhood reading—the Horse of Another Color. This remarkable creature could change its hue suddenly to suit any mood.

Too bad the author never gave the secret to the chemists working on colored nylon plastics. It would have saved a lot of research to develop practical colors for nylon plastics. Today, however, scientists have arrived at the goal. Working with pigments instead of figments of imagination like "Harvey," they have made it possible for the Plastics Department to offer nylon molding powder in stable colors.

This material is now available in buff, gray, light green, dark green, deep green, two light blues, dark

blue, peach, red, pink, brown, orange, yellow, ivory and white. A jet black, now in the development stage, should soon be on sale.

Coloring nylon sounds simple, but it took years to find pigments that could be incorporated directly into the molding powder. Most of them aren't stable at the high temperature it takes to melt and mold nylon, but color by color that "stability" problem has been licked. The pigments now used in this plastic are permanent.

The tinted nylon will have many uses in such household items as slide-fasteners, combs, brush backs, tumblers and dishes. All of them can be steam sterilized without damage, and the fasteners aren't even affected by ironing temperatures or dry cleaning solvents.

The new colored plastic will be valuable in industry, too. Manufacturers of nuts, washers, gears, bearings and the like find that it can speed up identification and assembly of these small parts. This material is also valuable where custom or trademark requirements make distinctively colored units necessary.

What's New

• **DU PONT MOVIES.** Latest audience figures show that 19,500,000 people in all parts of the world have viewed this Company's educational pictures. Film titles include: "This Is Nylon," "Fashion's Favorite," "Facts About Fabrics," and Harnessing The Rainbow"—textile subjects; "Lost Harvest" is a farm film and "The Story of Neoprene" deals with chemical rubber. Requests for these 16mm. sound prints should be addressed to the Motion Picture Distribution Section, D-38, Advertising Department at Wilmington.

• **TGA WEED KILLER.** This new Du Pont herbicide contains 60 per cent sodium salt of trichloroacetic acid. It is particularly effective for the control of troublesome grass weeds such as "Johnson," "Bermuda," and quack grass. But TGA should be used with care. Under certain conditions it will inhibit seed germination and plant growth for 60 days or more. Also, like most herbicides, it should not be applied on or near valuable woody or herbaceous plants.

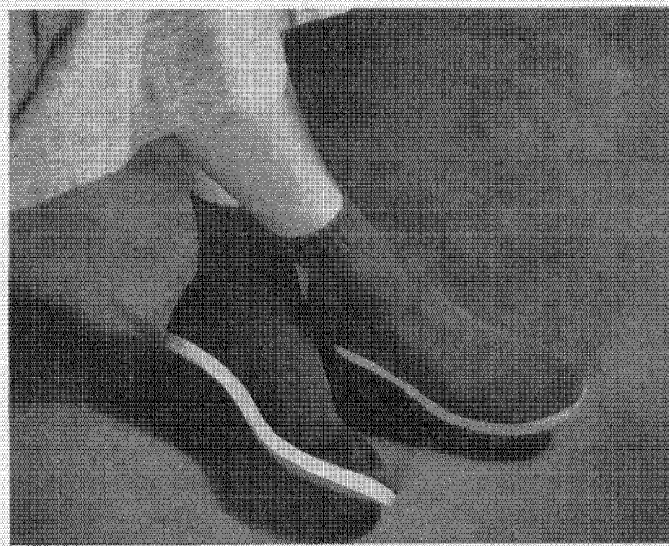


• **FISH POND—1949.** One of the first polythene toys is "Freddie-Fish" who swims like a real fantail. His lightweight body is virtually unbreakable because it's molded of solid plastic. He is hooked by a small magnet "bait" which attracts a metal rod in Freddie's mouth. The set, designed by Van Sciver Products, 219 North Broad Street, Philadelphia, includes three red, yellow and green fish.



• **NYLON UNIFORMS** are in favor with nurses because they are easy to wash, need little ironing and retain a fresh appearance after many hours of duty. When coffee, fruit juices, and even some medicines spot a garment, it usually can be cleaned in a jiffy with soap and water, thus minimizing upkeep. The one shown here is made by the Uniform Guild of New York City.

• **NEW LABORATORY.** A field service laboratory to assist middle-western industries in handling their finishing problems was opened recently by the Du Pont Finishes Division at 2100 Elston Avenue in Chicago. Other field laboratories are located in the East at Philadelphia and Roanoke, Virginia.



• **FOR FOOT COMFORT.** The anklets pictured here are more than just socks; they are finished with sponge rubber soles of Du Pont neoprene. These "Creepas," designed for house wear, spectator sports or traveling, are springy to walk on, light and comfortable. The soles, cemented to colored wool, cotton or nylon tops, resist abrasion and are not affected by hot water or washing soaps. The manufacturer is P. A. Donahue, of 403 East 23rd Street, Los Angeles, California.



Better gardening

Du Pont research simplifies garden pest control

By BURTON RAND

If you could draw a magic circle around your garden, you might be able to keep out bugs and blights. But there is no hocus-pocus about pest control on growing plants. Successful commercial growers know that it is an exacting scientific part of their operations.

