THE DU PONT MAGAZINE




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GUARD YOUR FLOWERS
.... from many fungus diseases and leaf-eating insects NOW
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THE
DU PONT
MAGAZINE

VOL. XXVIII MARCH, 1934 No. 3

The Approach to Prosperity

President Lammot du Pont comments on the subject in his annual report for the year 1933

As a foreword to his annual report to stockholders, President du Pont has reviewed economic and other conditions affecting business in general during the past year, with particular reference to the efforts of the Administration to bring about recovery from the industrial depression. Readers of this publication, as well as those addressed, are presumed to be interested in these subjects, so we quote from his remarks as follows:

"Last year's report indicated that a change for the better was noticeable in some important business activities during the second half of 1932. Figures now available indicate that both for the United States and for most industrial countries of the world the effective bottom of the depression was apparently reached in the summer of 1932. In this country there was a sharp but short decline in late February and early March of this year, accompanying the bank closings. The subsequent recovery from March to July was almost unparalleled in its rapidity, and many constructive readjustments have gradually been made in banking, finance and employment. For the past few months, however, improvement has been less certain.

"The year 1933 has witnessed an adventurous attack by the Administration upon the political, social and economic ills of the country. The effects of prohibition repeal should be felt at an early date in the field of industry and Federal finance. Child labor and sweat-shop conditions have been vigorously dealt with, and the results should ultimately be beneficial. The position of the banking machinery of the country has undoubtedly been considerably strengthened. Many measures of an admittedly experimental nature have been courageously instituted in the hope of contributing some early relief to our sorely stricken national economy; some of these measures are of a permanent character, others, not suitable as a lasting policy, were adopted to aid in critical situations.

"It is quite obvious that our material wants cannot be permanently satisfied by a prolonged limitation of the productiveness of our plants and man-power, nor can the hunger of our people be satisfied by the destruction or restriction of the products of our farms. We can progress as a nation only to the extent that we as individuals save a portion of the results of our current efforts, which means, for most of us, increasing our savings accounts or bond holdings or insurance. Such thrift, however, is not encouraged by a feeling that our current or accumulated dollar savings of today will be less valuable tomorrow. If commitments of various kinds, solemnly entered into between great nations, or between governments and citizens, or between citizens, are not observed, the experience does not strengthen that moral fiber so needed to battle the hidden forces of depression. The mounting expenditures of the Federal Government, even though temporarily expedient, are discouraging alike for their added burden upon the taxpayer and for their depressing effect upon industries with which the Government will be brought into competition.

"At present, efforts are being made to enlarge the capacity of our banks to expand credit. An expansion of credit is a necessary and normal accompaniment of increased industrial and commercial activity, and when prudently, even generously, extended to worthy and needy borrowers in the enlargement of their activities, should beneficially stimulate the production and distribution of goods. The distress recently occasioned by profligate credit expansion, however, should

afford suitable warning against repeating earlier mistakes in the desperate hope that credit may serve as a cause of business revival rather than as a useful tool in the production and distribution of goods.

"A gradual increase in the price level of commodities occasioned by the operation of demand for goods upon their supply would contribute a large measure of encouragement to business and industry, and might furnish relief to many debtors whose obligations are now maturing or on whom the burden of debt service may now be pressing heavily. Such a rise in prices, however, should not be confused with an elevation in levels created by artificial restriction in the supply of commodities, or by a temporary stimulation in demand through unwarranted expansion of credit, or by a mere marking up of prices through a marking down of the medium of exchange in which such prices are ordinarily measured. The traditional effect of such operations has been invariably to discourage business and industry, to curtail savings, and therefore to lessen the capacity of the debtor to meet his obligations.

"The burden of debt left in this country by the war years and the following boom period is great. Although our debts are virtually all owed within the country, and hence free from international political and economic complications, yet the readjustment of the burden among our own institutions and citizens is in many instances difficult and trying. The readjustment or alleviation of prudently contracted debts may well warrant the adoption of extraordinary but ultimately sound measures in these times of economic stress.

"However, the burden of many debts has already been measurably reduced through natural and private readjustments made during recent years. Of these debts a large part has not matured and may not mature until a time in the future when their discharge will offer little difficulty to the debtor or when our solicitude may more properly be transferred to the creditor. The shrinkage in the value of many of these obligations which are in jeopardy has long since been reflected in the markets, and the burden of loss already absorbed by the creditor. This shrinkage in the market value of debts affords the debtor an opportunity today to bring about their satisfaction at a fraction of their face value. While these debts were, on the average, created in periods of higher price levels than that of today, it was not then contemplated by either debtor or creditor that they should be adjusted to this particular period of low prices.

SOME FACTS IN BRIEF

The company's volume of business, expressed in dollar sales, was about 24 per cent greater than for 1932.

Approximately $1,800,000 was expended for chemical control of quality and yields of existing products, and approximately $4,000,000 for improvements in existing processes and products, the development of additions to established lines and of products in new fields.

An expenditure of approximately $11,500,000 was made to extend and modernize the company's manufacturing facilities.

A majority interest in Remington Arms Company, Inc., was acquired and E. I. du Pont de Nemours y Compania Argentina S. A. Comercial e Industrial, formerly C. G. Bartlett & Cia., Ltda., became a wholly owned subsidiary.

At the end of the year 36,000 employes were on the rolls of the du Pont Company and its wholly owned subsidiaries, a 28½ per cent increase over the total reported for 1932.

Common stockholders of E. I. du Pont de Nemours & Company, Inc., numbered 51,047 as of December 31, 1933. That is more than twice as many as were reported on the corresponding date of 1929.

"In considering any measures for the relief of these debtors which may jeopardize our monetary system and disturb the confidence of the community, we should not overlook either the identity or the situation of the creditor, or the effect upon the country as a whole should his interests be treated unfairly. The heaviest debtors are the Federal and municipal governments and the corporations. While the debtors are many, the creditors are probably even more numerous, and may quite properly be assumed to comprise virtually every humble citizen. The interests of every savings depositor and every holder of an insurance policy, and of their beneficiaries and dependents, are acutely concerned with the integrity of these debts. Countless hospitals, asylums, charities, institutions of learning, pension funds, and similar endowments will alike suffer from any partial or complete cancellation of such debts. It is fair to assume that should these debts be factitiously reduced to a material extent today, widespread distress and disorganization would result throughout the country.

"In endeavoring to construct a program to bring about a revival of prosperity, it is important to differentiate between the causes and the effects of industrial activity. It is perhaps not unnatural that, being a chemical company, we should liken the development of prosperity to the creation of natural products.

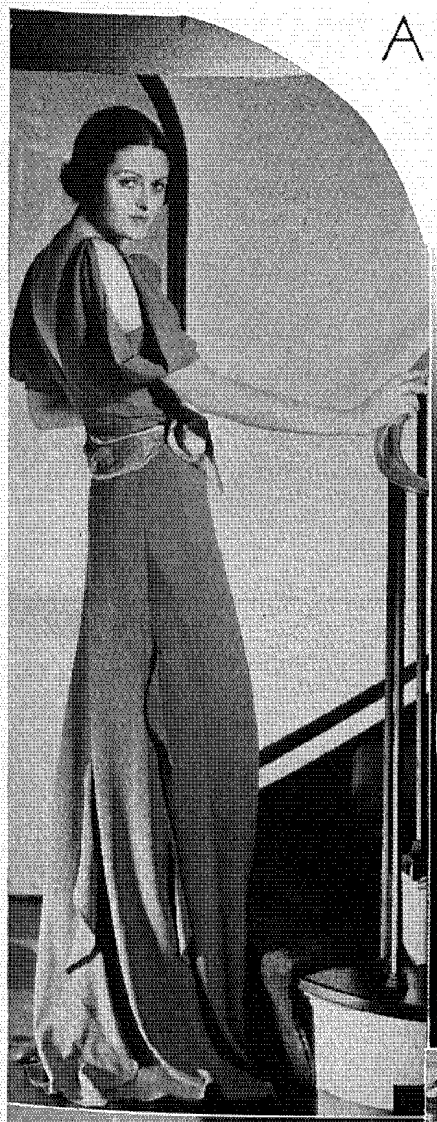
"There are many inanimate compounds in nature which can be duplicated by a process known as synthesis, which means the bringing together and combining, by various means, of elements or constituents of such non-living compounds, thereby creating the complex, static whole. If prosperity were a static, inanimate compound of conditions, it might be possible to produce it by the artificial assemblage of the several conditions ordinarily characteristic of periods of prosperity. Among them may be mentioned a high and rising price level of commodities, a large and expanding credit structure, and a low ratio of debts to national income. Since these phenomena, if not transitory or merely counterfeit, appear and continue on a sound and lasting footing only as the result of vigorous and healthy industrial and commercial activity, it would appear futile to attempt to synthesize prosperity by trying to create and assemble in advance the conditions which accompany but do not precede revival.

"The essential weakness in the approach to prosperity by the synthetic route is that industrial and commercial activity is not a static compound. Rather it is more nearly akin to the activity of a myriad of growing, living organisms which, because they live, inherently possess the powers of growth and multiplication. Given the living seed and a fertile soil in which to germinate, the

(Continued on page 24)

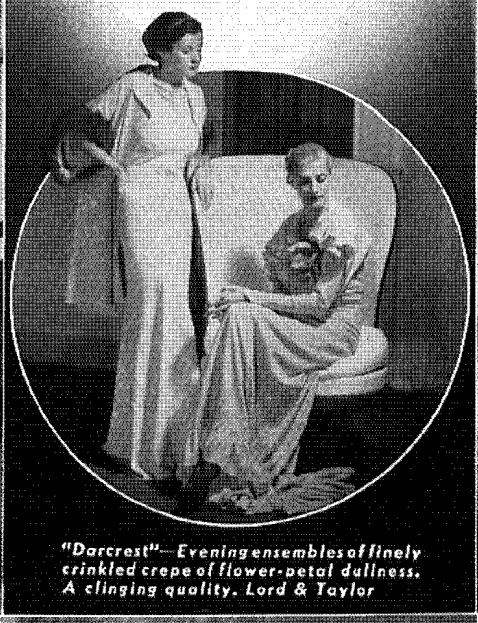
A Wardrobe of Real Beauty and Smartness

Illustrating the versatility of "Acele" Yarn



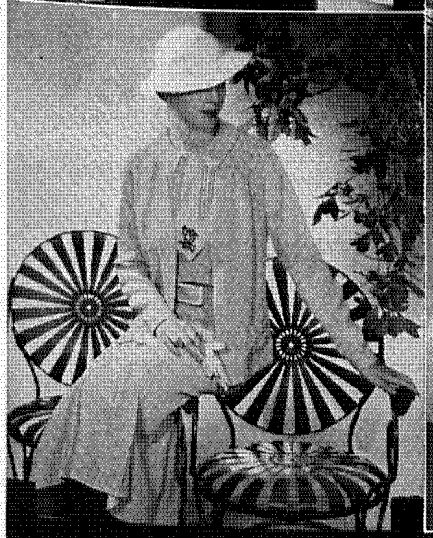
Right—"Darweb"—A nubbly, soft crepe. High revers-like collar. White pique tie. Best & Company

Left—Evening gown of "Spada Crepe," a fabric which lends itself to the new wind-swept silhouette in an enchanting manner. Jay-Thorpe



"Darcrest"—Evening ensembles of finely crinkled crepe of flower-petal dullness. A clinging quality. Lord & Taylor





"Sportmake Mesh"—A Coral Fae Ensemble in 1934's smartest fabric, a novelty crepe in Acele-the-dull. Best & Company



"Prunella Dot"—A diamond dotted crepe. White dresses with brilliantly contrasting coats. De Pinna. Easy to pack. Flattering to wear. Best & Company



"Darstripe"—A two-piece frock, designed by Orry-Kelly. Shown here on Margaret Lindsay, Warner Brothers' new star. Russeks



A shower-cap bag of Moistureproof "Cellophane" keeps her hair dry without crushing the coiffure

"Cellophane" in the Home

You will be interested to know about some clever new uses for this versatile cellulose film

By B. C. ROBBINS

When we mention the name "Cellophane" in connection with the household, one is likely to think of the many things we bring home attractively wrapped in it or of some of its novelty uses, such as for table decorations or party favors, not realizing the many practical uses that are being found for this product in the home itself. All this seems quite natural when we consider how recent are these developments and the fact that hardly a day passes that someone does not reveal a new home use.

One of the latest, for instance, is a bag of Moistureproof "Cellophane" that can be worn as a cap while taking a shower. This bag provides complete protection without fitting closely to the head; hence, the feminine coiffure remains uncrushed.

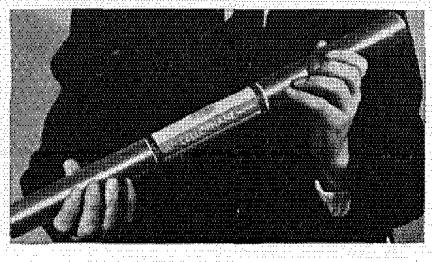
Another similar bag of Moistureproof "Cellophane" for which there is an increasing acceptance in the home, is sold under the name "Artiks." These are used for keeping foods fresh and sanitary—in the ice box, on picnics or as a wrapping for school lunches. In "Artiks" limburger cheese and butter may be kept side by side without contamination; cake and sandwiches retain their moisture, cookies and crackers stay fresh and crisp.

There are also specially-designed "Artiks" for packing away silverware. They prevent tarnishing and obviate the necessity for repolishing, thus offering a solution to a difficulty which has bothered many housewives for years.

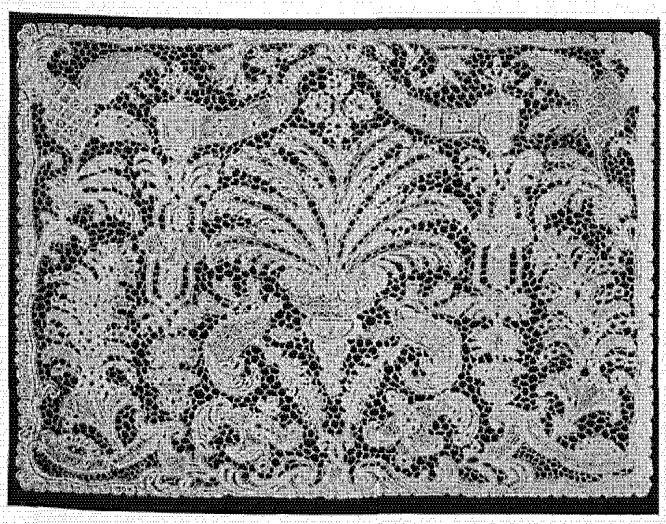
There was a time when the housewife had another problem in getting out the fine china and linen. This always meant rewashing, or perhaps unwrapping half a dozen of the wrong packages before these "special-occasion" articles could be located. Today, in many households they are being packed away in "Cellophane" because in this wrapper they are instantly recognizable and ready for use without rewashing. There seems to be no limit to the number of articles in the home which the housewife can keep similarly protected and available. More and more women are buying the convenient "Cellophane" Household Rolls in order to have a supply of this transparent sheeting handy for whatever use the imagination may dictate.

