

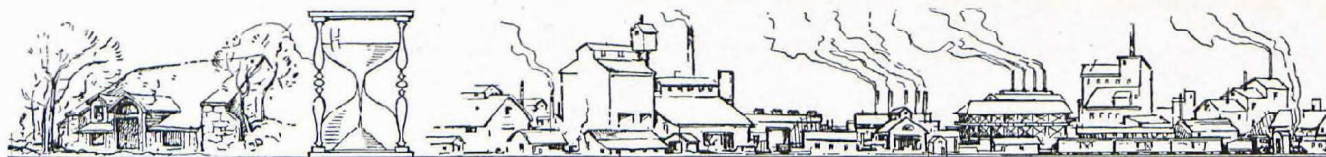
The Du Pont Magazine



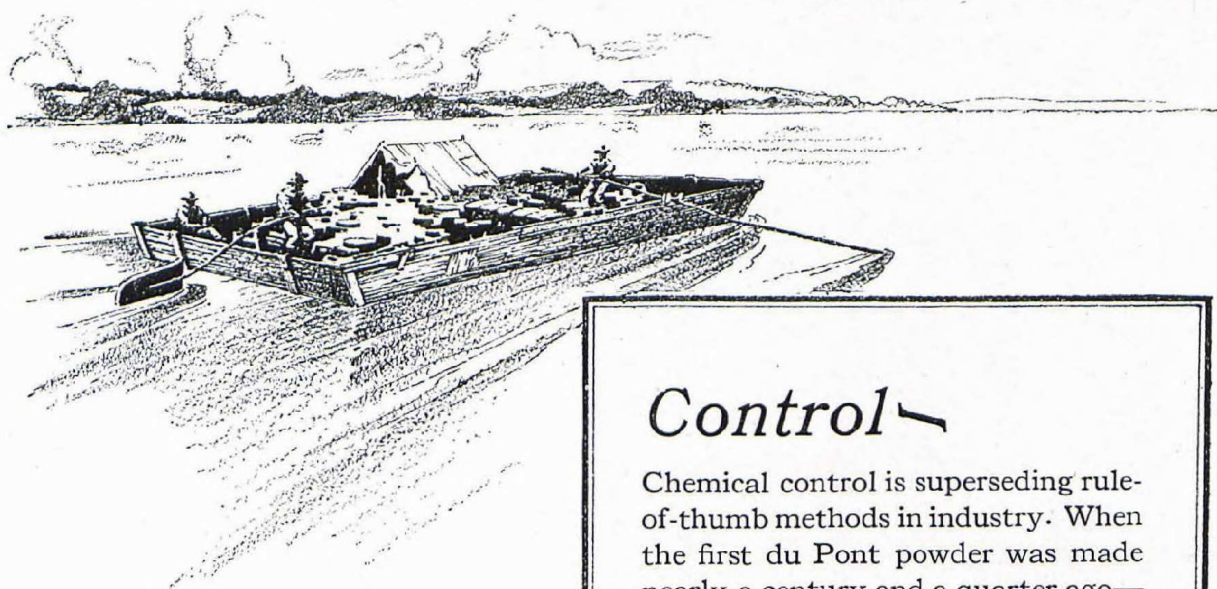
From a painting by S. M. Arthurs

The early settlers of the West followed the natural watercourses, and occasionally they had to teach the Indians to respect the dependability of du Pont gunpowder. See page 16

April 1926



MAKERS OF POWDERS SINCE 1802



Control

Chemical control is superseding rule-of-thumb methods in industry. When the first du Pont powder was made nearly a century and a quarter ago—chemistry was not an exact science.

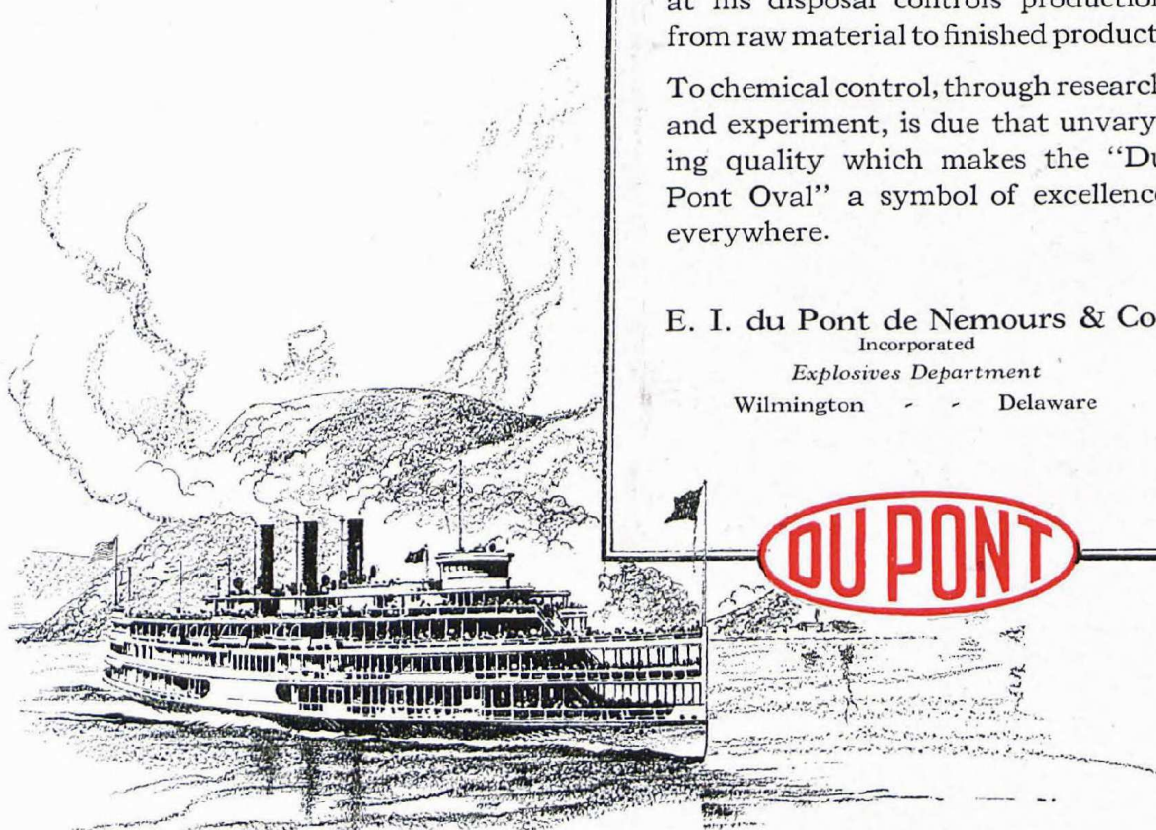
Today, the chemical engineer with the vast resources of modern science at his disposal controls production from raw material to finished product.

To chemical control, through research and experiment, is due that unvarying quality which makes the "Du Pont Oval" a symbol of excellence everywhere.

E. I. du Pont de Nemours & Co.
Incorporated

Explosives Department

Wilmington - - Delaware



123 YEARS OF LEADERSHIP IN THE SERVICE OF INDUSTRY

The DU PONT MAGAZINE

VOL. XX

APRIL, 1926

No. 4

THE NEW PRESIDENT

LAMMOT DU PONT was elected president of E. I. du Pont de Nemours & Company at the organization meeting of the board of directors on March 15, succeeding Irénée du Pont, who retired, after seven years as president, to devote more of his time to his family and personal interests.

The new president is the eighth member of the du Pont family to head the company since the business was founded in 1802 and the third brother to hold the presidency in succession. The first of the three was Pierre S. du Pont, who was at the helm from 1915 to 1919, during the period of the World War, when the bulk of munitions production for the allies fell to the company's lot. He was succeeded by Irénée, who, as senior vice-president, had been importantly identified with the war period work as was Lammot, also a vice-president and member of the Executive Committee, which directed every step in the vast construction and production work of that time.

The new head of the company, born in 1880, has been identified with its progress during all of his business life. He entered its employ in 1902, shortly after graduation from the Massachusetts Institute of Tech-

nology with the degree of B. S. He was first employed in the black powder manufacturing operations of the company, and was successively promoted until he

became general superintendent, and finally director in charge of that department.

On the reorganization of the company in 1915, he was elected a director and member of the Executive Committee and the next year was made a vice-president. For a time he was in charge of the Miscellaneous Manufacturing Department, which included the company's expanding interests in dyestuffs, Pyralin, paints and chemicals, in the development of all of which he had an active part.

In more recent years, as chairman and vice-chairman of the Executive Committee and as a member of the Finance Committee, he has been engaged with the administrative affairs of the company and is thor-

oughly familiar with all of its interests and activities.

Mr. du Pont has been importantly identified, as director or officer, with the affairs of the parent company's subsidiaries and affiliated companies, and he is also a director and member of the Finance Committee of the General Motors Corporation.



Lammot du Pont



"IF I WOULD FIND A DYNAMITE CAP..."

Missouri lad writes a prize-winning essay in which he tells in an entertaining fashion just what he would do, and why

SOMETIMES blasting caps get into the hands of children—too often with disastrous results. As a means of forestalling such accidents, Mr. Alfred Mathewson, agricultural representative of the du Pont Company, arranged an essay contest on "Handling Dynamite Caps" in the schools in Dunklin County, Missouri. Mr. C. R. Talbert, county extension agent, school authorities and teachers coöperated, and the children entered the contest with enthusiasm with high hopes of capturing a prize.

Lawrence Corrigan, a husky thirteen-year old lad, was the author of the prize-winning essay. Mr. Talbert's letter, shown on this page, tells some interesting things about Lawrence and the results of his literary effort.

His essay entitled "If I Would Find a Dynamite Cap and What Would I Do and Why" is printed below just as written with only a word or two added. Lawrence says:

"If I should find a dynamite cap I would take it to Mr. Michel (my guardian) because if I wouldnt I might carry it around in my pockets and might have a axident. You see I might have a knife or something in my pocket and it might hit agenst the cap and it would go off some boudy have to pick up the peaces.

"I know of a man when he was a boy had found a cap and get a hammer and was hitting on it when it went of and blowen his 2 finergs of; and I herd once that there lived a carelless family who would leave things in reach of the little ones. So one day the little boy thought he would blow thinge up like his father. So he went got a rock and tied a pole to it so he could get fare enough away then he got a cap and took the pole and hit the cap with the pole and the cap went of.

"Well his little (sister) saw

him so she thought she would do what her brother did. So she goes and gets a hammer and hit the cap and blowen one of her hands of.

"And some people think a little cap like that can't do no harm. Its not only the big things that it takes to do the develment because one of these caps can do a plenty.

"Now if you every see a cap pick it up. do not leave it because if you do you might get reminded of it. And if you drop one in the field pick it up don't leave it for it to do some develment. Now if you leave a cap in the field you might fore get about it and when spring comes you will start to plow and while you are plowing all at once your horse will fall dead.

"Well you will look around to see where the noise come from and what killed your horse, tell all at once you will think of the cap you left in the field. Well you sure did get theroule rewarded for your carellessness. Now

if you do pick it up you must not run home and through it on the table because if you do your wife or one of the family will clean of the table and through it in the stove with the rest of the stuff so you must be careful with the dinamite caps.

"Now if I would find one I would take it to Mr. Michel and I would soon find out what would turn up. Because one time I found one and tooke it to him and he asket me where did I get it. I told him I found it in the corn crib and he said that is the way bring them to him and he would put them away."

NOTE: A great work in safety education will be accomplished when children are taught *not* to play with blasting caps. Why not urgetheschool authorities of your town to conduct a similar contest?

OFFICE, NORTH WOLF SPRING	TELEPHONE 345
COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS STATE OF MISSOURI	
COLLAGE BY MISSOURI UNIVERSITY OF MISSOURI U.S. DEPARTMENT OF AGRICULTURE REGIONAL OFFICE, NORTH WOLF SPRING DUNKLIN COUNTY, MISSOURI	AGRICULTURAL EXTENSION SERVICE COUNTY AGENT, NORTH WOLF SPRING DUNKLIN COUNTY, MISSOURI
KENNETT, MO. January 25, 1926	
Du Pont Powder Company Wilmington, Delaware Attention Mr. A. La Motte	
My dear Sir:	
I am pleased to note you are interested in publishing the essay of Lawrence Corrigan on "Handling Dynamite Caps."	
Lawrence is an Irish boy, raised by a German family, which accounts for his strange mixture of Irish wit and German-American versatility. He is thirteen years old and lives on a farm near Glenosville, Missouri. He is a bright youngster with a big smile on his freckled face. His hair is red. As indicated by his essay he regards spelling as being a more or less feminine accomplishment and negligible compared with knowing how to pig a frog or twist a rabbit out of a hollow log.	
This essay has enjoyed considerable local notoriety and has heightened respect for dynamite caps in this county. The year before the essay was written one boy got his hand blown off and one man was killed by mishandling dynamite caps. Several others were slightly injured, most of them children. So accident has occurred since the publication of the essay. I believe this is a splendid method to impress the dangerous character of dynamite caps upon the minds of children—the ones most likely to be injured by them.	
Sincerely yours, C. R. Talbert County Extension Agent	
CRT:BB	

PYRALIN IN THE SHOE INDUSTRY

Shoes are made of leather, of course, but even so, you may be "stepping out with Pyralin" without realizing that fact

ASK the next person you meet what shoes are made of and the chances are he will reply, "Leather." And he will be right, too, as far as the external parts—the soles and uppers—of most shoes are concerned. Since it is not well known that Pyralin is used on from one to ten parts of many shoes, perhaps it will be of some interest if I point out to you what these parts are and where and how they function.

Picking up a woman's shoe that lies on the counter before us, we invite you to look first at the heel, for Pyralin is used extensively in covering wood heels. If you could watch this operation in the factory, you would observe the wood form being covered with a thin sheet of Pyralin which is first cut to shape, then softened slightly and coated with cement. Quickly and neatly the operator applies the Pyralin over the wood heel. When the cement has set, the surface is polished and a very smart-looking heel is the result.

Look now between the bottom of the wood heel and the leather or rubber heel pad. Another tiny piece of Pyralin is inserted there, and this layer protects the wood heel from wearing and thus adds longer life to the shoe.

Next, look at the box toe—the part that supports the front of the shoe and insures its shapeliness. Here Pyralin is used in many cases to reinforce the shoe at a vulnerable place. It's there but you cannot see it. At the factory we learn that the Pyralin pieces are blanked out of sheet stock and after being softened to a semi-pliable condition, they are shaped over a last to give them the desired form. When in place, these box toes are very strong and hold their shape despite the kicks and bumps and other mishaps that befall the average shoe in service. In addition, these reinforced box toes are waterproof and keep out

By HENRY ROE

dampness on stormy days. Now turn the shoe around and examine the counter—the part

that shapes the rear of the shoe. This also is made of Pyralin. As in the case of the box toe, the counter strips are blanked from sheets and fashioned on lasts of the required shape. When sewed into place, they retain their original form throughout long use.

Examine the sole next. Here, too, is another application of Pyralin. Note the thin sheet or interlining between the built-up layers of leather. This moisture-proof interlining—it is Pyralin—keeps the shoe dry and safeguards the health of the wearer.

