





DYNAMITE

Aids in the Construction of
THE
EMPIRE STATE BUILDING

TOWERING 1245 feet above the "sidewalks of New York," the Empire State Building looks down upon the neighboring skyscrapers!

It is the newest engineering marvel—a tribute to architects and artisans—but dependent upon a mighty ally—Dynamite!

Working efficiently, quickly and economically, du Pont Dynamite blasted the solid rock, and so aided in the construction of the foundations of this eighty-five-story structure.

Du Pont Explosives are the mighty allies of industries—mining, quarrying, contracting and agriculture. All these owe their progress, in a large sense, to the forceful efficiency of high explosives.

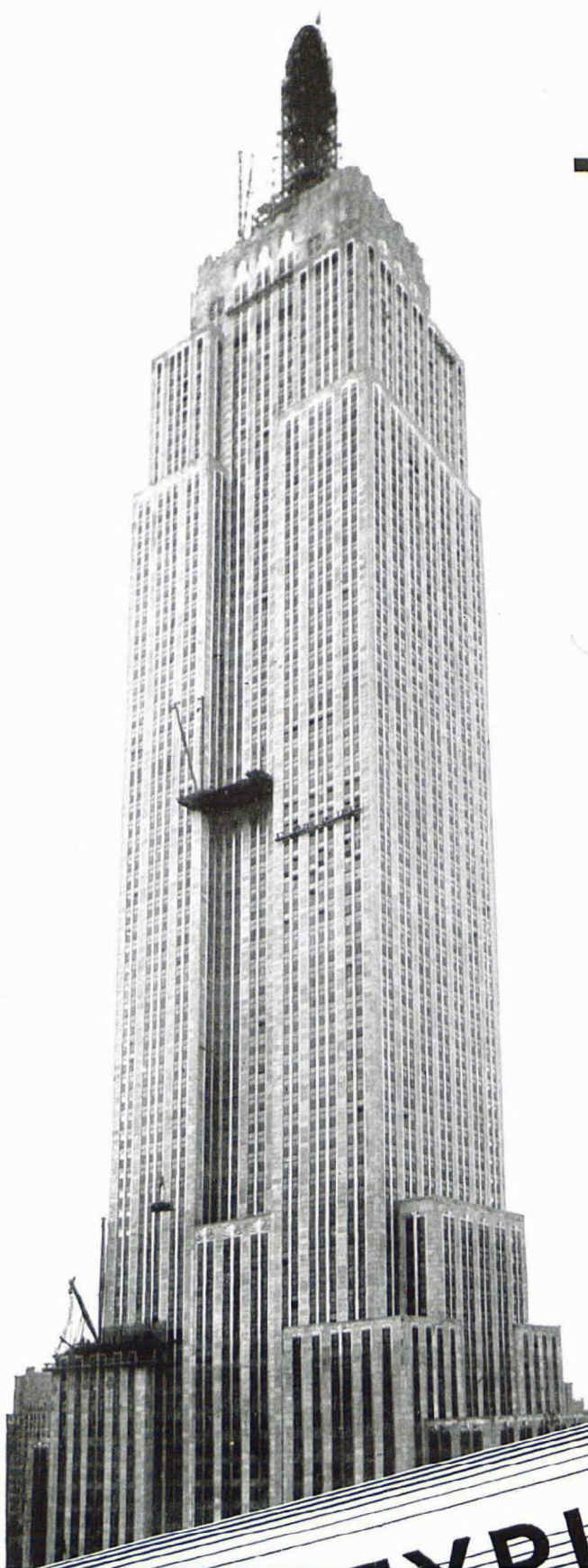
To provide industry with the most effective types of explosives, to produce in adequate quantities, and to render a practical service to the users of du Pont Explosives are the purposes of their makers.

Whatever may be your requirement for explosives, there is one made by du Pont which provides the maximum of efficiency.

For specific information relating to selection and use of du Pont explosives, address

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EXPLOSIVES

MAKERS OF EXPLOSIVES SINCE 1802

THE DU PONT MAGAZINE

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THE PAINT INDUSTRY IN REVIEW

DURING the past decade public appreciation of the value of paints, varnishes and other finishing materials has passed through at least two stages. The first had its real beginning when leading manufacturers in a coöperative advertising campaign stressed the truth of the slogan, "Save the Surface and You Save All." The second was a more or less spontaneous development, a newly awakened consciousness of color as a style factor, and this resulted in a renaissance in the arts of decoration.

Important changes, too, have taken place in the manufacture of protective coatings. Science has pushed aside old-time practices. Rule-of-thumb methods are "out." Factory operations are closely supervised. All raw materials must meet fixed standards. Processes are precisely regulated. Finished products are tested for quality and uniformity in the laboratory, and for durability by long exposures at the proving grounds called "paint farms." All of which means that production standards have attained a higher level.

To modern chemistry goes the credit for developing Duco, which marked the greatest forward step in the manufacture of protective coating for generations past. This finish grew out of the needs of the automobile industry for really serviceable products.

Because Duco was so durable, many people at first thought that automobile refinishing shops were doomed. In fact, refinishers did suffer a temporary loss of trade. But even though a

*Much progress has been made
by research chemists who have
improved old products and
developed new ones*

properly applied Duco finish will outlast the life of the average car, a lot of refinishing is still done, for motorists want their cars in colors keyed to the prevailing styles.

Duco proved a boon to the automotive industry. Furniture manufacturers soon adopted it. Others followed suit. Then came the demand for a Duco that could be applied with a brush. This product, too, was put on the market and millions of cans of it were sold and used from coast to coast.

The commercial success of Duco has inspired a great deal of research work during the past decade, and out of it has come a better understanding of fundamental paint needs. For more than three years du Pont chemists have been studying the properties of liquid ingredients used in paint and varnish manufacturing. Vegetable oils have long been accepted as the standard. Were they the best vehicles for the purpose? Tradition said yes. Research chemists were not so sure about it; in fact, they knew that Nature's best products were not wholly suitable. Here was a challenge to creative chemistry. They accepted it, got busy and developed Dulux vehicles—products that did not exist before. Paints and varnishes containing them

dry quickly without detriment to durability, and so give additional years of service.

Revolutionary as Duco was during the past decade, Dulux promises to be just as outstanding during the present one. It is the second great contribution made by the du Pont Company to the paint and varnish industry. Duco was launched during a period of national prosperity and rode the wave. Dulux was announced when business in general was in the doldrums. When normal conditions are restored, we predict a broad demand for it.

The paint and varnish industry is now better equipped to supply dependable products than ever before. Just what is best to use for a particular job is something the average individual does not know. But he can find out, for progressive manufacturers are prepared to help solve his problems.

Du Pont service organizations include staffs of technicians who specialize on paints and finishes for industrial uses, railway requirements and those of the petroleum, automotive and other industries. The company's Paint Prescription Service men are experts on maintenance and upkeep work; the Architectural Division men contact with architects and builders; the Duco Color Advisory Service staff functions for the automotive and furniture industries, and the Home Decoration Service staff deals with consumers' problems.

Dependable products plus dependable service—that sums up the situation of this alive and alert industry.



PHOTO BY BROWNING STUDIOS

THE HIGHEST BUILDING IN THE WORLD

Superlative words only can describe the Empire State Building, the world's tallest skyscraper. Its enormous size, the stupendous task of erecting it, the beauty and symmetry of the structure—all these seem inadequate to convey the majesty of this masterpiece of the builders' art. Here we see the building as the photographer caught it, in all its glory, silhouetted against the evening sky.

LIKE A GIGANTIC FINGER REACHING TO THE SKY

To appreciate fully the latest of the world's wonders requires more than to see it, more than a drab recital of endless statistics. You must have, in addition, some of the imagination that puts life into the artistry of the sculptor, the designer, the builder.

So come with us, back to last Christmas afternoon, and get a word picture of this awe-inspiring building, reaching like a gigantic finger into the sky. We are relaxed, comfortably seated. The voice of George Hicks of the National Broadcasting Company comes quietly to us from the radio:

"We are speaking, ladies and gentlemen, from the outdoor balcony of the eighty-first story of the Empire State Building in New York City, in the first broadcast from this still incomplete building.

"Above us is the bare steel skeleton tower of this skyscraper—the mooring mast—actually built to be a terminus for trans-oceanic dirigibles. A revolving beacon soon will top it to guide air liners to their destination—up one hundred and two stories—over one-quarter of a mile in the air.

"Its base, only partly stoned, reveals the top—still gaunt, black steel against sky—looking without peer over all the spires of the city, a virtual ruler of all it surveys—the wonderful, awesome, grotesque and beautiful island of Manhattan.

"And from this most modern setting, approximately eleven hundred feet above Thirty-fourth Street and Fifth Avenue, on the site of the old

The Empire State Building in New York stands monarch of all it surveys. Du Pont paints and varnishes played a part in its completion

By S. L. JOHNSTON

Waldorf-Astoria, the carollers stand singing one of the oldest and simplest Christmas carols, *The First Noel*."

More vivid description follows. Our imaginations are loosed . . . we begin to appreciate this masterpiece of the builders' art—its stupendous height, its vast bulk, its inspiring beauty.

And now even the statement that it is the world's tallest building does not satisfy our curiosity. We still ask, "How big is it?" That can only be answered by statistical comparisons.

The building is located on the west side of Fifth Avenue, between Thirty-



This painter, 1,248 feet above ground, is putting the finishing touches on the framework of the mooring mast that tops the Empire State Building

fourth and Thirty-third Streets, on a plot of ground 197.5 by 424.95 feet. The area of this site is 83,860 square feet.

Only five stories cover the entire area. The main tower sits back sixty feet from the lot line above the sixth floor, and reaches eighty-five stories above the street level—one thousand and forty-eight feet into the sky. Then add the tower or mooring mast of two hundred feet, and you have a total of one thousand, two hundred and forty-eight feet—equivalent to approximately one hundred and two stories of twelve feet each.

Compare this height with that of other tall structures you know. The Eiffel Tower is nine hundred and ninety-five feet; the Chrysler Building, one thousand and forty-six. The Bank of Manhattan rises nine hundred

and twenty-seven feet into the air, and the Woolworth Building, seven hundred and sixty-seven feet.

The Empire State Building will house twenty-five thousand tenants—a small city in itself. To serve such a multitude has required the installation of sixty-two regular elevators, of the latest type, with a speed of seven hundred feet per minute—the maximum limit allowed by law.

Not only is efficient service given to tenants, but provision is also made to afford visitors an opportunity to see New York City from a bird's-eye point of view. The observatories in the tower will be open to the public on the eighty-sixth floor, and at the top of the mooring mast. Two hundred visitors can be accommodated on the lower level, and fifty more up in the mast.

On a stupendous job of this kind, it is naturally expected that new records have been achieved in the amount of materials used, men employed, and so on. An average force of 2,500 men has been employed daily in the construction work, the total at some periods reaching as high as 4,000.

The steel work alone on this building represents a tremendous output from the steel mills. In terms of railroad trackage, there is enough steel in it to construct a double track from New York to Montreal.

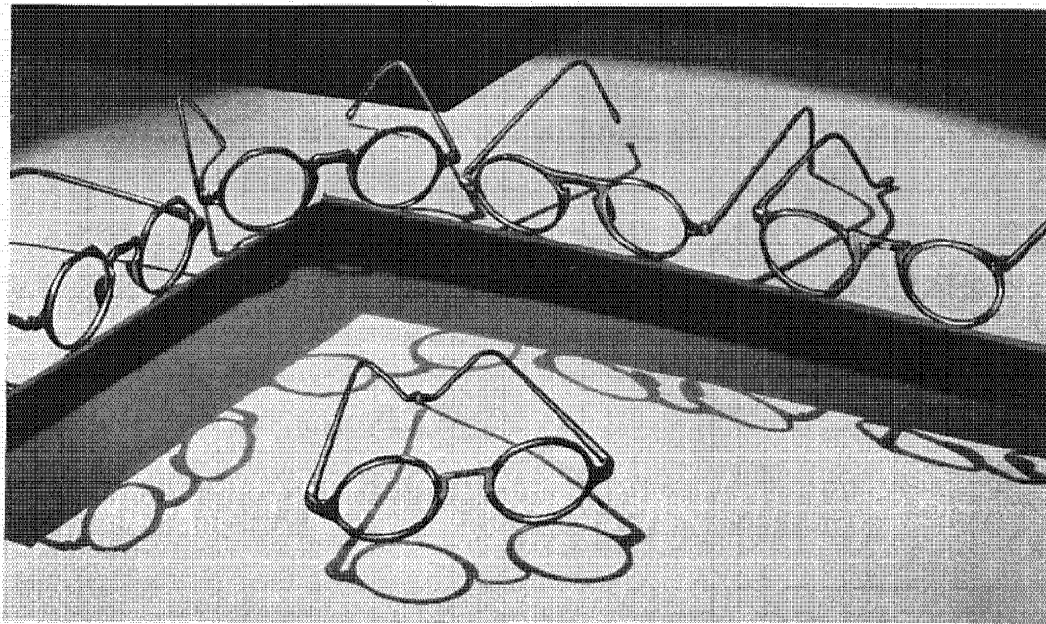
More than 2,000,000 feet of telephone and telegraph wire have been used in the structure. Add to this the electrical cable placed in service, and the total length would stretch nearly twice around the earth.

Naturally, in a building of this kind, a great responsibility has been placed on the architects, engineers, contractors and painters. Particular care has been used in the selection of all materials with a view not only to structural safety, but also to beauty and permanence. The part played by du Pont paints and varnishes is a matter of particular pride, for they have contributed their share in making this building an enduring monument to those who planned and erected it. Approximately forty thousand gallons of paint will have been used by the time the building is completed and ready for occupancy.

The Empire State Building is an outstanding achievement that reflects great credit upon the architects, Shreve, Lamb & Harmon, 7 East Forty-fourth Street; the contractors, Starrett Brothers & Eken, Inc.; the engineers, Meyer, Strong & Jones, Inc.; the steel erectors, Post & McCord, Inc., all of 101 Park Avenue, and the painting contractors, Barker Painting Company, 225 East Forty-fourth Street.