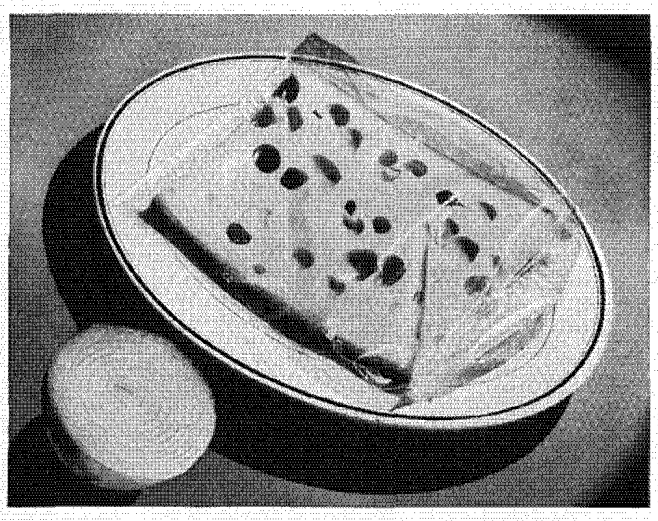
And who does not have occasion to wrap a package, mend a damaged book or a piece of torn money once in a while? For these needs there are both ribbon and adhesive tape of "Cellophane." The ribbon—edged, folded or woven—is sold in a variety of attractive color combinations suitable for gift wrapping. The tape, put up in handy dispensers under the name "Scotch Cellulose Tape," comes to the rescue whenever you wish to mend anything or seal a package in a jiffy. One very popular use for it is in making "Cellophane" table cloths. Several sheets of Moistureproof "Cellophane" may be sealed together and edged with it to form a table cloth of any desired size. A unique feature of this tape, in addition to its transparency, is that it needs no moistening. It adheres instantly to any smooth surface.

Of growing importance in the home field is "Cellophane" laminated to various fabrics such as scrim or chintz. This material is now being used in making curtains for which glazed chintz is ordinarily employed. The laminated fabric is preferred by many because it can be easily cleaned with-



The "Cellophane" Household Roll is designed expressly for home use. This well-known package is obtainable in thousands of stores





Left—A doily of "Cellophane" printed in authentic Point-de-France lace from a design made at Sedan in 1680 during the reign of Louis XIV

Right—Bags of Moistureproof "Cellophane," called "Artiks," afford a means of keeping foods fresh and well protected against germs and foreign odors

out losing its luster. Cleaning is accomplished merely by wiping the moistureproof surface with a damp cloth, as compared to the usual method recommended for cleaning chintz with a brush. Unlike other materials having a high gloss, laminated "Cellophane" fabric does not powder off. It is sold under the name "Doplex" fabric and may now be purchased by the yard in department stores.

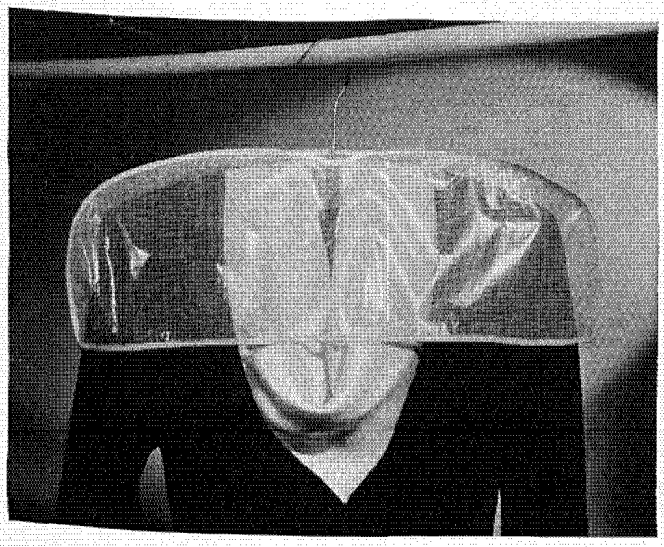
Curtaining is but one among the many needs for which laminated "Cellophane" fabric has been found practical. Women are also using it for shelf covering in the kitchen, to make their own dress covers, garment bags, chair covers, flower-pot mats and scarfs for dressers in place of more expensive glass. Again, the Moistureproof "Cellophane" surface renders these articles easy to clean and also affords protection from the hazard of spilled liquids.

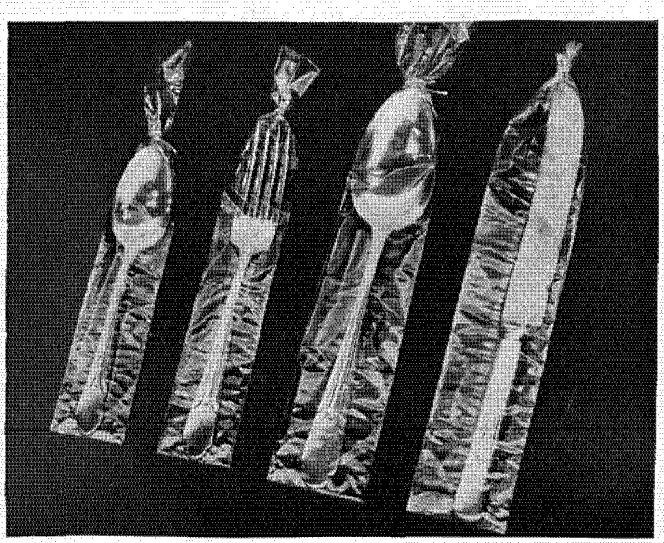
Among the many practical home uses that have been developed for "Cellophane," perhaps the smartest one is in the doilies which re-create the exquisite charm of historic laces. They are not woven products as one might suppose, but are simply Moistureproof "Cellophane" with the lace design printed on the surface. This is done with such fidelity that at first glance one can hardly distinguish it from genuine lace. The doilies may also be cleaned for re-use merely by wiping them off with a damp cloth. And their cost? Well, think of having the authentic lace designs of the French kings or those of Old Spain, at a cost only slightly more than you pay for paper doilies!

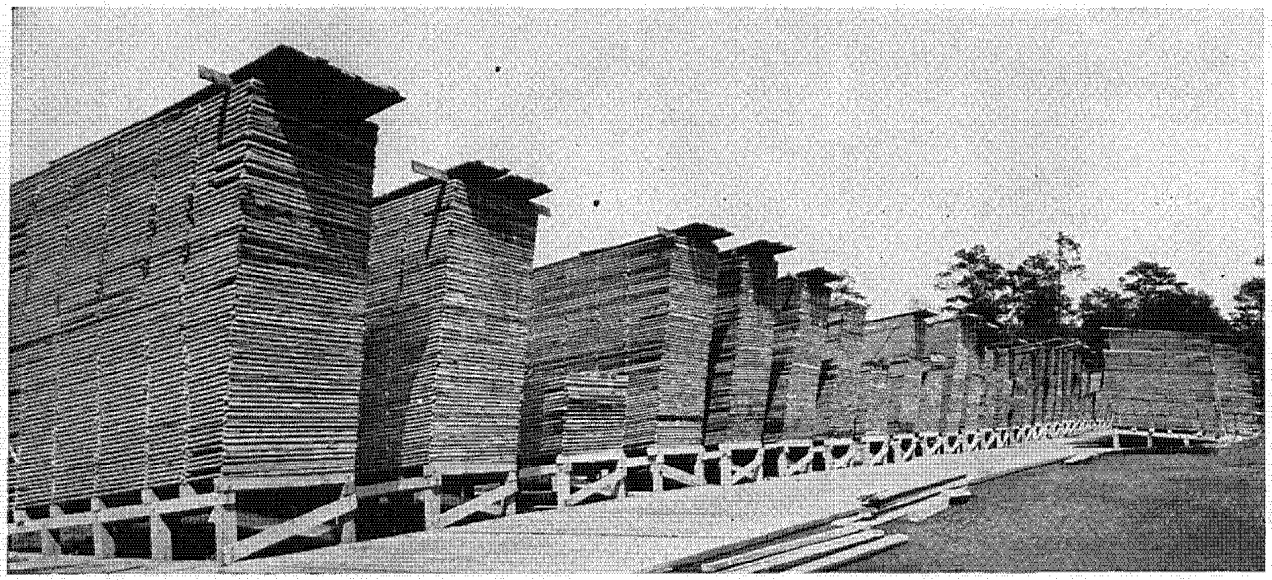
The foregoing are just a few of the practical home uses for "Cellophane." Almost everyone who is familiar with the product in its various forms finds new uses suggesting themselves occasionally. So we venture to say if you have not had the interesting experience of making some of these discoveries for yourself, probably that thrill will come to you soon. Perhaps you can find a new use.

Left—A dress cover made of "Doplex" laminated fabric is well recommended as a protection against dust accumulations

Right—Silverware packed away in "Artiks" does not tarnish, and that's a help to housewives who dislike the tedious task of polishing the articles







Pile of sap-gum that have been treated with "Lignasan" to prevent stain. The W. T. Smith Lumber Company, Chapman, Alabama, in whose yard this picture was taken, has used the product since its introduction in 1930

First Aid for Forest Products

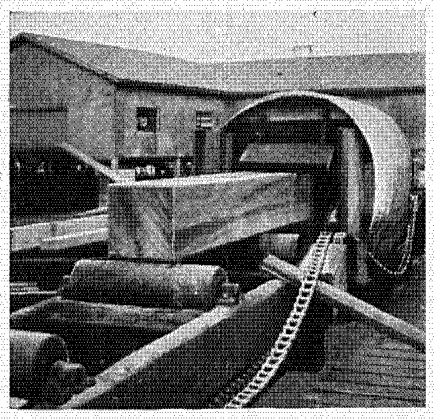
• Du Pont chemists have rendered a real service to the lumber industry by producing "Lignasan," a practical sap-stain preventive

By C. E. GRAVES

AMERICA was built by sturdy pioneers who, as the novels express it, wrested a bare subsistence from the reluctant arms of Mother Nature. Which is to say that in the early days the great majority of this country's population was directly dependent upon the "natural" industries, such as fishing, farming, mining and lumbering.

Although other less fundamental occupations have engaged an increasing number of workers, the eternal struggle still goes on. Men continue to venture forth on the sea for fish, delve into the earth for metals, till the soil so that seeds may grow, and penetrate the forests for wood wherewith to build. The trials and hardships that these men know today, however, are due not so much to the relentless operation of Nature's unchanging laws—for man has largely conquered his environment — as to those man-created forces which are loosely described as economic.

Now, instead of braving the storms with inadequate craft, the fisherman often has to battle a glutted sea-food market; the farmer, instead of fighting Indians in his quest for new lands, must produce in the face of world over-production; the miner has overcome slow and unreliable transportation in isolated places, but must cope with a capricious price structure for his metals; and the lumberman . . . he has his troubles, too.



In treating timbers to control sap stain, it has been found economical to spray the solution on with a device such as is shown here

It is with the problems of the lumberman, and the manner in which some of them have been solved, that this story is concerned. Like many another who subsists on Nature's bounty, the man who extracts his livelihood from the forests has been plagued with a declining demand for his product. During the past four years, in particular, lumber distributors have found their customers fewer and more exacting than ever before. Nowadays, they expect better lumber and insist on paying less for it. Stained lumber is taboo. On the other hand, if the lumber is bright and fresh looking, discriminating buyers are pleased. Other things being equal, the producer who offers a better-looking product gets the orders.

A number of years ago the research chemists of the du Pont Company,

spurred by the growing demand for brighter lumber, launched a determined effort to overcome blue stain or sap stain. In 1930, they introduced a new chemical called "Lignasan" for the prevention of this discoloration. For two years before it was announced the product had undergone rigorous testing by forest pathologists of the U. S. Department of Agriculture, as well as those of the du Pont Company under conditions conducive to the development of sap-stain fungi. The results of these tests convinced forest pathologists and lumbermen that a compound had finally been developed that would really keep air-dried lumber bright.

But the final worth of any product is determined only through actual experience under practical working conditions. As might be expected, the most severe and practical test came when "Lignasan" was placed in the hands of lumber manufacturers in several different countries. Subsequent results proved how accurate and painstaking had been the research investigation upon which was based the development of this compound.

It took less than a year of actual use for "Lignasan" to become the most widely employed anti-stain chemical. Despite steadily declining sales of lumber, the use of this new organic chemical grew until in 1931 more than 500,000,000 board feet of lumber were dipped in the solution. Last year enough was sold in the United States, Canada, Mexico, the Philippines, Australia and European countries to dip more than a billion and a quarter board feet.



These pieces were dipped to half their length in "Lignasan," then solid-piled and stored for five weeks in a heated room under conditions simulating those in the hold of a boat. Note how the undipped portions stained badly, while the treated ends remain bright

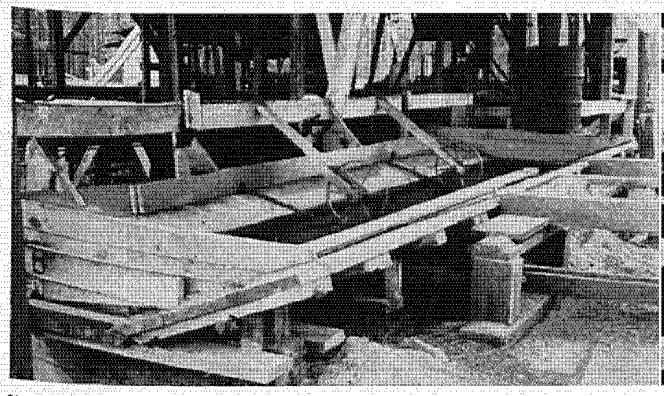
Even the layman who has never been in a more thickly wooded area than New York's Central Park can readily understand what such a development means to the public and to the lumber industry. It goes without saying that if he were building a house and the architect or contractor allowed a load of dirty-looking, sap-stained lumber to come on the lot, there would be a mighty hullabaloo about it. And the lumber probably would be sent back to the dealer.

