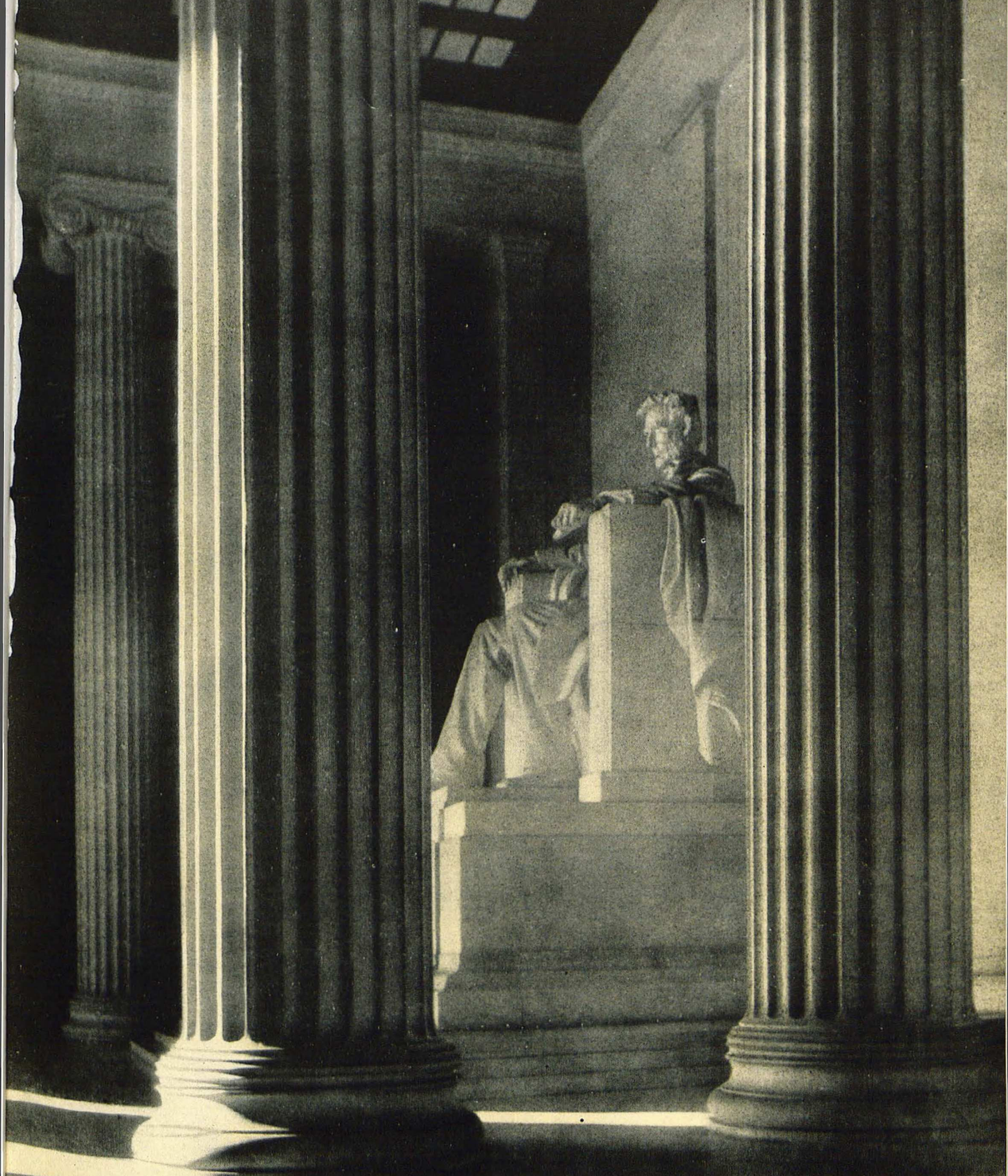




**"SAVE THE
PIECES, DAD"**



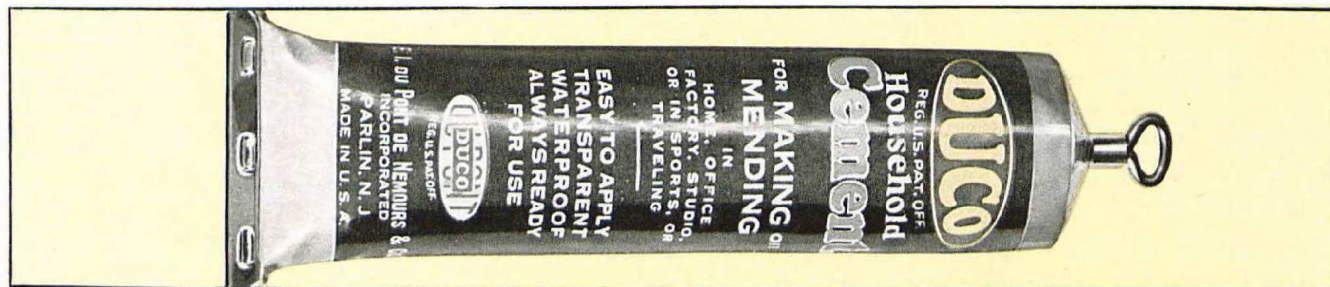
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NOW you can mend things that you couldn't mend before. And you can build things stronger than ever because the famous du Pont laboratories are producing this new cement for you . . . an easy-to-use cement that sticks together for keeps! It is called Duco Household Cement. It is waterproof, quick drying and transparent.

You can use Duco Cement in lots of places where ordinary mucilage or glue won't hold. Use it on ivory, metal, leather, wood, marble, china, celluloid, cloth, paper, on anything except rubber. You can mend glass with it. Duco Cement is transparent and sticks to glass surfaces

like a leech. You can make scrap-books or paste photographs in an album with it and you'll have no trouble with curling pages or pictures. Duco Cement doesn't shrink paper.

You'll find uses for Duco Cement at home, at the work bench, in the garage, at the office or studio. In fact, you will find it handy and easy to use everywhere. You can probably get Duco Cement at your neighborhood hardware dealer or druggist. But if he doesn't have it, write direct to E. I. du Pont de Nemours & Co., Inc., Industrial Finishes Division, Parlin, N. J.



DUCO HOUSEHOLD CEMENT

THE DU PONT MAGAZINE

VOL. XXV

FEBRUARY, 1931

No. 2

EXPLOSIVES—A CIVILIZING FORCE*

An appreciation of an industry whose products have greatly accelerated the world's industrial progress

A GOOD many of us, I imagine, labor under a misapprehension about the explosives industry. When we think of explosives, we think generally of war, with all of the ghastly wreckage that follows in the wake of screaming shells, smashing machine-gun fire, bursting shrapnel, and the vast munitions plants whose feverish furnaces in war-time cast a lurid glow upon the sky at night, pouring out these ominous media of destruction.

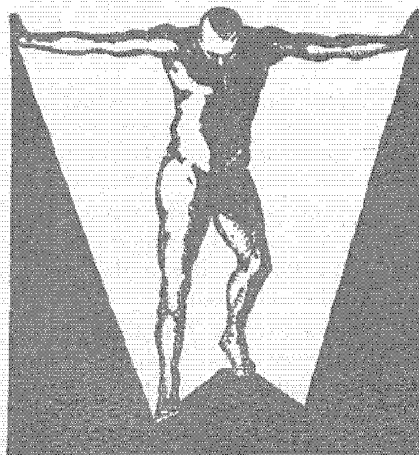
So, all too often, we conceive of explosives as merely an instrumentality of havoc. But that conception is utterly wrong. It needs to be corrected. Explosives are playing in the modern world a rôle diametrically different from—and more important than—that of a destroyer. They are a constructive, helpful instrument—a truly tremendous civilizing force. They tear down, and tear up, in order that men may build more splendidly and produce with greater efficiency and ease. They are an indispensable element in rapid peace-time progress.

Here is one thing to bear in mind: There is really a great difference between the explosives used in war and those that are employed for commercial work. Neither the machinery nor the workers producing the explosives used for war, nor those products themselves, can be used for commercial work—and the reverse is also true.

By DR. JULIUS KLEIN
ASSISTANT SECRETARY OF COMMERCE

The two groups are completely distinct industries.

Each year about 500 million pounds of commercial explosives are used for peace-time work in the United States. The amount of commercial explosives manufactured in this country during



the past four years is about equal to the total output of military explosives of all kinds used by all of the Allied forces during the entire four years' duration of the World War.

Just how did we employ these millions of pounds of blasting powder,

dynamite, and the like? In the first place, a little more than one-third of the total was used in the coal-mining industry. About a fifth was used in metal-mining activity. One-sixth was devoted to quarrying and the production of non-metallic minerals. One-seventh went for general construction work—such as the building of railways, hydroelectric plants, irrigation projects, ship channels, water lines, subways, and foundation excavations. Other purposes took the remaining one-eighth—including about 20 million pounds on American farms in clearing stumps, removing ice and log jams, and serving other similarly vital ends.

A FORM OF POWER

Explosives are a constructive civilizing force because they are a form of power—and power is the keynote of the modern age. Like steam and electricity, explosives are a means of lifting a load of racking toil from the human race. We may think of a charge of high explosives as a small bundle of intensely concentrated energy, waiting man's word to be released suddenly to do the work that a thousand men could not do without its aid.

A massive piece of stone, a solid wall of rock, is reduced in the twinkling of an eye to a mass of fragments

* (Courtesy Columbia Broadcasting System)

that can be readily moved by a steam shovel. What a striking contrast to the drudgery and travail that prevailed in ages past! We admire the prodigious material achievements of antiquity—the mighty pyramids of Egypt and of Mexico, the Great Wall of China, the Roman aqueducts and Catacombs, the mysterious titanic masonry of the Incas in Peru and Bolivia, the marble quarries of Pentelicus from which the gleaming temple of the Parthenon was wrought. But think of the pathetically crude implements with which the materials for these were obtained from the hard resistant body of the earth—think of the primitive bronze picks, the stone hammers, the wooden wedges inserted between cracks and then soaked in water to make them swell and split the stone. Think of the infinite slowness of the process—the years, the decades, that passed away while such work was being carried out. And think, too, of the armies of wretched, desperate slaves—straining, gasping, groaning under the merciless taskmaster's lash and the blistering rays of a southern sun!

DYNAMITE THE LIBERATOR

Dynamite has changed all that. And thus, dynamite is not only an accelerator but a liberator, of the very first rank.

The art of mining gold, silver, iron and copper was known as far back as the patriarchal days of Job. Those metals contributed to the fabulous magnificence of Solomon and of every great ruler and conqueror after him. But did you ever ask yourself this question: How did it happen that we had to wait thousands of years for their full development? What caused this great "gap" in the progress of the human use of metals and their products on a large scale?

And the steam engine and our other modern machinery could not be fully developed without unlimited quantities of iron and copper and unlimited fuel for the generation of steam. It was because adequate amounts of these essentials could not be obtained without powerful explosives. Without these, the steam engine would have remained merely the strange

plaything of some obscure eccentric—and mankind would have been the poorer. Thus, the super-force, dynamite, became a veritable Aladdin's lamp for the budding industrialism of our modern life.

EXPLOSIVES RELEASE RAW MATERIALS

That is the conviction of the explosives experts to whom I am indebted for some of the facts that I shall mention in this talk; and I desire to make very special mention of Dr. Charles E. Munroe, surely one of the most distinguished of all world authorities on explosives, who, I am proud to say, is connected with the Department of Commerce.

Our railways, passing over mighty hills, through great cuts and tunnels excavated through the very heart of mountains, furnish mute witness to the achievements of powerful explosives. Most of our manufactured products begin as raw materials, and many major raw materials exist primarily in mineral deposits, so we can truthfully say that high explosives enter into our daily lives in many ways that few of us ever suspect. The towering skyscraper has a skeleton of steel beams, without which it could not exist, and before the steel was in its present form it was iron ore—and this iron ore was broken from its original position in the mine by charges of high explosives. The superb concrete highways over which we travel are made of cement that was once limestone and cement rock, forming great quarry walls of massive stone, and only by the use of high explosives can these materials be economically mined and the cement industry made possible.

Let us glance for just a moment at the history of explosives. Black powder (or gunpowder, as it was known in early days) is made, I need hardly say, of a mechanical mixture of saltpeter, charcoal and sulphur. The Chinese probably discovered it in remote times. It made its appearance in Europe in the fourteenth century, following its development by Roger Bacon, the famous monk—that courageous, canny pioneer of modern learning.

NITROGLYCERIN

In 1847 an Italian chemist, named Sobrero, discovered the chemical combination that we know today as nitroglycerin. Although he pointed out the possibilities of his discovery as an explosive, the substance was actually used in his day only in alcoholic solution for medicine (it is of great value as a heart stimulant, in the almost incredible proportion of 1 part to 1,152,000).

In the middle decades of the past century, California was a veritable laboratory of explosives, because of the great requirements of gold mining. And that reminds me of the strange accident that happened a couple of generations ago in the Wells-Fargo Building, a curious four or five story stone structure that still stands in the heart of San Francisco's business district. One day there arrived in that building an express package which seemed to be leaking. With the idea of opening it and remedying this situation, an employe gave a vigorous rap with a hammer on the mysterious container. The result was a terrific blast that virtually gutted the building and wrought appalling havoc. That was the Pacific Coast's introduction to nitroglycerin, a substance which has since been invaluable to mining, lumbering, farming, and many other great industries in the Far West.

