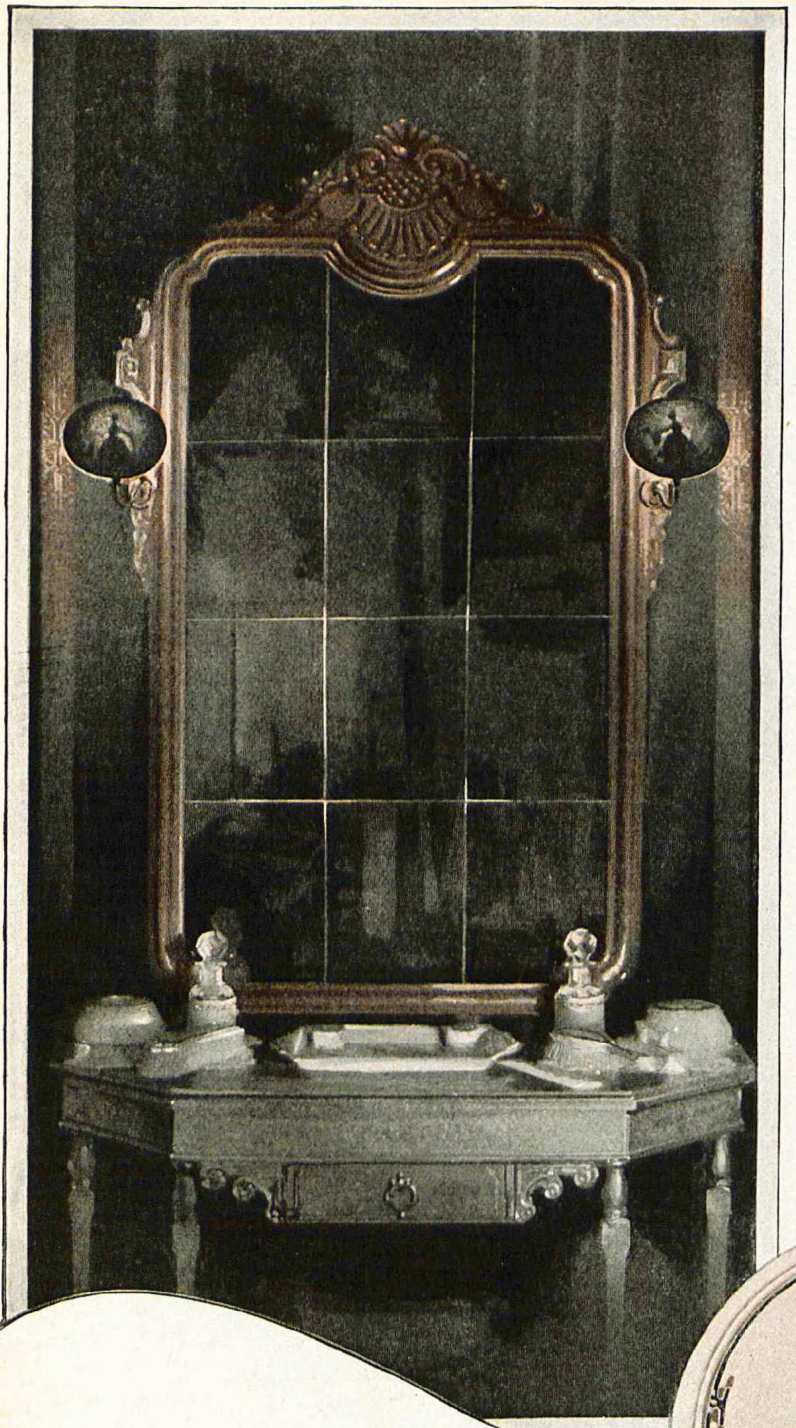

The DuPont Magazine
March ~ April ~ 1922
DUPONT



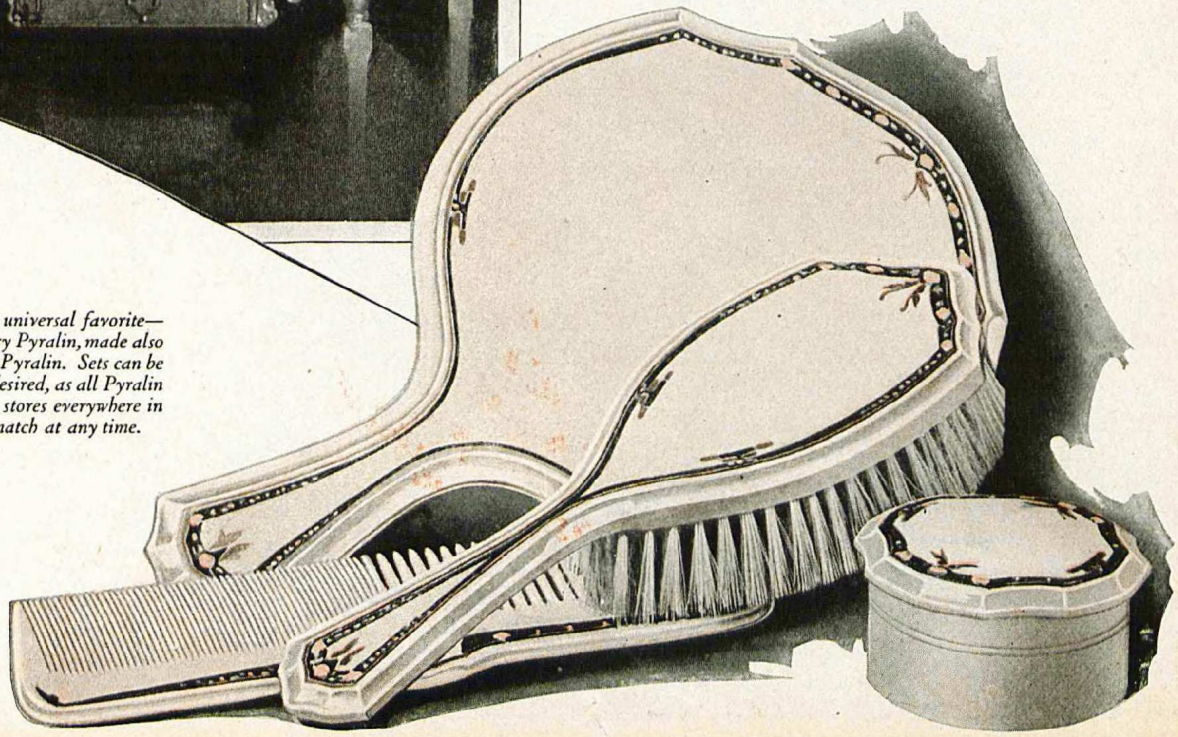
IVORY *Pyralin*

A WOMAN'S dressing table is a true reflection of her personality. In daintiness, charm and good taste, nothing could be more thoroughly appropriate than Pyralin toiletware. Made to give life-long service—in every necessary article from mirror to jewel-box; exquisitely decorated if desired, to harmonize with any color scheme.

E. I. DU PONT DE NEMOURS & CO., Inc.
Pyralin Department
WILMINGTON, DELAWARE

DU PONT

You will find the name "Pyralin" stamped on every article.



The illustration shows that universal favorite—the Du Barry Pattern in Ivory Pyralin, made also in Shell Pyralin and Amber Pyralin. Sets can be acquired piece by piece, if desired, as all Pyralin toiletware is sold at leading stores everywhere in standard patterns, easy to match at any time.

THE
DU PONT
MAGAZINE



Vol. XVI MARCH-APRIL, 1922 No. 2

What Explosives Users Say About Dumorite

A brief résumé of reports we have received from customers who are using this new Du Pont dynamite

FROM the number and character of inquiries about Dumorite daily reaching the home office and branch offices of the Du Pont Explosives Department, one might well believe that this new explosive is destined to displace to a large extent 40 per cent grades of dynamite which have long been used in many agricultural and industrial operations. It is not because Red Cross Extra and other brands are less dependable or less efficient, but merely that Dumorite, on a stick for stick basis, is equally efficient for most kinds of work, is absolutely non-freezing, non-headache producing, and the customer receives from 35 to 40 more 1¼ by 8-inch sticks to a case at the same price. Explosives users are primarily interested in Dumorite because "one-third more per dollar," whether it represents stumps blasted, boulders blown, yards of rock or earth excavated or what-not, makes possible production economies that cannot well be overlooked. Already the demand resulting from trial uses of Dumorite has been far beyond our most sanguine expectations.

There are four grades of Dumorite. Numbers 1 and 2 are adapted for blasting in open quarries, for construction work and farm needs where dynamites ranging in strength from 20 to 40 per cent are ordinarily used. Dumorite No. 2 is recommended for blasting in comparatively hard rock; also for underground work in medium hard ores where ventilation is good and where the work is not under water. Pacific Stumping Powder, is specially prepared for stumping operations in the northwestern part of the country, and its sale is restricted to that section alone. Dumorite No. 4 is adapted for use in bituminous coal mines where ventilation is good, where permissibles are not necessary, and where it is desired to obtain a high percentage of lump coal.

Of course, there never has been an explosive that could meet every condition encountered in actual blasting practice, nor is it likely there ever will be one. They all have their limitations, and Dumorite is no exception. We do not represent it as an all-purpose explosive. To date, however, indications show that this new dynamite is being used with considerable economy in a wide variety of blasting operations.

It has always been the policy of the Du Pont Company to recommend to customers the type of explosive that will do the best work at the lowest cost. That policy is being strictly adhered to in the sale of Dumorite; if it meets the customer's particular requirements and does the work as well or better than explosives he has previously used, it is recommended for such an operation, but not otherwise.

In the preceding number of this magazine we announced Dumorite, described the product and indicated the classes of work in which we had found it could be used to advantage. That was our "say so." We are now in a position to tell you what customers who have used this explosive in their own operations say about it. We shall quote below some excerpts from letters of customers who have purchased and used Dumorite for various kinds of work during the past ninety days.

One mine manager in Maryland writes:

"We are very well satisfied with the results obtained with your Dumorite No. 2 Dynamite. The rock is broken very satisfactorily. Our "fines" are reduced from about 20 per cent to 10 per cent. We previously used 2¼ pounds of 40 per cent Red Cross Extra per ton broken and are now using 1¼ pounds of No. 2 Dumorite per ton broken, reducing our explosives cost 23 cents per ton. It breaks as well in a small drift as in a large one."

A professional blaster in lower Delaware writes:

"So far as I have used Dumorite (No. 1) it has given very good satisfaction, being as effective as 40 per cent Red Cross."

An engineer in charge of road construction in a Virginia county has, since January 1, bought and used 6,000 pounds of Dumorite Nos. 1 and 2—a large enough quantity to enable him to form an opinion of its value as compared with 40 per cent Red Cross Extra and other brands of comparable strength. He writes: "I have been using it (Dumorite) now for the past sixty days in hard limestone rock on road work and find that it does all that you claim for it. My foremen claim they get better results from the same number of sticks of Dumorite than they do from Red Cross, and in addition to that, it has the advantage of not freezing. Since using it I have heard no complaints from headache. I prefer a bulky dynamite like Dumorite as it seems to go farther with equally good results."