A stone worker on New York's newest skyscraper, high up in the air. The New York Life and Metropolitan Life Insurance Company buildings are seen in the background.



Just a few frames
to illustrate Fashion's
present fancies.
Any optician will
gladly show you
many more.

SPEAKING OF "SPECS"

*Eyeglass frames of Pyralin continue to meet all requirements
of comfort, style, refinement and economy*

By R. T. ELLIS

THE optical goods merchant, besides keeping up with business conditions, must follow closely the fashions of the hour. For just as style trends in wearing apparel and other personal articles are continually changing, similar influences operate to change the shapes and designs of eyeglass frames. Fashions are notoriously short lived. One can never be sure that a style in vogue will long retain its popularity. Yet clear vision is so essential and so necessary in most cases that people want these accessories to be exactly right optically and no less correct as to style.

People once thought glasses were of necessity disfiguring. That opinion may have been justified years ago, but not today, for optical frames may be obtained and fitted to suit the particular requirements of any individual. Nowadays, with a great variety of styles, designs and models available, it is easy to select glasses that are becoming as well as practical. Indeed,

we are told that some people wear glasses not so much from necessity as from choice, as a means of improving their personal appearance.

What has brought about this change? Many things, but certainly the adoption and use of Pyralin by the optical industry have been and continue to be potent style influences.

One important requisite of eyeglasses is that they shall be comfortable, particularly around the nose, ears and temples. Pyralin frames are made to meet that demand fully.

Moreover, those who wear non-metallic frames never have cause to fear skin irritations or infections resulting from their use.

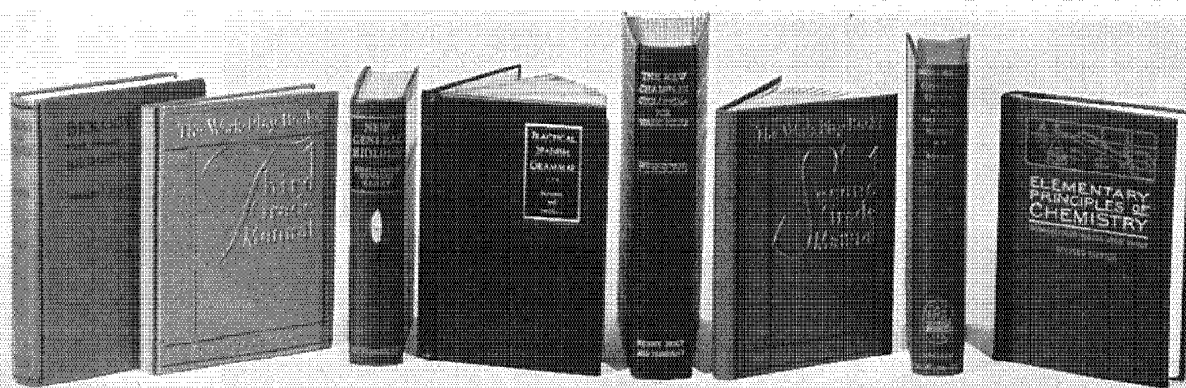
Again, these frames give needed protection to costly lenses. People who wear rimless glasses know what happens when their spectacles fall to the floor. Too often it means a cracked or broken lens. When Pyralin-rimmed glasses figure in such accidents, the lens-breakage hazard is negligible, for

the semi-flexible frame absorbs the shock of the fall.

This economy of upkeep is a point of real advantage, and it suggests another equally noteworthy. The low cost of Pyralin, compared to that of natural materials such as genuine shell, enables manufacturers to produce and sell optical frames at very reasonable prices.

Most important from the viewpoint of style is the variety of colors and color combinations available to manufacturers of eyeglass frames. The use of Pyralin in pearl effects combined with plain colors affords a sufficient range of materials to produce suitable styles for all classes of people and for all occasions. Business men, laborers, children, debutantes, sportsmen—these and many others find Pyralin frames suitable at all times.

While it is futile to say what the color vogues or styles may be in the future, one thing is certain: However drastic any change may be, optical manufacturers who use Pyralin will be able to meet Fashion's requirements as and when they appear. Today's styles are featured in some informative booklets published by leading optical concerns that manufacture Pyralin frames. Copies may be obtained by writing to the Du Pont Viscoloid Company at 330 Fifth Avenue, New York City.



School textbooks require sturdy bindings to withstand the use and abuse they receive. Those illustrated here are bound with genuine du Pont Fabrikoid, a most practical material for the purpose.

SHALL WE SAVE MONEY ON TEXTBOOKS?

*The answer to that question is and should be the
concern of every citizen*

By PAUL W. SAMPSON

NEW YORK, city of enlightenment and sophistication, spends every year on its schools \$131,000,000 — a staggering figure. Of this total, \$1,500,000 is expended for textbooks.

As the daily average attendance is 900,000, it is probable that the entire registration is not more than 1,000,000. This makes an outlay for textbooks of \$1.50 for each pupil. The total cost of his education for a year is approximately \$131.00. Textbooks represent one and one-tenth per cent of this total.

It costs the city more to maintain a swimming pool in a high school than it does to buy textbooks for the pupils of that high school.

Why?

School boards and superintendents and principals realize the necessity of good teachers and good textbooks — in adequate number. The citizens do not see this, or at least a great majority of them do not. They see the buildings, the athletic fields, the teams, the auditoriums.

Their children go every morning to a cathedral of learning in magnificently landscaped grounds, play on or

cheer for championship teams, go to dances, participate in dramatics, swim in pools, lunch in completely outfitted cafeterias, surrounded by almost everything that American wealth can provide — and sit down to their studies, in many instances, with a starvation ration of textbooks.

Why speak of over-emphasis on football, when the major folly is due to under-emphasis on the importance of textbooks in the educational scheme? Without good books and good teachers, any public hall of learning is a false front. It may be outstanding in its imposing architecture, but that means little unless the equipment and facilities for educational work are of an equally high standard.

Educators will tell you that there has been more complaint about the cost of textbooks in public schools than all other items combined. The usual line of reasoning runs something like this: "Ladies and gentlemen of the school boards, by cutting out the history of English literature and making that outside reading, by eliminating the supplementary text,

Blank's book on physics, we can save our taxpayers one mill on the dollar this year."

You have only to stop a child coming home from public school to see the result of this lame economic policy. Ask to look at the books he is carrying. Many of them will have been in use years after they should have been discarded. Many of them will be cheaply bound, ragged, disreputable looking, and totally inadequate as up-to-date textbooks, despite the efforts of school officials to get what they know is required.

School people will tell you that two things are urgently needed. These are more and better textbooks in serviceable bindings and a sufficient appropriation to maintain reserve stocks so that old books can be cast aside before they become too great a threat to the pupils' health.

Steinmetz once said that the great discoveries of the coming age would be in chemistry. Some day, chemists may be able to develop a paper that will stand immersion in a fluid that will cleanse it thoroughly of its accumulation of germs and dirt.

Chemists of the du Pont Company have already done that with du Pont Fabrikoid, which is used as a binding material on thousands of high-grade textbooks in public schools in this country. It is a scientifically estab-

lished fact that Fabrikoid is repugnant to insects and rodents. Such books, when soiled, can be scrubbed clean, for the material is waterproof. And as the cover gets a lot of abuse, there is good reason for using sturdy Fabrikoid because of its wear-resisting properties.

Nor are these its only advantages. It is less likely to pick up dirt and soil than the average cloth-covered book, and for this reason it is much safer in the hands of the pupil. It saves the expense and the annoyance of covering the cheaply-bound book with a paper jacket, which quickly becomes soiled, and, moreover, causes a great deal of confusion because the jacket hides the title of the book.

And this problem of soiled school books is something that must come under the public spotlight soon. Legislation has abolished the public drinking cup and the roller towel, because of well-known health hazards,

but as yet it has overlooked entirely the unsanitary school book which is a potential carrier of infectious diseases. The prevalence of such textbooks in many schools, which are in other respects well equipped, deserves more attention than it receives.

The magnificent paraphernalia with which the average public school student is surrounded is all very well, until it becomes so much a fetish of the citizens that they cannot see the essential educational needs in a true perspective.

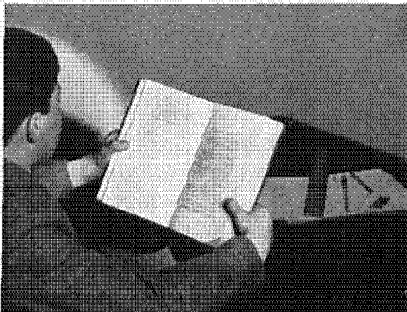
For, after all, the book is important. One picture that comes to mind is the gangling, somber-eyed young Lincoln reading by the flickering light of a log fire. There are countless other great Americans who walked over the hills to some little red schoolhouse to learn all they could from their teacher, and from the precious books that were carefully handed out and zealously checked in. In contrast to

what the child gets out of the teacher and the book, the place of study is relatively unimportant.

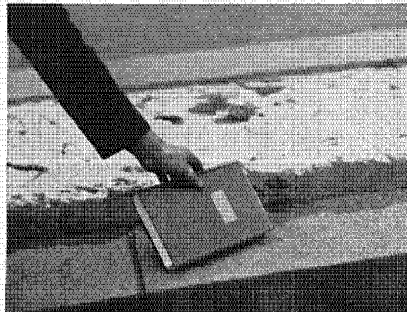
The thirst for knowledge can as well be satisfied out under the trees as in a million dollar public school building. And don't forget that Mr. Average Citizen leads in the tumult and the shouting for modern, up-to-date school buildings as a first consideration, but when the question of buying suitable textbooks for his children is brought up, he is strangely silent and seemingly disposed to regard such expenditures as of secondary importance in comparison with other things.

For the present many school officials would like to have the taxpayers make it possible for them to procure good textbooks a bit more often than once in four years—as often, say, as public pressure makes it necessary to add a new section to the football grandstand.

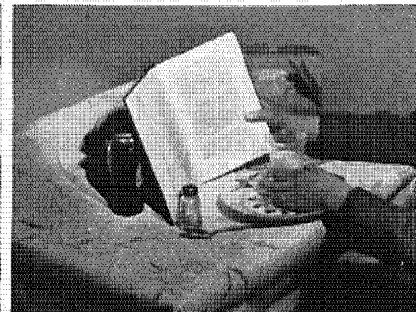
WHAT A HARD LIFE A TEXTBOOK LEADS!



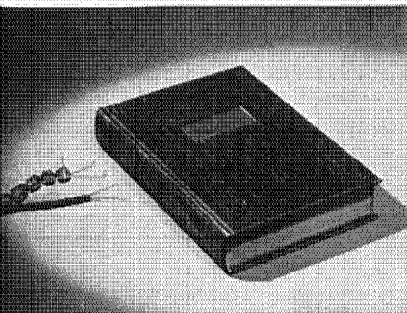
So Tommy Green has me this year. Well, he certainly made a wreck of the Fourth Reader he had last term. Oh, my back! I can see I'm in for a tough year.



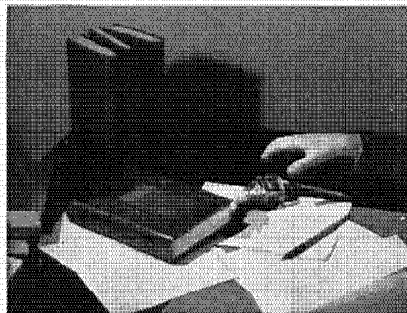
That's right, roughneck. Put me on the muddy ground and sit on me. It's your privilege. I may not be educational to this barbarian, but I certainly am useful in a number of ways.



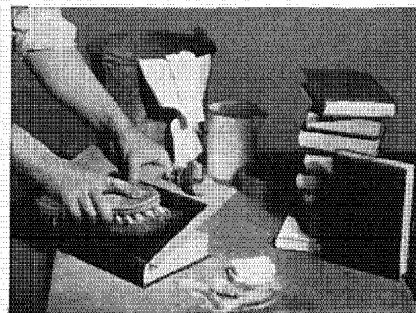
Here goes for my daily milk bath. Pity the poor sailors on a night like this! I've had my feet in so much liquid food I ought to grow webs.



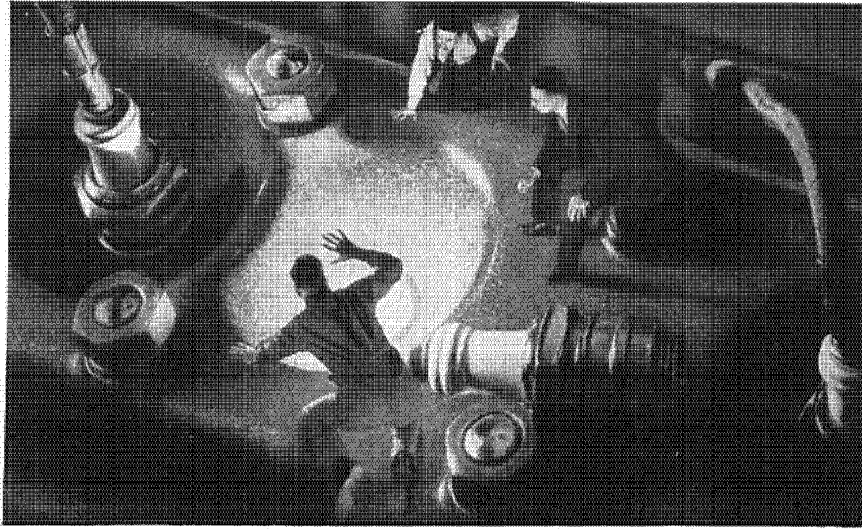
If that book tiger comes near me I'm going to kick him in the teeth. You'd think I had some repose due—hey, you, scram! My cover's Fabrikoid, and it's poison to you. That'll send him on his way.



Ink—again. I've had more to do with it this year than his nibs, the pen. The River Styx will be no stranger to me. I've been bathing in it all year. Good thing my cover is Fabrikoid.



Bear down, janitor, bear down with that brush. My cover is Fabrikoid, and it can stand the scrubbing I need. That certainly was a year of continual work-out. Hm, makes me think. I don't look so bad for the life I've led, do I now?



