The Du Pont Magazine

Painted for the Du Pont Magazine by S. M. Arthurs

When gold was discovered in the Klondike region in 1896, thousands of adventurous Americans rushed to Alaska and trudged many a weary mile over snow-covered mountain passes to stake their claims

March, 1927

EXTRA BUSINESS FOR AMMUNITION DEALERS

DU PONT

SPORTING POWDER NEWS

STANDARD LOADS of DU PONT SHOTGUN POWDERS

Kind of Game	12 GAUGE DRAMS	OZ SHOT	16 GAUGE DRAMS	OZ SHOT	20 GAUGE DRAMS	OZ SHOT	SHOT SIZES ALL GAUGES
DUPONT OVAL SMOKELESS							
Turkey Geese	VELOCITY IN EXCESS OF						★ 2&4 4 in flight over decoys
Brant Large Ducks	3½	1-¼	2¾	1-⅛	2½	1	
DUPONT (Bulk) SMOKELESS							
Medium Ducks Prairie Chicken Pheasants	3¼	1-⅛	2½	1	2¼	⅞	6
Squirrels Rabbits	3	1 or 1⅛	2½	1	2¼	⅞	6
Small Ducks Pigeons Doves	3¼	1-⅛	2½	1	2¼	⅞	7½
Quail Snipe Woodcock Shore Birds	3	1 or 1-⅛	2½ 2½	1	2¼	⅞	8
Reed & Rail Birds	3	1	2½	1	2¼	⅞	10
Trapshooting	3	1 ¼	2½	1	2¼	⅞	7½

★ In 12-Gauge loads only. Use No. 2 Shot.

2 POWDERS—26 LOADS
Now Comprise Standard Loads Chart

Now the Standard Loads Chart is a *real buying guide* for your customers and a *real selling guide* for you. Just TWO powders and TWENTY-SIX loads—a complete stock of shotgun ammunition for all purposes.

10 Loads for 12 Gauge
8 Loads for 16 Gauge
8 Loads for 20 Gauge

The two Shotgun Powders now manufactured by the du Pont Company meet all requirements of the shooter.

DU PONT OVAL. A progressive burning Nitrocellulose Shotgun Powder designed to meet the requirements of shooters for heavy, high velocity loads.

DU PONT BULK. The most satisfactory powder for use in light and medium loads.

A one-two-three, straight-away proposition!

BALLISTITE ELIMINATED

Standard Loads Chart Simplified

All du Pont Smokeless Shotgun, Rifle and Pistol Powders are now SINGLE BASE NITROCELLULOSE POWDERS. Du Pont no longer makes any Nitroglycerin Smokeless Powder. The manufacture of Ballistite has been discontinued.

How does that affect you? First, you've gotten rid of a trouble maker. Second, your stock is more stabilized. You'll get fewer kicks and more compliments. You can make up a complete stock with just 26 loads. The Standard Loads Chart is greatly simplified.

Here are the chief advantages of the simpler and more dependable line of du Pont Smokeless Powders, as discovered, after extensive investigations, by the du Pont Company, the United States and Foreign Governments:

1st. Nitrocellulose Powders have a lower temperature of combustion than Nitroglycerin Powders, consequently are less erosive.

2nd. Nitrocellulose Powders are practically unaffected by changes in temperature, whereas Nitroglycerin Powders are seriously affected.

3rd. Nitrocellulose Powders are equally if not more stable than Nitroglycerin Powders.

4th. Nitrocellulose Powders of modern manufacture are practically moisture proof within normal range of atmospheric conditions.

5th. Nitrocellulose Powders of the progressive burning type are the only powders capable of delivering extremely high velocities within normal pressure limits.

All du Pont Smokeless Powders are now Nitrocellulose Powders—practically moisture proof, not affected by changes in temperature—more stable—and with high velocities within normal pressure limits.

E. I. DU PONT DE NEMOURS & CO., Inc.
Sporting Powder Division
Wilmington, Delaware

The
DU PONT
MAGAZINE

VOL. XXI MARCH, 1927 No. 3

GLANCING BACK OVER 1926

A summary of the president's report covering a year's progress in the du Pont Company and its affiliated organizations

DURING 1926, the 124th year of its business life in America, the du Pont Company made a 14 per cent gain in volume of business over that of the previous twelve-month, according to the president's annual report made public January 29.

The report, covering as it does the activities of subsidiaries as well as those of the parent organization, is too lengthy to be printed in its entirety on this page. There are, however, a number of topics in it that may prove of interest to readers of the magazine.

Of great importance to the welfare of the company throughout its history has been chemical research. This report again pays tribute to the work done in various research departments which in recent years have developed Du Pont Oval Powder, Duco for spray and brush application, new types of Fabrikoid, a non-freezing dynamite, better types of chemicals for vulcanizing rubber, chemical disinfectants for cereals and root crops, and many other processes and products.

In addition to research-development, another contributing factor in the steady progress of the company is stressed—the importance of training and holding men capable of assuming large responsibilities in executive positions.

The section devoted to departmental progress during 1926 may be summarized as follows:

Sales of commercial explosives during the year showed an increase of approximately nine per cent.

Duco sales increased substantially and its field is constantly broadening beyond the automobile trade where it was first applied. Duco for brush application has met the popular demand for that type of finish and the reception accorded it both here and abroad was gratifying.

Development of important new colors during the year added materially to the company's dyestuffs business. The manufacture of tetra-ethyl lead was resumed to supply the requirements of various oil companies which, by mixing it with gasoline, produce an anti-knock motor fuel known as "Ethyl Gasoline." Fabrikoid and du Pont rubber products both showed increases in sales in 1926.

Among the subsidiaries, important strides forward were made by Lazote, Incorporated, in the production of ammonia from the air under the Claude patents. This organization also entered the anhydrous ammonia field by associating with the National Ammonia Company, Inc. National Ammonia and du Pont interests were brought together through a holding company, the Du Pont National Ammonia Company. Entrance into the production of fixed nitrogen for explosives industries and also into the anhydrous and aqua ammonia trade has thus been gained by the du Pont Company.

The Du Pont-Pathé Film Company, the Du Pont Rayon Company, the Eastern Alcohol Corporation, the Du Pont Viscoloid Company, Canadian Explosives, Ltd., and two Central and South American explosives firms, all subsidiaries or affiliated companies, reported progress during the year. Sales of Du Pont Cellophane nearly doubled.

The du Pont organization had at the end of 1926 approximately 26,000 employees, of whom 15,000 are with the parent company and 11,000 with controlled companies.

Forward Steps in 1926

Erection of a new high explosives plant started near Birmingham, Ala.

Completion of a plant at Deepwater Point, New Jersey, for the Eastern Alcohol Corporation.

Completion of additions to the Buffalo and Nashville plants of the Du Pont Rayon Company.

Construction of a new plant at Charleston, West Virginia, by Lazote, Incorporated.

Organization of "*Société Français Fabrikoid*" for the manufacture and sale of Fabrikoid in France, Algeria, Tunisia and Morocco.

Formation of Nobel Chemical Finishes, Ltd., licensed to manufacture and sell du Pont pyroxylin finishes in the British Empire, exclusive of Canada and Newfoundland.

Ormond-Daytona Beach plays host to hundreds of automobiles daily. Salt air and spray have no effect on those finished in Duco

FLORIDA CROWNS DUCO KING

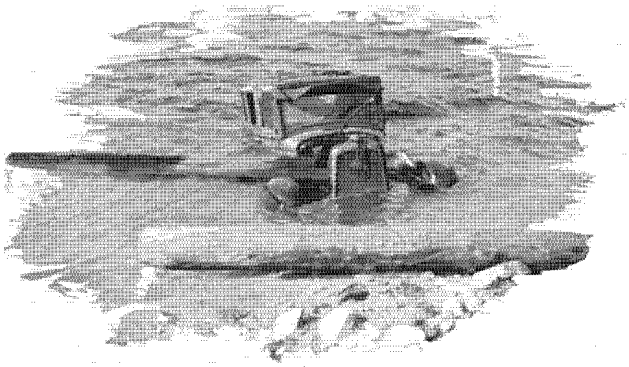
Hurricanes, heat and high water are all the same to this versatile finish. Its behavior under severe tests outlined here won over an entire state

By B. V. Sturdivant

DUCO—on land . . . on water . . . in the air! That's the amazing story that has come out of sunny Florida, playground of the world, since this finish was introduced there.

Duco lends distinction to the motor cars of national and international celebrities at Daytona, Palm Beach and Miami; it is the favored furniture finish from Jacksonville to the Keys; it gives sturdy protection to locomotives ploughing through murky logging camps; it resists the attacks of salt atmosphere on sportsmen's yachts; it has even gone into the skies as a wing covering for airplanes. And in each instance, Duco fills a practical need.

A sunny climate, the joy of every region so blessed, often revels in duplicity. While an undeniable health stimulant, the Florida variety is hard on smart roadsters and luxurious sedans. The sun is felt, summer and winter, in no uncertain manner. It is particularly hard on body finishes when the rays are interspersed with brief showers. With the temperature at 85 degrees or above, for instance, a shower may come along with its accompanying drop in temperature, to be followed in a few minutes by more sunshine and a corresponding rise in temperature. This sort of changing weather spells doom for ordinary automobile paint, particularly when hot sunbeams pound away on a wet surface.



Car overboard! This scene was one of scores that greeted Miami residents the morning after the hurricane

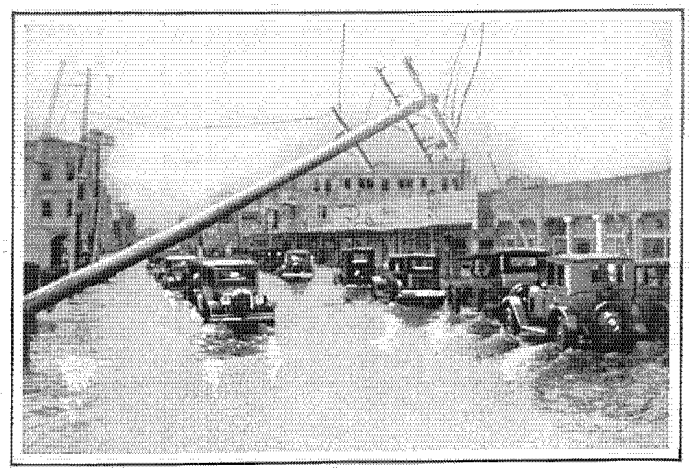
Here, then, was one of the big opportunities confronting Duco when it was introduced in the Garden State. Owners were interested in the brilliant colors, and the smooth, silky "feel" of this finish, but what they really wanted to know was—"Will it stand up?" Handsome finishes on cars were nothing new to them. It was the condition of the finish after six months or a year of service that determined its worth.

Unusual interest, therefore, was aroused in the first few Duco-finished cars that appeared in Florida. As the weeks and months went by interest grew to amazement, for Duco not only withstood the vagaries of a semi-tropical climate but seemed to thrive on them. Within the first year of general use in this state, it became the most talked-of motor car finish on the market. After three years of service, the demand for Duco has reached proportions beyond the dreams of even its heartiest supporters.

During this period another Florida test was given Duco. The superb East Coast beaches, stretching for miles along the edge of the breakers, provide in some places the finest kind of speedways. For years drivers hesitated to use them, knowing that a dash

of salt spray would blemish the finish on their cars. Duco, however, proved that it will withstand the salt water test better than any other practical body finish. The proof became all the more convincing last September when a terrific hurricane cut a path across the state, spreading death and destruction in its wake.

The storm struck with little warning. Nearly everything that was movable was carried away by the wind. Tearing in from the southeast, it lifted huge waves over the sea walls at and near Miami and over the lake and river fronts further inland. For hours, the streets of Miami and its suburbs were flooded with salt water to a depth of several feet.



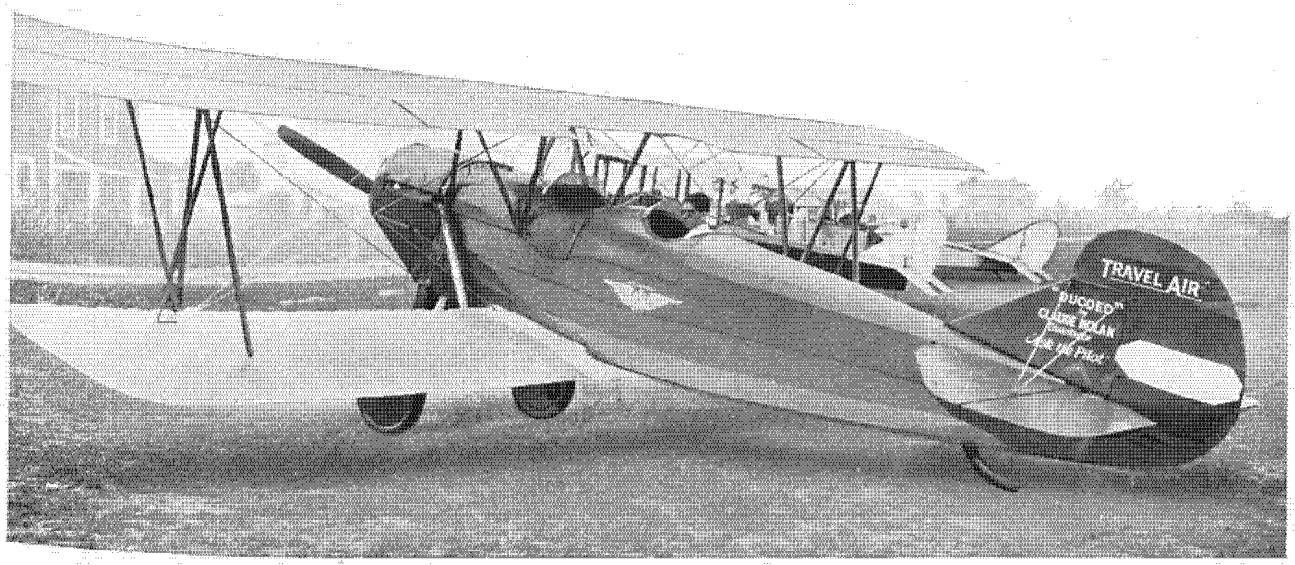
Miami streets were actually salt water canals for hours after the big storm, but it made no difference to Duco

During the period immediately following the disaster, when relief work was at its height, hundreds of automobiles ploughed through these "street-canals" day and night. Later, when everybody took breathing spells and began to take stock of the havoc wrought, it was discovered that motor cars finished in Duco came out of the ordeal in the best condition. Even those abandoned in several feet of water, after being tossed over the sea walls, emerged with their Duco-finished bodies in splendid shape. Needless to say, these facts did not pass unnoticed.