DYNAMITE

It was in 1867 that Alfred Nobel, the Swedish inventor, discovered a practical process of making nitroglycerin on a large commercial scale, and five years later he invented dynamite—by absorbing the nitroglycerin in an earthlike porous material similar to "fuller's earth." He thereby revolutionized the art of mining and its thousands of industrial ramifications. It is a rather curious paradox that the famous Nobel prizes—for contributions to world peace, for achievements in the realm of imaginative literature, and so on—had their origin in money that was made from dynamite. Dynamite has, of course, been improved since Nobel's day, in ways that I have not time to mention in detail.

Explosives are used today in many
(Continued on page 24)

TWO NEW LUXURY LINERS

A WINTER VACATION . . . Havana at its gayest and friendliest season . . . delightfully old and quaint homes and narrow streets to see . . . tennis, boating or bathing for daytime diversions, if you prefer . . . dancing in the casinos at night! Whether you desire gayety, sports or relaxation, this city has much in store to make your trip well worth while.

Most enjoyable, too, is the trip to Havana on either of the Ward Line's two modern liners, the "Morro Castle" and the "Oriente." After seeing these boats, even the most exacting traveler becomes enthusiastic over them. From the time one leaves New York until he lands in Havana, less than sixty hours later, life aboard these two young speedsters is enjoyable and comfortable.

These magnificent liners were designed by Theodore E. Ferris. They are of imposing appearance with seven decks, including four tiers of superstructure comprising the steel erections above the bridge deck, and are of the complete superstructure type. Each vessel has an overall length of 508 feet, a beam of 70 feet 9 inches and a loaded draft of 26 feet.

The liners represent the most ad-

The "Morro Castle" and the "Oriente," turbo-electrically propelled ships, are recent additions to the Ward Line fleet

By ETHEL R. ARMSTRONG

vanced practice in engineering by the use of electricity as a propelling system. The machinery consists of two sets of turbo-electric generators and motors and six oil-burning, water-tube boilers of seven fires each, operating under forced draft—the largest ever built for marine use to date. This medium assures a minimum of vibration and noise, the absence of which means the maximum of comfort to the passenger.

Proudly the "Morro Castle" and the "Oriente" speed over a shorter, pleasanter route to Havana. A speed of twenty knots or more per hour enables them to rank along with some of the fastest ships under the American flag, and reduces the Ward Line's present running time from New York

to Havana from seventy-two to less than sixty hours. This improved service will be maintained throughout the year and will play an important part in the future development of trade between the United States and Cuba.

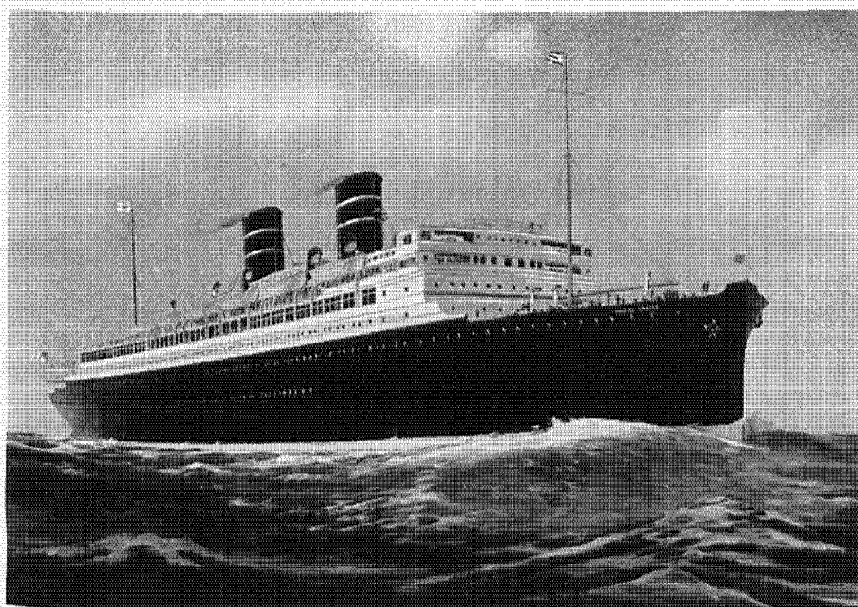
In each liner luxurious accommodations are provided for about 500 passengers, most of whom are carried in outside staterooms. Private baths and showers are liberally distributed throughout.

The Barnet Phillips Company and J. Philip Kiesecker Associates, interior decorators, are responsible for the design and decoration of the passenger quarters and the public spaces in the two ships. Every requirement for cruising in tropical waters has been met, and the spaces are heated and ventilated from a central source insuring cool or warm air as the weather may decree.

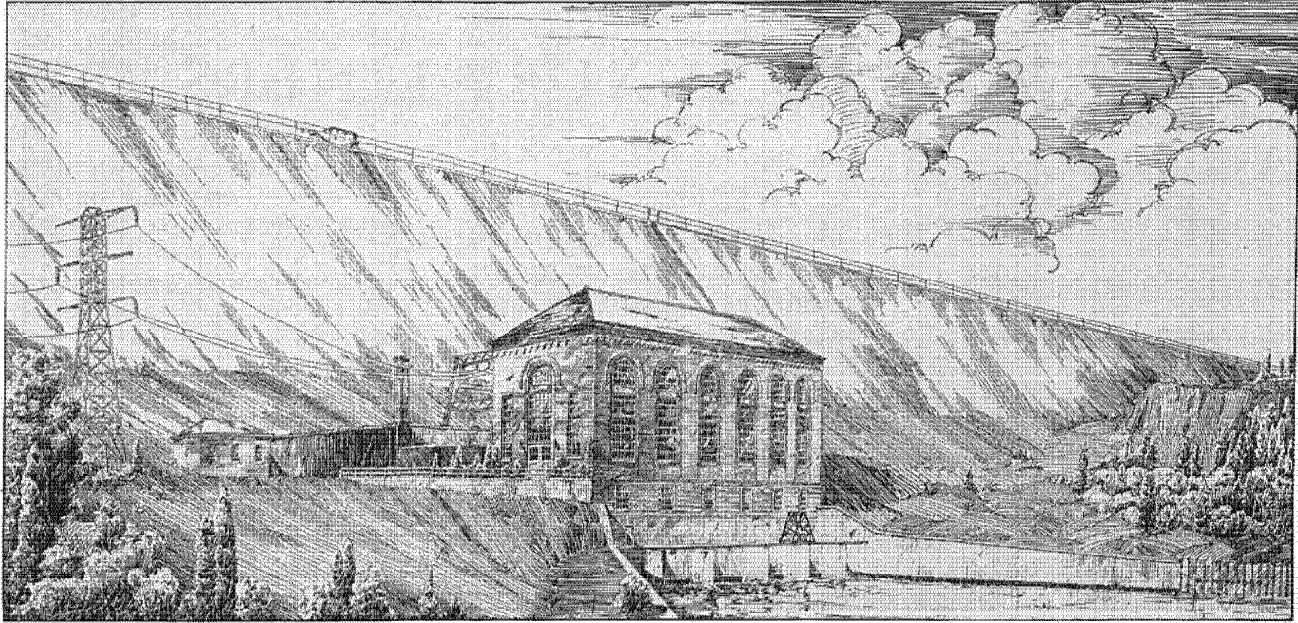
While various architectural styles are made use of in different rooms, the arrangements and colors make an agreeable transition from one space to another, giving the vessels a spaciousness suggestive of the large Trans-Atlantic liners.

The forward end of the promenade deck is glass enclosed, supplying protected space for deck chairs. The after end, larger in area, is similarly encased and is fitted up as a deck ball room, where an orchestra furnishes music each night for dancing. Practically forming part of the ball room space is the verandah cafe entirely enclosed by glass casements. A long, unbroken promenade on either side of the deck runs between the ball room and the cafe.

(Continued on page 15)



The "Morro Castle," shown here, and the "Oriente," a sister ship, are protected and decorated with du Pont finishing materials



A visual of the Hardy Dam and power house after the work is completed.
From a drawing by H. H. Ostrander

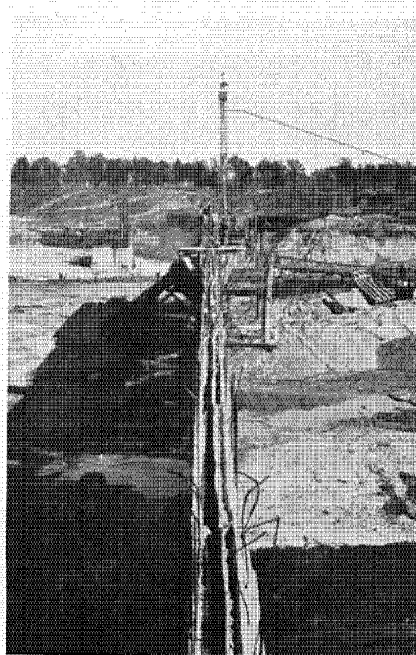
HARNESSING THE MUSKEGON IN MICHIGAN

*A few notes about the huge hydroelectric earth-bank dam
which is now under construction*

Less than two years ago an expanse of second-growth timber was perhaps the most interesting attraction along the Muskegon River, in Newago County, Michigan. Since then the landscape at one place has been completely transformed by Allied Engineers, Inc., a contracting concern which is building in this river a huge earth-bank dam. Unquestionably, it is the largest of any kind in Michigan. This work, which was begun in July, 1929, is being done for the Consumers Power Company of that state and, when completed, everything will be in readiness to operate one of the most efficient hydroelectric plants in the United States.

Naturally, the people of western Michigan are interested in this project, which has been named after George E. Hardy, one of the country's well-known public utility organizers. Hundreds of visitors on week days and thousands on Sundays and holi-

By J. A. CLEVELAND



days come to view the progress of the work. Under certain restrictions they are permitted to visit many parts of the operation. Construction work is always an attraction, and this dam, when completed, will be one of perennial interest because of its great size. It will have an overall length of 3,000 feet—more than half a mile—and it will be more than 100 feet high; in fact, 120 feet from the river bottom to its lofty crest. The drawing reproduced on this page shows the massive proportions of this man-made structure, which will serve both as a dam and also as a link in an important highway that will cross the river at this vantage point. The lake thus created will be more than a mile

Looking east along the core wall,
the backbone of the dam.
On both sides, packed closely against it,
will be earth banks

across at the widest place, with a shore line forty miles long.

A RAILROAD SPUR IS BUILT

At the beginning of this project it was necessary to construct a nine-mile railroad spur connecting with the Pere-Marquette Railway so that equipment, materials and supplies might be moved to the site of the dam. Other tracks were built where needed, and torn out after they had served their purpose, so that altogether approximately thirty miles of rail line were laid down. In constructing the spur, which runs through heavily wooded timber, tons of du Pont dynamite were used to clear the right of way and remove stumps after the trees had been cut in the areas to be inundated. You will appreciate the magnitude of this task better when you learn that the reservoir basin stretches up the river a distance of about eighteen miles.

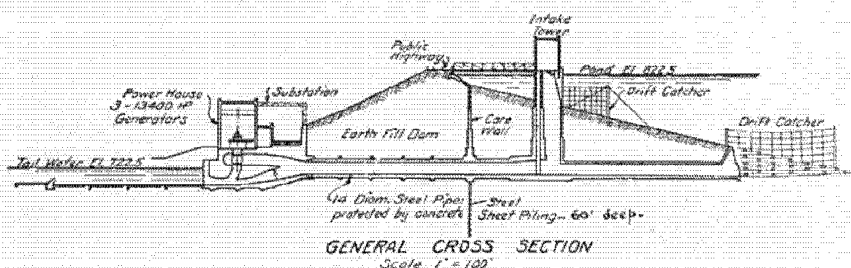
That this spur line has proved its usefulness will be apparent from the fact that the contractors have already transported more than 1,400 carloads of material and equipment over this short but busy line. Ten locomotives and fifty steel dump cars, equipped with air brakes and air-operated unloading devices, are required to meet transportation needs.

THE CONCRETE CORE WALL

The Hardy Dam, with its concrete and steel reinforced core, is built on and sealed over a steel cut-off wall

that extends sixty feet into the bed clay of the river bottom. This wall of steel sheet piling serves for anchorage and also to prevent any seepage of

operating on trestles, all of it is packed in place by hydraulic methods which bring to mind the equipment used by placer miners in Alaska years



water or the burrowing of ground animals under the structure.

The concrete core wall is of considerable width at the bottom, but tapers toward the top where it is only two or three feet wide. It extends throughout the entire length of the dam and might be termed its "backbone." Close packed against this wall on both sides are the earth banks which constitute the main body of the dam, the outlines of which are indicated on the cross-section drawing. Some idea of this enormous pile of earth may be gained when you consider that the dam has a bottom width of more than 800 feet and that approximately 1,385,000 cubic yards of filling material are required to build the structure to the highway level.