From Missouri comes this testimonial about the use of Dumorite No. 2 in a silica quarry: "Our attention was called to your new explosive, known now as Dumorite, when it was first put on the market, and after giving it a thorough trial at one of our quarries, we are now using it at all three—finding the results to be very satisfactory and economical."

One of the best-informed blasting contractors in the Seattle, Washington, district has this to say about Pacific Stumping powder in a recent letter: "After considerable experimenting I find that this powder is one of the best, if not the best, that I have ever used—and I have used practically every known make of powder.

"In stump blasting it is very efficient, because it is a trifle slower than your 20 per cent Stumping, and by reason of taking the stump out in a slower manner it thereby pulls the smaller roots with the main portion, making a cleaner job.

"I have used this Pacific Stumping in blasting hardpan, rock, concrete, gravel banks and stumps in every formation of soil found in this part of the country, and I find that, taking it stick for stick with your 20 per cent Stumping, it is five per cent more efficient in stump work and on a par with it in all of the above-cited classes of work except gravel banks, where it has proved to be even more above par than in the case of stumps. . . . . Please let me say further that one of its highest recommendations, as far as I am concerned, is that it is absolutely non-headache."

"We have been using your Dumorite (No. 2) powder in our work in quarrying limestone where we previously used a 40 per cent nitroglycerin dynamite," writes the secretary of a quarry concern in Missouri. "We find this Dumorite is giving us equal effects, cartridge for cartridge, that we got from 40 per cent N.G., and is materially reducing our blasting cost."

The superintendent of a large quarry in New York State writes enthusiastically of "very gratifying results" obtained with Dumorite No. 2. In his letter he says: "I purposely placed this powder in a very hard blast of holes 32 feet deep, and about 20 feet back from the quarry face, which had a very heavy toe at the bottom.

"We found when the steam shovel reached this point it had little difficulty penetrating through the blast. The bottom came out in fine shape.

"I like this new powder so well that I have placed an order for some more to be delivered in our next carload."

From the vice-president and general manager of an operation in West Virginia comes this statement: "The trial order of Dumorite was used in our shale and clay quarry, and our Mr. P——, who does all the shooting, is of the opinion that the results obtained were as good as any we heretofore obtained from the use of your Red Cross Extra 40 per cent dynamite. The non-freezing and no-headache qualities should appeal to all users of dynamites."

Another, from North Carolina, but in this case from one who handles explosives as a part of a business in dealing in dimension stone for monuments. He writes: "We want to say your Dumorite (No. 1) has given satisfaction with every one of our customers; they say it is equally as good as the 40 per cent Red Cross."

An old road contractor in Virginia, who claims to have used thousands of pounds of explosives in road construction work, recently tried Dumorite for stump blasting. He writes:

"I want to advise that I find it as good, stick for stick, as any 40 per cent dynamite I have ever used; it cut the cost of blasting out stumps just 33 per cent. Besides, there was no headache caused from using it, and this feature alone appeals to the farmer." His letter concludes, "I have never used a more satisfactory explosive."

"We tried out Dumorite No. 2 recently in our quarry at S——, and I believe that on a stick basis it equals 40 per cent straight dynamite. Besides being thoroughly satisfactory regarding strength, its non-headache and non-freezing qualities are very appealing to the quarrymen. I believe this the most economical and satisfactory 40 per cent dynamite made." The foregoing excerpt from a letter shows what the manager of a trap rock quarry thinks of Dumorite No. 2.

The superintendent of a limestone quarry in Missouri adds this favorable comment to the record: "Some of the original experimental Dumorite was shot at our quarry last November. The result of these shots was very good and justified further trial. Therefore, as soon as this new explosive was placed on the market we started using it.

"The results from Dumorite (No. 2) continue to be economical and very satisfactory. We have found that we use less of this explosive than of that previously used, at a reduced explosive cost per ton of rock quarried.

"Our men like the non-headache and non-freezing features. It is a very satisfactory explosive for use in our quarry."

Next, a letter from down Mobile way. The president of a corporation manufacturing turpentine, rosin and pine oil from stumps, writes:

"We received a shipment of Dumorite (No. 1) some few weeks ago and are using it for stump blasting for wood recovery for distillation purposes at our reduction plant at C——.

"We have given this dynamite a fair test in stump blasting and also for splitting stumps after they were pulled with stump puller and find it has good lifting power and also splits the stumps in fine pieces. We have previously used 40 per cent dynamite and were always well pleased, but since using Dumorite, we believe now that it will be a saving in our wood recovery, compared with 40 per cent."

Here's one from South Carolina. The proprietor of a granite quarry writes: "For the past thirty days we have been using your Dumorite No. 1 dynamite on all our pop shooting and take pleasure in advising you that we have so far found it entirely satisfactory."

The production manager of a brick and tile manufacturing company in West Virginia gives this bit of evidence: "We are very much pleased with results secured with your Dumorite (No. 2). We have used 250 pounds in our quarry and have had results which we consider were better than those gotten with Red Cross Extra 40 per cent. It breaks up our stone in good shape and does not throw the stone or shale over the quarry as did Red Cross Extra. It is pleasant to handle, giving our powderman no headache."

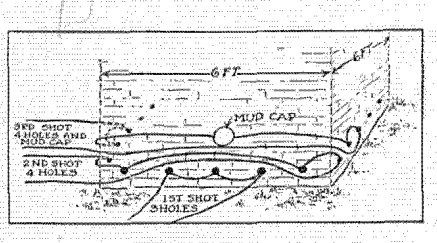
We have quoted principally from letter of explosives users. For variety read what a Pennsylvania jobber who sells explosives has to say: "We are receiving a number of very favorable reports on your new dynamite—Dumorite (No. 1). All of the trade that has tried it out so far say that its execution is very good.

Continued on page 11

Glen Gardner Smokestack Safely Brought to Earth

How a Du Pont technical man performed a difficult feat with explosives in a New Jersey village

THE factory chimney illustrated here was built many years ago in the borough of Glen Gardner, New Jersey. Although well constructed, it had served its day and was no longer used. Time and the elements had left their marks upon it, for the mortar was cracked and crumbled in many places. Evidences of disintegration were apparent from the base to the hood. In this condition the stack was a constant menace to the adjacent building and to others nearby. The owners, fearing that some day a high wind might cause it to fall on one of these buildings, approached contractors on the question of tearing it down. Some of them refused to bid on the work because of the risks involved; others submitted bids, and the lowest one is reported to have been $1,100.



Then explosives were considered. Would it be safe to fell this old chimney with dynamite? The answer may be inferred from an announcement which appeared in a local paper "The Weekly Avalanche," November 16, 1921. It read:

> "Stack to be Thrown! As a safety measure and in order to make improvements for Smith's garage and automobile salesroom a brick stack, about eighty feet high and six feet square at base, will be thrown at Glen Gardner, N. J., Friday, November 18th, at 2 p. m. The stack will be dynamited by the Du Pont Company under the direction of its representative Mr. C. V. Weaver of Easton, Pa., who is a specialist in handling high explosives. This notice is given in order to allow engineers, contractors and others interested to be present.—M. F. and H. A. Hunt.

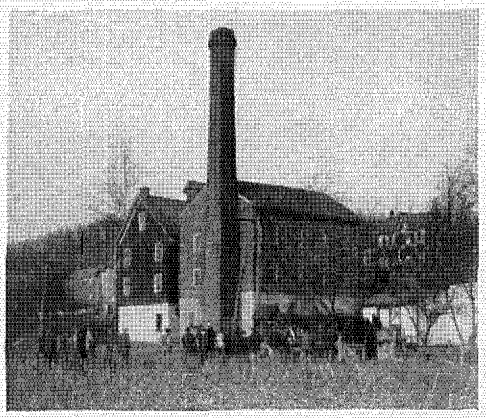
Scores of people gathered to witness the unusual spectacle. Engineers, contractors, quarrymen, farmers, business men and others closely watched every step of the work, for it was realized that the job was an exceptionally difficult one. There was only one safe way for the stack to fall.

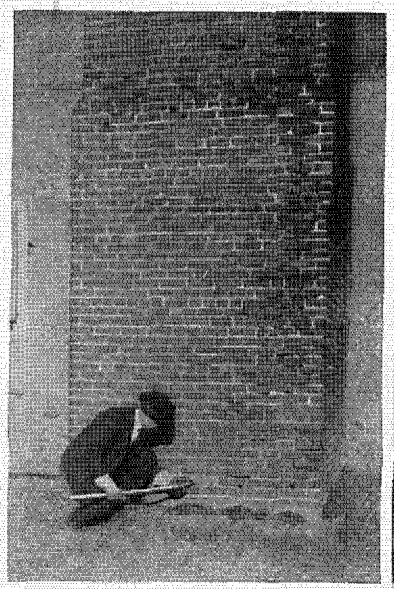
Holes 1 3/8 inches in diameter, spaced 12 inches apart, were drilled 18 inches into the base of the stack on three sides. The position of these holes and the sequence in which they were loaded and fired are shown in the accompanying sketch. Because the walls were so badly cracked, and the hood particularly, there was a possibility that the shock of exploding dynamite might cause the stack to split in half and fall contrary to the plans. On this account Mr. Weaver exercised more than ordinary care and good judgment in loading the holes. He didn't want to shake the stack too hard, even though it was necessary to blow out enough space with the first shot to make a safe place for loading the second round.

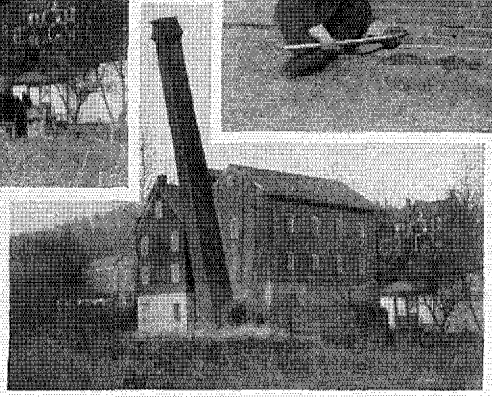
One-half stick of dynamite was loaded in each of the three holes and fired electrically. This first round did its work and the second round of four holes was similarly loaded and fired, further weakening the base of the stack on the side toward which it was destined to fall. The third and final round consisted of four holes each loaded with a half-stick of dynamite and an additional two-pound mudcap charge placed in the center. When this shot was set off, the stack, still intact, began to lean away from the building, then, gathering momentum, it fell swiftly into the open field just where Mr. Weaver had planned to throw it.

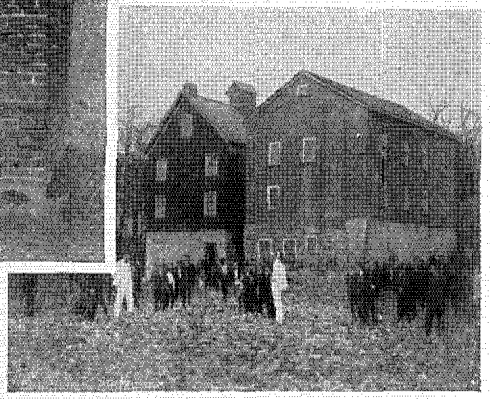
Felling this stack required in all six pounds of 30 per cent Red Cross Extra dynamite. The total cost for the explosive and blasting caps was less than $3.00. The owners were so well pleased with the result of the work that they offered Mr. Weaver a sum of money for his services. They were not a little surprised when he declined to accept it and explained that Du Pont Technical representatives were employed to do such work gratuitously as a part of the Du Pont Company's service to its customers.

