

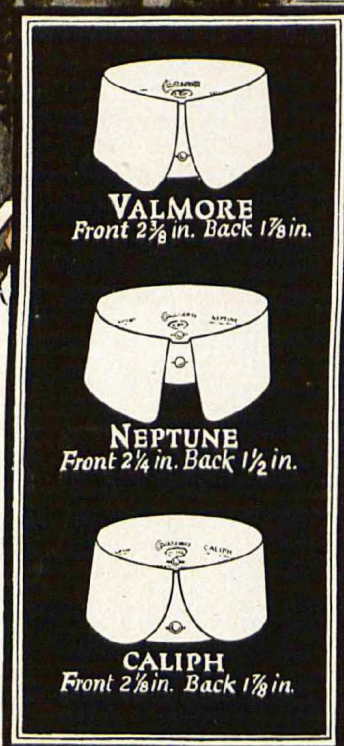
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NO. 3

DU PONT

MARCH
1920

MAGAZINE





Du Pont Cleanable Collars are made in many up-to-date styles in four brands: Challenge, Blue Ribbon, Pyralin and Water Nymph. Challenge, Blue Ribbon and Pyralin brands are cloth interlined. Write for catalog.

DU PONT

CLEANABLE COLLARS

Stylish~Serviceable~Economical

"See how closely they resemble ordinary starched cotton collars. They have a cotton interlining which is covered with a water-proof material, finished to resemble the surface of a starched collar. You can hardly tell the difference.

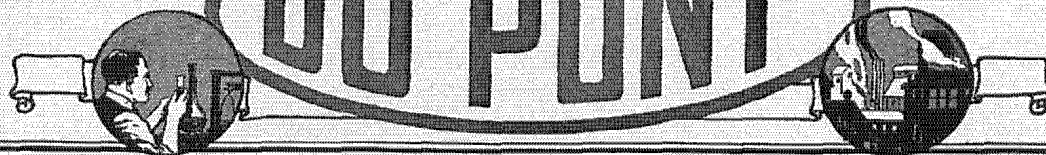
"They will not wilt and you can always clean them yourself with a bit of soap and a damp cloth.

"Wear? Longer than a starched collar and without a cent of laundry cost—and you can always clean one in a moment."

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

Sales Department, Pyralin Division
WILMINGTON, DELAWARE

DU PONT MAGAZINE



Volume XII

MARCH, 1920

Number 3

The Trend of Prices

A survey of commodity price movements gives illuminating information

At the end of 1919 the general average of prices in the United States had risen to a point never before attained. According to the figures of the U. S. Bureau of Labor Statistics general wholesale prices were then 138 per cent above their average for the year of 1913.

From the latter part of 1915 to the signing of the armistice in November, 1918, general prices moved upward with hardly a check. During the next few months they fell slightly and many persons were convinced that a return to the pre-war price level had begun. But this drop was only temporary. Beginning early in the spring of 1919 the upward course was resumed and with only one set-back (in September) prices continued to advance, surpassing by the end of the year their former high records.

Price Movements

The prices of all commodities do not, of course, necessarily rise or fall together. A shortage of wheat and an over-supply of copper might exist at the same time, tending to push the price of the one up and of the other down. The "general price level" is, speaking broadly, the average of the prices of all commodities. The general price level may therefore rise even though the prices of some commodities fall, provided the prices of others advance sufficiently. This is what has happened at different times during the past five years. Indeed, the price movements of various groups of commodities have been widely different.

The two diagrams on the next page bring this fact out in striking fashion. These diagrams show the movements of wholesale prices of various groups of commodities from January, 1914, to December, 1919, inclusive. The changes are plotted by quarters for the first three years of this period and by months for the last four years, thus enabling us to observe the general course of the fluctuations during the former years and the month-to-month changes during the latter.

Taking the upper diagram, which shows the price movements of commodities entering directly into the cost of living, we find that since the middle of 1917 cloths and clothing have been relatively higher in price than the other cost-of-living groups, and that since last April both cloths and clothing and house furnishing goods have had a very pronounced rise, while food and fuel and lighting have changed comparatively little.

In the lower diagram, which shows the price movements of certain commodities used in industry, we see that since July, 1917, metals and metal products and chemicals and drugs have dropped considerably, while lumber and building materials

By F. LESLIE HAYFORD
Economic Statistician
E. I. du Pont de Nemours & Co., Inc.

have experienced a marked advance, particularly in the last eight months of 1919.

Summing up the price changes in the different groups of commodities shown we find that at the end of 1919 the following percentage increases over the price average for the same group for 1913 had occurred:

COMMODITIES ENTERING DIRECTLY INTO THE COST OF LIVING

Cloths and clothing	235%
House furnishing goods	203%
Food	134%
Fuel and lighting	81%

COMMODITIES USED IN INDUSTRY

Lumber and building materials	153%
Chemicals and drugs	79%
Metals and metal products	69%

Average of all commodities

Price Index Numbers

The above conclusions with regard to the extent to which prices have risen since 1913 are based upon the price index numbers compiled by the U. S. Bureau of Labor Statistics. Index numbers are (to define them roughly) relative numbers, in which data for some specific period (in this case the average of prices for the year 1913) are taken as a base, generally indicated by 100, and data for subsequent periods are computed as percentages of this base.

In the case of the wholesale price index numbers of the Bureau of Labor Statistics we are comparing monthly prices subsequent to 1913 with the average of prices for that year. The 1913 prices are represented as 100 and prices for subsequent months as percentages of the 1913 average. Thus, in August, 1919, the price index of cloths and clothing was expressed as 304; this meant that prices of cloths and clothing were at that time 304 per cent of the average prices of the same commodities for 1913—or 204 per cent above the 1913 prices (1913 prices having been expressed as 100). In interpreting these price index numbers, then, it is to be borne in mind that they are relative to prices for 1913 and that to determine how much prices have risen it is merely necessary to subtract from the index number for any month 100 and the result will be the percentage of increase over prices for 1913.

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J. R. SHULTZ, Managing Editor

E. R. MANCHESTER, Associate Editor

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The wholesale price index of the Bureau of Labor Statistics is based on monthly quotations of 328 commodities, a much larger number than any of the other American price indexes. It is, therefore, probably the most reliable index of general wholesale prices that we have in this country.

The Outlook

Prices in general have risen about as far as they are likely to go, so that we may now look for a check to the upward movement, and very likely for some recession. There are two reasons for this belief: (1) The Federal Reserve Board has definitely taken the position of opposing further credit expansion and has raised discount rates to carry out this policy; (2) increased production is likely before long to begin to show results in the turning out of a larger supply of commodities relatively to the demand for them.

On the other hand, there are definite influences which may tend to prevent prices from falling far. The principal ones are: (1) The considerable demand for capital, and (2) the Federal Treasury's policy of certificate borrowing; both of which may make difficult any decided credit deflation.

On the whole, while it seems probable that the rise in prices will shortly be checked, if it has not already been, and while prices may decline somewhat, it appears doubtful if any pronounced recession is to be looked for in the near future. It is more likely that during 1920 prices will fluctuate not far from their present level, although perhaps somewhat below that level. It appears improbable, at any rate, that they will continue to rise.

These conclusions apply to the immediate future; that is, the current year. To forecast what course prices will follow over a long period is impossible. It is believed, however, that prices will not return to their pre-war level for many years, if at all. They are likely to remain relatively high for a long time, but probably not so high as at the end of 1919.

Outlook for Commodity Groups

The wide variance in the price movements of different commodity groups which has already been pointed out suggests the unlikelihood of uniform movements in the near future. Indeed,

reference to the two diagrams below would impel one to believe that certain groups will fall and others rise.

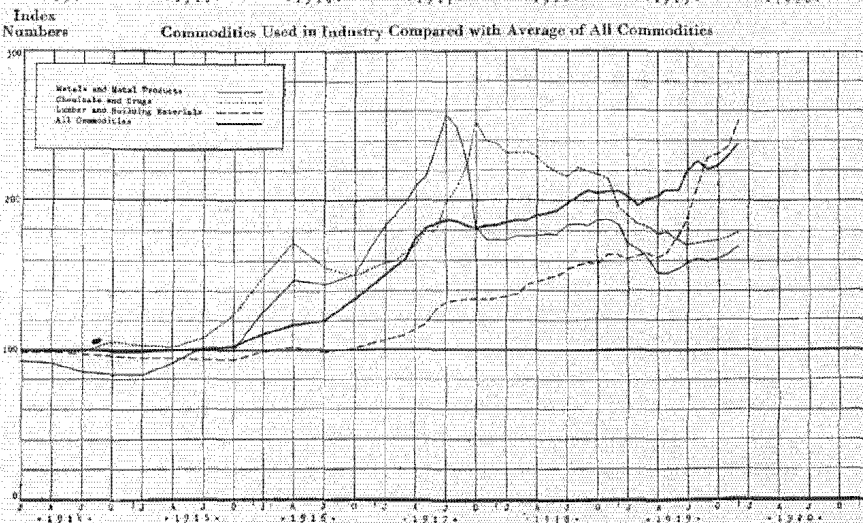
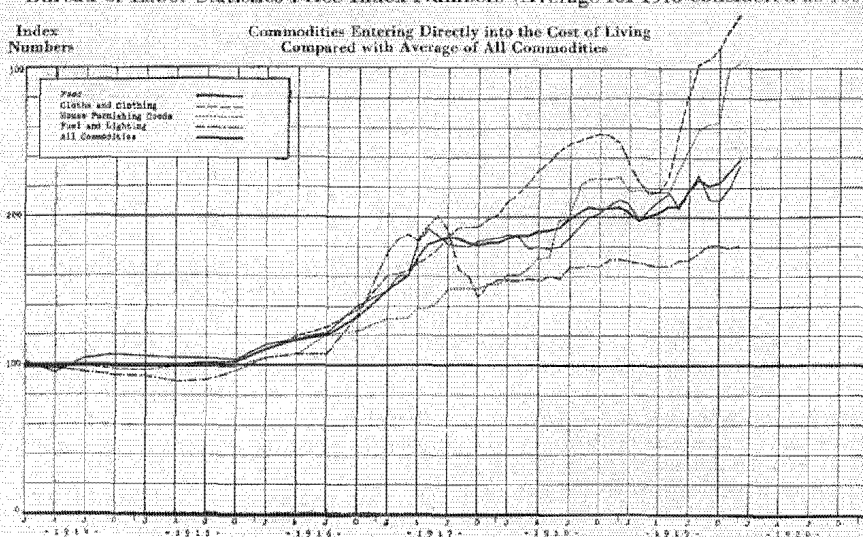
Certainly, cloths and clothing seem to have advanced so enormously that unless extravagant spending continues to run its pace the demand must soon show signs of slackening and

prices experience a drop. House-furnishing goods might be viewed in somewhat the same light, although the activity in dwelling house construction may be an indication that the demand for house furnishings will continue excessive for some time longer. In the case of food, there may be some drop, particularly if exports should fall off. Fuel and lighting, which have advanced since 1913 least of all to the cost-of-living commodity groups and considerably less even than the general price level, do not seem likely to decline much, and they may even rise slightly.