Of course, there is also Duco finish for furniture, and this has proved to be a boon to many residents of Florida whose homes are equipped with Duco-finished pieces. Just as in the case of automobiles, salt air, humidity and body heat have no effect on Duco finish applied to furniture. Even before the hurricane visited the lower section of the state last fall, the people of Florida were enthusiastic about Duco as a furniture finish. Its ability to withstand the normal exposures of the climate had been amply demonstrated. But when the hurricane wrenched off roofs from houses, apartments and hotels, exposing the furniture to the heavy rainfall accompanying the "big blow," those who owned Duco-finished pieces were well pleased to find them unharmed by the drenching when the time came for putting things to rights again. In short, the hurricane demonstrated the merit of this finish far beyond the most sanguine expectations of its advocates. It may safely be said that Florida is now in a class by itself as an enthusiastic booster for Duco-finished furniture.

While the story of Duco's success in Florida is best known in the automobile and furniture industries, conquests have come in other fields, too. Perhaps the extent of these wanderings can best be illustrated by brief examples.

Yacht owners some time ago began to inquire about this new finish from Claude Nolan, Duco distributor at Jacksonville. A few tried it for interior work; others saw and admired the finish, and soon many of the finest boats cruising in that section were Duco finished inside, and their owners are proud of it.



W. H. Alexander, a Florida airplane dealer, seated in his Duco-finished "ship." He predicted that Duco would soon become a "standard" in the air

Recently, one of the largest lumbermen in the state decided that Duco might provide a serviceable, protective covering for logging locomotives. He tried it on one of them. Then followed an order for the immediate refinishing of four more. Happily enough, Duco draws no line of social cleavage. It makes friends just as easily in murky alligator swamps as it does along the fashionable East and West Coast boulevards.

Claude Nolan, Duco distributor for the State of Florida

Probably one of the most unusual tests, however, occurred recently in Jacksonville. W. H. Alexander, an airplane distributor, proposed to finish one of his planes with the material. Claude Nolan sent his refinishing apparatus down to the field, and a coat of Duco was sprayed on. Several days later, Mr. Alexander gave his enthusiastic endorsement to Duco, declaring that it was the best protective medium for airplane canvas he had ever seen. He predicted that it will soon become a "standard of the air." Duco roams about the Garden State like a knight errant of old, doing good wherever it goes and building up a following that in three years has reached amazing proportions. One reason for it may well be, as Claude Nolan declares, that "Floridians have probably found more ways to test the value of this product than have the du Pont chemists themselves."

Mr. Nolan, it may be added, has been a firm believer in Duco from the time of its announcement to the public. He feels that the state is really grateful for this finish because it completely fills so many needs of the citizens.

And so, after all, there is something more than commercial success to be written into this story of Duco. While here is a self-made state, risen to prominence mainly through the faith and determination of its citizens, mere Man cannot joust with a climate, not even in Florida. "It's fine for the health" they used to say, "but not so good for the finish." Then down from the North came this du Pont product. That was three years ago. Today the finest motor cars, handsomest yachts, the most costly furniture are quite safe in Florida—that is, if they're finished in Duco.

QUALITY IS A VITAL FACTOR

By Arthur La Motte

SERVICE without a quality product is of no particular avail. It is difficult for any customer to visualize quality in a box of dynamite, and du Pont explosives resemble any other brand except for the name on the cases and wrappers. You can no more see the quality within, than you can tell the excellence of candy by looking at it. Candy costing $1.50 a pound may match a 30 cent grade so far as appearances go: the difference is in the taste.

Unfortunately the quality of high explosives cannot be determined by taste, or smell, or "feel." It cannot even be determined with exactness by laboratory tests, because most explosives react differently depending on the amount used; that is, small quantities do not necessarily show what a full size charge will do, even comparatively. In a good deal of quarry work differences in quality among explosives cannot be determined because there is almost always an excess of explosive power used. Quarrymen make sure the charge blows out the rock clean and clear and in the fragmentation desired.

It is only where explosives are tested to the utmost that quality shows itself, and in no place is this more manifest than in tunnel work, especially in hard rock. Here, six, seven or even eight pounds of dynamite to the cubic yard of rock are commonly used, whereas in quarry work the ratio is usually one pound to four, five or six cubic yards of rock. With but one free face to shoot to, explosives used in tunnel work have all that they can do. Here, then, the real quality of the explosive is revealed, and it can be measured by the feet of progress per day, week or month.

In open quarry work there is no fume problem. Smoke is blown away or diluted with atmosphere so that it is not particularly noxious. In tunnel work, however, the problem is a serious one. No explosive gives off fresh air, but by scientifically balancing the ingredients—those carrying oxygen and those carrying carbon—the greatest strength commensurate with the minimum of poisonous fumes is obtained.

This is where du Pont quality counts. Chemists, in collaboration with experienced technical field men, conducted experiments extending over many years, with the result that today du Pont 60 per cent gelatin, the grade usually specified for hard rock tunneling, is used with one exception in every hard rock tunnel being driven in the United States where the du Pont Company has distribution facilities.

What du Pont explosives prove in hard-rock tunneling under the most severe conditions can also be proved by permissibles, quarry and other types, but unfortunately it is not so easy to measure accurately the superiority of the latter. Their quality does stand out, however, where costs are carefully kept and where intelligent supervision and checking of results are insisted upon.

"LA POUDRE COMPRIMÉE"

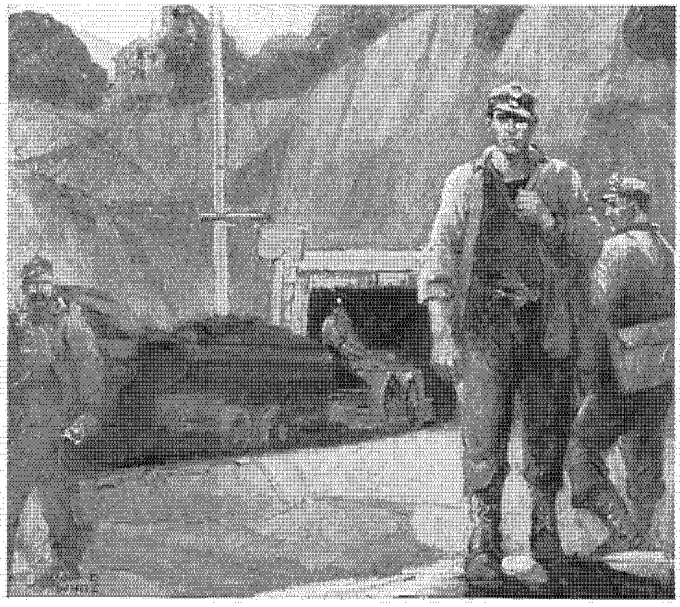
Pellet powder is steadily gaining popularity in this country for the same reasons that dictated its adoption in France

BLACK powder has been produced for centuries with few changes in its composition. One noteworthy improvement, however, was made in 1857 when Lammot du Pont patented a process of making and glazing a powder made of sodium nitrate instead of saltpetre.

The outstanding improvement of our day is pellet powder, which is used extensively in Europe and particularly in France where it is known as "*la poudre comprimée.*" Compressed black powder in pellet form is safer, more convenient to handle, and more economical to use than granular powder. The entire output of black powder in France is made in pellet form.

The du Pont Company produced the first American-made pellet powder last year. This product has amply demonstrated its merits and is now in strong demand in this country, for the same reasons that led to its adoption abroad. In that connection it may interest you to know its advantages from a foreign viewpoint. We take the liberty, therefore, of outlining a few paragraphs from pamphlets issued by Davey, Bickford, Smith and Company, one of the largest explosives firms in France.

In discussing "*la poudre comprimée,*" the Davey, Bickford writer states that safety rules in most French mines forbid the practice of pouring loose blasting powder directly into bore holes. Instead, it is placed in paper cartridges before loading. But there is a likelihood even then of spilling some of the explosive underfoot. By using pellet powder, this danger is greatly reduced and double handling is obviated. After drilling the hole, the workmen need only to prime and load as many pellets or cylinders of the powder as are necessary, tamp them in, and the charge is ready to fire.



A typical view of the entrance to an American coal mine in the midwestern field

Tests conducted during every-day operations in French mines have revealed, according to this writer, other worthwhile advantages possessed by pellet powder over loose black powder. These advantages are, in effect, as follows:

1. Pellet powder cartridges are of uniform density. No stray grains are projected by the explosion to burn later without useful effect. The explosive force is more constant in its application than that of granular powder.

2. When one of the cartridges is fired, ignition proceeds almost instantaneously throughout the charge by means of the hole in the center of each pellet. As French powder-makers point out, "the explosion is more regular and efficacious." Pellet powder also ignites more easily from a fuse than does the loose variety.

3. By using these cylinders of explosive, the blaster may reduce the height of the charge by one-half without lessening its efficiency. Tamping may thus be carried lower in the hole and a greater resistance built up. When the shot is fired, the action of the gases, imprisoned as they are in a relatively small space, is more energetic and unloosens a greater amount of material than is the case with straight black powder.

4. The priming of pellet powder is a very simple operation. (This advantage is an important one from the French standpoint and is therefore given prominence.) All the operator needs to do is to string the required number of cartridges on the fuse, then fold over the tip of the fuse upon itself and pull it back into a hole in the end of the last cartridge, the hole being previously shaped with a pen-knife. The charge is now ready for loading into the bore hole.

To summarize the French viewpoint by quoting directly from the Davey, Bickford catalogue, pellet powder makes possible "greater security in transportation and handling, easier control of quantities used, diminution by 25 per cent of the load of powder to be used, greater efficacy, notable economy of time and money, and reduction of smoke produced by the explosion."

These are some of the reasons why it found such a favorable reception in Europe and why the du Pont Company is today supplying it to many of the largest coal mines in this country. It has met very rigid tests on two continents and is doing work underground more efficiently and economically than has ever been done before.

BLASTING OUT PROSPERITY

Would it surprise you to know that the consumption of high explosives in Florida has increased more than 395 per cent during the past six years?

By Arthur L. Depp

DURING the past few years the nation has heard much about Florida, and while opinions have been both favorable and adverse, the fact remains that development operations have been conducted on a stupendous scale. So many people think of Florida in terms of orange groves, truck gardens, beach-front homes and hotels, bathing beauties, real estate and what not, that it may be refreshing to think of the state from a wholly different, but not less interesting, point of view.

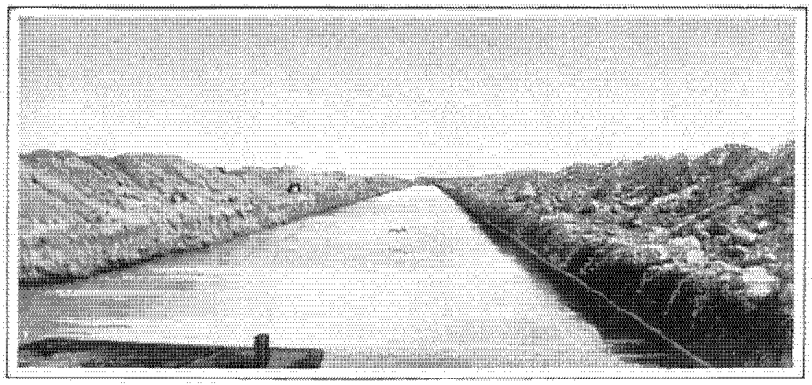
Florida has many development projects and has forged ahead rapidly as an industrial state. Mineral production, which has fostered her prosperity, has heretofore been measured officially in dollars and cents, but the record of progress will be quite as clearly portrayed if pounds of dynamite be substituted for value in dollars. Thinking of it in that way will enable the reader to understand better how high explosives fit into the picture.

Considering the topography of the state and its soil structure, one might assume that very small quantities of explosives would be used there. Yet, during the first eleven months of 1926, according to recent statistics from the U. S. Bureau of Mines, Florida was one of five states of the Union reported as using the largest amounts of high explosives, permissibles excepted.