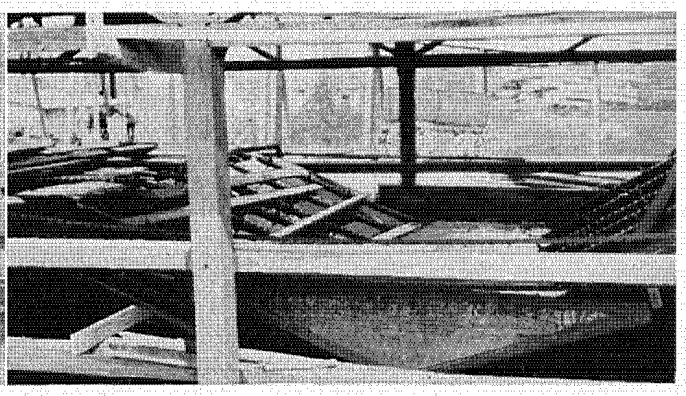
Even beyond the important question of appearance, however, the owner might suspect that someone had tried to pass off decayed lumber on him. And he might be partially justified; for the warm, moist conditions that help bring about sap stain are also frequently favorable to the development of decay-producing organisms, although stain itself is said not to lower to any appreciable extent the tensile strength of wood.

When it is realized how inexpensively lumber can be treated with this new compound to control sap stain it will be seen that there no longer is any excuse for a dealer to offer anything but a clean, bright product. Used in conjunction with approved logging and piling practices at the source of supply, "Lignasan" usually gives better than 90 per cent stain control under conditions where 40 per cent of the sapwood area formerly discolored without treatment. Dipping lumber in this solution is a very profitable practice. The cost is usually less than fifteen cents per thousand board feet. Cases are on record in which such treatment doubled the value of the product. A certain lot of Idaho white pine that was stained, for instance, was valued at $40 per thousand board feet, while the identical wood which had been kept bright and unstained was sold for $80 per thousand board feet.

But the tremendous asset that "Lignasan" has proved to be for lumber sales is not the end of the story. Let us visit the forests themselves to consider other aspects of the staining problem, and to see further how this new organic chemical has helped to sustain a huge industry that found itself languishing.

(Continued on page 24)





COURTESY U. S. DEPARTMENT OF AGRICULTURE

The practical and efficient dipping vat illustrated above is used by the Doutrive Lumber Company of Alexandria, Louisiana, and is particularly adapted to the needs of a small mill

This vat is built into the grading table and the conveyor chains carry the lumber right through the solution. This type of equipment has been found especially economical for the large mills



COURTESY, ENGINEERING AND MINING JOURNAL

General view of the Climax-Molybdenum Company's property, 12,000 feet above sea level. From the mill the aerial tramway leads to the mine, where the world's largest underground blast was fired

"Big Shot Molly"

Separating "Molly" from Mother Nature's clutches is a job too tough for man alone—so this story tells what all the shooting's for in Colorado

By R. H. SUMMER

THIS title sounds like it might refer to a cousin of Calamity Jane, Poker Face Ann, or some other character associated with Western frontier days. "Big Shot Molly," however, is a modern story of the modern mining of a modern metal by an up-to-date mining company in a modern mining camp.

Molybdenum, pronounced exactly as spelled, with the accent on the "lyb," is nevertheless a tongue-twister for most people, so the miners who delve for it save their breath—much needed at 12,000 feet elevation—and let it go as "Molly."

You who read this article have probably never seen pure molybdenum metal, unless perhaps you have recognized "Molly" in your radio tubes, electric-light bulbs, or some other electrical equipment. However, when Steel took "Molly" as his spouse and alloy, he effected a far-reaching influence on present-day metallurgy, as well as on our own comforts. This union is satisfying a demand for greater pressures and temperatures in steel-working and making possible higher speeds than could be achieved without the increased tensile, compressive, impact, toughness, resistance to abrasion, and non-rusting properties that "Molly" gives in its alloy with steel.

Lighter and stronger, to withstand higher speed, is the modern cry, answered first by the aircraft industry and closely followed by the automobile industry. Now it does not seem risky to predict that railroad transportation equipment will be revolutionized with the application of the same principles. Molybdenum is perhaps the most important of the commercial alloys contributing to these demands.

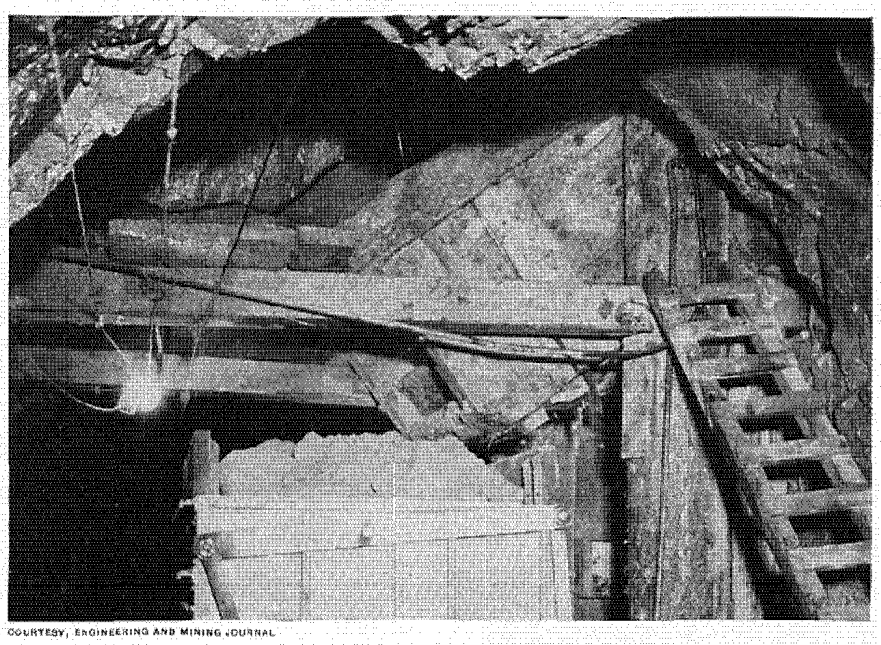
Metallic molybdenum alloyed in steel is present in only fractional percentages, and yet its mining in Colorado by the Climax-Molybdenum Company involves the largest daily tonnage taken from any one mine in the state. This tonnage comes from the most extensive molybdenum deposit in the world, located at the highest altitude of any mine on an equal tonnage basis in the United States.

To furnish living quarters for the miners, the largest bunk house in Colorado has just been completed. This structure, which has 104 rooms, each accommodating two men, is of fireproof construction, with an all-electric kitchen, and modern in every respect.

Trains of ten-ton mine cars—the largest in underground use in Colorado—draw the ore from the mine to the four by five-foot jaw opening in the biggest ore crusher in the state.

With all these superlatives it seems only natural to conclude that this concern does things in a big way, and here's where "Big Shot" comes into the picture. The statement that the largest underground blast in history was made at Climax in 1933 has not been disputed. One hundred and ten thousand five hundred pounds of fifty and sixty per cent gelatin and "Gelex" dynamite were fired in one blast, to dislodge an estimated 350,000 tons of granite gneiss or quartz, containing less than one per cent molybdenum.

The quantity of ore blocked-out in this shot is, of course, very small when compared to the 100,000,000 tons of proven reserve ore. But let's look at a few statements and comparisons to realize just what "Big Shot" means. Nearly six carloads, each containing 20,000 pounds of dynamite, were used. This amount, if stretched out in a continuous line of 1¼ by 8-inch cartridges, would extend thirty-three miles, with each six inches capable of breaking over one ton of hard rock. To detonate the explosives, one mile of "Cordeau," which is a lead tubing filled with an explosive compound, was used in the



A typical underground chute where the ore drops down into ten-ton cars. Twenty of these can be loaded in five minutes and electric locomotives then haul them to the crushing plant

COURTESY, ENGINEERING AND MINING JOURNAL

coyote drifts, and a total of 6,350 electric blasting caps and delays with eighteen-foot leg wires was employed. The total wire on the caps, branch lines and main leads to complete connections amounted to more than forty-six miles.

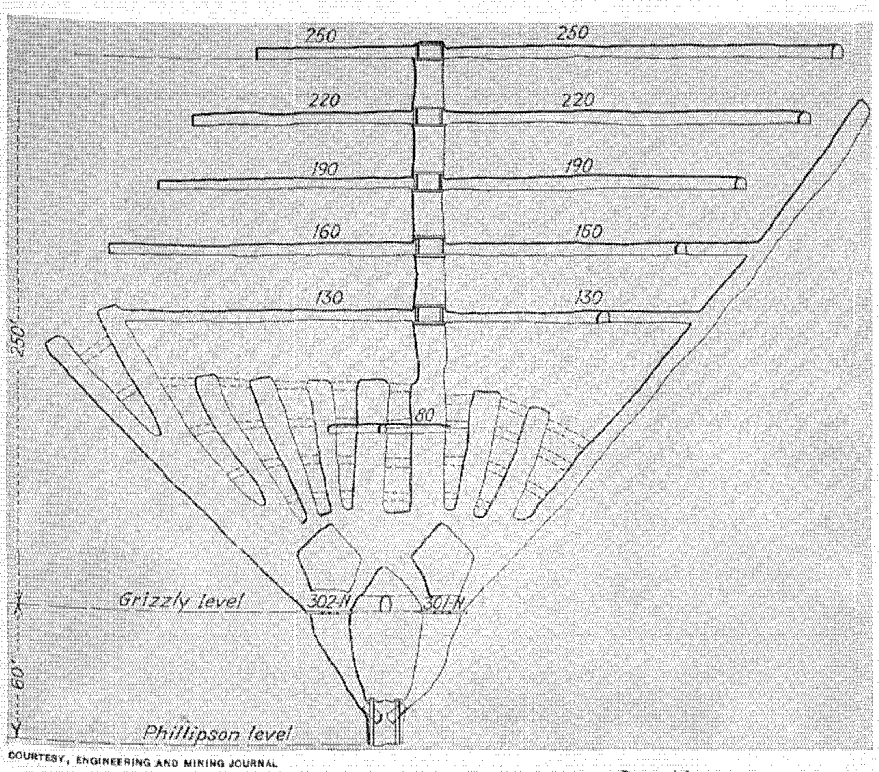
Approximately 75,000 feet of drill holes were drilled into the pillars, and twice that amount to blast the openings between them, or a total of 225,000 feet of drilling in the pillar area. Nearly one-half mile of coyote drifts and raises necessitated another 25,000 feet, making a grand total of just one-quarter million feet of drilling through solid granite. This amounts to about forty-seven miles of bore holes.

To get an idea of the ore shot in this gigantic blast, visualize a building covering one square block and twenty stories high. In place of the usual basement, imagine ninety solid rock pillars supporting the structure. Under the pillars and blasted out of solid rock are funnel-shaped openings running down to chutes on the level of a tunnel below. This provides the place to draw off the broken rock. One elevator shaft to the top represents a raise, and from this shaft, every third floor the corridors extend, but the rooms and the floors between them are cut from solid rock. These corridors are the coyote drifts, and in the pockets offset from these drifts enough explosive is placed to break the burden.

With the thousands of drill holes in the pillars loaded with dynamite, and a hundred or more pockets in the coyote drifts loaded, the 6,350 electric blasting caps and electric delay caps are connected into one electric circuit. Outside the mine 4,000 feet from the scene, a switch is thrown in, and you have the "Big Shot" bringing down a third of a million tons of "Molly" ore from the heart of a mountain.

Except for starting a small snowslide there was little to indicate to the men on the surface either the power or timing of the successive blasts. So well carried out was the system used that an electric light bulb within 150 feet of the shot remained unbroken and continued to burn after the explosion.

That this shot, undertaken without precedent, was made entirely successfully, and with no accident or injury or damage to other mine workings, is a tribute to the careful preparation and execution of plans made for it by the local mine officials, who have apparently paved the way for bigger and better blasts, at least in their own mine.



COURTESY, ENGINEERING AND MINING JOURNAL

Diagram shows how the underground region where the "Big Shot" was fired would look if part of the mountain were sliced away. Beginning in the undercut pillars below the "80" level, and extending upwards to the "250" level, successive delay charges were fired, breaking the ore for removal through chutes at the bottom



A powder jar manufacturer found a use for Gemlike "Pyralin" in articles of the type shown here

Two New Sales Stimulants

• Gemlike "Pyralin" and Cloisonné "Pyralin" help manufacturers to turn their products over faster

By R. T. ELLIS

MANY products on the shelves and counters of stores throughout the country today would sell more readily, if they had some decorative spot of color to take them out of the humdrum class of merchandise. Some manufacturers have found that new designs, new shapes and entirely new methods of packaging also are necessary, if they hope to turn the "I-don't-know" prospect into the "I-have-bought" purchaser.

The problem of merchandising today's products is sometimes baffling to the manufacturer, as well as to the buyer. Styles change overnight and the wheel of fashion is ever rotating to give something new to the consuming public. The new silhouette, off-the-face hats, low-heel shoes, may constitute the smartest ensemble of the hour. The wheel turns, however, and tomorrow brings with it something different.

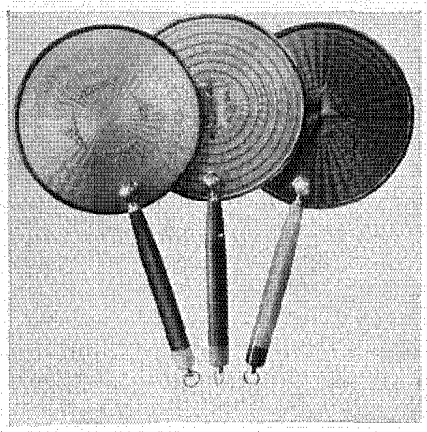
One of those "new somethings" has been developed and is being sold by the Du Pont Viscoloid Company, Inc., in conjunction with the Gemloid Company of New York City. There are, in fact, two products—Gemlike "Pyralin" and Cloisonné "Pyralin." Manufacturers were quick to realize the possibilities of this decorative plastic development, and various kinds of articles such as compacts, cigarette lighters and cases, greeting cards, clock-dial faces, and powder jars are being decorated with it today. Both materials are sold in sheet form with individual designs chosen by the manufacturer incorporated in the sheet of "Pyralin."

The decorative idea for Gemlike "Pyralin" came from the different brilliant effects reflected from the faceted surface of a diamond. The more faceting a diamond has, the more brilliant its surface. The problem was to reproduce this effect by the use of du Pont "Pyralin" and other materials, and after months of experimentation, this was achieved. Any design that is wanted may be obtained and printed in black and white, or in colors. The beautiful effects available cannot be described here, but samples which show the possibilities may be obtained by our readers.

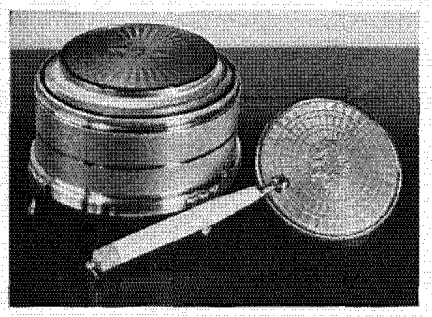
During the experimental stages of developing Cloisonné "Pyralin," many obstacles were encountered. These were gradually overcome, and the process was finally developed. The design desired is embossed right into the sheet of "Pyralin," and here again the samples must be seen in order to appreciate properly the effects.