Does the motor of your car "knock"? There's a way to correct that trouble, for science has located the cause and provided the remedy

THE INSIDE STORY OF ETHYL GASOLINE

THE fast-moving, hard-fighting army of France had a food problem . . . "Find a way to keep food fresh," commanded the Emperor Napoleon; and Nicholas Appert discovered the canning process.

In 1819 the side-wheeler *Savannah* crossed the Atlantic under steam power, and the world said the modern age of travel had been achieved. But in John Ericsson's mind there remained the vision of improvement—a vision that became a reality after the introduction of his screw propeller.

In 1860, Wiscacres said the peak had been reached in railroad transportation. Iron rails could not stand any more weight. Locomotives could never be any larger. Then steel rails, made possible by Bessemer's converter, opened the way to further progress; opened the way to the giant locomotives of today.

In 1920 many engineers said "Automotive progress has reached its peak. Greater efficiency is possible only with

How Ethyl fluid has been developed to take that annoying knock out of motors

By L. P. LOCKE
ETHYL GASOLINE CORPORATION

higher compression and gasoline can't stand the pressure." But . . .

Engineers have always known that as you increase the compression of an automobile engine, you increase its efficiency. But years ago they found that as they stepped up the compression of engines, there resulted what the public called "knocking"—a phenomenon which symbolized power-loss, a sluggish motor and overheating.

None knew just what the "knock" was, or what caused it; but all knew

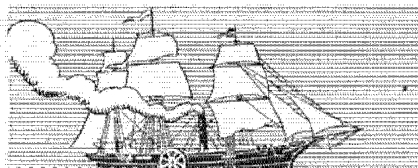
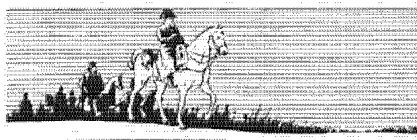
that it stood in the path of automotive progress.

It was Charles F. Kettering who found that "knocking" was caused by gasoline. He proved that gasoline can be compressed only up to a certain point. After that it explodes too quickly, wasting its force in high-velocity waves which strike against the cylinder walls and cause that metallic sound associated with "knocking."

The next step was to find something which would control the combustion of gasoline so that higher compressions would be practicable. Thomas Midgley, Jr., and T. A. Boyd, of General Motors Research Corporation, undertook that task.

They first discovered that gasoline—even kerosene—could be rendered "knockless" by the addition of certain ingredients. The first such ingredient they found was iodine.

But to be commercially practicable, an "anti-knock" ingredient must



prove itself harmless to motors. It must also be such that it can be produced and sold at a cost that will make the gasoline treated with it available to every motorist.

And so the search went on.

It lasted for seven years. In that time more than 33,000 different chemical combinations were tested in and for their effects on gasoline engines. And in 1921 there was finally born Ethyl fluid, the basis of Ethyl gasoline.

So important did the scientific world regard this discovery that in 1924 the American Chemical Society awarded Mr. Midgley the Nichols Medal.

If you could peep into the cylinders of your automobile and watch what goes on there, you would see one of the most interesting sights of the world. Engineers, with the aid of special instruments, have been able to do just that.

Let us look inside a cylinder through the eyes of an engineer. Ordinary gasoline is in the cylinder. The valves snap shut, and the rising piston compresses the charge into a fraction of the space. The spark plug throws a tiny streak of lightning, and the compressed gasoline vapor is set ablaze. Pressure inside the cylinder shoots up again—two, three, four times!—beyond the limit the gasoline will stand. What is still unburned is wasted in a furious, white-hot explosion that is known as "detonation" or, more popularly, "knocking."

Now look again. This time Ethyl gasoline is in the cylinder. The vapor starts blazing as quickly as before, but at the point where the ordinary gasoline exploded, the pressure continues to increase smoothly, pressing the piston down with a gathering force that delivers more power to the crankshaft and to the rear wheels. The Ethyl fluid in this gasoline has *controlled combustion* and checked the wasteful "knock."

That is why Ethyl makes *any* car run better and is necessary to the new higher compression cars.

Since Ethyl was discovered, great strides have been made in the development of automobile engines, particularly during the past few years. In 1925, the average engine developed less than sixty horsepower. Today, the

displacement of the average engine is not greatly different from the displacement of 1925, but it develops more than ninety horsepower. Each cubic inch of combustion space therefore delivers more work to the crankshaft.

The fact that the average compression ratio of automobile engines has been increased from somewhat less than 4.5 to 1 in 1925 to approximately 5.25 to 1 today is largely responsible for the present excellent all-round performance of motor cars.

What might be expected in the future is illustrated in a recent test. One automobile with a compression ratio of 5.25 to 1 took 18 seconds to accelerate from 5 to 45 miles per hour. An identical automobile with the same engine but 7 to 1 compression ratio took 14 seconds to accelerate from 5 to 45 miles per hour.

The wide distribution of Ethyl gasoline has made available a fuel of sufficient anti-knock value to develop the best performance of the most modern high compression engines. Many automobile manufacturers now offer standard or optional high compression engines requiring a fuel of Ethyl standard.

The Ethyl Gasoline Corporation maintains testing laboratories throughout the country. Samples of

every batch of gasoline to which oil refiners wish to add Ethyl fluid must be sent to one of these testing laboratories. There the gasoline must pass tests for distillation characteristics, corrosion and gum-forming tendencies, sulphur content and anti-knock value.

The samples must be found satisfactory in each and all of these respects before the refiner blends his gasoline with Ethyl fluid to form Ethyl gasoline. After the blending, samples of the resulting Ethyl gasoline are submitted to the laboratories for a final check before it is released for sale.

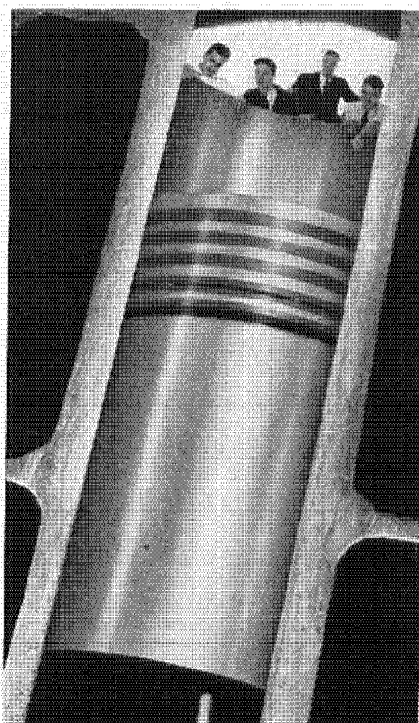
A large staff of field representatives of the Ethyl Gasoline Corporation is constantly active throughout the country, purchasing samples of Ethyl gasoline from pumps at filling stations, so that additional tests may be made to protect the quality of the Ethyl gasoline going to the public.

In 1923 it was a big day for the Ethyl Gasoline Corporation when six quart cans of Ethyl fluid were shipped at one time. A quart of Ethyl fluid is sufficient to mix about 200 gallons of gasoline. Today, a fleet of tank cars is required for shipping purposes. One tank car contains enough of it to mix approximately 8,000,000 gallons of gasoline.

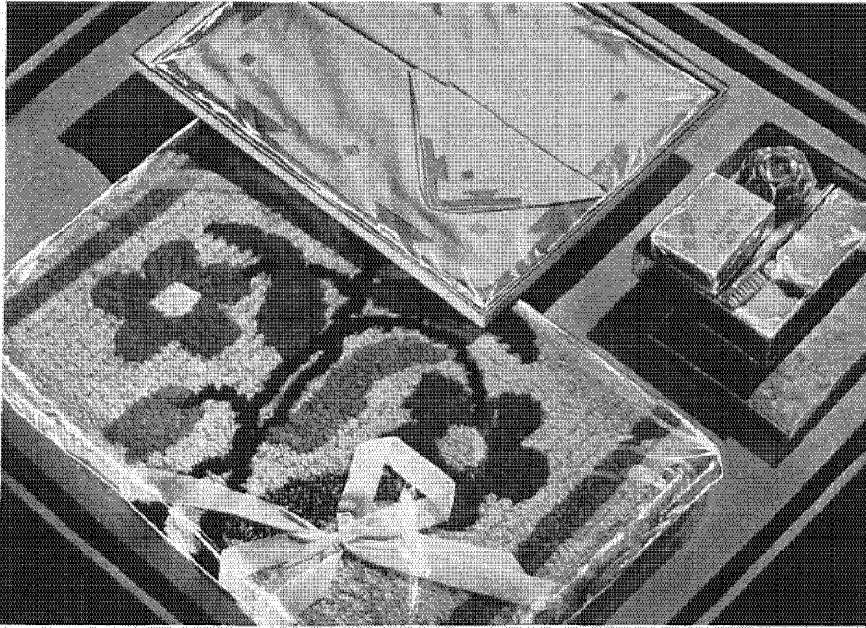
There are now 97 oil refining companies licensed to sell Ethyl gasoline. These constitute almost every major oil company in America.

Briefly, the phenomenal success of Ethyl gasoline is best illustrated by the following facts: It is sold through 200,000 retail outlets; one out of five pumps dispenses Ethyl gasoline; it is used by approximately 20 per cent of the automobile owners; is sold at the rate of nearly 6,000,000 gallons per day; and is the largest-selling motor fuel in the world.

The essential anti-knocking constituent of Ethyl fluid is tetraethyl lead which is manufactured for the Ethyl Gasoline Corporation by the du Pont Company at Deepwater Point, New Jersey.



If you could peep into the cylinders of your automobile and watch what goes on there, you would see one of the most interesting sights of the world.



In many stores you will find groups of articles like those shown here. The Cellophane wrap adds much to their salability.

PACKAGES ARE MERGING, TOO

A sound merchandising practice has developed from the theory that goods belonging together should be sold together

MERGERS are much in the public eye today. Consolidations are almost commonplace. In the package goods field, for example, many companies marketing related lines of products have merged to make possible operating economies. The trend is far reaching. Even merchandise is merging in group packages. In department stores and drug stores you may see whole families of articles attractively and effectively sealed up in Cellophane.

The accompanying illustrations show how some manufacturers are displaying their products in this way. It is an extension of the ensemble dress idea, so popular with women. Assembling related articles in a Cellophane-wrapped package is an advanced step in merchandising, because it results in economies.

For instance, it is no longer necessary for a woman to hunt through a pile of linen in competition with other shoppers to find the elusive napkin that has become detached from its

luncheon set. The Cellophane wrapping keeps all pieces intact, unsoiled, ready for use. No wonder store patrons and clerks, too, like the Leacock luncheon set which visualizes this modern packaging idea.

The Carter bath set, composed of the mat, towel, seat and footstool cover, all in the same design and color, also portrays an interesting group in its sparkling Cellophane wrapper.

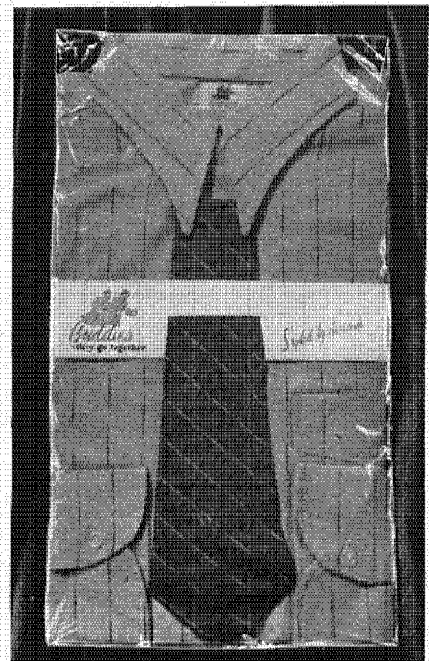
The same is true of linens, towels, sheets and pillow-cases in attractive colors, which logically belong in matching sets and may properly be assembled in one compact, easy-to-buy group.

"Buddies—they go together!"
This combination, styled by Buddick, consists of a Mack shirt and a suitable tie to wear with it

The combination of soap, washcloth and toothbrush is another one of the same order and inspiration. Each article is wrapped in Cellophane matching in color a light green box in which all are packed. It would be a shame to break up that combination offered by the Bubbles Soap Company.

Paper plates, packaged along with spoons and paper napkins, make a happy group of products for picnic requirements. Shirts and ties to match are old standbys—good at any time. And there are many other mated groups which packaging experts have combined with a keen eye for color and good taste.

This package-merger idea is an excellent one. The practice appears to have started as a means of stimulating the sale of Christmas gift merchandise, but it has become so popular that ensembles of related articles will likely enjoy a year-round sale.



KEEPING UP WITH NEW YORK'S THIRST

*A new water distribution tunnel, twenty miles long, is being
driven far under the city streets*

ALTHOUGH Manhattan Island is completely surrounded by water, residents who live in the metropolitan area realize that if their city continues to grow in population as rapidly as it did during the past decade, some day an acute water famine may be the result. While there is plenty of *aqua*—of a kind—the sorry fact is that it is not *aqua pura*. New York's problem contemplates the distant future, looks ahead to a time when almost literally there may be "water, water everywhere, but not a drop to drink."

Father Knickerbocker has been on guard against that possibility for years by carrying through plans to provide an adequate water supply well in advance of current needs. But the problem of keeping up with a growing city's thirst is no small one, particularly when that city happens to be the most populous of any in the western hemisphere.

Prior to 1917, New York obtained its water supply from the drainage area of the Croton River and from wells in Nassau County and in the borough of Brooklyn. In that year Catskill mountain water became available. In 1926 additional supplies from the watersheds of Schoharie and Esopus creeks were impounded in the Schoharie and Ashokan reservoirs, the chief collecting centers for the Catskill system. Space forbids a description of the entire system, but as an approach to an important city project now under way, suppose we trace briefly the waterflow from the mountains to Manhattan, more than 150 miles away.