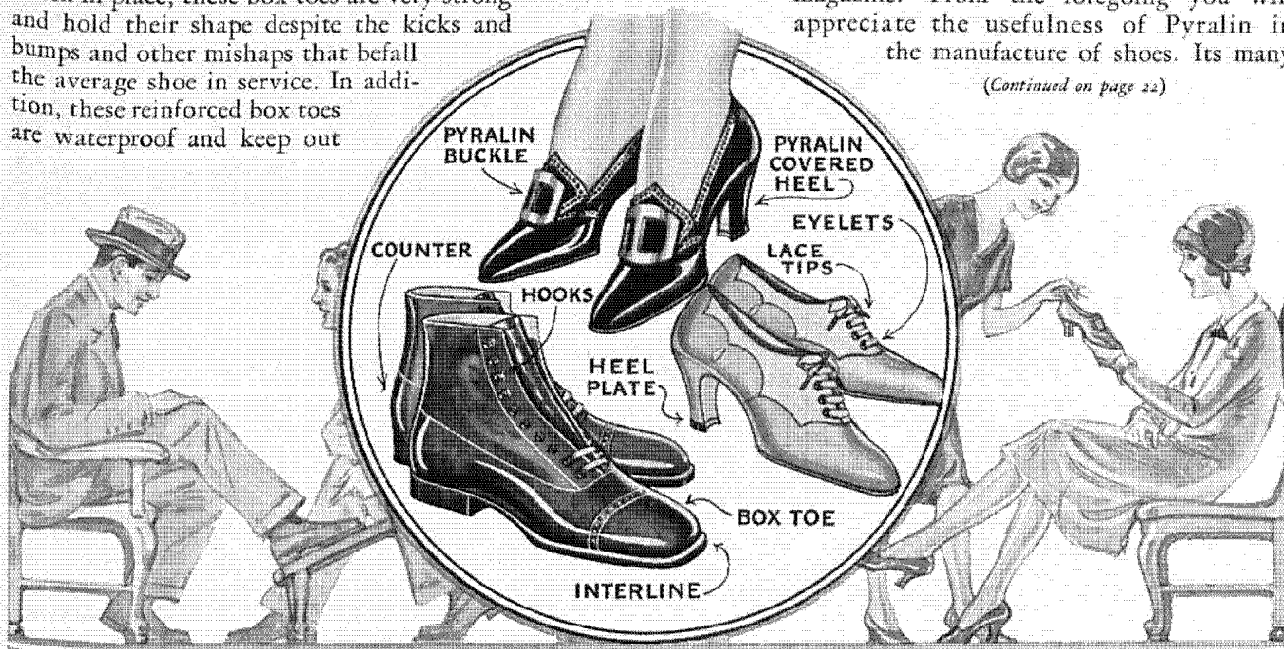
Among the shoe fittings we find Pyralin widely used as a button material. Little discs of this product are pressed into the desired form and attached to the shoe by means of metal shanks. These are also used on gaiters in a similar way. Because of the wide variety of colors in which Pyralin is available, buttons can be made to match or contrast with any shade of leather or fabric. They can also be dipped in color solutions to give any color effects desired.

Several leading shoe manufacturers use Pyralin-covered shoe hooks and eyelets. These add to the appearance materially and wear exceptionally well.

Pyralin is also used largely on tips for shoe laces. Crimped around the fabric, the material adheres closely and prevents the ends of the lace from unraveling.

Finally, Pyralin is used for shoe buckles and ornaments, which are made in many attractive shapes and colors. These were fully described in a recent number of this magazine. From the foregoing you will appreciate the usefulness of Pyralin in the manufacture of shoes. Its many

(Continued on page 22)





The window displays of the Du Pont Products Exhibit always attract favorable attention

ATLANTIC CITY, New Jersey, is perhaps the nation's most famous year-round health and pleasure resort. Its location, its climate, its sport and recreational facilities attract people from every quarter of the globe. With a permanent population of considerably less than 75,000, it is claimed that 20,000,000 people visit this increasingly popular resort each year.

As a convention city, too, it ranks high. So many national organizations hold their annual meetings there each year that now a project is under way to build a convention hall that will be the largest one in the world.

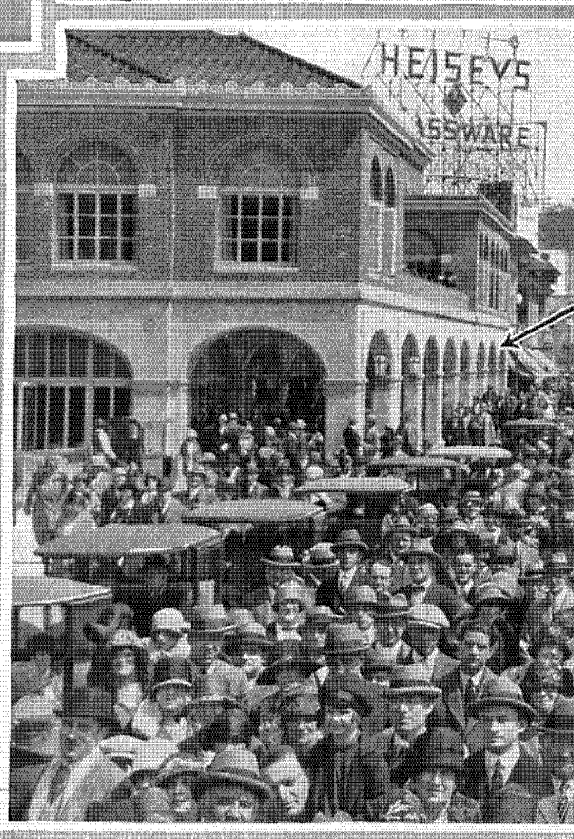
Every town has its Main Street. Atlantic City has a most unique one—the Boardwalk, which extends eight miles along the ocean front and is sixty feet wide in its central section. On the land side are million dollar hotels, oriental bazaars, inviting toy stores, theaters, exhibits, dainty tea rooms, beauty parlors, fashionable shops and stores and business places of all kinds, close packed for many blocks. On the side toward the sea six great ocean piers house a vast array of popular attractions.

Probably ninety per cent of all the people who visit Atlantic City spend most of their time on the Boardwalk—the one great recreation center. They bask in the sunshine, they mingle with the crowds, they fill their lungs with the balmy air from the ocean, and in an environment of life and light and color they are renewed both in body and mind. Up and down the 'Walk they stroll, care-free and eager to examine and study whatever may attract their attention. And so it is that advertisers, catering to Boardwalk crowds, really reach the nation at large, or a cross-section of it, under especially favorable circumstances.

That explains why Heinz, Atlantic City's first permanent exhibitor, built a great ocean pier as a show place for his famous "57 varieties;" why the du Pont Company next chose a Boardwalk location to exhibit its family of products, and why the Crane Company, notably, and a dozen or more other national advertisers since then have established exhibits of various kinds.

WHAT DOES THE EXHIBIT MEAN

The mayor of a prominent New Place of American Chem know that it func mation bureau



A typical Easter throng. This photograph was taken last year 300,000 people promenaded up and down the Boardwalk. The Pont Products Exhibit, which is located across the 'Walk from

The Du Pont Products Exhibit is just ten years old this month. It was first opened to the public at 1105 Boardwalk on April 16, 1916. Three years later it was removed to more spacious quarters at 1121-23 Boardwalk, the present location.

It is known that at least 262,000 people entered the exhibit last year. The total is conservative, for during rush periods it was impracticable to make a per capita count. And it would be idle to speculate on the number of passers-by who paused to examine the attractive window displays for which the Du Pont Products Exhibit is noted.

DU PONT PRODUCTS TO THE MILLIONS?

*York State city refers to it as "The Wonder
istry," but we would also have you
tions importantly as an infor-
and service organization*



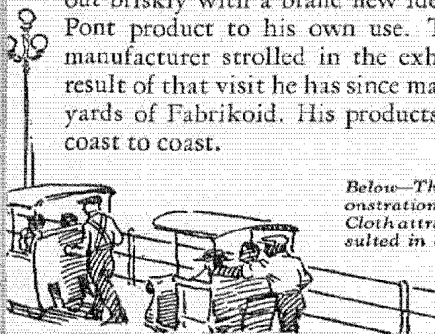
there are made in their finished form by the du Pont Company, but all of them are made either wholly or in part of du Pont-made materials.

Visitors entering the exhibit are likely to misinterpret its character, for at first glance it doesn't look like an exhibit at all. The merchandise displays in showcases and on shelves—the appointments of the room generally—convey the impression of a high-class Fifth Avenue shop. Closer inspection, however, dispels this illusion, for beside each display is a neatly lettered card identifying the merchandise by the maker's name and address and showing the name of the du Pont product used in its manufacture.

What intrigues visitors most is probably the great number and variety of articles shown. Many of them express amazement that so many articles of common use in their homes are produced with du Pont materials they never heard of before. The exhibit visualizes the part industrial chemistry plays in the manufacturing activities of the nation. It promotes a better understanding of the character and utility of du Pont products. It presents an advertising advantage to the manufacturers who show merchandise there, and likewise builds prestige for the du Pont Company. And it educates the public.

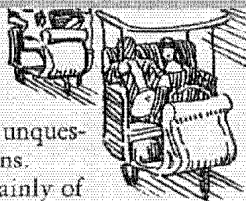
But the exhibit accomplishes more than that, for many industrial and commercial leaders come to Atlantic City from all parts of the country. Rarely ever do they leave the resort without visiting this interesting exhibit. Many a manufacturer strolls in "just to look around" and walks out briskly with a brand new idea of adapting some du Pont product to his own use. To cite an instance: A manufacturer strolled in the exhibit one day and as a result of that visit he has since made use of about 500,000 yards of Fabrikoid. His products are well known from coast to coast.

(Continued on page 22)



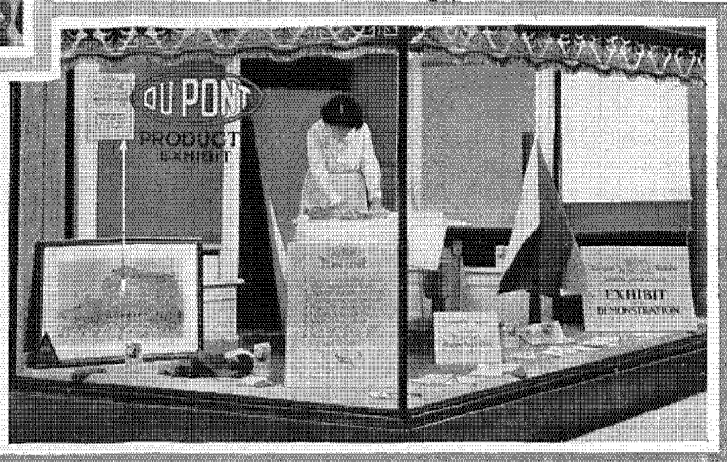
Below—This window display and demonstration of Du Pont Tontine Shade Cloth attracted much attention and resulted in a large number of inquiries. The Breakers Hotel, shown here, is equipped with Tontine shades

*when it was estimated that
arrowhead points to the Du
the Steeplechase Pier*



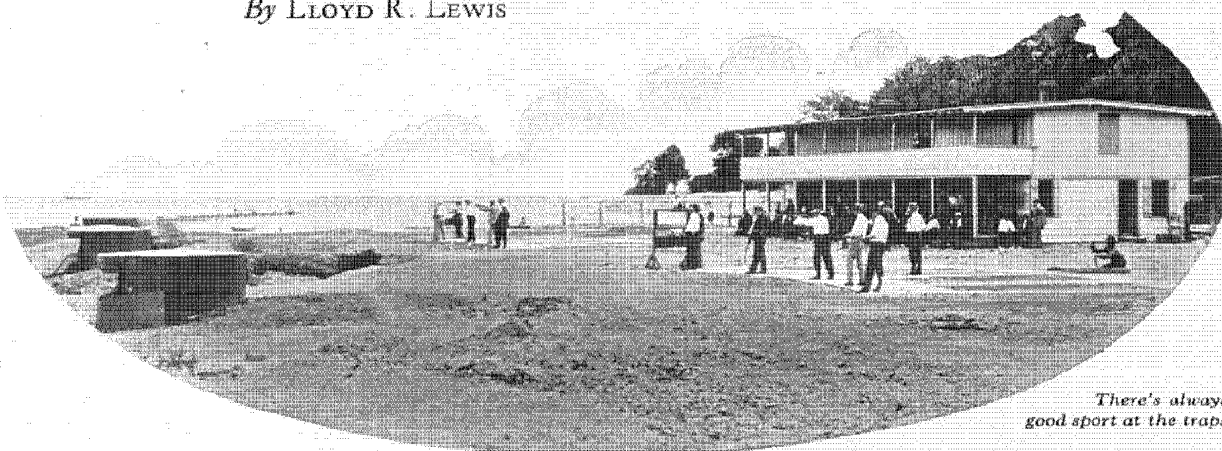
But the number would unquestionably run into millions.

The exhibit consists mainly of selected merchandise—products of manufacturers who use Du Pont Fabrikoid, chemical products, Pyralin, sporting powders, explosives, paints and varnishes, Duco, lithopone, dry colors, dye-stuffs, rayon, Cellophane, rubber fabrics and numerous other materials of du Pont manufacture. Comparatively few articles shown



TRAPSHOOTING—AN IDEAL SPORT

By LLOYD R. LEWIS



There's always good sport at the traps

A COMPELLING love of firearms is a distinctive and instinctive American trait. It is rooted in the ancient reverence of our forefathers for the guns that protected them from savage men and beasts, and that were an unfailing resource when hunger threatened their loved ones.

Colonial mothers, rearing their children in the imminent dread of massacre and famine, shared this regard, and transmitted it through successive generations of sturdy pioneers.

Firearms and courage conquered the American wilderness. Every man was a marksman when a poor aim might lose either his scalp or his dinner.

American marksmanship distinguished the great wars that established the independence and preserved the unity of our nation, and quickly decided many lesser wars in our favor.

When the necessities of war and self-preservation no longer dominated our fathers, they turned gladly and often from peaceful pursuits to hunt the wild game that abounded everywhere, and developed to its highest degree the art of shooting for recreation and pleasure.

America was the paradise of the hunter during the last century, and toward its close, in the early nineties, the du Pont Company rendered a supreme service in perfecting the smokeless powders upon which the highest efficiency and enjoyment of the sport depend.

During the last half of that century, also, live pigeon shooting, imported from England in 1831 by the Sportsmen's Club of Cincinnati, became immensely popular, and remained so until 1902 when it was outlawed in many states.

By that time most of our wild land had been turned into farms and grazing grounds. The millions of buffalo were gone. The clouds of water- and wild-fowl, the great herds of moose, elk and deer, were greatly diminished.

Now forests and plains that once teemed with game but poorly reward our visits. Much of our wild life is retreating to haunts where the average man has neither

the time nor the means to follow it. How shall we now express that gun-love and gun-skill which is our heritage?