The uses of Cloisonné "Pyralin" are innumerable. Any design, figure

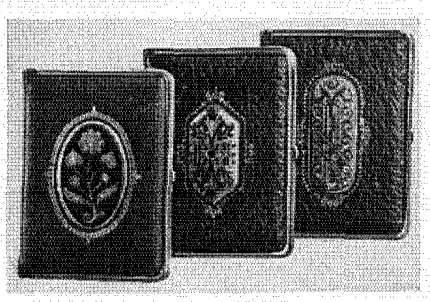
(Continued on page 24)



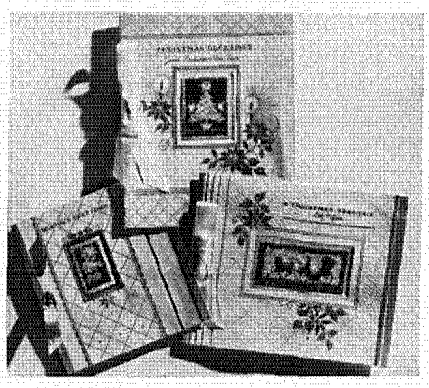
Cloisonné "Pyralin" as used by a manufacturer of magnifying mirrors. The material is supplied in colors such as jade, rose and blue



Another interesting group, showing the decorative use of Cloisonné "Pyralin" as applied to a powder jar and a magnifying mirror



Left—Three compacts for powder and rouge are made attractive with inset pieces of Gemlike "Pyralin"



Right—And greeting cards, too, are improved by the use of this material in various designs for outside decoration



The window displays at the du Pont Exhibit never fail to attract Boardwalk strollers. The group shown here was evidently interested in a demonstration of especial appeal to men when the cameraman snapped this shot

Chemistry's Products Revealed in the Things You Buy and Use

The du Pont Exhibit at Atlantic City is both an educational and service center

By J. PRICE KELLEY

Atlantic City, New Jersey, is a Mecca for millions of visitors each year. They come there for rest, recreation, and freedom from business and domestic cares. And as they relax in the hotels or stroll along the Boardwalk the tonic of a new environment freshens their interest in all the good things of life. That is why many manufacturers find it worth while to exhibit their products at this world-famous seaside resort.

Eighteen years ago the du Pont Company established the du Pont Exhibit when it was one of the pioneer showplaces of this kind. Today, it is considered an outstanding Boardwalk attraction. And because thousands of people are eager to learn how chemical products fit into the picture of modern merchandise, the story is visually presented in a most interesting and informative way.

The ramifications of the chemical industry are so great that one cannot hope to get more than a sketchy idea of the uses of du Pont products. To inspect this exhibit once is to see only part of the current show. Displays are constantly moving in and out, presenting an everchanging picture. One should visit this exhibit at 1121-23 Boardwalk several times a year to appreciate its educational appeal and to understand its other service functions.

And right here a word about the purpose of this exhibit: Here are shown many diversified products of the du Pont Company and its subsidiaries and how other concerns use them in manufacturing finished goods. Thus the merchandise displays show not only a wide range of product applications, but also the actual and distinctive results of their use.

Perhaps a manufacturer, inspecting some article on exhibit will want to know how to improve his own product through the use of one or more du Pont-made materials. A distributor or store buyer may see merchandise that will be a welcome addition to his stock of goods. Or an individual purchaser may see just what he has been looking for. So this Exhibit is a clearing house for information and a service to all interests because it visualizes effectively the meritorious uses of du Pont products.

Let us visit the Exhibit and look around a bit. It is summer. Throngs of vacationists crowd the beaches and the Boardwalk. As we approach the building groups of people are seen standing before one of the large front windows. Within, tastefully displayed, is a complete line of sun glasses. A card shows the manufacturer's name and explains that the frames are fabricated from the plastic called "Pyralin." This is a well-timed display, too, for the glare on the 'walk is intense. In the other window an array of colorful bathing suits catches the eye.

"Does du Pont make these?" a woman asks.

"No," replies the one addressed, pointing to the card which shows a well-known manufacturer's name with the information that he uses du Pont-made vat dyes to color the garments.

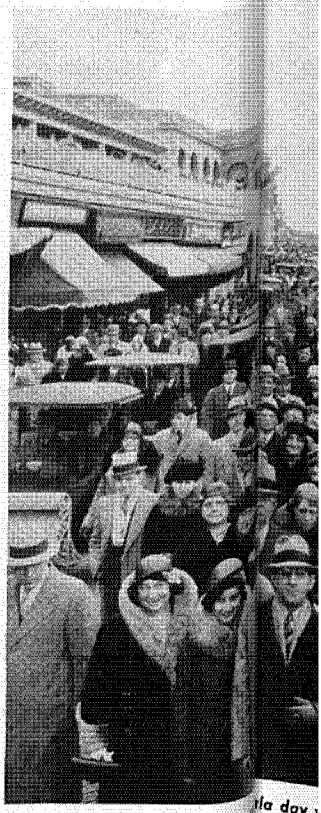
Once inside, we find a bewildering variety of displays. Well, the only way to see everything is to be systematic. So, starting at the right we stroll slowly down the aisle, pausing to inspect the merchandise and to read the legends. This article is made wholly from du Pont materials. That one owes only part of its charm to the use of some fabric or finishing material.

We see smartly-styled summer dresses made of Du Pont Rayon or

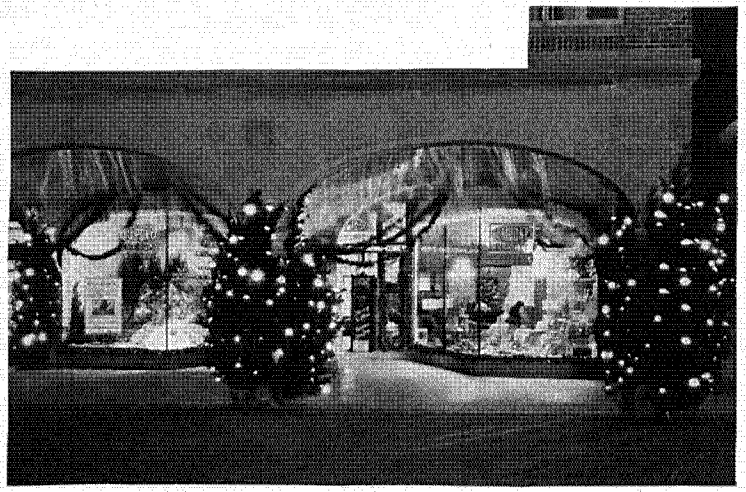
There is Always Something New to Be Gen



Left—At Eastertime the main exhibit room is transformed into a veritable bower of lilies, palms and fragrant flowers, a most appropriate setting for a spring showing of many kinds of seasonable merchandise



Easter Sunday on the Boardwalk ... day ... participating in the famous fashion Exhibit ...



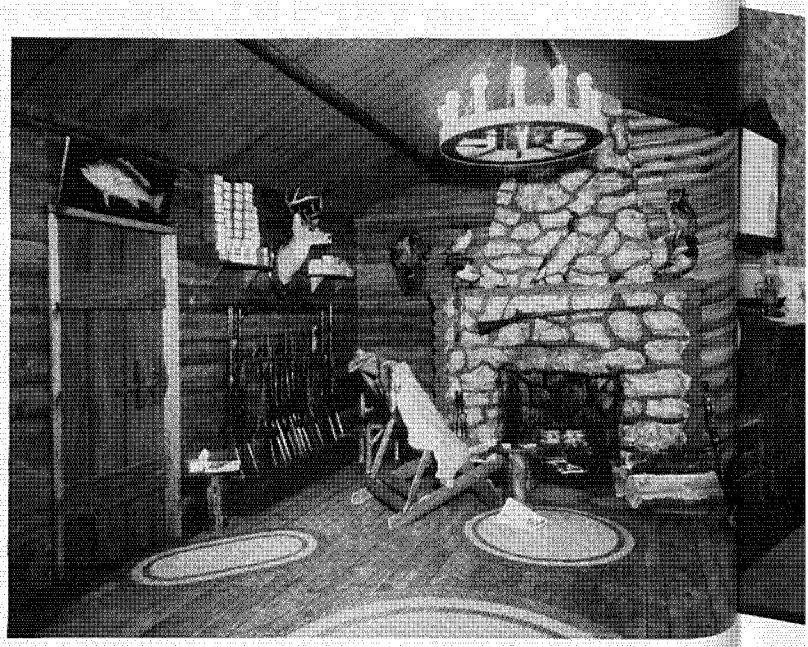
Right—During the Yuletide, the windows facing the Boardwalk are sure to stop the passer-by. The lighted Christmas trees add interest to the environment in this post-midnight view

Below, left—One of the feature ... model ... with du Pont-made materials ...

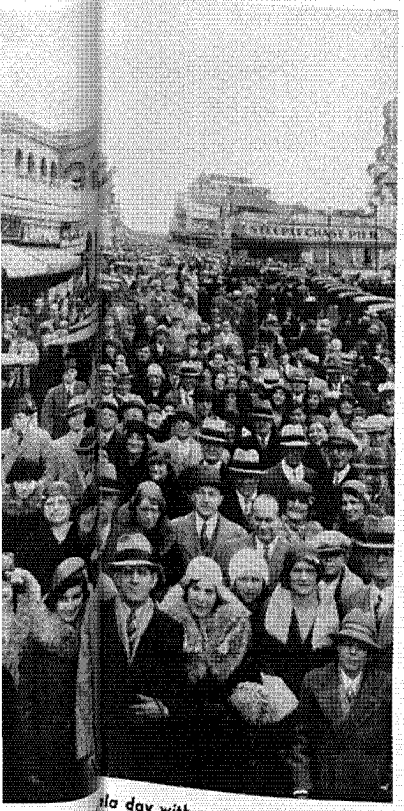
Below, right—The Early Amer... room ... home owners, because it reveal... variety ... ting



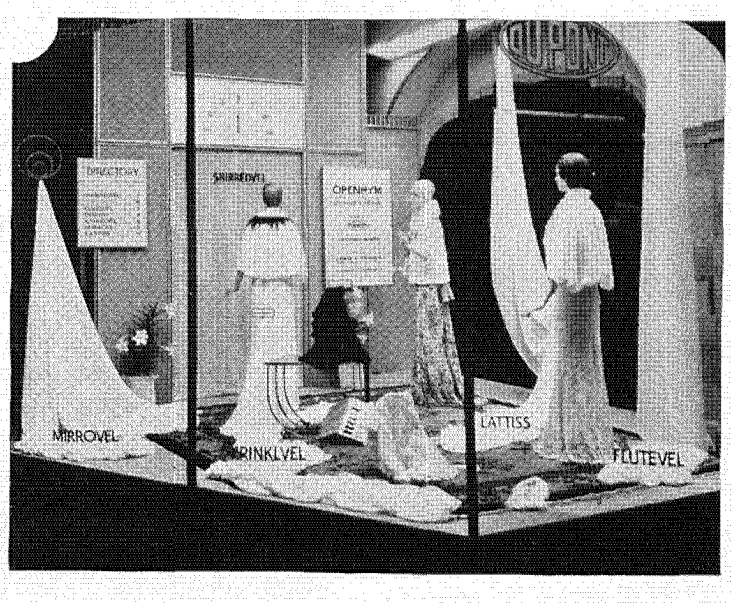
Awning cloth comes to the front in this summer display of materials, which you will note are products of the Otis Company, and colored with du Pont vat dyes



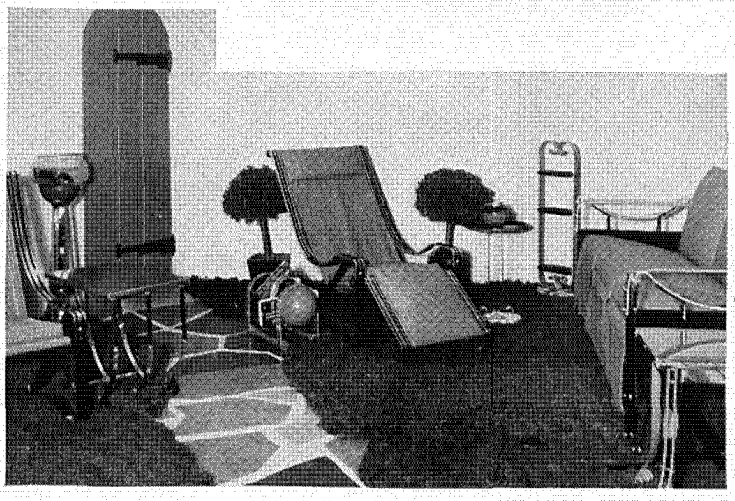
Be Seen at the du Pont Exhibit on the Boardwalk



…la day with great throngs of visitors
the Boardwa…le. The arrowhead marks the location
e famous fa…t Exhibit



Right—A typical display of rayon dresses featured the names of fabrics made from yarns manufactured by the Du Pont Rayon Company, Inc. Needless to say this exhibit was of special interest to thousands of women



Left—Some porch furniture of modern design illustrates the use of "Fabrikoid" as an upholstering material and directs notice to other du Pont products which are visually presented in this setting

…a model log cabin completely furnished
…f the featur…hington arms, ammunition and cutlery
…e materials t…

…-room proved a strong attraction to
Early Ame…t variety of du Pont products in this
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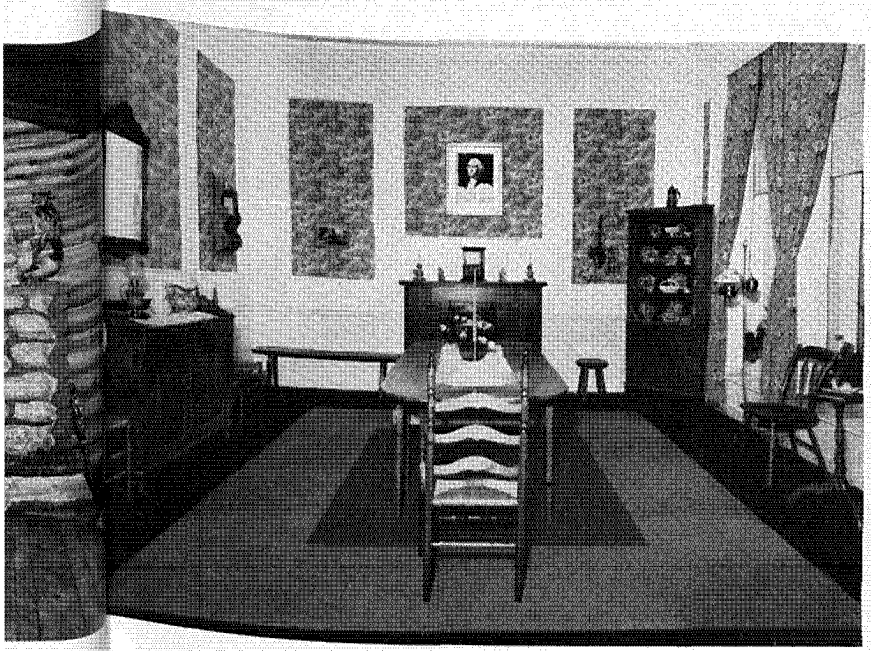
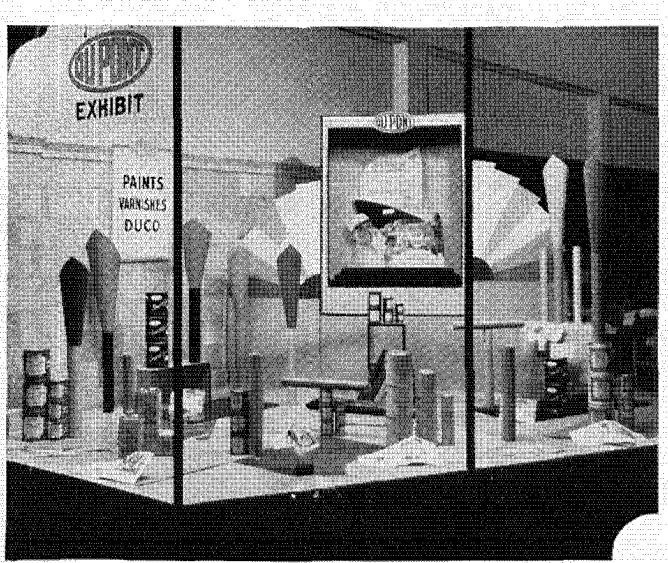




Paints, varnishes and "Duco" made their appeal to thousands of visitors who are interested in protecting and beautifying their homes with these du Pont products

"Acele" yarns or dyed with du Pont Dyestuffs; dresser sets in exquisite patterns made of plastic "Pyralin;" paints, varnishes, finishes for every purpose; candies, tobacco products, dry goods wrapped in the cellulose film, "Cellophane," and so on until we come to a feature exhibit revealing an Early American dining-room completely furnished with items in which du Pont materials are utilized. It is astonishing to discover how many chemical products find their way into modern homes.