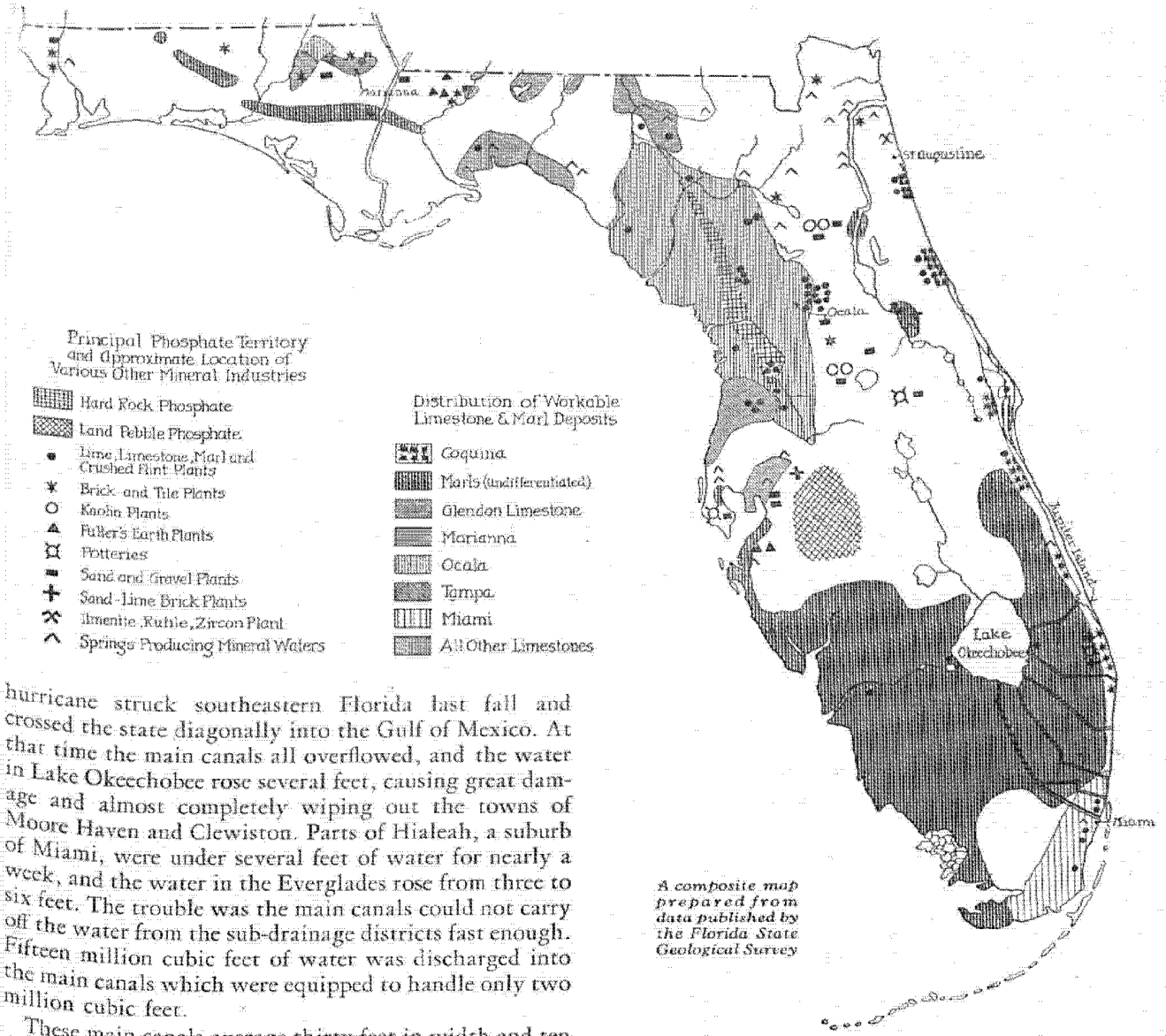
Dynamite has been an important factor in developing Florida. Without it her huge drainage, development, and building programs would not have been accomplished so quickly, and many of them would never have been attempted.

The first use of dynamite in large quantities began in 1895 when Henry M. Flagler was building the Florida East Coast Railroad, called by many "Flagler's Folly." Explosives played a big part in that undertaking. In many places the engineers literally had to "shoot their way" through obstacles along the right of way. From the time the first trains began running down the East Coast the state grew steadily until 1910 when development work in Florida received a fresh impetus. Since that time it has gone ahead by leaps and bounds. Explosives helped to make all this possible. Some years before 1910 the State Drainage Commission was created. Its duty was to supervise draining the Everglades, a vast area containing about 4,000,000 acres of rich muck land. This soil varies in depth from two to eighteen feet, and drainage is being accomplished by a system of main and lateral canals varying in depth according to the depth of the muck in the sections they serve. The main canals all center at Lake Okeechobee, the second largest body of fresh water entirely within the United States. Those serving the Glades and the Loxahatchee Marsh are the Miami Canal, the North New River Canal, the Hillsboro Canal and the West Palm Beach Canal. Waters from them empty into the Atlantic Ocean. The Caloosahatchee Canal on the other side empties into the Gulf of Mexico. The lateral canals are planned by the various district engineers to meet the needs of sub-drainage.

In constructing these canals little difficulty is encountered in removing the muck deposits; dredges lift the material swiftly and without blasting. Near the lake, however, the rock beneath is very hard, compact, close-grained limestone. To the south and southeast the rock is not so hard, but upon exposure to the air it becomes rougher and harder, presenting a somewhat matted appearance. In some southeastern sections the rock is "streaky;" that is, it alternates in hard and soft layers. Rock is removed from the canals first by breaking it with explosives and then depositing the material along the sides. These spoil banks range from ten to thirty feet high. Two methods of blasting are employed—drilling and "dobying." The drilled shots follow generally the practices recommended for submarine work. In making "doby" shots, the cartridges are tied in bundles, primed with waterproof electric blasting caps, and then the charge is dropped into the water. These shots break the material so that it can be handled by the dredges. Sixty per cent straight and gelatin dynamite are the explosives generally used. The canal system functioned satisfactorily until the



The Coral Gables Canal—a part of the huge drainage system of Florida—under construction. Note the spoil banks at the sides



A composite map prepared from data published by the Florida State Geological Survey

hurricane struck southeastern Florida last fall and crossed the state diagonally into the Gulf of Mexico. At that time the main canals all overflowed, and the water in Lake Okeechobee rose several feet, causing great damage and almost completely wiping out the towns of Moore Haven and Clewiston. Parts of Hialeah, a suburb of Miami, were under several feet of water for nearly a week, and the water in the Everglades rose from three to six feet. The trouble was the main canals could not carry off the water from the sub-drainage districts fast enough. Fifteen million cubic feet of water was discharged into the main canals which were equipped to handle only two million cubic feet.

These main canals average thirty feet in width and ten to twelve feet in depth, extending altogether about 255 miles. The sub-drainage canals conform to the same average width and depth dimensions, but they are almost twice as long.

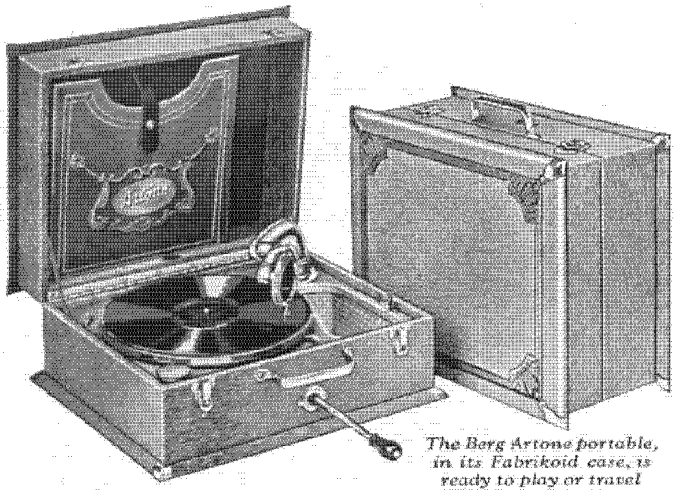
The general opinion is that the present facilities are inadequate, and the State Drainage Commission is meeting with various county, city and sub-drainage district officials to devise ways and means of correcting the condition. One of the plans advanced is to widen the main canals to 150 feet and to build dikes to protect the sub-drainage districts. There is no certainty that this will solve the problem, which, after all, is one for engineers to wrestle with after all the facts are developed.

Accurate figures of explosives consumption in drainage work prior to 1920 are not available without exhaustive search of records. It is known, however, that contractors, including the State Drainage Commission itself, used approximately 200,000 pounds of dynamite in 1920. By 1923 this had increased to 600,000 pounds. In 1925 the surprising total of 2,000,000 pounds was reached. Last year explosives consumption about equaled that of 1925, and had it not been for the setback caused by the hurricane, possibly would have exceeded it.

Road Building

Florida development has also necessitated the building of hundreds of miles of new roads and the improving of old ones. Rock pits were opened in practically every county. The methods used in mining these pits vary somewhat in different sections but not in any marked degree. The rock pits in Dade County, where Miami is located, have an average face of about nine feet, and with few exceptions the rock is blasted fine enough to be hauled directly from the quarry to the road under

(Continued on page 22)



The Berg Artone portable, in its Fabrikoid case, is ready to play or travel

CONSIDER NOW THE PORTABLES

If you are thinking of buying one, you will want to know something about the "best sellers" on the market

By R. A. Applegate

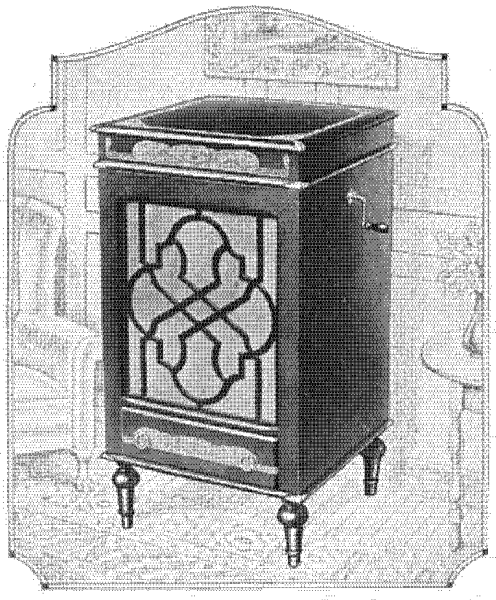
For the past several years the fastest and largest selling model in the phonograph field has been the portable. The popularity of this type of phonograph is due first to the desire of people to have music when and where they want it, and second, to the compactness and ease with which a portable can be carried and stored.

Picture a moonlit lake on a balmy evening in June. A canoe lies idly on its bed of silver. Off near the shore lights twinkle mischievously, and from over the water come the soft musical strains of a popular air played on a portable—the happy addition which lends enchantment to the scene.

Now we see a brilliantly lighted home—a piazza strung with vari-colored Japanese lanterns casting a mellow glow far out over the lawn. Bright faces, sparkling eyes, youthful laughter! A portable is brought from a room inside and a popular record is put on. The dance begins, which is the start of a complete evening of fun and merriment.

And still again, "far from the madding crowd" goes a jolly group. Two automobiles crowded with laughing, chattering picnickers. Their destination is a cool, wooded glen a hundred miles from the hustle and bustle of the city. Lunch is spread on a cloth. Someone thinks of a portable in the car. This is produced and music rings out full and clear in the deep of the wood.

The ability to have, when and where you want them, the singer, the orchestra or the instrumentalist who satisfies your particular taste—that is the reason for the portable's popularity. That's why portables are the fastest-selling single units in the phonograph industry today.



This console model, made by the Berg Company, is covered with Fabrikoid in handsome hand-tooled leather effects

Progressive manufacturers have helped to boost portables into the "best seller" class not only by producing good machines but also by stressing their value for year-round entertainment. They are no longer summer-time playthings to be packed away when the family moves back to town. Increased usage is due largely to a covering that provides a variety of designs and color effects from which one may choose to match the furniture or decorations in his home. This covering is Du Pont Fabrikoid.

To afford the reader more varied and detailed information, several firms were asked to describe some of their models. We are thus able to present here by picture and text what might be called a survey of an industry that in the past few years has grown to remarkable proportions.

First Berg Phonograph Made Ten Years Ago

The Berg Auto Trunk & Specialty Company, Inc., Thomson Ave., Long Island City, New York, has created quite a sensation in the phonograph industry in adding to its Artone portable line a strong-selling group of console and other floor models. These machines are different from any others on the market, being covered with artistic reproductions of hand-tooled leather effects.

Most people think of the Berg Company only as makers of portables, and that these large machines have been evolved from the Artone portables. But the *Talking Machine World* representative, conversing with Mr. Joseph Berg, president of the company, recently discovered that as early as 1916 the Berg factory produced a covered upright floor model. This sample, still in existence, was made at the suggestion of

Mr. H. Parnes, a well-known Brooklyn phonograph dealer. At that time the factory was making portable cases for other manufacturers.

Development of these artistically covered cabinets has been going on for some time in collaboration with the Du Pont Fabrikoid laboratories. The manufacture of portable cases for other firms developed the radio cabinet line and several manufacturers have used large numbers of them. This experience helped in creating the remarkable Artone phonograph.

Mr. Berg has over a hundred patents to his credit, many of which apply to phonographs and acoustics. E. R. Manning, treasurer and general sales manager, says the experiments of the company in 1916 and Mr. Berg's work on acoustics have reaped generous rewards. This is best indicated by steadily increasing sales. Additional factory space has been acquired and production has increased materially.

Any new article, especially one with revolutionary features, must go through an experimental stage with the dealer until the public accepts or rejects it. Mr. Berg and Mr. Manning were confident of public acceptance of these machines, because of highly decorative effects attained. These are made possible by the use of Du Pont Fabrikoid in beautiful reproductions of hand-tooled leather designs that blend harmoniously with present-day furniture. Odd pieces, colored lacquers and polychrome effects are greatest in demand.

The Carryola Line Covers a Big Field

A million dollar business in one year! That is approximately what the Carryola Company of America, 647 Clinton Street, Milwaukee, did with its portable phonographs.

Of course, the product had to be right. Executives of the Carryola Company started with a leader in which they had every confidence, for it had been tried out quietly for some time. In the Carryola "Master" they had a portable phonograph whose performance was really exceptional and the enthusiasm of the Carryola salesmen was contagious.

The "Master," leader of the Carryola portable models

The machines took hold and sold. They caught the public fancy so decidedly that sales were soon mounting at a prodigious rate and no slackening, at this writing, is in sight. The company, compelled by pressure on its production program, recently acquired a large additional factory building not far from the first one. This new plant has 45,000 square feet of floor space and will permit a production schedule of 2,000 machines each day.

Distribution was secured through large musical supply houses, most of them having outlets in many states, and together giving the Carryola Company national distribution. Advertising in representative national magazines was employed throughout 1926 to keep the Carryola name constantly before the public. This advertising will be continued throughout 1927.

The Carryola models have appeared in a variety of coverings, all of Du Pont Fabrikoid. The company presents the "Master" in four different colors and black, and while it varies the exact shades and changes the design from time to time, the same choice of colors has always been maintained. The Carryola "Master" has an embossed art cover, record album, double-nickeled hardware and other individual features.

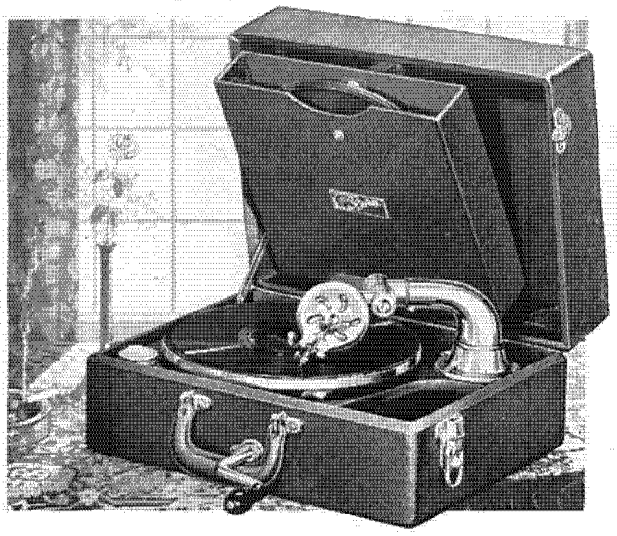
The quality of tone and the extent of volume produced by Carryolas are remarkable. Those who may believe that proper musical reproduction is impossible in a portable phonograph will receive the surprise of their lives when they hear a Carryola play. Its performance is thoroughly pleasing and fully on a par with many instruments of much larger size.