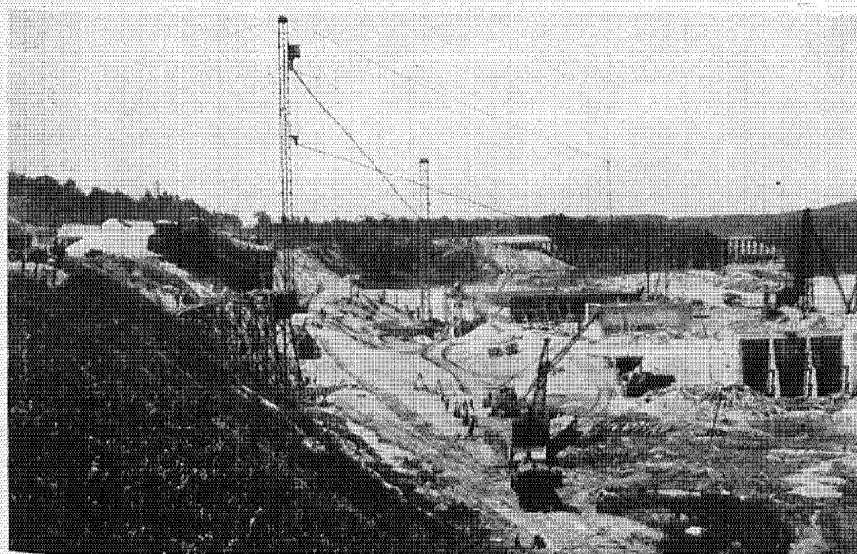
HYDRAULIC PACKING

Although a large part of this fill is made by dumping earth from trains

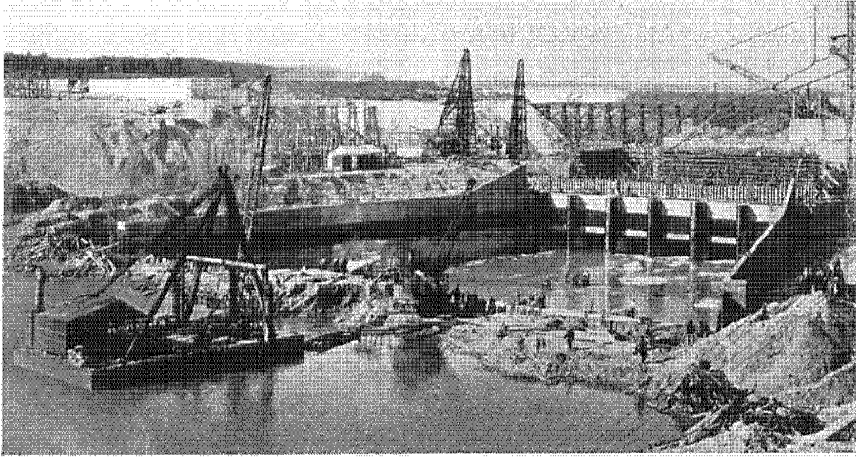
ago when thousands of them rushed to the Klondike to stake out claims and eventually to equip their workings with water power to facilitate mining. They washed great quantities of pay dirt from the hillsides through troughs, the better to separate from it the precious particles of yellow metal. But the analogy ends there, for in this case sluicing is resorted to merely as a means of constructing the embankment so that it will be free from voids through which the water might penetrate. Some of the dirt is actually transferred by sluicing out the huge bank on the side of the dam and conveying the muddy water through a long sheet-iron trough to the point where the dirt is deposited. A large quantity of water is required for these operations and the heavy demand is met by two pumping stations equipped with four electrically-driven pumps with a capacity of 1,700 gallons per minute

OPERATIONS WELL REGULATED

The work on this project is under the supervision of G. C. Willson, construction superintendent, who keeps in close touch with all operations. Each one is properly regulated and synchronized to insure utmost efficiency. In excavating for the fills, for example, sufficient trains are kept moving to supply an uninterrupted flow of materials to the place of use. Schedules are arranged so as not to



A panoramic view of the construction operations, with the camera pointed downstream. The photograph was taken last June.



Clearing the base slab of the tailrace. This view was photographed July 31, 1930, to show construction progress at that time. Note in the distance the dam, and also that the power house is beginning to take form.

break the regular pace of the work on these operations.

One of the accompanying views shows the construction of the three conduits, each fourteen feet in diameter. These immense tubes will carry water from the reservoir through the dam to the power house where three turbine generators of 40,000 h. p. capacity will be installed. The estimated annual output of this plant, when completed, is 80,000,000 kilowatt hours. Huge butterfly valves, operated from the gatehouse, will control the water flow to the turbines, the excess finding its outlet under the wheels into the tailrace.

VILLAGE FOR WORKERS

Because hydroelectric developments are usually remote from towns and cities, housing accommodations have to be provided for the workers. At the Hardy Dam an industrial village consisting of seventy-one cottages, two staff houses, a bunk house, hospital, general store, barber shop and various other buildings were constructed and equipped with electric light, running water and a sewage system, even though it was known that these facilities would be needed less than two years. Careful attention

was given to every detail of sanitation and health. While the timber-clearing operation was in progress, as many as 1,300 lived in this village, and during one month 19,000 meals were served in the mess hall. Now that the work is well advanced, this force has been reduced to approximately 700 men. Incidentally, in this connection about 95 per cent of the laborers employed in the construction of the Hardy Dam are Michigan people.

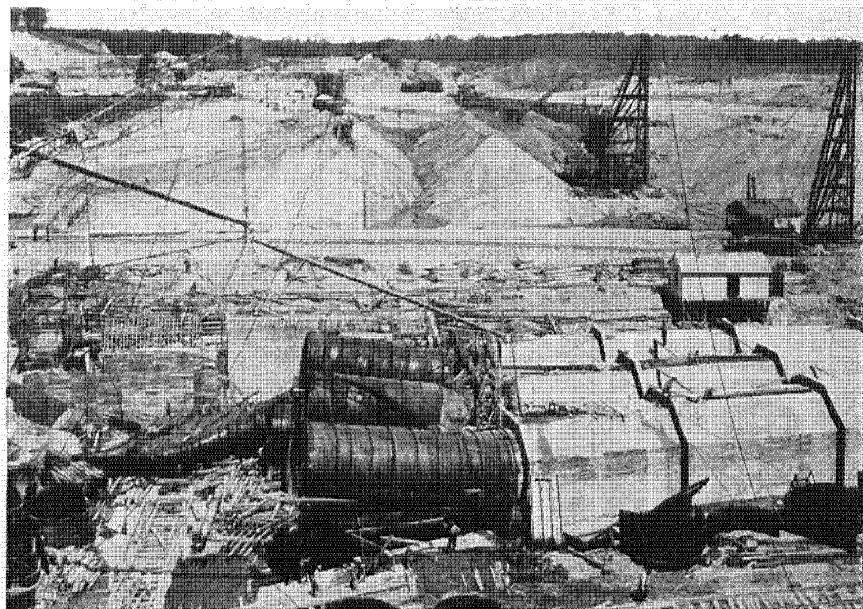
SCENE OF NATURAL BEAUTY

The lake created by this dam will be opened to the public for recreational purposes. Fishermen in particular will benefit from the conservation work instituted by the Consumers Power Company, which has made a practice

of planting millions of fish in waters adjacent to its principal hydroelectric developments. When the Hardy Dam is completed and the construction buildings have been removed, this lake and its environs, so readily accessible to the public, will be a place of great natural beauty.

TO SPEED UP DEVELOPMENT

From a commercial viewpoint the electric power generated at the Hardy Plant will flow through the interconnecting lines of the Consumers Power Company system to accelerate the development and civic progress of 477 Michigan cities and towns and to render a service to 1,650,000 people. In short, this great dam and power plant, which is scheduled for completion in 1932, will stand not only as an impressive monument of steel, brick, earth and concrete to arouse the wonder of passers-by, but it will also be a productive asset of great value to the state.



Three conduits, each fourteen feet in diameter, will carry water from the reservoir through the dam to the power house. Fifty thousand cubic yards of concrete will be placed before the Hardy Dam is completed.

WALL PAPER IMPROVED

En-Dural is a quality product that looks exactly like ordinary wall paper, but it is washable

By CHARLES CULP

SCIENCE and industry have combined forces in perfecting a process of making wall paper easily washable. It is a new and revolutionary development, one that bids fair to exert a marked influence upon thousands of business enterprises connected with the manufacture and sale of wall papers, and one that will bring a new and valuable benefit to consumers of these products.

The early function of wall paper was that of protection. It supposedly prevented the walls of homes from absorbing damp and cold, and so guarded the health of those living within. However, its protective properties were insufficient to justify its use on that score alone. Later, its possibilities as an art medium came to be recognized and wall papers literally flowered forth in color and design.

The art of decoration, though half lost in the post-Victorian upheaval and still in the fad stage, was making rapid strides toward a definite formula. Decorators began to apply wall papers with such artistic discrimination and satisfaction that the sale of wall papers quickly came to depend almost entirely upon their decorative possibilities with little regard for other considerations.

Naturally, a reaction set in. Many decorators began to clamor for a more permanent, more practicable product without sacrificing the beauty, color or texture of the paper. Quality, of course, could be improved. Colors soon were made to stay fast. But the one age-old weakness remained unremedied—wall paper soiled.

The walls of many a beautifully decorated room could be quickly marred by the mere touch of tiny, play-soiled fingers, or stained by the accidental spilling of ink, the dripping of grease, or some other household misadventure.

This was the big problem, and its

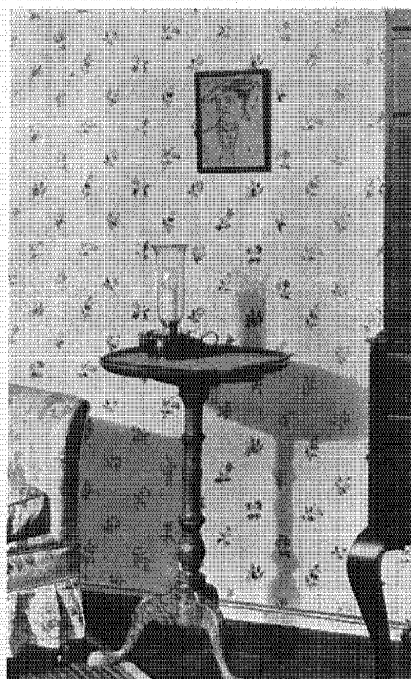
solution was sought by the du Pont Company in conjunction with the Robert Griffin Division of the United Wall Paper Factories, Inc. Four years of thorough experimentation followed, and at length produced En-Dural, a washable wall paper. However, neither the du Pont Company nor the United Wall Paper Factories, Inc., were willing to announce the result until practical decorators and their distributors had made thorough tests of its unique properties. They tried En-Dural under every practical condition, testing each claim made for it, and finally they were obliged to pronounce it a success.

A special finish created by the du Pont Company makes this wall paper easily washable with soap and

water and in no way interferes with its beauty or decorative qualities. In texture and finish it looks no different than any other paper. Against the dull soft finish of its surface, many beautiful designs and colors find true decorative expression. It is made in the convenient 24-inch width and requires no special hanging operations, and its cost compares favorably with that of ordinary paper of the better class.

En-Dural is washable. Severe tests, recently completed in the du Pont laboratories, have demonstrated the fact that even with frequent washings, this specially processed wall paper will wear for years without the slightest sign of surface marring or color fading. Here are some of the usual disfigurements ordinary soap and water will instantly remove: Ink stains, pencil and crayon marks, dirt, finger smudges, stains from alcoholic mixtures, tobacco and ginger ale. Even grease marks may easily be eliminated, leaving the paper clean, fresh and unimpaired in any way.

To the home-maker, En-Dural represents a dream come true. For the hotel, the club, the hospital, or any semi-public building as well as the home, it will prove invaluable. The bugaboo of every interior decorative scheme—soiled walls—becomes a thing of the past and decorative maintenance costs can be cut to almost nothing. This is particularly applicable to all types of apartment houses where the cost of re-papering soiled walls runs to ruinous figures.



Above—A section of a room papered with En-Dural. It looks like ordinary wall paper, but the close-up view at the right reveals its cleanable properties. A little soap and water easily remove surface stains

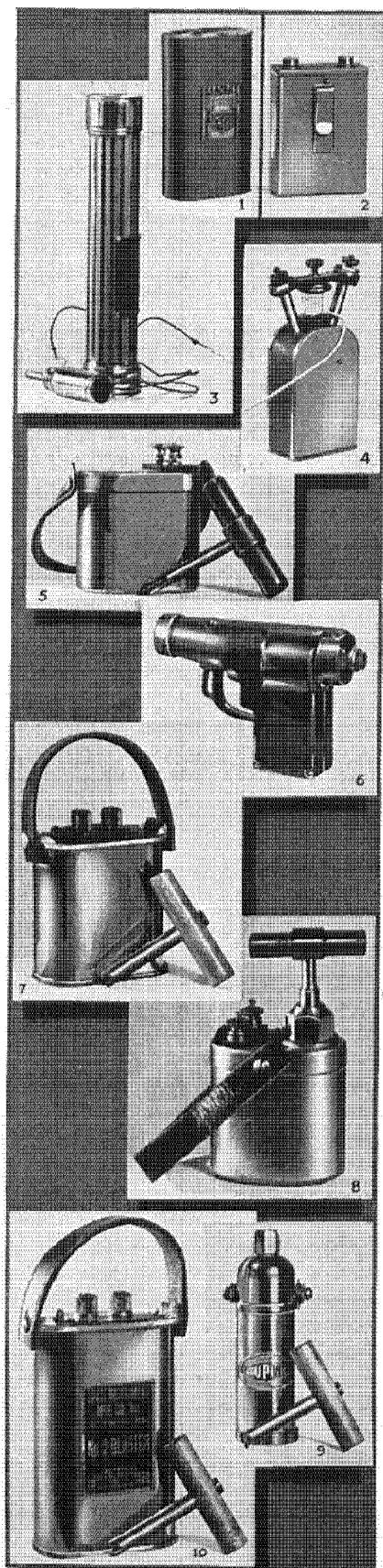


BABY BLASTING MACHINES

Many electric-firing devices have been invented, and some of them are briefly described here

By ARTHUR LA MOTTE

MANAGER, TECHNICAL SECTION, EXPLOSIVES DEPARTMENT



THE first successful blasting machines made in the United States weighed about thirty-five pounds and when properly operated would shoot thirty electric blasting caps in series. At that time, 1876, electric firing of blasts was in its infancy, and it probably never occurred to any one that there would be any use for blasting machines that would fire only one shot at a time, for the cap and fuse method would do that easily and cheaply. With the advent of permissible explosives for use in mines containing inflammable gas and dust, electric firing was insisted upon, because of its greater safety, and blasting machines of small size and low capacity were devised having a number of ingenious arrangements for developing the current. Usually they were magnetos; that is, the current was generated by revolving an armature either by a spring or gears or by a string wound around a spool between the poles of a permanent magnet.