On the way out, other displays arrest our notice—a coated fabric, "Rug Anchor," to keep rugs from slipping; a suite of office furniture finished with "Duco," and a group of "No. 7" products to keep motor cars looking new.

A young lady is demonstrating to a group of spectators how the beauty of "Tontine" Window Shades can be renewed year after year with soap, water and a brush.

After asking the guide to procure price information about one or two products, we make our exit, promising to call again the next time we visit Atlantic City.

That opportunity comes at Christmas time. Now, all the hotels and shops are gay with holiday decorations. The weather is clear, the air crisp, so we start for a walk and in due course arrive again at the Exhibit.

What a transformation! Gone are the summer displays. Somehow the place seems entirely different, now that it is all dressed up with Christmas trees, holly sprigs and a glistening something that looks like spun glass, but on close inspection proves to be "Cellophane."

After commenting on the beauty of the decorations, the displays are examined. Here are fur-effect fabrics made of Du Pont Rayon; there, woolen fabrics and chic dresses that owe their smart colors to du Pont Dyestuffs; groups of women's handbags made of "Fabrikoid," and so on. Another demonstration is in progress featuring "Triclene" for dry-cleaning uses. That's interesting, and so are the comments made by three women who are learning the merits of "Acele" yarn by closely inspecting some sport frocks, the latest styles in vogue at Palm Beach. The special exhibit this time is a hunter's cabin, completely furnished and displaying a variety of Remington Arms Company products —guns, ammunition, cutlery and, of course, du Pont Sporting Powders.

On leaving the Exhibit we pause again before the Boardwalk windows. One portrays a miniature store front in the winter time, with simulated snow on the ground and icicles hanging from the trees. The set-up features a du Pont anti-freeze solution for auto radiators. In the other window an attractive dining-room interior holds the eye. Arranged on the table we note particularly the beautiful glassware, decorated with du Pont "R. & H." Ceramic Colors, and the silverware, products of a manufacturer who uses "R. & H." Plating Chemicals. And so we conclude our second visit.

Easter Sunday, with its traditional fashion parade on the Boardwalk, is a gala day at this seaside resort, and the du Pont Exhibit is a veritable bower of lilies, palms and fragrant flowers, with a new variety of displays. But why describe them here? Perhaps, you may soon have an opportunity to join the festive Easter throng and examine the 1934 fashion merchandise yourself.

Regardless of the special occasions —and there are many in this convention city—the impressive fact about the du Pont Exhibit is that it is permanent, yet never quite the same. Always there is something new and freshly interesting. You will understand why when you learn that the displays in Boardwalk windows were changed more than one hundred times last year; that more than 400 interior displays were set up to show how du Pont-made materials add distinction to the merchandise offerings of more than 700 manufacturers.

The records show that nearly a half-million people entered the portals of this Exhibit during 1933.

Visitors from coast to coast and from many foreign countries annually come there to see and to learn wherein chemistry touches their daily lives. Millions of people have there acquired a new understanding of the du Pont organization, its products and their applications. Nor is it without point to add that the attendance records last year exceeded by far those of any other corresponding period in the history of the institution, and 1934 may well establish a new high in that particular. We hope you may visit this Exhibit often and inspect the ever-changing displays, for here you will always find something new, stimulating and worth while to see.



Not only are the interior displays changed monthly, but the decorative setting is also varied. Here you see the room in its Christmas dress of "Cellophane" with a bit of humor staged by the display in the foreground

A Preview of the "Rio"

The sandals worn by the ancients reappear in modern styles for home and outdoor use

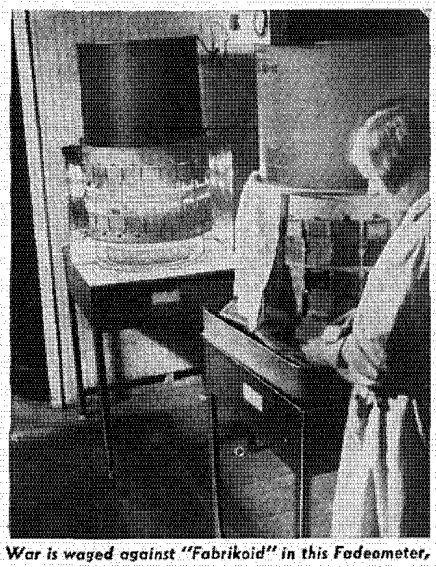
By PAUL W. SAMPSON

In the several generations the product called du Pont "Fabrikoid" has been doing its daily stint in industry and in the home, it has served in many places. But in no use has it shown to better advantage or more pleasingly than in its latest conquest—in the building of an open-heel-and-toe sandal called the "Rio."

The "Rio" captured the attention of shoe buyers at the St. Louis Shoe Style Show, which is a fairly good guarantee that you'll be aware of it this coming spring and summer at the beaches, on the boardwalks, at sporting events, and, perchance, in the boudoir.

Its simple and graceful lines are shown in the sketches of two of the styles. The grains in which the "Rio" is obtainable are the spring's mode, and the colors are in the light-hearted spirit of summer. But this sprightly sandal will wear and wear, for the "Fabrikoid" is just as washable and durable as any that has made that name synonymous with ruggedness.

And good news for the ladies and for the merchants who are waiting for the click of their opening purses: It sells for one dollar.



War is waged against "Fabrikoid" in this Fadeometer, and it must withstand a bombardment of synthetic sunlight and intense heat before it graduates into actual use

Styles swing in a circle. In the museum owned by the United Shoe Machinery Corporation in Boston are thousands of shoes, slippers, sandals and boots that have been worn from the time of ancient Egypt down to the present day. There are shoes from the chambers of the Pyramids; brocaded, silken shoes barely four inches long that were worn by women in China two thousand years ago; barbaric and gayly red, the boots of the Tartar horsemen; shoes worn by famous beauties of the past two and three hundred years, and clumsy footwear of the peon.

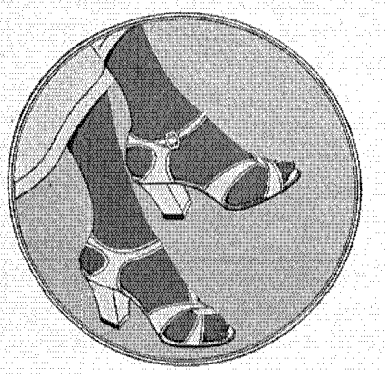
If you go far enough back in this fascinating museum, you'll find the ancestor of the "Rio" in the sandals worn by the Egyptians, and with certain refinements of design and materials added by the Romans.

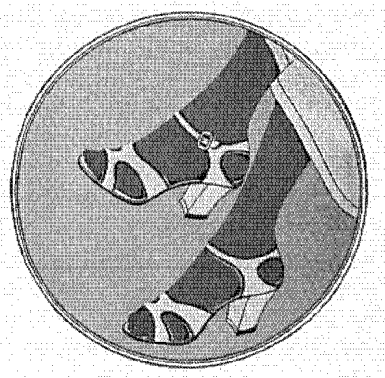
But this footwear was meant to be worn under a kind sun, and in the hillside villas. In the past few years, there has been a return to the sun and open air, and it's only natural that clothing for the warm summer months would adapt itself to the open-air movement. Witness the sun suits, the low-back summer dresses, bathing suits that just stop short of carrying out the doctrines of nudism on the grand scale.

In the "Rio," as the sketches show, is a return to the true sandal. If buying orders at the St. Louis Show can be taken as a straw in the wind, it establishes a style for the year in novelty footwear. It can be had in three new grains called "Linette," "Boa" and "Peccary Pig." The all-white numbers will, of course, be the outstanding favorites, but other summer colors in stunning combinations are available.

The soles are made of leather; the sock linings of the material known to the trade as du Pont "Pontan."

"Rio" will be distributed on an exclusive shop basis. Retailers are invited to write to the Comfort Slipper Company, Queens Boulevard at 39th Street, Long Island City.





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E. R. MANCHESTER.....*Editor*

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VOL. XXVIII MARCH, 1934 No. 3

The Broth of Industry

IRON and steel mills have long held the spotlight of public interest. Impressive in size, distinctive in appearance, they attract the eye not because they have any great claim to beauty, but rather because they symbolize one of the most important industries in the United States. Iron and steel are absolutely indispensable, the very broth of industry.

In selecting the cover illustration for this number, we salute the makers of these essential products, the men who supply our nation with the basic materials for innumerable construction and manufacturing uses.

This industry has been an important consumer of du Pont products for nearly a century. Explosives have helped to mine the ore. They have deepened and widened river channels so that ore boats can transport the raw material from the mines to the blast furnaces. Du Pont dynamite has broken down from quarry walls immense quantities of limestone needed for fluxing purposes. Other chemical products used for processing, fabricating, cleaning and finishing iron and steel make up a list entirely too long for detailed comment here, but scores of them are bearing du Pont, Grasselli and "R & H" labels.

The illustration reproduces a photograph taken by R. D. Smith, a Philadelphia artist, at Swedeland, Pennsylvania. It shows a train load of steaming molten metal en route from the furnaces to the casting department. It is the kind of broth that is helping to restore virility and health to all industries, for when iron and steel producers are busy, the tonic effects are quickly observed in every branch of industry and trade.

Plenty of Pheasants

"EVERY community that wants game can have it," read placards which were prominently displayed at the Game Conference in New York last month. That this is a fact has been amply verified in every section of the country, points out an observer.

An interesting demonstration of the theory is to be found in Chester County, Pennsylvania, within eighteen miles of Philadelphia's City Hall. There a sportsman and his wife, living on a small farm five miles east of West Chester, hatched and reared a flock of about thirty ring-necked pheasants. After the birds were six weeks old they were liberated and permitted to range, just as chickens do.

Until they were about two months old, the pheasants returned every night to their coops. When they were older, they roosted in a quince tree near the farmhouse.

Every morning and evening the birds flocked to the kitchen door to be fed, while during the daytime not a bird could be seen, without making a search on the farm or an adjoining one. Then, as they neared maturity, one after another of the pheasants disappeared, evidently to "set up housekeeping" on their own.

Three were killed on a highway by careless motorists. That was five years ago, when pheasants were seldom if ever seen in the locality. Now, flocks of five to a dozen pheasants may be observed as one strolls over the farms near where the birds were reared. Each year the pheasant population has shown an increase, and good hunting is provided during the open season.

"This," says the sportsman whose little flock stocked the neighborhood, "proves the point—'every community that wants game can have it.'"

"Children of Depression"

THAT science has contributed greatly to human progress was clearly demonstrated last summer at Chicago's Century of Progress Exposition, and in December at the Chemical Industries Exposition in New York. The American public had an opportunity to learn about some achievements of the chemical industry during the past few years. This industry, like all others, felt the effect of the depression. Research, however, was carried on, and the management of the exposition decided that it might be interesting to feature prominently the most noteworthy achievements in that field. More than one hundred new products, developed or made commercially available since 1930, were selected from a list of approximately two hundred, and these were called "Children of Depression."

Of the 112 products selected, twenty of them had their genesis or were developed in the laboratories of the du Pont Company and its affiliated organizations.

Curiously Enough . . .

The rayon tie you wear may be made of essentially the same material as the "Cellophane" wrap that keeps your cigarettes fresh.

* * *

Nitroglycerin is used in making dynamite; physicians also find it valuable as a heart stimulant.

* * *

Naphthalene is used to make moth balls—and beautiful dyestuffs.

* * *

Farmers use "P. A. C." Formaldehyde to disinfect seed potatoes; the same chemical enters into the manufacture of pipe-stems, fountain pen barrels and fancy bottle caps.