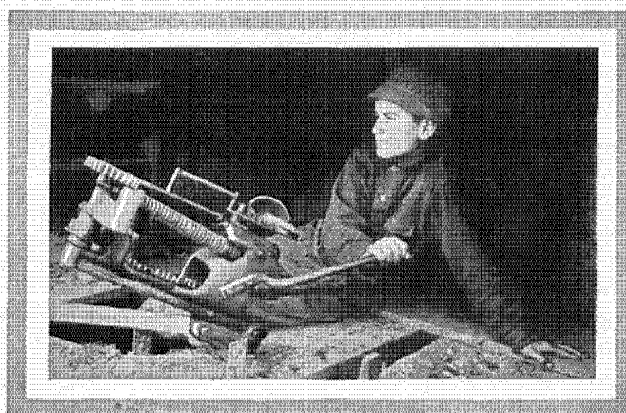
The answer is: Trapshooting.

Every field is a hunting ground and every day "in season" for trapshooting. Nor is there anything selfish in its enjoyment. The nearest trap may stand beside some sumptuous club house, or by the crude shack of a few village lads, but at either place you will be very welcome. The sportsmen and the sport itself invite you. For trapshooting is the "open sesame" to good-fellowship.

Friendships are sealed and differences forgotten in this open-air, open-mind pastime, where success and modesty, defeat and a smile always go together. Skill is acquired, records made, trophies won in its enjoyment—life itself draws a new inspiration.

For the trapshooter is playing the game himself, doing the work, responsible for the results. His part is not limited to cheering his side on to victory, or sitting helpless while it goes down to defeat. It is he who poises at the score with figure tense and trigger finger bent; he who gives the fateful signal, "Pull;" and he who feels the

(Continued on page 24)

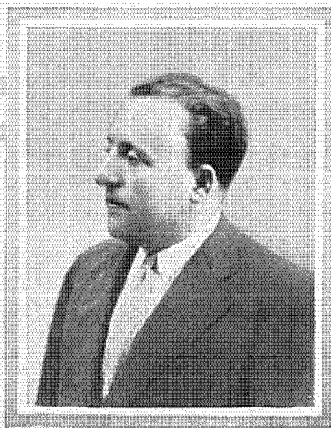


Awaiting the shooter's crisp call to "pull"

ITALIAN FIRM WINS FABRIKOID CUP



Enrico Pecchioni



Domenico Pasquali

It is not generally realized, perhaps, that both Fabrikoid and Pontop have a very considerable distribution and enjoy an enviable reputation throughout a large portion of the civilized world. Yet these products are sold in some

fifty-five countries other than the United States and Canada, and the familiar red trade-mark is known from Cape Horn to El Paso, from Capetown to Archangel, and from Melbourne to Harbin. Our friends abroad think well of Fabrikoid, some of them having used it for many years, and it is gaining new adherents at a surprising rate. In 1925 our orders for foreign shipment averaged some four and one-half yards per minute for the entire year!

Under the circumstances it is but natural that Fabrikoid should find employment in a wide variety of industries and that it should confront all sorts of service conditions. The heat of the tropics, the cold of the northern countries, extremes of dryness and humidity, are all a part of the day's work for Fabrikoid; and the fact that this product renders satisfactory service in so many corners of the globe and under such extremes of climate is no mean tribute to its quality.

It has been inevitable that in its wanderings Fabrikoid should have come to be associated with some well-known names and events. It accompanied the American Army fliers on their flight around the world. It flew across the Atlantic with the NC-4. Abroad it is linked with the motor world in such prominent names as Renault, Minerva and F. I. A. T. Some of the furniture in the Hall of the League of Nations at Geneva is upholstered in Fabrikoid. It is to be found on many of the books in the private library of His Majesty, King Fuad I of Egypt.

Thousands of motorists in Europe, Australia, China and South

By WILFRED WALLACE

made, yet the probability is, in both instances, that it is Fabrikoid. The tourist in the Far East is probably seated on a Fabrikoid cushion when he rides in a *rickshaw*, just as he is, also, when he rides in one of the many gaily caparisoned taxicabs that throng the streets of Havana.

The massive volume published last year in commemoration of the centennial of Bolivia's independence was handsomely bound in decorated Fabrikoid.

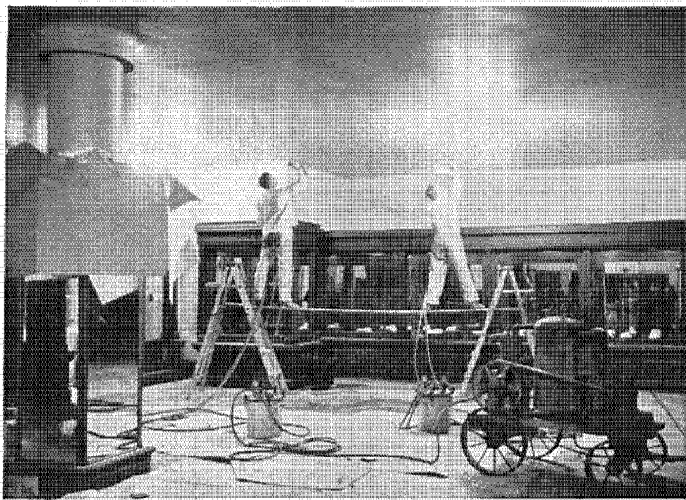
The innate quality of this material and the wide scope of its utility are, of course, primary factors in its distribution abroad, yet no matter how good the product, one of the chief problems of a manufacturer is to get that product before the people who can use it. The widespread distribu-

tion of Fabrikoid abroad is the result of the efforts of a large corps of du Pont agents, some of whom have been with us for many years. Others have joined us more recently, yet all are enthusiastic members of our large Fabrikoid family.

At the end of each year we make up an honor list, composed of the names of those agents whose Fabrikoid business for that year has exceeded their business for the year previous, these names being ranked according to the actual percentage of increase. Beginning with 1925, the agent who heads the honor list each year will receive a silver cup, known as the Fabrikoid Cup.

The close of our 1925 business reveals the names of eighteen foreign agents whose business-building efforts have won for them a place on our 1925 honor list. (Cont'd on page 23)





Applying Duco in an exclusive Fifth Avenue shop. Work was done at night and there was no interference with usual business routine

INTERIOR FINISHING WITH DUCO

*Five rooms, including all furniture,
were completed in one day
and five nights*

By GEORGE BALDWIN

NO longer are scare-head announcements of new uses for Duco in order. Hence, in a mere matter-of-fact way, this short item tells of Duco finish being used commercially for the first time on walls and interior woodwork.

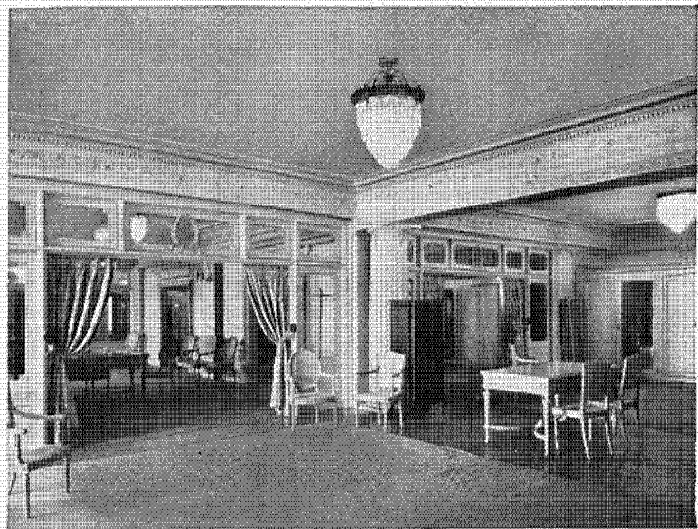
Curiously enough, the first work in this line was done in an exclusive Fifth Avenue shop—Kurzman's—at the corner of 36th Street, New York City. The Ducoart Company, of 415 Lexington Avenue, New York, contracting interior finishers, executed the job. Duco was selected by the owner of the shop following the submission of sample panels in company with an attractive bid for the contract. Since the completion of the work Mr. Simmons, owner of Kurzman's, has expressed entire satisfaction with the finish which, of characteristic Duco longevity, promises to relieve him of the bugbear of repainting for many seasons.

The salon to be finished consisted of five rooms. Included in the finishing contract were one hundred and five pieces of furniture—chairs, tables and settees. The total amount of surface finished was approximately 35,000 square feet. Two applications were made on the ceilings and one on the walls, trim and furniture, for which work about fifty gallons of tinted white Duco and fifty-five gallons of Thinner were used. All finishing was done with spray apparatus.

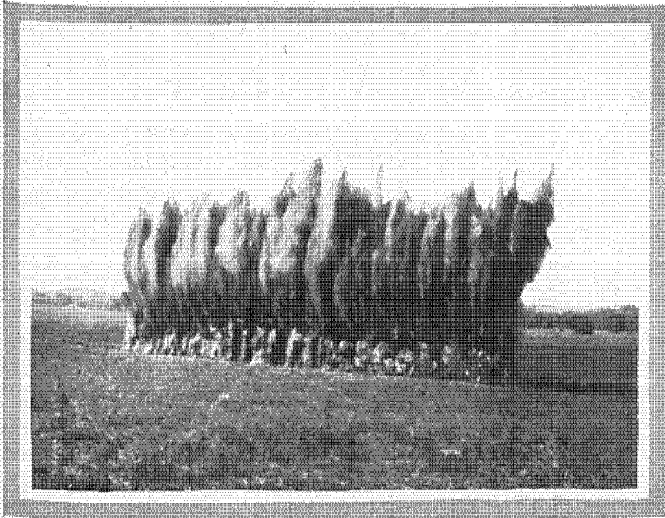
Two items of unusual interest must be introduced here. First, that while estimates on the project by users of paint stipulated a period of sixteen working days for handling the job, the Ducoart Company, in one day and five nights—approximately six working days—reported the completion of the contract. Second, the business routine of the shop was not interfered with in any way. By working at night, and removing all evidence of materials and equipment each morning, this feat—it admittedly is a feat—was accomplished. The fast-drying property of Duco alone permitted the handling of the work in this manner. The familiar "Wet Paint" signs were missing, perhaps for the

first time. When completed the cream ceilings, silver gray walls, and dark gray furnishings presented a handsome interior. Elevator doors in black, with a smart gold stripe, marked the finishing touch. So pleasing was the whole effect that Mr. Simmons has since ordered another floor of his shop, and the mezzanine, to be finished in Duco, in order to make all rooms harmonize with the beautiful salon.

The successful use of Duco for interior decorating in this shop marks a distinct step forward in the activities of the du Pont Company. For the work done in Kurzman's shop will no doubt be the forerunner of many other refinishing operations elsewhere. At any rate it opens the way for the introduction of this du Pont "ace" in a new field of great promise, and especially is this the case in view of the fact that Duco is now available for brush application.



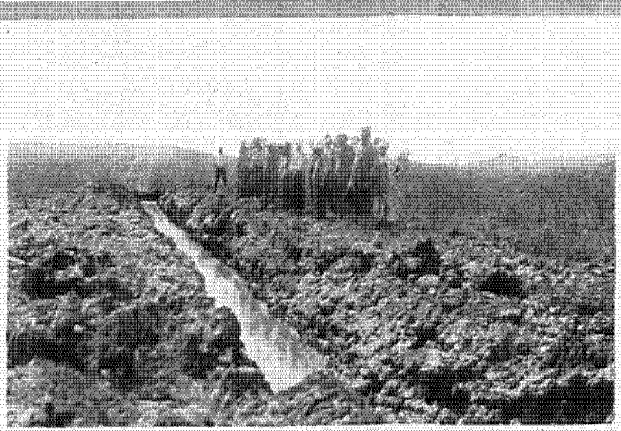
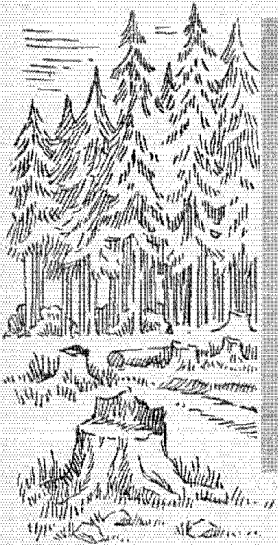
The finished salon above presented such an attractive and pleasing appearance that the owner has ordered another floor redecorated



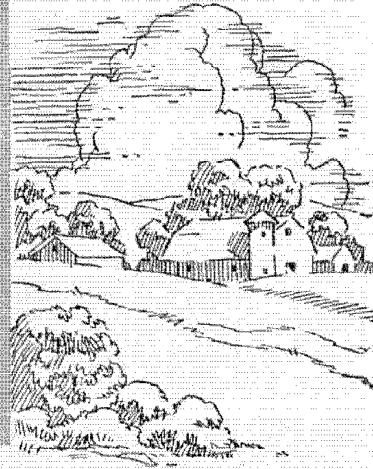
A ditch blast near Spickard, Mo., where A. J. McAdams, state reclamation specialist, and Alfred Mathewson, du Pont representative, showed a group of farmers how to do such work



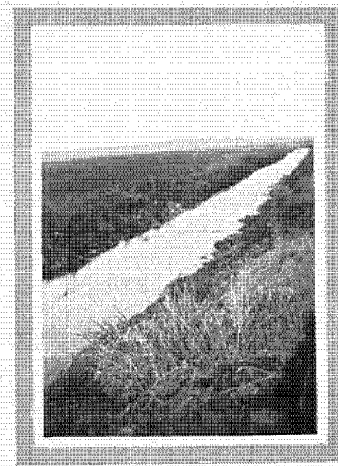
A. J. Kenney, agricultural extension agent of Scott County, Mo., standing beside a stump in a ditch line



Viewing the result of the shot pictured at the top of the page. Fifty per cent straight dynamite was used



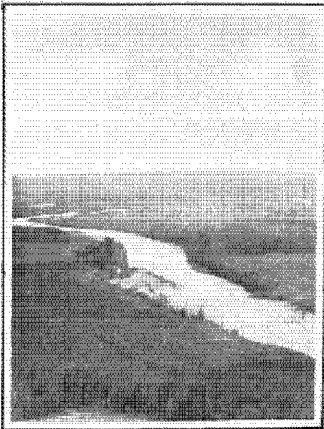
After a "clean-out" shot made by O. R. Reynolds, maintenance engineer for the Middle River District, Inc., of Southeast, Missouri



A typical "one-stick" ditch near the Middle River District

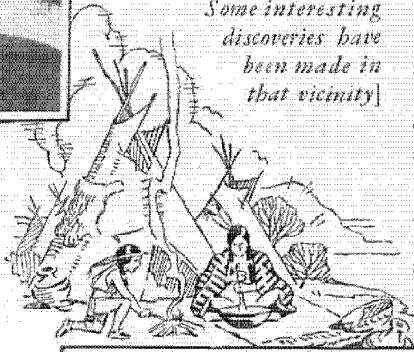
MOUND BUILDERS WORKED HARD NEAR ASHBURN

By PHILIP S. CUSHING



Looking out over the Salt River Valley from one of the promontories mentioned in the accompanying article.

[The du Pont Company's second oldest dynamite plant is located near Ashburn, Missouri. Some interesting discoveries have been made in that vicinity]



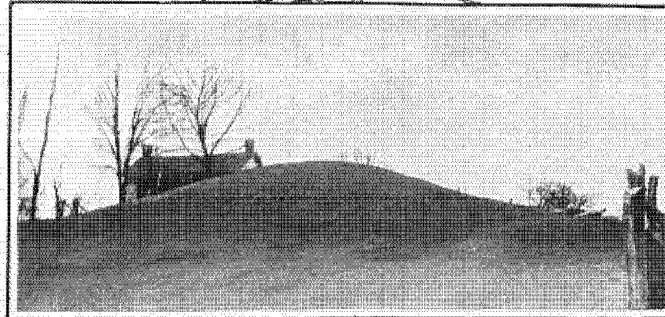
and reputed by tradition to be the work of the Mound Builders; and as it would take a well-equipped contracting outfit a couple of years to remove the earth and expose the internal workings, if any, of the mound, it is quite usual to accept the tradition at its face value.

One of the illustrations accompanying this article shows a well-rounded mound which exists in the yard of a resident of the village of Ashburn, and which practically eclipses his house to the view of a person in the street. It seems reasonably certain that this is a genuine man-made mound: its nearest natural counterpart is the glacial drumlin, found quite commonly in parts of New England. But there are no drumlins in this part of Missouri. Experimental confirmation of this theory is a bit

awkward, for the owner feels no curiosity on

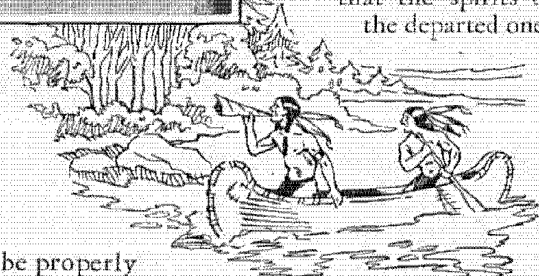
the subject himself, and he has firm convictions as to the propriety of other people digging up his front yard.

Some of the Indian mounds are quite obviously graves. They contain skeletons, and also various objects buried with the dead so that the spirits of the departed ones



House in Ashburn partially eclipsed by Indian mound as viewed from the street. What lies underneath? No one knows.

Below—Stone ruins on the ridge back of the Ashburn plant; they are something of a mystery, too.



THE vicinity of the Ashburn Plant, in Pike County, Missouri, is rich in Indian lore, dating from a time long before the white man scattered his religion, alcoholic stimulants, and whooping cough and measles among the aborigines of the American continent. This wealth of lore, however, like the wealth of precious metal in other localities, is not such as will fall into your lap just for the wishing, but has to be industriously sought out—yes, and sweat for—before there is any hope of acquiring it.

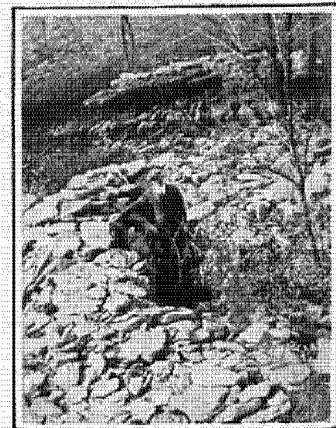
Some time before Christopher Columbus started the now popular pastime of "seeing America first," there lived in this part of the valley of the Father of Waters a race of Indians known to modern man as the Mound Builders. Now the writer is no archaeologist, and there are many things about the habits of the Mound Builders that he does not know. This is perhaps excusable when you consider the large hiatus which exists in the knowledge of the most accomplished and industrious archaeologists, relative to the manner of life, social customs, religion, and general habits of this mysterious people.

It seems tolerably obvious, however, that one thing which the Mound Builder did was to delve mightily in the dirt, and pile up huge mounds of earth, for reasons best known to himself. There is, in the city of Hannibal, Missouri, a very good tourist camp known as Indian Mound Park; its entire extent consists of an irregularly shaped hump of earth, pleasantly rounded in contour,

would be properly equipped to start life in the spirit world with the dignity befitting their stations. Of course, these skeletons and manufactured objects are highly prized.

Many mounds suspected of being burial places have been pretty thoroughly taken apart and sifted, and their contents removed, preserved, and carefully studied.

(Continued on page 23)



BAKER RIVER GOES TO WORK

BAKER RIVER, rising among the glaciers on the south side of Mount Shuksan and Mount Baker, Washington, flows along more or less irregularly until it reaches the base of these mountains, where a glacial moraine checks it to form Lake Baker. From the lake the stream continues rapidly through deep gorges, and then more leisurely for a distance of fifteen miles through a long, flat valley to its confluence with Skagit River. Just before entering the Skagit, it flows for one-half mile through a deep lime rock gorge, and it is here that Baker River Dam, one of the highest in the country, has been constructed. Located near Concrete, Skagit County, Washington, this dam is about thirty miles south of the Canadian border and roughly thirty-five miles, air-line, southeast of Bellingham. Some interesting views of the river and the dam are shown on the following two pages.



The river drains an area of 270 square miles; the gorge where the dam is located is its only outlet. During January and February, 1925, there was an unprecedented rainfall, totaling twenty-five inches, and the tremendous quantities of water passing through the gorge carried away the coffer dams. One may readily appreciate the impracticability of constructing a divergence tunnel of sufficient capacity to take care of this abnormal flow. However, in spite of delays, the dam was finished, the power house constructed, the machinery installed, and power was turned on in less than nineteen months, which is said to be a record for high-speed construction.

Credit for this accomplishment is due the engineering department of Stone and Webster, Incorporated, the contractors. The completion of the Baker River project marks an epochal development in hydroelectrical progress in the Pacific Northwest section of this country. This is the fourth dam on the west slope of the Cascade Mountains that has been constructed by Stone and Webster for the Puget Sound Power and Light Company. The four represent an aggregate capacity of 184,000 horsepower

By F. H. CAMPBELL

CAMPERSON with an ultimate capacity of 23,400 horsepower. The dam forms a backwater, 1,850 acres in extent with a maximum depth of 200 feet which is sufficient to generate 80,000 horsepower. Incidentally, this artificial lake is named Lake Shannon for Mr. W. D. Shannon, the engineer in charge of construction.

In building Baker River Dam a divergence tunnel 600 feet long was driven through the solid lime rock. Later, part of this was blocked and used as a

portion of the main tunnel. This is twenty-two feet in diameter, inside the lining, and 900 feet in length to the intake of the penstock.

Two methods were used in driving the main tunnel, namely, top heading and bench, and wheel spoke. Forty per cent du Pont gelatin was used with delay-action electric blasting caps, up to the sixth delay, as the firing agents. The surge chamber, twenty feet in diameter, inside the lining, was driven from top and bottom, and the same detonators were used for this as well as for practically all outside excavations.

Baker River Dam, constructed by the monolithic method, is 245 feet high from bed-rock to the top of the flood gates. The dam is 450 feet long at the top, has twenty-three flood gates, each ten feet

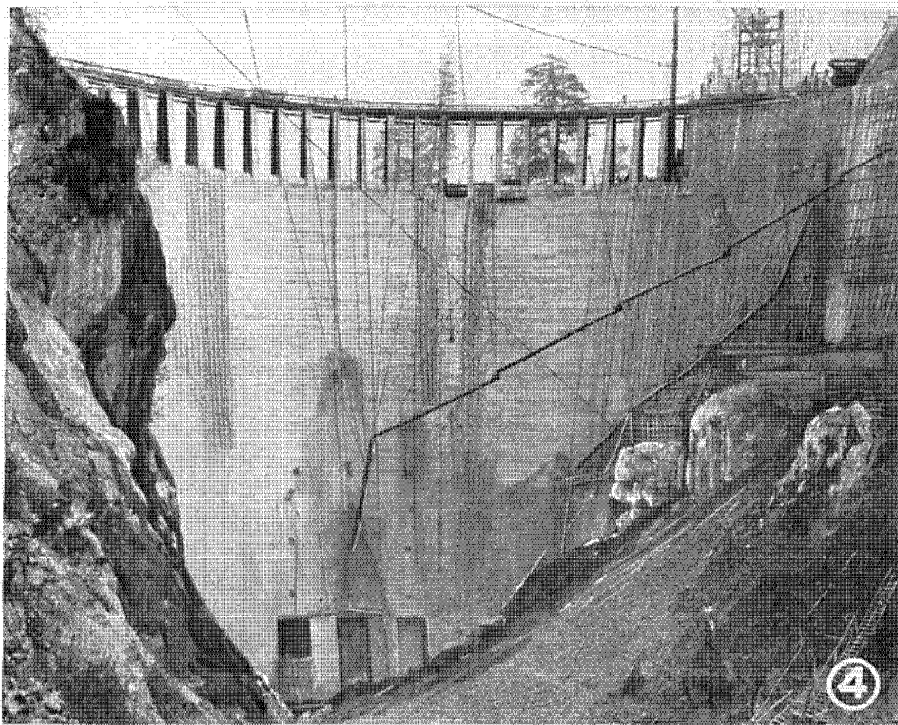
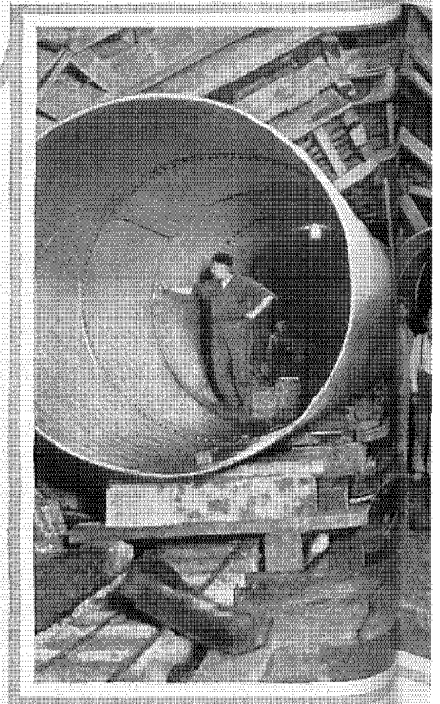
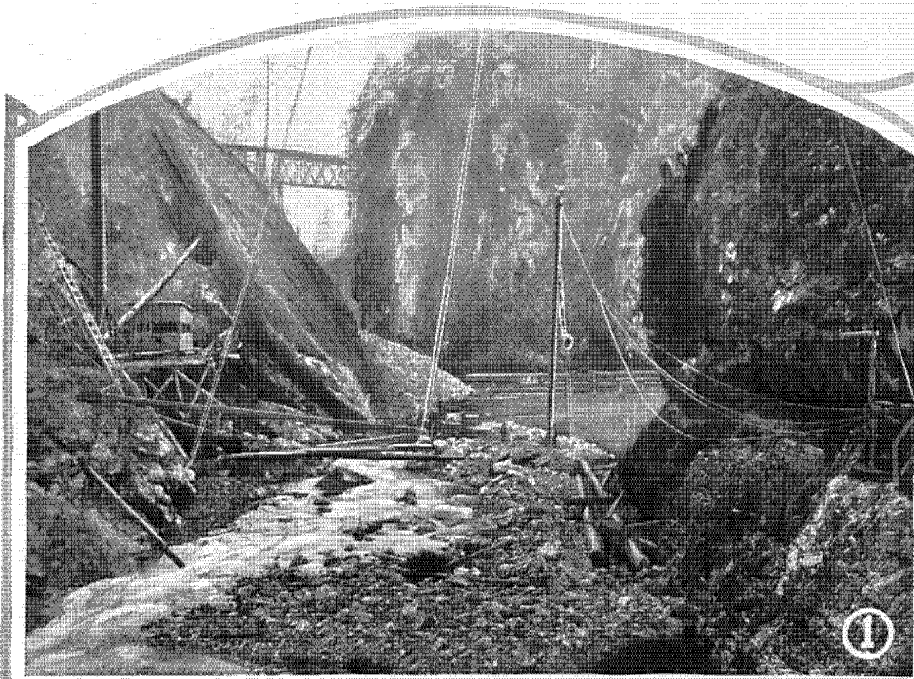
wide and twelve feet high, and is 180 feet thick at the base; 125,000 cubic yards of concrete, not reinforced, were used in its construction.

In recent years a great many projects of this kind have been put through in widely separated sections of the country. Huge dams have been built to impound water for city consumption, for farm irrigation needs and for industrial power uses; but nowadays the chief demand is for cheap hydroelectric power. Railroad corporations and light and power companies are especially active in developing the nation's water resources. Every favorably located water course is being harnessed and put to work as rapidly as possible. The Baker River Dam is just one among the many enterprises of the kind, and is of interest here because du Pont explosives helped to build it.

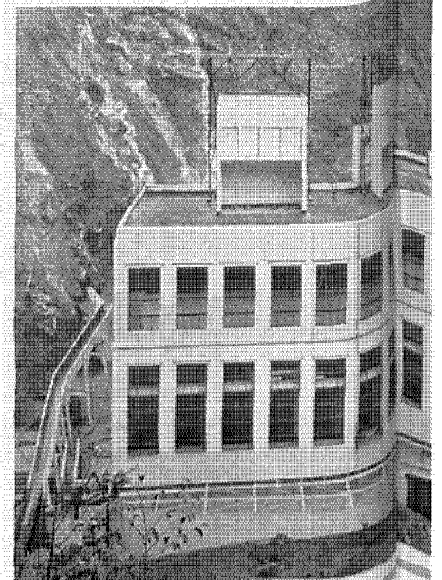


The Baker River Dam was constructed in this gorge. Note in the circle the tiny figure of one of the workmen

VISUALIZING THE BAKER RIVER DAM

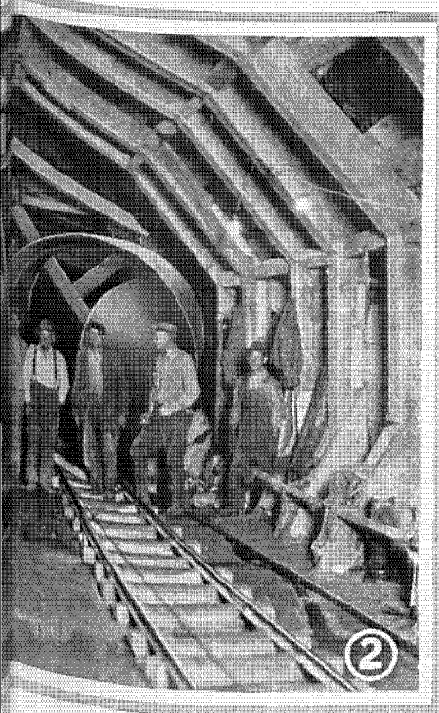


1. The coffer dams, shown in the foreground, were removed early in 1925 by a flood.
2. Laying the penstocks in the tunnel. Dynamite was used in drilling.
3. Showing where the railroad facilities facilitate the handling of material.
5. The power house has a capacity of 10,000 horsepower and is now furnishing electricity to the town of Baker. Despite delays, all work was completed in 1925.

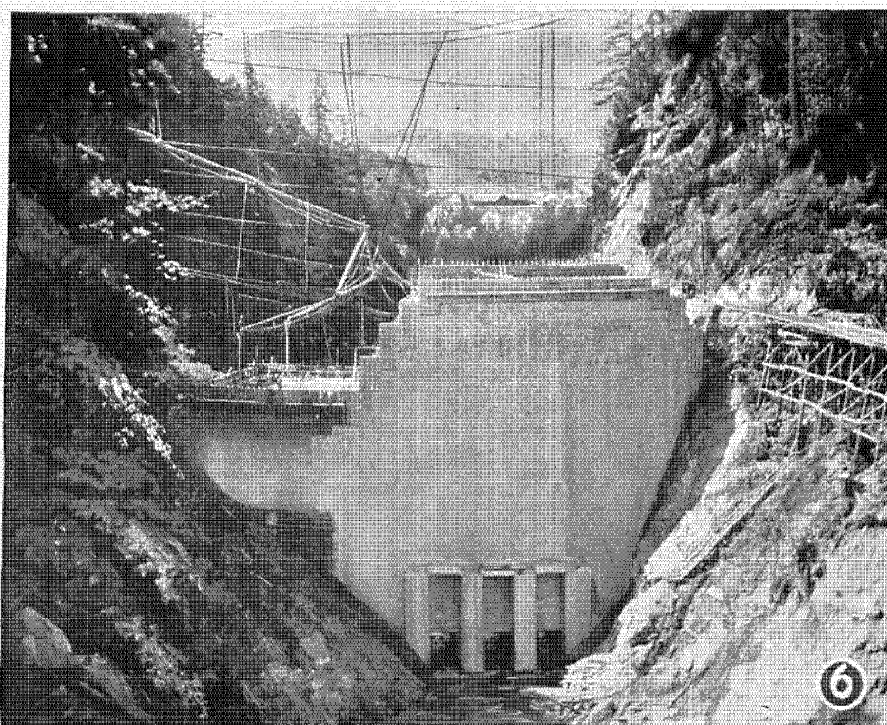


4. The finished structure as it appears from the lower side. The monolithic method was used in its construction. Baker River Dam is 245 feet high, 450 feet long at the top, and its base is 180 feet thick.

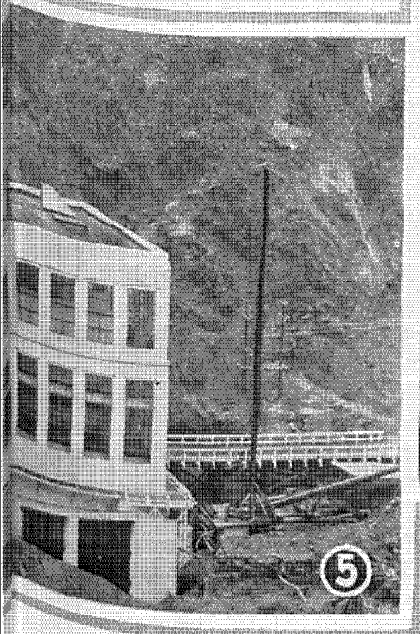
VARIOUS STAGES OF ITS CONSTRUCTION



action in this picture, were washed
caused by unusually heavy rainfall
mel. Forty per cent du Pont gelatin
tunnel through solid lime rock
built along the side of the gorge to
and equipment
capacity of 80,000 horsepower and is
Set Sound Power and Light Com-
on was completed in 19 months



6. Looking at the up-stream face of the dam. This photograph was taken while the work was still in an uncompleted stage. In this construction 125,000 cubic yards of concrete, not reinforced, were poured into the forms



AN UNUSUAL BLASTING PROBLEM

High up on the cliff was the rock needed for road building. The job was to shoot it down without scattering the material

IT is one thing to direct the driving, loading, wiring and tamping of a coyote tunnel shot where the tunnel is driven into the rock bluff on a level with the surrounding country. It is quite another story to successfully direct similar work for a coyote tunnel shot located on an almost perpendicular bluff 170 feet above the ground level. The latter was the problem put up to the writer for solution by one of our prominent west coast contracting firms.

During the summer of 1925, the Warren Construction Company, of Portland, Oregon, was awarded a contract for surfacing approximately twenty miles of highway in the Crater Lake National Park, Klamath County, Oregon. The contractor estimated that he would require about 40,000 cubic yards of crushed rock for this work. A quarry site was selected at Pole Creek where a diorite bluff rises abruptly from the surrounding country. The action of the weather through countless ages had eroded large quantities of the rock which collected at the bottom of the bluff. Preliminary tests indicated that this talus, after being crushed, would make suitable material for the road surfacing, and it was the contractor's original intention to use it for that purpose. In practice, however, the crushed talus failed to meet the engineer's specifications and the contractor was forced to look elsewhere for his material. Pole Creek was the only available quarry site within several miles of the work; the crushing

By GEORGE E. WILLMAN

plant and the equipment had been hauled overland some ninety miles to that point and installed at heavy expense, so there was nothing for the contractor to do but prepare to break down the bluff itself to secure road surfacing material.

At this stage of the proceedings the writer was called into consultation. The bluff at Pole Creek is approximately 230 feet high. It was found that the lower 170 feet was blocky, solid material while the upper sixty feet was a well-checked mass of stone. If it were possible to win this upper section it could be so blasted that a large percentage of the rock broken would be of crusher size.

However, there were several disadvantages to consider, such as the danger and expense of carrying out the work high up on the face of the cliff where it was necessary to drag up all supplies with a rope. Then, too, the chances of the blast scattering the rock over the surrounding country instead of dumping it on the spot selected at the foot of the cliff, were very much greater from a shot 170 feet above the ground than from a similar shot at the base of the cliff. Likewise the risk of damaging the crusher from flying stone was much greater from the shot fired high up on the face of the bluff.

After considering the matter from all angles it was decided that we should attempt to win the upper section. With this end in view a narrow working bench was cut on the face of the bluff 170 feet above the ground. From

this bench two coyote tunnels were driven into the bluff, as shown in Figure 1. These tunnels were driven on such an angle that should the blast have a tendency to throw forward, the rock would not be scattered over a large expanse of territory. Each tunnel was forty feet long and had two crosscuts on each side. Pockets were sunk at the end of each crosscut and all explosives were loaded well below the bottom level of the tunnel. The explosive charge was made up of black blasting powder and 40 per cent N. G. dynamite. Its distribution is shown in Figure 2.

In front of each coyote tunnel a down hole was drilled and sprung and the pocket loaded with 40 per cent N. G. dynamite. This precaution

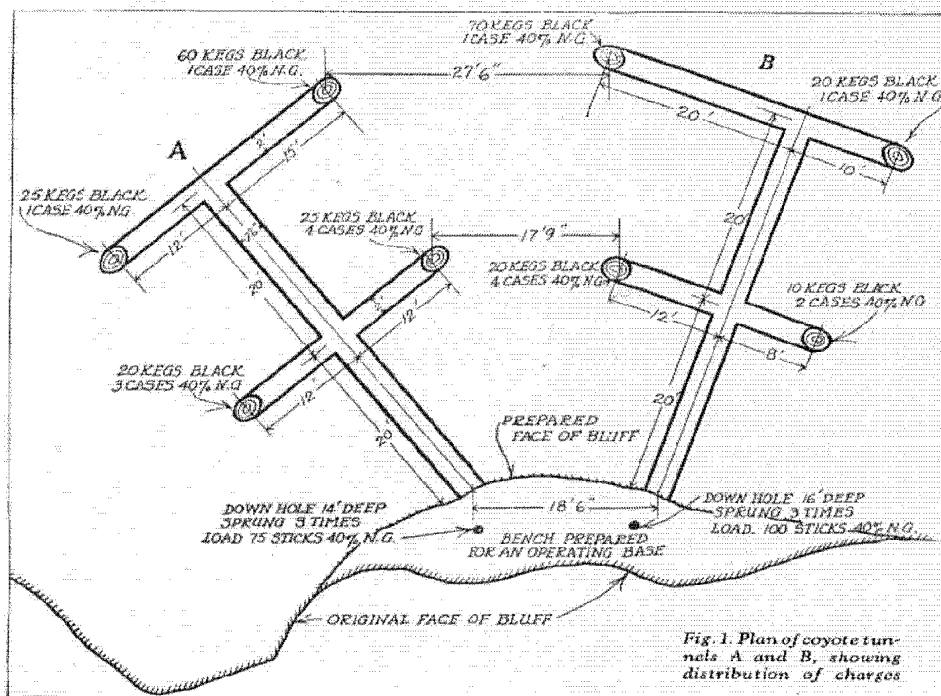


Fig. 1. Plan of coyote tunnels A and B, showing distribution of charges

was taken to break off a blocky formation in front of the tunnel entrance.

The explosive charge figured 2.3 pounds of explosives per yard of rock lying in the square immediately over each tunnel. All charges were primed with du Pont No. 6 electric blasting caps and all connections were made with 14-gauge leading wire.

The explosives were hoisted from the bottom of the bluff to the working bench by means of a rope run through a pulley attached to a tree at the top of the bluff. Four men hauling on this rope would hoist four kegs of powder at a time. The talus at the foot of the bluff was leveled off to provide a receiving place for the rock from the blast.

The shot was successful in every way. No damage was done to the crushing plant or any other equipment, and the contractor was very well pleased.

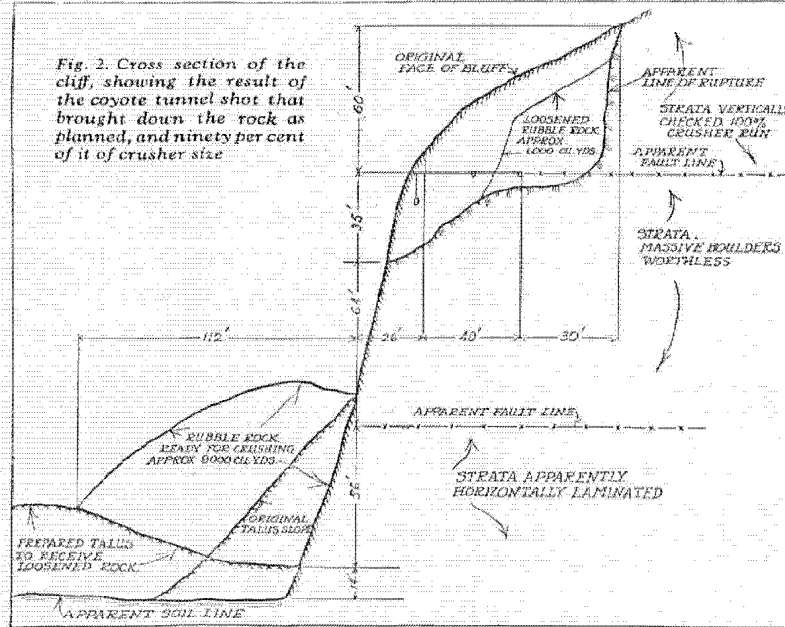
While there were only 3,000 yards of rock within the square over the tunnels, the side-break, back and under-break were remarkable; approximately 14,000 cubic yards of rock were displaced. Of this amount more than sixty per cent was deposited on the place prepared for it at the foot of the bluff, and ninety per cent of this pile was of crusher size, thus reducing secondary blasting to a minimum.

Two years ago Mr. Willman loaded and fired a cliffside quarry shot near Ball Run, Oregon, where rough stone was needed by the city of Portland and also by the commissioners of Clackamas County. This difficult shot was in some respects similar to the one described above. Mr. John M. Mann, commissioner of public utilities for the city of Portland, refers to it in a letter which reads as follows:

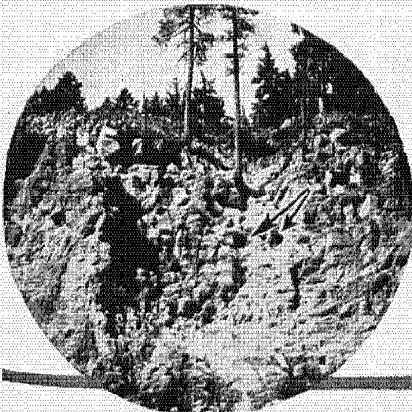
"The writer appreciates very much the excellent ser-

vice which your Mr. George E. Willman rendered to the city of Portland and Clackamas County jointly. He very willingly and ably assisted in planting and firing a six-ton shot of powder, which released approximately 40,000 yards of material, including 15,000 to 18,000 yards of rock, all of which was released and placed in the ravine and below the cliff and just above our rock crusher—almost in the same position where we would have placed this material, had it been placed by hand labor. In fact, Mr. Willman accomplished for us even better results than he originally anticipated, indicating his thorough knowledge of and ability to handle powder.

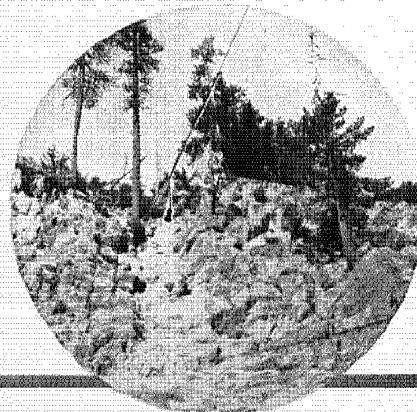
"To reiterate, Mr. Willman's ability, plus his generosity in giving us the benefit of his knowledge and experience, are both greatly appreciated by us."



Below—The face of the bluff, with arrows pointing to the coyote tunnel entrances



Center—The rock pile after the blast. Below—Hoisting the powder to the job



The DU PONT MAGAZINE

Published and copyrighted by

E. I. DU PONT DE NEMOURS & COMPANY, Inc.
WILMINGTON DELAWARE

Subscription, 50 cents the year

E. R. MANCHESTER

Editor

ROBERT R. JAMISON

Associate Editor

Publishers may reprint, with credit, all articles and illustrations except those carrying special copyright. Electrotypes will, when possible, be furnished on request.

Vol. XX

APRIL, 1926

No. 4

OUR COVER ILLUSTRATION

BACK in the early days when the western migration of settlers to the fertile bottom lands of the Ohio and Mississippi basins was at its height, one of the main traveled routes was overland from Philadelphia to Fort Pitt—now Pittsburgh—and thence by boat down the Ohio River.

One cover illustration in this series portrayed a covered wagon with its guardian rifleman bringing up the rear. It symbolized the overland transportation of that day. Its companion picture is now presented to emphasize the fact that natural waterways and river boats were equally important facilities, and to suggest also that guiding a supply boat down the river was attended with many of the same perils as those found on the plains. Floating down a cargo of supplies to a frontier settlement was usually accomplished with safety when a mid-stream course was followed. But that was not always possible. Sometimes, and particularly at a turn or bend in the river, a boat was swept by swift currents close to shore; and at such times and places the hazard of an Indian attack was imminent. Our cover illustration depicts such a scene while a cargo of powder and supplies was being transported down the Ohio River.

Quantities of du Pont gunpowder were shipped overland by wagons to Pittsburgh during the first few decades of the du Pont Company's history and much of it doubtless was transported down the Ohio River and was eventually consumed by settlers on the frontier lines.

ANOTHER FINE RECORD

The preceding number of this magazine carried Mr. Byrne's article entitled "Safeguarding Explosives." Since then new light has been thrown on the subject by Chief Inspector B. W. Dunn, of The Bureau for the Safe Transportation of Explosives and Other Dangerous Articles. His annual report for 1925 is now in printed form.

How well explosives behaved themselves in placarded box cars may be gleaned from the following: Hundreds of millions of pounds of explosives were shipped, yet only twenty-six accidents were reported. No deaths or injuries resulted and the property loss was only \$11,702.

CENTURY-OLD ADVERTISEMENTS

IF you had lived in Boston one hundred and four years ago this month the chances are that you would have read the *Boston Patriot & Mercantile Advertiser*. Probably, too, you would have read every item, including the classified advertisements. April 19, 1822 you would have read this one which appeared on the front page as follows:

GUNPOWDER

DU PONT'S cannon, musket and fine rifle Powder constantly for sale by the single quarter cask of 25 lbs. or larger quantity, and sent to any part of the city or on board any vessel in port, free of expense to the purchaser, by E. COPELAND, JR., 69 Broad street. ap 15

Again, if you had read the *New-York Gazette & General Advertiser* of February 4, 1826, you would hardly have missed seeing the advertisement appearing in facsimile below. It was also given front-page position of the newspaper and is interesting as an exhibit of form and style of advertising published in that day. You will notice that the advertisement is signed by two distributors, Wm. Kemble, 42 William Street, and Anthony Girard, 6 Fulton Street; also that the name of the du Pont Company is subscribed to the concluding paragraph. This indicates that coöperative advertising was practiced at least a century ago.

So many people think of gunpowder and explosives generally in connection with war-time uses that it seems in place to give emphasis to one of the statements made. You will note that particular stress is laid on the point that three kinds of powder are claimed to be best for "blowing rocks."

quantities, in casks, to sell at the most reduced prices.

DUPONT'S GUNPOWDER, superior for sporting and all other kinds, for sale by the subscribers.

Eagle Gunpowder, in canisters, for sporting. Du Pont's Eagle Powder is warranted cleaner, quicker and stronger than any Sporting Powder heretofore imported. The different kinds of Eagle Powder are all of the same quality, being manufactured by the same process and of materials of equal purity—they differ only in the size of the grain.

Superfine Sporting Powder is made of two sizes, the largest grain being designated by a red label with one star, and the finest grain by a blue label with two stars.

Also, Gunpowder in kegs, warranted of the first quality, of the following kinds:—
F, FF & FFF glazed | F, FF & FFF rough
Cannon or Musket or Priming or
OP MP PP
NP NP NP

These three last kinds are called *Navy Powder*, being of the quality manufactured for the United States Navy. They answer the best for blowing rocks on account of their very great strength.

WM. KEMBLE, 42 William-street, or
ANTHONY GIRARD, 6 Fulton-st.

No Powder is warranted genuine but such as is purchased from our Agents, or those who are known to be supplied by them.

E. I. DU PONT DE NEMOURS & CO.
Wilmington, Del. m19

GOODS for Exportation.—Cases Belt Ribbons Nos. 6 and 7

300
Pike
Wha
30
J
R
Silk
Lac
Cu
Sm
Op
N
Ho
H
S
big
To
heavy
Liv
mion
Sa
Sale
date
3
B
65
100
300
1000
1000
200
100
10

SAFETY IN QUARRY BLASTING

A few recommendations drawn from accidents that have actually happened

ACCIDENTS have occurred in blasting ever since explosives were first

By ARTHUR LA MOTTE

of accidents with explosives in quarry and construction work is from hot sparks from

used for this purpose, and although explosives have been so improved in recent years as to make them much more reliable than the earlier types, eternal vigilance is still the price of safety. Using the safest types of explosives is obviously the first measure for warding off accidents. Formerly straight dynamite was the explosive chiefly employed in quarrying and its quick, shattering action is still regarded by many as essential for blasting hard, tough stone. From the safety standpoint, however, straight dynamite has certain disadvantages. It is the most sensitive of the standard dynamites and hence the most likely to be set off by accidental shock. It is also granular and crumbly and consequently has a tendency to sift down into cracks, crevices and crevices in the rock, thus producing a situation fraught with danger. Premature explosions have been caused where straight dynamite was used in sprung holes by loose pieces of rock with a little dynamite between them sliding against each other while the bore hole was being loaded.

Ammonia dynamite is less sensitive to this kind of friction than straight dynamite and is consequently safer for loading sprung holes. Gelatin dynamite is still safer for this purpose. As it is a plastic substance, resembling well worked putty, it sticks together and does not crumble. It is, therefore, very much less likely to sift down into the crevices of the rock in a sprung hole and cause an untimely explosion.

Not all the accidents happen in loading sprung holes, however. When a large blast is being prepared in a quarry where straight dynamite is used, it is almost impossible to prevent some of the dynamite from being spilled around the collars of the bore holes. Quarry workmen are very likely to wear hob nail shoes and several accidents have occurred in late years which could be traced to no other cause

than straight dynamite getting between hob nail shoes and the rock. Ammonia dynamite is less sensitive to friction and will be less dangerous under these conditions but gelatin dynamite has the advantage of cohesiveness also. It is not readily spilled around the surface of the rock near the collar of the bore hole, and even if it is spilled, it is much less likely to explode from friction.

Straight dynamite is much more inflammable than ammonia dynamite or gelatin. One of the principal causes

a steam shovel or locomotive dropping into the bore hole and setting fire to the explosive which burns for a few seconds and then explodes. It may be splitting hairs to compare the relative degree of danger with these three types of explosives, for there is no explosive that I know of that I would care to have hot sparks dropped into when I am around. Still there is no question but that straight dynamite is the most dangerous of the three from this cause.

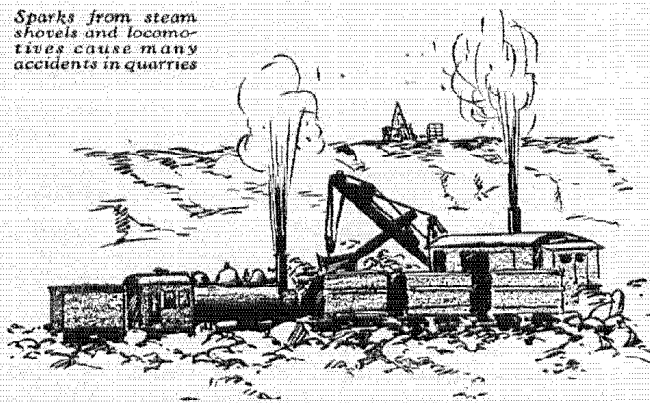
Of quarry accidents which have been reported to us during the last five years, by far the greatest number occurred where straight dynamite, usually a high grade, 40% or 60% nitroglycerin, was in use. Some of these accidents were probably caused by friction between a gritty tamping stick and the bore hole with the dynamite smeared in between. Several were caused by sparks from a steam shovel or locomotive dropping into the bore hole. Two or three were probably caused by men smoking while loading and either dropping a lighted cigarette or a match into the bore hole. I, myself, have seen men loading dynamite in a bore hole wearing hats with "strike-anywhere" matches stuck all around their hat bands. Men frequently carry this kind of match in their jumper pockets and it is more than likely that several accidents have occurred from the matches falling out of their pockets into the bore hole and being struck by the tamping

stick. Several of these accidents were caused by forcing the primer into the hole. A cartridge of dynamite will stand a good deal of pounding and hard usage, but a detonator will not. Safety requires that a cartridge with a detonator in it be handled with considerable respect.

USE WOODEN WEDGES,
WOODEN MALLETS
AND
WOODEN TAMPING STICKS

A bad practice frequently indulged in, and especially hazardous with straight dynamite, is the opening of dynamite cases by knocking the lids off with a piece of rock. While I do not actually recall an accident occurring from this, it always gives an explosives man the cold shivers to see it done. The safest method of opening boxes is to place the sharp edge of a wooden wedge against the under side of the lid and with a wooden mallet force the lid off the box.

Sparks from steam shovels and locomotives cause many accidents in quarries



Using iron bars or iron pipes, with or without wood plugs in the end, for tamping rods has caused a great number of quarry accidents. When cartridges become stuck in the holes it is a great temptation to use some too forcible means of getting the dynamite past the obstruction, but under no condition or circumstances whatever should metal tamping sticks or tamping bars be used.

Some premature explosions in loading well-drill holes have been caused apparently by friction between sharp pieces of rock sticking on the tamping block and dynamite pinched between the block and the side of the hole. This danger can be avoided, at least to a great extent, by making a mat of burlap bags and placing it alongside the hole that is being loaded so that when the tamping block is out of the hole it can rest on this mat instead of on the rock where it is likely to pick up small pieces of stone.

KEEP DETONATORS UNDER LOCK AND KEY

Detonators, that is, electric blasting caps and blasting caps used with fuse, should be kept where children cannot get at them. There is an appalling number of accidents every year resulting from boys playing with blasting caps or electric blasting caps. They have an attraction for children but they make about as dangerous a plaything as can well be imagined. They very seldom kill the victim outright, but usually blow off some fingers or a hand, or blind him for life. The powder crews should be cautioned not to leave any detonators around the quarry where they can be picked up, and to lock up the regular supply so that they cannot be reached by unauthorized persons.

MAKE HASTE SLOWLY IN LOADING SPRUNG HOLES

Too many accidents have occurred from loading sprung holes before sufficient time has been allowed to elapse for the rock to cool. Just what is sufficient time cannot be stated with certainty. The larger the charge used for springing, the longer we should wait before charging again. Many methods have been suggested—feeling the end of the tamping stick which has been allowed to remain in the hole for a while; dumping in a bucket of water; putting a self-registering thermometer down into the hole; and various other expedients. It seems to me that the safest way is to wait from one to three hours after each springing of the bore hole before charging again, and after the final springing shot is made, not to charge until the next day.

BEWARE OF SHORT CIRCUITS AND STRAY CURRENTS

One rather frequent cause of accidents when electric blasting caps are used is for cables operating drills to come in contact with the leading wires or electric blast-

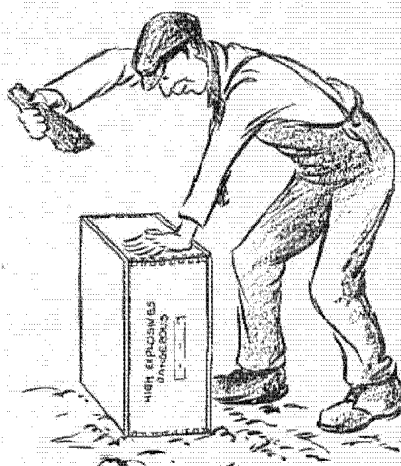
ing cap wires, thus producing a short circuit and an instantaneous explosion. This brings up still another cause, which is lightning striking or inducing a current in the leading wires during the approach or progress of a thunder-storm. When an electrical storm is approaching, all work around a quarry where charges of dynamite are being used should cease. Where electric blasting caps are used, and if time permits, it might be well to short circuit these wires. Lightning and contact between leading wires and live wires and cables have caused a number of premature explosions, though fortunately not all of them have killed people. Stray currents of electricity, while more dangerous in mines than in quarries, or at least more likely to be encountered, should nevertheless be guarded against. A serious quarry accident occurred in California not long ago where a high tension power transmission line broke and dropped on the leading wires connected to a blast. There is also a possibility that leading wires lying on the ground, but insulated from it, and directly under high tension transmission lines, may have a current induced in them sufficiently strong to fire electric blasting caps.

TAMP BLOCK HOLES

Every now and then we receive reports that the fuse used for firing block holes and mudcaps in secondary blasting has flashed and caused a premature explosion, killing or injuring someone. No investigation has so far shown the fuse to be at fault as it is almost impossible accidentally to make a standard grade of fuse in such a way that it will flash. High speed fuse is made for military purposes, but its manufacture is very tedious and expensive, involving an entirely different procedure from that used in the manufacture of the standard grades of fuse. What we do usually find in a case where a flashing fuse is reported, is that the block hole was not tamped and that loose straight dynamite was left scattered on top of the rock in the vicinity of the hole and was set on fire by the fuse curling around and bringing a spark into contact with this powder. The remedy is to tamp all block holes not only for safety from pre-ignition but also as a means of reducing the explosive charge—therefore lowering the cost of secondary blasting—and to cut down the quantity of flying stone which is too prevalent with this type of shooting.

EXERCISE GOOD JUDGMENT AND TAKE NO CHANCES

Several accidents have occurred in the last few years in quarries through attempts to fire two or more parallel rows of bore holes simultaneously by means of two or more blasting machines. This is a highly impractical scheme as it is only by a miracle that exact timing can be accomplished. In one instance where a blasting



Hammering open a case of dynamite with a piece of rock is an unsafe practice

machine was connected to each of two parallel rows and an attempt was made to fire them together, the back line of holes went first, throwing the burden into the quarry and some of the unexploded dynamite in the front row of holes was struck by the dipper of the steam shovel, and two men were killed. Another rather peculiar accident, and a very unusual one, occurred in this way: A charge in one bore hole misfired for some reason, but the adjoining holes carried the burden, leaving a thin layer of rock between the missed hole and the face. When a block hole shot was fired directly in front of this, a piece of flying rock struck the face and exploded the charge in the bore hole.

This goes to show that whenever a misfire occurs, subsequent operations in the vicinity should be conducted with the utmost caution until the charge has been either exploded or removed.

WEAKNESS IN ROCK MAY CAUSE WILD SHOT

Wild shots, the bane of the quarry expert, are sometimes unavoidable. An unseen weakness in the rock causes a large part of the energy of the charge to be expended upon a relatively small part of the burden and this shoots out like a projectile far beyond the place where the rest of the stone falls. Crushers have been wrecked and men have been killed by these so-called wild shots, but as far as I know there is no positive way of guarding against them, with the possible exception of using the buffer method of blasting, that is, leaving the piled up mass of stone from the previous shot in place before firing the second blast, and this method is not applicable in all kinds of quarries.

To avoid accidents from the contingency of a wild shot, everyone should either withdraw beyond possible range of flying rock, or take safe cover before any blast is fired.

A light portable canopy made of some non-inflammable material which can be set over each well-drill hole while it is being loaded has been found to be valuable as an extra precaution against flying sparks getting into the hole.

In loading well-drill holes the question often arises, "How far is it safe to drop dynamite in a hole?" This question is hard to answer, as much depends on the kind and condition of the dynamite used. Some accidents have occurred in loading very deep holes from dropping large-diameter, high-strength cartridges.

In such cases, to be absolutely sure, it is best to cut up the large cartridges, if gelatin is used, dropping the pieces rather than the whole cartridge. Or the whole cartridges can be lowered one at a time by means of sash

cord and peg until most of the hole is loaded. All strengths have been dropped in holes up to one hundred feet in depth, but beyond that I think it best either to cut up the cartridges or lower them as just explained.

In the catalogs and booklets which we issue there are some thirty or forty don'ts in regard to the use of explosives. It might be well to conclude this discussion of quarry accidents not with forty don'ts, but with a few positive recommendations.

Select the safest explosive that will give the desired breakage. All in all, gelatin dynamite is the best explosive for every purpose in a quarry except mudcapping. It does not develop its full velocity of detonation when unconfined, and therefore does not give satisfactory results in mudcapping, but it is by far the most efficient and safest explosive in the bore holes. Quarry Gelatin is often more economical than regular gelatin because of its greater shattering power grade for grade. When a shot is made with either Quarry Gelatin or Quarry Straight in a pit quarry on a hot, still day, it is wiser to keep away from the face after the blast until the fumes have had ample time to clear away.

See that the loading crew is provided with wooden tamping sticks and wooden tamping blocks without any metal protruding anywhere.

See that they do not wear shoes with iron hob-nails in them, and also see that they do not carry matches. I hesitate to add—"See that they do not smoke while loading," but only a few weeks ago I saw the blasting foreman of a very well conducted quarry cheerfully smoking his pipe while he was loading the dynamite in the holes.

In dry work allow sufficient time for the holes to cool off after springing—two or three hours between shots and overnight for the final shot is not too long an interval.

Keep detonators locked up until needed for priming.

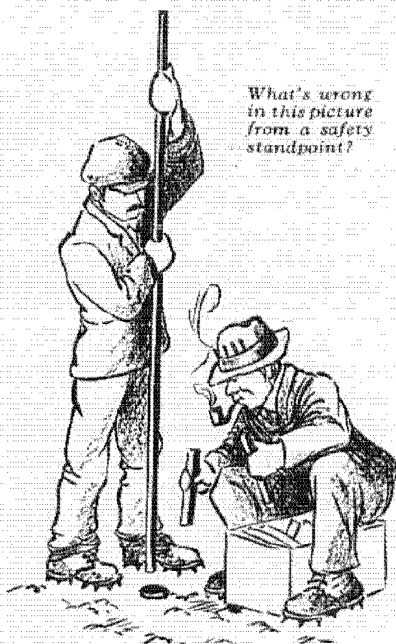
Look out for stray currents around blasting operations.

Make it somebody's business to see that live wires and cables are kept at a safe distance from the blasting.

Keep the steam shovels and locomotives away from that part of the quarry where the loading is going on. One of the worst accidents of recent

years was the entire covering up of a steam shovel and the killing of nine men when a spark dropped into a loaded bore hole and caused a premature blast.

The handling of explosives around a quarry or any other operation is about as safe as the most careless man on the job. A bad accident in a quarry can easily cause a loss of \$40,000 or \$50,000, and it would seem, with this in view, that intelligent supervision would be worth the expense.



What's wrong in this picture from a safety standpoint?

WHAT THE PAINT ENGINEER SEES

Plant inspections reveal some curious color preferences among maintenance men, which is another way of saying that there is a real need for paint prescription service

ONE of the twentieth century developments in the science of plant maintenance insofar as it relates to paint and varnish usage is the work of the "paint engineer." This chap is presumed to know considerable about paints and varnishes, and particularly their industrial application. He is supposed to go through an industrial plant and be sufficiently expert to tell, when he is through, just where the weak spots lie in the maintenance program and recommend what types of paint should be used for each surface and what colors are best, considering natural lighting and many other factors that enter into each problem.

And if he keeps his eyes open to the unusual and feels in the mood to relate his experiences, he can tell some weird tales about the things he has seen that were, to say the least, out of the ordinary.

Naturally, in an article of this kind, one cannot be personal. So, though the locations are phony, the facts are authentic. Let them speak for themselves.

In a large plant in the East, the maintenance work was left to the superintendent in charge of each area. There was no attempt at coordination of effort, so that the plant presented a rather hodge-podge appearance. One superintendent favored gray, and used that color everywhere and on most everything requiring paint. Now gray is used quite universally where a color is desired that will give maximum service under more or less severe conditions.

Another superintendent's favorite color was a bright pea-green, and he used it on tanks, wood buildings, metal work, and on everything paintable about his area, without regard for its suitability for each different job. And then he complained because he found it necessary to repaint some surfaces rather frequently. The answer here was that the product was not suited at all for the work to be done. The paint engineer pointed out the difficulty, and all complaints ceased when the right product, from the standpoint of both color and character, was used.

A review of the unusual in color choice seems to point to a preponderance of greens of one shade or another. An



The chief engineer didn't know exactly what the trouble was so he called in the paint engineer to look the situation over

instance comes to mind of a certain power plant wherein the color scheme for one reason or another was wrong. The chief engineer didn't know exactly what the trouble was, so he called in the paint engineer to look the situation over. He opened the door and looked around. One glance was enough. This is what he found: Ceiling and side walls, a deep buff in color; lower walls, commonly called the dado, a bright, sparkling green of such a brilliant hue that it hurt the eyes. That wouldn't have been so far out of line, but all the machinery—the turbines, motors and other equipment—were also painted the same color. The solution in this case was a

ceiling color much lighter than the side walls, with the dado color a rich, dark green, and the machinery about the same color, with the floor a light gray.

Not long ago a manufacturer in a northern city called in a paint engineer to inspect his plant and make some suggestions for betterment. The superintendent in charge of maintenance work was apparently fond of red and green in combinations, and this color scheme was followed throughout. No account was taken of the natural daylight entering the plant and the fact that this dark color scheme absorbed a great deal of it. Some of the equipment ran to huge proportions and one can readily imagine the effect with the body of the machinery a bright green, with all rivet heads, and other trim, finished in a flashy vermilion. The use of a light, attractive gray would have changed the appearance completely, greatly adding to the natural daylight and it certainly would have helped to increase production also.

A certain textile plant in the South had just been renovated. Interior walls and ceilings were glistening white; sprinkler systems, the conventional vermilion; but what focused attention and lifted this plant out of the commonplace was the unique and unusual treatment of the steel caps on top of wood pillars supporting the floor above. *These were bright blue.* It must be admitted that the general effect was attractive—exceedingly so. To stand at one end

of the long plant and look down the rows of pillars, one needed no reassurance to know that he was in the good old U. S. A.

There is more or less interest today in proper identification of piping systems. In some plants where the lines are intricate, it is somewhat of a problem to work out a pipe painting program without going to ridiculous extremes. The management of one large municipal light and power plant has standardized on a separate color scheme for each individual pipe line. When one enters this plant, he couldn't stumble over a pipe line in the dark. If ever a rainbow was chained to an industrial plant, it surely is in this one.

As a matter of fact, piping identification can be made a simple matter, if the valves and fittings only are given the distinctive color, and each pipe line is treated the same as the adjacent surface, where possible. This makes the lines less conspicuous, yet they can readily be identified in case of trouble.

And so it goes. Many more instances might be cited to show odd and unusual treatments of plant interiors, but it would extend this article unduly to mention them. Rarely do maintenance men in any two plants

have exactly the same idea about methods of treatment of various surfaces and of the colors that should be applied for best results. The personal equation enters largely into the solution of these problems; but the versatile paint engineer can usually find a way around the difficulty, in case it seems impossible to surmount it.

Today, in thousands of industrial plants and institutions, those who are in charge desire to maintain their properties in good physical condition, but they do not have carefully worked-out programs. As a consequence surfaces are neglected. Painting is done on a "hit-or-miss" basis, and the cost of doing this work, both known and hidden, is exceedingly high. Maintenance and upkeep problems, as they relate to the use of paint, should be approached from an engineering viewpoint. Paint products should be selected with regard to color and character and adaptability for the surfaces on which they are to be applied. And that is where the paint engineer can render a helpful service. Should you, who read this, be interested in getting further facts regarding the type of service rendered by the paint engineer, drop a line to any of the Paint and Varnish offices listed on the inside back cover page of this magazine.

FABRIKOID CASE KEEPS GUN DRY

Colorado manufacturer considers it the best material obtainable for the purpose

"TRUST God and keep your powder dry" is an axiom credited to many sources. "Use Fabrikoid and keep your gun dry" may be credited to Captain A. H. Hardy, representative of the Peters Cartridge Company, of Denver, Colorado, as an adaptation of the old saying, and one that should carry a new note of interest to a host of gun fans. For every sportsman who owns a gun is of course anxious to keep it in good condition, and to that end nothing is quite so serviceable as a well-constructed gun case. The point here is that a genuine Du Pont Fabrikoid gun case meets all the requirements of serviceability and good looks, too.

Captain Hardy, who for the past twenty years has been a professional shooter, was formerly engaged in the leather industry as a manufacturer of fine cowboys saddles; he produced many of the finest cowboy saddles made in the West. At that time he did much experimenting on gun cases, and without solicitation sold hundreds of them.

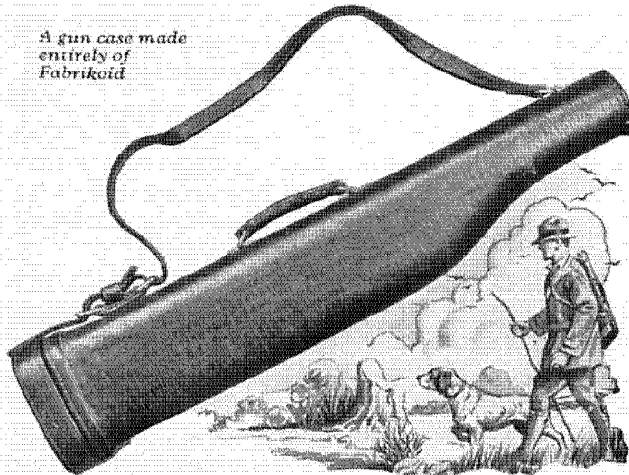
A letter from Captain Hardy says: "Have been using your Du Pont Fabrikoid for lining ever since it came out and think it the best thing obtainable for the purpose, as it not only wears well but is waterproof and does not gather dampness to rust the gun."

The success of Fabrikoid as a damp-proof lining was so marked—and its superiority over other materials so great—that Captain Hardy was led to use it more

extensively. The result is the complete Fabrikoid case we are illustrating here, which he describes as "one of my gun cases made up entirely of Du Pont Fabrikoid and cloth board—there is not a piece of leather in it."

By using Fabrikoid, Captain Hardy has created a case that is waterproof, mold- and mildew-proof, and scuff-proof. The case is light in weight, too, so that it is easily carried throughout the day's trip. And best of all, it is reasonably priced within the means of the average sportsman.

A gun case made entirely of Fabrikoid



WHAT DOES THE DU PONT PRODUCTS EXHIBIT MEAN TO THE MILLIONS?

(Continued from page 1)

Jobbers and dealers, too, have found the Du Pont Products Exhibit a service headquarters of exceptional value to them; for it functions as a clearing-house of information about merchandise of all kinds in which du Pont materials are incorporated.

In one sense the Du Pont Products Exhibit is a branch office of every manufacturer who displays merchandise there, although it does not function as a sales office. No orders are taken for manufacturers, but jobber inquiries are promptly referred to them, and dealer inquiries are referred to the manufacturer's jobber, if known, and otherwise to the manufacturer himself. Consumer inquiries, wherever possible, are referred to the nearest dealer handling the product in the visitor's home town. Thus the Du Pont Products Exhibit functions importantly as a service headquarters, for in the course of a year a great many inquiries develop. Incidentally, 1925 was the record year in that respect.

Every art of window trimming is practiced to attract visitors, and the displays are changed each week. Many of them are specially designed to catch the eye of convention delegates. And they do that unfailingly.

Well-informed members of the exhibit staff are at hand to explain to visitors the merits of exhibited articles, or to answer questions about them, but in doing so they never solicit sales. In fact, signs conspicuously posted about the room carry the legend: "Articles exhibited are sold only on request of visitors." Such requests are not uncommon. When visitors insist on buying certain articles of merchandise, sales are permitted, when possible, out of exhibit stock. These articles are sold at the regular retail price as an accommodation to the visitor, and replacements are made by purchase from the manufacturer. It may be noted, too, that many visitors on returning to their home towns make these requests by mail. Last year more than two hundred requests of this kind were received in one month, some of them from foreign countries.

Now what do people say about this unique exhibit? Well, it may interest you to note the comment of a federal judge who was one of the many distinguished visitors last year. He said, "I am amazed that the products of the du Pont chemical industry have so completely covered the markets and industrial fields of the world."

The mayor of a prominent New York State city, after spending some time in the exhibit, referred to it as the "Wonder Place of American Chemistry."

These are typical opinions of keen observers. Occasionally, however, a visitor leaves the exhibit with vague or mistaken ideas about it. Some months ago the pastor of a large city church visited the place. What he saw

impressed him, and the following Sunday he preached a sermon on "The By-products of Religion." Visualizing the many "by-products" of industrial chemistry as displayed by the du Pont Company at Atlantic City, he said, had prompted him to develop the theme. He erred only in thinking of them as by-products. Since many people carry away this same erroneous impression, it may be corrected here to some purpose.

"How many by-products are included in your display?" we asked D. J. O'Connell, who has managed the exhibit ever since it was started.

"I can think of only one," he replied, and a moment later he held up a bottle containing a few chunks of nitre-cake for our inspection. "All of the other products exhibited," he continued, "are main products—they are not by-products."

"Do you find it difficult to procure new things for the exhibits?" we inquired.

"Not any more," was the smiling reply. "Ten years ago we worked hard to round up a representative display of merchandise. The exhibit plan was new to many manufacturers who use our products. But it has worked out so effectively that now we have a waiting list of manufacturers eager for display space.

"Of course our exhibit only hints at the number and variety of uses made of du Pont products," he continued, "but such as it is, the visitors who spend a little time with us find it educational, and interesting; the manufacturers who coöperate with us in

keeping it up-to-date find that it yields them surprisingly good returns as a business-promotive agency, and with larger crowds viewing the exhibit each year it is becoming an increasingly valuable medium of advertising and a greater service factor in the development of the company's business."

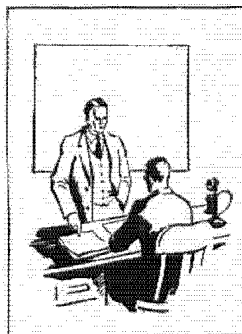
We have not attempted to describe the range of merchandise displayed in the Du Pont Products Exhibit. Only by making a personal visit to the place can you get any adequate conception of the infinite variety of articles shown there. So we leave you with this suggestion—we make it every month—"When in Atlantic City, visit the Du Pont Products Exhibit." A cordial welcome awaits you at this "Wonder Place of American Chemistry."

PYRALIN IN THE SHOE INDUSTRY

(Continued from page 3)

applications point to the versatility of the product and suggest, too, the various methods of fabricating it. Since the material can be cut and sawed and die-cut and pressed and crimped, it lends itself well to the usual manufacturing operations found in the shoe industry.

As Pyralin weats so well and has moisture-preventive properties, and since it gives such a fine-finished appearance to shoes, one does not wonder that manufacturers are using it extensively.



MOUND BUILDERS WORKED HARD NEAR ASHBURN

(Continued from page 10)

Undoubtedly much damage has been done, and the sources of much information have been destroyed, by the injudicious use of dynamite in the exploring of these mounds. Dynamite saves lots of back-ache and blisters on the hands; but at the same time, if you put a couple of sticks of Red Cross Extra contiguous to all that is mortal of a departed Indian, and touch it off, the late lamented is bound to get pretty well scrambled in the process; and much the same is true of the crockery and other equipment which was planted with him.

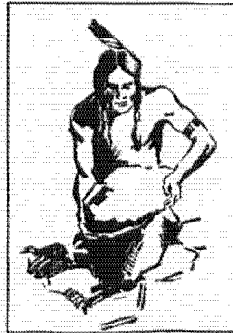
The Mound Builders adapted their peculiar form of architecture to dwellings, means of defense, and works having apparently to do with their religion, as well as to graves. They also used fragments of stone, as well as earth, in their workings, though it is not definitely known whether they used stone as it came to their hands or whether they had rude methods of making the size and shape of the fragments suitable to their needs. The latter idea seems quite probable, however, as it is definitely known that these people possessed considerable skill in shaping various weapons and utensils out of stone. They used for this purpose a whitish flinty stone, having a conchoidal fracture, and many axe-heads, knives, spear-heads, pestles, and arrow-heads have been found, which are of very good shape, and well made. This flinty material was quite likely a fairly important material of the commerce of the time, or perhaps even a medium of exchange, as it does not occur naturally in many of the localities where are found not only the implements, but evidences of their manufacture. These evidences consist of large piles of flake-shaped chips of stone struck off from the working pieces by means of a tool made of horn or a certain wood; and their extent bears mute evidence of the industry of these primitive craftsmen.

Back of the Ashburn Plant—that is, to the west—is a fairly steep-sided ridge which at this point separates the valley of the Mississippi from that of Salt River. Radiating from the west side of this ridge like the fingers of a hand are several rocky promontories commanding a very wide view of Salt River Valley. At the ends of two of these promontories, or fingers of land, are stone ruins which are very obviously of human origin. One of these is little more than an irregular pile of rocks, the individual pieces being roughly flat and quite jagged, from twelve to eighteen inches in diameter, and three to six thick. It requires the fine eye of imagination to see any distinctive form in this ruin.

However, at the end of the other promontory is a ruin in which the original outlines of two structures are very clear. These structures consisted of an inside rock-walled space, roughly square, and about ten feet on a side. There

is a break in one side, near the corner, which appears to have been an entrance, and outside this break is another wall, extending along two sides of the square, parallel to the inside walls, and forming a passage, or corridor. There is no indication of there having been any roof over the buildings.

We will leave it to the reader to figure out to his own satisfaction the use to which the original structures were put. Some people say they were forts made by the Mound Builders, and that the outside wall was built to protect the entrance, and incidentally the inmates, from arrows and other unpleasant things. This may be the case, and dispute is idle. It occurs to the writer, however, that a garrison which was able to spit on its hands, and make other war-like greatest, in a space ten feet square, was rather scanty in numbers; and that this fact would have opened to an attacking force the alluring alternative of passing a hundred yards or so to one side or the other, and ignoring the garrison entirely, which would have been very humiliating indeed.



The buildings may have been Indian watch-towers, as they command a view of the entire plain. The conventional red-skin, however, is supposed to be able to avail himself of natural cover, which is abundant thereabouts, and to be temperamentally averse to the very irksome business of piling up rocks to peek from behind. We would not be surprised to have some scholar come out with adequate proof that the buildings were put up by the early white settlers, for watch-towers, or defense, or chicken-coops, or what-not.

The resident Missourians, when they can be induced to talk, make some interesting remarks about these ancient ruins and mounds, and there are about as many different stories as there are people.

ITALIAN FIRM WINS FABRIKOID CUP

(Continued from page 7)

- | | |
|---|---|
| 1. *Pasquali e Pecchioni, Italy | 10. *Cia. Comercial Importadora, S. A., Sucre, Mexico |
| 2. *Machek & Spol, Czechoslovakia | 11. Armand Antyan, Egypt |
| 3. *R. F. Higgs & Co., Ltd., Australia | 12. *Parsons Hardware Co., Philippine Islands |
| 4. *Cie. Welin-Higgins, France | 13. *Arkell & Douglas, Inc., China |
| 5. Negocitas, S. A., Switzerland | 14. H. J. Pettersen, Norway |
| 6. *F. W. Durose, England | 15. Sucs. de L. Villamil & Co., Puerto Rico |
| 7. *W. A. Beer, Ceylon | 16. *Chinese Engineering & Development Co., China |
| 8. Barry Colne & Co. (Transvaal) Ltd., South Africa | 17. S. Isaacs & Co., Japan |
| 9. *Oy. Almar Ab., Finland | 18. *Sturges & Melich, Venezuela |

*Also on 1924 Honor List

The cup for 1925 has been won by Messrs. Pasquali e Pecchioni, Fabrikoid agents in Italy. They are among the younger members of the Fabrikoid family, although Fabrikoid has been sold in Italy for a number of years. Theirs is an energetic and progressive partnership, composed of Mr. Domenico Pasquali and Mr. Enrico Pecchioni, both very well known in Italian automotive circles.

TRAPSHOOTING—AN IDEAL SPORT

(Continued from page 6)

thrill of those instants when finger, brain and eye hang on the verdict of the lightning lead. There is a conviction that comes between the "bang" of the shell and the "pull" of the shattered clay that makes trapshooting a sport compelling and keeps it at the front of all American recreations.

Trapshooting appeals to men of large affairs as an after-office-hours recreation, while men of leisure find it a welcome diversion from town clubs. Trapshooting is of growing importance at country clubs, as men who live and breathe other sports are not immune to its charm.

The need for trapshooting is as varied as its benefits. That it serves a manifold purpose and caters to a number of necessities is evidenced by the physical range and the widely divergent interests of its devotees. That it is potent and worth while is guaranteed by their enthusiasm and loyalty.

Few pastimes are as scientific as trapshooting; none is so good a brain tonic. It constantly develops situations requiring keen judgment. Every target brings its own difficulties, to be solved in the fraction of a second. The rapid calculation of lead, elevation, angle, etc., the nice decision and instant action quicken the eye and hand. The intense concentration drives away brain-fag and brain-lag and gives a real cheer-up relaxation. Your skilled trapshooter is a man with nerves of steel, quick and unerring judgment, superb poise and unfaltering action, qualities latent in every man and woman, and needing but the virile touch of this sport for development.

Skill in the use of firearms is always an American ambition. It is supported by an hereditary talent which is easily guided into wonderful proficiency, or as easily mis-

led into unsafe and unsound practices. Its proper training is a social as well as an individual duty.

The training derived from trapshooting is one of the best to be had. Its necessities impose the strictest caution in the handling and care of firearms and direct their use along approved and scientific lines.

With the supply of game constantly decreasing, and new laws imposing shorter seasons, productive hunting not only requires exceptional skill, but gives no opportunity for acquiring it.

The practice acquired at trapshooting brings success in the field, for it supplies all the essential attributes of the hunt. The conditions of game shooting are closely duplicated, with the difficulties of size, speed, flight and direction of the live bird sufficiently exaggerated in the "clay" to leave a safe margin. Hunters will find that a few practice shoots before the season weigh heavily in the game bag afterward.

Every man needs relief from the dull grind of routine work. He needs something to lift him out of the rut of waning interest and lagging ambition; something to instill new ideas and new enthusiasm; to reflect life from new angles; to provide new incentives.

Trapshooting gets far under the skin, deep into the blood. It grips with the force of the natural and the elemental. It is a hobby that holds.

John Philip Sousa says:

"Heaven pity the poor mortal who has not a hobby! In the wisdom of things, every man should have an active, muscle-building, fat-destroying, lung-developing hobby. My hobby is Trapshooting."

PYRALIN HELPS THE PUTTER

MANY a golf match is lost by a poor putt, as every golfer will tell you. To enable golfers to make putts more accurately, an improved club, known as the McDougall putter, has been placed on the market. It is made of aluminum and the club head is equipped with a Pyralin cap cover which forms the design of a T-square, one line of which is parallel with the face of the club and the other perpendicular to it—a true line to the cup and one that serves to guide the player while making a shot.

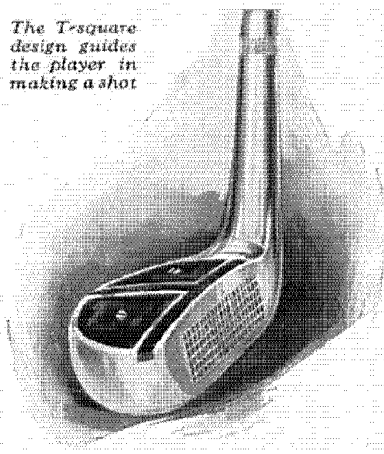
The Pyralin cap covers two separate compartments into which small pieces of lead are inserted to give weight to the club. The player can regulate the weight of his club at will. This is particularly of advantage to the player

who habitually cuts or slices his putts, for he can correct the tendency by redistributing the weights in the front and rear compartments. A supply of extra leads for this purpose is furnished with each club.

Mr. McDougall so improved his own game with this new type putter that all his friends—and later all his friends' friends—wanted one. The demand has increased to such an extent that now he is making them for golfers everywhere and his business is steadily increasing.

Further information about this club may be obtained from the Thistle Putter Company, 461 Canal Street, New York City. Descriptive literature will gladly be sent to any interested golfer who will write for it.

The T-square design guides the player in making a shot





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

General Executive Offices

WILMINGTON

DELAWARE

All Inquiries Regarding du Pont Products Should be Addressed to the Company—the Nearest Office

ACIDS AND HEAVY CHEMICALS

*Acids, alums and miscellaneous
heavy chemical products.*

Philadelphia, Pa.
35th & Gray's Ferry Rd.
Newark, N. J., 256 Vanderpool St.

CELLOPHANE

Du Pont Cellophane Company, Inc.
New York, N. Y., 40 W. 40th St.
San Francisco, Calif.
Balfour Bldg., 351 California St.

CHEMICAL PRODUCTS

*Bronze powders, ether, collodion, house-
hold cement, leather belting cements, Duco,
pyroxylin lacquers and enamels, split and
patent leather solutions and other pyroxy-
lin preparations and solvents.*

Boston, Mass., Everett Station 49
Chicago, Ill., 2100 Elston Ave.
Detroit, Mich., General Motors Bldg
Flint, Mich.
Parlin, N. J.
San Francisco, Calif., 569 Mission St.

DYESTUFFS

Dyestuffs and dyestuff intermediates.

Boston, Mass., 274 Franklin St.
Charlotte, N. C., 232 W. First St.
Chicago, Ill., 1114 Union Trust Bldg.
New York, N. Y., 8 Thomas St.
Philadelphia, Pa., 126 S. Front St.
Providence, R. I.
709 Hospital Trust Bldg.
San Francisco, Calif., 569 Mission St.
Bombay, India
Jacob Sassoon Building
Rampart Row
P. O. Box No. 1010
Kobe, Japan
No. 88 Nakamachi-Dori
P. O. Box No. 384
Hankow, China
No. 23 Tung Ting Road
Shanghai, China
Robert Dollar Bldg.
3 Canton Rd., P. O. Box No. 393

MOTION PICTURE FILM

Positive and Negative

Du Pont-Pathé Film
Manufacturing Corp.
New York City, 35 West 45th St.

EXPLOSIVES

*Explosives for all industrial, agricultural,
military and sporting uses.*

Birmingham, Ala.
601 Brown-Marx Bldg.
Boston, Mass., Harvey Building
Chauncey & Bedford Sts.
Buffalo, N. Y., Prudential Bldg.
Chicago, Ill., 1814 McCormick Bldg.
Denver, Colo., 406 Ideal Bldg.
Duluth, Minn., Hartley Bldg.
742 E. Superior St.
Huntington, W. Va.
Suite 1004 Union Bank Bldg.
Joplin, Mo., 816 Joplin Nat'l Bank
Bldg.
Kansas City, Mo., 225 Scarritt Bldg.
Miami, Florida, 305 Clark Bldg.
343 S. W. North River Drive
New York, N. Y., 120 Broadway
Pittsburgh, Pa., Fulton Bldg.
Portland, Ore.
Northwestern National Bank Bldg.
St. Louis, Mo.
17th Floor, Arcade Bldg.
San Francisco, Calif.
Suite 403 Balfour Bldg.
351 California St.
Seattle, Wash.
Hoge Bldg., 2d Ave. & Cherry St.
Scranton, Pa., 710 Traders Bank Bldg.
Spokane, Wash.
721-22 Old National Bank Bldg.
Riverside Ave. & Stevens St.
Springfield, Ill., 716 Reisch Bldg.

FABRIKOID AND RUBBER FABRICS

*Fabrikoid for automobile tops, body cover-
ing and upholstery; bookbinding, furni-
ture, luggage, novelties, etc. Pontop for
auto tops and curtains. Gum rubber and
raincoat fabrics. Tontine shade cloth.
Ventube for mine ventilation.*

Newburgh, N. Y.
San Francisco, Calif., 569 Mission St.

RAYON

Du Pont Rayon Company, Inc.
P. O. Station B, Buffalo, N. Y.
Greensboro, N. C.
708 Jefferson Standard Bldg.
Greenville, S. C., 408 Woodside Bldg.
New York, N. Y., 132 Madison Ave.
Old Hickory, Tenn.
Providence, R. I.
Room 937 Hospital Trust Bldg.
Reading, Pa., 31 N. 6th St.
San Francisco, Calif., 569 Mission St.
EVERDUR METAL No. 50
*An easily workable corrosion-resistant
alloy of copper and silicon.*
Du Pont Everdur Company, Inc.
Wilmington, Del.

LITHOPONE, DRY COLORS & PIGMENTS

*Products for paint, ink, oilcloth, linoleum,
rubber and other industries.*

Boston, Mass., Everett Station 49
Chicago, Ill., 2100 Elston Ave.
Newark, N. J., 256 Vanderpool St.
Philadelphia, Pa.
3500 Gray's Ferry Rd.

PAINTS AND VARNISHES

*A complete line of paint and varnish prod-
ucts for all home and industrial uses.*

Boston, Mass., Everett Station 49
Chicago, Ill., 2100 Elston Ave.
Newark, N. J., 256 Vanderpool St.
New York, N. Y., 21 E. 40th St.
Philadelphia, Pa.
35th & Gray's Ferry Rd.

San Francisco, Calif.
Citizens' Warehouse
569 Mission St.

PYRALIN AND VISCOLOID

Pyralin—Arlington, N. J.

Viscoloid—Leominster, Mass.

*Pyralin toileware of Amber, Pearl, Shell
and Ivory and combinations of these colors.
Novelty and transparent sheeting, rods,
tubes and beading. Also Cleanable Collars.*

Boston, Mass., Harvey Bldg.
52 Chauncey St.
Chicago, Ill., North American Bldg.
New York, N. Y., 330 Fifth Avenue
San Francisco, Calif., 569 Mission St.

*When you are in Atlantic City, New Jersey,
Visit the Du Pont Products Exhibit, at 1121 Boardwalk*

Now



for handy
home uses



The DUCO you have wanted so long
—ready to BRUSH ON at home!

DUPONT DUCO is now ready for you to brush on at home. You, yourself, can now put on the same finish that you have admired on so many automobiles; the same finish that lends enduring beauty to fine furniture.

Anyone can apply it—just brush it on. You will enjoy using it.

DUCO gives that beautiful lustre so much desired for articles in the home, in dainty colors that will not fade. It dries quickly and “laughs at time.”

The smooth, flint-like finish is not easily marred, nor is it affected by steam, moisture or extremes of heat and cold. It will not crack or chip off, and does not become sticky under body heat.

DUCO is not a paint or varnish. Unlike anything else—it is *Duco*, the beautiful, enduring finish now adapted for your use on woodwork, new or old, furniture, automobiles, floors, walls, metalwork.

For sale by good dealers everywhere

There is only ONE Duco — DUPONT Duco

— D U C O —

is made in the following popular colors for use about the house: White :: Black :: Ivory :: Buff :: Orange :: Rich Red :: Brown :: Gray :: Light Blue :: Delft Blue :: Lawn Green :: Dark Green :: and “Clear”. Also in these seven colors for finishing autos: Black :: Dark Gray :: Maroon :: Navy Blue :: Deep Blue :: Brewster Green :: Sagebrush Green.

LAUGHS  AT
TIME.
DRIES FAST AND LASTS



FOR ALL WOODWORK...NEW OR OLD. FURNITURE, AUTOS, FLOORS, WALLS, METAL-WORK MADE BY 