Of the three groups of commodities used in industry and which are shown in the diagram, diverse movements also seem probable. Metals and metal products might easily rise, particularly in view of the prospective large demand for iron and steel this year. This group now stands lower, compared with its 1913

Wholesale Price Movements

Bureau of Labor Statistics Price Index Numbers (Average for 1913 considered as 100)



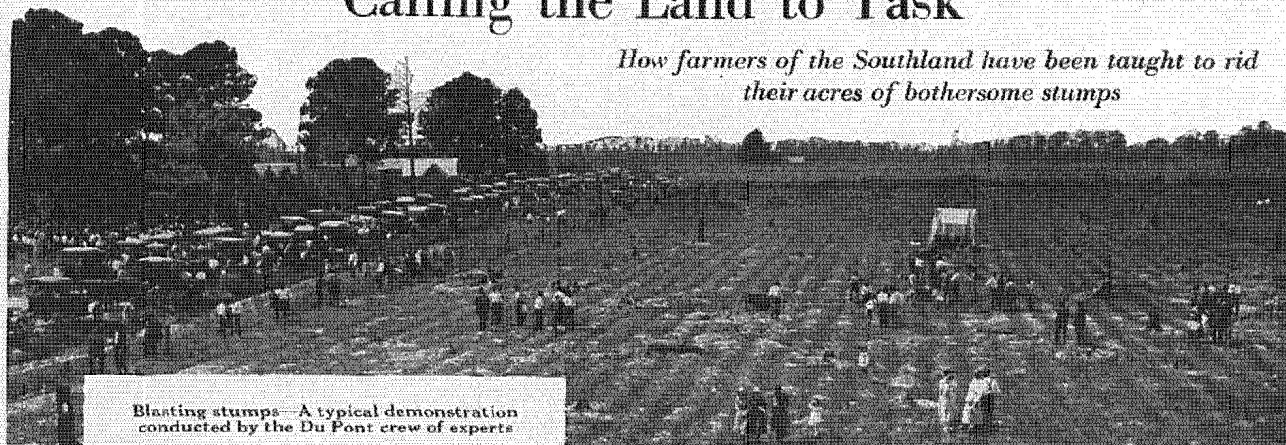
average, than any of the other groups shown in either diagram; indeed, prices of metals and metal products at the end of 1919 were only half as much above 1913 prices as was the general average of all commodities—69 per cent compared with 138 per cent. A rise in chemicals and drugs, which have fallen almost as much as metals and metal products, might also reasonably be expected. In the case of lumber and building materials, a pronounced rise has only recently occurred, carrying prices of this group in eight months from only 62 per cent above the 1913 average to 153 per cent above it. Yet, in spite of this great increase, prices of lumber and building materials seem unlikely to recede much in the near future. An excessive building demand exists, coupled with an actual shortage of certain building materials. An increase in production or a lessening of building activity, however, might cause a drop in prices.

Index numbers of wholesale prices of two other commodity groups are compiled by the Bureau of Labor Statistics. These

Continued on page 9

Calling the Land to Task

How farmers of the Southland have been taught to rid their acres of bothersome stumps



Blasting stumps—A typical demonstration conducted by the Du Pont crew of experts

IF you have never watched a farmer trying to plow, cultivate or harvest in a cut-over pine tract, you have no idea of the troubles he has to contend with. Thousands of farmers of the South have been hard pressed to make even a scanty living on the stump-infested lands of Georgia and other sections of the Southeast.

Every farmer must rid his land of stumps in order to work it to best advantage. The modern method is not to tell him how to do it—that's been tried—but to show him how to do it. So the Georgia State College of Agriculture worked in conjunction with the United States Railroad Administration and sent out a special train called the "Georgia Land Clearing Special," carrying a crew of blasting experts and modern implements along a scheduled route through South Georgia. At points announced in advance, the experts gave actual working exhibitions. Eighteen of these field demonstrations were made, showing to more than thirty-five thousand people. It proved to be one of the most influential projects ever launched in the South to broaden the outlook of the farmer and show him the utter futility of some of his life-long practices.

The usual method in the coastal plain has been to struggle at farming for several years before making any systematic effort to remove the stumps and use adequate implements. When large landowners began development work, they followed this practice and naturally became disgusted. They usually postponed improvements and slowed down their operations to the minimum. As a result, little progress was made in developing the latent possibilities of the cut-over lands.

Throughout its entire route, the Land Clearing Special traversed territory that had produced the smallest crop in its history, because of exceptionally heavy rains over a long period. The boll-weevil—the most destructive crop pest known in the country—had reduced the cotton yield about forty per cent, and in some of the worst affected counties as much as seventy per cent.

With these facts in mind it might be supposed that it would be difficult to interest discouraged farmers in a new activity. But it was not. The reception accorded this demonstration train gave proof that South Georgia realizes that the field stump is largely responsible for her agricultural troubles and that stump eradication is not only desirable but imperatively necessary.

Recent statistics show that

By GEORGE D. LOWE

in South Georgia ninety-three per cent of farmers use one-horse equipment; this, in the face of a constantly lessening labor supply and a steadily increasing need of food and fodder.

One noticeable result of this demonstration tour is the changed attitude of tractor manufacturers toward the coastal plain of the South—a vast territory embracing many thousands of acres of tillable land. When the demonstration crew on the Georgia train reported that they plowed raw land just behind the stump blasters and stump pullers, the tractor interests saw the opportunity to introduce power machinery in this section. Manufacturers of tractors are now alert and have already enlisted their services as promoters of stump eradication.

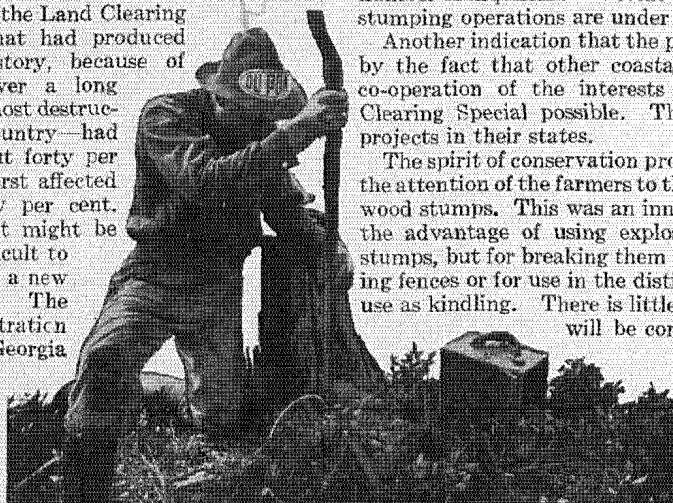
The railroads also have shown new interest in land clearing work. Railway men know that permanent settlers can be attracted to man-made prairies in a region of mild winter climate and great agricultural possibilities, just as they realize that their former efforts to locate homeseekers on raw, cut-over lands were not successful in most cases. Hereafter, the owners of coastal plain lands, who solicit the aid of railroads in developing their tracts, will be gratified to find them insistent that an adequate acreage of cleared land on each tract be prepared before prospectors are brought to inspect it.

Did the demonstration work of the Land Clearing Special pay? Undoubtedly. This is indicated by the fact that numerous sales of land clearing machinery and dynamite were made after the train closed its tour. Local dealers also report that a great number of inquiries have come in for dynamite. Already active stumping operations are under way in many places.

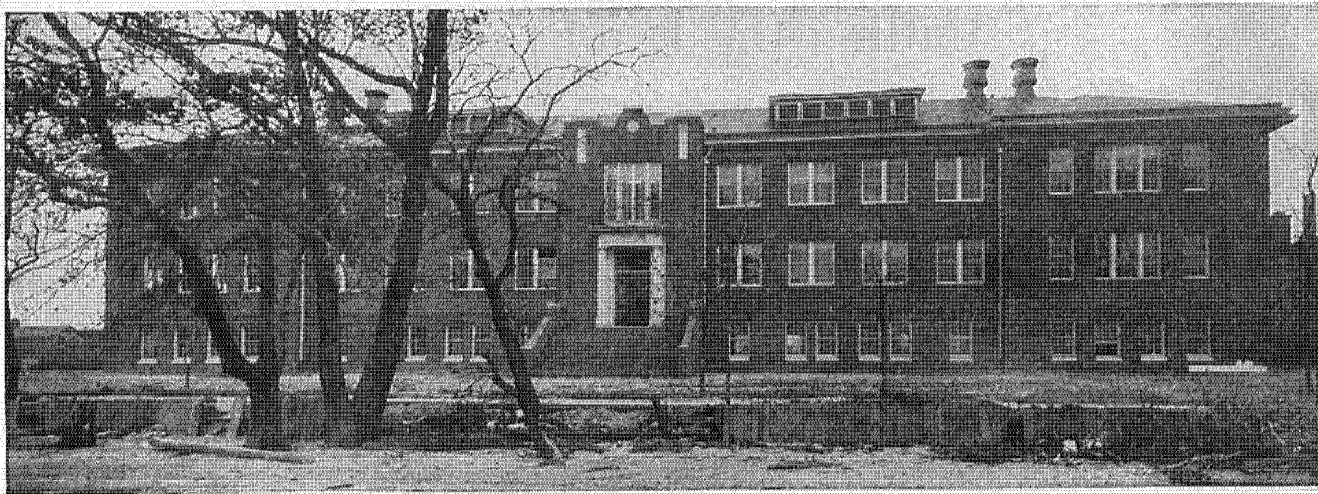
Another indication that the project was successful is disclosed by the fact that other coastal plain states are seeking the co-operation of the interests that made the Georgia Land Clearing Special possible. They want to inaugurate similar projects in their states.

The spirit of conservation prompted the Du Pont crew to turn the attention of the farmers to the possibilities of salvaging light-wood stumps. This was an innovation and gives a new turn to the advantage of using explosives, not only for getting out stumps, but for breaking them up for further use either in making fences or for use in the distillation of turpentine or even for use as kindling. There is little doubt that land clearing trains

will be constant factors in future development and promotion work, both in the white pine and the yellow pine cut-over district, because of the success of the ventures in Minnesota and Georgia. The work of the Land Clearing Special in Georgia will set the pace.



Tamping the charge



Making Du Pont Standard Dyes

How one American manufacturer of dyes safeguards the interests of dye consumers through its Technical Laboratory

A FAIR share of publicity has been given to the chemistry and manufacture of dyestuffs since America began to develop its Dyestuff Industry at the outbreak of the war. An important phase of the business has been overlooked in giving information to the public; it is the part that technical laboratories play in developing practical dyes and in establishing a trade preference for them.

It is always necessary to determine whether a newly discovered dye is worthy of commercial existence or not. Many are not. German pre-war experience has shown us that only very few of those discovered have the necessary qualifications to justify their manufacture.

For dyes regularly made, the lots as they come from the plant must be tested to see that each meets the rigid requirements of its standard before it is offered to the consumer. These determinations can safely be made only in a technical laboratory and by a staff of experienced dye chemists, who are qualified as the court of last resort to pass judgment on such questions.