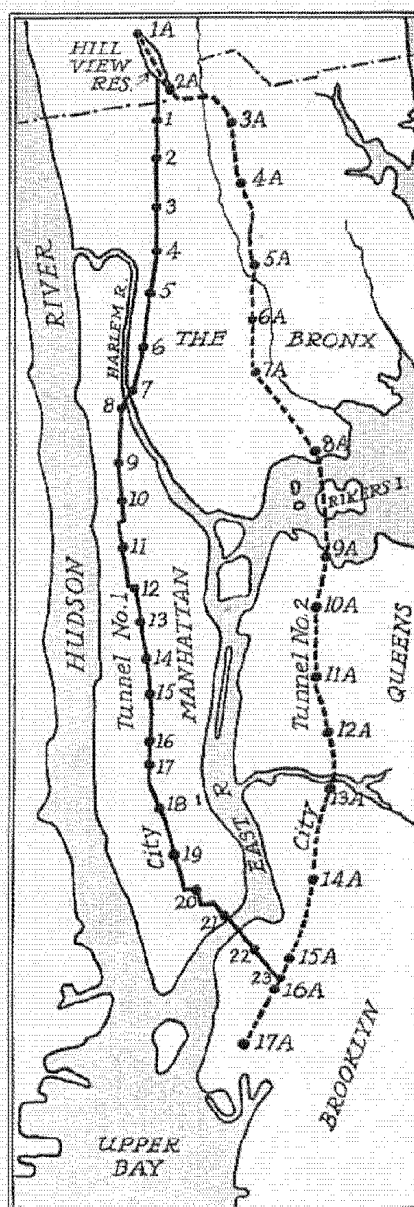
First, visualize a 20-billion gallon reservoir—the Schoharie—with its impounded waters racing southward through the 18-mile Shandaken Tunnel that empties its cargo into Esopus

Creek. Fifteen miles farther down is the Ashokan Reservoir which holds 128 billion gallons and is the northern terminus of the Catskill aqueduct. This great conduit, ninety-two miles long, has a capacity of 600 million gallons of water daily. It extends down the west side of the Hudson, dips under the river near West Point and continues on to the 29-billion gallon Kensico Reservoir in Westchester County, and thence to the Hill View Reservoir at Yonkers, just north of the New York City line. This storage basin on high ground has a capacity of 900 million gallons and from it distribution is now made into the five boroughs by means of a pressure tunnel, which is also connected by pipe lines leading to Silver Lake, the 435-million gallon terminal reservoir on Staten Island.

This sketchy outline does not do justice to the magnitude of the Catskill system on which has been expended to August 1, 1929, the sum of \$190,000,000. But at least it furnishes a background for the work now in progress which will greatly extend and enlarge the water distribution facilities in New York City. The cost of the portions of the Catskill aqueduct within municipal limits, including City Tunnel No. 1, pipe lines, appurtenances and the Silver Lake Reservoir, represents an expenditure of about \$37,000,000. City Tunnel No. 2, now under construction, will cost approximately \$43,000,000. As the accompanying map shows, this tunnel will extend

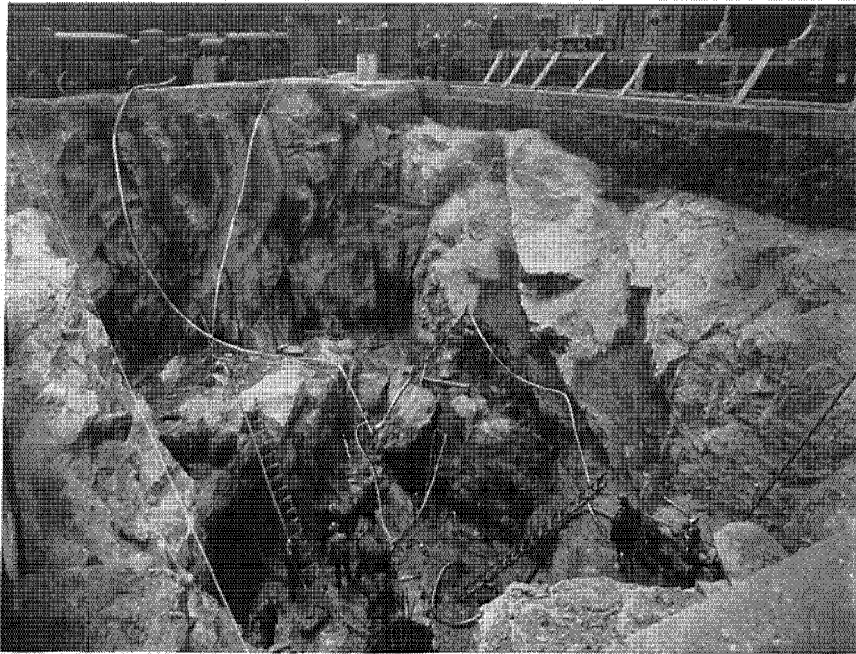
from Hill View Reservoir through the Bronx, under East River and below the southern point of Riker's Island into Queens and Brooklyn where a connection will be made with the present city tunnel to complete a loop, and a very advantageous one; for if a break should occur anywhere in either tunnel the water from one would flow around the place of trouble and prevent any stoppage of service.

Work on City Tunnel No. 2 was started March 9, 1929, and is scheduled for completion in sixty-nine months, or late in 1934. It involves sinking seventeen shafts, sixteen feet in diameter, to an average depth of

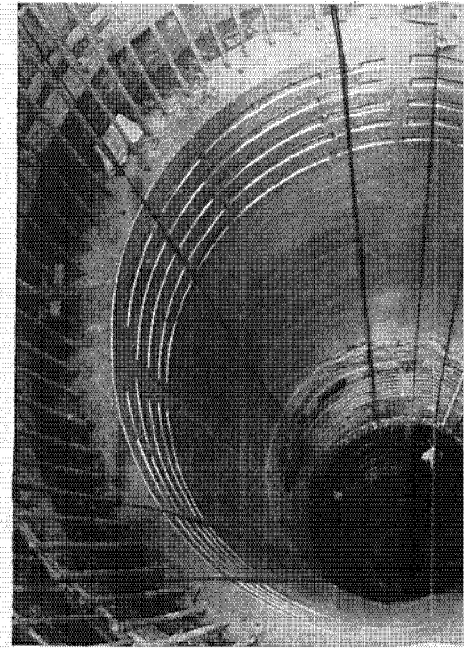


This map will help you to visualize the location of the water tunnels under New York City. Note that the shafts are numbered

VIEWS OF NEW YORK'S TWENTY-MILE WATER



Shaft sinking in solid rock, from a photograph taken during an early stage of the work. Note the drillers preparing for a shot

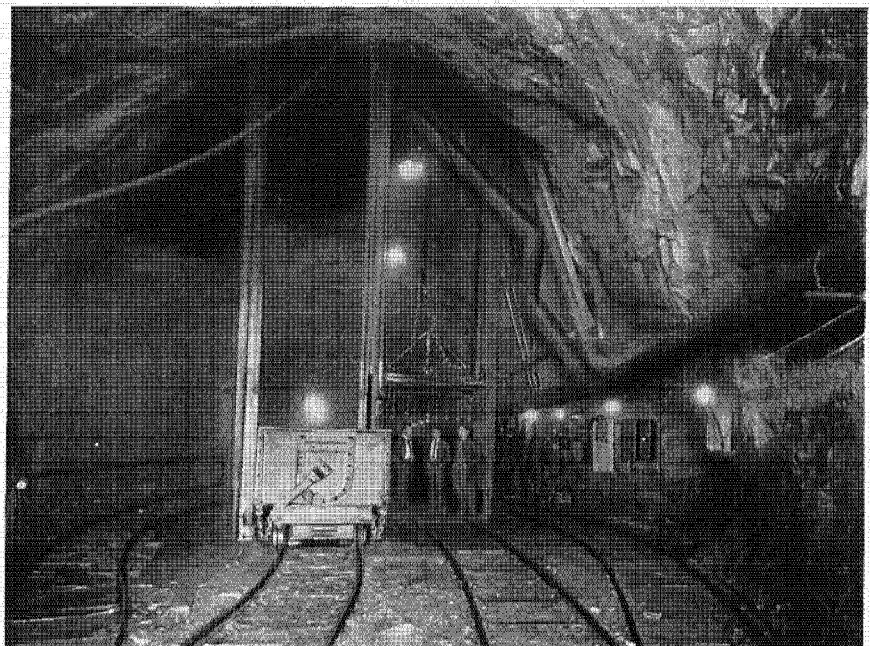


Looking down one of the seventeen shafts, which are feet in diameter. How far is it to the bottom? Well, it is more than the measured height of the Washington Navy Yard. Men and supplies down to the tunnel workings are carried up through these shafts. Eventually, these shafts will carry water from the tunnel to the surface.



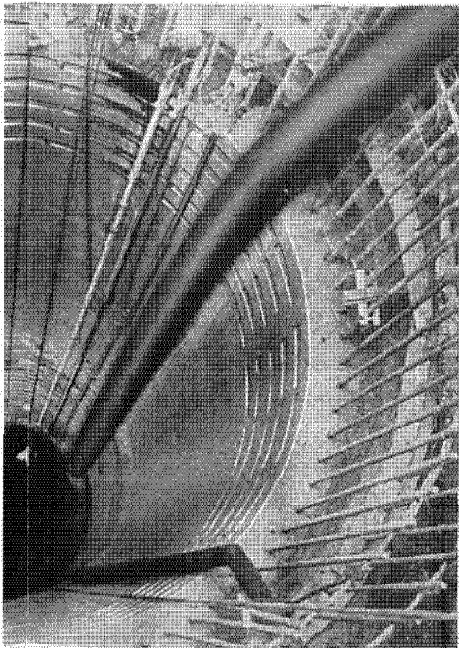
Speaking of headframes, here's one at Shaft 14-A, in Brooklyn, with a truck taking on a load of rock.

Below—One of the heavy traffic centers under New York City. This view shows the bottom of a shaft, with three men standing on one cage platform and an empty muck car in the foreground. Note the air lines leading from the shaft and the telephone and switch boxes on the wall.

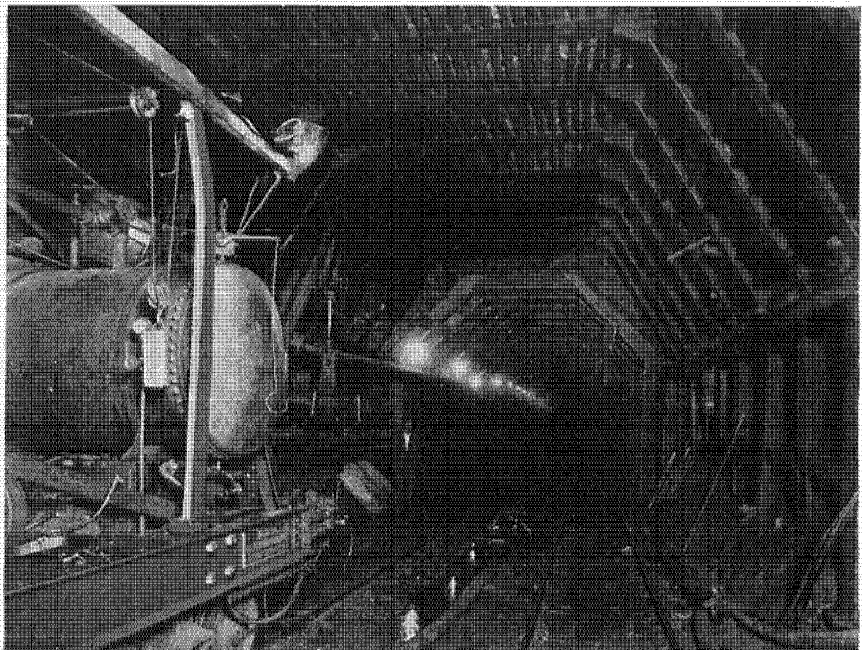


PHOTOS
BY COURTESY
OF THE BOARD
OF WATER SUPPLY
NEW YORK CITY

WATER TUNNEL FROM YONKERS TO BROOKLYN

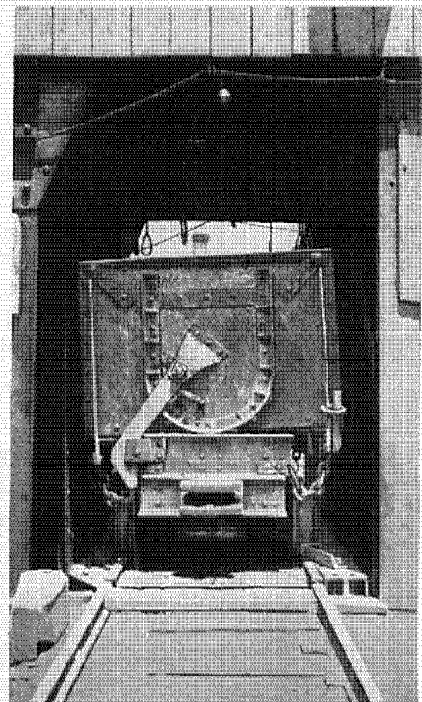
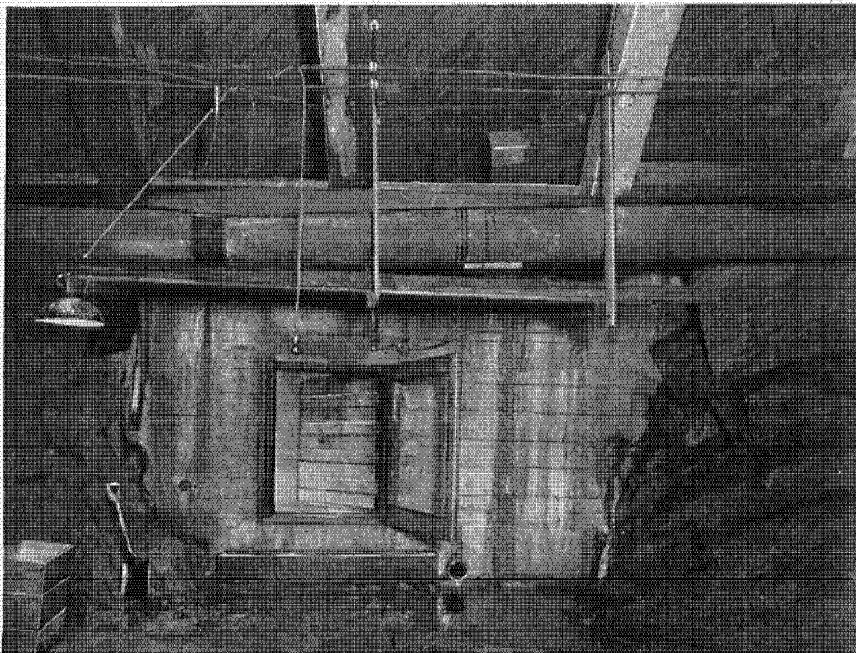


High are lined with reinforced concrete and are sixteen feet in diameter. Well, the average depth is 600 feet, which is fifty feet below the Washington Monument. Skips operated from the headframes are making 100 workings each day, and the material excavated is brought up in these vertical tubes will be used to deliver material to the city mains.