The Glen Gardner stack shot is just one of many instances we might cite to show the reliability of Du Pont explosives for work requiring the most careful treatment.









Above—The Glen Gardner stack was a menace to buildings nearby.

Top-center—This close-up shows the unsafe condition of the brickwork, cracked from the base to the hood. Mr. Weaver is loading the first round of holes.

Left—A second after the third and final shot—the stack is safely on its way to earth in the predetermined direction.

Above—After the fall—just a pile of brick.

Do You Know How Chilled Shot is Made?

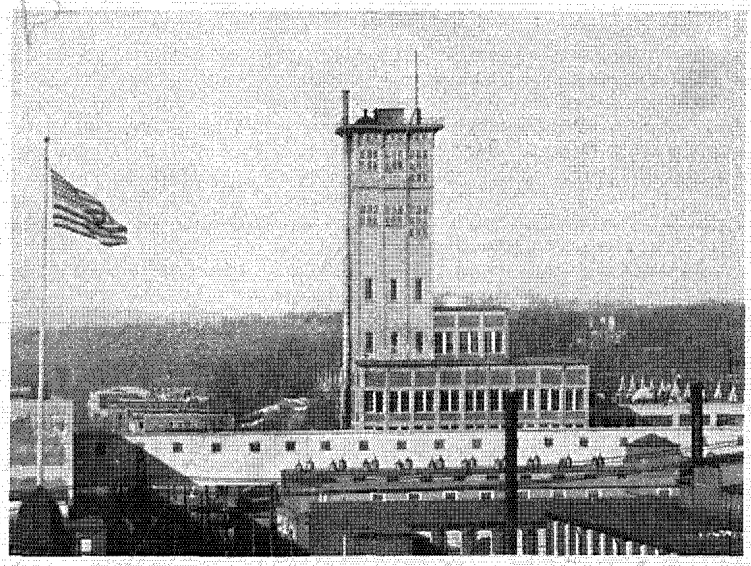
You'll be interested to know what takes place in the Winchester shot tower

By PETER P. CARNEY

THE main plant of the Winchester Repeating Arms Company in New Haven, Connecticut, spreads over eighty-one acres. Twenty-three additional acres are used for coal storage. The ranges and magazines, so essential to such an organization, cover 640 acres. Thus Winchester City spreads over 744 acres.

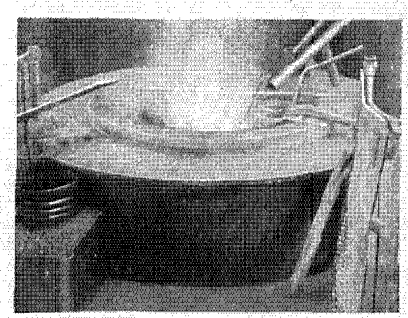
Rising to a height of nine stories in the heart of this city, is a square, concrete structure—the Winchester shot tower. A visit to any department in the Winchester plant cannot but prove interesting on account of the many products made there, but we doubt if anyone will find a place to spend a more interesting hour than in the tall building you see here.

When the Eastern Handicap Trapshooting Tournament was held in New Haven, last summer, the shooters were invited to inspect the tower and its workings. The shooters lost no time in arranging parties to inspect the place. Of the thousands who visit the shot tower annually, few realize that 50 tons of shot are made daily, or that the shot is made, untouched by hands, after the bars of lead are put into the great melting cauldron on the topmost floor. Starting there, several interesting operations follow.



In the heart of Winchester City stands this famous shot tower

We believe that with the help of the illustrations which accompany this article the reader will get a more definite idea about the workings of the shot tower than we can picture in words.



One hundred tons of lead can be melted daily in this cauldron

Exceptional pains are taken in manufacturing shot. Every size of chilled shot has a different formula—which is something the layman can not seem to understand. Nor does the average man give much thought to the number of pellets that make an ounce of shot. It requires 223 pellets of No. 6 chilled shot to make an ounce, or 3,558 to make a pound. No. 7½ chilled shot takes 345 to make an ounce or 5,520 to make a pound. You can compile your own figures on the number it takes to make a ton.

The first operation starts at the top of the tower, which is 187 feet above the ground. Into the cauldron, illustrated, are placed the bars of lead. The huge bars dissolve in a minute. It is possible to melt 100 tons of lead daily, which means that 100 tons of shot can be turned out daily if anyone desires a quantity of chilled shot in a hurry. From this large cauldron flows a continuous stream of molten metal into a metal sieve. Our illustration shows the metal pouring into the sieve and a workman stirring it. The hot lead may be seen falling like a stream into the water 154 feet below. The pellets are formed after passing through the sieve. Just how long it takes to chill the shot we do not know, but we do know that when the pellets reach the water, which cannot be more than a fraction of a second, they have become solid spheres of remarkable roundness.

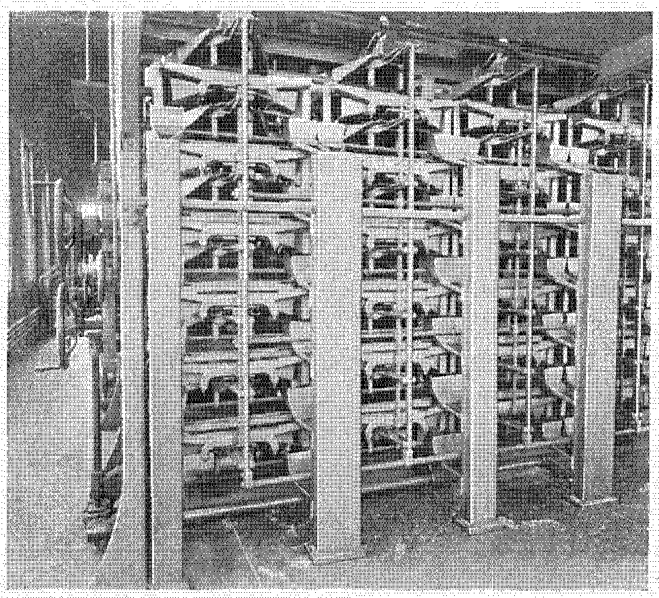
From the tanks of water the shot passes through a drying machine, then to conveyors which take it up several stories in the shot tower. Here a big revolving screen separates the tough bits of lead from the shot. It is the series of thirteen assorting tables of glass which automatically select the perfect shot and discard any having the slightest imperfections. The shot flows from a hopper onto the very slightly inclined glass tables and the perfect shot gather sufficient momentum to roll down the table and jump a gap at the base. Every shot passes over a series of these tables, one placed above the other, and only the shot of perfect form can survive the elimination tests. Any imperfection, such as rough edges, slows up the rolling shot so that it drops off into the gaps and goes back into the melting pot to be made over again.

From the assorting tables the perfect shot go into big revolving drums with screens in which the shot is sorted into the various sizes. Each sized shot goes through to its proper place. The function of the rollers on the outside surface of the drum is to keep the shot from sticking in the holes. One of the illustrations shows the screens and rollers doing their duty.

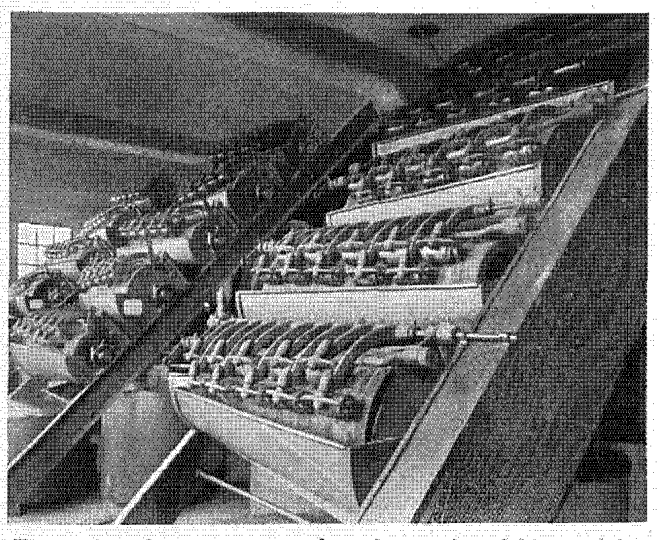
When visitors see these exacting tests they can understand why Winchester shot has such accuracy and uniformity. It is because of the extraordinary mechanical precision of the



The sieve, from which a shower of lead drops 154 feet into the water



Every shot passes over a series of these assorting tables



The perfect shot next passes through a series of big revolving drums with screens in which the pellets are sorted into the various sizes. The rollers on the outside of the drum keep the shot from sticking in the holes of the screen

machinery used for sorting the shot in these two operations.

After the shot is sorted, it passes through polishing machines and then goes into the great storage tanks. There are sixty-two of these on the ground floor, each holding 9½ tons. The shot is weighed into the tanks by automatic weighers and likewise weighed out in 25-pound lots.

The machines can be adjusted to weigh any amount. Shot is prepared for shipment in bags. When five pounds, or the amount desired, runs into the bag, it automatically moves into position several inches to the left, where it is sewed up and is then ready for the market.

Finally the shot is tested for roundness and hardness. A certain number of shot of every batch is put through a testing machine, and if approved, the batch is allowed to go—for no product is permitted to be shipped unless it is right. It costs the Winchester Company $750,000 annually to inspect its products. During the war, the company did not have one lot of goods rejected by the United States Government.

Viscolac—A New, Economical Lacquer

One coat usually equals three of other pyroxylin finishes—and dries hard in an hour

By E. M. FLAHERTY
Assistant Director of Sales
Chemical Products Division
E. I. du Pont de Nemours & Co., Inc.

UNTIL now there have been well defined fields for both varnish and pyroxylin lacquers as finishing materials for manufactured articles. The limits of these fields have been determined both by the working qualities of each and the finish produced by each. Varnish has been used where a finish of "built-up" appearance was desired with a minimum number of coats and where certain inherent qualities of a varnish finish, such as a prolonged drying period, were not important. Pyroxylin lacquers, on the other hand, have been used to give a tough, waterproof finish, quick-drying and highly resistant to accidental marring, but requiring the application of many coats to equal the "built-up" appearance of only one or two coats of varnish.

Because of its quick-drying properties alone many manufacturers have wished to use pyroxylin lacquers on their products, but have hesitated to do so because perhaps five coats of the lacquer would be required to give a varnish-like finish. They often asked us to put more solids into our lacquers so that after the solvents evaporated a heavier film would be deposited, thus eliminating the labor and expense involved in additional applications. But this we were unable to do because of the property of the film-forming ingredients in the lacquer of imparting a high viscosity to solutions made from them. This viscosity was already at the highest practical working point, and any further increase in the solid content of these lacquers made them so viscous that they could not be handled efficiently in factories. Our problem, then, was to devise some means of putting a greatly increased amount of solid, film-forming material into our lacquers without making them more viscous. Realizing the importance of this work we placed all the resources of our Research Department at the disposal of the chemists to whom this problem was assigned. The investigation lasted over a year, during which time hundreds of experiments and tests were made. Finally, results were obtained which showed that the problem had been completely solved, and in Viscolac we now see the successful culmination of this research.