Dyestuffs are used for a great variety of purposes. Each has its own technique of application, its individual requirements of fastness and other peculiarities. It follows that a technical laboratory must be well equipped and that the staff must know not only how dyestuffs are made, but how each dye is used in specific industries.

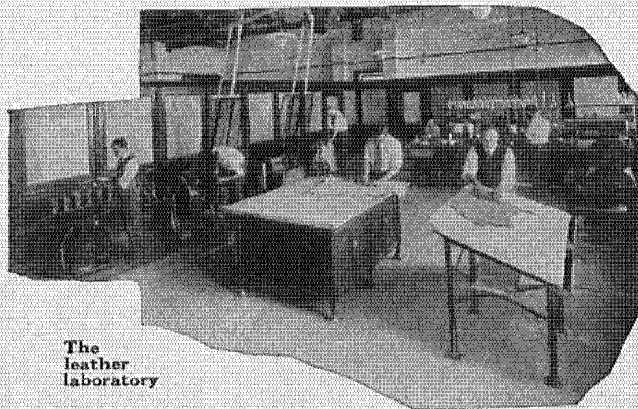
A common service function of a technical laboratory is to help the consumer work out his coloring problems. When he requires shades to be matched on his goods in various stages of their manufacture, and is using a special type of machine for dyeing the goods, the laboratory makes trial tests on samples of his material run through a dyeing machine, which is a model of his own factory equipment.

The solution of the problem thus worked out is then submitted to the consumer. The Technical Laboratory also, as a part of its service to customers, issues

By E. W. PIERCE
Technical Division
Dyestuffs Sales Dept.

from time to time illustrative circulars, pattern cards and samples.

American dyestuffs manufacturers early realized that successful competition with foreign manufacturers, by producing dyes comparable in quality with those of foreign importation, required profound chemical knowledge and mechanical skill of a high order. Furthermore, they knew it was necessary for them to develop a service organization with the equipment and ability to demonstrate the high quality of American products.



The leather laboratory



One of the weighing rooms

The E. I. du Pont de Nemours and Company, Inc., recently opened the Dye Works Technical Laboratory, which is shown in the accompanying illustration.

This handsome building, with its two stories and basement, overlooks the Delaware river from a location just outside the Dye Works area of the Deepwater Point plant, New Jersey. It is an imposing structure of ornamental pressed brick, 200 feet long and 80 feet deep, equipped with a steam heating plant, two systems for air ventilation and air purification for the large laboratories, besides the necessary gas, water, steam, compressed air and vacuum lines.

The main floor contains the executive offices, library, rest rooms, locker rooms and showers and rest rooms for employees. Here, also, are offices for the use of visiting salesmen, who review

the work of the laboratory at regular intervals to become better acquainted with the new products as they are developed.

At the northern end of this floor is a spacious, well-lighted room, equipped with power-winding machines for yarns. In this room operators prepare, wind and accurately weigh the yarns used for dye-testing. They also make the small bows of yarn used on sample cards. As soon as all the necessary machinery is installed complete sample cards will be manufactured in this department.

At the southern end of the corridor is the analytical laboratory with facilities for identifying unknown dyes and for determining various chemical properties of dyestuffs not included in the work of the dye-testing laboratories.

The laboratory operations and equipment on the upper floor are more interesting to the visitor. He is likely to notice first that the architects have provided abundant air space; each room, except for glass partitions, ten feet high, separating it from communicating rooms, is open to the roof, affording necessary ventilation for the chemists who are conducting their tests with heat and steam.

A large laboratory at the northern end of this floor is devoted to dye-testing. Definite amounts of dyestuffs are applied to 10-gram skeins, the operations being conducted in small por-



The dye-testing laboratory

celain, glass or enameled cups or beakers. The beakers are uniformly heated in specially designed ovens and when the dyeings are finished the skeins are dried in a large hot air oven. Each worker has his own table space and desk and devotes his attention wholly to the testing operations.

The chemists in charge have their office in a readily accessible room adjoining the laboratory. This enables them to supervise closely all dye-testing operations.

A few steps down the corridor on the west side is the paper laboratory, equipped with miniature beaters, driers and a line of stirrers for beating small test lots of paper pulp and suction screens for converting this pulp into sheets of paper. Samples of this paper are accurately matched for color so that the paper manufacturer may have a definite idea of how he can utilize Du Pont dyestuffs in his mill. Later on, a larger beater and a 20-inch paper machine will be installed in the basement, and will be operated continuously to furnish stock for sample books and general advertising matter. The paper laboratory is also served by a weighing room such as described above.

Adjacent to this laboratory is the office of its director, which is shared by the director of the leather laboratory, and just beyond it is the leather laboratory, a miniature tannery, with its drums, paddles and vats. The operators make dye tests on leather in jars worked by a shaking machine. The "putting out" table is in this room, but the largest drums and glazing machines are installed in the basement, where the vibration will not be so heavy. Another weighing room serves this laboratory.



The paper laboratory

Across the corridor is the Lake Laboratory, where dyestuffs are converted into pigments for paints, printing and lithographic inks, wall papers and other uses. The room contains full equipment for testing and applying dye pigments in a practical way. There are paint grinders, ink grinders, lithographic stones, offset presses, half-tone presses and all the minor adjuncts of these industries. With equipment of this sort, the technicians in charge are able to render service of a high order to any consumer who requests it.

Down the corridor to the southern end is an experimental dyehouse fitted with the dyehouse equipment used in all classes of textile mills—machines designed to dye loose stock, hosiery, cops, tops, warps, pieces, yarns, or any other forms of materials used in the textile trades. These machines are not full size, but are practical working models, capable of handling, on the average, ten pounds of material. The equipment also includes hydro-extractors and driers. In addition to the jigs and jacking machines, there will soon be installed two calico printing machines with steamers, which will make possible extensive work along the lines of textile printing.

In the basement are the heavier pieces of machinery, such as leather drums, glazing machines, paper beaters and a paper machine with its calender rolls, the heating system, the machinery that supplies the building with its compressed air and vacuum service lines, and a photographic dark room, equipped with photo-micrographic apparatus and a projector. Ultraviolet lamps of different types have also been installed for rapid color fading tests.

The entire personnel of the Technical Laboratory has been carefully chosen. Each member of the corps has had long practical experience, together with the necessary scientific training for his particular line of work. Considering the highly technical nature of the work and the range of problems sub-



Yarn-winding and sample card room

mitted by the many consumers of Du Pont dyestuffs, it will be plain that the Company has exercised wise forethought in procuring the best talent obtainable.

Continued on page 16

Speaking of Umbrellas

Thanks to Pyralin, the lowly "rainstick" has found its place in the sun

JONAS Hanway was a brave man. He appeared on the streets of London in the year 1750, and was the first English citizen to carry an umbrella. This daring man braved the prejudices of a people loath to change custom; and, as he walked under his portable rain-shed, endured the scoffs and derision of his fellows.

When you take your umbrella from the rack—or even by some mischance an umbrella not yours—be assured that you now go forth unabashed only because for more than thirty years one man endured with patience the insults and jostlings of the crowd. Like a saint of an olden day he endured stones and sticks, cast by the mob, and triumphed only because of his persistence. By his courageous introduction of the device he popularized the umbrella.

This event marks the development of the umbrella from the parasol. The latter was in use for thousands of years before people recognized the necessity of a portable device to ward off the assaults of Jupiter Pluvius.

The word "parasol" means to "ward off the sun," and the word "umbrella" simply means a "diminutive shade." We might rightly criticize the descriptive accuracy of the names, yet the similarity of their meaning bears out the statement that the parasol and the umbrella had a common ancestry.

There is every evidence that from the beginning the parasol was used primarily as a decoration and only incidentally as a protection. This is not remarkable because it would be natural to give particular attention to the covering and supports of the sunshade, when it was used in processions, on feast days, to provide shade for the heads of royal personages. Consequently, when the parasol was intended to minister to the comfort and vanity of persons of high rank, rich fabrics and jewels entered into its composition.

Let us omit the details of the transition from a covering of skins or leather, through the period of oil cloth, silk, calico and alpaca in whatever order they were used. Then again, we will merely mention the glorious contrivance of ivory rod and handle and ribs covered with rich silk, as it existed in India—the apparent birthplace of the sunshade. The real point of interest is that through all the ages the materials used have been chosen to add a greater degree of utility or beauty to the parasol, and particularly to glorify the covering, because for centuries the parasol was decorative only when it was open.

It remained for the ingenuity of more modern minds to contrive the umbrella as an apparatus that could be carried con-

veniently when in service, and reduced to small compass when the sun-god ruled.

Men carry umbrellas merely for protection, but women fortunately have a finer artistic sense that calls for beauty as well as utility. Thus when parasols or umbrellas, carried by the fair sex, are not filtering the sun-rays or sheltering the owners from rain, they serve—they must serve—as objects of adornment.

As with every other invention that has lived, the characteristic improvements took on the nature of refinements. Coverings of fine texture were developed, rods and ribs were lacquered, and the umbrella began to assume a more ornamental design. For feminine indulgence came silk coverings, limited only in the variety of colors and patterns by the imagination and skill of the makers.

But through all these years what of the handle? In the beginning, the handle was simply a straight rod, or one curved at the end to meet the need of the carrier. Wooden handles, carved and possibly ornamented with bone or ivory to vary the tone, were first used. Then, for a time, to satisfy woman's caprice, came the luxurious silver or gold handles. But all these lacked the variety of color and design, the elegance and individuality, she desired.

Just as manufacturers had gone to great lengths to meet the feminine whim for covers, they were now equally concerned to secure a type of material that would permit of a corresponding diversity of treatment in making handles that would as truly please. After experimenting with many materials, Pyralin was finally selected as best adapted for making ornamental handles.

Pyralin is a highly desirable material for this purpose because of its durability and great variety of color and design. An unlimited number of colors and combinations can be made, and the tips and ferrules are often made of Pyralin to match the handles. In this material all the beauties of natural wood are obtained with the grainings faithfully imitated.

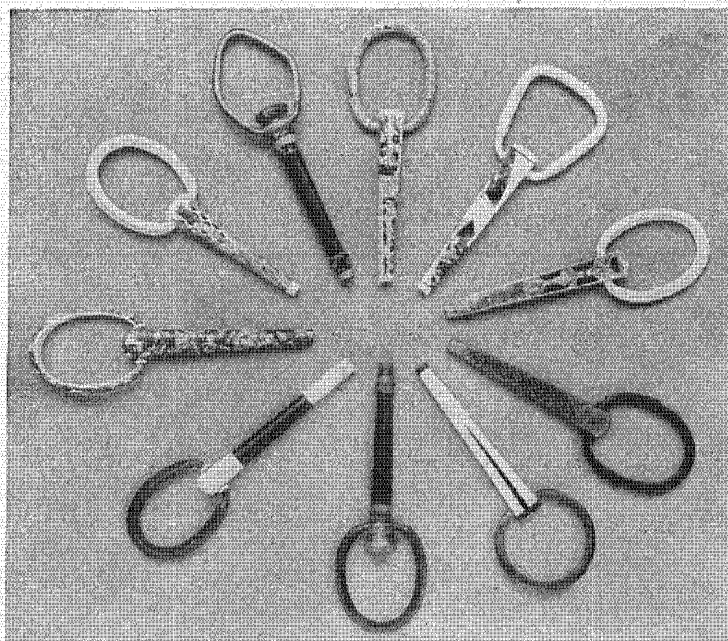
The uncommon versatility of Pyralin is evident to everyone who looks at the reproduction of ivory, pearls, semi-precious stones and tortoise shells as they are herewith illustrated.