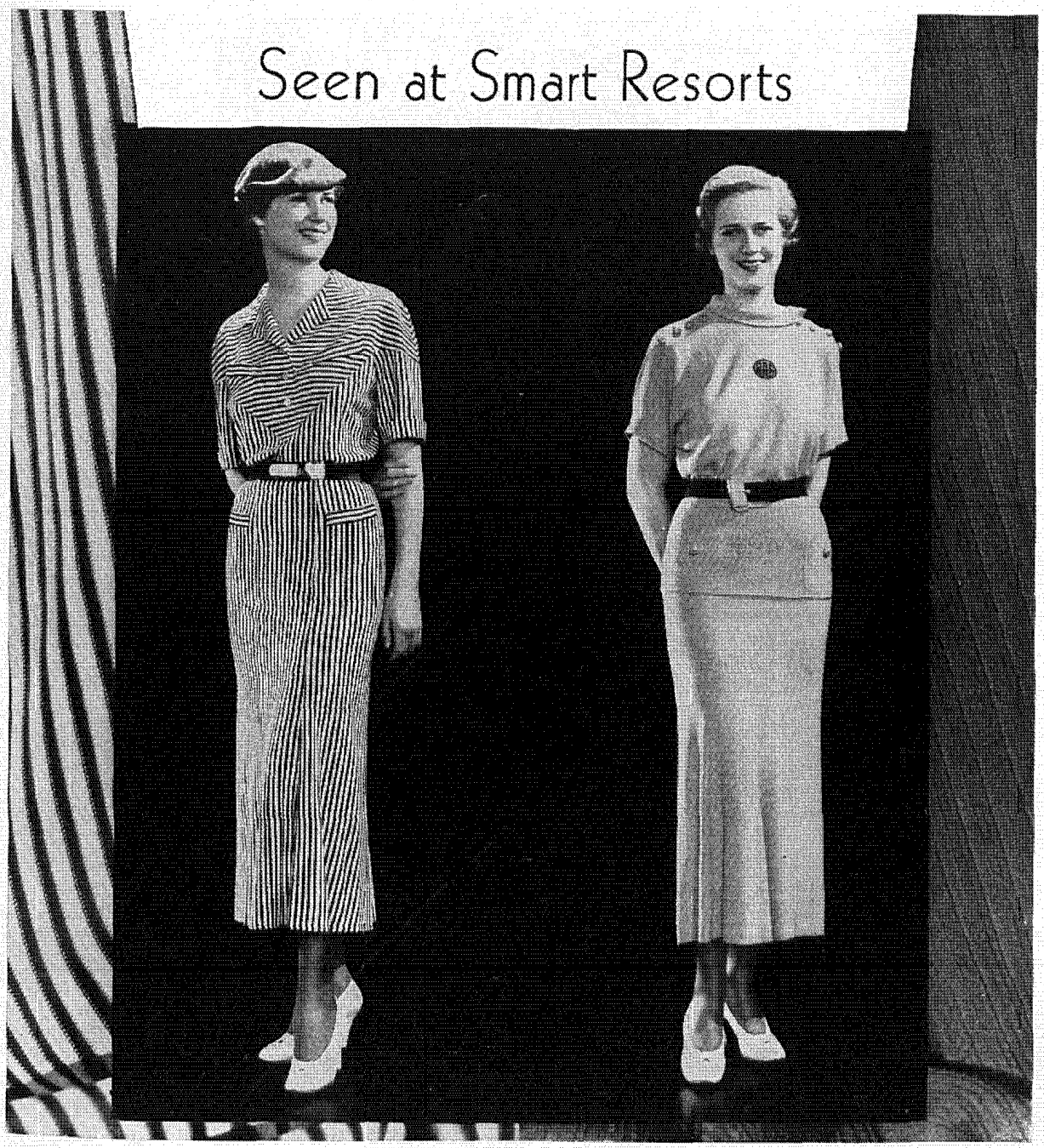
* * *

Many people consider T. N. T. to be super-sensitive to shocks, but it is not nearly so "touchy" an explosive as straight dynamite.

* * *

The whitest paint pigment is made from ilmenite, a black sand, and most all of it is imported from India.

Seen at Smart Resorts



At this time of year, feminine eyes are on America's fashionable winter resorts, for the clothes worn there reflect the trends of dress for the spring and summer seasons.

Reproduced here are two of the charming new creations in knitted materials made of Du Pont rayon that are now receiving an advance showing at Palm Beach.

The lovely sports dress illustrated at the left comes from the house of Kane-Weill, Inc., New York. The fabric, named "Stripes," is made of 150 denier yarn by William Heller, Inc., New York, and is a flat cloth with a stripe knitted in and cross-dyed for color contrast. This type of dress, which is almost indispensable to the summer wardrobe, is worn for active as well as spectator sports.

On the right is shown the dress which Kane-Weill has created from a cloth called "Point Device," made by Eday Fabrics, Inc., West New York, New Jersey, on a Wildman circular knitting machine from Du Pont rayon yarn of the same denier. This fabric has a raised rib section of crinkles that gives the cloth a ridged, mossy appearance. The dress is in Aqua Blue, an exquisite pastel shade, and is trimmed with a hand-worked monogram and belt of dark brown.

Additional information about these or other smart creations may be had by writing to the Du Pont Rayon Company, Inc., Empire State Building, 350 Fifth Avenue, New York.



Jim took the garage man's advice—rubbed on a coat of the new liquid du Pont "Duco" Cleaner and waited for it to dry

Found—A Short Cut to Car Beauty

Jim Nolton makes a discovery that banishes those Saturday morning blues and saves a few hours for golf

By D. V. BARTON

A BRIGHT, sunshiny Saturday morning. One of those first spring days when every living thing fairly bursts forth into activity.

Breakfast is over in the Nolton household. It's a day off for Jim Nolton and we find him wandering aimlessly from room to room. There is an air of indecision about his actions. Only last night he had promised himself to spend the day working on his automobile.

But every ray of sunlight, as it filters through the windows, beckons him forth to play. What a day for golf! Or a long hike in the woods. But there is the car! And he just can't drive that neglected-looking automobile in another Sunday parade.

Winter had not dealt very kindly with Jim's car. The finish, only last summer so sparkling and new, had long since lost the bloom of youth. For weeks he had promised himself that "next Saturday" he would spend the day bringing back the beauty that had once filled him with pride. But each Saturday the weather or some pressing engagement spoiled his good intentions.

"Well, Jim, how about the car? The morning's half gone and you haven't even started." It was Jim's better-half. She read his mind like a book. She, too, wanted to get out in the fresh, vibrant air. But she rebelled against driving around any longer in that dirty-looking car.

"Gee, Ethel, I forgot to buy the auto polish last night." Stalling for time, of course.

"What about Bill Anderson's Service Station? You can buy everything you need there and it will take only a moment to get it."

But Jim was already on his way. There was always something to spoil every Saturday. So he might just as well spend the day at some useful occupation.

The scene changes. Jim is at Anderson's Store.

"'Morning, Bill. I'm going to shine up the old bus today. What





"Why, Jim, that's marvelous. That's just the way the finish looked when the car was new." "Looks pretty swell, doesn't it? But wait till I get through"

have you got to do the job easy and fast—the quicker the better? I'm not keen about a lot of work!"

"Well, the easiest job I know of is the new du Pont 'Duco'-Waxing process—and it will last for months."

"Waxing? Why, that's hard labor."

"Not with these new du Pont products. I tried them myself yesterday, and I was surprised at how easily they worked. It's as simple as one-two. Remember how your mother used to clean windows with soap powder? Just rubbed it on, left it dry, and then wiped it off. That's just what you do with this new liquid du Pont Cleaner.

"When you wipe off the cleaner, all the dead pigment, dirt and scum come off with it. It leaves your car clean and ready for 'Duco'-Wax.

"It's the easiest working wax you ever saw, yet it produces a luster that lasts for months, prevents fading and weathering, makes the finish last far longer than it ordinarily would."

"Is that the same as 'No. 7 Duco' Polish?", asked Jim.

"No, it's different! Of course, if you don't want to wax your car, there's nothing that will beat 'No. 7 Duco' Polish. But if you want a polish that will last for months and protect the finish against weathering, use the 'Duco'-Waxing process."

"What's the cost?", asked Jim.

"Only fifty cents each—the combination for one dollar. You can keep your car looking new at an average cost of three cents a week."

"That sounds good to me. Wrap both up and I'll give them a try."

Again the scene changes. We find Jim, with cloth in hand, applying the new du Pont "Duco" Cleaner to the dingy-looking hood. In a minute, he has the surface entirely covered.

After the cleaner has dried thoroughly, Jim takes a clean, dry cloth and wipes off a broad swath.

"Why, Jim, that's marvelous! That's just the way the finish looked when the car was new." It was Mrs. Nolton who had come out to see how the job was progressing.

"Looks pretty swell, doesn't it? But wait till I get through." And in a short time Jim had the whole car looking bright and shiny.

He was almost tempted to stop, but with the cleaning job completed so quickly, he would go on with the waxing.

Now Jim had waxed automobiles before. So he took a double hitch in his belt, rolled up his sleeves and started to work.

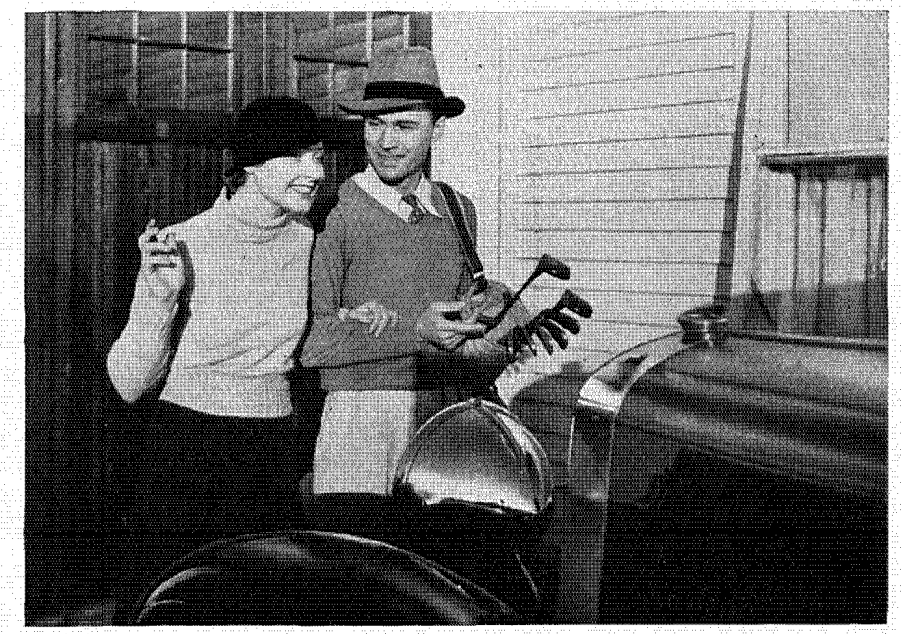
But it took only a few rubs with "Duco"-Wax to convince him that here was a new labor- and time-saver.

He liked the dry, hard, transparent film left by this wax. And Jim was pleased, too, to think that this polish job would last for months; that from now on a dry cloth would remove the dust and restore the finish.

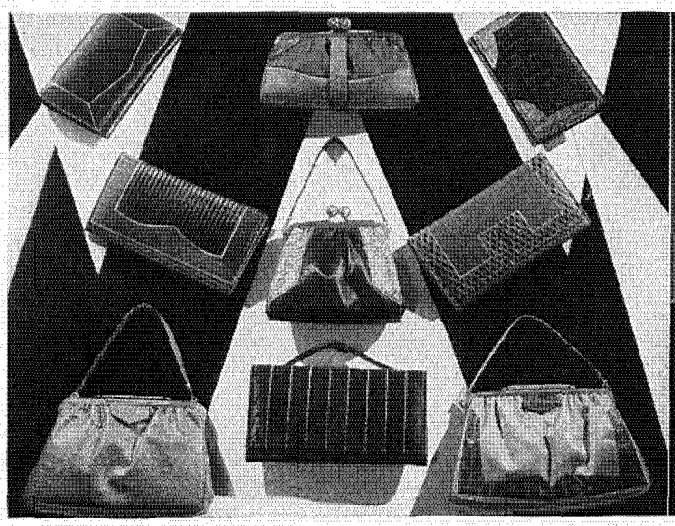
There's a certain exhilaration in finishing a job that turns out better than expected. That was the feeling Jim had when Mrs. Nolton returned.

"Jim, that's great. Looks as if it just came out of the showroom. And there's still time for a round of golf, if you're not too tired."

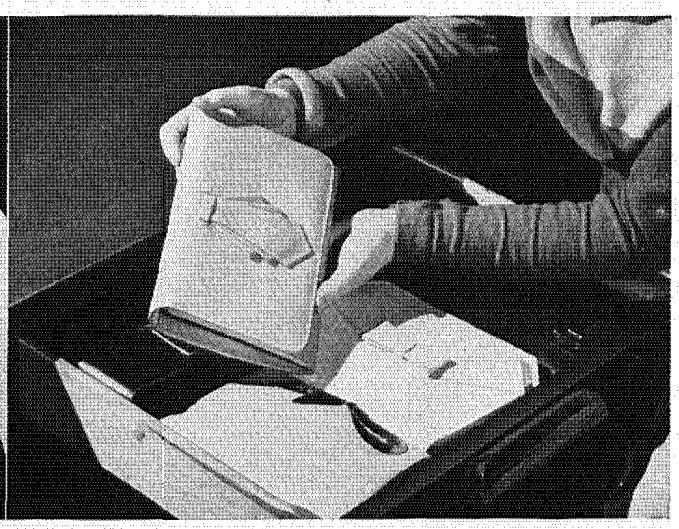
"Tired? Not a bit. Just to prove it, I'll give you the usual handicap and beat you by at least five strokes."



With the car once again bright and shining, there was still plenty of time for a round of golf



"Fabrikoid" pocketbooks of 1927 were high style and good values too but many improvements in design and materials have since been made



The 1933 pocketbooks. What a difference compared to those of 1927! Is it any wonder that these dollar items have led the field for seven consecutive years?

The Story of the Dollar Pocketbook

• • Wherein an article of real merit won enduring popularity even though it was once dubbed "just a fad"

In 1927 there appeared in the New York stores pocketbooks made of du Pont "Fabrikoid" that retailed at one dollar. The grains were in exact simulation of the leather grain that held sway at the moment. The hardware, lining and fittings were good. It was an exceptional value, and the rush of thousands of women to buy these bags made them one of the most "talked-about" articles of merchandise in retail circles.

The retailing wiseacres shook their heads and said, "It's a fad. They can't last. They'll go out of style at the end of the year."

But the records show otherwise. This was only the beginning. These bags were amazingly good looking. In addition to their long-wearing properties, the bags were washable. This was an important feature to the woman who liked her pocketbook in fragile colors to match her light-colored summer dress ensembles.

It was no wonder, then, that year after year the total should mount up until, in 1933, it has been estimated that 30,000,000 bags were made of this serviceable material and sold.

Some old photographs have been taken out of our files to show changes in pocketbook styles. All of these prints picture "Fabrikoid" bags, and show how, in the race for markets, the manufacturers have kept abreast of the best in design.

Not only have the designs been improved; the "Fabrikoid" itself has been developed by chemists so that it has finally arrived at a fine balance between wearing and washing properties, beauty of grain and color, simulation of the feel and appearance of fine leather.

Nothing in surface texture has been overlooked by the pocketbook manufacturers in their race for this market. Never a reptile crawled whose skin they didn't want to have reproduced in "Fabrikoid." It's safe to say that a cowhide never had a peculiarity of grain that has not been embossed into this material. And pigskin with all its intricate variations has been matched down to the last hole in which a bristle stood.

After six years of development the quality of "Fabrikoid" that has been adopted as standard for pocketbooks is called 4800.

Leading pocketbook manufacturers and merchants have used millions of du Pont labels in their bags. It is the consumer's guarantee that she is getting a bag of genuine du Pont 4800 quality.