Viscolae is essentially a nitrocellulose lacquer in which, by a process we have discovered, there has been incorporated over three times as much nitrocellulose and other necessary ingredients as is usually found in such lacquers and yet the easy flowing quality of the lacquer is unimpaired. Viscolac, therefore, can be used for protecting or improving the appearance of any metal or wooden objects on which varnish is now used. With only one or two coats it will produce a finish equal in body to that of the same number of coats of high-grade varnish and in addition has many other desirable qualities. A varnish finish usually requires several days to apply because of the time consumed while each coat is drying, while a

Continued on page 12

Advertising Pyralin Toiletware

To a hand-picked circulation of more than twenty million well-to-do buyers

By A. H. BERWALD
Advertising Manager, Pyralin Dept.
E. I. du Pont de Nemours & Co., Inc.

ADVERTISING is effective when it makes people want the product advertised. It is productive when it makes them *get* that product. It is the "gets" that keep the cash-carrier running; they are the currency of business—"wants" are only the promissory notes.

Normally, when all classes of the public are spending freely, a large proportion of the "wants" created by advertising develop quickly into "gets," but today this process is retarded by the inability of certain classes to secure, or their reluctance to part with, the necessary funds.

Faced with this situation, the manufacturer who now wishes to get the usual results from his consumer advertising must use unusual care in preparing every element of his campaign. And, obviously, his first and chief concern must be to produce the maximum number of "gets" by confining his appeal to those people only whose *wanting power* is backed up by a *buying power* that is ample. Otherwise, in so far as the immediate needs of his dealers are concerned, part of the circulation of his advertising will be wasted.

We want our dealers to study the 1922 advertising campaign for Pyralin toiletware from the purely selfish standpoint of what they will get out of it. The entire campaign was planned from the dealer's viewpoint and should prove to be exactly adjusted to his requirements. In many ways we consider it the most impressive campaign that any manufacturer of toiletware ever placed before the American public, and in the one way that is now of vital importance, we do not think it could possibly be improved—*all of its selling power is concentrated in those homes and upon those people who appreciate fine toiletware and can afford to buy it NOW.*

The seventeen national magazines illustrated and listed here are all well known to our dealers. The circulation of each of these magazines was given the most minute scrutiny before it was finally added to our list. In each case the deciding factor in the selection of a magazine was not how many "wanters," but how many "getters" the magazine reached.

We are now in position to tell every Pyralin dealer that our 1922 advertising will be read in his city by all of the well-to-do families from which he gets his best and most constant business. If all of these families were gathered into one city—Pyralin City—it would make a community of 5,700,000 homes and of more than 20,000,000 people.

And business is good, it must be good, in Pyralin City, for in it there are no poor. Every one of its millions of homes is a place of comfort and refinement. Every one of its twenty millions is accustomed to the luxuries that make life worth living and has the means to pay for them. This is the market, the only surely productive market today, which is covered 100 per cent by Pyralin advertising in the seventeen magazines known to be read by the most progressive, substantial and dependable elements of the consuming public.
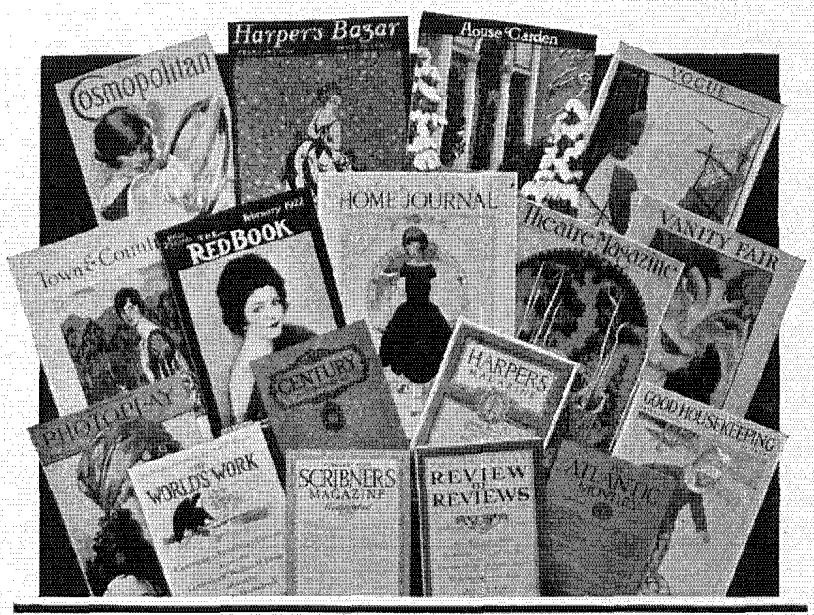
Study this list of Pyralin magazines to be used during 1922:

Ladies' Home Journal	Vogue
Good Housekeeping	Harper's Bazar
Cosmopolitan	Atlantic Monthly
Red Book	World's Work
Photoplay	Review of Reviews
Theatre	Harper's
Vanity Fair	Century
House & Garden	Scribner's
Town & Country	

Notice how each of these magazines has been selected with some special reason in mind. Here we find that Ladies' Home Journal and Good Housekeeping, undoubtedly the greatest women's magazines published today. Here are Vogue and Harper's Bazar, undeniably the style arbiters of America, which, grouped with Vanity Fair, House & Garden and Town & Country cover, like a blanket, the leaders in wealth and fashion in every community.

Cosmopolitan, Red Book, Photoplay and Theatre are read by millions of women to whom the adornment of the person and of the home are vital interests. At least one of "The Quality Group" (Atlantic, World's Work, Review of Reviews, Harper's, Century, Scribner's) is read in nearly every well-to-do home.

In every state but Nebraska, the combined circulation of Pyralin magazines is far in excess of the number of families with incomes of $2000.00 or over. We venture to say that there are very few people in your own community who are good prospects for Pyralin toiletware who do not read at least one of these magazines. This gives you an idea of the effect which this advertising will have in increasing your own sales and profits on Pyralin.



These magazines sell Pyralin to the people best able to buy it

Each of the six full-page advertisements in the Pyralin campaign, most of them printed in four colors, is thoroughly impressive and convincing. The merchandise itself is strongly featured in an environment that always suggests elegance and good taste. The copy emphasizes the distinctiveness, high quality and complete usefulness of Pyralin and stresses the set-building idea. We will gladly send any dealer who asks for it a folio showing all of the advertisements in full size and actual colors.

In this same folio

Continued on page 11

Tunneling Under the Catskills for Water

New York City is completing the 18-mile Shandaken tunnel which will tap a new source of supply

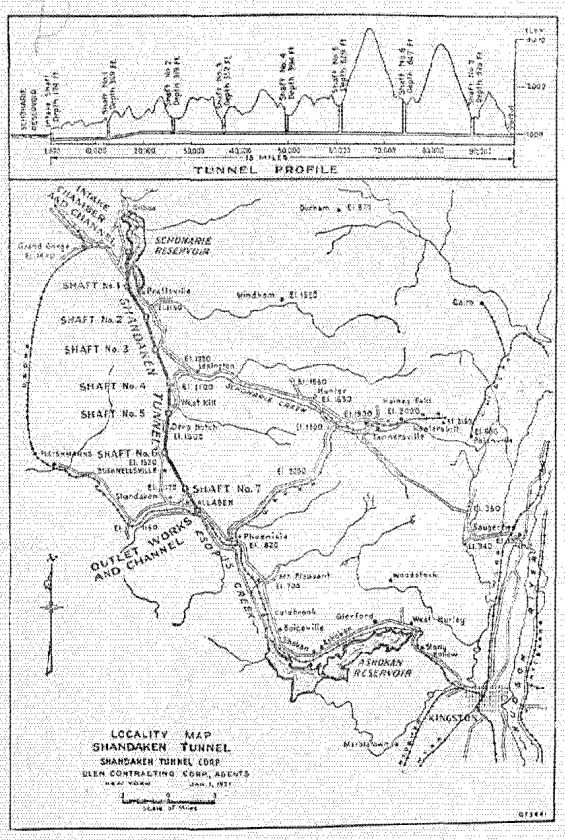
[It is impossible in the short space allotted this article to give a comprehensive idea of this undertaking or the progress that is being made by the contractor. A visit alone can give one an approximate idea of its scope, and even then its magnitude could not be fully comprehended unless a stay of days or even weeks were made. It is, therefore, hoped that our readers will understand that this article is descriptive only and that lack of space prevents it being treated in other than a cursory way.]

By E. C. FERRIDAY
Manager, Contractors' Section
Explosives Department
E. I. du Pont de Nemours & Co., Inc.

THERE is probably nothing which signifies the advance of nations more than public improvement, for in its achievement the people participate in and enjoy its benefits. Probably no other city in the United States has more reason to be proud of its accomplishment than New York City, for nowhere in this country or abroad has public work enterprise conferred such advantages as the citizens of New York and its environs now enjoy. And it has been done within the last twenty years.

The city, with its ever-increasing population, has recognized its transit problems and has solved some of them. It will continue to do so as the city grows larger. But in no other way has its care for its population been more clearly demonstrated than in the provision it has made and is making to supply its citizens with an abundant supply of pure water.

Thirty years ago if one had even suggested that it would be practical to supply the city with water from the Catskill mountains, a hundred miles or more away; that the water could be made to flow through an aqueduct, free from contamination, under tunneled mountains and siphoned rivers, he would have been considered a fit subject for an observation ward in a psychopathic hospital. But the Catskill water supply is a reality—an accomplished fact. New York City today enjoys a larger and purer water supply than any other municipality on the face of the globe.



A trip to the Catskills from whose watershed this water flows cannot help but convince one of its purity, where the Esopus creek, clear as crystal, is one contributing supply for the Ashokan Reservoir, which forms the main storage basin of this wonderful system—the Catskill Aqueduct. When the Shandaken Tunnel is completed it will divert the waters of Schoharie creek southward into the Ashokan Reservoir, insuring a very much larger water supply from this additional source.

The original plan involved an estimated expenditure of $160,000,000, but did not include service to all the boroughs. This included, brought the total estimated cost to $175,000,000. The work was undertaken and is now in its final stages. The total cost will be approximately $180,000,000, which is within $5,000,000 of the estimated cost. Considering that a great portion of this work was let during the World War, when public work of all kinds was more costly on account of conditions beyond administrative control, this is a remarkable accomplishment and one that attests the efficiency of the engineering staff in charge and the contractors engaged in the prosecution of the work.

The contract for the Shandaken Tunnel was let November 10, 1917, to the Degnon Contracting Company, who carried on the work until November 10, 1920, when the Shandaken Tunnel Corporation became responsible for its completion, and the Ulen Contracting Corporation took actual charge of construction.

In order that the reader may have some idea of what this particular unit of work comprises, let me say that it represents the excavation and lining of a tunnel 18 miles long, ranging from 174 feet to 647 feet underground. Roughly the size of the tunnel is approximately that of a single-track railroad tunnel, which, when completed, will be horseshoe in section, concrete lined, with inside dimensions of 11′ 6″ in height by 10′ 3″ in width. It provides for a uniform slope of 4.4 feet per mile except for the northerly 3½ miles which is depressed, making this portion a pressure tunnel.