In addition to the "Master," which is at once the leader and most popular model, the company puts out the

Here's a new one—the Carryola "Flapper"

"Flapper," a novelty model cleverly patterned after a lady's hatbox and having the same features and affording the same quality of performance as the "Master." The "Flapper" differs only in appearance and construction and is a popular model around Christmas time. There is also the Carryola "Cub," designed to sell at a somewhat lower price level. This model yields tone and volume only slightly below that of the "Master." It is sold in three colors, all in Du Pont Fabrikoid.

Carryola models play two full-sized records with one winding. Incidentally, the album inside the top holds fifteen of them. These instruments will play all kinds and sizes of records.



The Caswell "Gypsy" model presents a dignified, sturdy appearance. It is finished in genuine Du Pont Fabrikoid

Caswell Portables Go to Many Countries

On account of the splendid wearing quality and decorative value of Du Pont Fabrikoid, the Caswell Manufacturing Company, of Milwaukee, manufacturers of portable phonographs, have, since the inception of their business, used this material as a covering and inside lining for their most popular line of portable phonographs. They realized that leatherette, which may be any material made from paper or cloth, could not possibly withstand the wear and tear that the covering of a portable must withstand in order to render the service expected from it.

Further, in order to protect their jobbers, dealers and the buying public from imitation coverings which were being advertised and sold as Du Pont Fabrikoid, they originated a seal, which is found on every "Gypsy" portable. It carries the assurance that the machine is covered with a material that moisture, dust and dirt cannot injure—a material that is stainless and wear-resisting; in other words, genuine Du Pont Fabrikoid.

The Caswell "Gypsy" portable, illustrated, is made in six colors of Fabrikoid—black, blue, red, green, gray, and brown, with interior linings to match, and is an excellent combination of the best units on the market. The result is a perfection of tone and volume surpassed only by the highest-priced standard instruments. The distinctiveness and originality of the Caswell product have proved valuable to distributors and dealers handling this particular line.

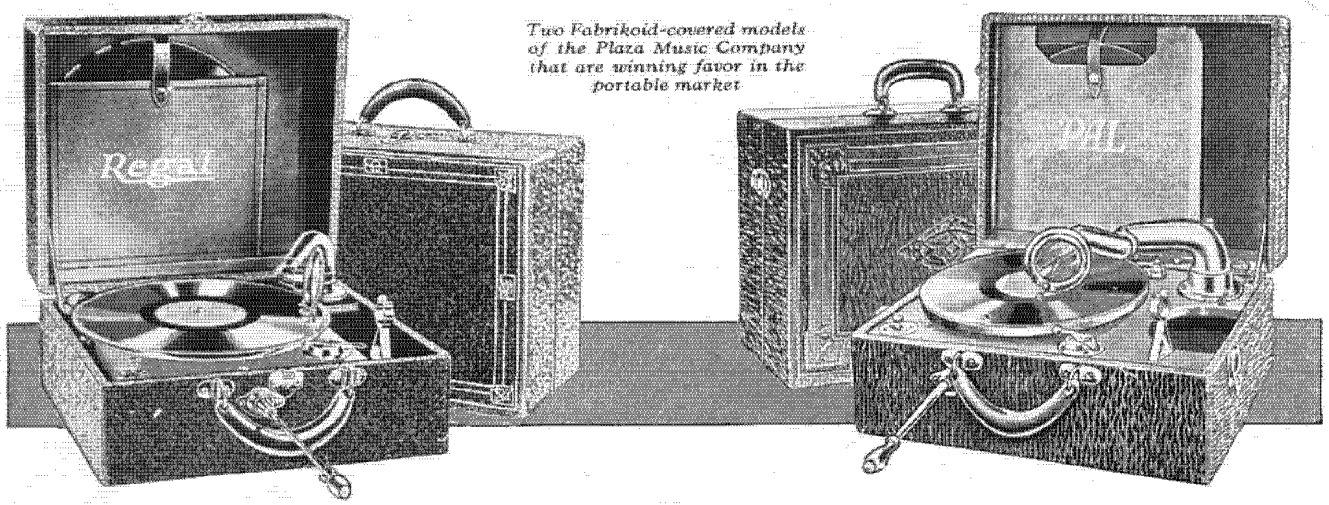
The company has also developed a very successful and constantly increasing export business, and Du Pont Fabrikoid has proved to be the only material able to withstand sudden changes in climate. Although thousands of machines have been shipped to Canada, China, Hawaii, the Straits Settlements, New Zealand, Java, South and Central America and elsewhere, not a single complaint of any nature has been received.

The Caswell Manufacturing Company, St. Paul Avenue at 10th St., Milwaukee, Wisconsin, will be glad to give any dealer desirous of handling the machines the name of his nearest distributor. The 1927 line is one of startling values from every standpoint—price, tone quality and workmanship.

Plaza Music Company Builds Sturdy Models

Back in 1923, after a considerable amount of research work, the engineering department of the Plaza Music

(Continued on page 23)



Two Fabrikoid-covered models of the Plaza Music Company that are winning favor in the portable market

Courtesy Pittsburgh Provision and Packing Company

MEET MEATS AT THEIR BEST

By R. M. Horsey

Two well-known products kept fresh and tempting under Cellophane

Courtesy Armour and Company, Chicago

What a wonderful change from the old way of selling meats! Think of the ordinary market with its slabs of meat laid out on a wood counter, exposed to flies, dust, odors and handling . . . or hidden away in an ice box where the housewife can't see what she wants, and where the butcher must bring out one piece at a time.

And then visualize the modern meat store and its appointments! . . . where meats are kept under glass or are wrapped in transparent Cellophane—always visible yet so completely encased that no harm can come to them.

FROM time immemorial Man's daily menu has been built around meat as the central item. It is still our most important single food, but the housewife of today has learned to be more discriminating in the choice for her table. Purchases are greatly influenced by her knowledge of the relative nutritive values of foods, the sanitary conditions under which they have been prepared, and their quality.

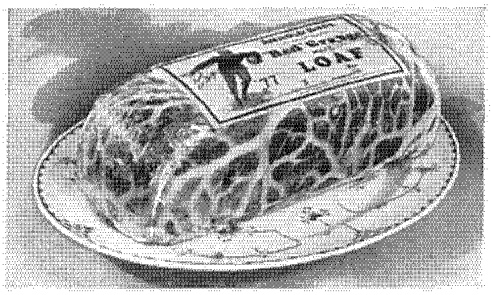
The trend is emphatically toward convenient foods. Soaring house rentals and heavy upkeep expenses, particularly in the cities, have forced thousands into apartments where meals are generally prepared in kitchenettes. It is indeed a far cry from these bandboxes to the big, airy kitchens of two decades ago. What with tables and cupboards galore, and a big shiny range upon whose broad back a dozen dishes could be cooked at one time, a young housewife might then be as inefficient as she pleased—and still have a good dinner ready on time. She had no feeling of being cramped for room; faced no problem of cooking a roast, two vegetables and the coffee on two burners.

Nowadays, however, she conquers just such problems, especially with regard to meats, simply because she demands products that can be prepared for the table in a small space and with the minimum of effort on her part.

The modern housewife also wants lean meats because she is unwilling to utilize the surplus fat as her sisters of the past did in order to prevent waste. She is also unwilling to perform any duty which she feels anyone else can perform better—the slicing of bacon and dried beef, for instance.

Breakfast cereal manufacturers long ago realized that housewives were ready to discontinue the practice of cooking cereals many hours before serving them. They wanted something that could be prepared in a few minutes. Go into a grocery store today and you can see the results in a score of cereals—already prepared and ready to serve at a moment's notice.

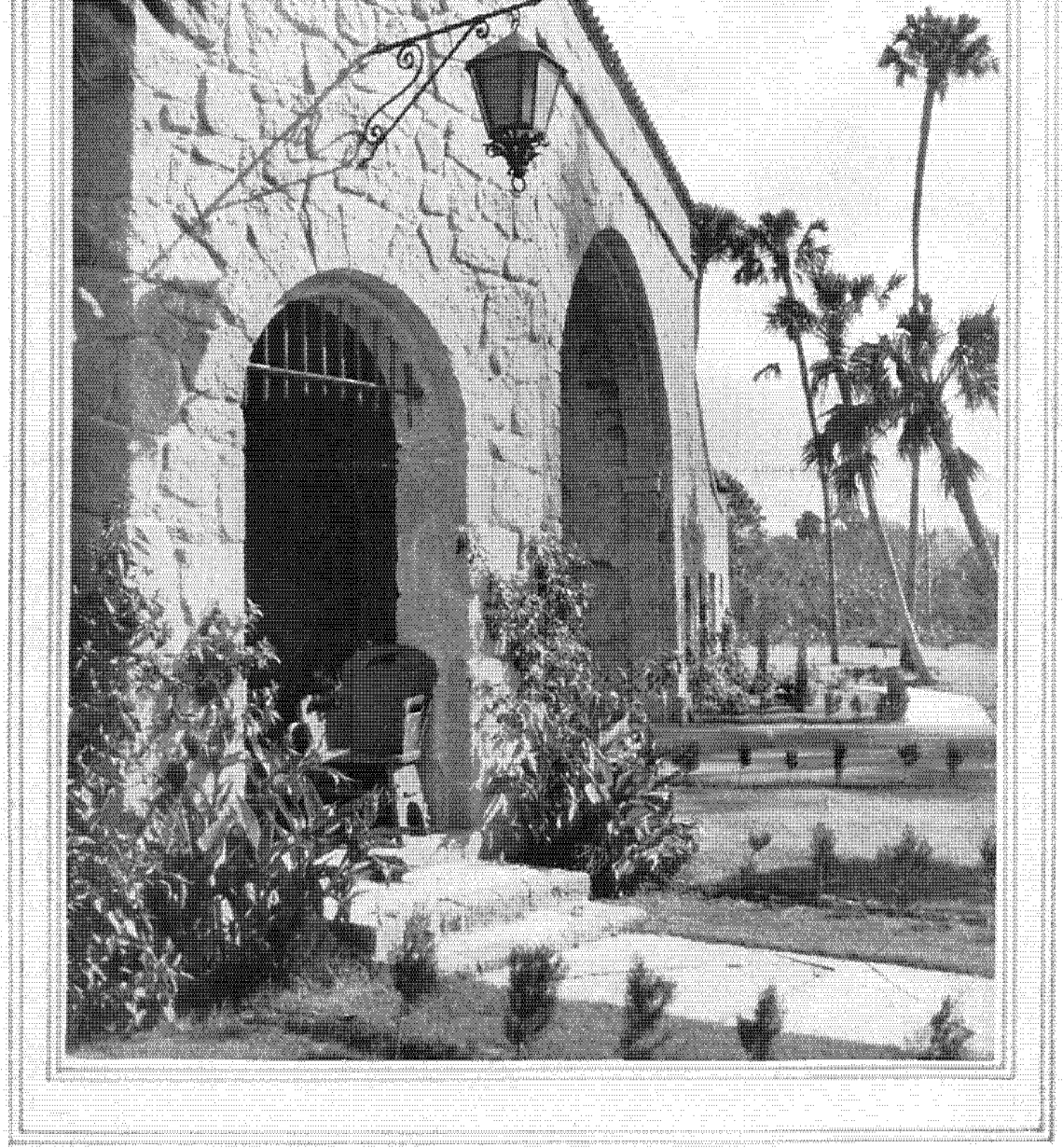
Wide-awake packers have also been quick to see this change. They are meeting competition from manufacturers of other food products by marketing both ready-cooked and ready-to-serve meats in convenient and attractive unit packages. You can now buy such a nationally known product as Armour's Star brand bacon neatly sliced and wrapped in Cellophane, which provides complete protection and, because of its transparency, permits careful inspection by the purchaser. Cellophane serves the packer from another angle, too. As there is a growing tendency for him to send products bearing his trade-mark right through to the consumer, he assumes the responsibility of supplying the latter with delectable and guaranteed meats. Cellophane removes many of his worries.



Courtesy Arnold Brothers, Chicago

A meat loaf looks much tastier in this transparent suit of Cellophane

In addition to meat products so wrapped, Cellophane encases other merchandise in every-day use such as bakery products, dried fruits, candies, toilet articles and notions. All are clearly visible to the purchaser and are completely protected from dust, dirt and handling. It will pay you to buy this protection.



A beautiful lodge at the entrance to one of the real estate developments near Daytona Beach is built of coquina in the Spanish manner and reflects all the beauties peculiar to that stone

COQUINA THE ANCIENT

Some brief notes about America's oldest building stone, first quarried by the early Spanish colonists

THE oldest city in America is St. Augustine, Florida, established in 1565. Spanish colonists chose the site, perhaps, because an abundance of coquina rock for building needs was found nearby on Anastasia Island. At any rate they started a quarry there, cutting huge blocks of rock which they lightered to the mainland. They needed a fort and spent 118 years building what is now called Fort Marion, the finest example of a medieval fortress in the western world.