The careful commercial grower must necessarily know something of plant pathology and entomology. He should understand the chemistry of insecticides and

fungicides, and he must have the proper equipment to deal with plant diseases and insects. His livelihood depends on it.

Your home garden, however, should be a source of happy diversion, beautiful flowers and fresh vegetables for your own table. There wouldn't be much fun left in gardening if you had to follow the farmer's rigid spray and dusting schedules and his careful mixing of the proper chemicals.

The many kinds of insects which feed on your plants have no grudge against you; they're just hungry. Nor do you have anything personal against them;

all you want is a healthy garden. The process of evicting them can be complicated and laborious, but it's best to keep them out. This is easier and much more effective.

Fungi that cause plant diseases attack and live parasitically on or in plant tissues. They weaken and disfigure the plants. Some insects, if left alone, may so severely infest your whole garden that an attempt to combat them, once they have reached such numbers, is a waste of time. Early and regular application of insect and disease control measures is the only effectual means to prevent such situations.

The Du Pont Company has been supplying pest control chemicals to commercial growers for many years. It has a long and successful record of experience

you won't even have to wear your old clothes. The multiple-purpose dusts can be applied directly and quickly from a half-pound "duster gun" package. If you prefer, they can be applied as a spray.

There are two of these dusts made from Du Pont pest-control chemicals. One is Du Pont Floral Dust. The other is Du Pont Garden Dust. The first, for flowers and fruits, contains two insecticides—rotenone, with which many gardeners are familiar, and methoxychlor, the new Du Pont insecticide which is not only long-lasting but is exceptionally safe for humans and animals. In the same mixture are included "Fermate" fungicide and sulfur for disease prevention and control.

Garden Dust is for vegetables. It is compounded of DDT and rotenone for control of most garden



● Regular treatment with Du Pont Floral Dusts keeps flower beds virtually free of insects and diseases.



● Simplified pest control means that it is easier for you to have more luscious vegetables from your own garden.

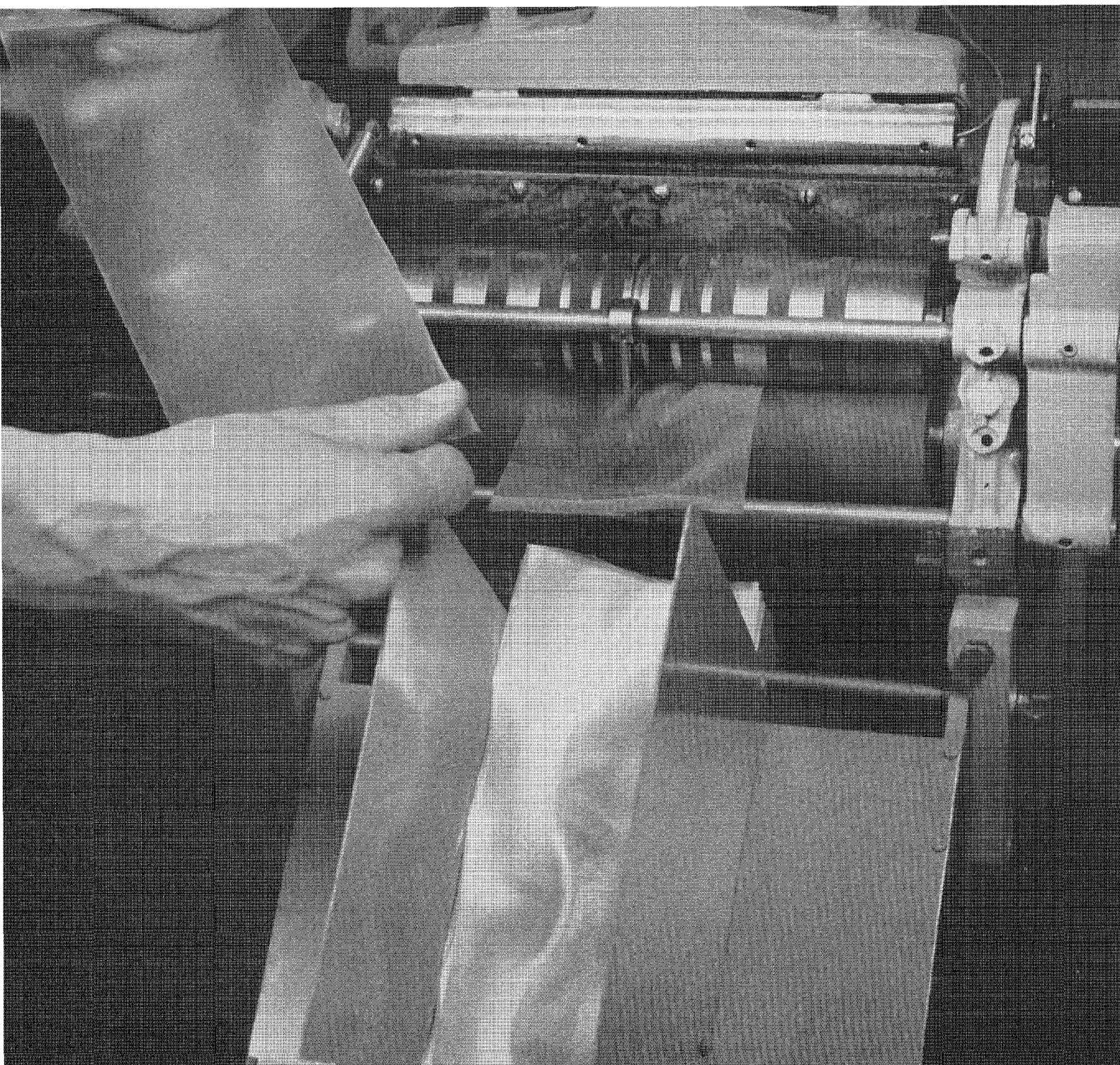
and research in the field of agricultural chemicals. Some of the knowledge gained in meeting the needs of commercial growers has been applied to home gardening. As a result, home gardeners now have their pest-control problem reduced to its simplest terms. Several insecticides and fungicides that have proved effective in commercial agriculture have been combined into a multiple-purpose dust, all in a single package. With these mixtures, gardeners can maintain a pest-prevention program the same way that farmers and nurserymen do, but on a simplified scale.