Engineering plans for this work involved the sinking of eight shafts, the deepest of which is 647 feet, nearly one hundred feet deeper than the Washington monument is high.

A further idea of its magnitude may be grasped when it is stated that this tunnel construction requires approximately 600,000 cubic yards of rock excavation, 100,000 cubic yards of earth excavation, 200,000 cubic yards of concrete masonry, and 445,000 barrels of Portland cement.

The Shandaken Tunnel is the longest continuous tunnel in the world for any purpose.

This unit of work is being prosecuted under the direction and supervision of the Board of Water Supply of New York City.

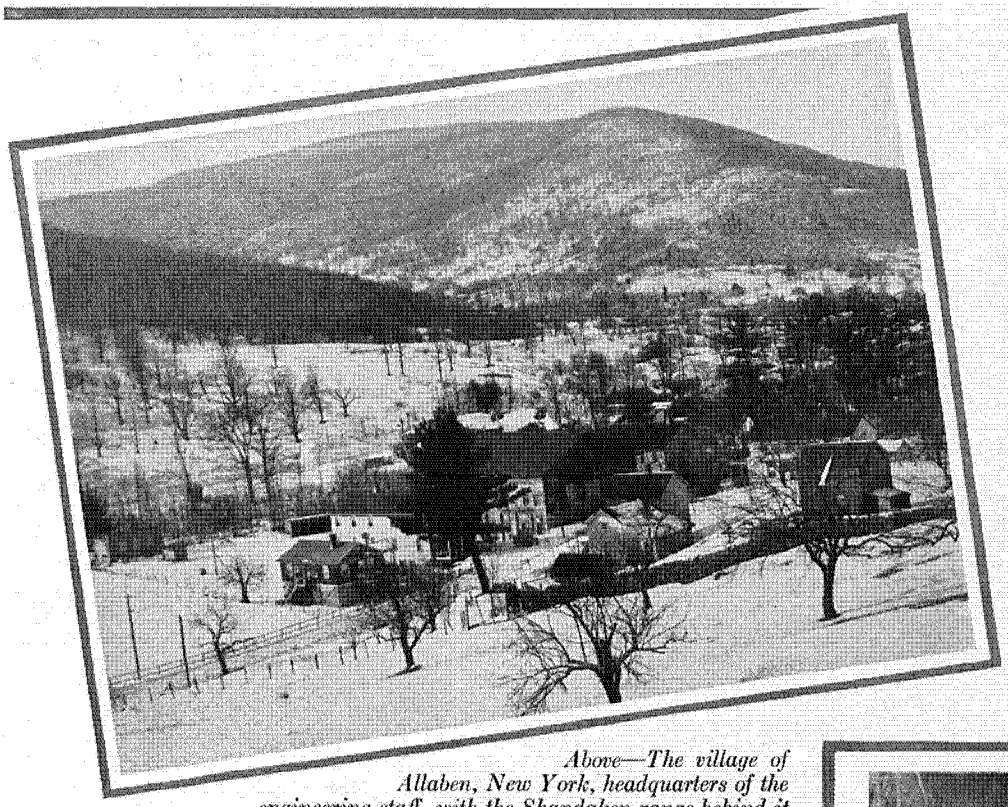
The engineering organization comprises the following personnel: J. Waldo Smith, Chief Engineer; Thaddeus Merriman, Deputy Chief Engineer, New York City, and George G. Honness, Department Engineer with headquarters at Grand Gorge, New York; R. W. Gausman is Division Engineer in charge of the Allaben or Southern division, and Wm. B. Hunter is Division Engineer in charge of the Prattsville or northern division of the tunnel.

The staff organization of the Ulen Contracting Corporation, the operating company, is in active charge of Thos. S. Shepperd, Vice-president and General Manager, with M. R. Keefe, General Superintendent, R. H. Keays, Assistant General Superintendent, and G. H. Hines, Chief Engineer.

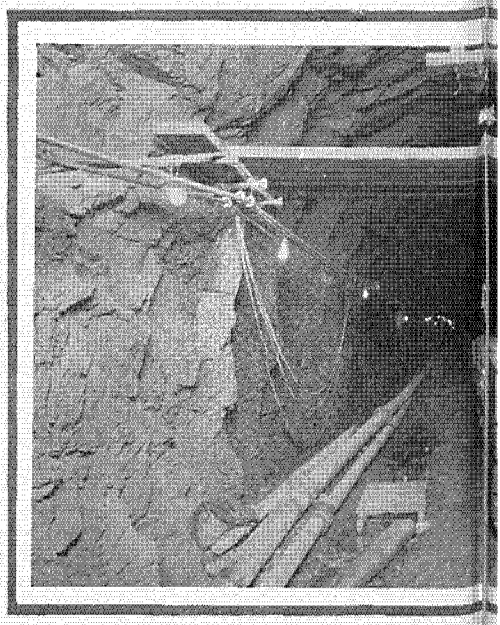
The active, working organization includes Mr. Luther Dennis, General Shaft Superintendent in charge of the excavation, with the following shaft superintendents: Shaft No. 1, T. E. Bird; Shaft No. 2, F. L. Irwin; Shaft No. 4, Philip Pagliaro; Shaft No. 5, Morgan Bateman; Shaft No. 6,

Continued on page 16

The World's Longest Tunnel is Being Driven With Du Pont



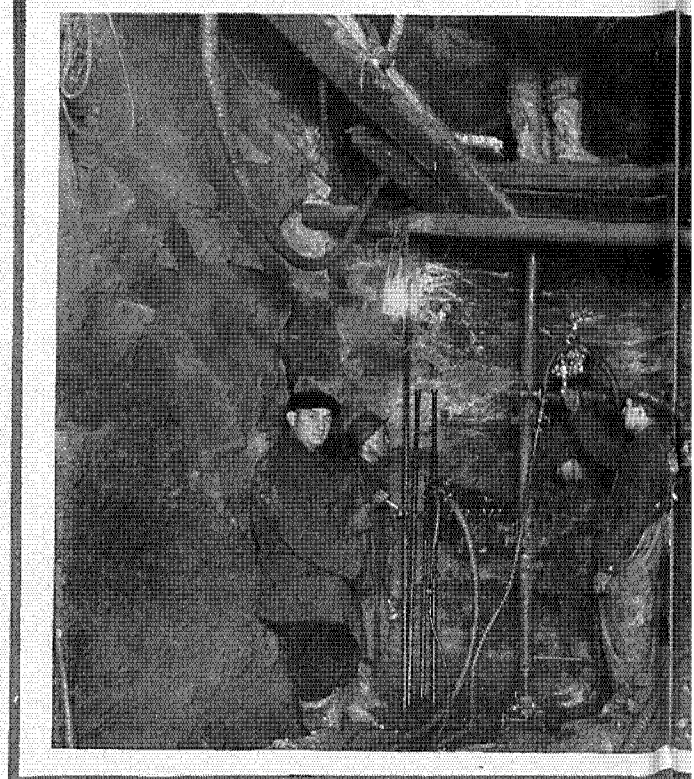
Above—The village of Allaben, New York, headquarters of the engineering staff, with the Shandaken range behind it



The Shandaken Tunnel, near the foot of Shaft N pipe and the 4-inch air line beside it. The p The 5 h. p. electric locomotive takes care of tro circuits are also essential equipment. Overh reproduced by cour

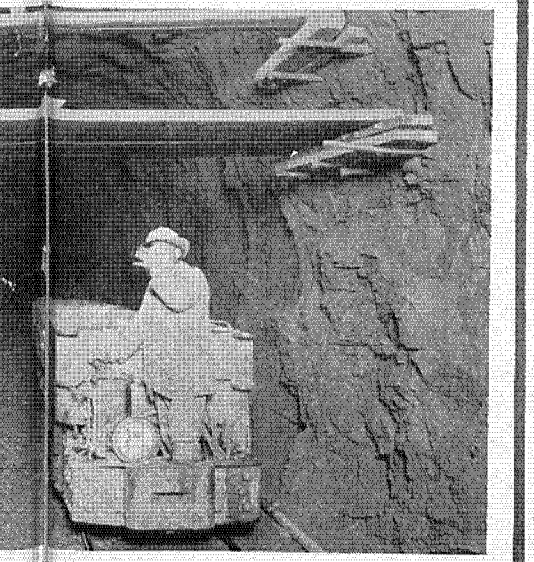


Tunnel construction on a big project like this is not all underground work. Frequently some member of the staff is required to travel several miles by automobile in the performance of his duties—and he goes regardless of the weather. The photographer could not resist the temptation to snap this view of a little project that was not listed on the day's schedule of work. Up in the Catskills winter snows make traveling a difficult and sometimes a dangerous undertaking



Tunnel heading south of Shaft No. 6. The entire section is dr d two vertical columns shown in the center of the illu at

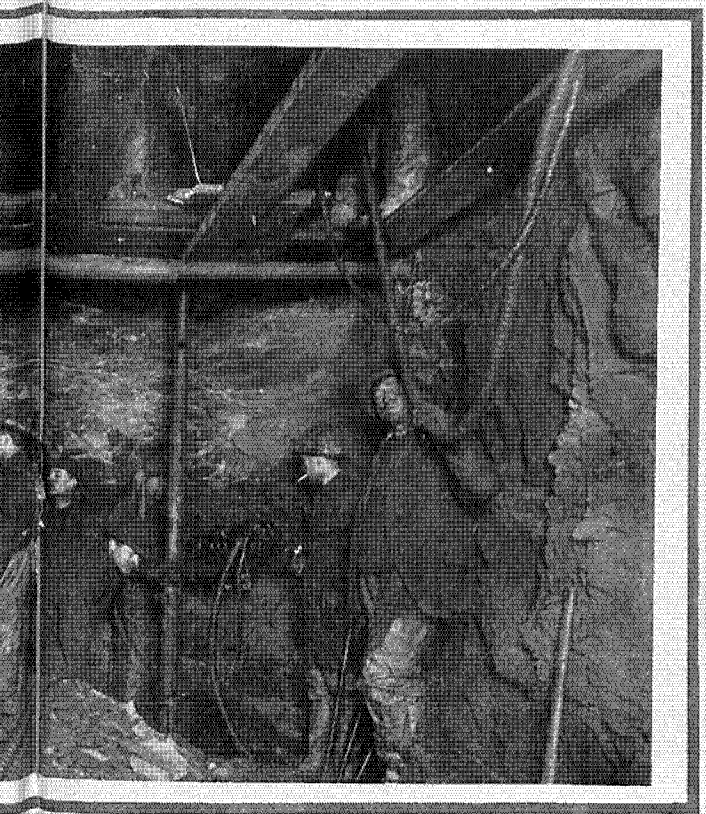
nt Dynamite to Assure New York City an Ample Water Supply



Shaft No. 1. At the left, note the 6-inch ventilating pipe; at the right side supplies water for the drills. Overhead is the instrument platform. Engraving courtesy of "Public Works"



Above—Shaft Number 4 with the stone crusher at the right. At this point the tunnel is 394 feet underground



drilled here at one time, using five "Water Leyner" drills mounted on illustration. Cut reproduced by courtesy of "Public Works"



The photograph reproduced here was taken at the mouth of Shaft No. 5, while the operator was piling the cases of dynamite in a handy position for loading on the cage platform. Large quantities of Du Pont 40 and 60 per cent gelatin dynamite are being used in driving the tunnel which, at this point, is 629 feet below the surface level. One fifty-pound case represents approximately the quantity of explosive required for shooting one round of holes in the tunnel heading

Books That Are Bound to Sell

Because the covers are worthy of the contents and add their own appeal to that of good literature

NOWADAYS it takes more than horse-power and man-power to keep a big factory running—only brain-power can do that. Success is no longer measured by capacity to turn out product, but by ability to turn in orders.