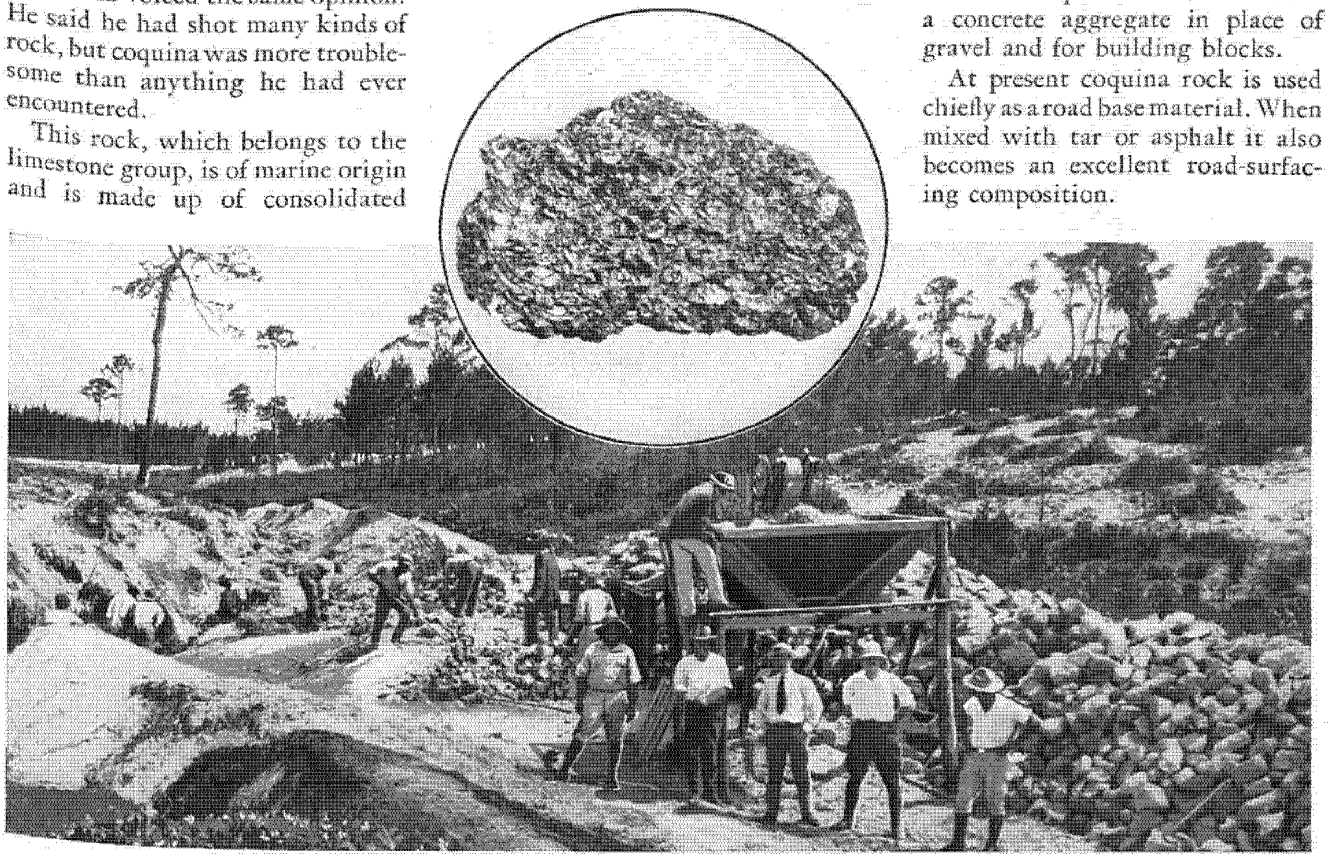
In 1739, when war broke out between Spain and England, General Oglethorpe sent 800 men to lay siege to this stronghold. Three batteries of guns were placed on Anastasia Island and the bombardment began. Instead of destroying the fort, the British cannon balls imbedded themselves in the masonry with little damage; and after a month of futile firing the invaders withdrew, probably muttering that coquina was the hardest rock to shoot they ever tackled. A few months ago an experienced quarryman in Florida voiced the same opinion. He said he had shot many kinds of rock, but coquina was more troublesome than anything he had ever encountered.

This rock, which belongs to the limestone group, is of marine origin and is made up of consolidated shells and shell fragments cast up by the sea. Incorporated with it are varying amounts of quartz sand. The largest deposit is the one first referred to. However, southward along the East Coast, in St. Johns, Flagler, Volusia and Brevard counties, are other deposits, some of which have been worked for many years.

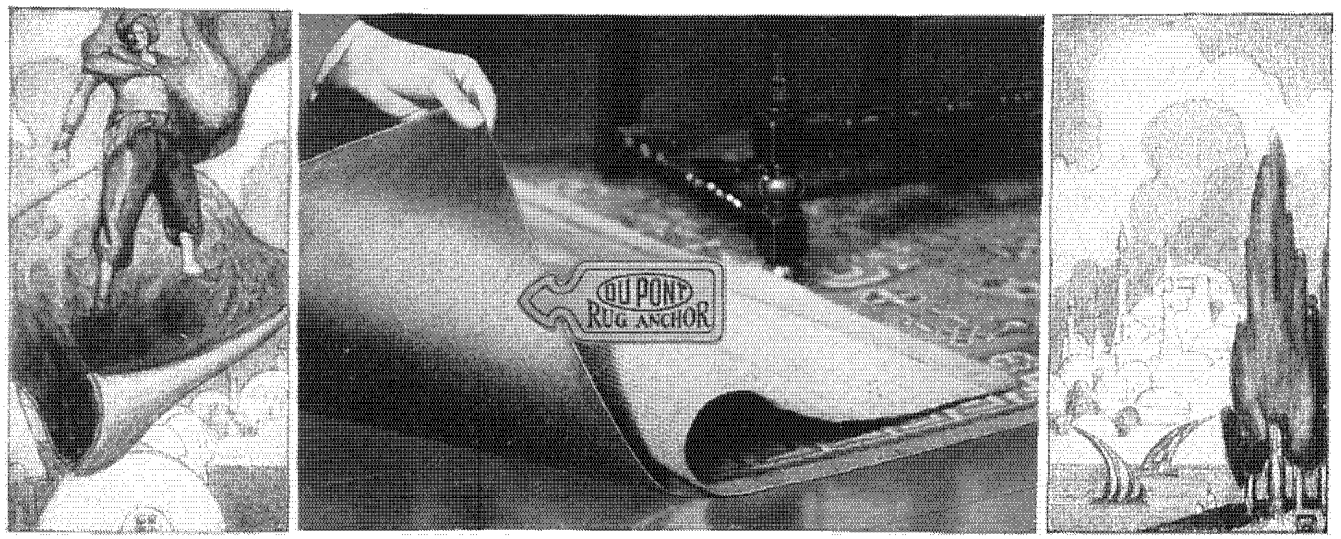
Coquina rock varies greatly in hardness and texture. Exposed ledges of compact, pure shell masses are hard, while underground the material may be relatively soft, graduating down to beds of unconsolidated shells. Under water the rock is frequently soft enough to cut with an axe, but on exposure to the air it becomes hard. Considering that deposits of the rock vary greatly in thickness, extent and quality, and that it is more or less porous, you can understand that drilling and blasting are difficult. Forty per cent straight dynamite is the explosive commonly used.

The hard rock is an excellent building material. Many beautiful East Coast homes and hotels are made of or faced with it. Recently much crushed rock and unconsolidated coquina have been used as a concrete aggregate in place of gravel and for building blocks.

At present coquina rock is used chiefly as a road base material. When mixed with tar or asphalt it also becomes an excellent road-surfacing composition.



One of the smaller coquina rock pits in Volusia County, Florida, where the material is crushed for road-building use. In the circle—A close-up view of a piece of rock showing its characteristic shell formation



A rug thrown back, showing du Pont Rug Anchor in place. In many homes possessing hardwood floors, this material serves as accident insurance and keeps the floor coverings trim and smooth

A MODERN MAGIC CARPET

It may whisk you off to the hospital unless you watch your step. But you can overcome that hazard in your home easily through the use of du Pont Rug Anchor

By F. W. Hotchkiss

We read in the tales of Arabian Nights of the magic carpets that at the slightest wish would carry one off to distant lands with an ease and comfort rivaling that of the modern Pullman coach.

There exists today a modern adaptation of this legendary conveyance, which does not follow precedent either as to its method of operation or the well-being of its passengers. True, it carries one away, but never in accordance with one's wishes, and the journey, short though it may be, is usually one of pain and discomfort.

This present-day "magic carpet" is none other than our modern rug, and the motive power that sends it on its way is a combination of treading feet and a hardwood floor. It lies in wait for your unwary step and then whisks you off abruptly—perhaps to the hospital.

These frisky, risky rugs are hazards in any home. Accident insurance companies report that the greater percentage of their claims are paid, not for railway or automobile accidents, but for injuries received in homes, and slipping rugs are among the contributing causes.

Falls from this cause are unexpected and often result in serious and permanent injuries that could be easily prevented, for there is now a product available that will eliminate this hazard of roaming rugs and keep them securely in place. This product is du Pont Rug Anchor, a specially prepared fabric manufactured by the Rubber Products Section of the du Pont Company at Fairfield, Connecticut.

It is simply laid coated side down under the rug to be protected, and it clings to the floor with a suction-like grip. No fasteners of any kind are required and neither the floor nor the rug is marred or harmed in any way. It will tame the friskiest rug and make it quiet and well-behaved.

Not only is the rug made safe, but it will always remain smooth and tidy. It will not wrinkle or creep even before the assaults of a vacuum cleaner. When you put a rug over du Pont Rug Anchor, it "stays put."

Of course, the primary function of the material is to keep the rug in place, but it has other properties that commend it to the housewife. Du Pont Rug Anchor is absolutely waterproof and, when used, prevents dirt or moisture from reaching the rug from the floor. Its resiliency, too, lessens the wear from treading feet.

In every home equipped with hardwood floors, there is a need for this product. No matter how small the rug or how highly polished the floor, du Pont Rug Anchor performs its duties perfectly. It is a safety appliance for the home and serves also to prolong the life of rugs.

So when your unruly rugs will not stay where they belong, discipline them with du Pont Rug Anchor. They will then keep their proper places and will no longer menace the safety of your home.

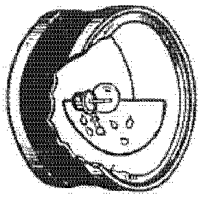
Du Pont Rug Anchor can be purchased from almost all up-to-date dealers in floor coverings.

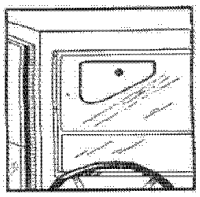
NIGHT DRIVING MADE SAFER

THE elimination of glare from headlamps is still one of the problems in the automobile field. Each year exacts a heavy toll of injuries that may be traced to accidents wherein unfortunate drivers, blinded by the glare from oncoming machines, have either driven into smash-ups or have careened into ditches and overturned.

Realizing that any device to prevent glare is more than welcome to the average motorist, several firms outside the motor industry are manufacturing devices to make night driving safer. The I-D-L Auto Glare Check is the development of one of these firms, the I-D-L Auto Glare Check Device Company, of Canton, Ohio.

These accessories are separate units, one for windshields, and the other for headlamps. Both of them are illustrated here. Used together, they not only afford the driver an unhampered vision of the road but they also reduce the glare for the other fellow. They are easy to install, require little or no attention, and are made to fit most makes of cars.

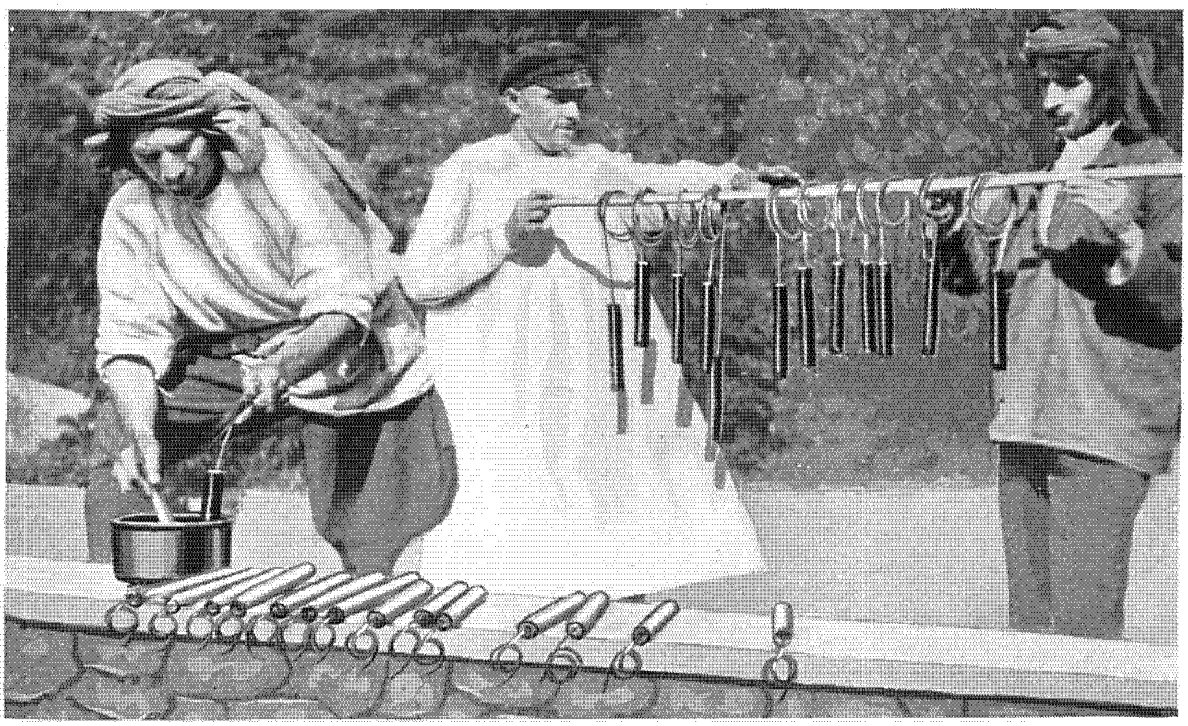




The windshield unit is attached to the glass by means of a vacuum cup. In cold weather a film of glycerin may be used to moisten the cup before it is pressed into place. The Glare Check is adjustable to any position and, if not needed, may be turned up and out of the way without removal from the windshield. To install the headlamp unit the light bulb is taken out and fitted with a key which in turn is fastened to the glare shield and locked in place. Detailed instructions for both installations are supplied the purchaser.