If you're a buyer of handbags, look for this label. If you're just a good observer, you will be interested to see how many stores carry and feature it.



For your protection, look for this label, which identifies the pocketbooks made with the tested material called "Fabrikoid"

White Magic for Factory Walls

A glimpse inside the du Pont research laboratories where "Dulux," the porcelain-like new mill finish, was developed

By DON BAUDER

Do you think that white is always really white? Why, then, do we say that something is "whiter than snow?" A manufacturer says that his soap washes clothes "three shades whiter." "Whiter than what?" is a logical question.

It would seem, after all, that white is not always white, that the term is entirely relative. Come with me for just a moment to the laboratories while we discuss this with the paint scientist, one of those fellows who says that today's best won't do for tomorrow.

In his hand he holds a panel painted with a glistening white enamel. He hands it to you. Says he, "Isn't that a beautiful finish?" You take it in your hands; you look at it closely. "Beautiful," you agree.

But now the scientist takes down from his shelf a little black box. He opens it and exposes to view a block of magnesium carbonate — the paint chemist's standard of whiteness. He places the painted panel you have just admired alongside the magnesium block. "Great Scott," you say, "the finish on this panel doesn't seem at all white now; it has a sort of grayish, yellowish cast."

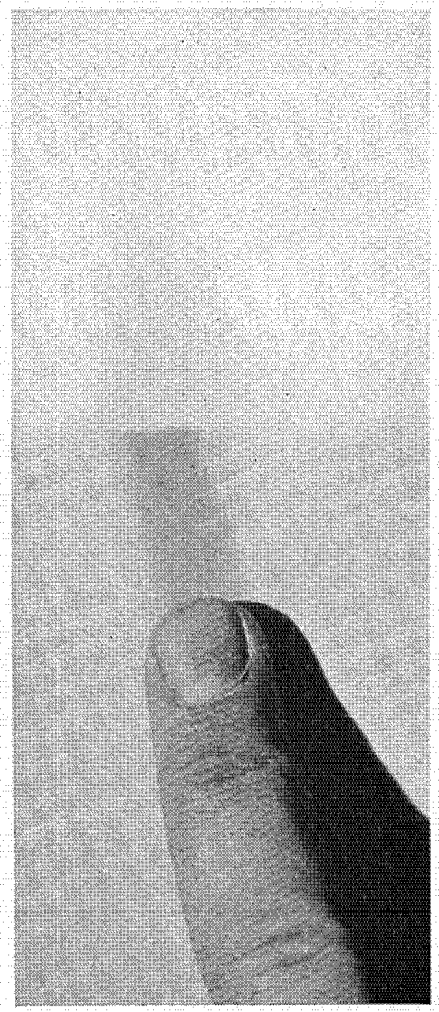
"True," says our informant, "but that was considered one of the finest white enamels on the market a few months ago." Then, picking up another panel, he continues, "Now look at this one. Hold it alongside the magnesium block. That's more like it, isn't it? It's the closest thing to true whiteness that paint science has ever formulated in a mill white.

"You've guessed it. It's 'Dulux,' the mill white that has given a new meaning to the word 'white.' How is it done? Well, this extreme whiteness is due to a newly developed vehicle that is practically clear, combined with a totally different combination of mill white pigments. The vehicle, of course, is the liquid portion of any finish. Du Pont chemists have worked for years to formulate the 'Dulux' Vehicle and later to perfect it to its present almost colorless state.

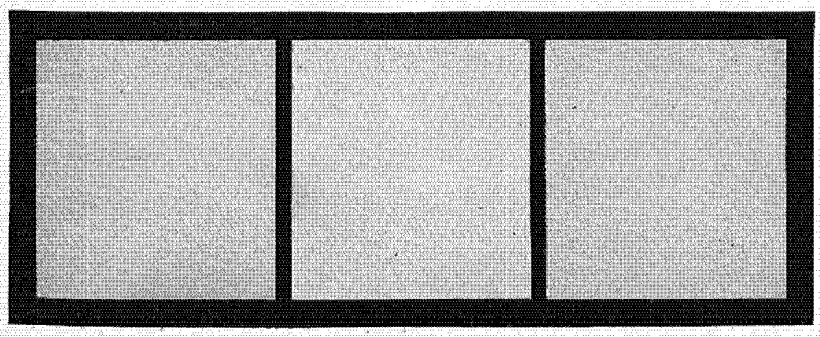
"Paint users generally look upon porcelain and tile as the very whitest whites obtainable, but 'Dulux' is noticeably whiter than either porcelain or tile."

He pauses, questioningly, as if to ask, "Well, and what value do you suppose this brilliant whiteness is to the factory operator?"

We know the answer to that one. Higher original whiteness in a finish means that it reflects both natural and artificial light better. It banishes dangerous shadows; aids in reducing eye-strain, fatigue and consequent accidents to employes; helps speed up production and eliminates waste and spoilage.



Reproduced at the right is an interesting experiment called the "smudge test." After rubbing your finger across the sole of your shoe so it will pick up plenty of dust and dirt, you draw it across a surface finished half in "Dulux" and half in any other mill white. The "Dulux" panel will collect practically no dirt; the other will smudge badly



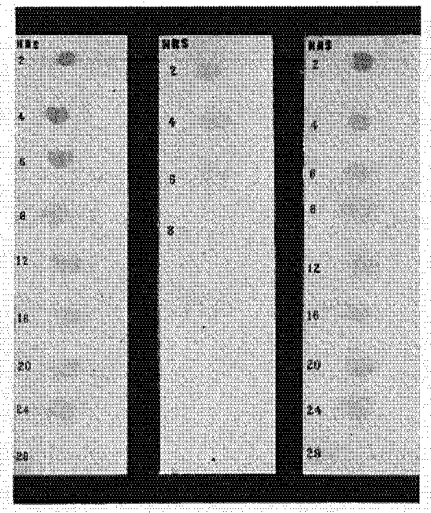
Ordinary Mill White *"Dulux"* *Ordinary Mill White*

Some mill white finishes, when new, have a bluish cast, while others are yellowish in tone. "Dulux" is more nearly pure white than any mill white finish ever perfected. This illustration cannot do justice to it, for the finish is actually whiter than this paper

"The new 'Dulux' Vehicle not only makes possible the better original whiteness you have already seen," the paint expert continues, "but it enables 'Dulux' to retain that property over a longer period than other mill whites. Heretofore, finishes of this type have revealed a tendency to 'yellow' prematurely, so much so that in home decoration, for instance, white finishes gave way to cream and ivory. However, 'Dulux' shows very little tendency to yellow even in dark, unlighted corners. In the brighter sections of factory rooms, you will marvel at how white it remains.

"And for the very reason that it retains its whiteness longer, 'Dulux' gives improved light reflection over a greater period. As a result, industrial plants using this product look cleaner for a longer time than formerly; the workers are happier, and repainting is necessary less often.

"Here's another important thing about paints. Many mill white enamels show a great many brush marks after the finish has dried. These pits and ridges act as tiny shelves where dirt and dust particles cling. Walls become dirty and gray looking. Light reflection is cut to a minimum. Not so with 'Dulux.' After the brush has left it, this product levels itself out into a smooth, glossy film, exceptionally free from brush marks. The resulting surface is smooth and flawless. Such a self-leveling surface stays clean better and thus retains its brilliant whiteness longer."



A "Dulux" B

Shown above is a "drying-time test" which demonstrates why "Dulux" Mill White collects less dirt and reduces costly painting tie-ups in the factory. Sand was dropped on the freshly painted panels at the time intervals indicated. Note that no sand stuck to the "Dulux" panel at the eighth hour, for it had dried dust-free. The other two finishes, A and B, were still "tacky" at the twenty-fourth hour

We discover also how essential it is that a finish should dry thoroughly so that no foreign matter can adhere to the surface.

"Here, slide your hand over this 'Dulux'-finished panel. Doesn't it feel like tile? Your fingers slide along it without resistance. It is so smooth and hard because it has dried completely. Now touch a surface which has been painted with any of the orthodox white enamels. With a little pressure the finish tends to hold on to your finger tips. See, your fingers 'skip' along the surface with somewhat the same feeling as when they are rubbed in resin. This stickiness is called 'after-tack;' it picks up every smudge and finger-mark and absorbs excessive grease and dirt. That's one reason why factory surfaces grow prematurely gray and dirty.

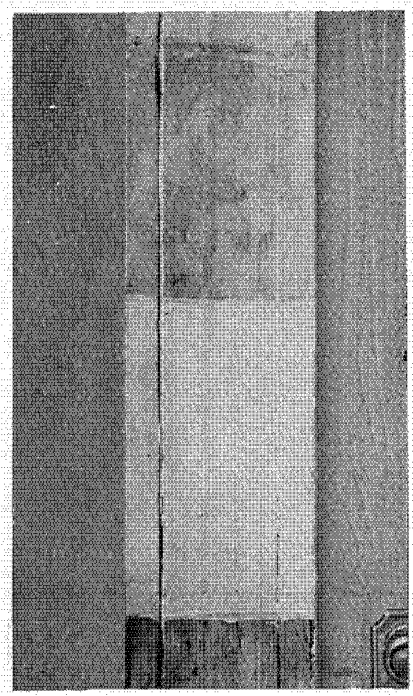
"The new mill finish we developed in these laboratories—'Dulux'—dries completely, without 'after-tack.' A whiter, glossier surface such as this stays bright and clean longer and assures improved light reflection over a greater period of time. You'll agree that these represent real points of economy."

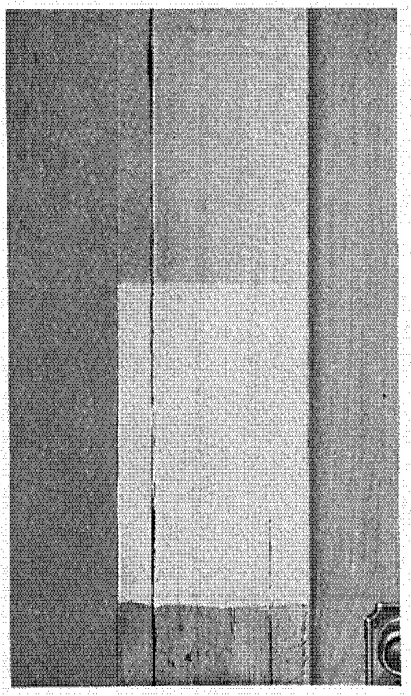
Naturally, one would expect that with such a smooth, hard film that is so free from dirt-collecting pits and ridges, cleaning would be necessary less frequently. Such, of course, is the case. Even so, we find that "Dulux" Mill White may be washed repeatedly without injury, and that, because of its harder, smoother, non-porous film, the washing process is much easier than with the usual "tacky" surface. The product has been so formulated, it is explained, that mild soap solutions will not dull its gloss.

But complete drying was not all that was demanded of this finish, it appears. The du Pont chemist also sought properties that would make the new mill white dry more rapidly than the best finishes of the same type then on the market, for quick drying means shorter painting "tie-ups" in the factory.

" 'Dulux' dries completely hard,"

(Continued on page 24)





Reproduced here are two photographs of a factory door-jamb touched repeatedly by many grimy hands. Left—The upper section of the door-jamb was painted with an ordinary mill white; the lower part, with "Dulux." Notice how the "after-tack" on the orthodox material caught every smudge and finger-print, while the "Dulux" remained comparatively white and clean

Right—The same door-jamb photographed after washing. The "tackiness" of the old-type finish held some of the dirt and made it permanently gray and dirty

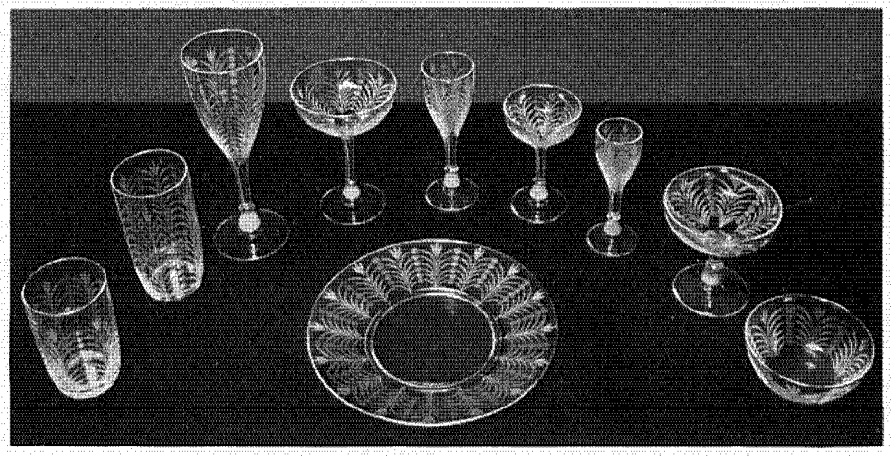
If You Are Serving Wine . . . .

Traditions should be considered in selecting the proper glassware

THE return of wine has given rise to numerous problems for the modern host and housewife. Many Americans must learn for the first time, or all over again, what wine to serve with which course, and how to serve it.

One of the questions most frequently asked concerns the proper glasses to use. A rich body of tradition has grown up around this subject and the rules that have come down to us can be relied upon as a present-day guide. One of these requires that the glass be thin enough to permit the heat of the hand to warm the contents, when desired. This is one of the reasons why most wine lovers prefer stemware, for by holding the glass by its body or its stem the individual can change the temperature of the wine or not, as he chooses. Also, the glass should be clear so as not to obscure the color of the beverage.

For those interested in the traditions and etiquette of wine serving, the Libbey Glass Manufacturing Company of Toledo, Ohio, makers of the glassware shown here, is distributing through local dealers an attractive 44-page illustrated booklet, "Notes for an Epicure." Among the subjects treated are: The care of wine, traditions and rules of service, classification according to type, the proper glass, vintage years, the order of wines and the right varieties to serve with different foods.



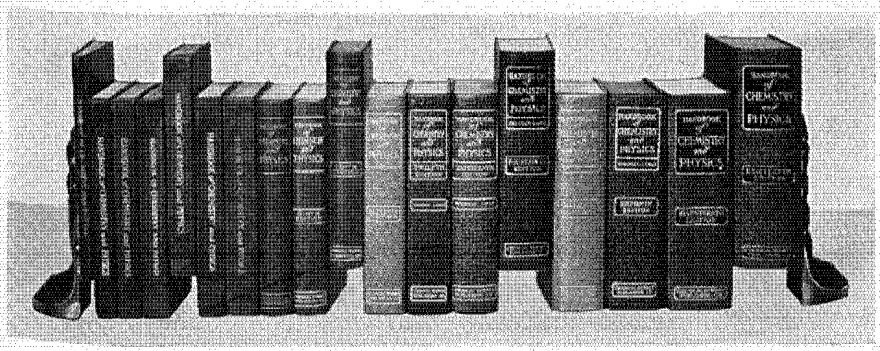
This line of glassware, shown in the Libbey "Caprice" pattern, is complete enough for the post-repeal needs of the average home. Illustrated, left to right, around the semi-circle: 9-oz. table tumbler; 12-oz. ice tea tumbler; 10-oz. water goblet; 5½-oz. champagne glass; 4-oz. claret; 3-oz. cocktail; 2-oz. dessert wine; 5-oz. sherbet, and 5-oz. finger bowl. Center, 8-inch plate

In the manufacture of this glassware, the Libbey Glass Manufacturing Company uses "Chemi-Trold" Feldspars, produced by the United Feldspar Corporation, New York. The materials for ceramic decoration are made by the "R. & H." Chemicals Department of the du Pont Company.