Because ivory from elephant tusks is expensive does not prevent one from having in an umbrella handle all the beauty of

that carved, polished or antiquated rarity. Pyralin embodies all the graining, the delicate creamy shadings that are characteristic of real ivory.

The pearls are not only reproductions; they are beautiful, soft-toned creations of many hues. The agate, the jade, the aquamarine, the tourmaline—all are duplicated in Pyralin.

Few people imagine that Pyralin which can be made into so



Pyralin handles may be had in wonderful variety.
Reproduced by courtesy of Edward Jordan-Kiel Co., New York City

many forms is at the outset a vegetable product. It does not seem possible that a material, so hard, so wonderfully colored and polished, could trace its origin to the soft, fleecy product of the southern cottonfields. Yet the base of Pyralin is cotton, and, curiously, in one stage of its manufacture it is converted into high-grade white tissue paper. Umbrella handles from tissue paper! The idea seems grotesque enough, but it is only one of many similar wonders that chemical science has developed.

The process of manufacturing Pyralin has been previously described in these pages. The point of present interest is that Pyralin is furnished to the manufacturers of parasol and umbrella handles in the form of thick sheets or rods, of such dimensions as are best adapted for handle-making.

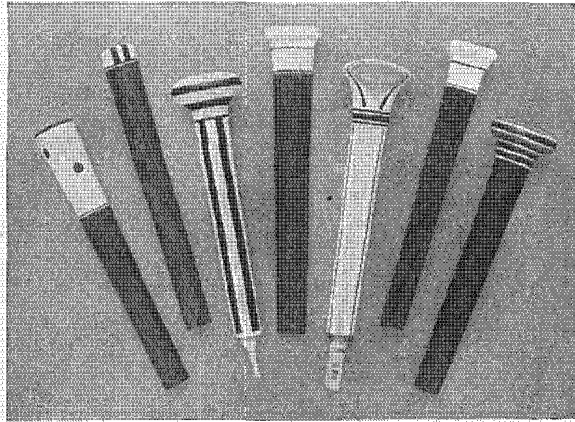
How these sheets and rods are cut and fashioned into handles of all shapes is another story; but it is in order here to remark that Pyralin possesses exceptional working qualities. It is tough and strong; will not crack or splinter; is free from grit, and will take an extremely high polish. It can be cut, sawed or worked in a lathe very much in the same manner as wood. Moreover, it can be reduced to varying degrees

of plasticity by heating in hot water or on a steam table, so that it can be bent, shaped or formed in whatever way is desired.

This combination of characteristics—durability, working qualities and variety in appearance—gives Pyralin standing rank among the de Luxe materials from which parasol and umbrella handles are made.

Because Pyralin does not chip or crack it is an ideal material on which to engrave monograms in any style or combination of letters. The touch of beauty that a monogram gives to a handle is but one of many other decorative ideas that can be wonderfully wrought out in Pyralin.

Thus, finally, through the evolution of the handle, the umbrella, or the parasol—originally ungainly and used only when necessity demanded—has come to be an article of beauty as well as utility. No longer is it considered an incumbrance, but rather an attractive and necessary accessory of the wardrobe. The beauty of



Of unusual beauty are the straight handles made of Pyralin. Reproduced by courtesy of the Art Umbrella Handle Company, New York City.

Pyralin has been an important factor in redeeming the parasol and the umbrella from the commonplace. It has widened wonderfully the scope of decorative effects to be obtained; there is practically no limit to the variations possible in Pyralin.

A Combination Ambulance and Omnibus

Only a slight change is necessary to convert this twelve-passenger 'bus into an ambulance for four

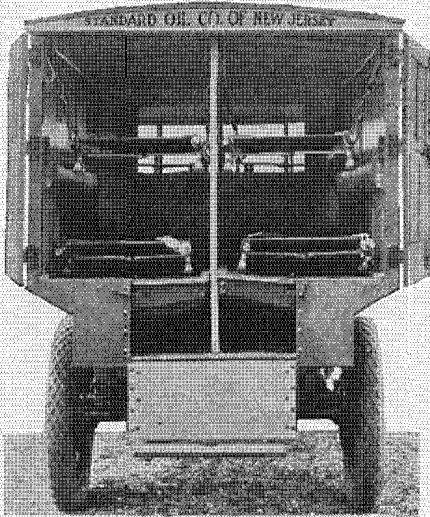
A GREAT manufacturing plant must be self-contained. Every emergency must be provided for in its own equipment. Probably the least used yet most necessary item is the plant ambulance, and almost every large plant has one. Making an ambulance self supporting by increasing its utility

is an efficiency problem that the Standard Oil Company of New Jersey has solved very happily. Almost any large manufacturing concern can do the same.

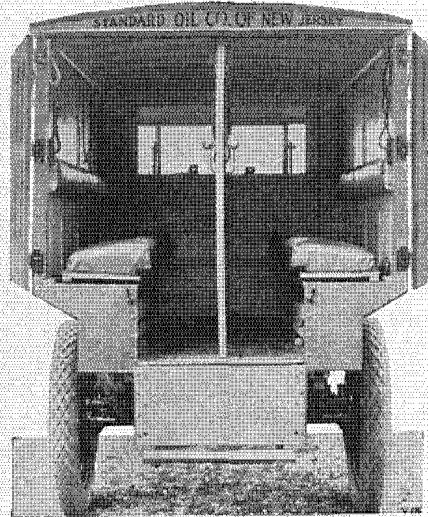
The illustrations show an Oldsmobile Economy Truck Chassis fitted with a body built by the H. H. Babcock Company, of Watertown, New York. This job is a combination ambulance and omnibus. It is used regularly as an omnibus to carry workers back and forth through the plant or wherever they may be needed. As the body is eight feet back of the driver's seat, about twelve men can be carried comfortably on long upholstered seats.

Four litters are carried under the seats. Two of these rest upon

the seat bases and bottoms when the seats are reversed. The other two are suspended from the ceiling by straps and hooks. There is a water tank and a first-aid equipment compartment. As the illustrations show, the truck body can be converted from an omnibus to an ambulance and back again in a jiffy.



As an ambulance, this auto is equipped for the comfort of its unfortunate occupants.



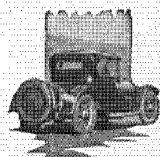
As an omnibus, it serves regularly to carry employees to and from their work.

The H. H. Babcock Company uses a high grade of Du Pont Fabrikoid and other leathersubstitutes for bodies of this type. These materials are ideal for the service required of them; for, as they are quite impervious, they are thoroughly sanitary. The entire interior of these vehicles can be washed with soap and water or with sterilizing compounds, affording opportunity for a splendid precaution in ambulance work. A leather

substitute material will not absorb dust and germs, and none of the liquids likely to come in contact with it will either penetrate or stain it. In addition, it is tough, wear-resisting and perfectly adapted to rugged service in industrial use.

Three "Smash-Ups" That Found the Answer

How the Craftsman Auto Finish stands the accident test



Isn't it beautiful?
Is it leather?
Does it stay like that?
How do you clean it?

The answer to the first question is obvious. "No" suffices for the second. "Yes" for the third. "Any way you please" is a safe answer for the fourth. There was another question that many people asked and we could not answer until recently. "What happens to the Craftsman Fabrikoid Finish in case of a smash-up?"

For many months we were wishing for something to happen to some of the cars finished with Craftsman Fabrikoid, so that we could answer this question from experience, but although the number of cars so finished increased rapidly, they all seemed to bear charmed lives—they ran into nothing but admiration.

When we had almost given up hope—about the first of December to be exact—three different cars covered with the Craftsman Auto Finish all met with serious accidents.

The first car damaged was, properly enough, the first car ever finished with Craftsman Fabrikoid, a 1917 Cadillac roadster which was covered October 1, 1918. This car is familiar to many motorists because it has been run and exhibited in cities and towns all over the country.

The finish was in its fourteenth month of service, and had been exposed to all kinds of weather during 23,000 miles of travel, when the car, which was at this time headed for California on what was to be a coast-to-coast round trip, collided with a truck loaded with lumber in the vicinity of Denver, Colorado. What happened to it is told in the following letter from Mr. Hout, manager of the Trimming Department of the Cadillac Garage at Denver:—

"Mr. Geo. M. Parris drove the Du Pont Fabrikoid Company's Fabrikoid covered Cadillac Roadster into our garage on the morning of November 12, 1919, in a most deplorable condition.

"Beginning at the front of the car, the radiator shell at top front was mashed in, the filler plug torn off, the hood was buckled together, the cowl was mashed, buckled, bent and broken, the windshield was twisted and broken into several pieces, and lastly the top was a twisted broken mass of iron and wood, but fortunately the Fabrikoid was not torn, except for a few small places on the cowl, which were easily repaired.

"The Fabrikoid was taken off the cowl, hood and radiator

By A. H. BERWALD

shell, so these parts could be straightened. We found the Fabrikoid adhered strongly to these parts, and were surprised to find that it still retained its flexibility, as we supposed after having undergone the rough usage, etc., that the oil would be done and leave the Fabrikoid stiff and easily broken. As manager of the Trimming Department and seeing these things, I am sure strong for the Fabrikoid both for top use and covering work on automobiles.

"The time in completing the wrecked car, including rebuilding the top, was about nine days, with two men working at one time, and at different times."

After the above repairs were completed and the pilot was able to leave the hospital the car proceeded West. About fifteen miles west of Winslow, Arizona, after floundering through oceans of mud, the car became mired-in, immediately preceding a blinding snow blizzard. The pilot, who had just stepped out of the car, was unable to find it again, so intense was the downfall. After circling around for hours he lay down exhausted, and as he thought, to die, but he was found the next morning, still alive by some miracle, and was sent to a hospital in Los Angeles.

The car, after being marooned in the mud and snow for some days, was towed to the railroad and shipped by freight to New York City on December 5th. I received it there exactly one month later and found it covered with frozen mud from bottom to top, and all over the top. Its condition was such that the entire unloading crew at the freight station, about fifteen men, were unable to move it a single inch, nor was the service station truck able to pull it from the box car until some of the mud was thawed with hot water.

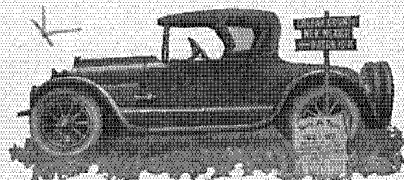
The unloading crew at the 36th Street automobile house in New York includes several humorists. One of them said:

"There's only one place in the world where they have that kind of mud; that's in Arizona. I came from there."