DRY CELL DEVICES

The earliest machines of this type weighed only a little over four pounds and, with ordinary care, would last several years. Their cost, however, delayed their introduction in coal mining, especially where the miners had to buy their own equipment. This resulted in a number of devices for firing electric blasting caps from the current generated by one or more dry cells—carbon zinc elements, usually three connected in series—which gave a sufficient volume of current and voltage enough to overcome the resistance of the electric blasting cap wires and leading wires.

The disadvantage of the earlier types of dry-cell batteries was that they ran down and became inoperative in a surprisingly short time. A blaster never knew whether a cell would work or not until he tried, and it failed. Moreover, a number of these, having exposed terminals, were distinctly unsafe, for when the miner would put one of them in his pocket with two or three electric blasting caps on top, there was always a chance that these would come in contact with the live terminals and explode in his pocket. Various devices were invented with a view of obviating this difficulty—spring contacts that closed only when the knobs were pressed down, and contacts in deep recesses, such as are found in dry cells for use with acousticons.

ANOTHER DISADVANTAGE

Certain of the pocket blasting machines were suspected of giving a current so strong that the breaking of the leading wires at the time of firing might result in an arc that would ignite explosive gases in the mine; or that a spark might be produced inside the case which would ignite any explosive gas that had entered the case from the mine atmosphere, blow up the machine and initiate a mine explosion. This fear led to the development of permissible pocket blasting machines by several companies which successfully passed the tests imposed by the Bureau of Mines and received its approval plate.

Some of these permissible machines functioned so well and had such a long life that inventors developed machines of similar construction with

a capacity almost equal to the original thirty-hole blasting machine of the Centennial, but very much smaller, lighter and more convenient to use. These were designed with a smaller type of generator than that used in the larger machines, namely a dynamo type, which had electromagnets instead of permanent magnets. The rotation of the handle spins the armature by means of a train of gears, and the revolving armature picks up current from the residual magnetism in the field magnets and builds it up. This, in turn, influences the magnets so strongly that at the end of the stroke a current of high enough voltage is generated to fire ten or sometimes twenty caps.

The foregoing briefly sets forth the history and to some extent the basic principles employed in the development of these electric firing devices. At any rate it will serve as a background for a more detailed study of the "baby" blasting machines comprising a part of the writer's accumulated collection through the years.

In the accompanying illustrations, No. 1 is an acousticon dry-cell battery with the live terminals at the bottom of recesses in the top, about half an inch below the surface. It is still possible to get accidental contact with these live terminals, although not likely in the ordinary course of mine blasting.

No. 2 is a dry-cell battery with spring contact points and a clip to hold it on the miner's belt. This battery is operated by holding the leading wires in contact with the posts and pushing them down simultaneously.

No. 3 is a permissible dry-cell battery with a special contact point which makes accidental firing practically impossible, but it has the disadvantage of the comparatively short life of the dry cells, so that one never knows when it is going to die.

No. 19, shown at the bottom of this page, is a permissible shot-firing device, designed to be carried on the miner's belt. It consists of a storage battery, similar to those furnishing current for miners' electric cap lamps, and is equipped with a special lid with two spring contact points. Press-

ing these down with two specially-constructed plugs causes a current to flow through the lines connected to them. When properly assembled, this is a fairly safe and efficient device, but every now and then miners become impatient at having to use special plugs on the ends of their leading wire, or they lose one or both plugs. Then they are likely to knock the top off this battery, leaving exposed terminals which may easily cause accidents. In fact, we have record of one instance where a miner uncoiling an electric blasting cap accidentally brought the ends of the cap wires in contact with the two terminals of the battery, peppering an unfortunate bystander with copper from the exploding cap.

No. 4 is one of the old magneto machines in which the armature is spun by pulling violently on a string wound around the top, the permanent magnet forming part of the case.

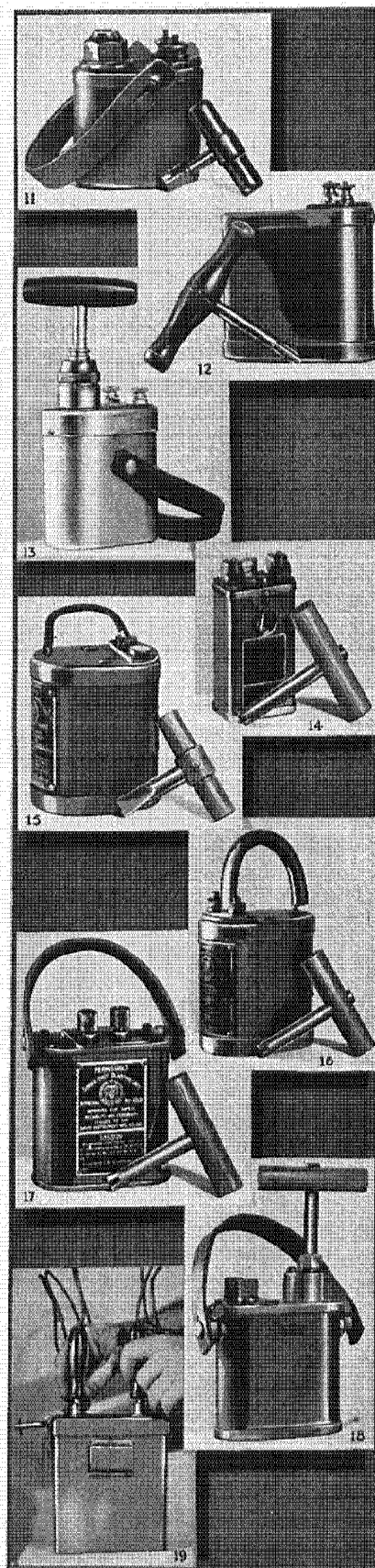
No. 5 is a machine of German extraction designed on the conventional type of permanent magnets and gears. It is operated by turning a handle inserted in the bottom and is good for about three to five caps.

No. 6 is an ingenious machine in the form of an automatic pistol with holes in the muzzle into which the leading wires are inserted. Pressing the trigger releases a spring, which must be wound up previously by inserting a key in the back of the machine, which spins the armature. Unfortunately, some nervous miners object to seeing one of these pistols pulled out suddenly and are apt to become irritated and excited. Spring-actuated machines up to the present time have never been particularly successful in small-size blasting machines.

No. 7 is a magneto-type machine of the conventional design made by the Davis Instrument Company of Baltimore, Maryland.

No. 8 is a successful three-shot machine of the conventional magneto type. It has the usual detachable handle common to this type which enables the blaster to lock the machine by the simple expedient of taking the handle out and putting it in his pocket.

(Continued on page 24)





Story time comes often, but reading from the Book House collection is never like some.

A NEW BOOK HOUSE FOR CHILDREN

Much of the world's best literature for young people is contained in this attractive set

By PAUL W. SAMPSON

MORE of a dreamland than ever is the new Book House for Children. The case itself is an actual wooden house, and when you look at it, the arrangement of the books somehow suggests a door and two windows leading straight into fairy-land. Red, blue, yellow and fascinating gold are the colors, and just as rich and colorful are the contents.

The pages are wide margined, and in large readable type. Executed in the imaginative manner that captivates children, there are pages and pages of illustrations by such artists as Donna Crane, Maud and Miska Petersham, Mariel Wilhoite, Katharine Sturges, Willy Pogany, Milo Winter and others, all of whom are adroit in stirring children's minds into wonderful visions that are only for the very young and wide-eyed.

From the folk and wonder tales of all the world Olive Beaupré Miller has taken the best and arranged them

in this set. All the old favorites are there, and some new ones, too.

There are three special volumes, one of the tales told in the land of tulips and pantaloons, one from France, and the third from mystic Japan, with all the feeling and delicacy of a Japanese water color, dark wind-bent pines against the white of Fuji, with the water green below.

Maud and Miska Petersham actually spent three months in Holland and as many more in France, sketching and gathering material for these volumes.

This set is truly a "treasure chest" for any child. No youngster who comes to it hungry for a story will go away disappointed. Not in a few words can one reveal a full counting of the treasure it bears. It is a spring from which all children may drink

deeply, and to some purpose. In "Little Pictures of Japan" from the Book House, for example, Misume (900 A.D.) sings of "Watching for Wild Geese"—

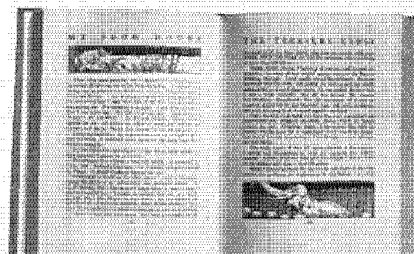
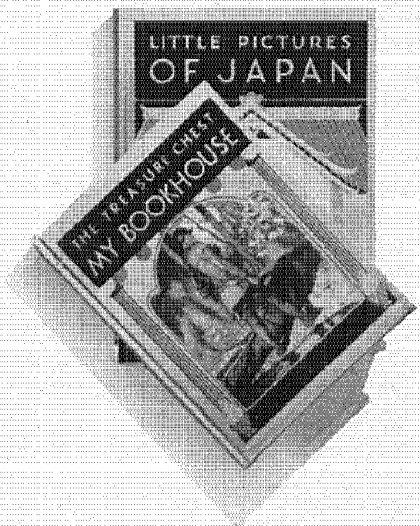
"Since I faintly heard

Far away, the first wild goose
Give forth his cry,

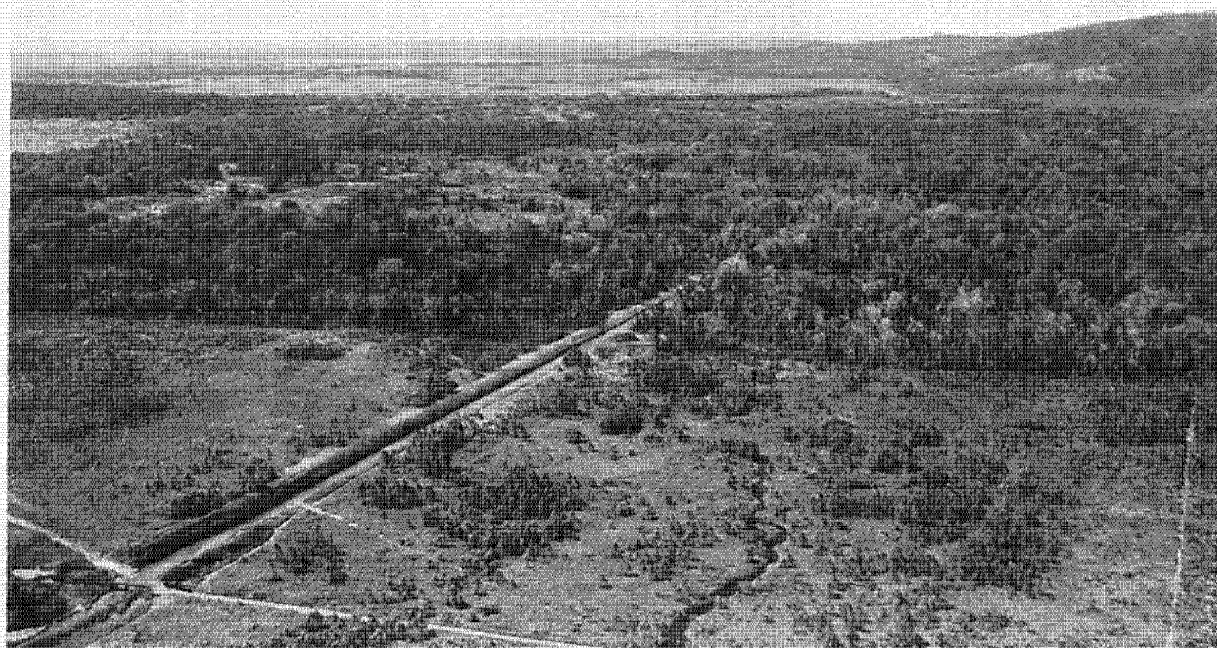
My thoughts have been fixed only
on the middle of the sky."