Not only have complex controls been simplified, but the actual application of the material is easy. No mixing, no heavy sprayers, no mess—probably

insects; and "Fermate" and "Zerlate" fungicide for control of many diseases. These fungicides are two comparatively new products in the field of plant disease control and have become widely accepted by commercial growers.

The ingredients in these two dusts have been selected to give the most complete control of insects and diseases, with minimum hazard to the plants on which they are used.

A properly-timed program, using one or both of these dusts, will make your garden "Off-Limits" to most bugs and blights. Start the prevention, and you won't need any cure. And you'll see the results in more beautiful flowers and better vegetables.



* This machine is being developed for making bags of flat polythene tubing.

Designed for packaging

A versatile newcomer, polythene plastic, is helping industry create better containers

By JAMES H. McCORMICK

Is there any way to ship corrosive liquids that eat through metal and glass? How can you keep frozen

meats from drying out? And will the packaging material be tough, yet flexible enough to protect the food after storage for six months or two years at sub-zero temperatures? Can you get lightweight, non-breakable containers that will not affect the quality or taste of drugs and liquids?

That's only a sampling of the ticklish questions facing the packaging industry today. Technical men who look for new and improved materials to solve such problems often find the answer in polythene—a white or colored translucent plastic with a somewhat waxy look. Polythene is made by the Du Pont Plastics Department in the form of molding powder. In turn it's supplied by molders, extruders and other processors in forms such as sheeting, seamless tubing and molded containers.

High on the list of polythene's advantages is its extreme resistance to solvents and chemicals. Hydrofluoric acid, one of the most corrosive liquids, will eat through a glass or metal bottle, but not through one made of this plastic. Polythene also has the added benefit of being lighter than other bottling materials.

As a film or sheeting, polythene remains flexible at both high and low temperatures. It sheds water like a duck's back—a property as important in packaging as in shower curtains. If a film used to wrap frozen poultry didn't prevent moisture loss, the meat would soon become dry and unappetizing. If a container for metal parts didn't keep out moisture, they would rust. This plastic is better in that respect than most other packaging materials.

The chemical structure of polythene is relatively simple. Ethylene, a gas obtained from petroleum, is polymerized at high pressures and elevated temperatures to form polythene. At first glance, this process of making large molecules of plastic from small ones of gas seems simple enough, but the most modern of chemical equipment and engineering skills are required.

Polythene is one of Du Pont's newer plastics. Chances are you won't be able to get all you want of this material for some time, for demand still exceeds the supply. However, Du Pont is increasing production of the polymer on a large scale at its new Sabine plant in Texas. This will speed the day when it can be scratched off the scarce item list, and manufacturers, looking for better ways to package their products, will be glad they kept their eyes on polythene.



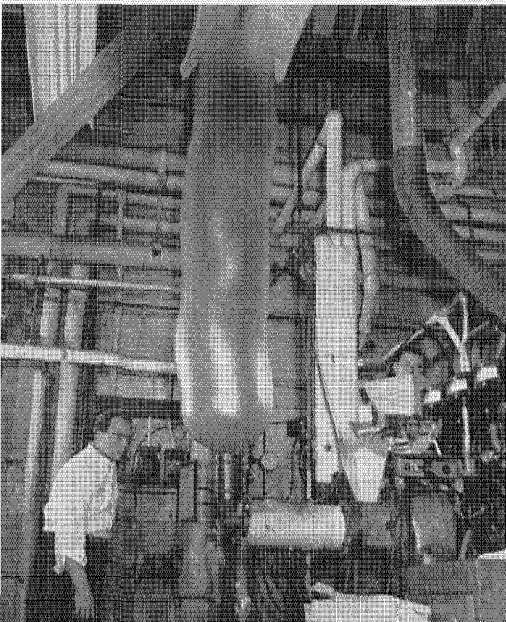
• Have you a product that must be kept clean and dry? The maker of this bearing unit found the answer in polythene plastic film.