An Example of Satisfactory Service

AMERICAN industry has hundreds of examples of products that have flashed to the front, enjoyed the limelight and then collapsed limply under the pressure of improvements in other products that made them obsolete. That's progress, with a tempo that kills off the laggards.

With which preface, we'll explain the accompanying picture. It shows the eighteen editions of "The Handbook of Chemistry and Physics." Eighteen years ago the publishers picked what they knew at the time was the finest bookbinding material they could get for their purpose, for these books receive abnormally hard use. Laboratories with their chemicals, acids and water make the daily lot of a bookbinding hard.



The Chemical Rubber Publishing Company, Cleveland, Ohio, made its selection eighteen years ago, and since then has not stopped once in specifying the product called du Pont "Fabrikoid" for each next edition.

The Approach to Prosperity

(Continued from page 2)

organisms will grow and flourish into vigorous life.

"We have in our national economy thousands of such organisms in the form of industrial, commercial and business units, part in embryo, part temporarily dormant awaiting the fertilizing influence of confidence in the future to spring into natural, spontaneous growth. When new enterprises can be planted and old ones revived with a feeling of assurance that contracts undertaken will be fulfilled by all parties; when prospects are brighter that our governments will maintain themselves on a sound financial footing and strive for balanced budgets, and when our medium of exchange acquires such stability as to facilitate forward commitments, then credits will be enlarged by the requirements of these growing units, prices will hold firm as the result of the demands of one of them upon the other, and debts will be liquidated with the proceeds of their enhanced activities. The return of such phenomena we will recognize as the result of revived prosperity."

First Aid for Forest Products

(Continued from page 7)

Warm climate and high humidity are conducive to the growth of fungous parasites that cause sap stain. Consequently, "Lignasan" has found its widest use in those regions where such conditions prevail. Lower grades of lumber are generally air-dried, and this process often provides sufficient time for fungi to start. Obviously, anything that will check this advance of sap stain is of vital consequence to the producers.

To the small operators who have portable sawmills that they move farther into the woods as the trees are cut down, and to those who cannot afford kilns for drying lumber, "Lignasan" has proved a particular boon. With very little equipment and at extremely low expense they can now produce bright lumber. There are approximately 20,000 of these small operators in the country and they furnish a means of living to a large army of men. Thus, chemical science actually has played a very important rôle in the salvation of an important part of the entire industry.

Some naturally dry areas in the far West are, for the greater part of the year, free from losses due to stain. During the humid season, however, there may be an abundant development of stain, especially in pine. The du Pont Company purposely postponed the introduction of "Lignasan" to West Coast manufacturers until conclusive tests could be conducted in that territory. These were completed during 1933. Already more than a dozen manufacturers have begun using the product and many sawmill operators cutting pine, fir, spruce and hemlock are constructing dipping vats this winter, preparatory to dipping during the humid period.

Investigations by du Pont chemists and pathologists, working with United States Government experts, have been continued since the introduction of this organic chemical, with the result that improvements have been made in the product, increasing its efficiency materially.

A recently developed use for "Lignasan" is in its application to the ends and barked areas of freshly felled logs. For years it has been known that stain fungi frequently infect these areas when logs lie in the woods for a few days during the hot, damp, summer months. Now, many logging superintendents equip the "fallers" with a small sprayer. As soon as the tree is cut into logs the freshly cut areas are given a protective coating of the solution, thus preventing the entrance of stain fungi.

Two New Sales Stimulants

(Continued from page 10)

or pattern may be easily obtained. A clock-maker was looking for a material for a new dial face. In Cloisonné "Pyralin" he found the answer to his problem. Compact manufacturers have used it for an outside covering on their products; others have worked out attractive designs in Gemlike "Pyralin" and placed the design over the outside covering, giving just the spot of color and decorative effect desired. The greeting cards shown on page ten are decorated with designs of this type in the center.

Gemlike "Pyralin" and Cloisonné "Pyralin" in many instances lower manufacturing costs, beautify the product, and open new avenues of sales. These products are made under a patented process. They may be applied to any kind of material or molded into any shape. Special designs, trade-marks, and other figures may be worked out and a new product made from the old.

The Du Pont Viscoloid Company, Inc., 350 Fifth Avenue, Department 25, New York City, manufacturers of these materials, will be glad to assist in solving problems in connection with their use or to suggest new ways of improving old products.

White Magic for Factory Walls

(Continued from page 22)

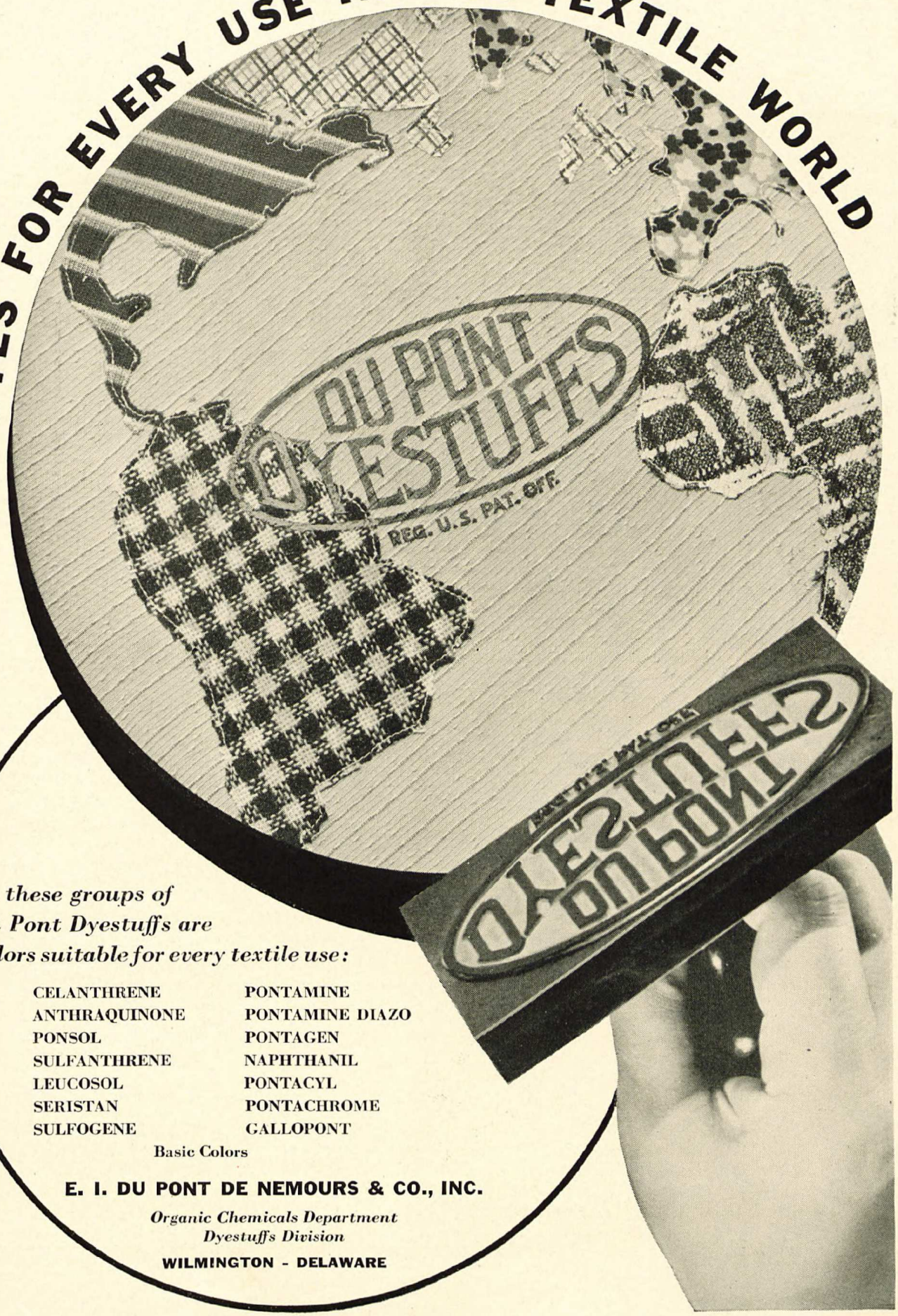
we are told, "with a smooth, nonporous film, in about half the time usually required. Consequently, painting schedules can be worked out so that almost no time-off is required."

"Quick drying also means that fewer dust particles settle on the surface while drying. This makes possible a cleaner, smoother surface at the start. And 'Dulux' Mill White is easy to apply—it slips off the brush smoothly and freely. It has excellent hiding power—the ability to cover dark surfaces—and will stand hard factory abuse without chipping or cracking."

Before leaving the laboratory, we inspect numerous photographs of factory interiors that have been brightened and modernized with this new mill finish, and in this way get a new conception of what can be done to create better factory lighting and working conditions.

The paint chemist's final statement portrayed his own enthusiasm: "After testing hundreds of formulae, I honestly think 'Dulux' is the finest mill white ever offered to industry."

DYES FOR EVERY USE IN THE TEXTILE WORLD



In these groups of du Pont Dyestuffs are colors suitable for every textile use:

CELANTHRENE	PONTAMINE
ANTHRAQUINONE	PONTAMINE DIAZO
PONSOL	PONTAGEN
SULFANTHRENE	NAPHTHANIL
LEUCOSOL	PONTACYL
SERISTAN	PONTACHROME
SULFOGENE	GALLOPONT

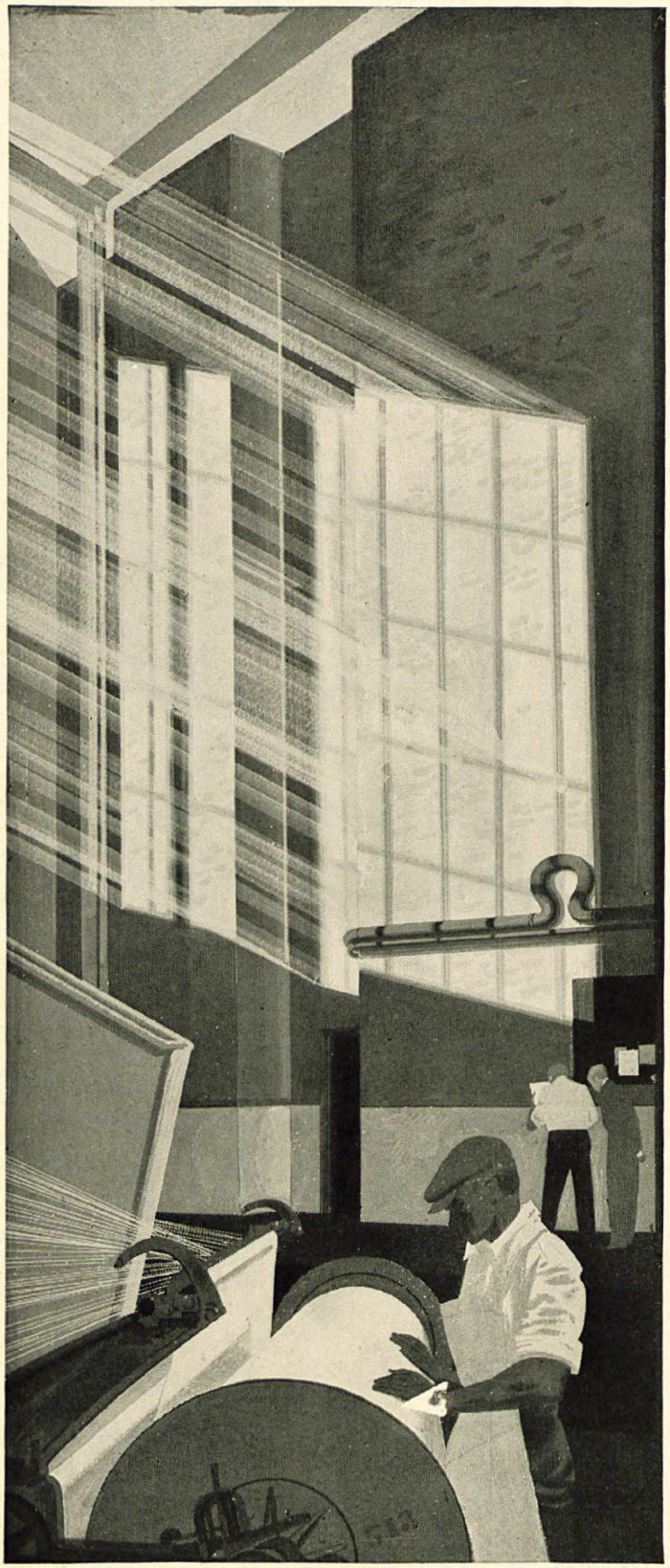
Basic Colors

E. I. DU PONT DE NEMOURS & CO., INC.

Organic Chemicals Department
Dyestuffs Division

WILMINGTON - DELAWARE

When speeding LIGHT *turns* LAGGARD!



BROAD SHAFTS of flashing light race through welcoming factory windows. Surely they will put to rout any gloom inside. What can dispel shadows and darkness more completely than the sun when its path is cleared? Yet it often fails.

Dust-covered ceilings catch and hold some of its brilliance. Gray, dirt-smudged walls absorb its light. For years, mill owners have paid dearly for this light they never got. They have contributed thousands to shifting shadows and gray gloom.

Today, however, science has done much to cancel these payments. Du Pont chemists have developed a whiter finish for interior mill walls. A finish that stays whiter . . . resists yellowing . . . sheds dust. Speeding light does *not* turn laggard when Dulux Mill White covers walls and ceilings.

This is an example of a definite service to industry, one of many in du Pont history. In fact, in providing finishing materials of greater service value, du Pont chemists have been responsible for many of the major developments in finishes in the last ten years.

You know Duco, of course. Then there's Automotive Dulux for trucks, and Dulux Marine Finish for ships. In fact, wherever you go you find leaders in industry relying on many different du Pont Finishes for tractors, radios, washing machines, refrigerators and countless other products. Home owners, too, use du Pont Paints and Varnishes to beautify and protect their homes. There is a du Pont Finish for every purpose. E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware.

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FINISHES

for industry and home

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