This collection can be the happy means of fixing the young reader's eyes on the sky.

The set has been completely bound in du Pont Fabrikoid, which is waterproof, washable, vermin-proof and durable. Grimy hands cannot permanently deface the covers, for fingermarks wash readily from Fabrikoid. For full information write to The Book House for Children, 360 North Michigan Boulevard, Chicago, Illinois.



Clear, legible type, many illustrations and a genuine du Pont Fabrikoid binding make these books most attractive and serviceable



An aerial view showing the swamp area through which the canal traverses, between the Ulua River and the Toloa Mountains

THE RÔLE OF DYNAMITE IN BANANA LAND

THE principal banana belt in Honduras, Central America, lies from ten to fifty miles inland from the shores of the Caribbean Sea, bordering the principal rivers which originate in the mountainous interior. As the rivers approach the Caribbean the grade flattens perceptibly, the rivers widen, and large dismal swamps are encountered.

Drainage of both run-off water as well as sub-surface water is one of the chief requirements of banana culture, and large sums are annually expended for this purpose. One of the principal developments of the United Fruit Company in Honduras has the Toloa Lagoon for its drainage basin.

One of the company's largest canal systems is located in the Guaymas District between the Ulua River and the Toloa Mountains. An important unit in this system, the Guaymas River Diversion Canal, which drains into the Toloa Lagoon, was excavated

*Reviewing the work of blasting
outlets for a drainage canal
into Toloa Lagoon in Honduras*

By H. ROWE

VICE-PRESIDENT, UNITED FRUIT COMPANY

in 1928 with a 50-B Diesel dragline for a distance of 6,000 feet.

During the heavy rain and flood period late in that year, this canal was practically closed for a distance of 4,000 feet on account of the volume of silt deposited by the flood waters of the Guaymas River.

Following a recession of the floods this canal was partially re-excavated and at the same time extended farther towards the swamp for a distance of 4,250 feet, traversing dense tropical growth. At this point the depth of

water was so great as to necessitate removing the machine excavator; lack of sufficient outlet for the water made further operation impossible.

To prevent the loss of this canal a second time, it was necessary to utilize some quick method to obtain the required outlet, and the decision was made to use dynamite for this important work.

Blasting operations were commenced at the lagoon, and the excavation proceeded to the canal already constructed. All labor and supplies, including dynamite, were brought to the site by native canoes for a distance of approximately five miles through a series of winding channels. A camp was established on the edge of the lagoon and the dynamite was stored on a large barge.

Working conditions were particularly bad. Practically every class of jungle land was encountered—from

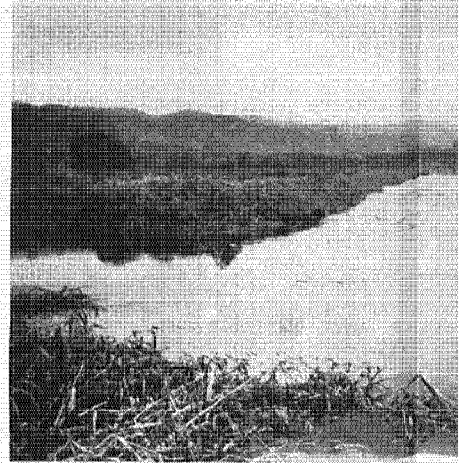
(Continued on page 23)

WHERE THE UNITED FRUIT COMPANY HAS DEV

Left to right, top row—A boat transports dynamite to the scene of operations

Men place the explosives charges in the swamp outlet, preparing for a blast

Where dynamite supplies were stored on a barge in the lagoon. Note the tent, a needed protection from the sun



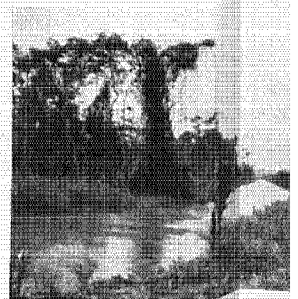
Right—This section of the completed drainage canal looks almost like a highway, but it's a waterway

Next, right—Transferring a load of dynamite to the small boat for transport to the blasting crew

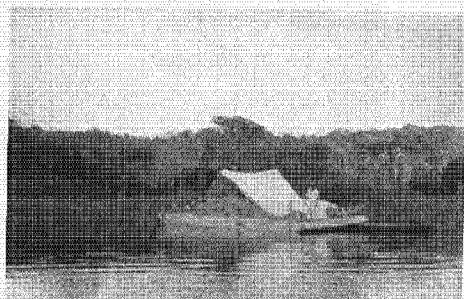


Another view of the canal. Note the jungle condition along the opposite side of

A fallen monarch removed from the right of way through the jungle. Yes, explosives did the job unaided



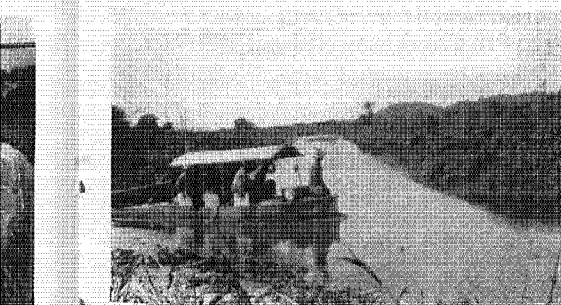
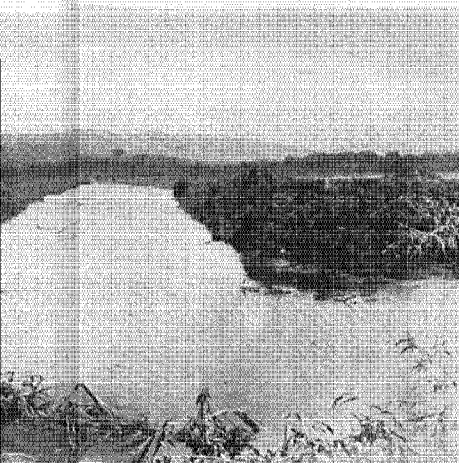
DEVELOPED A DRAINAGE CANAL IN HONDURAS



Second row, left to right—Laborers loading charges of dynamite preparatory to a blast through heavy woodland

The completed outlet into Toloa Lagoon—a clean-cut, open ditch rendering good service

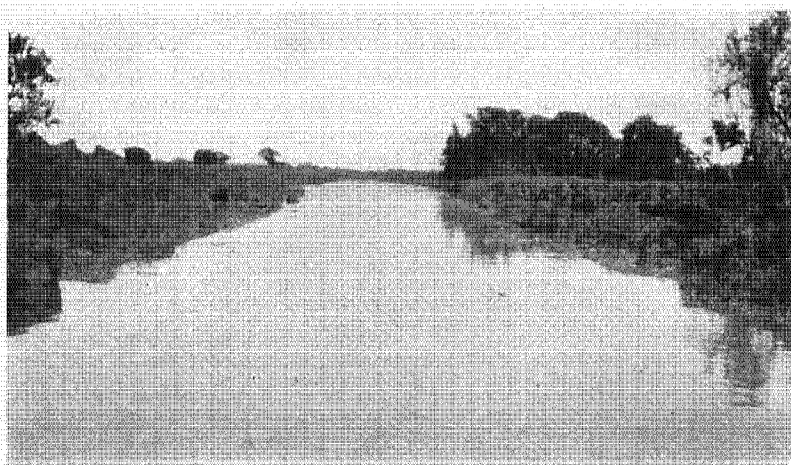
Inspectors visit the excavation work. Notice the trees thrown out by the blast



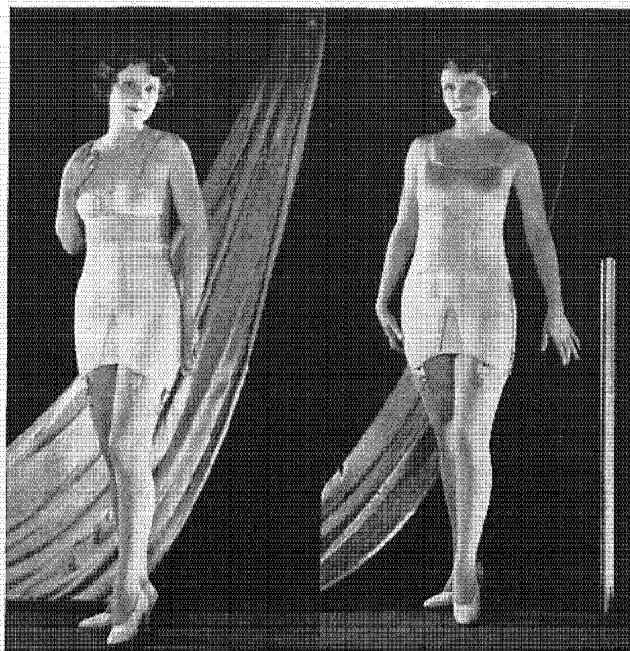
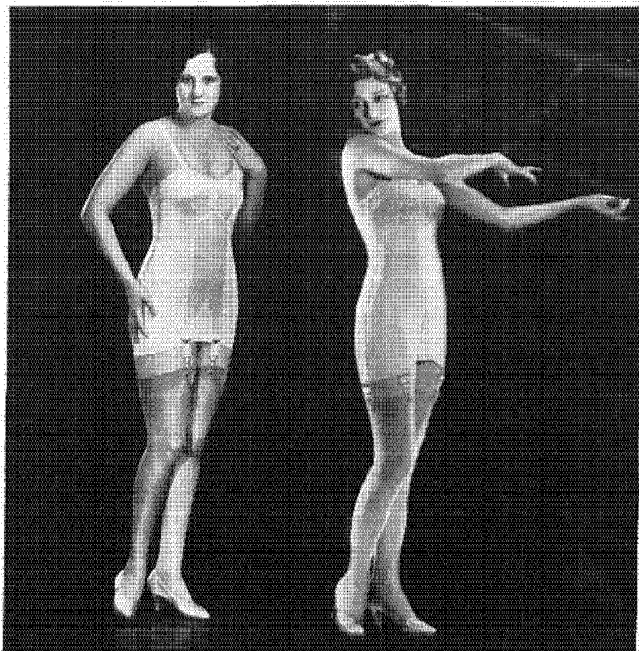
Left—Another transport scene. Notice the native "cayuca"

Next, left—The supply boat starts off for the firing-line, where there will soon be plenty of action

view of the completed canal. jungle conditions, particularly opposite side of the waterway



Near the outlet into the Toloa Lagoon, where a marshy bog gave way to a clean, wide canal



ACHIEVING THE NEW SILHOUETTE

Du Pont rubberized fabrics play an important part in the development of the modern reducing garment

By F. W. HOTCHKISS

IN this day when rule by dictators is so common throughout the world, there is one whose absolute dominance goes back into history far beyond the memory of us moderns; whose dictates have rarely been questioned; whose word is law. This dictator is Style, and from Paris he governs, almost despotically at times, the realm of women's wear.

Among his many decrees none has been more arbitrary or more startling in its changes than the one that greeted the world a little over a year ago, when the mandate went out that henceforth the princess silhouette would be "le dernier cri" in feminine fashion.

Of course it applied to all; the short and tall, the slender and stout. To those whose figures were adapted to this new style this change met with instant approval. Their less fortunate

sisters, however, handicapped by excess avoirdupois, faced the serious problem of how to achieve this new silhouette.

And so we have witnessed a great variety of expedients — diets, exercises, reducing apparatus, and a hundred and one methods and theories for removing the excess poundage.

Among the many methods for getting rid of surplus tissue, the one most practical, because it is natural, has been the use of the new reducing corsets made from special rubberized fabrics. The idea is not new, but the garments themselves are a refinement and improvement of the earlier type.

Reducing corsets were first introduced to the trade about 1923. The corset at that time was a pure gum rubber product without fabric of any kind, and whereas it worked well as far as reducing was concerned, it was

Illustrating some of the popular reducing garments. Left to right—The one-piece corset, the corselette type, the "step-in" and the reducing brassière and step-in girdle

not very comfortable to wear. In the first place such rubber was absolutely non-absorbent, and the idea of cold rubber next to the skin was also distasteful to many women.

After the development of the pure rubber garment, its effectiveness having been firmly established, adaptations to make this type of garment more comfortable were made by rubberizers and corset manufacturers.

The present-day garment is made of a combined fabric consisting of two specially-knit fabrics cemented together with a high-grade rubber compound. A feature of this new material is that no rubber actually comes in contact with the skin.

These corsets have been used more or less continuously since 1925, although the recent princess silhouette has brought them to the fore again stronger than ever as a scientific and practical method of reducing.

The principle on which this reducing corset works is simple enough. Because it is made with rubber and is practically airtight, permitting only a slight circulation of air, it does not allow the body heat to escape. This

produces a condition that tends to break down the fatty tissues of the body gradually but surely.

The woman who wears this modern reducing corset does not have to go through any set of exercises. She simply puts it on and wears it during the day's routine. And the exercise of doing her ordinary household duties is sufficient to produce the desired results. It can be worn half a day or more, as may be necessary.