When, today, we see an immense plant like that of the American Book Bindery of New York, with every wheel turning, we know that back of the men and the machinery there is a sales organization with exceptional ability to attract business and to keep it growing.

We have just said "attract business," but from an interview with Mr. L. Satenstein, President of the American Book Bindery, we believe the words *create business* are more appropriate in this case. Mr. Satenstein tells us that until the general depression hit the book manufacturing industry, his plant, one of the largest in the United States, was turning out its full quota of 35,000 finished books daily. This great capacity was then a tremendous asset, because the large edition publishers, for whom most of these books were made, needed prompt deliveries above all else. Conditions changed almost over night and this great capacity threatened to become a great burden, a liability rather than an asset, unless some exceptional methods of securing business were evolved.

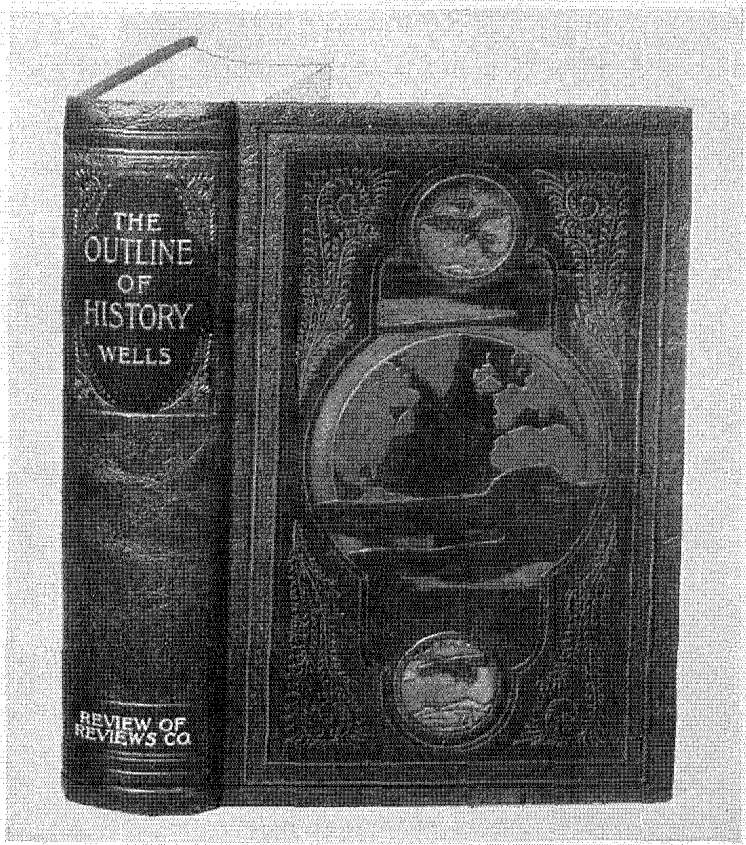
A conference of the heads of the American Book Bindery came to two conclusions: First, that the publishers could only contract for books as the public absorbed them. Second, that to make the public buy more books was the only way to make the publishers buy more. So, as Mr. Satenstein very aptly phrased it, "We decided to sell ideas first, *and then books.*"

A number of business-creating ideas were evolved. One of the best dealt with books of fiction, particularly the novel. Standard novels are customarily bound in cloth, which, considering the brief life of most novels, is an adequate binding. Many novels, however, are of outstanding merit, and these become permanent additions to our literature and to the libraries of book-lovers. The executives of the American Book Bindery reasoned that such books would sell better if bound in a material that also possessed the qualities of permanence and particularly if these bindings could be made exceptionally beautiful and appropriate.

Working with Du Pont Fabrikoid, they soon produced some impressive specimen covers in their new "Arteffect" finish to help visualize this idea to friendly publishers. As a result they are now getting a very satisfactory business in Fabrikoid-bound editions of important fiction, their very first production of this kind being a set of the novels of Mary Roberts Rinehart, published by the Review of Reviews Company. The cover of one of these books is illustrated here, but with very little justice to its striking beauty. One must see the book itself to realize how attractive the embossed design is, and how much it is enriched by the "Arteffect" finish in blended shades of brown, touched here and there with gold and other colors. It is by the use of this special finish that the American Book Bindery is able to produce covers that are full of character and individuality, and so convincingly de luxe as to aid immensely the sale of the books they appear on.

Most of the reasons why these better covers sell novels are fairly obvious. Many people buy novels in a rather haphazard way, leaving the decision as to just what titles they will purchase to last-minute impressions at the book-store.

An "Arteffect" Fabrikoid cover is sure to influence the choice of these people. They sense the fact that the book which carries such a cover has the publisher's endorsement to an unusual degree. The beauty of the cover itself attracts them, and they like the idea and see the economy of keeping such books permanently. If they are buying books for gifts, then these de luxe covers assure them that their gifts will be more impressive and more enduring than if the ordinary cloth-bound volumes are sent. Very likely, also, they know that the Fabrikoid binding is stain-proof, non-fading and washable; that it will not mildew or mould and is not attacked by vermin or insects. If they do not know this, the book dealer can make these qualities clinching arguments for his sale.



You must see the book itself to appreciate its beauty

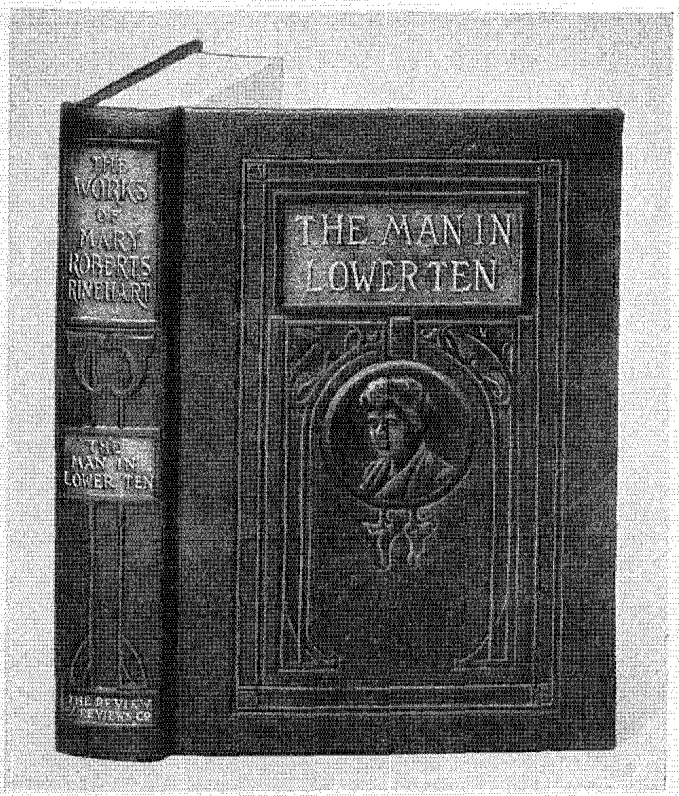
But the making of better selling fiction is only part of the effort of the American Book Bindery. They build books of all kinds from the manuscript to the bound volume. They have been particularly successful in interesting publishers in "Arteffect" Fabrikoid bindings for important books of reference. Witness H. G. Wells' *Outline of History*, which we illustrate here.

In this latest edition the Review of Reviews Company is offering this world-famous history in a single volume, and that volume has a cover so thoroughly appropriate, so obviously durable and de luxe, that this undoubtedly will be the preferred edition for all the millions who will buy Wells' *Outline of History* now and eventually. If we could have illustrated

this book in the four colors in which it is finished and in full size, you would realize something of the impression that the book will make upon you when you see it, for we believe there will be very few people who will not see this book before long. It is the most important popular history ever written, and the binding makes it as attractive without as it is instructive and entertaining within. It also insures its permanence against the hard use the book is sure to get.

The American Book Bindery is also making, at this time, the *National Success Course* for the Leslie-Judge Company. This is a well-known set of business books, which is selling better than ever in its new Fabrikoid dress.

"*Ring, the Story of a Frontier Dog,*" made for the Prentice Hall, Inc., publishers, is another of their recent productions that will delight the hearts of boys and girls everywhere. The collie dog on the front cover seems almost alive, and as the Fabrikoid in which he is embossed is thoroughly waterproof, "Ring" can have a bath whenever he needs it.



One of the first novels ever bound in Fabrikoid

The American Book Bindery also produces business catalogs and all kinds of bound commercial literature. Their "Arteffect" Fabrikoid bindings on such books have marked advantages, for the manufacturer whose line is covered can bring out upon them in striking relief his trademark, slogan, package, plant or whatever he desires to feature. Wherever color is needed to reproduce the package or heighten the general effect, color is available. The final result is a book so impressive that it has the right of way wherever it is sent. It goes straight to the executive's office and stays there where it will do the most good.

Thus Fabrikoid bindings in the "Arteffect" finish are helping to create a worthwhile business for the American Book Bindery as well as for the customers they serve.

What Explosives Users Say About Dumorite

Continued from page 2

"One of our customers, in regard to fumes, says this is the *best yet.* It is indeed very pleasing to carry in stock a commodity that the trade demands. We are recommending Dumorite to all our trade."

It is apparent from the foregoing that Dumorite has measured up to our claims for it as a practical, efficient, economical explosive for such types of work as it is adapted. Dumorite has demonstrated that it is not lacking in strength or in other qualities to give it equal ranking value with other forty per cent dynamites of comparable character. Stick for stick it produces equally good results—and it is economical. For example, a box of Dumorite No. 2 contains 135 to 140 sticks while a box of forty per cent dynamite contains only 100. One box costs no more than the other. The evident advantage favoring Dumorite is the productive energy of the additional cartridges, a represented value of one-third more per dollar.

If you are an explosive user, Dumorite may help solve your problem of production costs—and it may not. Conditions peculiar to your operation may not permit of its use with economy. But it is worth while to determine that point, and the way to find out is through our explosive sales offices or by writing a fully descriptive letter about your work and addressing it to the Technical Bureau of the Du Pont Company, Wilmington, Delaware.

If Dumorite can be used economically in your operations, you will be so advised; otherwise, another type of explosive will be recommended. Du Pont Technical service is freely rendered to all customers.

Advertising Pyralin Toiletware

Continued from page 6

we describe the full line of dealer helps which we supply to give the local dealer a 100 per cent tie-up with our national advertising. This includes material for window and counter displays, lantern slides, literature for use with consumers, a complete newspaper advertising service and a booklet for the instruction of retail salesmen. No charge is made for any of this material to any dealer who will put it to good use.

We urge our dealers not to neglect, but to use these various helps. Do not make the thousands of consumers in your city, whom our past advertising has convinced, and the added thousands that our 1922 campaign will influence to buy Pyralin, hunt for the store where they can buy it. Use our various helps to tell them that your store is headquarters for this preferred toiletware.