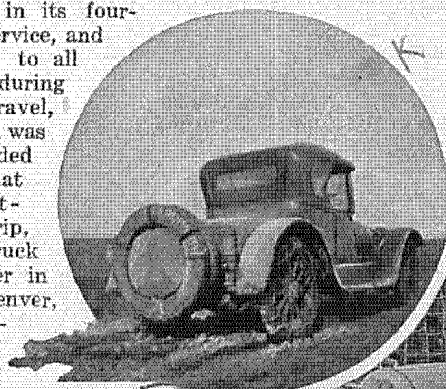
"You'll be disappointed when you go back," said another. "All the Arizona mud is now in New York."

Another man said: "What an awful state that car's in." The answer came back quickly, "Yes, it's in the middle of Arizona."

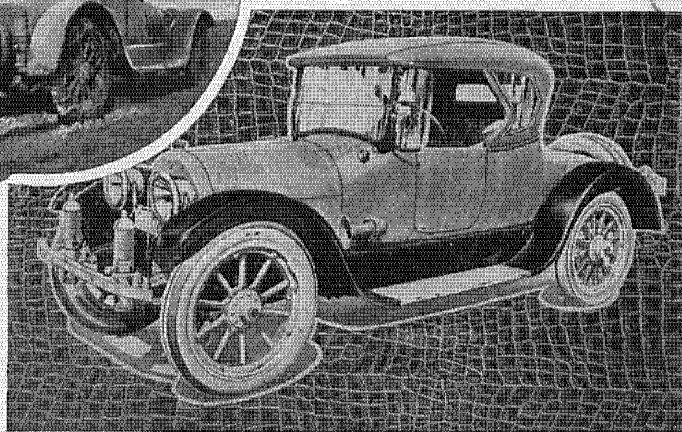
We spent the next day at the Cadillac Service Station washing the car with a hose and then with soap and warm water. The next morning we gave it a light coat of Harrison's French Wax Finish which was rubbed down immediately with a soft cloth. By 9.30 a. m. on January 7th we had the car in front of the Grand Central Palace ready for the inspection of visitors to the New York Automobile Show, and the first words of the first



On the Santa Fe Trail



Plowing through the mud



The Car with its Craftsman Fabrikoid Finish

man who stepped beside it were "Isn't it beautiful?"

It was beautiful, although nothing but water, soap and wax had touched it after its bath of Arizona mud, and despite the fact that some of that mud was still on it in places where we could not see it in the dark basement in which the car was washed.

I took advantage of the daylight to give the car a thorough examination. The visible damage to the finish consisted in a few torn places on the outside edges of the fenders. At the top of the cowl, flying glass from the broken windshield had shaved off the coating of the Fabrikoid and cut into the material in a few spots that were hardly noticeable. Where the plate glass side windows, in breaking, had torn through the Fabrikoid, it was noticeable where the tears had been pulled together and fastened down. There was absolutely nothing to show me that the Fabrikoid had been taken off and put back on the cowl, hood and radiator shell. I had not seen Mr. Hout's letter at that time, and can hardly yet believe that this could have been done so perfectly.

The finish was not spotted anywhere either from the frozen mud that had been on it for a month or from the oil that had leaked out of cans in the turtle back. There was the same original evenness of lustre on the finish all over the car and the same flexibility and life that the Fabrikoid had possessed originally.

This was as true of the material over the hood and radiator as over the parts that were not subjected to heat.

The second car damaged was a Cadillac roadster belonging to Henry B. Day, of Los Angeles, California, and the third car was a Willys-Knight limousine that also belonged in Los Angeles and for which Mr. Day had furnished the Fabrikoid. Mr. Day tells the story of these accidents in the following letter written December 4, 1919:

"I want to tell you about an experience I had recently with my Craftsman Fabrikoid car. I found that one feature of this body covering which I suspected would be a disadvantage had proved to be a decided advantage.

"About two weeks ago, in a terrific jam, I was back of a street car when it stopped. The car suddenly started in reverse and backed into me, pushing my car thirty feet and tipping it on two wheels. It broke a rear fender very badly, broke the door and scraped the whole rear panel. The rear fender was badly damaged so that I thought it would be necessary to put on a new one. I put the car into a shop, took a crow bar and sprung the rear panel with just a slight pressure. It snapped back into place all over the entire panel.

"We took the trimming out of the door and fixed up the wood on the inside of the door, hammered the metal, without taking off any of the covering. It left a crease about the width of a lead pencil across the covering the full length of the car, but it did not break the fabric at all at any place on the body or door. I rubbed this crease with a mixture of alcohol and machine oil, and not a mark now shows on body or door.

"The rear fender had to be re-covered, as the fabric was badly torn, and of course, this meant that all the fenders had to be re-covered so as to match up. I had them re-covered in black. If the job had been painted, I would have had to put on a new fender, but the fabric kept the metal from breaking sharp or breaking the beading. The same is true of the body—in other words, the fabric acts like a scrim would to a wood body, only it is a great deal stronger and affords more protection.

"Another accident happened to one of the limousines we had

covered. A street car hit the rear end of the limousine and drove it against a telephone pole. A hole was punched in the body, and by the rear window a hole, about eight inches in diameter, was torn in the fabric. The top is covered with black baby alligator grain, Craftsman Fabrikoid, and a patch was put in on this. Where the new and the old pieces were joined, they used shoemaker's heel ball, applied with a plumber's iron. The patch cannot be noticed even close up.

"Where the 976 color, Moorish, baby alligator grain, Fabrikoid was used on the center of the body, a new piece about eighteen inches long was put in. Without taking the fenders off, they were hammered out and show no marks whatever. The hole punched in the body was hammered out and soldered and did not have to be finished up like a paint job would.

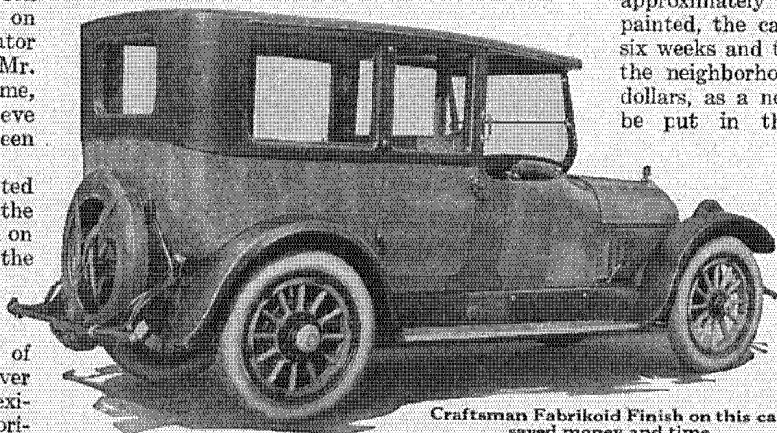
"The car was tied up about three days, and the cost was approximately \$30.00. If this had been painted, the car would have been tied up six weeks and the cost would have been in the neighborhood of five or six hundred dollars, as a new panel would have had to be put in the back end and also on the top, and probably the fenders would have been so badly broken that it would have been necessary to put on new ones. This is an advantage to the man owning the car. This car belongs to the Los Angeles Athletic Taxi Company, and is used as a business proposition. It gave them over five weeks' use of the car which they

would not have had otherwise, and saved considerable expense.

"These were features I was very much afraid of on body covering, but here are two instances where they have stood the test.

"I thought this information might be of advantage to you. The only difficult feature would be in matching colors, so no matter what color is used on the body, the fenders and pans should be done in black Fabrikoid, as the color does not change at all on this, and one fender, no matter how old, can be re-covered and matched up with the others."

The record of the three accidents mentioned here is such that question number 5 can now be answered with the utmost assurance to anyone who wants to have the Craftsman Auto Finish on his car. In case of accident this finish will suffer less and can be more easily repaired than the ordinary finish. The car itself will suffer less because of the protection given by the finish and the owner will be deprived of the use of his car for a much shorter time. The Fabrikoid makes a smooth finish over dents and buckles, when they are pounded out, and entirely hides these evidences of accidents.



Craftsman Fabrikoid Finish on this car saved money and time

The Trend of Prices

Continued from page 2

are farm products and miscellaneous commodities. Neither of these groups is shown in the diagrams presented here, because of the difficulty of classifying them either as articles entering directly into the cost of living or used in industry. Of these two groups, farm products, which had risen by December, 1919, to 144 per cent above their 1913 price average, might reasonably be expected to fall somewhat. The group of miscellaneous commodities stood in December at 120 per cent above the 1913 price average, somewhat lower than the general price level, but the heterogeneous nature of this group precludes any forecast of its probable movements.

The Aristocrat of the Forest

This article is the eighth of a series on woods and wood finishing. It describes the oak

HOW often, while strolling through the forest, have you observed some hoary-headed oak and repeated, "Tall oaks from little acorns grow!" The quotation suggests the rugged strength that has given this aristocrat of the forest a standing preference in the minds of people throughout the ages. The oak tree bears its head grandly aloft as if it held in disdain the chestnut, the ash and other hardwoods of less imposing appearance. This may be only the observer's fancy, but no one will dispute that the wood of the oak, made ready for the craftsman's tools, is more commonly chosen for use in homes of wealth and refinement than any other.

The oak is unique in that it may be found growing as far north as the Valley of the St. Lawrence and as far south as Florida. This wide distribution speaks for the hardiness of the tree despite variations of temperature. Probably the largest stands of oak are found in the Appalachian regions, where the tree attains its greatest size and uniformity of growth.

Like all living organisms, the oak can adapt itself to varying conditions, but those necessary for its proper growth are a rich loamy soil with a constant supply of soil-moisture, good drainage and plenty of overhead light. These conditions are not always present, but it is characteristic of the oak to cling to life in spite of handicaps. Even on rocky cliffs, although they do not thrive well in such places, they persistently and effectually wage their battle for life.

Nature has endowed the oak with certain characteristics which establish it as the ranking hardwood of the country.

Resistance to diseases common to many woods is an attribute that adds to the enduring qualities of the oak. When it is attacked by disease, it is but slightly affected. Most wood-destroying insects also give this wood a rather wide berth.

White oak and red oak stand out prominently among the several species. As standing timber there is no very great difference in the appearance of these two. Both have tall, clean, rugged trunks terminating in a comparatively small rounded crown. The trunk or barrel of each is fairly uniform in size, with but a slight taper toward the top. Quite naturally there is some variation in their respective sizes, but the average tree of each species attains a height of 85 feet with a trunk 28 inches in diameter.

The difference between the two species becomes readily distinguishable in the cut lumber. Red oak, as its name implies, is of a reddish color and possesses a relatively porous grain. White oak is light in color and slightly more compact in texture

than red oak. The grain or figure of the oak is the mark that distinguishes it from all other woods. Trees grow by the addition of annual conical or medul-

lary rings. In the oak, however, in addition to these rings, Nature forms a series of fine hair-like rays radiating from the center. These pith rays, so called, are not found in other woods; at least, they are not developed to a noticeable extent.

The wood is comparatively compact and close grained, although its slight porosity causes it to be generally termed as an open-grained wood. Oak is strong, heavy and tough. Furthermore, it possesses a durability that enables it, when in contact with the soil, to resist decay to a remarkable degree. Apparently the same qualities which enable the growing oak to withstand adverse climatic conditions are still present in the lumber.