Because of the natural conforming properties of these combined fabrics, this garment gives ample support with the maximum of comfort. In fact, the unusual comfort of this corset has led many women to wear this type instead of the regular foundation garment, even though it is primarily recommended for reducing and not for continuous wear.

The du Pont rubber plant at Fair-

field, Connecticut, has been manufacturing rubberized fabrics for the corset trade for the past seven years. Special study has been given by du Pont chemists to the manufacture of rubberized fabrics particularly adapted for this work. The selection of fabrics is based on their durability and appearance. The rubber, of course, does not contain anything that might prove injurious to the skin, and both the fabrics and the rubber are combined in a way that will render them most serviceable.

The du Pont line, as now produced, eliminates all possibility of having rubber next to the skin. At first glance the material does not appear to be made of rubber at all. A layer of it is placed between two knit fabrics, which may be either cotton to cotton, cotton to rayon or cotton to silk. The cotton fabric is worn next to the skin

and is quite absorbent, giving the wearer a high degree of comfort.

Most of the prominent corset manufacturers are now including one or more of these styles in their present lines. They are made in both unboned and lightly boned models, the most popular of which are the corselette, step-in and girdle types.

Any woman who wants to have a slender figure and who has not been so favored by Nature can, by this new method, achieve the desired results. No longer must she forego sweets at the bridge table or the many delicacies that are so unfriendly to her. The rubber reducing corset will help melt away the excess tissue with the maximum comfort and convenience to the wearer.

These garments are obtainable at the best corsetières and dry goods stores throughout the country.

TWO NEW LUXURY LINERS

(Continued from page 3)

Opening on these promenade spaces are windows of the lounge, smoke room and writing room, giving their occupants a clear view to the sea over the low bulwarks.

Children traveling on the "Morro Castle" or the "Oriente" do not want for recreation facilities. A play room has been constructed on A Deck which is decorated to resemble a street scene in Spain. It shows at one side the exterior of a house with a lantern lighting the entrance. The other walls depict landscapes from Mother Goose and nursery rhymes. For grown-ups who wish to keep in trim during the voyage there is a modern gymnasium opening on the sports deck.

Passengers need not be inconvenienced if they forget last-minute purchases; both ships offer a number of shops well stocked with necessary articles. A barber shop and a hair-dressing parlor are also included.

Access to the various decks is possible by two main stairways and elevators in the forward and after lobbies, which are developed in the modernistic manner, with beautiful veneered mahogany as the predomi-

nating wood inlaid with satinwood and ebony.

Spaces devoted to the first-class smoking room and deck entrance lobbies follow the style of the Italian Renaissance. Over the center of the smoke room is an arched semi-circular skylight in amber glass of two tones. The furnishings in mellow tones of velvet and brocatelle have an antique scheme suggestive of the Palace of the Doges.

The lounge, forward of the midship lobbies, is decorated in the style of Louis XVI. The walls are soft tinted white mahogany, ornamented in antique gold panels and moldings. The ceilings, too, are pleasing, with decorative medallions in color. A mezzanine, with a wall opening surrounded by columns and a bronze railing in appropriate detail, gives an impressive ceiling height at the center of the room. The atmosphere and dignity of the saloon of the eighteenth century are reproduced here by authentic details.

On D Deck is the dining saloon. Like the lounge, it also has a mezzanine with a wall opening supported by columns of imposing proportions,

running through two decks. This room has an air of dignity, even though it has been given a rather informal treatment. Hanging at the end of the room on one ship is an oil painting of the "Morro Castle," while in the same position on the other is a painting of the "Oriente."

Then, too, the galleys have complete electrical equipment that further enhances the already famous quality of the Ward Line cuisines.

Special attention has been paid to safety of life at sea. Each liner carries ten life-boats and two motor-boats, thus assuring accommodations for all on board.

An electric fire-alarm system is located in a centralized panel in the pilot houses to indicate the presence of fire in any part of the liner, and many tested safety devices and many modern navigating aids are provided on these boats.

These new ships, along with others in the Ward Line fleet, are protected and decorated with du Pont finishes, including paints, varnishes and enamels. Thus du Pont contributes to the forward progress of the American merchant marine.

THE DU PONT MAGAZINE

Published and copyrighted by
E. I. DU PONT DE NEMOURS & CO., INC.
WILMINGTON, DELAWARE, U. S. A.

Subscription, \$1.00 the year

E. R. MANCHESTER, Editor

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VOL. XXV FEBRUARY, 1931 No. 2

LINCOLN

WITH the passing years the American people appreciate more and more the sterling character of Abraham Lincoln. His leadership during one of the most critical periods of our nation's history and the inspirational quality of his life as a man and statesman entitle him to a place among the immortals.

We do well to honor his memory each year on the anniversary of his birth. This month's cover illustration, from a photograph by Rittase, shows a view of the Lincoln Memorial at Washington, D. C.

ANTI-FREEZE METHANOL

WIDESPREAD publicity has been given to statements and opinions decrying the use of methanol as an anti-freeze. Presumably many motorists are wondering whether or not it is safe to use in their cars. According to experts of the United States Bureau of Mines, who have investigated this product, no hazard exists in its use as an anti-freeze. The following summary of their conclusions and recommendations is quoted from "Information Circular No. 6415."

"1. Observations made by the Bureau of Mines have indicated that there is no danger of poisoning from the reasonable use of methanol as an anti-freeze for automobile radiators.

"2. The evidence that methanol poisoning has been caused by absorption through the skin is rare and inconclusive.

"3. Practically continuous exposure to low concentrations and short intermittent exposure to high concentrations of methanol cause no apparent harm; but, on the other hand, continued exposure to high concentrations will cause serious poisoning.

"4. All methanol, whether made by wood distillation methods or synthetic methods, or whether it is crude, refined or highly purified, is poisonous when taken internally. It will cause serious poisoning, blindness, and possibly death when as little as two ounces is taken into the stomach.

"5. To avoid misuse it is recommended that in the future all anti-freeze methanol be brightly colored to enable garage attendants and the public to identify it as methanol; and to warn against misuse, particularly for beverage purposes.

"6. The largest producers of methanol anti-freeze label their containers so as to call attention to the hazards of misuse of methanol and also issue information and instructions to garage attendants and the consuming public warning against its misuse. It is recommended that these precautionary measures be adopted by all producers."

LA REVISTA DU PONT

A NEWCOMER in the field of company publications made its first appearance in January with the distribution of approximately 5,000 copies of *La Revista Du Pont*, the official export magazine of E. I. du Pont de Nemours & Company, Inc. It is sponsored by the Foreign Trade Development Division of the company and is designed primarily for circulation among du Pont dealers, distributors and customers in Spain, Portugal and all Latin-American countries. It is printed in Spanish and Portuguese, and will be issued quarterly.

The initial number contains sixteen pages and cover of the same size as *The Du Pont Magazine*. The front cover portrays a colorful illustration of El Chimborazo, one of the famous mountain peaks of South America. Editorial features include an introduc-

The DU PONT Magazine

tion by President du Pont, a brief outline of the company's progress and articles about du Pont products.

THE "WE" AERO HELMET



HERE is a cap for winter play that all boys will go strong for—a snug, one-piece design in real aviator style.

Made of genuine du Pont Fabrikoid to withstand water, ice, snow and changing climatic conditions, each "We" helmet is lined with soft warm fleece. There are three styles: One with detachable goggles, and strap and buckle fasteners; another trimmed with a soft pile fabric which can be turned down to act as a shielding peak, and still another has the chin strap of self material.

"We" hats are well made, the edges being neatly bound all around. Colors are black and brown. Further information and prices may be obtained by writing to the Good Value Hat & Cap Manufacturing Company, 693 Broadway, New York City.

FOR REFERENCE

THERE will shortly be available for distribution a complete index of all du Pont Explosives Service Bulletins issued since July, 1923. These monthly bulletins contain discussions pertaining to the economical and safe use of explosives and blasting accessories, as determined by the company's staff of technical representatives.

The index is arranged chronologically and also according to classes of work, such as coal mining, metal mining, quarrying and the like. It will serve as a ready reference aid to those who keep a file of these bulletins. Copies may be obtained by writing to the du Pont Advertising Department at Wilmington, Delaware.



WARFARE ON THE MIDWESTERN FRONT

This striking picture was taken by a *Chicago Tribune* staff photographer near Riverside, Illinois, where officials of the Desplaines Valley Mosquito Abatement District started ditch-blasting operations last year to drain low-lying areas where mosquitoes have long held control. This end view of a shot, made with du Pont ditching dynamite, is most unusual in that it shows how the material is thrown away from the ditch.



These three little Carol Fae frocks, made of du Pont spun rayon, have big plans for tennis and golf. They are made in an assortment of colors in sizes 14 to 20. Best & Company, New York City

DU PONT SPUN RAYON

An entirely new kind of rayon is used to make the leading sports fabric for 1931

By E. C. HARRINGTON

SPUN rayon fabrics, which are very different from other rayons, are playing a prominent part in the Palm Beach collections of women's apparel.

These new fabrics have a soft "lofty" feel somewhat like wool. In appearance they resemble fine sheer woollens. In fact, they have the fashion appeal of wool with the coolness of rayon. They are exceedingly soft, pleasant next to the skin, and they wash with no more than ordinary care. They are sturdy in texture and practically uncrushable. They retain their whiteness under all conditions—a point of special importance in a season when white is so much to the fore.

They are seen in all the most

desirable fabric effects—open-work façonnés, basket weaves, rough shantung and serge-like textures—in white, pastels and smart printed designs.

These cloths, made of du Pont spun rayon, are being fashioned into resort wear dresses by a great many of the leading dress houses in this country. The fact that one Fifth Avenue shop sold out its first shipment in a few hours, prior to any advertising and without a complete color range, is an indication of their fashion appeal.

COUTURE SPONSORSHIP

In Paris, spun rayons are a notable part of all important sportswear collections. Couturiers catering to an

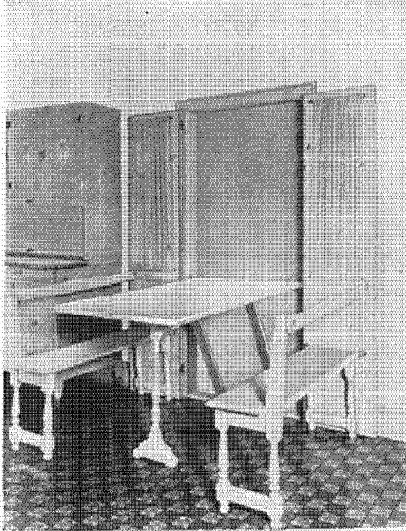
internationally smart private clientele consider this new texture basically correct, practical and exceedingly charming. They use it in formal onlooker fashions or they tailor it severely for specialized sportswear. However treated, spun rayon fabrics, from their very softness and dullness, preserve that note of femininity which is so desirable today.

WHAT IS SPUN RAYON?

It is radically different from other well-known, well-established rayons, a difference not so much in the weaving as in the inherent characteristics of this new type of yarn. Up to now nearly all rayon yarns have been manufactured in the form of continuous threads, hundreds of yards long. When woven or knitted into fabrics, they present a very smooth surface and a beautiful sheen, bright or somewhat subdued as style or taste dictates.

The new yarn, du Pont spun rayon, is first made in continuous thread form, then cut into lengths of from one to six inches, and finally spun together again in much the same way as wool or any other staple fiber is treated. The fabrics woven or knitted from this yarn have practically no luster whatever, and instead of being smooth, they are fashionably rough in texture.

The Du Pont Rayon Company is the only concern in America making this type of fiber. It is the result of a great deal of research and experiment in the du Pont laboratories. Technical and style authorities agree that spun rayon will grow in importance and that its usefulness will spread to many fields.



A kitchen installation



Dinner's ready—in the living room

FINE FOR SMART HOMES AND APARTMENTS

"Fold-Away" dining sets save floor space by utilizing wall space

By JOHN H. CARTER

IN apartments or homes where space is at a premium, "built-in" features have become so popular that contractors and builders consider them as standard equipment when planning, building or remodeling these structures. To an already long list of such space-savers as built-in cupboards, bookcases, radios and ironing-boards has now been added a unique dining set which is adapted especially for apartment use. It is called the "Fold-Away" and is manufactured by the Fain Folding Furniture Company of Norfolk, Virginia.

REQUIRES LITTLE SPACE

When not in use, French doors cleverly conceal the unit, which consists of two benches with backs and a table. The "Fold-Away" unit is available in either cabinet or recess type in a number of styles suitable for kitchen, dining alcove or living-room use. The "Windsor" style requires a space of only five feet, two inches

high by three feet, eight and one-half inches wide and fits in either a four-inch stud wall or on the surface of the wall. The table top, measuring twenty-nine inches by forty-seven inches, and the benches, forty inches by eleven and one-half inches, give ample room for four persons to be served comfortably. When the meal is over and the table cleared, the entire set folds quietly and easily back out of the way, the table into its own compartment and the benches on hinges to either side of the doors.

SAVES TROUBLE

In many apartments a separate dining alcove is not provided, which necessitates re-arranging the living room every time a meal is served. That bother is eliminated by the Fain unit, for all one has to do is to open the French doors, release a catch and lower the table into place.