Last month we told you in these columns of the broader market for Pyralin that has resulted from lower retail prices on all articles and decorations; from the addition of some new and attractive decorations that anyone can afford; from the strong demand which has developed for Shell Pyralin and Amber Pyralin, and from the confidence of the public in the value and quality of Pyralin at a time when they are using the utmost caution in their purchases.

Today, all over the United States, Pyralin is the largest-selling, surest-selling toiletware. Backed by our advertising it will be a leader more than ever this year. It has a preference among consumers which is a definite asset to you.

Use this asset. Stock Pyralin and push it with our help. Hook up with our advertising and tell your public that they can buy this best-looking, best-value toiletware—the toiletware they want—*at your store.*

THE DU PONT MAGAZINE

Published and copyrighted by
E. I. DU PONT DE NEMOURS & COMPANY, Inc.
Subscription, 50 cents the year
E. R. MANCHESTER ..... *Editor*

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Vol. XVI MARCH-APRIL, 1922 No. 2

Company Notes

William Coyne, a Vice-President and Director of E. I. du Pont de Nemours & Company, Inc., has been re-elected a member of the Executive Committee. Prior to 1919 Mr. Coyne had been a member of this Committee as vice-president in charge of sales. During the past few years he has been in charge of military sales, government claims and has been a member of the Finance Committee.

The respective industrial departments of E. I. du Pont de Nemours & Company, Inc., have taken over the sale of all Du Pont products formerly handled by E. I. du Pont de Nemours Export Company. The latter organization, a subsidiary of the Du Pont Company, was discontinued April 1, 1922.

The home office of the Pyralin Department, C. W. Phellis, General Manager, has been moved from Wilmington, Delaware, to the factory location at Arlington, N. J. The department, however, has retained an office in the Du Pont Building which will be known as Wilmington headquarters.

The position of Assistant General Manager of the Pyralin Department has been discontinued.

J. A. Burckel, formerly Assistant Director of Sales of the Pyralin Department, has been appointed Special Assistant to the General Manager.

R. W. Brokaw, Plant Manager of the Arlington Works, has been appointed Director of Manufacture.

The Pittsburgh branch office of the Pyralin Department has been discontinued. The trade in that district is being served through the New York City office at 21 E. 40th street.

The Chicago branch office of the Pyralin Department has been removed from 1814 McCormick Building to 14 North Franklin Street. William Johnston is Sales Manager.

Enlarging the Fibersilk Plant

L. A. Yerkes, President of the Du Pont Fibersilk Company, has announced that a new unit, estimated to cost $2,000,000, will be added to the Company's plant at Buffalo, New York.

The plant now has 225,000 square feet of floor space, and the addition will increase it by about 200,000 square feet. Construction work will be started at an early date and the new unit will, it is thought, be completed about the end of this year. The present output is 1,500,000 pounds of silk. With the new unit in operation, the plant capacity will be virtually doubled.

The Orange Band and the Du Pont Oval



For many years Du Pont black blasting powder has been packed in kegs not readily distinguishable from those used by other manufacturers. Recently, it was decided to make Du Pont kegs more distinctive by painting a band of orange around the middle of the keg and further identifying it by the Du Pont oval. The accompanying illustration shows the marking, which, it is believed, will serve as a protection to the trade against substitution. Some time must elapse before all of our kegs can be so banded, but eventually customers will look for powder kegs with this marking for assurance that the product within is the old reliable Du Pont brand.

Monobel No. 8 a Class 1-A Permissible

A new Du Pont explosive, which will be known as Monobel No. 8, has passed the official tests of the U. S. Bureau of Mines and has been placed on the Permissible list in Class 1-A, the highest rating given to an explosive as a measure of its suitability for use in gaseous and dusty mines.

Monobel No. 8 is the slowest strong Permissible made by the Du Pont Company; its low density and good sensitiveness make it desirable as a lump coal powder, and it should, therefore, find a ready sale to the coal mining trade.

Riflemen Will Meet Again At Camp Perry

The National Matches will be held this year at Camp Perry, Ohio, from September 2 to 28, inclusive. This announcement had been made through the press by Assistant Secretary of War, J. M. Wainwright, who is also President of the National Board for the Promotion of Rifle Practice. For three years in succession Camp Perry has been selected as the meeting ground for the nation's expert riflemen. It is an excellent location, overlooking Lake Erie, and the range itself is said to be one of the best equipped in the world.

Col. Morton C. Mumma, who served as Executive Officer of the National Matches in 1921, will have charge again this year.

Viscolac—A New, Economical Lacquer

Continued from page 5

Viscolac finishing operation is usually completed in as many hours. The Viscolac film is remarkably clear, tough, durable and adhesive. It is unaffected by moisture and dries without a trace of "tackiness." This makes it an especially well adapted product to use on articles such as canes, umbrellas and paint brushes which are usually held for some time in the user's hand, and are likely to become sticky unless a product of this character is used.

Manufacturers already using Viscolac tell us that their products can now be made, finished, shipped and used with much less chance of accidental damage to the finish than when they used other finishes, because Viscolac does not readily scratch and never checks.

In comparison with other nitrocellulose lacquers made for the same purpose it is vastly more economical because of its much greater body, one coat of Viscolac often being found sufficient on work requiring three coats of ordinary lacquer.

Viscolac can be applied by spraying or dipping. Colored enamels made on Viscolac principle are now also available and are being used in industries where their quick-drying qualities as well as more durable finishes are found desirable.

Boring Machines and Explosives Twin Helpers

The Cowan-Alford machine and Dumorite make light work of the labor of land clearing

IF you have ever watched a laborer attempt to dig out a good sized pine stump with ordinary tools—a shovel and axe for the first assault and then a block and tackle—you will agree that it is a tediously slow task; for the resinous composition of the pine stump of the Southland makes it resistant to natural decay and its deeply embedded taproot grips the earth so that it cannot be dislodged without a vast amount of back-breaking work.

That is why more efficient methods of stumping have been developed, why power boring machines, explosives, stump pullers, and other equipment have come into use. Explosives have been employed for many years. The stump puller is not new, but the power boring machine—at least a satisfactory one—is a comparatively recent addition to land-clearing tools.

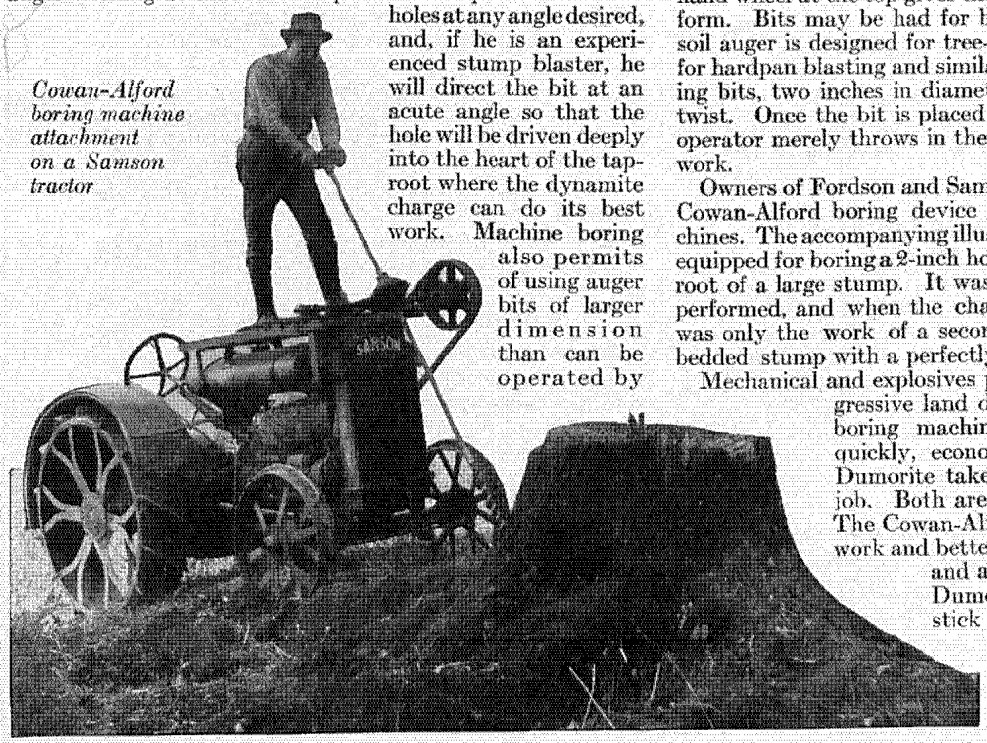
An enormous stride in agriculture was made when men learned to substitute explosives energy for human labor in getting out stumps; nevertheless, the hard, grueling labor of boring holes for the explosive charges remained. Any one who has tried to bore a hole into a stump with a hand-auger knows that it is hard work, disheartening to most owners of cutover land. Now mechanical power takes the place of human labor for this task. The Cowan-Alford boring machine has become the twin helper of dynamite.

One man operating this machine, it is claimed, can bore from 300 to 400 holes a day at a maximum cost of three cents a hole. To accomplish this same result with hand labor would require fifteen men, each one boring from twenty to twenty-five holes. The hand labor would cost about $22.50 a day—the boring machine about $9.00 a day.

There are several advantages gained in boring holes by machine rather than by hand. The operator can start boring at the surface of the ground, without first digging the earth away from the stump. The machine bores the hole at the rate of twenty inches a minute. Imagine a laborer with a hand-auger working at that rate of speed! The operator can bore holes at any angle desired, and, if he is an experienced stump blaster, he will direct the bit at an acute angle so that the hole will be driven deeply into the heart of the taproot where the dynamite charge can do its best work. Machine boring also permits of using auger bits of larger dimension than can be operated by hand. This makes it possible to load an adequate charge in the hole. The Cowan-Alford boring machine, as a separate unit, is mounted on a steel frame with shafts attached for animal traction. It is equipped with a light-weight, water-cooled, four-horse power gasoline engine, friction clutch and automobile-type carburetor. The transmission consists of hardened steel spiral gears with thrust ball bearings enclosed in gear housing and run in grease. Slotted shafts permit a horizontal adjustment of 30 inches and a vertical adjustment of 36 inches. A hand wheel at the top gives the operator control from the platform. Bits may be had for boring either wood or soil. The soil auger is designed for tree-planting, boring under stumps, for hardpan blasting and similar purposes. Both are self-feeding bits, two inches in diameter, with either a 30 or 40-inch twist. Once the bit is placed against the wood or earth, the operator merely throws in the clutch and the engine does the work.



After the stump shown below was machine-bored, a charge of seven pounds of Dumorite was loaded and fired. It was a perfect shot, not only because the explosive was well adapted for this use, but also because the hole was bored at the correct angle for loading



Cowan-Alford boring machine attachment on a Samson tractor

Owners of Fordson and Samson tractors can now install the Cowan-Alford boring device as an attachment to their machines. The accompanying illustration shows a Samson tractor equipped for boring a 2-inch hole at an acute angle into the taproot of a large stump. It was a small job easily and quickly performed, and when the charge of Dumorite was loaded it was only the work of a second to root out this deeply imbedded stump with a perfectly executed shot.