Both glare check devices are made of green Pyralin and possess all the resistant qualities of that material. Their use for driving at night has rendered many otherwise nervous and fearful motorists perfectly confident and at ease, and has saved their cost hundreds of times over in the prevention of serious accidents. Further inquiries regarding these accessories should be addressed to the I-D-L Auto Glare Check Device Company, 1409 Tuscarawas Street, Canton, Ohio.

A PICTURE FROM THE EAST



International Newsreel

A new power station is under construction at Batum, Caucasus. This view shows a sidelight on the local practice of waterproofing primed dynamite cartridges. The drying method may be effective, but it is hardly safe

The
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KLONDIKE GOLD

JUST as the discovery of California gold precipitated the rush of the "forty-niners" and accelerated the development of the far West, similarly the discovery of Klondike gold in the winter of 1896–97 drew thousands of adventurous men to Alaska. Some of them found "pay dirt" and grew rich; others went broke. But Alaska gained immeasurably as a result of this migration, for it pointed the way to the more permanent development of other natural resources.

Alaska, originally purchased for less than two cents an acre, has proved to be one of the best real estate investments our nation ever made. The territory is rich in lumber and furs and fisheries, in coal, copper and other minerals. It possesses fertile lands and a more moderate climate than many people suppose. In recent years the Alaska Railroad has opened new opportunities for industry.

Du Pont explosives, although they figured little in the early settlement of the territory, have been important agencies in Alaska's industrial progress. The better to serve this region, the du Pont Company maintains an office and explosives storage facilities at Juneau.

"THE HOMES YOU REMEMBER . . ."

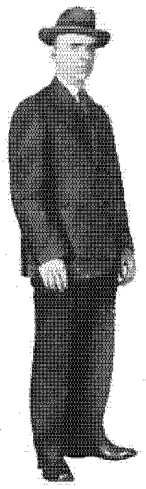
A BOOKLET that by picture and text brings Duco nearer than ever to the home and shows how interiors may be made to reflect the charm of individual tastes has recently been published. It is called "The Homes You Remember Are Colorful Homes."

The reader is told how to prepare old or new surfaces; how to apply Duco with a brush, and how to mix standard Duco colors in order to obtain any shade desired.

One section is devoted to methods recommended for refinishing automobile bodies with Duco for brush application. Readers of the booklet will undoubtedly think of many uses for Duco on odd pieces of furniture, on scarred or cracked walls, and on floors that have apparently seen their best days. Your copy may be procured by addressing the Paint, Varnish and Lacquer Department, E. I. du Pont de Nemours & Co., Inc., 3500 Gray's Ferry Road, Philadelphia.

"WHAT THE WELL-DRESSED SHADEMAN WILL WEAR"

JAMES C. SAUNDERS, Pittsburgh dealer in du Pont Tontine, the waterproof, washable window shade material, has set a new style to demonstrate the waterproof property of the shade cloth he sells. Mr. Saunders owns a complete rainy-day suit made of Tontine, and it sheds water like the proverbial duck's back, even in the worst weather.



This suit is well tailored and at a short distance has the appearance of an alpaca or Palm Beach summer suit. Mr. Saunders says he has worn these Tontine clothes repeatedly, yet they are in first-class condition and do not show a trace of wear. He also says that as a walking advertisement for Tontine this suit has no equal. The cloth, when made into garments, naturally receives much harder wear than it would when hanging at a window. Customers are impressed by this fact, which graphically points out Tontine's durability as well as its waterproof property.

A poncho has also been made of Tontine. While no illustration is available, this rainy-day garment is highly useful and extremely simple to make. A hole for the head is cut through the center of an oblong piece of Tontine, cut to proper size. When worn, it drapes about the body in a manner similar to the well-known U. S. Army poncho.

TIME TO CHANGE OIL!

MOST motorists find it difficult to remember when the oil in their cars should be changed. Scribbled memorandums are easily lost, and stickers pasted on the speedometer are unsightly.

The device illustrated here, however, is a permanent reminder and is also an effective advertising medium for concerns catering to motorists. "Lecko Change-O," as it is called, consists of twenty memorandum sheets encased in a metal holder and protected from moisture or exposure by a transparent sheet of Pyralin. The holder may be clamped firmly to the dash of any make of car, and when in position looks like an instrument on the board.

How the "Lecko Change-O" looks

Here's how the device works: When new oil is put in, the motorist adds 500 to his mileage and marks it on the sheet. After that a glance at the dash shows him when to change oil again. And the advertiser's name, in neat white letters against the black background, is before the driver for 10,000 miles.

The Klopp Printing Company, Omaha, Nebraska, manufactures the device.

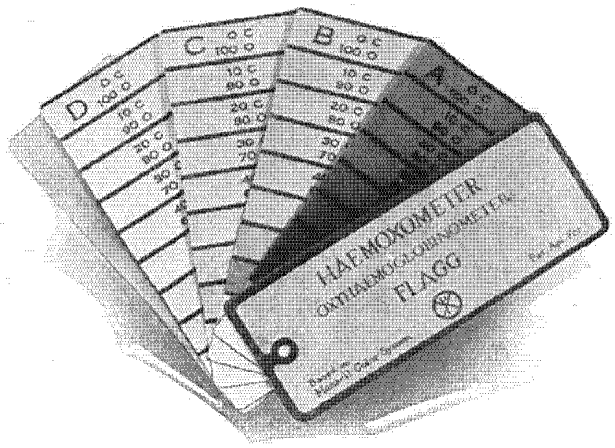
HELPING THE SURGEON SEE RED

Please interpret the title literally. Through scientific research he can now avoid eye-strain while at work by glancing occasionally at walls coated with du Pont Eyerest Green

THE traditional use of white in operating rooms is rapidly becoming a thing of the past, judging from some recent color tests conducted by prominent surgeons in this country and abroad.

The growing frequency of operations within the close cavities—eye, ear, nose, throat, pelvic and upper abdominal—necessitated a special illumination, which in turn developed an unforeseen difficulty due to the additional light thrown back to the operator from the white walls and draperies, seriously affecting his vision of the field of operation.

Various suggestions advanced by color experts, surgeons and architects have been tried, but have not proved highly successful, due to a confusion of ideas as to the precise objective, there being no attempt made to separate the psychological from the physiological need.



The oxyhaemoglobinometer—pronounce it if you can—is a chart used to measure the color of blood in terms of oxygen saturation

Dr. H. M. Sherman, of California, one of the pioneers in the use of color in the operating room, found that dark brown floors and a six-foot wainscoting of the same color overcame the discomfort he experienced in raising his eyes from the wound and glancing around at highly glistening white walls and draperies, which temporarily blinded him upon looking back into the open wound. St. Luke's Hospital, of San Francisco, adopted the dark green floor and wainscoting, white walls and bright buff ceiling; all instrument coverings, as well as gowns and toweling, are made of black materials.

Dr. Alexis Carrel, of the Rockefeller Institute, adopted black for draperies; Dr. Corwin, of Colorado, has his operating rooms done in lead gray; Dr. Virchow, of Germany, preferred dull ivory throughout, while Dr. Kroenig, also of Germany, recommended the use of Pompeiian Red, but soon discovered blue or green a better color. Some Philadelphia hospitals are using black toweling and gowns satisfactorily.

Dr. P. J. Flagg, of New York City, was of the opinion that while some relief was experienced in this change from the all-white in operating rooms, perfect satisfaction would not be attained until the scientifically correct complement to the red of the open wound was discovered. With this in mind, he, in conjunction with Dr. Van Slyke and Dr. Binger of the Rockefeller Institute, produced an oxyhaemoglobinometer by which the color of blood can be measured in terms of oxygen saturation.

The next step was to find the true complement to the shade of red appearing in the field of operation.

A complementary color intensifies its opposite. It was not an accident which determined red for port and green for starboard lights on ships. A surgeon looking up from a wound to the wall of an operating room treated with the correct complement to blood red should experience instant relief from color fatigue and receive an intensification of the red of the blood in the less illumined operating field upon recommencing work.

Through the aid of the Munsell system of color notation, Dr. Flagg arrived at a peculiar bluish-green, which is the scientifically correct complement to the blood when exposed to the air. The final step was to get a paint of the shade desired. Du Pont chemists were consulted, experiments began, and as a result the shade known as Eyerest Green was produced to afford the necessary relief.

It is Dr. Flagg's opinion that the ideal combination for the operating amphitheater is that the table and all textiles, such as gowns, draperies, toweling and so on, be in the deepest shade of Eyerest Green, with floors the same color, but shading off into a fainter tint as the walls are approached; that the six or seven-foot wainscoting or tiling also should be in Eyerest Green, fading into a deep cream up to and including the ceiling. The field of operation, being in the deepest shade of green, intensifies the red of the wound, and the deep cream, starting six feet up on the walls, provides the maximum reflection and is beyond the direct vision of the operator. Any feeling of depression experienced by some people from the color green is relieved by the deep cream, and so the physiological as well as the psychological needs are met.

While Eyerest Green applies specifically to hospitals, it is reasonable to believe this same application would be valuable in inspection departments of various plants, particularly textile mills. The "green room" of theaters is another place where eye-strain is a source of frequent annoyance and here, too, a service would be rendered to the color-fatigued eyes of actors and actresses.

THE BORDER NET TIGHTENS

The picturesque horsemen who once patrolled the Mexican boundary line now run down alien smugglers in sturdy little automobiles

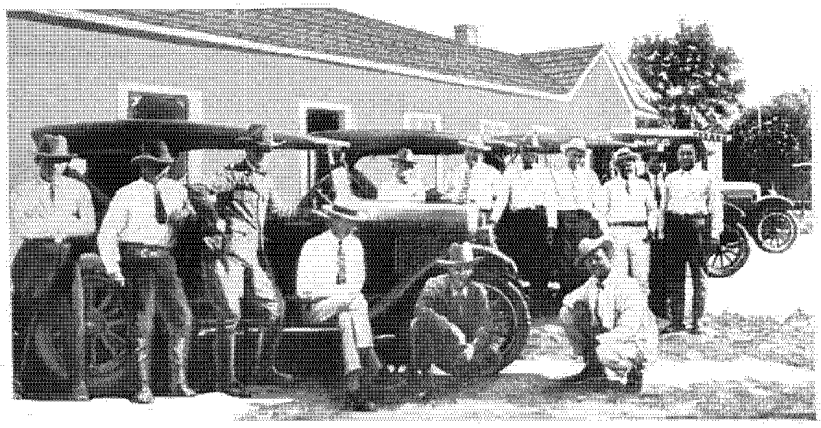
FIVE years ago only sixteen men were employed on the Mexican Border Patrol of the United States Immigration Service between Tia Juana and a point sixty miles east of Yuma, Arizona, where the Southern California district line ends. The work then was comparatively uneventful. But with the passage of legislation restricting immigration from European nations, where before the patrol had only to bar the way to smuggled Chinese, the job became much more difficult.

Entrance to Mexico is open to any alien, and from that country hundreds of Europeans, unable to obtain legal entry to the United States, ventured forth each year in attempts to "crash the gate." Mexico was powerless to stop them. It was distinctly up to Uncle Sam.

Thus came the establishment of a larger patrol service, in which the work, if not the uniform, is just as colorful as that of the famed Northwest Mounted Police.

Seventy-one men now guard the district. But they are not mounted on horses as in the old days; instead, they scoot along the line in a fleet of Duco-finished Chevrolet automobiles purchased by the government for their use. They ride a "beat" that stretches from the pleasant cliffs below San Diego to the blazing heat of the Sonora Desert, over a trail that even the sun-baked Spanish pioneers called "*Jornado del Muerto*"—the journey of death.

Few, indeed, are those who realize the close watch that is kept night and day in the desert or on lonely mountain roads. One never knows where the Border Patrol is working—a fact of considerable inconvenience to those who make a business of smuggling aliens.



A group of Immigration Service patrolmen with their Duco-finished Chevrolet cars. These men keep a steady watch for aliens and smugglers along the Mexican border

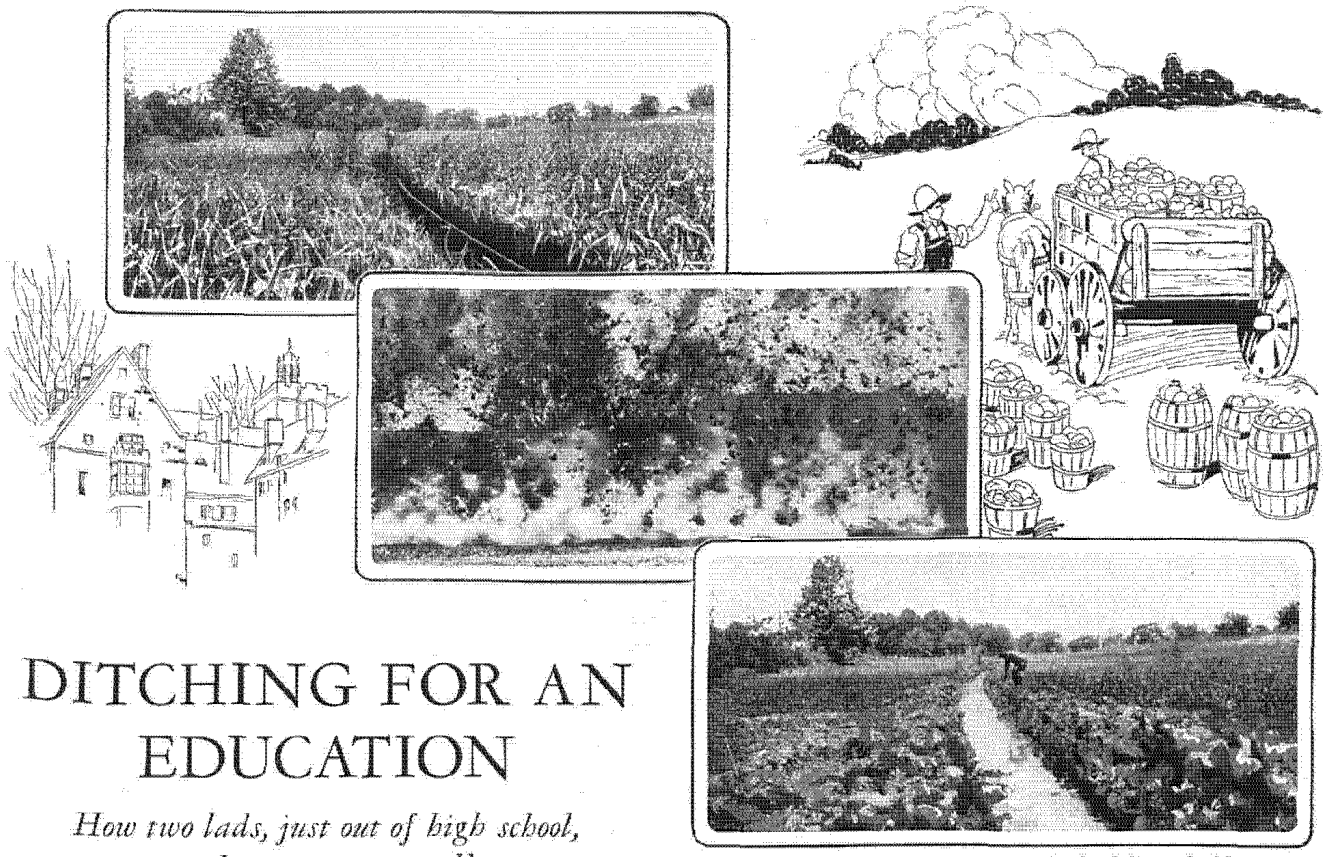
The first trip in one of these new cars resulted in the arrest of three smugglers and two Chinese. Inspectors Spies and Armstrong were encamped in the Warner ranch meadows, where the old Butterfield trail forks eastward from the San Diego road. In a chilly November dawn, they halted a car with one passenger. When nothing suspicious was found about the machine, the driver, obviously nervous, was told to proceed. A few moments later came a second car, holding four passengers—two Chinese and two alleged smugglers. Realizing that the first car contained their scout, Inspector Armstrong leaped into his patrol car and the chase was on. Despite a long headstart, the fleeing car was caught at Oak Grove. As a result, three suspected smugglers face a two-year jail sentence, and the Chinese were summarily deported.