Although most of the oak lumber marketed is used for railroad ties, ship and bridge timbers, barrel staves, farm implements and other articles of miscellaneous manufacture, such as tool handles, the better grades, representing a small percentage of the output, are utilized in the furniture trade and for interior finish. The wood finisher is concerned only with the latter.

The wood for finishing purposes may be prepared in two varieties of grain, plain sawed or "quartered." The difference in the grain depends on the manner of cutting. Quartered oak may be produced from either red or white oak by sawing the log nearly horizontal to the pith rings. By this method the log is first cut into four sections, hence the word "quartered," and boards or veneer cut from each section. Handled in this way, the pith

rings, also called "silver grain" or "flakes," are brought out to the best advantage. These flakes give the individuality to quartered oak that distinguishes it from all other woods, and when properly finished produce a particularly pleasing appearance.

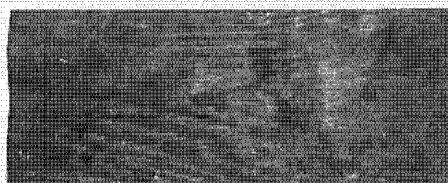
Cutting to the "quarter" necessitates some waste lumber and makes quartered oak more expensive than the plain cut. This has brought about the use of very thin cuts of wood called veneer. The veneer is glued to a base of less expensive wood, giving the appearance of solid oak at a lower cost. The practice of veneering is extensively followed in the furniture industry, although the higher grades of furniture are constructed of solid oak.

Furniture made of solid oak possesses massive beauty and strength. Some of the period and Renaissance styles, and most of the mission styles, are executed in oak. The wood and its treatment play an important part in the proper interpretation of the design and effect desired.

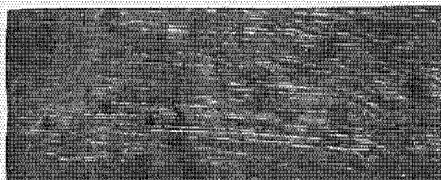
As interior trim oak affords a variety of applications. Paneled walls of oak are popular for libraries, dens, living-rooms and dining-rooms. These are finished, of course,



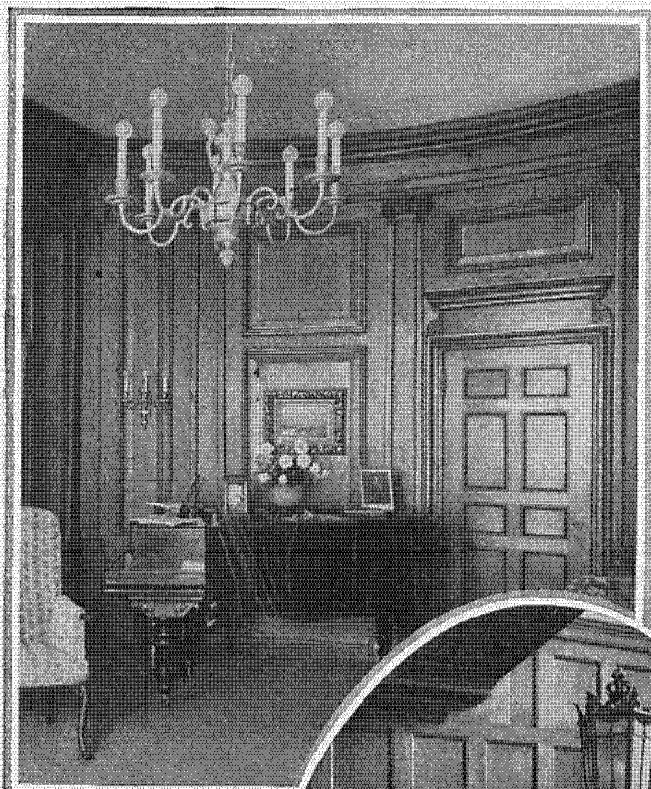
Laying low the sturdy oak



Characteristic comb grain



Grain of quartered oak



What is more attractive than a living room in oak?

An oak stairway

in appropriate colors.

Floors of oak possess rare beauty. Because oak is so durable it is an ideal selection for such a purpose. The parquetry floors of handsome homes and hotels would not be complete without the insertion of oak panels as an attractive part of their floor designs.

For all the purposes mentioned plain or quarter-sawn white oak or red oak may be used. White oak is more desirable than red oak on account of its lighter color, greater strength and hardness, and, naturally, it is the more expensive. But red oak possesses the same relative properties as its white brother, and its uses are just as diversified. The finishing possibilities of this wood are excellent. It has the right density and texture of grain to become an excellent finishing medium and it responds readily to treatment with stains, fillers, varnishes, waxes and oils. Their use permits of a wide variety of color effects, ranging from the delicate grays and "fumes" to the darker browns and mission effects. Here, again, we find a peculiarity of the wood; seldom if ever is it finished in imitation of mahogany. This is not because the wood does not lend itself to such treatment, but

because oak is itself distinctive. All the effects applied are "oak effects" designed for use on this wood. Other woods frequently are finished in imitation of oak.

The natural finish is perhaps the most popular. It is used for floors, furniture and office fixtures. To obtain this effect the wood is first filled with Du Pont Wheeler's Paste Wood Filler (Transparent), then finished with Du Pont Wheeler's Varnish, or Du Pont Shellac and Du Pont Bridgeport Standard Prepared Wax. A floor varnish is used to finish the floors.

The fumed finish was originally produced by subjecting oak wood to the fumes of ammonia in a specially constructed "fuming box." This is an expensive and tedious method. The rapid advance in the art of wood finishing, however, has eliminated the necessity of the fuming box, for the effect may now be obtained by the use of our fumed oak acid stain, followed with finishing coats of Wonderlac. This type of finish has gained immense popularity through the modern method of finishing, and is typified by a uniform brown color, usually finished in a flat or semi-gloss effect.

A delicate grain finish is produced by using gray acid stain, followed by an application of Wonderlac. This effect is particularly pleasing for the sun parlor, living room or bedroom.

There are also a variety of brown effects, ranging from light brown to a deep mission tone. These are produced by the use of Du Pont Bridgeport Standard Penetrating Stain & Waxed Finish, and may be completed with a corresponding shade of Wheeler's Paste Wood Filler and Wheeler's Varnish. If a smooth filled effect is not desired, the finish may be completed by applying shellac and prepared wax directly over the stain.

In order to assist those desirous of using oak for interior work, floors or furniture, our Architectural Service Bureau, Paint and Varnish Division, Wilmington, Delaware, will be glad to give full particulars in regard to any type of finish, furnishing literature and finished panels so that the work contemplated may be completed properly and satisfactorily. This service applies, not only to the finishing of woods, but to painting and interior decoration in general, and carries with it no obligation.

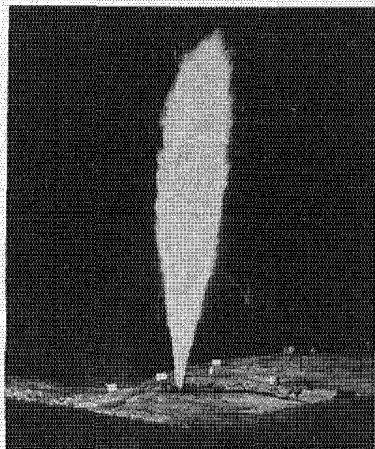


There's an air of dignity to a dining room finished in oak

Midway's Midnight Sun Totally Eclipsed by Dynamite

After all other means of extinguishing the spectacular gas-well fire had been abandoned, 150 pounds of dynamite conquered the blaze

CAN you visualize an enormous gas torch blazing 200 feet into the air with flame that could be seen for 80 miles? Can you imagine the tremendous pressure of a gas well, estimated at 100,000,000 cubic feet a day, discharging gas from a casing with such force that the noise could be heard 9 miles away? In July of last year, in the Elk Hills district of the



How the spectacular gas torch appeared for ten nights

Midway field of California, the Standard Oil Company's Hay No. 7 suddenly leaped to life while being drilled and gassed so furiously that it set itself ablaze and furnished the people of that section with a spectacle that has fitly been called "Midway's Midnight Sun." Unquestionably, it was the largest gas fire in the history of California and one of the largest in the United States.

The methods employed to extinguish this fire are of particular interest. The details are quoted from the Standard Oil Bulletin,

through whose courtesy we are permitted to present the accompanying illustrations and story:

"The well was drilling with a rotary at 2135 feet in 10-inch casing, the 12½ and 10 inch strings of casing having been landed, when what appeared to be water-sand was encountered. To test this sand for water the mud was bailed out to relieve the pressure and allow any water present to accumulate in the hole. During the course of bailing the well blew out and the enormous flow of gas began.

"The top of the 12½-inch casing was equipped with a heavy gate-valve and a 6-inch flow-line, which extended to the side of the derrick. The drilling crew attempted to get the well under control by closing the 12½-inch gate-valve, but the shale and sharp sand carried by the stream of gas cut out the seat of the valve while it was being closed. This gate having failed, there was no alternative other than letting the well blow until more fittings could be attached. After blowing for an hour, the drillers said that the 6-inch flow-line became red-hot for two feet at its end, due to the friction of the shale and sand on the pipe, and it ignited the enormous stream of gas.

"By the usual methods of employing steam, mud and water, the fire was extinguished for fifty feet from the ground, but the gas continued to burn above the effective zone of steam and water, as the boilers could not maintain sufficient pressure long

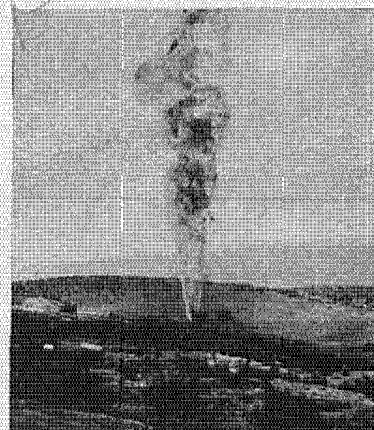
enough to prevent the gas from the well breaking through to the flame above. The heat from the flame was so intense that, in order to get the fire-fighting equipment close enough to be effective, the men had to work behind metal shields and under showers of water from 3-inch lines.

"The manager of the Producing Department, two colonels of the United States Army and the superintendent of the Midway District were at the scene of the fire. The army officers considered the advisability of using a 6-inch army field-piece for snuffing out the blaze, but decided that the flame was too large for the use of such a gun. At this point the division superintendent suggested the use of dynamite, his theory being that after the steam, mud and water had subdued the lower flames the concussion of the dynamite would break the stream of gas long enough to allow the flames at the top to burn out before the intercepted stream of gas from the well could again reach them. This plan seemed so feasible that it was tried out, in connection with the use of large streams of carbon tetrachloride, on the morning of August 5. When the charge of dynamite was exploded there was a deep red glow, a black puff and the big fire was out.