Mechanical and explosives power are twin servants of progressive land developers. The Cowan-Alford boring machine, or its tractor attachment, quickly, economically, bores the hole; then Dumorite takes up the task and finishes the job. Both are practical land-clearing helpers. The Cowan-Alford boring machine does more work and better work than is possible by hand and at a saving of time and money. Dumorite does just as good work, stick for stick, as other explosives ordinarily used; but with more sticks to the case, it enables the user to do more work per dollar than any other brand now sold.

How is Your Safety in Shooting Insured?

How is the Reliability of Your Ammunition Guaranteed?

It is impossible to distinguish by visual examination of smokeless shotgun powder—

—a powder of standard quality from an inferior powder

—a guaranteed powder from a non-guaranteed powder

—a well-made powder from a poorly-made powder

—a properly made powder from a cheap powder

—a safe powder from a dangerous powder.

* * * * * *

Four hundred and fifty million shotgun shells loaded with smokeless powders are sold annually. This means four hundred and fifty million chances taken annually by sportsmen, if inferior powders are used in the shells.

What Protects the Sportsman?

The only protection—the only guarantee of safety to the sportsman—is the brand name of a reliable powder on the shell case, the shell box and on the shell itself.

* * * * * *

In buying shotgun shells it is most important to specify the kind of powder desired.

It is the powder that makes the shot go; therefore the powder is the most important part of the shell.

Without powder the best shell is nothing—it will not shoot.

With inferior powder the best shell is but an inferior load and will give but inferior results.

The name of a high-quality powder printed on the shell case, shell box and on the shell itself is the guarantee to the purchaser that he is getting a high-quality load—and it is his only guarantee of powder quality.

The Sportsman's Insurance

The name of a high quality powder printed on the shell case, shell box and on the shell itself is the SPORTSMAN'S INSURANCE against the dangers of using inferior or defective powders which can easily mean an epidemic of burst guns resulting in painfully, or even fatally injured sportsmen, or sportsmen permanently maimed.

The time to safeguard against accidents is before they happen. Sympathy is poor consolation for personal injuries or destroyed guns.

For a quarter of a century, or almost since the advent of American-made smokeless shotgun powders, the practice of branding the name of the powder on smokeless shells has obtained in this country.

As a result, we have in this country today the best smokeless powders in the world—best because of their safety, the iron-clad guarantee behind them and THEIR LOW COST.

Safety First—The Dealer's Responsibility

Since the quality of the powder is such an important factor in the safety of the merchandise sold, it is plainly the responsibility of the jobber and dealer to handle shells branded with the name of a reliable powder, manufactured by a reputable powder maker.

The name of a reliable powder on the shell case, shell box and shell itself is the guarantee to the jobber that he is offering for sale to dealers a safe and satisfactory article. It is the best guarantee the dealer can offer the sportsman that he is selling him safe and satisfactory shells.

A continuation of the long-established practice of selling shells branded with the name of a powder, guaranteed by a reputable manufacturer, relieves the jobber and dealer of the worry of legal responsibility in case of damage resulting from selling shells loaded with inferior powders unbranded.

Improving the Quality of Powder

The brand name of the powder on the shell case, shell box and the shell itself—the present practice—is the incentive which moves the reputable powder manufacturer to leave nothing undone to improve the quality of his product, thus safeguarding the dealer and jobber selling his powder in shells and the sportsmen who shoot it.

The long-established practice of branding the name of the powder on the shell case, shell box and the shell itself has saved American sportsmen from the dangers of unreliable powders.

What Does this Protection Cost?

Shells loaded with reliable powders, made by reputable powder manufacturers, bearing the brand name of the powder, cost no more than shells containing a nameless powder, sold unbranded.

Mr. Sportsman, you have always enjoyed this protection; it has cost you nothing.

When buying shells make sure that the shell case, shell box and shell itself bear the name of a reliable powder.

DU PONT

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Tufcote–Auto Finish

Two Profitable Specialties

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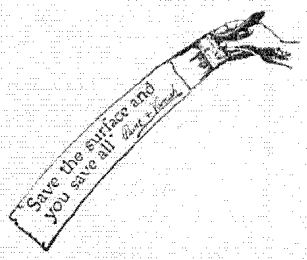
Tufcote and Auto Finish are equal in quality to any similar products—and superior to most. They are backed by a selling proposition that includes forceful newspaper copy, attractive display features and sales helps—and a coupon plan that is different.

This is your opportunity to build up a permanent specialty business on two nationally known—nationally used products.

E. I. du Pont de Nemours & Co., Inc.
Paint & Varnish Division
3500 Grays Ferry Road, Philadelphia, Pa.



Let us give you the full details of our Tufcote—Auto Finish proposition.



Continued from page 7

Robert Parker; Shaft No. 7, Edward Gordon. Each superintendent has organized his forces for 8-hour shifts as necessity requires and the work is being done under his direction subject to the approval of the executive staff.

Lack of space prevents detailed description of the method employed in driving this tunnel. It must suffice to say that all headings are driven by top heading and bench method, mucked by hand except Shaft No. 6 and north end of Shaft No. 7, which are full-face headings; these are machine mucked on account of the treacherous and unstable nature of the rock. Of the twelve headings, nine are now being timbered.

It has been my observation that comparisons with regard to speed on public work are deceiving and odious. On no two undertakings of similar character are conditions alike. There are so many variable factors, such as supply and spirit of labor, proximity of work to points of material supply, condition of roads over which material is hauled, and so on, that while the Ulen Contracting Corporation would not suffer by any comparisons, it will not be necessary to dwell at length on this. Suffice it to say that the Board of Water Supply monthly figures indicate that the maximum monthly excavation in twelve headings was 6,593 lineal feet; the maximum weekly excavation in twelve headings was 1,362 lineal feet; the maximum monthly excavation in any one heading was 608 lineal feet; and the maximum weekly excavation in any one heading was 148 lineal feet, all on a two-shift basis. The average advance in heading per shot is now slightly in excess of nine lineal feet, and the maximum has run frequently as high as fourteen feet and over.

From January 1, 1921, to January 1, 1922, 47,370 lineal feet of completed trimmed tunnel was excavated, which, so far as is known, is the world's record. The headings are now being operated on a two-shift basis in Shafts 1, 3, 4 and 5, a swing shift in Shaft 6, two shifts south of Shaft 7, and one shift north of Shaft 7. It is expected that they will "hole through" between Shafts 5 and 6; 4 and 5, and in the south end of 7 in April of this year when the lining will be started.

Work of this character does not lend itself to employees' welfare work so well as in large industrial plants where labor is more or less permanent, of a different class, and where there is not a large turnover. The very nature of the living conditions—with housing facilities of a temporary character—precludes welfare work of the kind you expect to find in large industrial centers. All the camps, however, are built along the most modern lines. The sanitary regulations, and the policing of these camps are supervised by the Board of Water Supply, and the living conditions of employees are so favorable that the rate of mortality and sickness so far is less than in New York City itself.

The method employed in drilling and blasting is the same as that ordinarily found in tunnel excavation of this character. In general, ten-line holes are drilled and eight relief holes, all eight feet deep, and six cut holes, all nine feet deep. Du Pont low-freezing 40 per cent and 60 per cent Gelatin, 1¼ x 8 are used with Du Pont No. 8 Electric Blasting Caps and other accessories manufactured by or for E. I. du Pont de Nemours & Company, Inc. The holes are fired at 7 o'clock in the morning and at 5 or 6 o'clock in the evening for the second shift operations. More than 2,500,000 pounds of explosives will be used on the work.

I feel that I cannot bring this article to a close without a further word about the men who are constructing this tunnel. The staff is composed of men of capacity and experience. They are not directing the enterprise by telephone with their feet on mahogany desks, miles from the scene of action, but you will find them on the firing line—*right on the job*—where they live and labor while this undertaking is in progress.

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

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DU PONT FABRIKOID

Wise trimmers will learn the Craftsman way

THE Craftsman Fabrikoid Top is bringing a very desirable, fast-growing business to trimming shops in every section of the country.

Its striking lines and the variety of attractive colors available have made it immensely popular with the automobile public.

With this top, the car owner has all the comfort of an expensive sedan at but a fraction of the cost. He can have it made to suit his own taste and in harmony with his car finish or upholstery—Fabrikoid comes in a score of beautiful colors and grains.

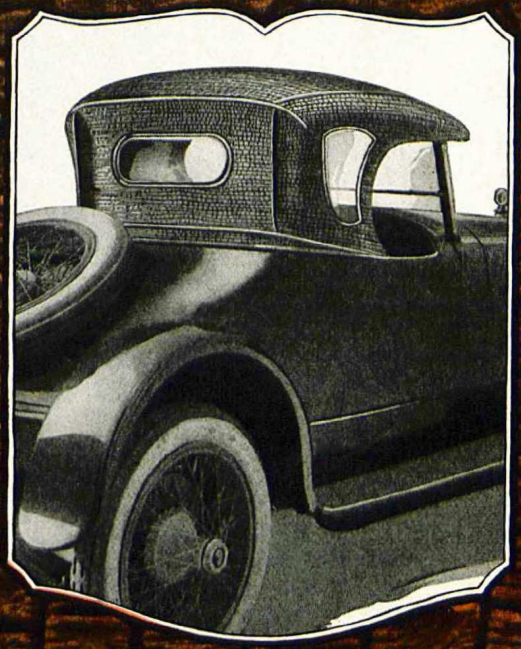
Those who have seen this distinctive top want it. And every order for a Craftsman Top means added business for some trimming shop.

Get your share of this new business. The Craftsman Top is not hard to build—it can be turned out very practically in any well-equipped shop, as is being proved everywhere. This top will attract the very best class of motorists to you and give you an increased pride and profit in the cars you turn out.

We will gladly send you a line of attractive samples of Craftsman Fabrikoid and a book describing the Craftsman Top and Finish in complete detail.

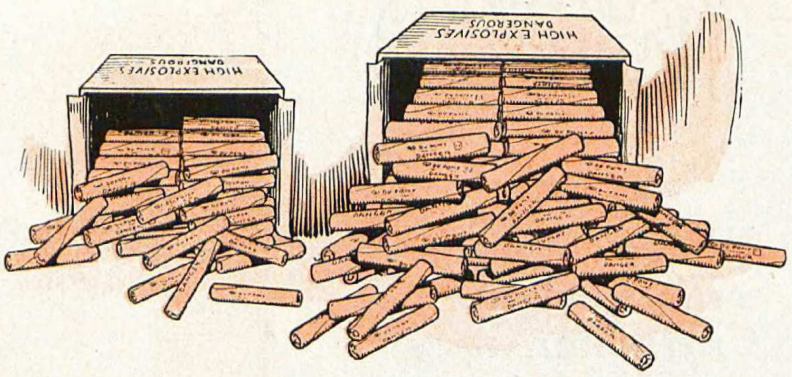
Craftsman Fabrikoid is also used extensively for finishing the bodies of fine cars—the Craftsman Fabrikoid Finish.

E. I. du Pont de Nemours & Co., Inc.
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FABRIKOID

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THE Du Pont Company leads the way in the production of more efficient and more economical explosives. In Dumorite, its latest achievement, it has made possible

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