Inside City Tunnel No. 2, in a section where loose rock was encountered and timbering was necessary to support the roof.

Below—Looking toward the doorway of one of the underground dynamite magazines. These storage places are rooms cut out of the solid rock at some distance from the tunnel with indirect approaches leading to them. They are fully equipped to conform with safety regulations.



This view shows a dump car "caged" on the headframe over Shaft 6-A in the Bronx sector.



The headframe at Shaft 8-A,
at the foot of Koster Street and near
the East River

600 feet and, from the bottom of each shaft, drilling, blasting and excavating a continuous tunnel—nineteen feet in diameter in the rough, and seventeen feet when lined with concrete—all the way from Hill View Reservoir in Yonkers to Hamilton Avenue and Hicks Street, Brooklyn. This tunnel will be 105,000 feet—approximately twenty miles—in length, through which water will flow under its own pressure at the rate of 600 to 700 million gallons a day.

The present job deals with the construction of this subterranean waterway by excavating approximately 2,150,000 cubic yards of material, ninety-three per cent of which is solid rock—mica schist and limestone in the Bronx sector and gneiss in Astoria, Queens and Brooklyn.

Tunnel headings are advanced in both directions from the bottom of each shaft. The drilling and blasting crews, battling through the rock, approach other crews working toward them from the adjacent shafts to the north and south. And when they meet, a complete section of the tunnel is excavated. This work is of course carefully supervised and directed so that a true alignment is preserved.

As might be expected on a project of

this kind, a great deal of water was encountered. Timbering is resorted to wherever scaly rock requires support, and it does in some places, as one of the accompanying illustrations shows. Even at a depth of 600 feet considerable timbering is necessary. But as a rule, steady progress can be and is being made by the top heading and bench method. The drillers prepare a round of fourteen-foot cut holes with twelve-foot relievers in one heading, while the blasters, muckers and other rock handlers are busy in the other, so that by an alternating system continuous operation is possible.

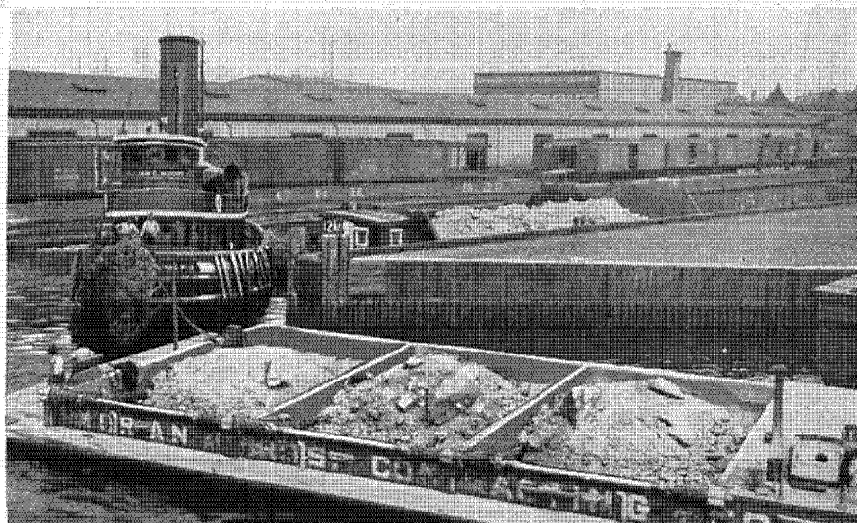
A large quantity of du Pont dynamite and blasting accessories has been required in the excavation work, which is now well along toward completion. Before the tunnel is finished, however, it must be lined and that task will require the use of 600,000 cubic yards of concrete. Aside from the extra support this lining will give, it will insure a smooth, clean tube through which the water may flow with a minimum of friction. People who marvel at the great masses of concrete poured into New York's new skyscrapers will be interested to know that 600 feet below the city streets an excellent use will be found for 1,500,000 barrels of cement.

Much credit is due to the engineers

of the Board of Water Supply and to Patrick McGovern, Inc., for the excellent progress made on this \$43,000,000 project. Incidentally, the contract for this work is the largest ever awarded to an individual contractor in Greater New York.

Entirely new equipment was brought to the task—Osgood air-mucking shovels; General Electric 7-ton locomotives of the wet-storage type to haul muck from the headings; drills made by the Chicago Pneumatic Tool Company; compressors from the same source and from the Ingersoll-Rand Company, new railroad iron, new headframes, new elevators—two in each shaft; in short, a new plant throughout. And nothing was omitted that would serve to safeguard the workmen both above and underground, for "Safety First, Last and Always" is the McGovern slogan.

With this new mechanical equipment, plenty of explosives and the "know how" that comes from long experience in the contracting business, it is not surprising that this smooth-running organization with its 3,000 employes has accomplished a vast amount of work during the past two years. Eighteen months hence, if all goes well, they will have completed their task, and Catskill mountain water will be more widely distributed than ever before. This tunnel is well designed to carry its precious cargo and is part of a broad program of development to anticipate the water requirements of Greater New York for twenty years.



At the Clinton Street wharf where
bargeloads of rock from the tunnel are towed
away to the dumping grounds



Hours of time you once spent in polishing your car can now be utilized in some other way, for the new Speed Blend works in a jiffy.

POLISH YOUR CAR— AND SMILE

*That's easy to do, if you use Speed Blend, the new,
fast-working No. 7 Duco Polish*

By M. P. PARSONS

Not many years ago one way to discover the complete range of almost any man's vocabulary was to get some member of his family to suggest on a Saturday afternoon or a holiday, "Let's polish the bus." The various polishes then available depended so largely on "elbow grease" for success that it was indeed an ordeal to use them. And even if Johnnie, Mary and Mother herself said, "We'll help," usually they soon wearied and it remained for Dad to do the entire job alone, or finish the hood and a fender or two and let the rest go as a bad job.

Then the first No. 7 Duco Polish came along and life became decidedly more bearable. This polish produced a superior luster with considerably less effort than was formerly required. But the du Pont Company wasn't satisfied. Chemists in the laboratory went ahead with research work. Extensive tests were carried on.

Many new formulas were tried out and finally the better product was developed.

Now du Pont has formally announced Speed Blend, the new, fast-working No. 7 Duco Polish, which makes it much easier to restore the beauty of your car—and you can smile while doing it. In fact, it's hard to polish a car with Speed Blend and not smile; it does the trick so well.

Du Pont chemists—the same ones who discovered Duco—developed this new product in the first place for use at auto polishing stations where saving of time and labor, in addition to first-class results, are extremely important. They packed it in gallon cans only and called it Speed Blend—No. 7 Duco Polish, because it cleaned and polished so quickly.

Speed Blend made such a tremendous hit with the trade that it was finally adopted as the standard No. 7

Duco Polish and is now available to the car owner as well.

It is for use on Duco, lacquer, baked enamel, varnish and all automobile finishes. It gives excellent results on furniture finishes also, and on chromium. It is entirely safe to use even on the finest radio cabinets.

In the home, housewives find it particularly useful. They have discovered it easily takes off sticky finger-marks kiddies always leave on furniture, woodwork and various polished surfaces. Just rub a little of the liquid vigorously over the surface, let it dry and then wipe it off with a clean, dry cloth. This removes all dirt and grease, restoring the original color and luster of the finish. It leaves a dry, hard, brilliant polish that sheds dust.

Speed Blend is particularly effective in removing traffic film, made up of oily, sticky particles of dirt which are constantly settling on your car—in the city streets, on the country roads, and even in your own garage. These particles collect dust, and are baked together by the sun and the heat into a hard, dull film which soap and water cannot remove. It dulls the color of the finish, hides its luster and makes the whole car look old and shabby.

Under the ugly, soap and water-resisting traffic film, the Duco finish of your car is as bright and smooth as when the car was new. Speed Blend whisks off the film with amazing ease, and the change from drabness to gleaming elegance is made with little effort. It indeed offers speed and ease in bringing back that showroom finish to any car. There never yet was a polish that worked so fast, so safely, and with so little effort.

Speed Blend makes all cars shine—and all men smile who use it.

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Vol. XXV MAY, 1931 No. 5

FOREST FIRE PREVENTION

AN ash tray in every automobile, "garbage" service for the woods, a "showboat" on wheels, wild life movies and other novel means are being used or suggested in a nationwide campaign to "fight forest fires before they happen," according to an announcement by officials of the American Game Association.

Anticipating a continuance of dangerous fire hazards, due to a mild winter following the long drought, most states are reported to be pushing fire prevention programs and legislation.

Pennsylvania seeks to outlaw the careless tossing of cigarette and cigar butts from vehicles on the highways, which causes a majority of avoidable fires, and the conservation department of Michigan is urging that every cross-country car be equipped with ash trays.

The Wisconsin department is backing a move for the proper disposal of "slash" or timber trimmings left in the woods by loggers.

"Showboat," a novel lecture truck of the U. S. Fire Service, has commenced its tour of the Pacific Coast region to promote forest fire prevention. The forest service is also sponsoring the distribution of motion pictures portraying forests "before and after," and showing the ravages of fire upon wild life.

Michigan has redoubled efforts to extend its network of forest firelines and telephone wires. Already that state's 16-foot fire-stop lanes, cutting through twelve state forests, would

stretch half way across the continent, and its telephone lines, connecting 150 fire towers, would reach 500 miles.

Nearly every state is equipped with modern fire-fighting trucks and other facilities, and can impress any able-bodied citizen into service.

Any measures that will stop forest fires before they start are to be commended and should receive the support of all right-thinking people.

NEW TAPE MADE FROM CELLOPHANE

A NEW transparent adhesive tape has just been placed on the market. It is called Scotch Cellulose Tape, is made from Cellophane, and was perfected by the Research Division of the Minnesota Mining and Manufacturing Company of St. Paul, Minnesota. It will adhere instantly, without moistening, to any clean, dry surface. The tape will not transmit tastes or odors to food products. It can be used for sealing Cellophane-wrapped cakes, cookies, meats, candies, fruits, textiles and many other products.

Because of its transparency, it makes an attractive seal for the package, and, due to its adhesive properties, forms a tight and uniform seal. Used for sealing Cellophane windows in display cartons, it is said to prevent distortion and breakage. It may also be used to repair torn blue prints, drawings, maps, book pages, sheet music and the like.

Scotch Cellulose Tape is available in colors for decorative effects on lamp shades, novelties, art goods, window trimmings, sealing gift packages and other decorative uses, and is especially suitable in this field because of its permanent high gloss.

This new tape is sold in 72-yard rolls, with widths varying from one-quarter of an inch to two inches.

MANY MILES OF NEW ROADS

ROAD building in the United States should reach its height this year, according to *The Earth Mover*. The Federal Aid roads scheduled to be

built in 1931, we read, if placed end to end, would encircle the earth at the Equator. Their cost will approach a billion dollars, and it is estimated that 300,000 men will be employed in the work. These figures are exclusive of eleven states from which estimates could not be obtained. Nine thousand of the 25,000 miles scheduled will be hard-surfaced roads.

A USEFUL CHART

"BRANDS of du Pont Explosives and Uses to Which They Are Adapted" is the subject of an *Explosives Service Bulletin* recently published by the du Pont Company. This is the seventh edition of a chart issued to aid users of explosives to select those that will give the best results in proportion to their cost and to determine the relative suitability of the various types for different kinds of work.

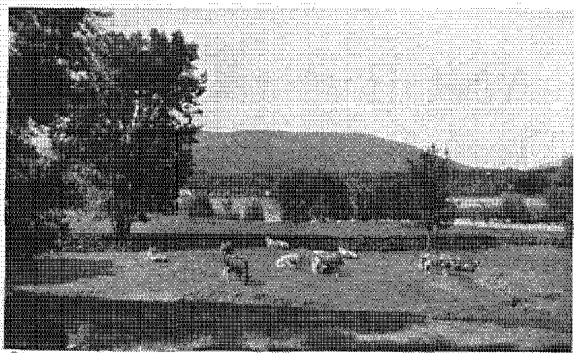
The chart has been revised to include new explosives added to the list of du Pont brands during the past year. Among these, attention is called especially to Gelex, Duobel No. 4, and the low-velocity du Pont Extras.

If this bulletin would be helpful to you, write to the Advertising Department at Wilmington for a copy.

DYESTUFFS BY DU PONT

PORCELAIN pots, glass rods, textile yarns in a dye bath make up the pictorial pattern of this month's cover illustration, which is not scenic but rather is symbolic of an important du Pont industry.

This equipment is used at the Technical Laboratory at Deepwater Point, New Jersey, where dyestuffs are tested each day for quality and uniformity of color. The pots on the table actually extend below the surface into a tank containing a superheated liquid. Carefully weighed quantities of yarn are immersed in the dye bath which is scientifically prepared. After the operation the yarn is removed and dried. Its color must match the standard in all respects. Du Pont dyestuffs well sustain the company's excellent reputation as a manufacturer of quality products.