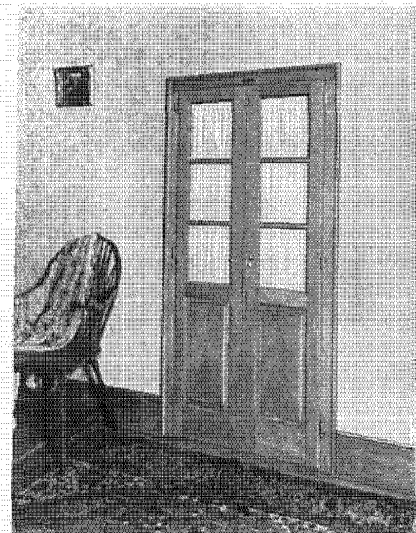
The housewife finds that a "Fold-Away" in the kitchen saves much

time and many steps in serving hurried meals, breakfasts or midnight snacks. And eating there is more pleasant and more convenient, too, for after the meal there are no extra chairs to be carried to the living room or to interfere with cleaning operations. Moreover, the Fain unit is extremely handy as a sewing table or kitchen work table. Incidentally, this arrangement eliminates the breakfast alcove and saves the home owner from \$300 to \$400.

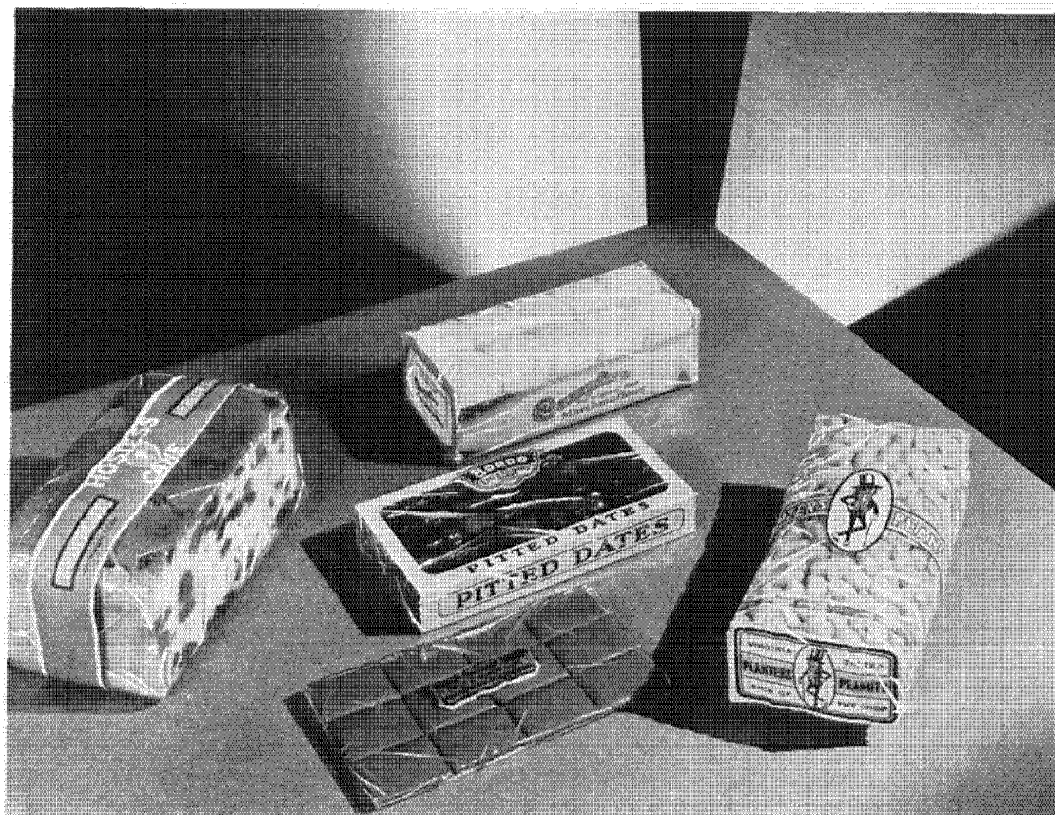
If one so desires, the doors can be fitted with curtains to give the unit the appearance of a built-in china cupboard.

The trestle table and benches are sturdily constructed of gumwood which is finished with a lustrous coat of walnut du Pont Duco.

Another Fain unit, the "Fold-O-Matic," fits admirably under any window that is three and one-half feet from the floor to the top of the window sill. This model is staunchly built of white pine throughout in a most pleasing design and is extremely smart when finished in blue, green or in a Duco color that will blend with the color scheme of the room. Other kitchen models have table tops made of porcelain.



The Fain living room unit folded away in the wall



Candy, fruit,
cake, peanuts—all
attractively wrapped.
Don't they make you hungry
when you see them
on the counter?

WHEN THE MOUTH BEGINS TO WATER

*Food products in visible Cellophane packages
stimulate the appetite*

By B. C. ROBBINS

You have often heard the expression, "It makes my mouth water." But did you ever realize that it is actually true? The sight of appetizing foodstuffs produces just that effect.

Experiments by a well-known food products manufacturer were conducted recently with some amazing results. A delicate apparatus attached to a rubber tube was placed in the mouth of a person who agreed to submit to a test, and then different objects were placed before his eyes to determine comparatively the physiological reaction.

For the first experiment a black and white illustration of food was held up to view, with the result that the apparatus recorded a slight degree of mouthwatering.

Next, a beautiful four-color illustration of the same product was brought out and exhibited. It further stimulated the salivary glands.

Finally, when the actual food was shown, the mouthwatering effect was almost startling.

This test proves that nothing so rouses one's appetite as the sight of the food product itself. It clearly demonstrates the basic reason underlying the visible merchandising of foodstuffs in glass containers, or wrapped in Cellophane, or prepared for market in such a manner as to permit full view of every appetizing detail of the food itself.

Alice Hughes, in her widely-read column in the *New York Telegram*, makes the following statement which

emphasizes the point: "In stores nowadays we are asked to accept very little on faith. The contents of food packages are no longer a matter of hopeful speculation. We see them before we buy them. Cellophane is an attractive merchandise window through which people want to buy goods because they look good."

When a certain food product "looks good" to us, our mouth actually waters, and we buy it impulsively because we want to eat it either right away or later on.

No wonder more and more food products offered in stores today are visibly packed. The public has been both the judge and the jury to whom the manufacturer has submitted his case. And the verdict has been rendered in favor of visible packing.

That is the way people like to buy foodstuffs and provisions, and manufacturers have been quick to note it. Granting that "the proof of the pudding is in the eating," a revised version of the old saying is no less true—"The proof of the buying is in the seeing."



PUTT WITH PYRALIN

Are you a miniature golf fan? Then you will be interested in clubs with sanitary grips made of this material

By R. E. BLANCHARD

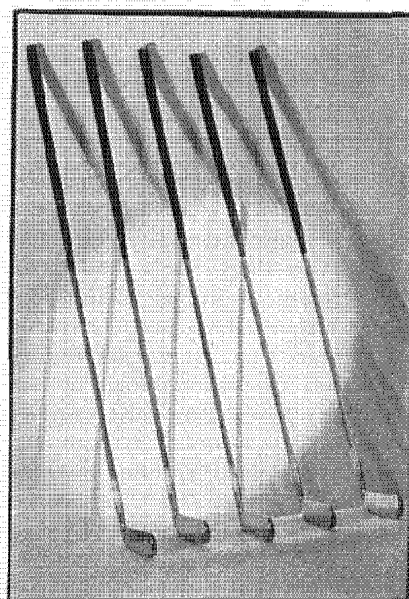
WITH 26,000 courses scattered over the United States, miniature golf is no longer in its infancy. It has reached the adolescent stage and is still growing. Its possibilities of expansion seem unlimited. Taking these facts into consideration, the Pyratone Products Corporation of Chicago has produced a new putter especially adapted for this game.

And Pyralin has a part in it, for the "Sanitary Pyratone" grip is made entirely of this material, which is sufficiently thin to yield easily to the hands and to be pleasing to the touch. Also, to assist the player in gripping and aligning the club, the handles are available in round, pentagonal, heptagonal and octagonal shapes.

These putters are practical for public use because they are sanitary and cleanable. Pyralin does not absorb perspiration, nor does it afford a surface to collect germs from the hands. Thus it meets the health regulations of many municipalities. In Los Angeles, for example, where approximately 2,000 golf courses are located, a recent ordinance requires each club to be sterilized before it can be used by another player. In another city the grip must be recovered with a new paper wrapper after each round. With such rules in force the popularity of the new putter seems assured.

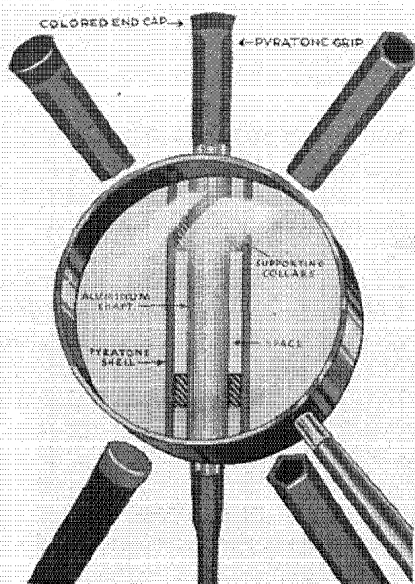
A cross section of the Pyralin-covered shaft. Note how the shell is telescoped over the solid aluminum rod. At the four corners are shown various shapes. The handles are supplied in colors

Indoor golf courses such as this offer many hours of pleasure through long winter evenings. And when you are provided with putters like those shown below, the game is all the more enjoyable

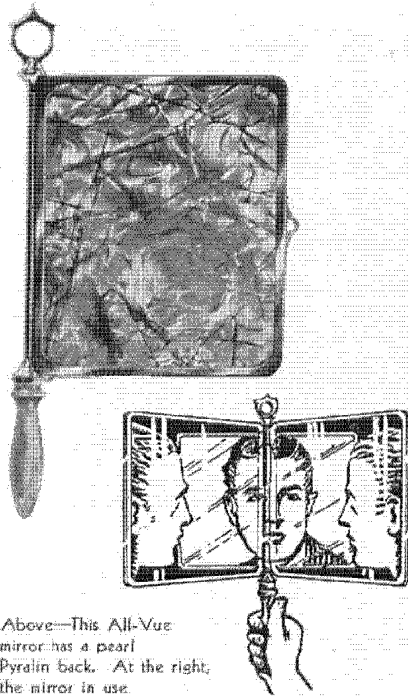


The shaft is a solid aluminum tempered rod, and the sleeve or grip is telescoped over it and secured at both ends, as shown by the accompanying drawing.

The Pyratone Products Corporation may also be credited with introducing Pyralin in numerous patented accessories for the game, among them a torsional grip and an ingenious ferrule construction which eliminates the annoying "string wind" at the base of the shaft.



A UNIQUE PYRALIN MIRROR



Above—This All-Vue mirror has a pearl Pyralin back. At the right, the mirror in use.

WITH the new All-Vue mirror, so aptly described by its name, you need no longer guess at your appearance. Just look in it and see yourself as others see you—from every direction, front, side and back. The device is constructed with two facing mirrors joined together with a hinge on a handle that is conveniently grasped. When manipulated by another person behind you, full reflections of yourself from all angles are visible.

In designing this mirror, a strong material was needed for the backing of each glass. Pyralin was chosen because it filled every requirement for durability and yet added a note of attractiveness, because of the soft

pearls and glowing colors in which it is available. The All-Vue mirror is now made in many beautiful Pyralin pearl color effects to harmonize with the general color scheme of the boudoir, shop or salon, or to fit in with some particular boudoir set. When closed, the device forms an attractive dressing table article, protected from dust, scratches and breakage.

Beauty and millinery shops heartily endorse the All-Vue. Dentists have found its use an asset, and theatrical folks consider it a great aid in their make-up work.

For further information, write to the All-View Mirror Company, Inc., 11 West 42d Street, New York City.

DUCO GETS AN ENCORE

ANY airplane that has flown 250,000 miles over all parts of the United States, Mexico, Canada and Central America is entitled to a certain distinction on that count alone. The B. F. Goodrich Rubber Company's plane, "Miss Silvertown," has not only covered that distance, but during the period it has been piloted by Lee Shoenhair, this ship has also annexed seven world's records for speed and has been used in various parts of North America on many interesting

missions of one kind or another.

It was the airplane selected to carry the first motion pictures of the Byrd Antarctic Expedition from the Canal Zone to New York; it carried Wing Commander Kingsford-Smith and his party across the United States after their flight from England to America, and it is regarded as the fastest cabin cruiser airplane in existence.

It was built and finished with du Pont Duco at the Lockheed factory in California, and we are told that

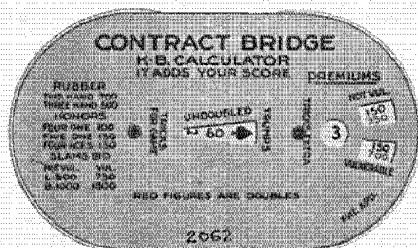
the finish has stood the test of a quarter of a million miles of travel remarkably well. Advice from Akron indicates that the ship is now being refinished with the same du Pont materials. Thus a good product, having proved its worth on this famous plane, gets another chance to duplicate its service record.