Another instance serves to reveal the resourcefulness of the Border Patrol. An Imperial Valley inspector, by reason of an emergency, faced the task of guarding four roads at one time. He flooded two of them from nearby irrigation ditches, commandeered a crowbar and tore up a bridge on the third, and stood guard on the fourth until relieved. Pretty strenuous measures, true—but no one got through the net.

From 90 to 150 arrests are made each month along the lonely reaches of the border. Of that number, perhaps, half are Chinese while the rest are natives of southern Europe. Smugglers are said to carry on a regular business. They charge from $100 to $1,000 for each person safely conducted into the United States, depending upon the dangers and difficulties they encounter.

Breaking up this traffic is no easy job, despite the apparently large number of arrests made. While men long in the border service develop uncanny skill in "spotting" smugglers, sufficient numbers get through in safety to maintain the battle of wits and resourcefulness. Obviously, the work of the Border Patrol requires great physical stamina, initiative, quick thinking and abundant courage.

Motorized equipment has helped the men immeasurably. It has made possible the covering of more territory than was possible in the early days of the service, and the border net has been drawn correspondingly tighter. Incidentally, with the equipment finished in Duco, they have discovered how satisfying it is to drive a car that retains its neat appearance under conditions that would quickly ruin ordinary paint. It must be equally satisfying to them to realize that a Duco finish "stays put" indefinitely, climatic conditions notwithstanding.



DITCHING FOR AN EDUCATION

How two lads, just out of high school, earned money to go to college

Three stages of the work: Laying out the ditch line; the blast, and later on, the field producing crops

"ALL RIGHT, BOYS," said Hartnagle, senior, at the close of an extended talk with his two sons. "You have stated your case clearly, and I'm heartily in accord with your plan. This is my proposition: I'll assign ten acres of the farm to you, and it will be your job to make them productive and profitable. Plant anything you please, and all proceeds from the crops you raise will be yours. There's a business proposition for you; what do you say?"

The boys snapped up the offer eagerly—and thus the story begins. But before going further, let's provide a bit more background, or "cut back to the old homestead," as the moving picture technicians say.

The Hartnagles live on a large farm near Newark, New York, and the two sons, having completed their courses in high school, wanted to go to college. They needed money and stated their willingness to work hard to earn it. How and where to earn it had been the topic for discussion. Mr. Hartnagle's offer opened the way for them to become farmers on their own account.

Now this ten-acre tract had lain idle for years. It was muck land requiring drainage outlets before it could be worked to advantage. Consequently the first problem was to get rid of the water. What was the cheapest way to ditch and drain the tract? The boys figured, asked questions, and finally got in touch with a du Pont representative. He showed them how to blast ditches with dynamite and promised to help them do the job.

Together they laid out the ditch line, "planted" the charges of du Pont 50 per cent ditching dynamite, ran back the leading wires to a safe distance and pushed down the plunger of the blasting machine. To the accompaniment of a dull roar, a long curtain of muck and water rose high in the air. A moment or two later as the smoke drifted away, both boys rushed back, and there was a clean-cut ditch—their ditch—with water seeping in and starting to flow off the tract. Thus in a few hours' time was completed a job that ordinarily would have consumed weeks of toil. Needless to say the young farmers were elated over the success of their work. The entire operation, aside from the boys' time, cost only $200, or about $1.20 a rod.

With ditching accomplished, other development operations followed in due course, and the young men by careful planning and hard work during the next few years raised bountiful crops which they sold at a good profit and applied the proceeds toward their education. The land is now said to be worth $250 an acre.

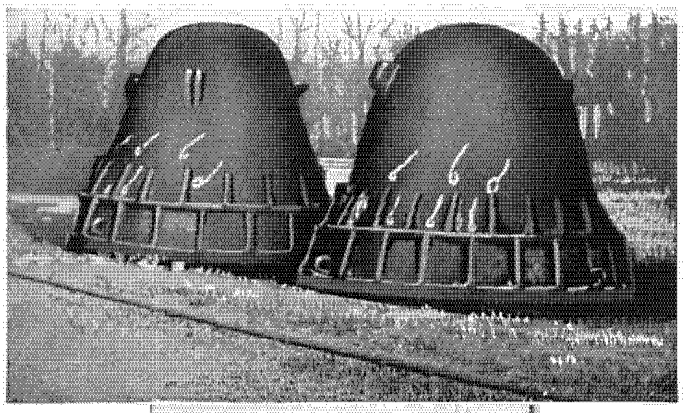
There is much idle land awaiting development and cultivation, and many lads are as eager for college training as were the Hartnagle boys. A little dynamite intelligently used may and often does open up big possibilities.

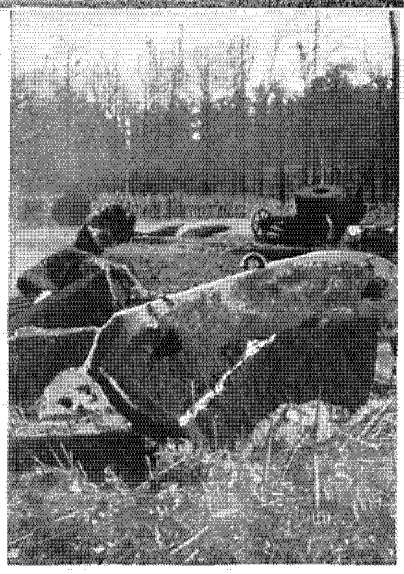
THE ART OF "SKULL" CRACKING

This is not a crime story. It tells you how explosives are used to help reclaim waste material in the iron and steel industry

By A. E. Anderson, E. M.

In manufacturing iron and steel, quantities of molten metal are occasionally spilled as the result of accidents. Perhaps an open-hearth furnace, worn out at the bottom, breaks unexpectedly, releasing the metal which flows out into the nearest hole in the floor along with whatever débris may be caught and carried with it. Mixed with the steel is slag, formed in the melting, as well as manganese, chromium, vanadium or any of the other elements used to harden and toughen steel. This mass, when cool, forms a solid body weighing from ten to one hundred tons—all waste unless it can be reclaimed. Such masses either because of their shape, or because they consist of dead metal, are commonly called "skulls."





Melting pots loaded and ready for the shot and (below) what dynamite did to them

In melting cast iron sometimes a furnace charge fails to smelt properly and the material cannot be removed from the container. When the iron solidifies in the furnace, this "freeze up," as it is called, provides an awkward situation, for the metal must be removed. Sometimes it can be blasted in place or removed whole; sometimes the hearth walls must be torn down before the metal can be taken out. These masses of partly melted cast iron are called "salamanders," another form of waste to be reclaimed. Now it is something of a job to break up and remelt these skulls and salamanders. They must be broken into pieces small enough to be charged in the furnaces. In some cases, pieces eighteen inches square at the ends and not over six feet long are small enough; in others, larger-size pieces can be accommodated.

As a rule, skulls and salamanders are picked up by huge traveling cranes and carried to some remote section of the plant or else shipped to concerns who make a specialty of breaking and reselling them to steel plants.

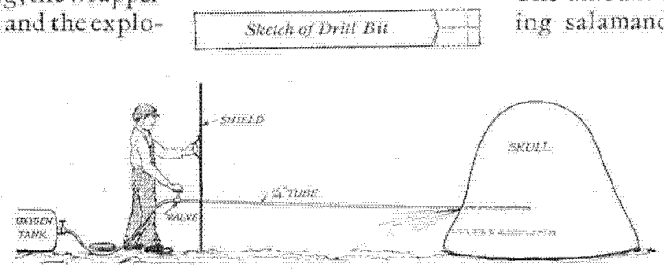
Probably the most successful method is to use high explosives. Holes are drilled in rows across the mass and each row is shot simultaneously by means of electric blasting caps. Cast-iron salamanders, consisting of a somewhat brittle material, can be broken up by drilling and shooting comparatively few holes. But skulls are more troublesome. They consist of various kinds of steel, mixed in varying proportions with slag and other foreign material, and they are extremely tough and difficult to break. Holes must be drilled six to twelve inches apart and about half way through the mass, one row of holes for each break to be made.

Drilling in this material is also extremely difficult. In one case where this work was under observation, electric drills were being used. A one and one-half inch bit would bite into the metal ten to twenty inches in an hour's time. Incidentally, these drills can be clamped to the skull so that one man can operate several drills at the same time. The only satisfactory type of drill bit has been found to be a plain, rectangular bar with a double-bevel taper on the end; it works quite rapidly in salamanders, but very slowly in skulls.

Drilling skulls has proved so difficult that other methods are now employed. The most successful has been the melting of holes in the steel by means of compressed oxygen. Where there is considerable slag on the outside of the skull, the hole is started with acetylene. Then the oxygen is introduced through a quarter-inch pipe, twelve to fifteen feet long, and the oxygen, uniting with the carbon in the steel, melts a hole very rapidly. A 40-inch hole can be melted in one or two minutes. During the operation the pipe also melts to within a few feet of a steel shield, which protects the workman from the molten metal issuing from the hole. By moving the pipe back and forth, a chamber can be formed at the end of the hole, which is of advantage because it permits of a wider spacing between holes. Burning holes in steel by this method is accompanied by intense heat, but curiously enough the heat does not

penetrate the mass. A thermometer placed in a hole within five minutes after the melting was completed showed practically no increase over the outside temperature.

Parallel rows of holes are charged with 60 to 90 per cent gelatin dynamite, and each hole is primed with an electric blasting cap. In loading, the wrapper is removed from the cartridge and the explosive is packed firmly in the hole until it is about one-half filled, whereupon damp clay or cement is introduced and tamped solid to the collar. If a blasting machine is used, one or several parallel rows of holes may be fired simultaneously by connecting the caps in series. If a power current is used, the caps may be connected in parallel or in multiple series. Rows of holes perpendicular to these may also be charged and fired later if necessary.



It requires considerable skill and experience to charge the holes in a skull properly in order to insure good breakage, and yet prevent throwing pieces of steel for a considerable distance. Unless there is ample space, the work is usually done in a blasting pit. These pits are lined with skulls and covered with heavy timber mats to guard against flying missiles. Under such conditions one essential requirement is a power crane to lift the skulls into the pit and also to place and remove the cover whenever it is necessary.

The amount of explosives needed in breaking salamanders may run as low as one and one-half to two pounds per ton of metal, while blasting skulls may require as much as seventy-five to one hundred pounds. The charge may vary between these limits, depending upon the kind of metal, its composition and other physical characteristics. Some skulls and salamanders have shrinkage cracks and flaws, while others are comparatively solid. The special steels are hardest to break.

It might be assumed that there would be little work of this kind, yet the operators of one large blasting pit broke up four or five hundred tons of skulls and salamanders in one month, using about 2,000 pounds of 60 per cent gelatin dynamite and seven electric drills. One blaster with years of experience did the work.

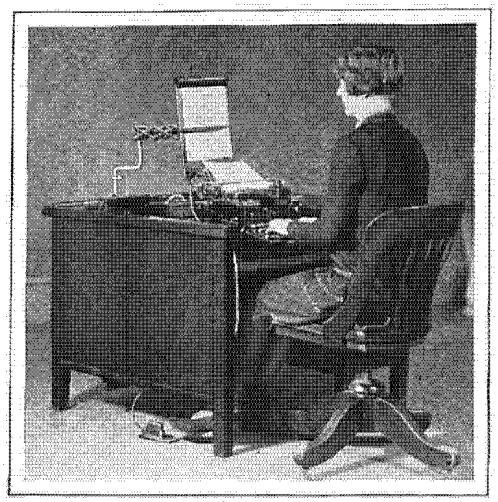
BETTER HEALTH—BETTER WORK

How the typist may escape fatigue and eye-strain when copying notes

AN office manager is usually a pretty keen judge of human values. He realizes, for instance, that his stenographers are human beings like himself; that they react to ill-health and nerve strain just as he does; that improvements here and there to relieve the fatigue accompanying their work will repay him in the increased efficiency of the office. In brief, he knows that a fresh mind is a good workshop.

To executives who so understand and appreciate the human element in business is commended the piece of office equipment shown on this page—the Coles Copyholder.

This device holds sheets of paper, cards or a stenographic notebook always in place and at a distance and angle best suited to the typist. She gains a time-saving advantage by the use of a foot pedal which controls an adjustable ruler on the copyholder. When the end of a line of copy is reached, pressure on the pedal will move the ruler down to the next line, whether single or double spaced. Eye-strain and wasted energy in constantly looking for the place is thus eliminated, both hands are free for typing and from a comfortable position she may transcribe a page at a time without a break. Needless to say, the day's production from this desk is increased.