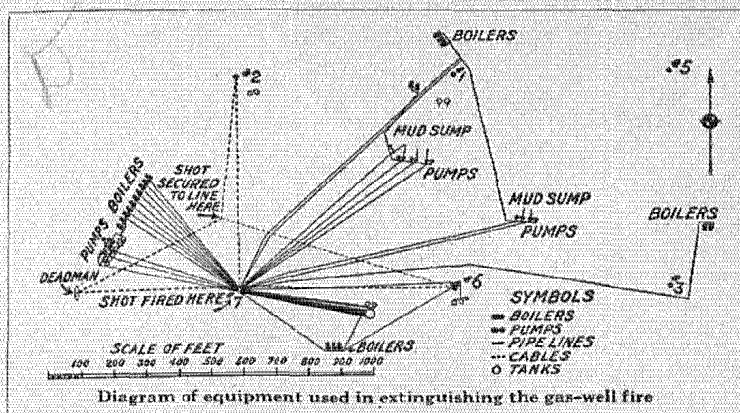
"The equipment used, which is shown diagrammatically, consisted of 20 boilers, 21 three-inch lines, 9 four-inch lines, 13 pumps, several large tanks, 100 barrels of carbon tetrachloride and 150 pounds of dynamite."

This interesting use of dynamite suggests another emergency use in connection with fires. At the time of the San Francisco earthquake numerous fires broke out in sections of the stricken city where the earthquake had broken water-mains. The fire-fighting department was powerless to use its most effective weapon.

A Du Pont representative volunteered his services to the acting chief who had requested that men with experience in handling explosives be sent to him. He realized that the only way the fire could be checked was by



Daylight view of the burning gas well before dynamiting



the use of explosives. Dynamite was rushed to the city. The representative, with full authority, directed the task of demolishing buildings. Three city blocks and several buildings which stood between brick structures were blown down, checking the progress of the fire, until a change of the wind saved the day.

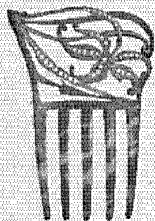
PATHFINDERS

A Hair Ornament De Luxe

Ornamental hair combs were in vogue when our great grandmothers attended balls and danced the minuet. The contemporary patterned shawls and hoopskirts of that day have long since disappeared, but the crowning beauty of the back-comb is such that Fashion has decreed to revive its popularity.

In the olden days combs were made of bone, tortoise shell, silver and gold—sometimes studded with precious gems. The comb you see illustrated has all the grace of line found in those of a hundred years ago. You would lay a bet that it was wrought out of tortoise shell. But it isn't. The comb is made of Pyralin, although no one would suspect it even upon close examination. It came to us as an import from the land where one is accustomed to picture the beautiful Senorita with a rose between her pearly teeth and a comb in her coal black hair.

Just now fashionable shops are showing a variety of combs in every shape, size and design, but all of them carry to some extent the Spanish motif. In London, too, it is reported that ornamental combs of enormous size and exquisite patterns are being worn by beautifully gowned women. Pyralin is bringing the back-comb back.



Their First Problem

A young couple, just starting in house-keeping in a New England town, experienced some trouble in placing their furniture. They had purchased mahogany furniture for the dining-room, and the expressman had just delivered Aunt Esther's wedding present, a serving table—finished in golden oak. How to make use of the serving table was a problem; it did not harmonize with the mahogany at all. Should it be discarded? The practical young man was loath to do this and sought the advice of a friend who recommended refinishing the table.

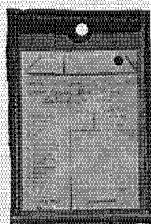
So he submitted the problem to a paint dealer. "You can easily change the golden oak finish to mahogany," remarked the dealer with a smile, as he handed out a small can of Brown Mahogany Stain Finish. "Just apply two coats of this material to the table," he added, "and your problem will be solved."

The young man did so and the result was a finished piece of beautiful mahogany-colored furniture quite in keeping with the buffet, extension table, china closet and chairs.

"A road isn't necessarily the right road because it is well beaten", some one remarked. Pathfinders travel them only to locate their points of departure. There must be a better way! So they seek it—and find it—and write their names in bolder type on history's page. There are well-known uses for Du Pont products; and then there are scores of uses that few people know about. Some one has discovered them out of the beaten paths. If you have found the better way we have space on this page to record your findings.—Editor.

Protecting Job Travelers

In most well-organized factories the job order has become indispensable to insure co-ordination of work and practical efficiency. Each job must



have its written order, and each order must travel with the job until it is finished. So these orders are sometimes referred to as job travelers. They travel through foundries and machine shops; they are handled by work-

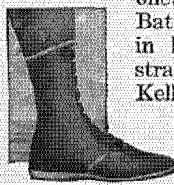
men with greasy hands, and, naturally, they get soiled, dirty, illegible, a condition that results frequently in delays and costly errors.

A mid-western automobile factory has remedied this trouble by a protective device which is a flexible card holder made with a back of Fabrikoid or rubber-coated cloth and a front of Transparent Pyralin Sheeting. The back is turned over the edge of the sheeting and stitched down as shown in the accompanying illustration. When the ticket is inserted in the pocket, like a letter in a window envelope, the order detail is always kept legible, and as the holder itself is proof against water, grease and stains, the ticket comes through untorn, unsoiled and in fit condition for filing.

Job travelers are also made visible on both front and back sides by substituting a piece of Transparent Pyralin Sheeting for the Fabrikoid back piece, but this is necessary only when the job ticket is printed on both sides and contains essential information for the workmen. Automobile companies find it profitable to use a portion of their scrap Pyralin and Fabrikoid for making these useful factory accessories.

And Now Bathing Shoes

Right now at Palm Beach and later on at Atlantic City you may see them—black, blue, green and red bathing shoes of Fabrikoid. You need not look for any



one style, for preferences vary. Bathing Shoes may be had in boots, oxfords and one-straps. The dainty Annette Kellermann you meet on the beach will probably be wearing the kind that in her judgment is the most becoming.

You're familiar, of course, with the older types of bathing shoes, from ordinary tennis shoes and worn-out dancing pumps to the ultra-ultra satin and sateen beach slippers with their canvas soles, made specially for the purpose, and priced accordingly; but if you're looking for all the elegance and style of the higher-priced satins in a moderate-priced shoe, the Philadelphia-made product, known as Sun Fast Bathing Shoes, will likely be your choice.

The uppers are made of heavy-weight Fabrikoid, which retains its shape, because it is impervious to moisture, and never loses its original color, because the color pigments are sealed into the pyroxylin coating, which is not affected either by the action of sun or salt water. Moreover, the Fabrikoid is grease-resisting, dustproof, sanitary and readily cleanable.

Your Patent Leathers

The polished surface of the best of patent leather shoes will crack; for the surface is an enamel—and manufacturers haven't yet been able to produce an enamel that will withstand continued bending strains. Over the instep cracks are more likely to appear than at any other place, and, unfortunately, that is a conspicuous part of the shoe.

But don't throw away a good pair of shoes just because a crack develops. So long as the crack doesn't extend through the leather itself, there's no reason for despair. Some one has discovered that if a little Du Pont Leather Renewer is applied over the crack the shoes are made presentable again.

This leather renewer can also be used to renovate worn, discolored or shabby upholsteries for automobiles, automobile tops, handbags and other articles, whether they are made of leather or leather substitutes. It produces a waterproof, glossy, black finish that will not rub off, and it is easily applied, if the user will follow the simple directions given on the package.

Wrecking Shipwrecks With Dynamite

*How Uncle Sam's submarine divers treat the ships of misfortune
in the interest of safe navigation*

PROBABLY most readers have definite ideas about the uses of dynamite on land, such as blasting tree-stumps, ditches and boulders on the surface and coal and mineral ores in mine workings far below. Also, during the war, when German submarines were preying on the passenger and cargo boats of the Allies, every one read the thrilling newspaper stories of the use of high-explosive bombs dropped from airplanes and depth bombs dropped from submarine destroyers. But how many people know about the under-water use of dynamite for destroying derelicts and wrecks that menace navigation along the Atlantic Coast?

The most troublesome phase of blowing up a derelict at sea is to find it when you want to—but not unexpectedly. Sometimes only a spar is visible above the water to indicate the presence of the submerged hull that any passing ship may ram to its own destruction. Wind and waves, tides and ocean currents frequently carry such derelicts hundreds of miles before the wrecking crew can locate it and explode the charge that will send it safely to Davy Jones' locker.

But demolishing wrecks along the Atlantic Coast is equally important and no less interesting, even if the position of the unfortunate ship is known. Frank J. Rhein, of Delaware City, Delaware, will tell you so if you ask him. He is a deep-sea diver and submarine blaster employed by the United States Engineer Office, at Wilmington, whose duty is to destroy wrecks that menace navigation along the coast from Seaside Park, New Jersey, to Cape Charles, Virginia.

Take the case of the U. S. Transport Sumner, a ship 351 feet long, with a gross tonnage of 3458 tons. About four years ago this vessel was steaming north from the Panama Canal Zone to New York, carrying nearly 600 passengers, many of whom were women. Off Barnegat Shoals, New Jersey, it grounded during a heavy storm, and the rescue of the passengers was accomplished with extreme difficulty. The wreck, which lay three-eighths of a mile off shore, was a menace to fishing boats and other craft entering and leaving Barnegat Bay. After efforts had been made in vain to float the ship from its position, the Wilmington office of the U. S. Engineering Department was ordered to remove it by blasting.

Dynamite was brought from Barnegat City in December, 1918, but weather conditions were unfavorable for the work at that time, so the explosive was buried in a huge sand dune until the weather cleared, whereupon it was exhumed, placed in position and detonated with perfect results. A charge of 13,450 pounds of 60 per cent gelatin dynamite was used to break up

this vessel, which was of heavy construction. On account of its position directly in Barnegat Inlet, in comparatively shallow water, the vessel had to be destroyed completely.

At the same time the Sumner was being removed, the San Saba, a vessel 300 feet long, with a gross tonnage of 2458 tons, was also being blasted to pieces. This unfortunate ship was sunk by a submerged mine in the fall of 1918, with the loss of twenty-eight lives. The wreck lay in thirteen fathoms of water, ten and one-half miles from Barnegat Light. In a single

day this wreck was removed by the use of 1550 pounds of 60 per cent gelatin dynamite.

Last June another large wreck, three and one-half miles from Brigantine Shoal buoy, was broken up with dynamite. It was the ill-fated steamship *Almirante*, which sank following a collision

with the U. S. Steamship *Hisco* on September 6, 1918. The *Almirante*, a 400-foot ship of more than 5,000 gross tons, lay in about ten fathoms of water, with the mast protruding above the water.