© PHOTO BY GEORGE F. BLADE

SUNNY MEADOWS FARM PHILOSOPHY

By THOMAS DREIER
MELVIN VILLAGE, NEW HAMPSHIRE

A MAN remembers a young French girl who carried an autumn leaf for miles to give him because she thought he was fine enough to appreciate such a gift. He gives thanks that he reacted in the right way. His experience tells him that the whole world is filled with people who carry such gifts around with them, who really want to do us good, who want to help us. Of course, we play our various foolish parts. We pretend at times to be wicked, or hard-boiled, or brutal, but the truth is, we are for the most part little boys and girls playing at making sand pies and enjoying the sunshine and laughter.

Billy B. Van Has Heaps of Fun

If the king in the old story who was told he would never be happy until he wore the shirt of a perfectly happy man lived today, he would find his happy man at Newport, New Hampshire. You remember in the story when the happy man was found he didn't have a shirt to his back. But Billy B. Van, once a Broadway star comedian, is as happy as the day is long, manufacturing and selling his "solidified sunshine," which he calls his Pine Tree Soap. Back of all that is a great story.

When Billy was a youngster he had tuberculosis. He was going to die. Everybody said so. His company had

to leave him behind in Boston. Billy stayed in his little hotel room and coughed. But the hotel man was a Good Samaritan. When he found out about Billy, he had him moved into a large, sunny room. Mrs. Landlord saw that he had the food he needed. Billy's morale got better. Then one day the hotel man took the actor up to George's Mills, New Hampshire, and showed him an old house and a great pine grove.

"I have an option on this place," said the hotel man, "but I don't need it and you do. I'll finance the purchase for you and you stay here until my doctor tells you you can go back to work."

Well, to make a long story short, Billy stayed there all summer. He loafed in the sun, slept under the pine trees, smelled the pine tree odor, and got back his strength. Year after year he worked on the stage during the season and then rushed back to the pine woods for his vacation.

Today, he is sixty years old—if you can associate the word "old" with a man so youthful in spirit. He married at fifty, is the father of three husky children, ages four, five and six, and has built up a business that keeps him thrilled all the time. He goes about the country lecturing before business organizations, and if you haven't heard him, you've

missed a real show. Billy B. Van, first of all, is a great showman. He stages things. He thinks that his audience must get something they want from him. And they certainly do. His listeners howl with laughter until they are sore, and then they go home and think for days about his homely, sensible, inspiring philosophy.

Billy has lived a full life. He has faced death and laughed at it. Today, at sixty, he is one of the youngest men in the country. He is good medicine for all of us.

If he could win that fight against such odds, why can't we win our little fights against our little odds?

The Dynamite Picture Held Them in Their Seats

LAST month Director John Kendall of the agricultural experiment station at the New Hampshire State University and head of the extension service asked me to talk to the fifty-three members of his staff. Although my talk and the question and answer period did not end until late in the evening, not one of my audience left. What they stayed for, of course, was a motion picture film. There were a hero, a heroine, a villain, a county agent, a number of farmers, a drainage ditch that had become clogged up, and a lot of dynamite. The villain had mortgages on two farms that were unproductive because of poor drainage. By keeping them unproductive a while longer, he thought their owners would be unable to pay their mortgages and the villain would have their places. The hero, desirous of helping the community as a whole, interested himself in the matter. He went to the county agent, who explained what inexpensive dynamite could do. No expensive dredge was needed. The county agent was right. With a little cooperative work the ditch was opened up, the hero married the heroine, the villain was foiled, and all of us who looked at the picture had an enjoyable as well as an instructive time.

Good work done by a grumbler loses some of its goodness.

ACCIDENT INSURANCE BY THE YARD

*Statistics of casualty companies show that even in
your home it pays to "watch your step"*

By F. W. HOTCHKISS

HOME is a good place to get hurt. When one considers the many dangers incidental to modern living, and the deaths and injuries from accidents, one's thoughts instinctively run to train and automobile accidents, or to the perils of the city streets.

Little do we realize what insurance statistics show—that one of the most common places for getting hurt is right in our own homes. In the insurance companies' classification of accident claims paid on policies, mishaps in the home rank second in amount to automobile accidents.

Without a doubt, carelessness is the principal cause for accidents in the home, but this may be either thoughtlessness of one's actions or negligence in permitting unsafe conditions to exist. Unsafe conditions are not always obvious, and unfortunately in many cases they are assumed to be unavoidable.

There is no more outstanding example of this than the hazard of a hardwood floor and a slipping, sliding rug. Knowing that an unwary step may result in a serious fall, many of us are nevertheless content to let this condition exist and to take a chance. Those who have paid the price for carelessness know best how serious may be the consequences.

It is astonishing what a large number of such accidents happen every day, and the serious results that can follow from what is so often regarded as an unavoidable condition.

One of the largest accident insurance companies in the country recently made an analysis of claims paid on home accidents, with surprising results. It was found that during a period of approximately eight years, from 1922 to the present date, the company had paid a total of 4,676

claims, amounting to \$511,258, as a result of deaths or disabilities resulting from falls on rugs.

This report by a single company suggests that the total number of such claims for all companies must be astonishingly large. It has been impossible, to date, to obtain individual figures of all the various accident insurance companies. However, the report of the one company mentioned speaks for itself.

The most unpardonable thing about accidents resulting from slipping rugs is that they can be so easily prevented. Because of the construction of the majority of rugs there is but little frictional resistance between their underpart and the floor. The result is that, unprotected, they will slide, slip and creep at the slightest provocation. And this is an unsafe condition in any home, particularly for children and elderly people. This is true whether the floors are waxed, varnished or oiled.

But such a hazard can be very easily overcome by protecting the rugs with a rug underlay such as du Pont Rug Anchor. This is a specially-coated whipcord, which, when laid coated side down under a rug, will hold it securely in place. The coating of du Pont Rug Anchor has a frictional resistance that prevents a rug from slipping on the surface of the floor, no matter how smooth or how highly polished it may be.

When du Pont Rug Anchor is laid under rugs, it will hold them securely in place. They cannot slide, slip, creep or wrinkle. They will always lie smooth, even when being vacuum cleaned. No fasteners of any kind are required. Neither the floor nor the rug is harmed or marred in any way. All that is necessary is to cut the



Rug Anchor slightly smaller than the rug to be protected, lay it coated side down under the rug, and you will have no more trouble from slipping or sliding.

Du Pont Rug Anchor is available in two grades—regular and de luxe. The former has a black face and is built on a black and white whipcord back. The latter has a green sponge-rubber surface, and is built on a green and white whipcord back. Both grades will hold the rug securely in place, but of the two the de luxe has a relatively longer effective life. In addition, it has a soft cushioning quality that is so desirable under certain types of rugs.

Considering that the menace of a slipping rug can be so easily eliminated, you owe it to those near and dear to you to protect them from such dangers.

Du Pont Rug Anchor is obtainable at the better floor covering stores throughout the country. To interested readers who wish to try out the effectiveness of Rug Anchor in their own homes, we shall be glad to forward a sample—approximately 27 by 54 inches, enough to protect a small scatter rug—at a price of \$1.00 for the regular grade and \$1.35 for the de luxe grade. Only one piece can be forwarded to the same address at this special introductory price.

Address all inquiries or sample orders on Rug Anchor to E. I. du Pont de Nemours & Company, Inc., Fairfield, Connecticut.

RAYON BRINGS SPRINGTIME TO THE HOME

Toile de rae and cord de rae—new drapery fabrics—offer possibilities for interesting combinations

By ROSE WARREN

Now that spring is here and all outdoors is brilliant with new greens and vivid reds and yellows, the winter warmth of fireside colors seems stuffy. This is the time of the year when rooms should be as live and fresh as the spring itself; when airy colors and crisp, clean textures recreate indoors the beauty of the new-born scene.

New fabrics for spring curtainings are delightful, and toile de rae from Witcombe, McGeachin & Company is especially so. It is of chintz weight, and like chintz it has a lustrous surface. But this luster is soft and glowing, and best of all, it is permanent. Your toile de rae may be laundered again and again and the gleam of its rayon texture will still be there.

The wisteria and lilac pattern, a delicate rendering of two delicate blooms, is in finely shaded but pure colors. At the windows it is wonderful to behold, the texture of the material giving an airy effect to the pattern and casting a silver sheen over it. The snowball pattern, also on toile de rae, has a shadow effect in the background which gives depth to the

design. An unusually interesting toile after Boucher shows a charming classical grouping of shepherds and maids against a background of rich green trees.

Plain toile de rae to match these prints is also available in a range of twelve colors.

Cord de rae is a sister texture. It is heavier and slightly ribbed. For more formal effects, in rooms which do not permit the fragile loveliness of toile de rae, cord de rae is perfect. It, too, may be had printed or plain, the colors of the latter harmonizing with the prints.

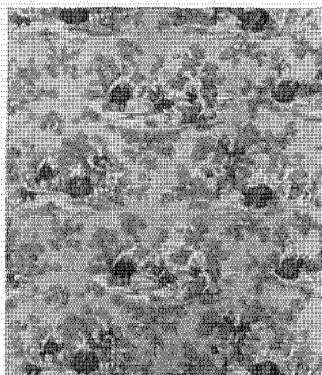
So many interesting and delightful combinations are possible with these new materials. Cord de rae may be used for almost any type of bed—for boys' rooms in tailored styling or for more feminine types, French in effect. The prints in complementary colors may be used for draperies. Slip covers of plain toile de rae correspond in color with printed drapery materials, for living rooms or sun rooms.

Let the de raes bring springtime into your home!



The newest toile de rae patterns. From top to bottom—wisteria and lilac, snowball, Boucher, fleurs Français, orchids

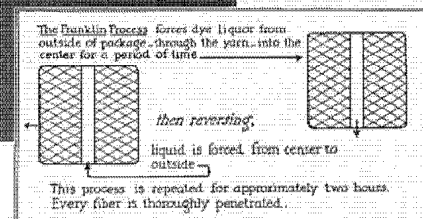
Two patterns in the more formal cord de rae. Roses and ferns, and Jacobean





Left—Franklin Process machines loaded, before and after dyeing

Below—A graphic explanation of the dyeing process



WHAT BUYERS SHOULD KNOW ABOUT DYES

Describing one of the most successful methods of yarn dyeing and the color fastness of the various types of dyestuffs

By G. T. METCALF
FRANKLIN PROCESS COMPANY

THE coloring of fabrics is accomplished in three principal ways—yarn dyeing, piece dyeing and printing. In this article we are concerned with a process which has been developed especially for yarn dyeing—the dyeing of thread that will be woven later into a multitude of fabrics.

Let us suppose you were asked to dye an unbroken thread—several miles of it—a certain “fast” shade which *could be guaranteed* and which had to be exactly the same tone and depth throughout its entire length. Suppose, in addition, the yarn, after dyeing, had to be soft, untangled, as strong as it was originally and read-

ily available for use in all types of looms. Then, finally, suppose it is imperative that the dyeing operation be carried out in compact equipment and most economically. Presuming you were confronted with these rigid specifications, just how would you accomplish the task?

It so happens that this problem in some form has faced the dyers and weavers of textile fibers ever since the first fabric was woven. The dyeing of extremely long yarns, such as are necessary for the warps and fillings of modern textiles, presents a great many technical problems that are exceedingly difficult to solve.

One of the most successful pieces of equipment developed to date for this purpose is known as the Franklin Process package dyeing machine. At its best it allows a yarn dyer to comply with all the restrictions set forth earlier, producing any desired shade of any degree of fastness perfectly uniform throughout.

The secret of the success of the Franklin Process is to be found in the core of the spool on which the yarn is wound before being placed in the dyeing cylinder. This consists of a flat, spiral spring covered with a strong cotton tubing on which the undyed yarn is wound. The larger sizes of these spring cores are six or nine inches in length, and on them thousands of feet of warp or filling thread can be wound.

These cores are hollow, so that when wound and ready to be dyed they can be placed, end on end, over a feedpipe that is perforated with holes throughout its length. Through these holes the dye solution is pumped out through the yarn. It is

this spiral spring core that equalizes the pressure throughout each cop, or wound core, and so prevents uneven dyeing of the thread.

The dyeing operation is easily accomplished by placing on one or more feedpipes the specified number of cops, which are then all forced snugly together by top plates. The dyeing cylinder is next closed and sealed at the top, after which the dyestuff solution is pumped into it through the perforated feedpipes and so out between the windings of the spring core and through the cops. After a few minutes the flow of the dye solution through the yarn is reversed so that it is forced from the outside of the cops and back through them into the feedpipes. In this way, with frequent changes in the direction of flow, the wound cores holding these great lengths of thread are evenly and quickly dyed. The Franklin Process is therefore a comparatively simple but ingenious process for yarn dyeing.

As can be readily seen, the dye-stuffs that are to be used in the Franklin machine must comply with rigid specifications. They must be completely soluble; they must be absorbed uniformly by the yarn; they cannot exhaust too rapidly and yet they must have a high degree of affinity for the fiber. They must be fast. A great amount of costly research has been carried out by the du Pont Company so that the Franklin Process Company and its licensees could be supplied with the best possible colors for this exacting job.



Fast color identification to buyers is provided by means of the Franklin Process Buyers' Directory—a page from it is shown at the right—and the label, seen above

The fact that the dyestuffs used are completely soluble and uniformly absorbed by the yarn, coupled with the intimate contact between the dye liquor and the yarn which is supplied by the Franklin Process equipment, produces *complete penetration* of the yarn by the dyestuff. This is essential when color fastness is an important consideration, for the fastest colors may give very unsatisfactory results when improperly applied.

But "fast," as used in the textile trade today, has a very elastic meaning, not necessarily because there is any intent to deceive but because the definition has never been standardized. For instance, there are so-called direct fast-to-washing colors which are not fast to bleaching, and which often have poor fastness to *light*. There are also so-called direct fast-to-light colors which are not fast to bleaching and which may have poor fastness to *washing*. Even some colors which are fast to chemic bleach may have relatively poor fastness to light.

Because of these conditions, when

Representative Fabrics and Garments Containing
Franklin Process Colored Yarns

SOLD FACE ratings indicate Fabric Setting the President Program Plus Color Guaranteed Label

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FARGOSON & CO., INC., 224 Summer St.