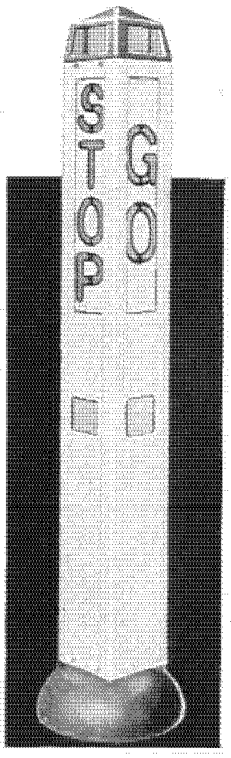
The copyholder in position. Note the foot pedal for shifting the guide ruler

The device can be furnished without the foot pedal, should the operator prefer a hand lever.

When not in use, the copyholder can be folded back out of the way. It is so attached that it does not have to be removed in order to close the desk.

Coles Copyholders are sturdily and compactly built and are finished in dark khaki Duco, a shade particularly restful to the eye and one that harmonizes well with office furniture.

These popular devices are made and guaranteed by the Coles Copyholder Corporation, 45 West Thirty-fourth Street, New York City. In addition to their value to stenographers, they can be used for holding copy for billing machines, adding machines and by printers and linotype operators.



PYRALIN SAYS "GO"

Shortcomings of former "silent policemen" at street intersections have been remedied in this new type of traffic signal

CARS to the right of him, cars to the left of him, cars ahead and behind—no wonder the average motorist dreads the approach to a busy city street intersection. He has much to lose and little to gain, for he must approach another one a few hundred yards farther on.

Many municipalities, recognizing the growing dangers of traffic jams and collisions, have placed some form of control at busy street corners. One of the newer and more practical types is pictured here. It is called the American Bobby, marketed by the Griswold Safety Signal Company, of Minneapolis, Minn.

The signal rests in the exact center of a street intersection and is so compactly built that it may be placed between double car tracks without interfering with clearance. It is constantly within the normal line of a motorist's vision. This feature is greatly appreciated by out-of-town drivers who are unfamiliar with the traffic control system and who may easily overlook a signal placed along the curb or one hung overhead. Another advantage, this time to the local authorities, lies in the fact that the American Bobby can be controlled automatically, either singly or in series. Consequently, the policemen who formerly directed traffic through the streets may be released for other duties without fear of a "jam."

The American Bobby obviates one objection commonly raised to traffic signals in the street proper. It has a swivel spring arrangement at its base which allows it to swing gently in any direction in case an auto collides with it. Reports to the manufacturer from various cities indicate that this type of signal well earns the sobriquet applied to certain men: "He may be down but he's never out."

One interesting observation made by the Griswold Company is that army tests during the recent World War proved that hundreds of people cannot distinguish red from green. In the design of this signal therefore, the words "Stop" and "Go" were added to the customary color changes. Pyralin—green, red, and amber for pedestrian traffic—is used exclusively on the American Bobby. Being unbreakable, Pyralin is not damaged by collisions, nor is it affected by climatic conditions. Like the signal of which it is an important part, Pyralin lasts indefinitely.

BLASTING OUT PROSPERITY

(Continued from page 7)

construction. Since good fragmentation is essential, more explosives are used per ton of stone blasted than is the case in other sections. Holes are spaced about three feet apart and loaded to within about ten inches of the surface. Forty per cent quarry straight dynamite is the explosive generally used.

During the year 1920 the greater Miami district consumed 800,000 pounds of high explosives in its rock pits and in development work, such as clearing land for subdivisions, grading for streets, and filling. In 1923, when Florida real estate moved into the spotlight of national interest, the consumption of explosives rose to 1,200,000 pounds. In 1925 it reached a total of 3,350,000 pounds. Last year slightly less than 3,000,000 pounds was consumed. All of which indicates that this district, though beset with much trouble on account of the hurricane, nevertheless closed the year with an excellent record.

Limestone

Florida is essentially a limestone state. The oldest exposed formation is a limestone to which the name Ocala has been assigned, from its typical occurrence in and near that city. Another deposit comparable to it in general appearance and chemical composition is located near the city of Marianna, Jackson County. However, the Ocala field is the largest in the state, using more explosives than any other section, and producing more stone. This field, generally speaking, includes the counties of Marion, Citrus, Levy and Hernando. Ocala limestone is soft, white, porous, and remarkably uniform in appearance. The rock in Hernando County, while possessing the general characteristics of the field, is much harder and is used chiefly in concrete work.

Thirty per cent straight dynamite, in 1¼ by 8-inch cartridges, is the explosive generally used in the Ocala field, although many of the quarries employ gelatin dynamite packed in large-size cartridges for well-drill shooting. Cordeau fuse is used to detonate the charges. In Hernando and Levy counties black powder is used, the total requirement for 1926 having been about 35,000 kegs.

As to consumption of dynamite, the Ocala field has shown a more regular increase than any other locality.

In 1920, approximately 1,000,000 pounds of dynamite were consumed in limestone quarries; by 1923 this had increased to 2,000,000 pounds, and in 1925, to 3,000,000 pounds. Last year about 4,000,000 pounds were used.

Phosphate Rock

Florida is noted for its phosphate fields. At present the only deposits which are being worked are the "land pebble" fields in Polk and Hillsboro counties. The principal use for dynamite in that district is for clearing acreage, removing overburden, and blasting ditches and sump holes. The actual mining is done by the hydraulic method.

The consumption of explosives by the phosphate industry has also increased from year to year. High explosives to the amount of 200,000 pounds were used in 1920. The total for 1923 was 250,000 pounds; for 1925, 350,000 pounds, and for 1926 about 500,000 pounds.

Fuller's Earth and Kaolin

Another small mineral-producing area, known as the "fuller's earth and high-grade kaolin field," is located in the northwestern section of the state. Its discovery came about by accident when an attempt was made to produce brick from some clay found on the property of the Owl Cigar Company, near Quincy, in 1895. Needless to say the attempt was a failure, but the similarity of the material to imported fuller's earth was recognized, and later tests proved it to be fuller's earth of excellent quality.

Red Cross Extra 40 per cent dynamite is the explosive chiefly employed, the method of work conforming to ordinary quarry practice. The production of these products in the Florida field required the use of approximately 15,000 pounds of dynamite in 1920, about the same amount in 1923; 25,000 pounds in 1925, and 30,000 pounds in 1926.

Coquina Rock

Along the east coast of Florida in the vicinity of St. Augustine and southward for many miles is another deposit of stone called coquina rock. Since more extended reference to this product will be made elsewhere in this number, it will suffice to say that the explosive requirements of this field vary from 20,000 to 60,000 pounds of 40 per cent straight dynamite a year.

Jetty Stone

Recently a Miami contracting firm which specializes in jetty work requested a du Pont representative to look over some work at Jupiter, Florida. On arriving at the place, he found workmen quarrying jetty stone from a sandstone ledge which originates at the ocean front, extends diagonally across the southern end of Jupiter Island and then dips fifty or sixty feet under the Indian River. This is apparently the only formation of that particular type in the state. The rock can be quarried very easily by the use of Durox. The holes are spaced ten feet apart and drilled to a depth of about twenty feet. Boulders dislodged by the shots weigh from 1,500 to 2,000 pounds, an ideal size for jetty stone. The peculiar action of sea water on this stone cements the boulders very tightly under water.

If the consumption of explosives in a state can be taken as an index of its prosperity, then the record of Florida in that respect is one of significance. The following summary tells the story: In 1920 Florida consumed 2,219,335 pounds of high explosives. In 1925 the total was increased to 8,784,150, and in 1926 approximately 11,000,000 pounds were used. The explosives industry may well be proud of its part in Florida's development.

CONSIDER NOW THE PORTABLES

(Continued from page 10)

Company perfected a portable that in tone quality and volume was comparable with the higher-priced cabinet machines on the market at that time.

The problem which then confronted the Plaza Music Company, the pioneer in independent manufacturing and marketing of portable phonographs, was to build machines sturdy enough in construction to withstand the hard usage to which a portable would necessarily be subjected.

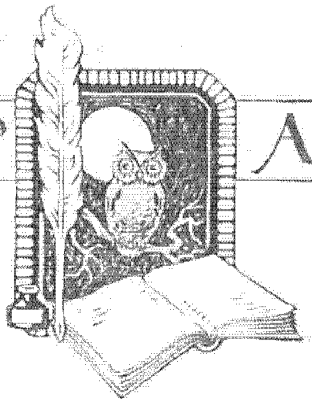
A solid wooden case covered with Du Pont Fabrikoid was finally adopted and it has given complete satisfaction. Today the Plaza Music Company, because of the quality of its product coupled with the demand created by national advertising, has become one of the leading portable phonograph manufacturers of the country.

One of the Plaza portable models, the "Regal," is this company's popular-priced number. It has splendid tonal quality, plenty of volume, is mechanically perfect and sturdily built. It is covered with genuine Du Pont Fabrikoid and may be had in black, green, red, and brown.

The other de luxe number is the "Pal," smart in appearance, beautifully finished in genuine Du Pont Fabrikoid —duotone, embossed in sharkskin grain. Its other features include a special multitone reproducer which gives clarity of reproduction; a specially constructed tone-arm which synchronizes perfectly with the reproducer, and a Swiss double-spring motor—truly a fine piece of mechanism. This model may be had in black, blue, red or brown.

It has been estimated on good authority that more than 500,000 portables were used during 1926 and the demand for them is still increasing in large proportion. Steadily adding new dealers to the ever-growing list, the Plaza Music Company, 10 West 20th Street, New York City, looks for a phenomenal business on its popular musical instruments in 1927.

QUESTIONS ANSWERS



This department has been established as a service to Du Pont Magazine readers. You are invited to ask questions about du Pont products and their uses

Inquiries will be referred to the proper departments for attention, and selected questions and answers will be published from time to time on this page

"Your aid is solicited in deciding a bet. 'A' claims that the largest percentage of rayon manufactured in this country is produced from cotton linters. 'B' denies this, claiming that the distinction belongs to wood pulp. Who is correct?"

According to an article published August 21, 1926, in *Textile World*, "B" wins. Of the domestic rayon production last year, 51,792,000 pounds, it is estimated that about 32,111,000 pounds was produced from wood pulp and only 19,681,000 pounds from cotton linters, a ratio of 38-62 in favor of pulp.

Your company advertises du Pont Semesan disinfectants. What are they used for?

Semesan is the premier seed, plant and soil disinfectant for practically all agricultural purposes and may be applied in either the liquid or convenient dust form. Semesan Jr., applied as a dust, controls ear, root and stalk rots, as well as the bacterial wilt of field and sweet corn. Semesan Bel is quickly applied like a whitewash to seed potatoes and controls their common diseases as well as those of other tubers or roots of vegetables and flowers.

What is Nemoursa?

Nemoursa is a trade name applied to that type of Fabrikoid material which does not in any way attempt to reproduce or imitate the conventional leather finishes and effects.

Is Cellophane employed for any other uses beside wrapping?

Yes. Some other uses for Cellophane are: ticket tape, millinery braid, dialyzing membrane, surgical bandages, artificial flowers, drumhead in cans, rotogravure printing medium, and vulcanizing dentures.

When an outside paint chalks, does it indicate poor quality?

No, unless the chalking is too pronounced. All good paint should chalk gradually over a period of three or four years. Then the surface should be in proper condition for repainting with little preparatory work required. Paints composed of the two ingredients, white lead and linseed oil, and others containing large proportions of titanium oxide, are subject to rapid chalking on exposure. To offset this tendency some white zinc is added to the lead, whereupon the chalking is gradual and of a perfectly proper character.

In blasting tap-rooted pine stumps is there any advantage from a cost standpoint in shooting a charge placed in the wood, as compared with shooting a charge placed in the ground near the stump?

Yes, it costs about one-third more when the charge is set off beside the stump and not in it.

What is the newest du Pont explosives motion picture?

The latest release is a one-reel film entitled "Building New York's Newest Subway." It may be obtained upon application to the Publicity Bureau, E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware.

What is the best way to wash Tontine window shades?

All you need is soap, water, and a medium stiff brush. Take down the shade, place it flat across a table. Apply soap, or scouring powder, and water, and scrub the material until the dirt is loosened and dissolved. Vigorous scrubbing will not injure Tontine, which is waterproof and will not crack or fray. After the shade has been thoroughly cleaned, use plenty of fresh water to wash away every trace of the soap. Then pat the material lightly with a sponge or cloth to absorb some of the moisture. The shade should then be hung up. When dry it will be smooth and spotless, fresh and unwrinkled, and will be completely renovated.

Be sure to keep the shade flat when washing.

What causes paint to blister?

In most cases blisters are caused by paint being applied under improper conditions—during wet or damp weather, or on surfaces containing moisture. Under the action of the sun or other causes generating heat, the moisture is drawn out of the wood and the paint coat is brought with it. Thus blisters are formed which eventually break and later scale and peel.

Exterior painting should always be done in dry weather. Paint should always be applied to surfaces that are perfectly clean and dry.

What is Ponchee?

Ponchee is a trade name applied to that type of Fabrikoid material which is characterized by a surface of blended and variegated splotches of color.

REG. U.S. DU PONT PAT. OFF.

DUCO

"Let me do it, Mother— I can use Duco as well as you"

AND why not? Duco is so simple to use that Mother can well trust Sonny to apply it! That's why, indeed, Duco has been so amazingly popular among women everywhere. Duco dries so wonderfully quickly and the article is back in use almost immediately! And the tough, enduring Duco finish withstands the strain of daily use—its beauty enduring for so long a time!

Duco is a quick-drying finish. It is easy to use, even if you have never held a paint-brush in your hand before. You can use Duco to brighten up your home in a hundred ways, or to refinish the family bus. Duco is offered in a variety of beautiful shades and stains.

There is only ONE Duco — DU PONT Duco

For Sale by Good Dealers Everywhere

PAINTS · VARNISHES · ENAMELS · DUCO

MADE BY DU PONT