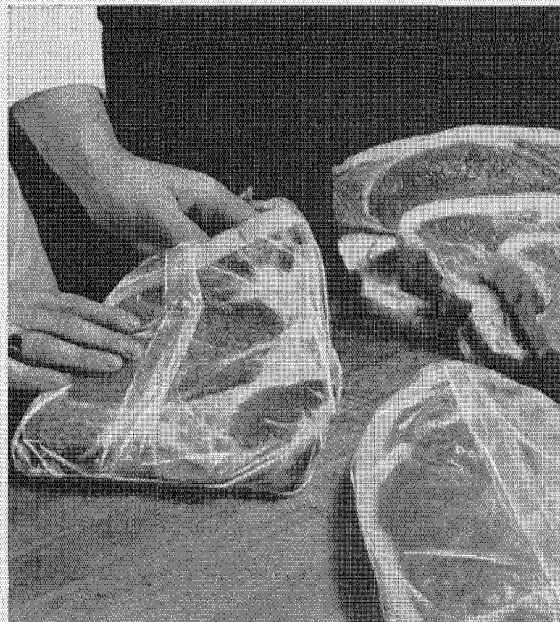
• Bottles and closures of this material are not affected by strong chemicals. In addition, they are light, translucent, unbreakable.

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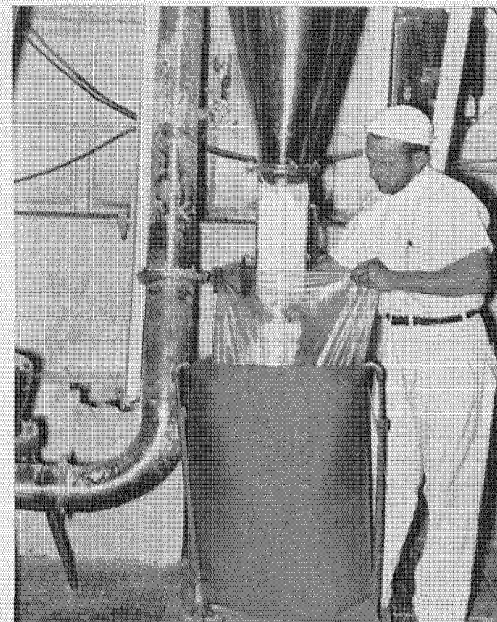
Polythene is being extruded as an air-filled tube. Then it's flattened and wound on spool.

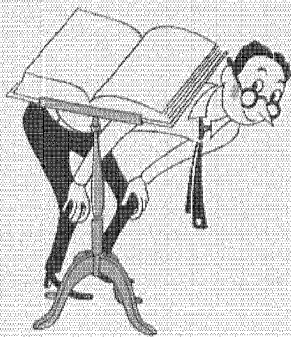


Fill your food locker with polythene-wrapped meat. The film wrapper won't become brittle.



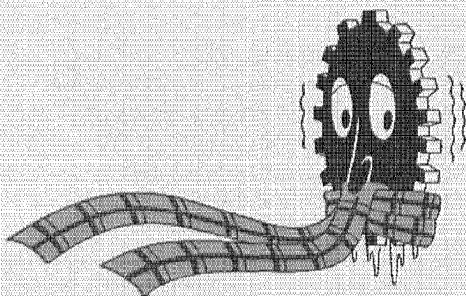
The film is used to protect powders from moisture and containers from corrosion.





Did you know

... A NEOPRENE DENTAL aid has been used to complete the process of straightening children's teeth? Worn only at night, this rubberlike mouthpiece exerts corrective pressure to bring teeth into proper alignment, thereby reducing the time of wearing metallic braces.



... LEADING METAL-WORKING manufacturers now subject their products to unusually severe "cold" tests with equipment using "Freon-22" safe refrigerant? The materials can be exposed to temperatures ranging down to minus 130 degrees F.

... NYLON UPHOLSTERY was used on five makes of General Motors show-model cars displayed at a special exhibition of the 1949 line in New York City recently?



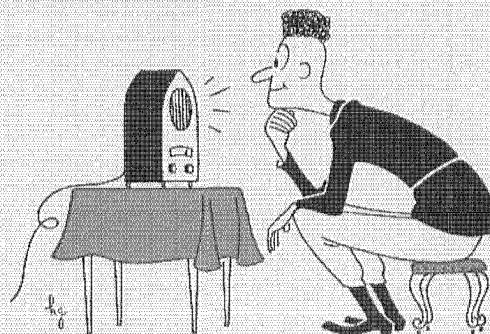
... "SHIRLAN" TEXTILE fungicide is being used to make awnings mildew-resistant ... similar to the wartime "tropicalization treatment?" For added protection against weathering, one manufacturer applies the process to vat-dyed fabrics which are treated with "Aridex" renewable water repellent as well.