Curtains and
Cordaina Fabrics

FAIRCHILD & COOL, INC., 174 Summer St., Boston, Mass.
Also: 100 Ave. des Arts, New York City
★ *"Shaped Screen"* Mangetex, nylon, flame-retardant yard goods and
the fabric.

FELTON MFG. CO., Fishersville, N.C.
★ *Fancy curtain fabrics.* *Not* in contracting and retail stores.

FENNELL MFG. CO., Inc., 73 North St., New York City
"Color Bright Colors," nylon, mangetex and nylon knit rayon stitching.

LATH F-RALL & CO., 753 4th Ave., New York City
★ *Clipped-top mangetex and other curtain fabrics.*

FLOWER MFG. & COMMERCE CO., 34 North St., New York City
★ *Mangetex.* *Not* window shades and manufacturers.

W. H. LANEY & CO., Inc., 529 Broadway, New York City
★ *Mangetex.*

MARINO MFG., 32 W. 18th St., New York City
★ *Curtain fabrics plus window shades, dress fabrics, upholstery fabrics, and
linings.* *Sell* manufacturers and jobbers.

MARLOW SHAW, 32-36 W. 18th St., New York City
★ *Clipped-dot mangetex.* *Sell* in curtains, window shades, etc.

MARSH TIERP CO., 812 Washington St., Waco, New Jersey, Mass.
Branch office: 415 Fifth Ave., New York City
★ *"Jazz design"* curtain, mangetex, nylon, tulle. *Sell* department stores
and jobbers.

MIRNE, DENWELL, HORT & CO., Tarrytown, Mass.
★ *"Madison"* nylon. *Sell* in large retailers and jobbers.
Branch office: 199 Fifth Ave., New York City, 95 Channing St., Boston,
Mass.; 113 So. Dearborn St., Chicago, Ill.

NATHAN & COHEN CO., INC., 40 Leonard St., New York City
★ *Fancy curtain fabrics.* *Also* dress goods. *Sell* wholesale and retail
in many manufacturers.

REARFORTH 221 W. Adams St., Chicago, Ill.; 118 Spruitone Trust
Bldg., 441 Lonsdale, Mass.; 32 Walling St., San Francisco, Calif.; 511 So.
Branch Bldg., Los Angeles, Calif.

When visiting in person, based on the above, the Director, Federal Bureau

a buyer purchases colors as fast, unless he has some dependable means of fast-color identification, he is apt to be misled.

So the question arises, "Who is best fitted to provide the buyer with a dependable means of fast-color identification?" If approached from the standpoint of who knows the most about dyes, unquestionably it is the dyestuff manufacturer. But he is not in a position to guarantee the fastness characteristics of the finished fabric in which his dyes may be used, because he neither selects nor applies the dyestuffs to the fabric. The care with which dyes are applied to the fabric has a direct bearing upon the color fastness of the finished material.

(Continued on page 24)

THE VARIOUS TYPES OF DYES AND THEIR FASTNESS CHARACTERISTICS

TYPE OF COLOR	HOME WASHING	LAUNDRY	LIGHT	SLASHER SIZING	BLEACHING (CHLORINE)	CROSS DYEING	MERCERIZING
1. Vat.....	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
2. Naphthol...	Excellent	Excellent	Very Good	Excellent	Excellent (not good to peroxide)	Excellent	Excellent
3. Developed...	Good	Fair to Poor	Poor	Excellent	Bad	Good	Good
4. Sulphur....	Good	Fair to Poor	Good	Excellent	Bad	Good	Good
5. Basic.....	Poor	Very Poor	Very Poor	Require extreme care	Bad	Bad	Bad
6. Direct.....	Good in Light Shades Poor in Heavy Shades	Poor	Some Poor Some Very Good	Good in Light Shades Heavy Shades require care	Bad	Bad	Some Good

The numbers on the left indicate the price class, No. 1 being the highest priced, No. 2 next, and so on.

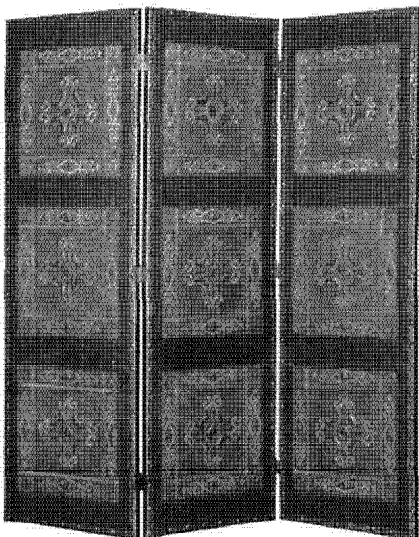
DECORATIVE SCREENS FOR CORNERS

THERE are certain corners or nooks in every home that do not lend themselves well to a satisfactory scheme of decoration. Perhaps a radiator offends the eye, or there is something else that has to be hidden from view.

Whatever may be the matter, some piece of furniture must be placed there—first, to overcome the difficulty, and second, to complete the grouping and harmonize with the general decorative scheme. When in such quandaries, women have invariably turned to the decorative screen.

Screens today, unlike those of the Louis XIV and Louis XV periods when they were used principally as pictorial additions to a room, are really beautiful pieces of furniture. They are made with the purpose of harmonizing with the pieces already in use, no matter what the form or period. Some are in beautiful hand-tooled effects; others, in dainty colonial designs, and still others, in interesting tapestries or plain materials.

The double-action three-wing screen illustrated is a hand-tooled reproduction in Spanish leather effect. It is in soft golds, blues, greens, tans and browns, executed on cleanable, durable du Pont Fabrikoid, and is but one style from a most complete line of screens made by the Polar Manufacturing Company, 401 North Broad Street, Philadelphia, Pennsylvania.

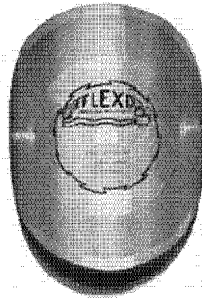


RECORDING ON PYRALIN

A RECENT and interesting use of du Pont Pyralin promises to revolutionize the mechanical production of sound. Flexible phonograph records are now made of Pyralin, no thicker than ordinary blotting paper, and you can drive a truck over one of them without damaging its reproducing qualities. The cost is about one-half as much as the present-type record.

In six years of work perfecting this record, J. J. Warner, sound, radio and electrical engineer, experimented with a great many materials before he finally decided to use Pyralin. It was chosen because of its unusual flexible and durable properties and its ease of application.

There are many uses for "Flexo" records. Small ones can be mailed in



ordinary correspondence envelopes without any packing and may carry a personal message in the sender's voice for birthdays, holidays and other occasions. They can be used for advertising purposes and may carry some kind of an entertainment feature besides.

Another use is in sending out instructions to salesmen. Talks by sales managers may be distributed to branch offices and agencies.

In making talking pictures, the Pacific Coast Record Company expects to find its largest sales outlet for these records, for the inventor has perfected an attachment that automatically synchronizes the record with a home-movie projector now in popular use.

For further information, write to the Pacific Coast Record Company, San Francisco, California.



STOP THAT RUN!

"A stitch in time saves nine," says the old adage, but its modern version may well be "A drop in time saves a run," which has nothing to do with a race, a railroad conductor's trip or even a stream of water, but one of those annoying little "ladders" that ruin so many pairs of hosiery.

The "drop?" Just a little Duco Household Cement applied to stop the run. Because the cement is waterproof, the garment may be washed many times before another drop is needed. One mending usually lasts the lifetime of the hose. Moreover, this cement is colorless and will not make an unsightly spot.

Statistics compiled a few years ago indicate that the American woman then purchased an average of sixteen pairs of silk stockings each year for her own needs. How many she bought last year is a speculation, but it was probably more than that, because of the popularity of chiffon weights. Unquestionably, hosiery is a real item in the clothing allowance of feminine America.

So the discovery of a means to prolong the serviceable life of stockings will be hailed with acclaim. A tube of Duco Household Cement will likely find its way into the desk drawers of many business women, for they seem to be among the chief sufferers from "snagged" hosiery. And to the housewives this is just one more practical use for the handy product in the home.

ONLY A DIME, SIR!

*These handy little loose-leaf books
are surprising values for the money*

WHAT a bazaar the modern five and ten cent store is!

From all the odd corners of the earth the great chain stores have assembled the small luxuries and necessities, and they have put them all together, row after row, neatly arranged—until the rush begins—by their armies of clerks.

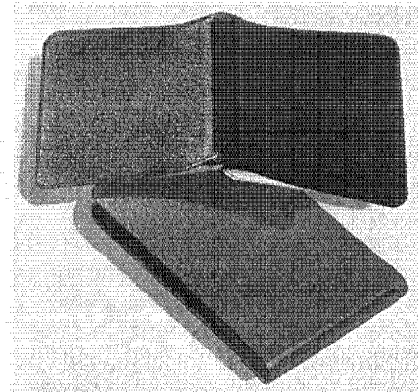
Noah with all his animals, two and two, could not have mustered one-tenth the variety that is in any modern five and ten cent store. In most shops it is no job at all to spend more than you have. In the "five and ten" it is a physical impossibility. The human backbone would hardly stand up under the purchase of more than \$22.20 worth of assorted merchandise, and the values are really surprising.

The manufacturers that serve these stores are found everywhere, in every corner of the globe. The writer once stopped in a little town in the Pennsylvania mountains and found there a

factory that made most of the wooden coat hangers for the big chain stores. Here was something after Henry Ford's own heart. The farmers of the district, mostly dairymen, would arise early, do their chores and then drive to town with a load of milk for the creamery, work all day in the coat-hanger factory, and return home in time for the night's milking.

In Poughkeepsie, New York, is the Trussell Manufacturing Company, which originated and makes those neat little flat-opening loose-leaf note books you will find at the stationery counter in the "five and ten." Here special machinery and expert workmen turn them out by the millions, at prices and with a quality of workmanship that only years of experience in manufacturing make possible.

The Trussell Company's contributions to the marvelous values of the modern variety store have a cover of genuine du Pont Fabrikoid, with a metal backbone that has been finished

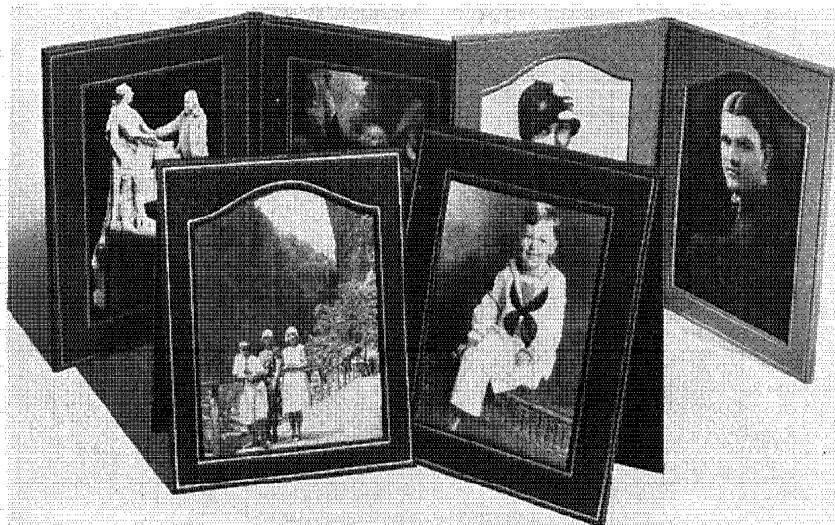


The Trussell note books

in du Pont Duco. As they are loose leaf, with handy ring binding elements, old sheets can be removed and new ones inserted at will.

There is real economy in the use of these pocket memorandum books. They look like limp leather bindings and are so durable that in many cases a dozen or more extra fillers may be used before the cover becomes shabby. It is one of the miracles of our day that an item of merchandise like this can be bought for ten cents. It is something that can be attributed to the Machine Age and the sharp pencils of American manufacturers who have found savings at every turn in manufacturing processes.

CLEANABLE PICTURE FRAMES



THE photograph frames reproduced at the left are both artistic and serviceable. They are covered with a new cleanable and waterproof material manufactured by the Fabrikoid Division of the du Pont Company. Each is in a rich leather-like Levant grain effect.

The tops and bottoms of the double frames are softly padded. The single frames are triangle stand models. All have practical hinges of the material, so that they will close easily without bending. The colors are gray, green, black and red.

These frames are made by the Art Leather Manufacturing Company, Inc., 145 W. 27th St., New York City.

WHAT BUYERS SHOULD KNOW ABOUT DYES

(Continued from page 21)

Therefore, except in cases where mills do their own dyeing, the custom dyer seems to be the answer. He applies the dyestuffs and also knows their characteristics. He is in a position to say whether or not the colors in any given fabric are really worthy of the name fast.

Recognizing this, the Franklin Process Company, as a large dyer of yarn, has for some years taken steps to provide fast-color identification to buyers. This cooperation is offered in two different forms—the Franklin Process Buyers' Directory and the Franklin Process Fast Color Label.

A sample page from the directory is shown on page 21. Note that those concerns using the fastest colors are identified with a star, and that those identifying these fastest colors with the Franklin Process Label are set in bold-faced type.

But the directory does not provide the final identification mark. It merely gives the information that certain concerns use the fastest colors

in certain fabrics. The Franklin Process Fast Color Label is offered as an answer to this objection. Some forty-odd companies are now identifying the colors in their fabrics with this label.

As an aid to buyers, the Franklin Process Company would be glad to forward a copy of the Buyers' Directory to all interested readers of THE DU PONT MAGAZINE. There is also available a series of booklets bearing the following interesting titles:

How to Know Fast Colors

The New Competition in Color

Identification—the New Trend in Color

Getting Your Money's Worth in Color

Address your request to the Franklin Process Company, Providence, Rhode Island.

FILL SETTLEMENT

WHOLE sections of "soft" spots in swamps and other boggy areas are being shot out with dynamite when it is necessary to have firm foundations for new roads. The method

which has revolutionized certain phases of road building was developed by du Pont explosives experts and highway engineers. It frequently reduces the settling of fills to one-tenth the time formerly required.