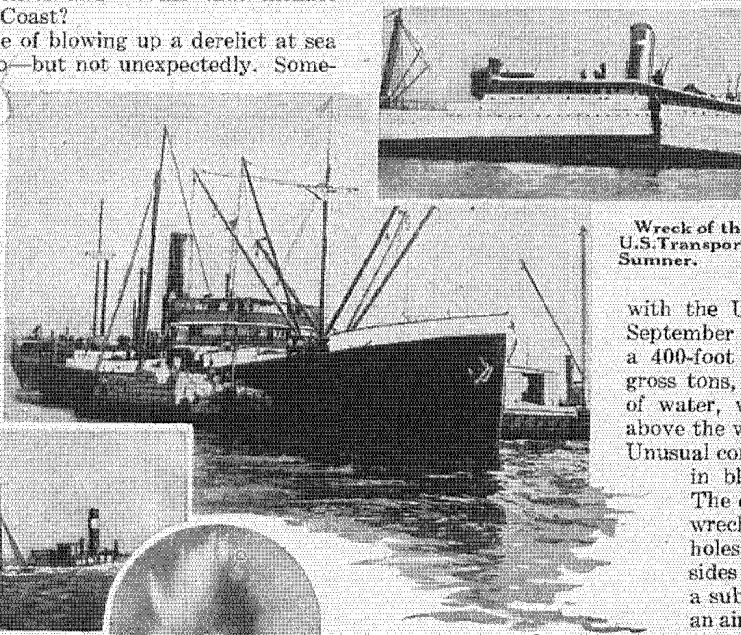
Unusual conditions were encountered in blowing up the *Almirante*.

The diver's investigation of the wreck disclosed a number of holes in the upper deck and sides of the vessel. Probably a submarine chaser or perhaps an aircraft patrol had attempted to destroy the wreck and had only partially succeeded with their depth bombs and aerial bombs. On account of their work, the removal of the wreck was a difficult task. The shattered

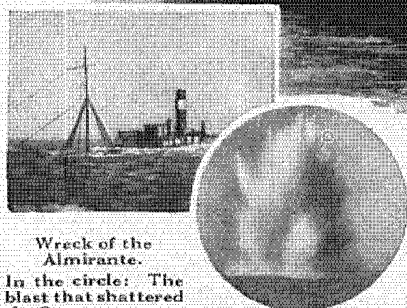
condition of the hull made it necessary to destroy the vessel piecemeal, which required the use of 11,000 pounds of Du Pont 60 per cent nitroglycerin dynamite, or three times as much as would ordinarily be needed. But the work was done. Now vessels have a clearance of more than 55 feet.

The removal of wrecks at a distance from shore can be accomplished only in calm weather. The diver, with his charge, selects his position in the wreck, places the charge and is hauled to the surface, whereupon the crew rows away, a distance of from 500 to 1500 feet. A moment later the wires are attached to the blasting machine, then the blaster quickly thrusts down the rack-bar sending the electric current to explode the heavy charge within the vessel. With a roar the explosion throws fragments of the wreck, fish and huge volumes of water hundreds of feet in the air, presenting a spectacle not unlike the geyser "Old Faithful" during one of its mightiest efforts. It is truly a wonderful exhibition of the power of dynamite. But few people, aside from the blasters and the men who direct the work, ever have an opportunity to see a spectacle of this kind. Advance announcements are not made public.

Thus the use of dynamite serves to clear the channels and highways of the sea from what is, perhaps, their greatest danger.

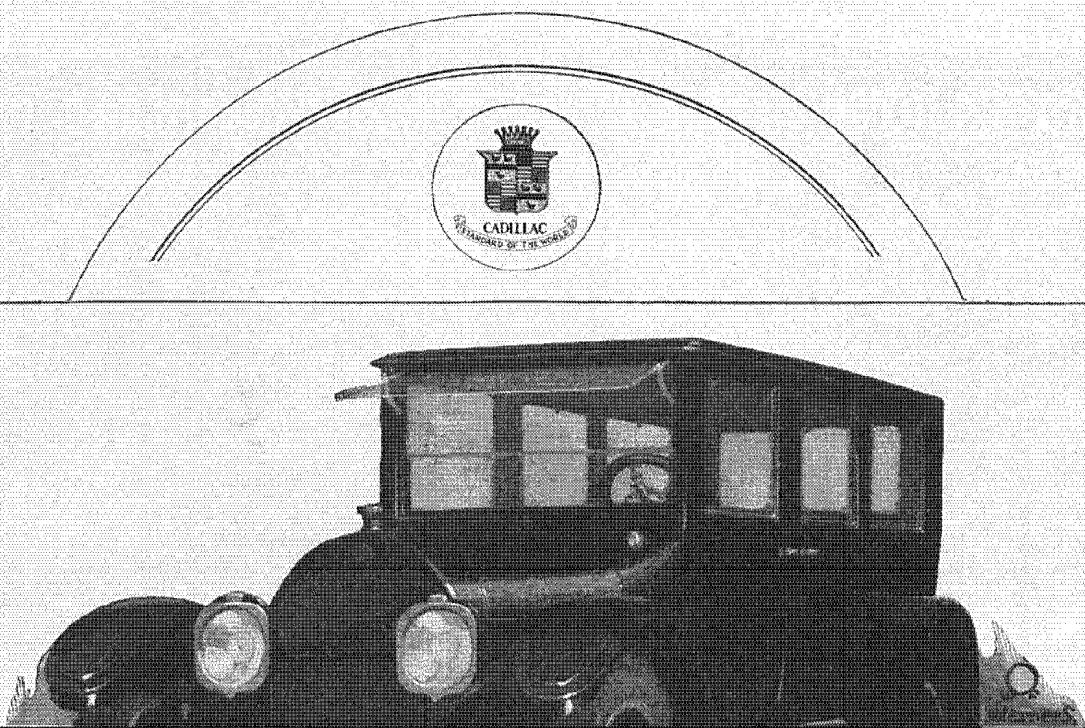


Wreck of the U.S. Transport Sumner.



Wreck of the Almirante.
In the circle: The blast that shattered the Sumner.

The ill-fated San Saba as it appeared before the accident.



Do you realize the deep-seated satisfaction which Cadillac engineers, designers and craftsmen are deriving from the ovation that is being accorded the Type 59 at the motor car show everywhere?

It is to them a compensation for years of patient and painstaking devotion to an ideal, which money could not measure.

It is something of the same satisfaction that comes, when recognition arrives, to the man who has produced a great play, or painted a great picture, or done any other worth-while work in which money is not the sole reward.

If that seems a far-fetched comparison, remember that the men who compose this group of Cadillac craftsmen, are artists, at least, in that they cannot conceive of standards too high, or too fine, for the Cadillac.

They know of no goodness too good, no beauty too beautiful, to be incorporated in this car of their creating.

Of course there is a sense in which they know in advance—after building more than eighty thousand Cadillac cars of the same type—that their latest creation is bound to receive a royal welcome by discriminating people.

Nevertheless, they are the servants of their public, and the reward is not complete until that public has said: This is the best and the most beautiful Cadillac you have built.

The reward has come to them in such overwhelming measure, in Type 59, that we are moved to remind you again, that if you hope to own a Cadillac car during the year 1920, you owe it to yourself to talk with your Cadillac distributor at once.



ROCK DRILLING AT 1/10 THE COST.

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 AGENCIES EVERYWHERE

Making Du Pont Standard Dyes

(Continued from page 5)

A competent staff of demonstrators regularly call on the trade, and also keep in close touch with the work of the laboratories. In their work in the field they frequently come upon difficult technical problems. In such cases they return to the laboratory to carry out special work on these problems.

Thus in definite, practical ways the Du Pont Technical Laboratory is a service institution. The company policy has always been to make quality products, and to render to its customers a full measure of service. This laboratory has been established the better to maintain this policy as it relates to the DuPont dyestuffs industry.

No finished dyestuff is offered for sale to a customer until it has been thoroughly investigated with regard to its shade, strength, solubility and general working qualities. Each product has its own standard, or type, and absolute conformity to this standard is required before any lot can be approved for sale. The Technical Laboratory is held responsible for the maintenance of these standards. It stands between the plant and the customer, furnishing a service that insures the high quality demanded alike by the manufacturer and by the consumer who uses the dyes.

It is quite evident that the work of this Technical Laboratory, covering as it does the control of shipments, matching customers' samples, working out coloring problems and supplying advertising matter or information for salesman and consumer, holds a place of great importance in the development of the dyestuff industry in America.

Roads of Remembrance

In widely separated sections of the country the plan of planting memorial trees in honor of the American soldiers who died in France is gaining favor. Considerable publicity has been given to the idea by the American Forestry Association which is registering all memorial trees in a national honor roll at Washington and urging that our national roads be flanked with such trees to take on the character of roads of remembrance.

The Rotary Club of Tampa, Florida, reports that memorial trees will be planted along the West Coast Road for every soldier who went into service from Hillsboro County.

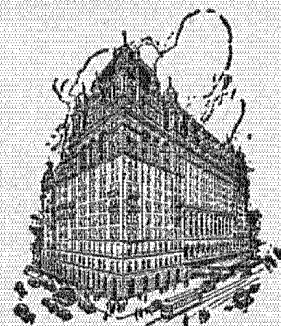
A welfare association at Middletown, Ohio, will plant 1,000 trees along the Dixie Highway next spring.

The National League for Women's Service, at Chattanooga, Tennessee, will establish a road of remembrance leading out of that city.

The Women's Club of York, Pennsylvania, will plant memorial trees along 25 miles of the Lincoln Highway in that vicinity.

And in Minneapolis, a road of remembrance between two city parks is being laid out. Trees will be planted in 1921.

Now, before spring opens the buds of trees, is the time to set out memorial trees. Even large trees may be dug up and transplanted while they are dormant, but after the buds have started most trees will not stand transplanting. Great care should be taken in any event to set out memorial trees in a way to insure a sturdy, vigorous development, and this, of course, depends very largely on the subsoil conditions where the trees are planted. If the soil be loamy and porous, trees may safely be set in spade-dug holes; but if the subsoil is hardpan or



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 L. M. Boomer President

clay, the best insurance that can be given for the thrifty growth of a memorial tree is to plant it in a hole that has been excavated with dynamite. In such holes the soil is pulverized and loosened to make room for a normal, healthy root system. The roots should radiate beyond the limits of the hole excavated to accommodate it when the tree was planted.

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DU PONT ANTIOXIDE

for all new buildings and structural steel and iron
to resist the ravages of
RUST and CORROSION

It is not a linseed oil preparation, but a compound of rust-inhibitive pigments and a varnish-like vehicle that produces an impervious coating of high abrasion-resisting power.

*Made in four colors and packed in gallons,
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20 years hence

the trees planted today in honor of our heroic soldiers and sailors will have grown into beautiful, sturdy and lasting memorials if the trees are planted today in blasted ground.

TREES THRIVE AND LIVE

in blasted ground because the roots penetrate deeply and widely into the mellowed soil. The explosion breaks up the compact subsoil, aerates the ground and puts it into an ideal condition for root development,—the foundation for sturdy, healthy, long-living trees. Commercial orchardists, horticulturists of national fame and widely known nurserymen approve of planting trees in blasted ground.

PLANT TODAY—BY EXPLOSIVES

to insure the life of memorial trees. Nurserymen, landscape gardeners and "tree doctors" have planted trees by explosives for years. It is the way to plant all trees—for all purposes. Insist on this method and get satisfaction—now and twenty years hence.

Our booklet Handbook of Explosives tells how to plant trees in blasted ground. A copy will be sent on request.

TO DEALERS

We have started our country-wide advertising campaign to increase the use of explosives on the farm. Get in line for the explosive trade in your locality. Inquire of our Sales Department for particulars.

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