... "LUCITE" ACRYLIC resin articles in the home require little care? Just wash them with mild soap and water, and then apply a little wax.

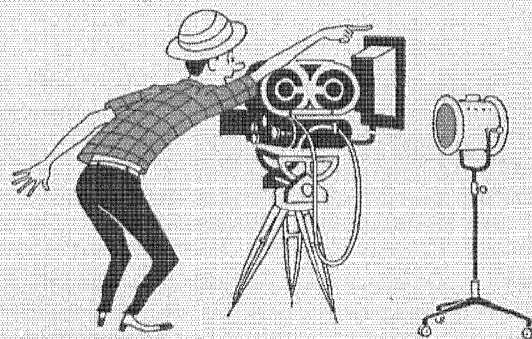
... DU PONT SCIENTISTS have developed an instrument that detects one part of lead in 20,000,000 parts of air? It is used to protect the health of Company employes in one of the plants at Deepwater, New Jersey.



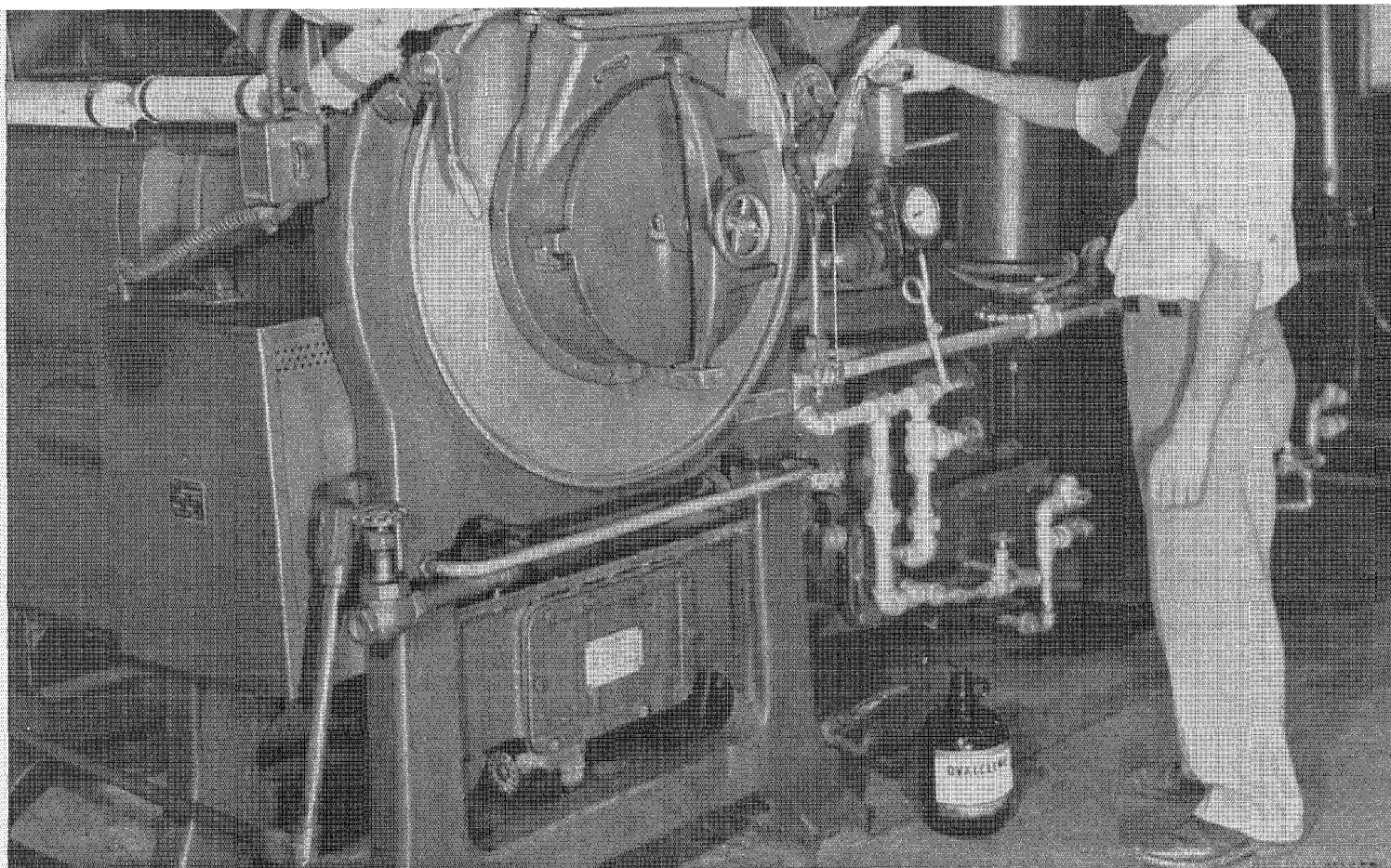
... TESTS MADE IN Louisiana over a five-year period show that "Arasan" seed disinfectant gives superior protection to rice seed treated with it?