Quantities of dynamite, in some cases amounting to 1,200 pounds, are placed in the soft mud, and a fill of earth is piled above it. Sometimes the mound is as high as thirty feet and contains 6,000 cubic yards of earth. The explosive is detonated, the soft mire is blown out, and the fill settles down to hard ground, leaving a firm, solid foundation for the concrete or other top materials.

The method is known as "accelerated fill settlement work" and has greatly speeded up road building in places where soft mire conditions have been encountered.

A description of the fill settlement method employed by the New Jersey State Highway Department Engineers appears in the March, 1931, issue of the *Ag-Ex News*. A copy can be obtained by addressing request to Agricultural Extension Section of the Explosives Department of this company, Wilmington, Delaware.



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

General Executive Offices, WILMINGTON, DELAWARE

All Inquiries Regarding du Pont Products Should Be Addressed to the Nearest Office

ACIDS, HEAVY CHEMICALS, AQUA AMMONIA, DRY COLORS, ZINC OXIDE AND OTHER PIGMENTS

Grasselli Chemical Company, Inc.

Chemicals for leather, textile, paper, paint, rubber, battery, glass, sheet, tin plate, steel and petroleum manufacturers. Lithopone, dry colors, pigments. Chemically pure acids, electrolyte, filter alum, spray products for fruit trees, vegetables and flowers, silicate of soda, soldering fluxes, zinc, zinc chloride.

Birmingham, Ala., 2000 First Avenue. North Boston, Mass., 80 Federal Street
Brooklyn, N. Y., 152 Morgan Avenue
Charlotte, N. C., 930 W. Morehead Street
Chicago, Ill., 2101 Canalport Avenue
Cincinnati, Ohio, 305 Walnut Street
Cleveland, Ohio, 629 Euclid Avenue
Detroit, Mich., 1530 E. Hancock Avenue
Los Angeles, Calif.,
Dry Colors & Pigments, 2034 Bay Street
Chemicals, 363 New High Street
Milwaukee, Wis., 1503 West Canal Street

Newark, N. J., 256 Vanderpool Street
New Haven, Conn., 46 River Street
New Orleans, La., 1140 So. Robertson Avenue
New York, N. Y.,

District Sales Office, 347 Madison Avenue
Export Office, 347 Madison Avenue

Paterson, N. J., 6 Waite Street
Philadelphia, Pa., 3500 Gray's Ferry Road
Pittsburgh, Pa., 307 Fifth Avenue
Rensselaer, N. Y., 34 Riverside Avenue
San Francisco, Calif.,

Dry Colors & Pigments, 274 Brannon Street
Chemicals, 576 Mission Street

St. Louis, Mo., 408 Pine Street
St. Paul, Minn., 2303 Hampden Avenue

LITHOPONE

Grasselli Chemical Company, Inc.

(See offices listed above)

Krebs Pigment & Chemical Co., Inc.
Newport, Del.
Cleveland, Ohio, 424 Hickox Building
New York, N. Y., 217 Broadway

ANHYDROUS AMMONIA, ANTI-FREEZE METHANOL AND METHANOL

Du Pont Ammonia Corporation

Methanol and anhydrous ammonia in tank cars.
Anti-Freeze Methanol in tank cars and drums.

Wilmington, Del., Du Pont Building

AQUA AND ANHYDROUS AMMONIA

National Ammonia Company, Inc.

Anhydrous ammonia in cylinders.
Aqua ammonia in drums and tank cars.

Chicago, Ill., 332 So. Michigan Boulevard
Los Angeles, Calif., 316 Commercial Street
New York, N. Y., 11 Park Place
Philadelphia, Pa., Frankford P. O.
San Francisco, Calif., 77 Minna Street
Seattle, Wash., 2224 Northlake Avenue
St. Louis, Mo., 3600 N. Broadway

SPECIAL CHEMICALS

The Roessler & Hasslacher Chemical Company, Inc.

Manufacturers of sodium, cyanides, peroxides, chlorine, heat-treating salts, formaldehyde, hexamethylenetetramine, gold, silver and platinum preparations, colors, oxides and opacifiers for the ceramic industry (pottery, glass and enameling), refrigerants, non-inflammable solvents, rubber accelerators and other chemicals for all industries.

Baltimore, Md., 301 O. T. National Bank Building
Boston, Mass., 40 Central Street
Chicago, Ill., 230 E. Ohio Street
Cleveland, Ohio, 607 Hanna Building
East Liverpool, Ohio, 314 Smith Street
Kansas City, Mo., 2018 Guinotte Avenue
Newark, N. J., 1060 Broad Street
New Orleans, La., 813 Louisiana Building
New York, N. Y., 10 East 40th Street
Philadelphia, Pa., 860 Drexel Building
Pittsburgh, Pa., 935 Fulton Building
San Francisco, Calif., 625 Market Street
Toronto, Canada, 372 Bay Street
Mexico, D-F., Cia. Mexicana de Productos Químicos Roessler & Hasslacher, Cinco de Mayo No. 10, Apartado 2115

CELLOPHANE

Du Pont Cellophane Company, Inc.

Cellophane—Sheets and rolls. Cellulose caps and bands (formerly Capes-Viscose, Inc.). Visking Cello-Tubing (Visking Casings).

New York, N. Y.
Executive and General Sales Offices
2 Park Avenue
District Sales Office, 145 Hudson Street
Boston, Mass., Little Building
80 Boylston Street
Chicago, Ill., Conway Building
111 West Washington Street
Philadelphia, Pa., Liberty Trust Building
Broad and Arch Streets
San Francisco, Calif., 351 California Street

DYESTUFFS

Dyestuffs and dyestuff intermediates. Rubber chemicals.

Boston, Mass., 140 Federal Street
Charlotte, N. C., 232 W. First Street
Chicago, Ill., 7 So. Dearborn Street
New York, N. Y., 40 Worth Street
Philadelphia, Pa., 126 S. Front Street
Providence, R. I., 709 Hospital Trust Bldg.
San Francisco, Calif., 351 California Street

EXPLOSIVES

Explosives for all industrial, agricultural and sporting uses.

Birmingham, Ala., 601 Brown-Marx Bldg.
Bluefield, W. Va., 607 Commercial Bank Bldg.
Boston, Mass., 140 Federal Street
Chicago, Ill., 1814 McCormick Building
Denver, Colo., Midland Savings Building
17th and Glenarm Streets
Duluth, Minn., Hartley Building
742 E. Superior Street
Huntington, W. Va., Suite 1004 Union Bank Building
Joplin, Mo., 816 Joplin Nat'l Bank Building
Juneau, Alaska, Room 503 Goldstein Building
Kansas City, Mo., 902 Midland Building
Miami, Florida, 120 N. E. First Street
New York, N. Y., Graybar Building
420 Lexington Avenue
Pittsburgh, Pa., Clark Building
Seventh Street and Liberty Avenue
Portland, Ore., American Bank Building
Pottsville, Pa., 516 Schuykill Trust Company Building
St. Louis, Mo., 1182 Arcade Building

San Francisco, Calif., 351 California Street
Seattle, Wash., Hoge Building
2d Avenue and Cherry Street
Scranton, Pa., 701 First Nat'l Bank Bldg.
207 Wyoming Avenue
Spokane, Wash., 721-22 Old Nat'l Bank Bldg.
Riverside Avenue and Stevens Street
Springfield, Ill., 716 Reisch Building
Wilkes-Barre, Pa., Brooks Building

FABRIKOID

Fabrikoid for auto and furniture upholstery; auto topping, bookbinding, luggage, novelties, etc. Tontine Washable Window Shade Cloth.

Chicago, Ill.
Fabrikoid Office, 2100 Elston Avenue
Montana Street Station
Tontine Office, 1411 So. Michigan Avenue
Detroit, Mich., 5-236 General Motors Bldg.
Newburgh, N. Y.
New York, N. Y., 21 East 40th Street
San Francisco, Calif., 351 California Street

RUBBER PRODUCTS

Everbright Pontop for closed car decks. Teal for sport cars. Rug Anchor. Ventube for mine ventilation. Fabrics for raincoats and rough wear. All types of rubberized fabrics.

Chicago, Ill., 2100 Elston Avenue
Montana Street Station
Detroit, Mich., 5-236 General Motors Bldg.
Fairfield, Conn.
New York, N. Y., 21 East 40th Street
San Francisco, Calif., 351 California Street

AUTOMOTIVE FINISHES

Duco and a complete line of finishing materials for all automotive purposes.

No. 7 Duco Polish, No. 7 Auto Top Finish, No. 7 Nickel Polish, No. 7 Touch-Up Black, No. 7 Super-Lustre Cream, No. 7 Radiator Cleaner.
Chicago, Ill., 2100 Elston Avenue
Detroit, Mich., General Motors Building
Flint, Mich.
Parlin, N. J.
San Francisco, Calif., 351 California Street

INDUSTRIAL FINISHES

Duco, Duxur, Duco Household Cement, bronze powders, collodion, leather belting cements, leather finishes, nitrocellulose and cellulose acetate and their solutions, Duxur synthetic resins, pyrozylin preparations and solvents and a complete line of finishing materials for all industrial purposes.

Boston, Mass., Everett Station 49
Chicago, Ill., 2100 Elston Avenue
New York, N. Y., 21 East 40th Street
Parlin, N. J.
San Francisco, Calif., 351 California Street

MILITARY AND SPORTING POWDERS

A complete line of military and sporting smokeless powders; also military explosives and black sporting powders.

Wilmington, Del., Du Pont Building

NITRATE OF SODA

E. I. du Pont de Nemours & Co., Inc. Nitrate Division

Importers and distributors of Chilean nitrate of soda.

Wilmington, Del., Du Pont Building
New York, N. Y., Graybar Building
420 Lexington Avenue
San Francisco, Calif., 351 California Street
Wilmington, N. C., 906 Murchison National Bank Building

SEED DISINFECTANTS

Bayer-Semesan Company, Inc.
New York, N. Y., 105 Hudson Street

MOTION PICTURE FILM

Positive and Negative.

Du Pont-Pathé Film Manufacturing Corp.

New York City, 35 West 45th Street
Hollywood, Calif., 6656 Santa Monica Blvd.

PAINTS, VARNISHES, DUCO (FOR HOME USE)

A complete line of paint and varnish products for all home and industrial uses.

Boston, Mass., Everett Station 49
Brooklyn, N. Y.
Building No. 26, Bush Terminal
Chicago, Ill., 2100 Elston Avenue
Cleveland, Ohio, 791 Union Trust Bldg.
New York, N. Y., 21 E. 40th Street
Philadelphia, Pa., 1616 Walnut Street
San Francisco, Calif., 351 California Street

PYRALIN, LUCITE AND VISCOLOID

Lucite, Pyralin and Arllon Boudoir Accessories. Toys, rattles, combs, gift articles, infants' sets, manicure sets, hair ornaments. Novelty and transparent sheeting, rods, tubes and beading. Also cleanable collars.

Factories at Arlington, N. J., and Leominster, Mass.

Du Pont Viscoloid Company, Inc.
New York, N. Y., 330 Fifth Avenue
Chicago, Ill., North American Building
San Francisco, Calif., 351 California Street

RAYON

Du Pont Rayon Company, Inc.

Viscose Process Department

New York, N. Y., 2 Park Avenue
Charlotte, N. C., 611 Johnston Building
Chattanooga, Tenn., 609-611 Provident Bldg.
Philadelphia, Pa., 1503 Land Title Building
Providence, R. I., 941 Hospital Trust Bldg.
San Francisco, Calif., 351 California Street
Acele Department
New York, N. Y., 2 Park Avenue
40 Worth Street
Waynesboro, Va.

FOREIGN OFFICES

(To which inquiries about Du Pont products may be addressed)

Bombay, India, Jacob Sassoon Building
Rampart Row, P. O. Box No. 1010
Buenos Aires, Argentine Republic
Foreign Trade Development Office
Av. Roque Sáenz Peña 616 (Casilla 490)
Hankow, China, No. 23 Tung Ting Road
Havana, Cuba, 548 Edificio Manzana de Gomez
Kobe, Japan, No. 83 Kyomachi
(P. O. Box No. 384)
London, W. C. 2, England, Bush House,
Aldwych
Mexico City, Mexico, Edificio Cidosa
Avenida Uruguay 55 (Office of
Du Pont Rayon Company of Mexico, S. A.)
Paris, France, Paris Development Office,
6 Rue Christophe-Colomb
Shanghai, China, Robert Dollar Building
3 Canton Road (P. O. Box No. 393)
Tientsin, China, 52 Taku Road
Valparaiso, Chile, Casilla 56-V
(Du Pont Nitrate Co.)

I. F. C. LINES

International Freight Corporation, Inc.
New York, N. Y., 17 Battery Place
Buenos Aires, Argentine Republic, Avenida
Roque Sáenz Peña 616
Valparaiso, Chile, Edificio Banco Nacional
Calle Prat

When you are in Atlantic City, New Jersey, visit the du Pont Exhibit at 1121 Boardwalk



A message from du Pont, makers of Duco

NOW and then, people who have had their cars refinished with what they supposed was Duco, complain to us that the finish is not "standing up."

In almost every case, investigation has proved that the finish was *not* Duco, but some other which may have been offered as Duco.

For this reason, in justice to you who will have some repainting done on your automobiles, and to ourselves, we feel compelled to issue this statement of fact:

There is only one Duco finish. It is made only by du Pont, who created it. Duco—genuine Duco—is the product which has pioneered in revolu-

tionizing the finishing of automobiles.

We do not say that no other finish is worthy of praise. But we do say that when you specify Duco—genuine Duco—for your car, you are absolutely sure of satisfaction.

Say "Duco"—insist upon Duco—when you have your car repainted. At the refinishing shop displaying the authorized Duco sign you can be sure that genuine Duco will be used. There's only one Duco, and it's made by du Pont.

E. I. du Pont de Nemours & Co., Inc., General Motors Building, Detroit, Michigan. Canadian Industries Limited, Flint Paint and Varnish Division, Toronto, Canada.



DUCO

REG. U. S. PAT. OFF.

MADE ONLY BY DU PONT