Lee Shoenhair, pilot, and the plane he has flown 250,000 miles



FOR CONTRACT BRIDGE SCORES

VULNERABLE, not vulnerable, doubled, undoubled—so it is and so it will be throughout the winter, for contract bridge has now taken its seat in the



Note the inner discs of Pyralin which may be rotated to add the score

front row of the social theater; and it is there to stay. As one leading expert recently said:

"Few people realize how widely contract bridge is played today. The popularity of this game is spreading internationally, and so fast that I

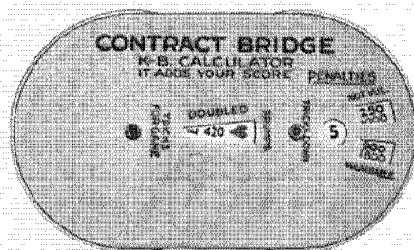
have had to add five secretaries to my staff to answer the inquiries that are swamping my office daily."

Quick to realize this fact, Mrs. Gobel Brubaker of Los Angeles, California, has devised a contract bridge calculator made of du Pont Pyralin. Because this product is lustrous and beautiful in all its shapes and forms, and because it is available in an infinite variety of colors and tints, Pyralin is the ideal material from which an advertising and merchandising novelty such as this can be made. Mrs. Brubaker, the inventor, has arranged to have the Emeloid Company of Arlington, New Jersey, manufacture this article and handle its sale.

The contract bridge calculator is of simple construction. Two white circular Pyralin discs bearing the various numbers and scoring figures used in

this card game are covered with two other pieces of Pyralin in a variety of beautiful pearl-effect colors. These inner discs may be rotated easily, adding the score instantly. The device eliminates inaccuracies in scoring and helps to keep one's mind on the game.

For additional information about the K-B contract bridge calculator, write to the Emeloid Company, Inc., Arlington, New Jersey.



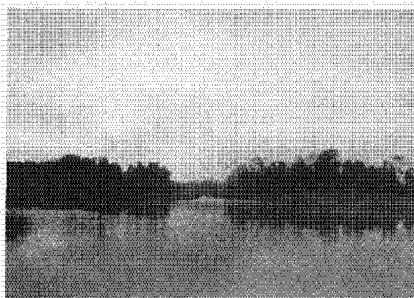
This device eliminates checking and double checking the figures

THE RÔLE OF DYNAMITE IN BANANA LAND

(Continued from page 11)

marshes to heavy virgin forests. All trees within ten feet of the center line of the canal were felled by dynamite and axe, and later were thrown free of the right of way by the regular ditching charge.

The largest tree encountered, a Ceiba tree twenty-six feet in diameter at the base, was felled by a charge of one hundred and fifty pounds of



Completed and in service—the outlet of the canal at Tolosa Lagoen

dynamite. During the ditch-blasting operation this enormous tree was thrown a distance of ninety feet from

the center line of the excavation.

Special tools such as punch bars, loading tubes, and the like were designed locally as required.

The regular loading charge for excavation per lineal foot was eight and two-thirds pounds of fifty per cent du Pont ditching dynamite. A ditch varying from two hundred and seventy cubic yards to twelve hundred and seventy cubic yards per one hundred lineal feet was secured with an average of six hundred and thirty cubic yards per one hundred lineal feet. This excavation was obtained in an area covered with water to a maximum depth of two feet in places.

Sixty tons of dynamite were used to excavate 19,245 lineal feet of ditch with a cubic yardage of 98,756 cubic yards averaging approximately 5.1 cubic yards per lineal foot.

A weighted average of the work accomplished indicates that one pound of fifty per cent dynamite will move approximately one cubic yard of earth. This figure will vary, however,

according to the class of soil, amount of water present and character of woodland.

The great advantage in the use of



A closer view of the finished ditch a little farther up the line

dynamite for canal excavation is the saving of time and the ease with which ditches are constructed in areas where no means other than the use of a floating dredge can be employed.

Work on this project was started July 1, 1929, and it was completed October 7, 1929.

EXPLOSIVES— A CIVILIZING FORCE

(Continued from page 2)

fascinating and dramatic ways, even for landscape work on large estates and in the laying out of golf courses—so that explosive language is the logical result, you see, of the actual explosives used in creating those hateful hazards.

It has long been known that trees planted in holes excavated by high explosives seem to thrive better than those planted in holes dug by a shovel. Tight subsoil is broken up by the force of the explosion giving the young roots a chance to grow, and making fertilization far more effective.

In the South, mosquito-control work has been carried out successfully with dynamite—not by blowing up the bugs themselves, let me hasten to add, but by draining stagnant water areas where they breed, by means of blowing out long ditches through which the water may flow.

Here is a weird new job that explosives are doing. They are being used to explore the earth's interior. When a small charge is fired in a shallow hole, vibrational waves are sent out in all directions, just as waves radiate from a pebble thrown onto the quiet water of a pond. By means of very delicate electrical devices these sound waves can be charted and measured over wide areas. The structure of the earth at considerable depths can thus be determined. Along our Gulf Coast, for example, there often occur (deep in the earth) masses of rock salt several acres in extent. For reasons which geologists can explain, oil and sulphur often occur in conjunction with these salt domes. Favorable areas for drilling are located with this amazing method, employing explosives. In this way our national wealth has already been increased by many millions of dollars.

SAFETY RECORDS SET

I know that most of you have been murmuring to yourselves: "Well, that may be a lovely, helpful industry—but none of it for me!" But, as a matter of fact, in no American industry are more widespread and successful

efforts made in the interests of safety—for the simple reason that they have to be. For the past three years, half a billion tons of explosives have been transported annually over the railways of the United States and Canada without any loss of life and with no loss or damage so far as commercial explosives are concerned. And so we leave this fascinating, vital industry. In the interest of safety . . . the United States Bureau of Mines certifies certain types of dynamite as being permissible for use in gassy and dusty coal mines, after having passed rigid prescribed tests. This is an important contribution to the safety of American miners. Explosives manufacturers are conducting a nation-wide campaign to reduce the number of accidents to children as a result of playing with blasting caps. "Safety first" obviously must be, and is, the guiding principle of the explosives industry.

BABY BLASTING MACHINES

(Continued from page 9)

No. 9 is another ingenious design which is operated by turning the handle in the recess at the top, thus winding up a spring and, at the end of the wind, automatically releasing it and firing the charge. This magneto machine is permissible, but for some reason it did not take very well with the trade.

No. 10 is one of the first ten-shot pocket blasting machines put on the market. It has larger permanent magnets but the general design is the same as the regular three-hole machine.

No. 18 is an experimental machine made by the Davis Instrument Company, and is designed to shoot ten holes. It is of the dynamo type, having electromagnets.

No. 11 is an Austrian machine which had been subjected to considerable rough usage in the mine. It is still in working condition, however, although about fifteen years old.

No. 12 is the first of the electromagnetic generators and is supposed to be good for ten or fifteen caps, but was never put on the market in this

country for the reason that it was too strong for single-shot firing and not strong enough to assure firing ten or fifteen holes at a time.

No. 13 is one of the most successful of modern pocket blasting machines built on the dynamo-generator type, and, while rated at ten holes, has been known to fire as many as twenty-five. It is made by the Fidelity Electric Company of Lancaster, Pennsylvania, and is put up in an attractive aluminum case. It also has the safety feature of a detachable handle.

No. 14 is the smallest and least expensive of the magneto-type generators. It is designed by the Davis Instrument Company and is permissible. It comes nearest to the ideal type for shot firing in coal mines because the current is generated gradually, so that if more than one cap is connected, the more sensitive cap will not explode. Firing more than one shot at a time in gaseous or dusty mines is prohibited in many states. It has an ingenious binding post attachment, an invention of Mr. Waldo Wilson of the du Pont Company.

No. 15 is a du Pont permissible machine which some ingenious miner thought to make doubly safe by filing off the contact points and soldering special contacts for a short-circuiting cable connection.

No. 16 is the standard du Pont permissible blasting machine with the standard contact points set on a fiber insulating plate to prevent contact between the bare ends of the wires and the case. It is a magneto-type generator of especially long life, mounted in a very substantial case made entirely of heavy brass. Like the other permissible machines shown it has a detachable handle and an insulation inside the case to guard against accidental firing of a cap from contact between the cap wires and the case. In addition, its firing handle is insulated to prevent the possibility of a spark's shooting out through the key terminal and also to prevent accidental firing from contact between cap wires and the key.

No. 17 is a permissible blasting machine of the Davis Instrument Company, with brass top and bottom and nickel-plated sides.

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

General Executive Offices, WILMINGTON, DELAWARE

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

The Cocoanut's Package Calls for X-ray Eyes



*But Anyone
Can See
What Is
Wrapped in
Cellophane*

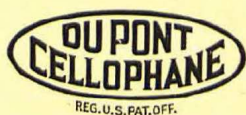
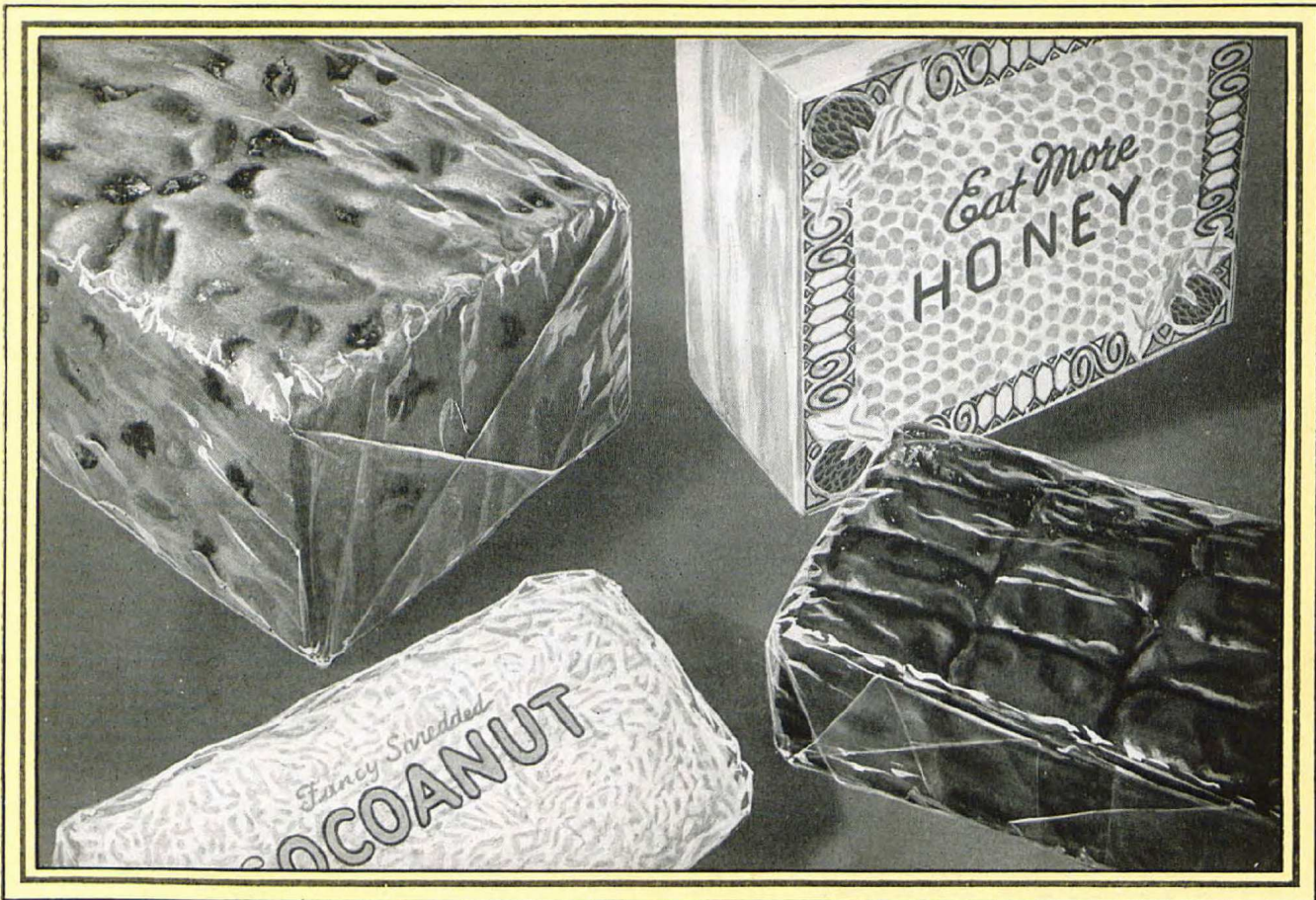
THE cocoanut goes the limit on protection, but it fails to show the world what it has inside. Those who use Cellophane show you what they have to sell.

While Nature's packages are perfect for their purpose, inventive man has discovered how to wrap his own packages as well as, if not better than, Nature herself. By means of

Du Pont Cellophane, man is able to protect things perfectly *and still leave them visible.*

Cellophane is made from the purest form of vegetable matter in the world. As a wrapping it protects against all kinds of dust and dirt. It keeps things fresh. Yet you can see all it covers just as if there was no wrapping at all. No guessing what's inside the package. No misrepresentation. No disappointment.

Every day, in all the stores, you will see more and more things dressed in sparkling Cellophane. You can buy them with the assurance that they will be just as good as they look. Du Pont Cellophane Co., Inc., 2 Park Avenue, New York City.



Cellophane