... CAVALCADE OF AMERICA, Du Pont's weekly radio show, is transmitted by the State Department, via short-wave radio, to the Far East and Europe each Wednesday following the Monday domestic broadcast?



... DU PONT "SUPERIOR" 2 negative motion picture film was used by Russell Harlan, A.S.C., to photograph United Artists' western movie "Red River?" He recently received the 1948 *Look Magazine* achievement award for his excellent work.



◆ Adding a little "Ovalene" helps to bring out the beauty and color of the fabric.

Remedy for grime

Made-to-order for the drycleaner, a new detergent is helping freshen clothes

Anyone looking in on a certain Niagara Falls laboratory four years ago would have conceded on the spot that genius and madness go hand-in-hand. Here, in the name of progress, research workers were taking silks, woollens and cottons—and grinding into them an ugly mixture of carbon black, wheat starch and grease.

Sounds like sadism. But, as a matter of fact, those men were doing us all a favor. Knowing that garments get dirty sooner or later, they were simply speeding up the soiling process so they could study the removal of grime. What they were after was a new detergent, developed especially for modern drycleaning, that would help clean your clothes better.

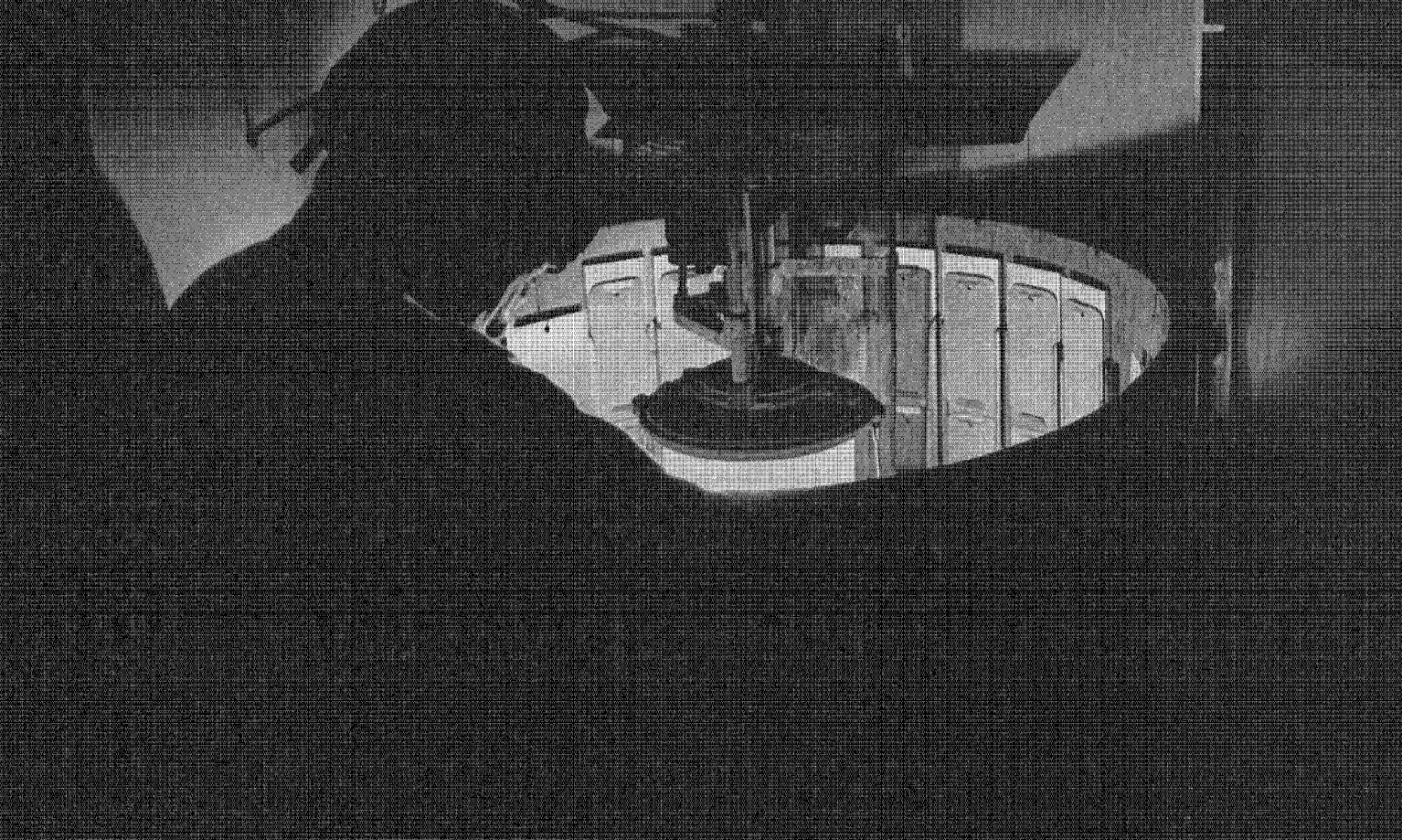
Most of us may not be aware of it, but there's a lot more to cleaning a suit or dress than just tumbling it in a good solvent. That is important, of course. But here's the catch. Drycleaning fluids are designed primarily to dissolve grease and oil. In so doing, they only help to loosen imbedded soil such as dirt and various stains. It's the job of a soap or detergent to lubricate dirt particles so that a flushing action will remove them completely.

Until about 20 years ago, all drycleaning was done with petroleum solvents. Then a new type of solvent made by chemical synthesis was introduced. By then existing standards, these solvents gave such good results that drycleaners didn't bother to use soaps with them. As time went on, however, cleaners began setting their sights higher. They wanted to turn out better looking garments, with a nicer "hand" or feel.

The obvious answer was to use a cleaning soap, but the only ones available then were developed for petroleum solvents. Du Pont, as a manufacturer of the synthetic solvent "Perclene" perchloroethylene, felt the need of its customers for a detergent that could be used in any kind of solvent, any type of equipment, and under all conditions.

That's what set the Du Pont research team on the road to a new detergent. They found it in a product now called "Ovalene" drycleaning detergent. It can be used with petroleum and synthetic solvents alike; has many technical advantages in the shop.

But the customer is king and wants to know, "What does it do for me?" To this many a cleaner today can answer, "Your clothes come back brighter, cleaner and with a finer feel."



• Studying the effect of man-made sun and rain on a series of paint panels.

Concentrating the weather

Accelerated tests enable today's scientists to determine the effect of weathering and sunlight on many materials

Are you sure the paint and fabric on your new lawn chairs won't look pretty sad by fall? And how do you know your new garden hose will stand up under the sun and rain of a summer's exposure?

In Du Pont laboratories, an instrument called a "Weather-Ometer" is used to check such things; or as the scientists say, to test the resistance of many different materials to sunlight and weathering. This machine gives them an accelerated dose of atmospheric conditions and finds out, for instance, whether a fabric will rot, whether a painted surface will "chalk" or crack, or whether a rubber article will deteriorate. This information is a valuable aid in speeding up research and development.

In the "Weather-Ometer," the material is subjected to heat, light, humid air, moisture and temperature changes in much more rapid succession than they occur in nature. First, a carbon arc or mercury vapor lamp produces ultraviolet rays equivalent to those of hot June sunlight, and plays it on the surface of the

test material. Then a spray of water drenches the sample automatically every few minutes to imitate the effect of rain. A ventilating system—in addition to helping control temperature and humidity—introduces air for oxidation.

Let's be more specific about that lawn chair. Probably it will sit out in the yard through boiling sun and thunderstorms until fall. The question is, will it "stand up"?

Chemists of the Du Pont Finishes Division want to know in advance what effect such exposures will have on the finish. With the "Weather-Ometer," the equivalent of a full season's outdoor exposure can be obtained in a matter of a few days.

If the material *doesn't* stand up under this treatment, the scientists are forewarned and can prevent disappointment by changing the formulation to give better performance.

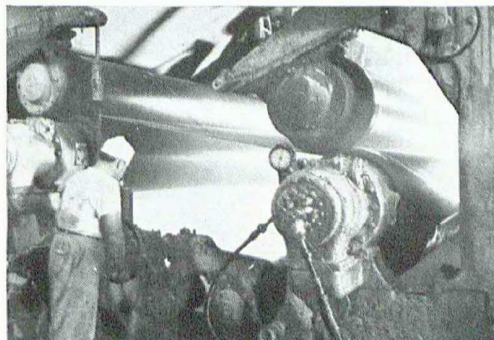
For quick testing of the fastness of dyed fabrics to sunlight, the "Fade-Ometer" is used. This instrument is a first cousin of the "Weather-Ometer," but without the water spray. Both, however, give the scientist information that helps to insure high quality of many types of products and materials before they are put on the market.

NYLON supplied what these products needed

(WHAT CAN IT DO FOR YOU?)



Does your product need strength? Strength is what these giant tires need. They support loads up to 50 tons each—pack down airport runways before paving. The tire cords are nylon—because only nylon provides the necessary tensile strength *plus* flexibility, bruise resistance, durability.



Does your product need extra toughness? These felt blankets spend their lives going through the wringer . . . supporting wet paper as it passes through roller presses. "Felts" with nylon fibers blended into them better withstand stresses and tensions . . . have added toughness. Tests show they last 50% longer.



Must your product resist chemicals and bacteria? Powerful chemical and bacteriological action ruined filter cloth in sewage treatment plant in two or three days. Now nylon filter cloth lasts for three months. Also improves production because lintless cloth doesn't clog as easily . . . can be quickly cleaned with hose spray.

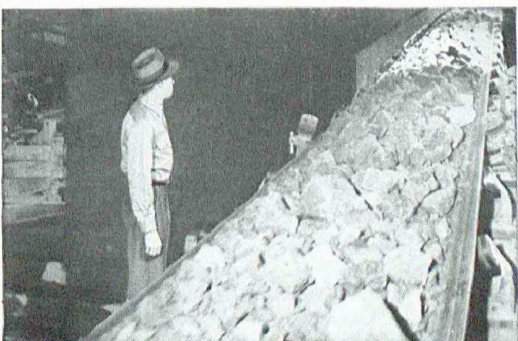


Is longer life desirable for your product? Steam heat at 335°, crushing action of press head, and absorption of starch made it necessary to discard padding on pressing units in two days. Now nylon-flannel pads stay on the job for a week and more . . . and enable laundries to do a better pressing job.

You may be able to improve production methods . . . make a better product . . . or a new product with Du Pont nylon fibers. For helpful information about nylon, write for new booklet, "Nylon Textile Fibers in Industry." And remember that Du Pont's knowledge of this man-made fiber is at your disposal. Tell us your fabric problem. Write on your letterhead to Nylon Division, Room 6512-A, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.



**For NYLON...for RAYON...for FIBERS
to come...look to DU PONT**



Does your product need flexibility as well as high strength? A super-tension conveyor belt strong enough to carry the load was too stiff to "cradle" and carry it. Then engineers tried weaving in strong, flexible nylon fibers. Result: a super-strong belt with outstanding "toughability."

DU PONT NYLON



REG. U.S. PAT. OFF.

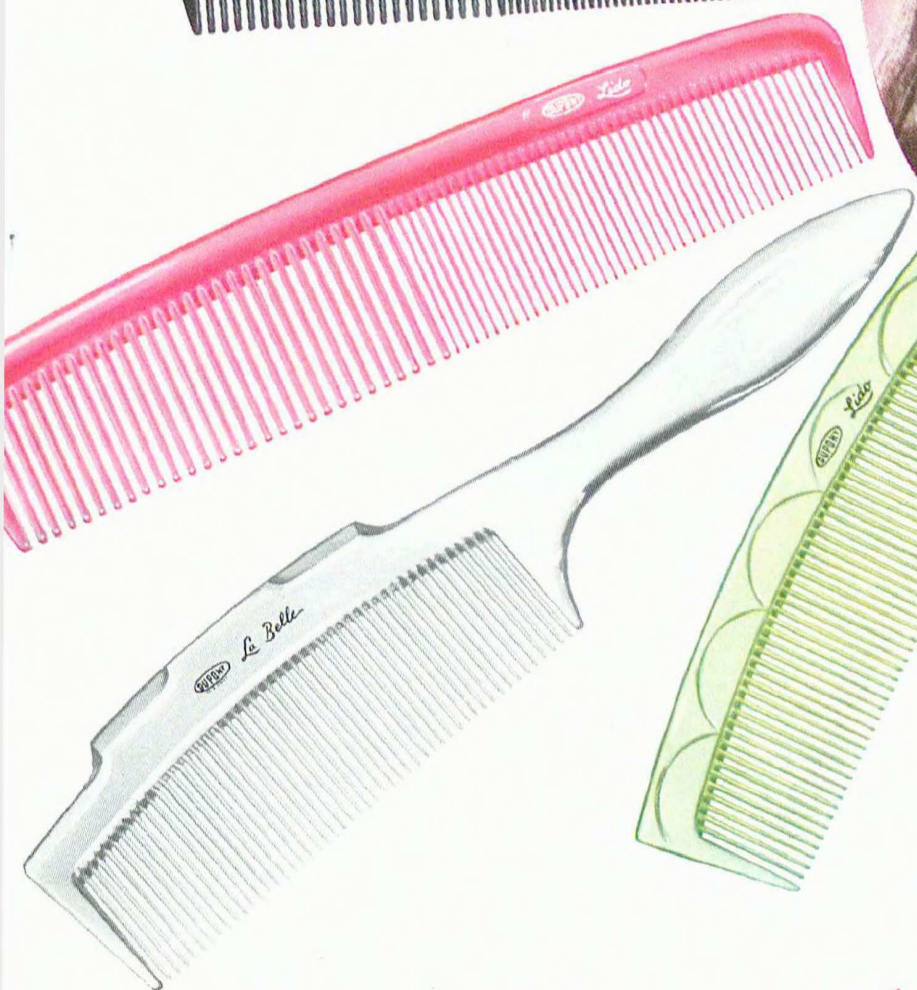
BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

Lovely hair deserves fine care

buy a better comb

... a **DU PONT** comb!

REG. U.S. PAT. OFF.



so strong! so smooth! so beautiful!

Need a strong comb? Want a smooth comb? Like a pretty comb? Then Du Pont's for you!★ Du Pont Combs have strong, firm teeth. The smooth, smooth plastic won't split your hair or scratch your scalp. And the colors are bright, sparkling, go with everything!★ Today one out of four people uses Du Pont Combs. There's a reason. Next time you buy a comb, look for the Du Pont oval. Prices: 10¢, 15¢, 25¢, 50¢ at drug, department or 10¢ stores.



BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY