

THE DU PONT MAGAZINE



for BOBCAT SOD POODLE

or WOODCHUCK



"The finest vermin and medium-sized game rifle obtainable!" That's what men call the Remington Model 30S bolt action SPORTER in .25 caliber—shown at the left. Slip five cartridges into its magazine. Put it to your shoulder, and deliver smashing power *where you aim!* Remember, its accuracy is unbeatable at effective ranges. Tell that to the Hornet fans!

You'll like its looks, smooth action, fine balance and easy handling. Stock is oil-finished American walnut, beautifully checkered. Equipped with Lyman No. 48 Windgauge receiver sight and gold bead front ramp sight. Admirably suited for telescope. Screw eyes for quick release swivels, and thumb-operated safety.

.25 Remington
Hi-Speed
mushroom
87 grain

LOAD THIS RIFLE with the .25 Remington Hi-Speed Kleanbore cartridge using 87 grain mushroom bullet and you've some real bad news for woodchuck, bobcat or sod poodle (prairie dog). Speed . . . 2700 feet per second! Power . . . a three-quarter-ton blow! For medium-sized game—deer and bear—use .25 Remington Express, 117 grain mushroom bullet—accurate, too, up to 700 yards.

Those who prefer slide action repeaters should handle the Beau Brummel at the right—Remington Model 25. Stock is American walnut. Barrel 24 inches. Rear sight adjustable. Easy take down. Magazine holds 10 cartridges.

This rifle takes the .25-30 W. M. R. cartridge stepped up in velocity to 2200 feet per second. With 60 grain Hi-Speed mushroom bullet it delivers 645 foot pounds shocking

power . . . an excellent combination for vermin and medium-sized game.

These are just the high spots. Your dealer has the whole story. Or write us for Folder 56. Remington Arms Company, Inc., Bridgeport, Conn.

DON'T CLEAN YOUR RIFLE

Yes, we mean exactly that . . . if you shoot Kleanbore cartridges! Kleanbore is the registered trademark name of all non-corrosive ammunition made by Remington. Kleanbore keeps the bore of your rifle absolutely free from rust, corrosion, pitting and leading. It deposits a protective film in the barrel that *should not* be removed by cleaning. Proofs of Kleanbore's outstanding advantages will be sent free on request. The best proof of all is your own rifle barrel.

.25-30 W. M. R.
Hi-Speed
mushroom
60 grain



.25-30 W. M. R.
soft point 66 grain

KLEANBORE AMMUNITION



MODEL 30S

.25 Remington Express
mushroom 117 grain

MODEL 25

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Adaptability

Reviewing one phase of du Pont service that is often overlooked
because it is so obvious

NATURE originally provided an abundance of resources and forces for man's use, but left him the job of finding out how best to apply and adapt them to his own needs. Perhaps the aboriginal cave dwellers did not study natural laws too intensively, but at least they were ingenious enough to fashion stone hammers, wooden levers, wedges, rollers, which are listed among the first crude tools.

We do not know who made the first wheel or the first boat and many other useful devices. But we owe much to these ancient inventors. They started our material civilization on its way.

From prehistoric times to the present is a long span of years in which man has largely gained mastery over his environment. He never could create matter. Yet, thanks to scientists and inventors, particularly during the past few centuries, the resources of the earth have been converted, transformed and used in truly marvelous ways.

Manufacturing is of course just adapting things purposefully. Consider the du Pont Company as a case in point. The founder, E. I. du Pont de Nemours, started making a single product—gunpowder. He soon discovered that it would not work equally well in all kinds of firearms,

and so various granulations were prepared, the better to adapt the product to specific uses.

Later, when black blasting powder came into the picture, conditions of use dictated the practice of making more kinds and more granulations to meet the requirements.

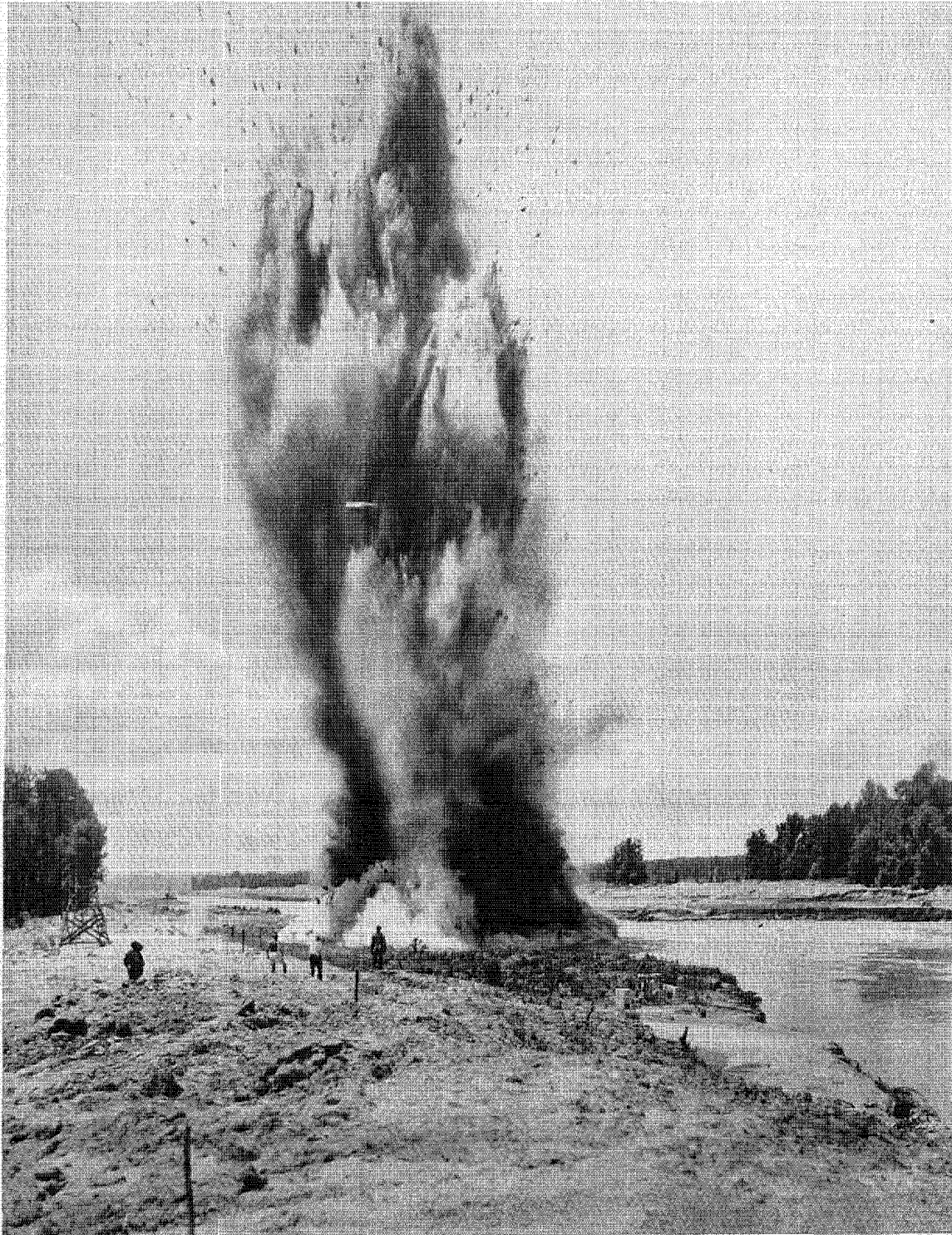
In the early 80's the company became interested in manufacturing high explosives. At that time there were only a few variations of straight nitroglycerin dynamite. Service needs called for others with special characteristics, and since then there has never been a time when powder chemists have not been busy developing new formulas. The result is that there are now 154 kinds and strengths of du Pont high explosives, to say nothing about variations of cartridge size. And electric firing devices of different kinds, sizes and strengths make up a total of approximately 1,600. The figures merely stress the fact that there is some du Pont commercial explosive suitable for practically every blasting need.

With the production of du Pont smokeless powder the company at once became interested in chemical transformations of cellulose. Research opened the way for an expansion of activities in this field and others related to it, and since the first

decade of this century there has been a steady development of du Pont facilities for manufacturing cellulose products and others required in plant and factory processes. Today, the company produces many kinds of chemicals and chemically-made materials. Merely to mention a few of the broad groups, such as fabrics, finishes, plastics, films, dyestuffs and other organic chemicals, is to suggest in part the great variety of products now being manufactured and sold by the organization.

The number of individual products included in these groups alone, if account be taken of variations of form, size, type, texture, color and the like, runs into many thousands. And the reason for that is easily explained: the industries served by the du Pont organization require quality products, and what is also important, they want them prepared to meet specific and exacting needs.

The du Pont Company has been in business for more than 130 years and, in common with every other manufacturer, its chief function has been to convert natural materials into more useful forms. We like to think that du Pont chemical products, because of their quality and adaptability, have contributed somewhat to the advance of civilization.



Yes, It Was a Spectacular Shot

Ol' Man River swept around Giles Bend, above Natchez, Mississippi, for years, and U. S. Government Engineers decided to eliminate that 23 1/4-mile kink by constructing a new channel 1 1/2 miles long. Most of the work was done with draglines and dredges, but at one place it became necessary to use explosives to remove a "high spot" in the channel where cypress stumps were imbedded in tough, blue clay. Here a detour channel had to be blasted. This view shows what happened when 1,500 pounds of du Pont Ditching Dynamite went to work

Keeps the Home Fires Burning

A new du Pont product called "Tetralin" insures a smooth, steady flow of gas to household appliances

By THEODORE KILLHEFFER

CONVENIENCE and ease of operation do not always go hand in hand with simplicity, yet the trend toward automaticity in modern mechanical devices has brought about refinements in design of control equipment that are well-nigh unbelievable. Witness the new fully-automatic gas range, so devised that the housewife just turns a handle and the gas lights itself.

Let us look behind the shining enamel front of this appliance and view the mechanism that causes automatic lighting of the gas. We find a very small pilot light constantly burning; when the cock is opened a small flow of gas, directed toward the burner, carries the flame to the main burner and lights the gas. The constant function of this new device, and others like it operating water heaters and other appliances, depends largely upon the purity of the gas furnished from the manufacturing plant.

The early days of gas lighting saw very crude devices for utilizing this new fuel, and careful purification of the product was not necessary. Gradually more efficient appliances were devised. Because these gave some difficulty in operation, analyses were made to determine ways to improve the quality of the gas. Today, efficient chemical staffs are a part of the organization of nearly every gas utility: their sole function is to insure quality control. Condensers, scrubbers and purification systems remove most of the impurities.

But these impurities are elusive things. Coal is the original source of all our manufactured gas, and considering that thousands of chemicals ranging from road-treating materials to the finest aromatics are produced from this crude, it is little wonder



Even this beautiful range is subject to the difficulties which du Pont's "Tetralin" will eliminate

that the production of this gas is accompanied by the production of innumerable other organic products, some easily identified and removed, others so minute in quantity and difficult to identify that they escape detection almost entirely until they cause trouble at the gas appliance.

Naphthalene, familiar to everyone in the form of moth balls, is one of the products made with gas that occasionally causes difficulty. It evaporates readily, and small changes of temperature and pressure will cause it to condense, so that small amounts may be deposited as the gas flows through the cold portions of the pipe. Of course, most of the naphthalene is removed at the plant, but enough eludes the purification equipment so that the alternate evaporation and condensation in the mains cause flakes of naphthalene to form, frequently in small pipes and at valves where it reduces the effective gas pressure and occasionally stops the flow altogether.

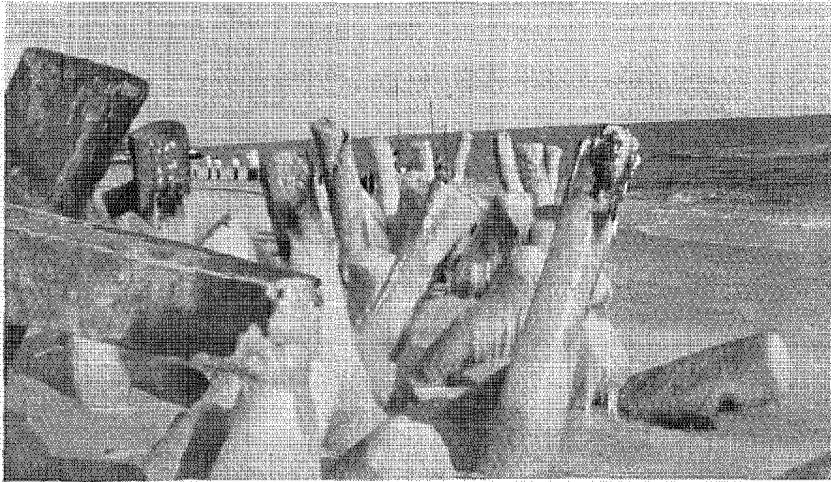
The du Pont Company has recently introduced a new solvent, called "Tetralin," which effectively and

completely removes this difficulty by dissolving all naphthalene present. "Tetralin" is an unusually powerful solvent for naphthalene and will dissolve about three times as much as any of the other usual solvents. Moreover, it has the important property of uniting with the naphthalene to form a stable complex compound so that the naphthalene will not again deposit at any point in the gas piping.

Impurities which produce gums in very minute quantities now attract considerably more attention than naphthalene. Gum formation is little understood, but it is assumed to result from certain chemical changes in some of the various compounds that are present in the gas, as gases, in very small quantities. As the gas is stored and distributed this action slowly continues. Gradually minute particles of sticky gum form and, as these coalesce, they fall against the sides of the pipe and on valve openings. At most of these points even the smallest deposits will cause trouble, and sometimes the valve will be sealed entirely.

"Tetralin" can be used with advantage to combat these formations. To a very great extent, it dissolves the gaseous compounds which form the gums; in addition, it retards the formation of these gum particles so that the gas is burned before they attain sufficient size to cause any difficulty.

Many gas utilities are now using this new solvent to improve their service. Small quantities of "Tetralin" are sprayed into the mains continuously with the gas, keeping the appliances free and supplied with gas at an adequate pressure to meet the requirements of a fully-automatic gas range in the home.



This is how the obsolete jetty at Beach Haven, New Jersey, looked after dynamite had cut the pilings off below the surface. Care was taken to regulate the charge so that the timbers would not be blown completely loose and carried out to sea

Beach Blasting Down Barnegat Way

Du Pont dynamite again proves its versatility by accomplishing a tough jetty-removal job quickly and at low cost

By STEPHEN J. RYAN

SEVERAL years ago, the Borough Council of Beach Haven, New Jersey, constructed four jetties of oak and chestnut piling along the beach to protect it from erosion. These jetties were planted in double rows so that they formed oblong structures about six feet wide and of varying lengths, depending on conditions prevailing on the beach at various points. The pilings were driven down twenty-five feet in the sand just as close together as possible. Some jetties had a hundred pilings on each side and three or four across each end; others were constructed of varying numbers driven in the same manner.

After Beach Haven had begun to develop rapidly as a summer resort, the authorities decided to erect stone jetties, extending out into the ocean for a distance of 100 or 125 feet to protect the beach against the ravages of the northeast storms.

The wooden jetties or clusters of pilings on the beach were no longer necessary, and as it was desired to

increase the size of the bathing beach and to extend the boardwalk, the Council decided to remove the unsightly wooden projections, which had come to be a menace to bathers. Workmen endeavored to pull each individual pile out of the sand by the use of a large tripod and block and tackle, aided by a water jet, but this was found too costly. The largest number pulled out in a day, with several men, was twenty-five, and the average was much less. This method therefore was abandoned as being impractical.

Council then wrote the Technical Section of the du Pont Company at Wilmington, Delaware, and requested that an explosives expert be sent to Beach Haven to look over the job. They wanted advice as to whether or not it would be practical to cut off the pilings at a safe distance below the surface of the sand by the use of dynamite. Mr. E. T. Wolf and the writer accordingly made a trip to the resort and decided that the job could

be done with explosives. We then asked the Mayor and Council to purchase a small quantity of dynamite and electric blasting caps, and to allow us to put in a "test day" to develop just what could be done. This test was so satisfactory that we were authorized to order the necessary materials to complete the job.

The result of the test day's work, using 60 per cent Quarry Gelatin dynamite, 1¼ by 8-inch sticks, was the removal of 133 oak pilings, each ranging from eight to ten inches in diameter. Eighty-two sticks of dynamite and about fifty electric blasting caps with 8-foot lead wires were used for that performance.

It was then decided to use 60 per cent Straight Nitroglycerin Dynamite and to try the propagated-detonation method, whereby the shock of one explosion sets off other charges in the same line. This worked with complete success and, due to the fact that an electric blasting cap for every charge was rendered unnecessary, the cost was further reduced.

It is of course impossible to punch or drill a hole through loose sand to place a charge of dynamite, for as soon as the punch bar or drill is withdrawn the hole closes with the loose sand. Therefore, it was necessary to use a jet of water supplied from one of the local fire hydrants. Several lengths of fire hose were run from the hydrant to the jet, with a reducing coupler and a one and one-half inch hose about twenty feet long in between. The water jet device itself was constructed of a piece of one-inch pipe, ten feet long, with an elbow fitting at the top for the hose connection. The small hose, of course, was used only for convenience in handling; one man alone could not handle a jet directly connected to a fire hose.

The method of loading and shooting was as follows: A supply of wooden

lath, ten feet long and one and one-half inches wide by three-quarters inch thick was procured from a local lumber dealer. For the regular charges, two sticks of 60 per cent Straight Nitroglycerin Dynamite were bound to the end of each lath with twine. For the detonating charge, three sticks were used, one of them primed with an electric blasting cap with eight-foot wires. Eleven charges were planted against a like number of pilings for each shot. The primed charge was placed against the center pile and the two-stick charges, without caps, were placed against each of the five pilings extending on either side. All were placed as close to an imaginary center line drawn between piles as was possible.

In placing the charges the jet is pointed down alongside the pile so that the water pressure displaces the sand. The dynamite, tied to the end of the lath, then follows the jet down to whatever depth is desired. We marked each lath with blue chalk at a point six feet from the dynamite and were therefore certain of having our charges at a uniform depth. Upon the withdrawal of the water jet, sand immediately fills in around the charges and lath, and the dynamite becomes firmly embedded. By using this method and placing eleven charges each time, we were able to load, connect and shoot 1500 piles in six and one-half days, or a daily average of 230 pilings.

To save on the cost of explosives, each charge was confined to a quantity sufficient to cut the piles off but not to displace them entirely from the sand. If they were blown completely free, they would be washed out to sea. This was not desirable, for the timber was needed for use in the local incinerating plant. Accordingly, a chain was hooked around the piles, and a horse was used to pull them out and drag them away to a safe place.

The total cost of cutting off the 1500 piles was 26½ cents each. This includes the cost of approximately 1200 pounds of dynamite, 558 electric blasting caps with eight-foot lead wires, and six and a half days' time for a blaster.

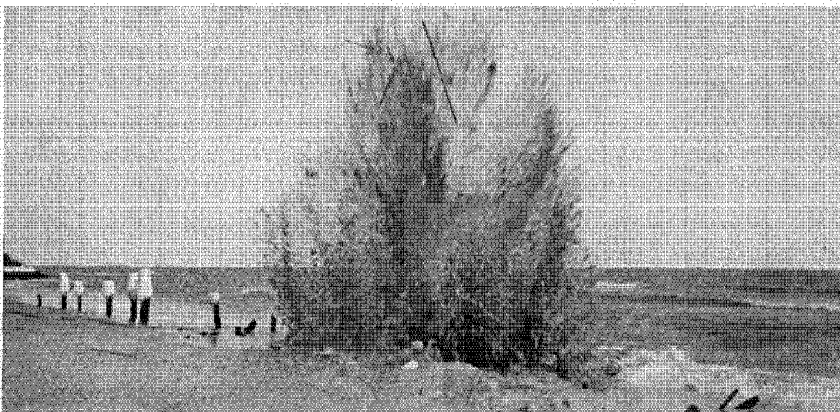
After each shot a crater was left in the sand, and it was easy to ascertain



A water jet was used to displace sand so that the dynamite cartridges, tied to the end of a lath, could be lodged, at the required depth, against the pile to be cut off



A row of charges in place and ready to be fired. The ice-capped pilings show the conditions under which the work was done



Only one charge at the middle of the line was primed with an electric blasting cap, but its detonation set off five charges on each side. Thus, eleven pilings were blown at one "shot"

that each pile was cut off clean, although there would occasionally be one that needed a small extra charge because a sliver of wood held it fast. These craters, due to the action of the water on the sand, filled in rapidly.

We had originally advised Council that we felt sure we could cut off 175

piles per day. Our actual average, however, was well over 200, with 318 for the peak day. Consequently, the cost was less than had been estimated. The authorities of Beach Haven have expressed their entire satisfaction with the work, and with the saving of time and money resulting from the use of dynamite.

We Congratulate the Railroads

• They have established a phenomenal safety record in transporting explosives over American and Canadian lines . . .

THE annual report of the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles, recently published, shows that for the tenth consecutive year the railroads of the United States and Canada have carried dynamite and black powder without a single fatality or injury to any person.

Considering that in normal times rail shipments of these explosives amount in the aggregate to more than 400,000,000 pounds, the significance of this remarkable safety record at once becomes clear. We salute those who have contributed to such a noteworthy achievement. It has been made possible as the result of an intensive campaign of education among railroad employees and because there has been constant supervision and enforcement of rules by officials of a bureau, which was formed in 1906 under the auspices of the American Railway Association.

From an article prepared by Colonel B. W. Dunn, chief inspector of the Bureau of Explosives, on the occasion of the Nobel Centenary last year, we gather the following information about the development of agencies that have a hand in shaping regulations for safe shipment of these and other products. In April, 1905, members of the American Railroad Association agreed that something should be done about the disastrous explo-

sions which were occurring, and the suggestion was made that identical rules should be put into effect by all the carriers and enforced by a new inspection agency representing them. However, some of the officials advocated a federal supervision and inspection service at the plants, which was wholly unnecessary as events have proved. So the original plan was eventually adopted, and in June, 1907, the new inspection agency called the Bureau of Explosives came into being.

One of the first important acts of the new agent was to bring railroad officials and explosives manufacturers together for a conference, which Colonel Dunn refers to as "long, earnest and, in the end, amazingly successful." In short, they agreed to a program of co-operation to insure the safe transport of explosives. As a result rules were prescribed setting forth the respective duties of shippers and carriers and both parties assisted the Bureau of Explosives in securing uniform enforcement of the regulations.

In 1908, through appropriate legislation, the Interstate Commerce Commission was authorized to prescribe the rules and keep them up to date, and after passage of the bill and a public hearing, the Commission decided to approve and promulgate the rules that the Bureau of Explosives and the shippers had prepared. Since

then all parties at interest have co-operated and the results have been most gratifying.

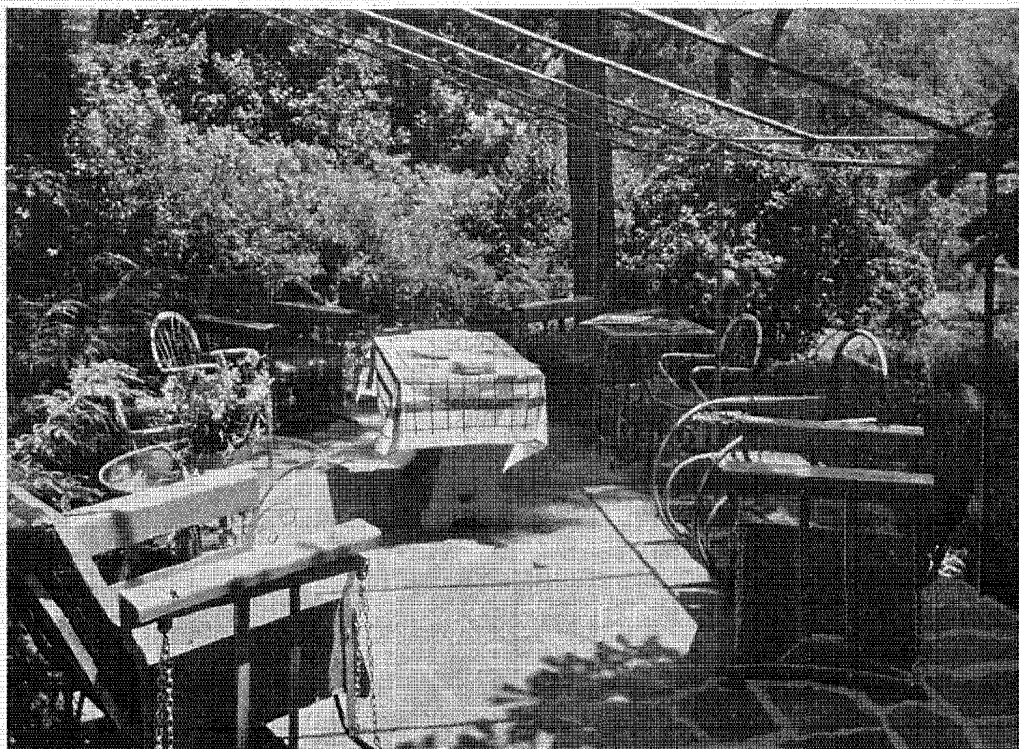
The remarkable ten-year record of safety in carrying explosives on the rails is current news, but it may be interesting to note that fifty-two years ago railroad companies were then undecided whether to accept dynamite as freight or not. At least the Pennsylvania Railroad Company officials apparently had some misgivings about it, for a chemist, Charles B. Dudley, was employed to make a study of dynamite manufacture at what is now the Repauno plant of the du Pont Company and to determine whether the product might be accepted for transportation or not. A printed copy of his report, under a date line of January 27, 1881, shows that he raised three pertinent questions about the product, in brief as follows: Would it spontaneously decompose and explode? How did it behave with sparks and fire? What would be the effect upon it of the jars incident to hauling, loading and unloading, and in transit; and of the concussion caused in coupling cars, and in smashing a car loaded with it, and in case of a wreck?

His investigation of the plant processes, described in some detail, evidently assured him that the product was made in a proper manner, and that the risk of spontaneous decomposition was very small. In his report, referring to operating practices, he paid the management this compliment: "I would say that everything I saw at the works betokens the

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A partial view of the Repauno Plant, near Gibbstown, New Jersey, in the early 80's. The arrow points to a building where shock tests were made to demonstrate to Dr. Dudley that it would be reasonably safe to transport dynamite over the lines of the Pennsylvania Railroad Company



Serving meals outdoors has its compensations in an environment like this. The cloth is of course made of du Pont Lacquered Fabric, which is both waterproof and washable

Your Humble Servants . . . Lacquered Fabric Tablecloths

- They are finding useful employment in many homes, which is the point stressed in this article

By PAUL W. SAMPSON

Mrs. PALMER—the name is fictitious, but the incident is real—was closing up her place in the Cornwall Mountains near West Point, New York, before going South for the winter. She was getting ready to put the linens and silverware in storage, but before packing everything in a crate, she decided to ask her maid and the cook what they would need for their comfort during her absence.

The first thing they wanted, it seemed, was the washable tablecloths she had used all summer at porch and lawn parties.

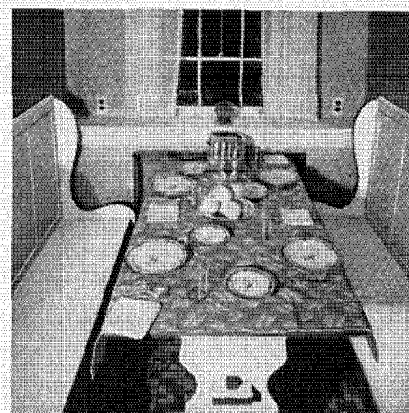
"You have no idea," they told her, "how much work these cloths have saved us."

Over at Westport last summer, where architects, artists and writers have taken over the whole of the Connecticut countryside, one member of the colony used these washable cloths as table covers and also had pieces of the same material made into sun umbrellas and cushion covers, all of these articles in a striking polka-dot pattern. Since their introduction,

lacquered fabrics have spread throughout this entire group.

The Presidential Range in New Hampshire rears its scraggly backbone high above Lake Squam. On the lower laps of the hills that cup this American "Como" are the summer villas of many people who have been spending their vacations there for years. They eat on broad verandas that face the lake, and our observant reporter tells us that their leisurely meals in a great many instances have been taken from du Pont cloths. These people, too, have decided to leave laundering problems out of the picture as much as possible so that

(Continued on page 24)



The stage is set for breakfast in this cozy nook. With the fruit on the table, the family will soon be relishing cereal, bacon, eggs and coffee served on a du Pont cloth

The Development of the Apple Industry

- The problem of growing commercial crops depends upon the use of chemical sprays to check and control destructive fungi and insects

By M. S. DENNIS

THE origin of the cultivated apple is hidden away in the recesses of the distant past. Probably most of the commercial varieties come to us from Asia and surrounding territory where this fruit had been cultivated for ages. At least, no apples were indigenous in America, with the exception of a few varieties of crab-apples.

The Pilgrim fathers evidently planted some seeds which they brought from Europe, for apple trees were growing in New England about 1650, and during the next 100 years extensive plantings were made there, in the Hudson Valley, on Long Island, and in the frontier regions of western New York State.

Legendary history indicates that the seeds were carried by pioneer settlers and scattered by Indian tribes, especially in western New York and possibly still farther west. At any rate, they had a hand in the early development of the American apple industry and were the forerunners of commercial orchards which started in western New York more than a century later. Presumably the first plantings were comparatively small and widely scattered; that the fruit was not of commercial quality as measured by today's standards, but these pioneers gave constant attention to cultural methods and marked improvements were made.

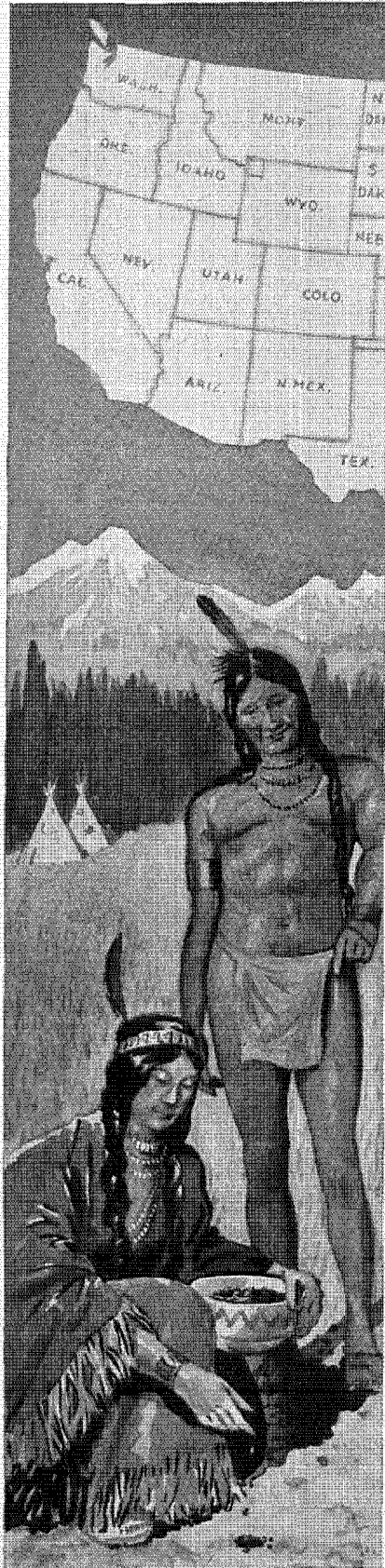
The introduction of nurseries in eastern and central New York gave a fresh impetus to the apple industry. It became known that grafted trees could be brought into bearing in advance of seedlings, and this spurred orchardists to more extensive operations.

About 1850 they began to sense some very promising commercial possibilities. There was a demand for quality fruit at profitable prices. Shipments were made to distant cities, and within a decade western New York State was recognized as the leading district where commercial fruit was produced.

It must not be supposed that apples were not grown elsewhere in the East. Choice varieties grown in many regions along the Atlantic seaboard had commanded a good price for many years before. In fact, as a matter of historic interest, apples grown by Thomas Jefferson on his Monticello estate in Virginia, were exported to England. However, in his day, it may be noted that in the western watershed of the Mississippi, apple trees were practically unknown, with the possible exception of some very limited plantings and some native crab-apples in scattered regions of the prairie states.

Oddly enough, what is believed to be the oldest apple tree west of the Rocky Mountains is still standing at Fort Vancouver, Washington. Planted in 1826, with seed brought from England, this tree is still bearing fruit and is a cherished landmark of the great northwestern apple-producing region.

Orchard development in the West Coast section appears to have started with the planting of trees in the Pajaro Valley, California, about the year 1853, when apple orchards of some size began to appear. Fifteen years later commercial shipments began to move out of this region.



Plantings in the Yakima Valley, Washington, began about 1876. Irrigation projects opened the way for commercial plantings about 1888. Meanwhile the demand for apples layer-packed in boxes began to increase rapidly. Extensive plantings were made in this district about 1894, and probably reached the maximum during the next two decades.

In the Wenatchee Valley of that state, apple-tree plantings also go back to about 1876, and irrigation to about 1883. The extensive development in this section followed rapidly after irrigation ditches were opened during the decade ending about 1913.

An apple-growing industry which was started on a small scale in the Grand Valley of Colorado in 1880, has been developed extensively since 1890.

As a producing center the Pacific Northwest during the past thirty-five years has had a phenomenal development. Starting with a small output of minor importance, this region now accounts for a substantial percentage of the total commercial apple crop in the United States. The irrigated valleys especially favor the growth of trees producing heavy yields of superior-quality apples. This, together with extensive machinery for handling the fruit and modern methods of packing, distributing and marketing it, has placed the industry there in a most enviable position.

Commercial apple growers, because of competition and the development of many new districts, have generally adopted specialized planting, scientific cultural methods, and modern ways of distributing their products. They have found that it pays well to do so, for a long period of time is required before a return can be expected from a new orchard. Overproduction, due to excessive planting, may result in a serious loss. Nature in a destructive mood may ruin the work of years. Such risks must be accepted, but orchardists are too wise to accept any that are susceptible to human control, such as the ravages of insect pests and fungous diseases.

It is common knowledge that many insects and fungi have retarded the progress of apple growing, but San Jose scale and the codling moth are

the most serious menaces. This moth, which is of European origin, is very destructive wherever apples are grown the world over, for it causes enormous losses. Known also as "apple worm," this insect feeds inside the fruit, and when infestation occurs early in the growing season, the fruit usually drops from the tree. In sections where codling moths are numerous, apples approaching maturity are frequently disfigured by worms causing small punctures in the skin. They may succumb to a poison sprayed on the surface, but it is then too late; the damage has been done.

In warm, dry regions apple growers have to cope with as many as four broods of the codling moth, and as a rule it requires seven spray applications to avoid serious infestation.

In districts subject to occasional cool weather and frequent rains, there are fewer broods to contend with, and usually they can be controlled by one to three good sprays. Satisfactory control of this pest can be secured only by knowing when the largest number of each brood will appear and by applying the control spray in advance of their arrival.

Because it is not possible to prepare a spraying schedule applicable to all apple-growing regions, orchardists do well to consult experts of Agricultural Experimental Stations for advice and to adopt the schedules they recommend for each local district.

Paris green was introduced in the United States to control the codling moth about 1880. Historians indicate that previously this product and others had been used in Europe. While various compounds were tried later, it was not until well after 1892 that arsenate of lead came into use, chiefly because it had been found to be satisfactory in controlling the gypsy moth in New England, and by 1910, it was used extensively to control the codling moth.

The use of arsenicals has in recent years focused attention upon the important question of spray residues, and how to remove them, so that the fruit can be marketed for domestic consumption and for foreign shipment. And for several years these problems have been carefully studied

(Continued on page 13)





This instrument is said to be the ultimate in radio design, performance and fidelity of sound reproduction. It is known as Philco's 16X model and has eleven tubes. Note the large inclined sounding board. And what a cabinet to grace a living-room!

children's room, a bedroom or to the servant's quarters.

However, at the present time, the advent of practical all-wave radios, over which programs from Great Britain, France, Germany and South American points can be heard as clearly as those from local stations, has led to a rapid replacement of receiving sets which are still highly effective instruments, even though they lack the ability to pick up foreign short-wave broadcasts. This, too, has been an additional help in the increase of radios per family. But perhaps the greatest and most potent reason has been the realization by the average family that a room without a radio in this day and age is very much like one without an electric light. So, in the better-class homes today, you are quite likely to find an all-wave Philco in the living-room, with one of these new radios.

The hours between 5 P. M. and 7 P. M., which were formerly just about "low tide" from the standpoint of entertainment provided, have become in many homes the most absorbing entertaining hours of the day. The master of the house on his return from the office previously had little choice save between the "kiddies" program and silence, with the latter the sure and certain winner unless he suffered while the children listened to their favorite blood-and-thunder serial or to some other program with very little to recommend it to the adult mind. But now in those hours before dinner, he can tune in the late dance programs from English and Continental hotels, and at 7 P. M. hear the deep-throated voice of old Big Ben tell London — and all the world through the magic of short-wave radio — that the hour of midnight has arrived on the banks of the Thames.

It is this ability to tune in European

"Multiple Radio" Homes Increasing in Number

Formerly a single receiving set served the needs of an entire household, but it is not uncommon now to find one in each room

By CHARLES CULP

Two factors at least have contributed to the growth of multiple-radio homes, in the opinion of the Philco Radio and Television Corporation of Philadelphia, the world's largest radio manufacturer and an enthusiastic user of du Pont lacquers. The first of these has been the reluctance

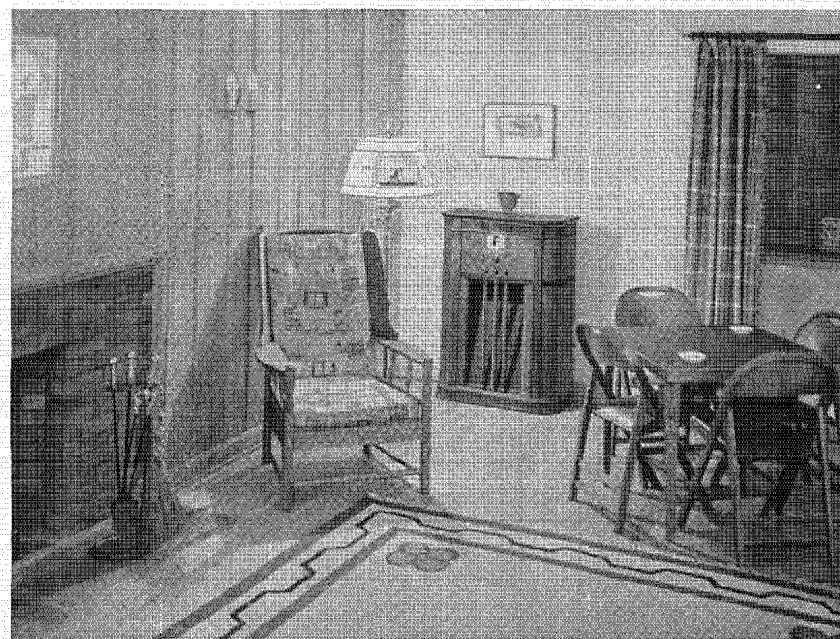
of home owners to throw away a set which cost good money in the past. Even when a new set, with better tone and greater selectivity has been given the place of honor in the living-room, the old radio has in many cases remained in the household, although usually it has been relegated to the

For a summer cottage or game room, the model called 14X is well recommended. It is available in four cabinet styles, each with the inclined sounding board, which is a patented feature

stations at their brightest moments that has made enthusiastic short-wave addicts out of men and women who would not recognize a megacycle in broad daylight. But they are not concerned about that, so long as they are able to tune in stations fractions of a kilocycle apart through the simplified method of operation Philco has provided in its all-wave models.

For a playroom, game-room, or "call-it-what-you-will" room, where the scene is likely to shift later in the evening, short-wave reception is less important. When the clock strikes twelve in the Eastern United States it is 5 A. M. in London, and no English radio stations are on the air. But it's only 11 P. M. in Chicago—and only 9 P. M. in Los Angeles—and with a Philco 14X, dance music can be brought from the cities to the westward for many hours to come. So in the well-equipped radio home today, you are apt to find in the playroom a 14X, the second Philco in the house.

What radios may be installed elsewhere in the home is largely a matter of personal taste and personal habits. Some older people who retire early, and still want to listen to the radio before they go to sleep, may prefer a larger, more powerful radio than others for whom the distance range and volume of one of the Philco com-



compact models is quite sufficient. But, leaving questions of personal preference aside, one thing is sure: the radio has entered the bedroom today and in many homes has become as much a fixture as the bed itself.

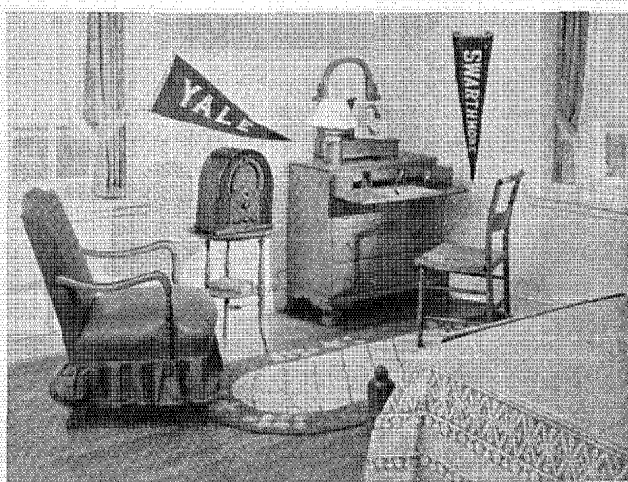
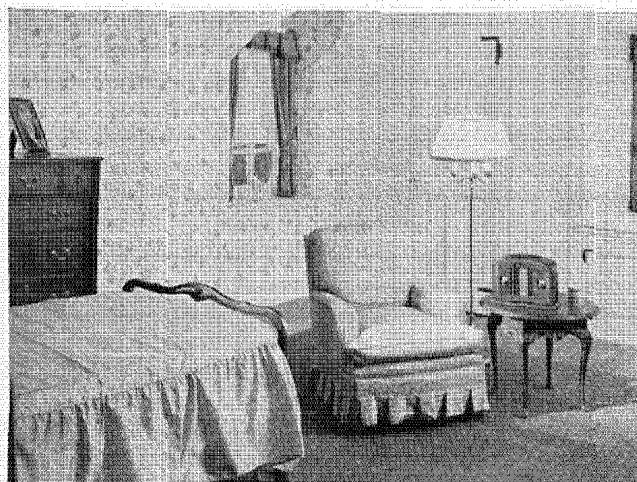
The enjoyments to be had through radio reception are, of course, not restricted by any means to home owners and to people who live in apartment houses. Better and more complete equipment is nowadays found in hotels, business offices, schools, colleges and public institu-

tions of every kind. One illustration on this page shows a set well suited for collegiate needs.

The Philco line includes radios for every possible use and in every style of cabinet. In addition to the models shown in the accompanying illustrations, Philco also manufactures automobile radios that can be installed in any car, as well as special custom-built sets which are especially designed for seventeen of the world's leading motor-car manufacturers.

Du Pont lacquers have been used extensively throughout the Philco plant and much of the external beauty of many types of these popular radios is due in large measure to the application of these du Pont products.

Nowadays a room without a radio is held to be incompletely appointed. Model 54C is popular for bedrooms, and 608, right, is a favorite among college students





*"That's a snappy-looking suit, Andy . . .
Nice material, too. Tell me where you got it"*

weight for fall and early spring, with auxiliary wraps for the cooler days; and in the summer, zephyr-like fabrics in dresses cut to permit the utmost in body freedom and comfort and to allow full exposure to the healthful, beauty-inducing rays of the sun.

But man, taken by and large, still grumbles through the summer in clothes that have little relation to the requirements of the season. Many of them actually wear suits built to repel the icy blasts of winter. They realize well enough that they are not being comfortable, but sometimes fail to appreciate that they also are being grossly uneconomical. Heavy suits wear out quickly when dampened by the excessive perspiration they induce when worn in temperatures to which they are unsuited.

Other men in sheer desperation stalk into a haberdashery and buy a summery-looking suit even though they know it is impractical for everyday use. They may be somewhat self-conscious in wearing it at the office, but they accept that situation as the lesser of two evils. They prefer a garment that is cool, regardless of the fact that a sweltering session at the desk probably will leave them looking like last week's wash.

If man has ingenuity enough to produce satisfactory garments for women, why does he not invent a material which can be made up into suits that are smart yet dignified, comfortably cut and cool, yet really practical to wear? The answer is that he has. That's the latest news in the men's wear industry.

One of the leading designers and manufacturers of garment materials in this country is the Farr Alpaca Company of Holyoke, Massachusetts. This company has spent a great deal of time studying men's likes and dislikes in summer wear. As might be expected, it was found that there is a dearth of really satisfactory fabrics. The expense of keeping the conventional type of garment in a fresh condition also has been an important factor in preventing the more wide-

"Emancipation Proclamation"

"Farr-East Summer Suitings" are designed to free the male of his warm-weather clothing problems

By E. C. HARRINGTON

A REVIEW of fashions down through the years shows that man, in the role of designer, manufacturer and style promoter, has played an important part in helping members of the so-called weaker sex to emancipate themselves from the confinements of the wasp waist, the bustle and other epitomes of discomfort. Styles of

female dress have been brought about that are at once appropriate to the occasion, easy to get around in, and good to cast the eye upon.

The ladies have long since adopted as a mode comfort clothes that change radically with the season. They have furs and rich materials to keep out the chills of winter; clothes of lighter

spread adoption of light-weight suitings.

For years the Farr Alpaca Company has specialized in the development of men's wear summer suitings, and has therefore experimented with various materials and combinations in an effort to produce a suiting that would satisfy all of a man's requirements. As a result of recent research, Farr has developed a new line of fabrics that is introduced under the name "Farr-East Summer Suitings."

These fabrics are made of Du Pont Spun Rayon and silk and produced in different weights and in both plain and novel weaves. They are offered in fresh, light colors and in textures that are really cool and comfortable. This material has been found to hold its press extremely well, and it is so durable that it can be washed repeatedly without injury.

Men's suits made of "Farr-East" fabrics are distinctly summer gar-

ments. The content of Du Pont Spun Rayon gives the cloth a coolness that is noticeable even in touching it. Due to the rayon-silk mixture, these suitings have an unusual softness of texture, yet the material is as firm as those made of worsteds and wools. As a result of these luxurious properties, suits made from the new fabric are admirably adapted to both business and social wear. They are styled to be good looking without being extreme and the new featherweight fabric insures coolness and comfort, at the same time withstanding the most severe wearing conditions.

"Farr-East Summer Suitings" were first placed on the market last year. Men who bought and wore the suits came back with the most eloquent testimony that can be accorded any product—re-orders. As a result the Farr Alpaca Company has gone into large-volume production of the fabric for the coming season. Ready-

made suits fashioned from this material are now being produced by many of the largest and best manufacturers of men's clothing throughout the country, and they will be sold in leading men's shops. Information as to where they can be purchased may be had by writing Du Pont Rayon Company, Inc., Empire State Building, New York City.

Men who have their suits made to order will do well to ask their tailors to procure samples of the fabric, so that patterns and styles may be selected without the usual rush when warm weather comes.

It develops, then, that the male has at last caught up with himself in the fashion field by creating for his own wear summer garments that are comfortable, practical and attractive. The ladies, who have long enjoyed a comfort mode for which he is in part responsible, need no longer inspire his envy.

The Development of the Apple Industry

(Continued from page 9)

by research workers with years of experience in the chemical and insecticide fields, and they have finally developed a product containing manganese arsenate.

They also found that manganese arsenate, as ordinarily produced, could not be employed satisfactorily for codling moth control. That fact has grown out of their field research in the great apple producing districts of the Northwest.

The real problem has been to discover an insecticide that would be reasonably safe from spray injury; that would adhere to the foliage and fruit long enough to control the codling moth, and that would contain the proper elements, so that the spray residues might be removed economically without injury to the fruit. Chemical science, after five years' experimental testing in orchards, has developed a non-lead insecticide known as "Manganar." This product employs in its production manganese arsenate which

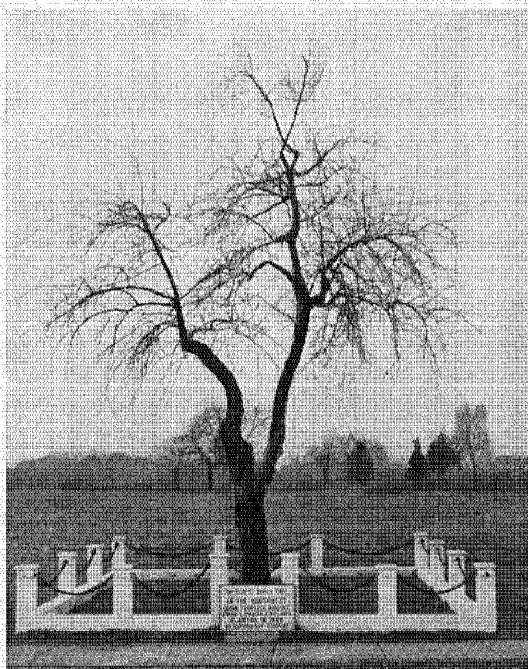
is produced under special manufacturing directions to assure proper quality. The spray residues, however, are capable of being removed by prevailing

washing methods usually employed for that purpose.

"Dutox," a fluorine compound, has also been produced after several years of research work in the laboratory and in the field. Like "Manganar," it has been developed thoroughly in the Pacific Northwest apple-growing regions, and has been found to control satisfactorily the codling moth. The spray residues can be removed by using an easily-prepared alkali wash.

Commercial apple growers must use effective sprays to produce marketable fruit. Much progress has been made in controlling the codling moth since Paris green was first introduced for that purpose, and doubtless further progress will be made, perhaps, before very long. Meanwhile, additional information about "Manganar" and "Dutox" has been published in

folders, and these will be gladly furnished upon request to The Grasselli Chemical Company, Inc., Advertising Department, Cleveland, Ohio.



The oldest apple tree in the Northwest, grown from seed brought from London, England. Planted in 1826, by Hudson's Bay Company

Applying "Pyralin" to Cloth

Various combinations and reproductions are made for specific purposes and some of them are referred to here

By R. T. ELLIS

THE uses of du Pont "Pyralin" are almost innumerable, for the plastic of that name combines certain properties and qualities which are not found in natural materials, and it is supplied in a variety of usable forms. Much might be written on that subject, but for the present, let us consider briefly how "Pyralin" sheeting is combined with cloth for certain purposes.

For years du Pont cleanable collars have been produced and sold through regular retail channels in this country. The procedure of making them is first to laminate a piece of fabric between two sheets of the plastic, making a three-ply sheet with a fabric center. Then a linen finish is applied on the surface by placing a piece of real linen between two of the laminated sheets and applying heat and pressure. When the linen is removed, an exact reproduction of its texture is left on the surface of the pyroxylin. The stock is then cut to size and made into the finished product. These collars have the appearance of real linen and are very durable, non-wilting and can be readily cleaned with a damp cloth.

Next, consider some accessories of interest to women; handbags, for example. Not so long ago merchants became aware that manufacturers were developing some very attractive bags by using "Pyralin" laminated to a cotton fabric; that the cloth material was well suited for making bags that were of a practical, durable, good-looking and, most important, salable kind.

A few months ago a few of these handbags appeared in a well-known department store in New York City. Stylishly designed, made of this laminated material in beautiful shades of white, brown, blue and black, these bags immediately became popular.

Sales clerks had trouble keeping their counters stocked. More were purchased, and women bought them as fast as they were shown. Other stores rushed orders to the manufacturers, and at this writing, a vogue for these handbags has swept the country. Almost every department store, luggage and gift shop now carries an extensive assortment in various colors and styles.



The application of cotton fabric to pyroxylin plastic is a very simple process. After an unpolished sheet of "Pyralin" is straightened, it is given a coating of cement on the side to which the fabric is to be applied. Incidentally, this cement, a standard solution, is the same as that used in joining together two pieces of the plastic, and after a sheet is coated with it and allowed to dry for about fifteen to twenty minutes, the surface becomes "tacky." The fabric is then placed on the coated side and carefully smoothed with the hands to eliminate any wrinkles that may be present. The composited sheet is then passed through a pair of rolls which insures the complete removal of all uneven areas. Permanent adhesion of the fabric to the plastic is secured by placing the sheet between finishing plates in a press-polish machine and subjecting it to both heat and pressure, and then the usual polish is applied to the surface.

In the finishing operation, while the composited sheet is still in the press-polish machine, it is possible to vary the depth of penetration of the cotton fabric into the sheeting material. If it is desired that the finished stock shall show the effect of a fabric in relief, a piece of the cloth is placed over the cotton instead of a smooth finishing plate. If it is desired to embed the fabric into the sheet stock, a smooth finishing plate is placed next to the cloth and more heat is applied in the press polishing opera-

This handbag is made of black "Pyralin" laminated to cloth. As shown here in a flat-pouch style it is a smart accessory for the evening wrap of black velvet



Kidskin shoes are popular among women. This model is wearing a pair of that kind with scuffless heels

tion. Variations of technique thus enable the operators to produce fabric finishes of many different kinds.

For some purposes it is desirable that a certain amount of seasoning be given to the cloth-backed pyroxylin sheet in order to remove the solvents in the cementing solution. So the sheets are hung for a few days in heated seasoning vaults, but this is not always essential and depends upon the customers' requirements.

Shoe manufacturers soon realized the possibilities of this treatment of "Pyralin," with the result that today many of the fabric shoes have "Pyralin"-covered heels in some fabric finish such as moiré, linen, satin and the like. In fact, any cloth texture may be transferred to the sheeting material and used as a covering for wood heels, taking the place of the actual fabrics. The problem is merely one of embedding the fabric design

into the pyroxylin, and when the fabric is pulled off, the design is left permanently on the surface.

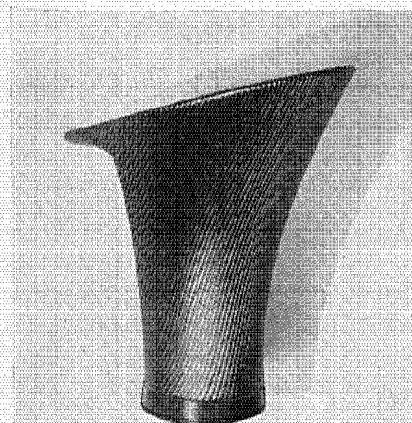
The outstanding properties of a "Pyralin"-covered heel are, of course, its durability and the fact that it does not show scuff marks. Women's shoe heels are subjected to rough wear continually. To mention office chairs, brake and clutch pedals of automobiles, curbstones, subway grates and the mis-steps of partners on the dance floor is to suggest some of the accidents that may easily leave ordinary shoe heels badly scuffed and marred. But pyroxylin, because it is inherently a hard, tough substance, is not affected by such exposures. As a heel covering it can be depended upon to retain its good looks even when the shoe itself is ready to be discarded.

Laminated fabric, for gas masks, has been developed on a purely experimental basis. The fact that it is structurally strong and that it is impermeable to gases to a remarkable degree appear to recommend the

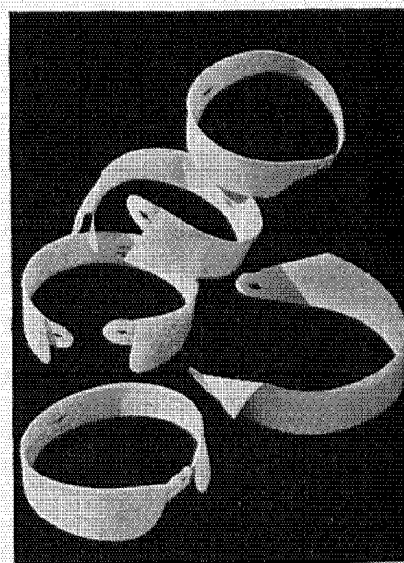
material, but it is still in the experimental stages.

Fabric material is also being laminated to "Pyralin" by various manufacturers and then applied directly to wood. This is done primarily to secure more perfect adhesion. Casket manufacturers, for example, have discovered that if pyroxylin plastic is to be applied to wood with cement, quicker and more satisfactory adhesion is secured when cotton fabric is first applied to the wood. The same practice is followed by musical instrument manufacturers, who also laminated glistening tinsel fabric between two pieces of transparent pyroxylin and use the composited sheet to enhance the beauty of their products.

The foregoing notes may suggest to some manufacturer that "Pyralin" and cloth might meet his particular requirements better than the material he has been using. Perhaps if we knew his problem, someone in this organization could furnish information that would help to solve it. At any rate, inquiries will be welcome and will receive prompt attention, if directed to Department 25, Du Pont Viscoloid Company, Inc., 350 Fifth Avenue, New York City.



Left—Wood heels are covered with "Pyralin" in many fabric effects. This one simulates faille cloth although it possesses a scuffless surface



Right—Some of the current styles of Du Pont "Pyralin" Collars. They have the appearance of linen, but can be kept clean with a damp cloth

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The Railroad Industry

THE upsweep of this country from an unexplored wilderness to a mighty industrial nation is inseparably linked with the development and extension of its railroads. Only a little more than a century ago the first enterprise of this kind was started in the United States. Only sixty-five years ago the first transcontinental line was completed at Promontory Point, Utah, with the driving of a golden spike. Engraved on one side of this spike were these words: "May God continue the unity of our country as this railroad unites the two great oceans of the world." That prayer has been answered, for since 1869 rail lines have been projected to every State in the Union, a vast network that represents one-third of the world's total railway mileage.

We are all beneficiaries of the service rendered by this great transportation system that has made possible a nation-wide development of trade, commerce and industry; for the railroads opened the way to resources that otherwise would not have been touched, perhaps, for centuries.

In the early days, physical obstructions were the chief problems the railroad companies faced. Today, it is the competition of newer transport agencies and other difficulties that give concern. But with streamlined trains and other improvements in rail transport facilities for fast, safe, dependable and economical service, the industry may be expected to function

importantly for generations to come.

The du Pont Company has long supplied the railroad industry with essential materials to clear rights of way; to drive tunnels through mountains and under rivers and to advance rail lines through rocky hillsides. It must be remembered, too, that explosives also serve in mining coal and iron and other metallic ores; in quarrying rock for roadbed ballast; in constructing dams for hydroelectric power development. They are indispensable materials to the railroad industry in many ways.

For equipment, operating and maintenance needs, the railroads also require a great many other du Pont products, such as coated fabrics, finishing materials of various kinds, refrigerants for air-conditioning uses and a variety of chemicals.

The cover illustration is, therefore, a respectful salute to a great key industry which has been a valued customer of the du Pont Company since the first railroad was built.

Protect the Children

WITHIN the next few weeks children throughout the country will again be playing in lots and open fields. Exploring parties will be organized, and the many nooks and crannies, which have held their secrets through the winter, will be visited for treasure.

Many times, however, the "treasure" found will be small copper cylinders, closed at one end, and loaded with fulminate of mercury, a very sensitive and powerful explosive. They have been left about by careless workmen—sometimes along highways, near quarry operations, and many times in fields where they have been used for ditching, stumping and other blasting operations.

Blasting caps are necessary implements for industrial progress when in the possession of men experienced in their handling and use. But they are dangerous playthings for children.

Records show that in many cases eyesight has been partially or wholly destroyed; fingers have been blown off; hands maimed; feet injured, and other parts of the body badly lacerated. Permanent disfigurement is a

more or less frequent result, and some children die from their injuries.

Parents will do well to instruct their children about the risk of playing with these bright copper cylinders. A warning now may save much suffering later.

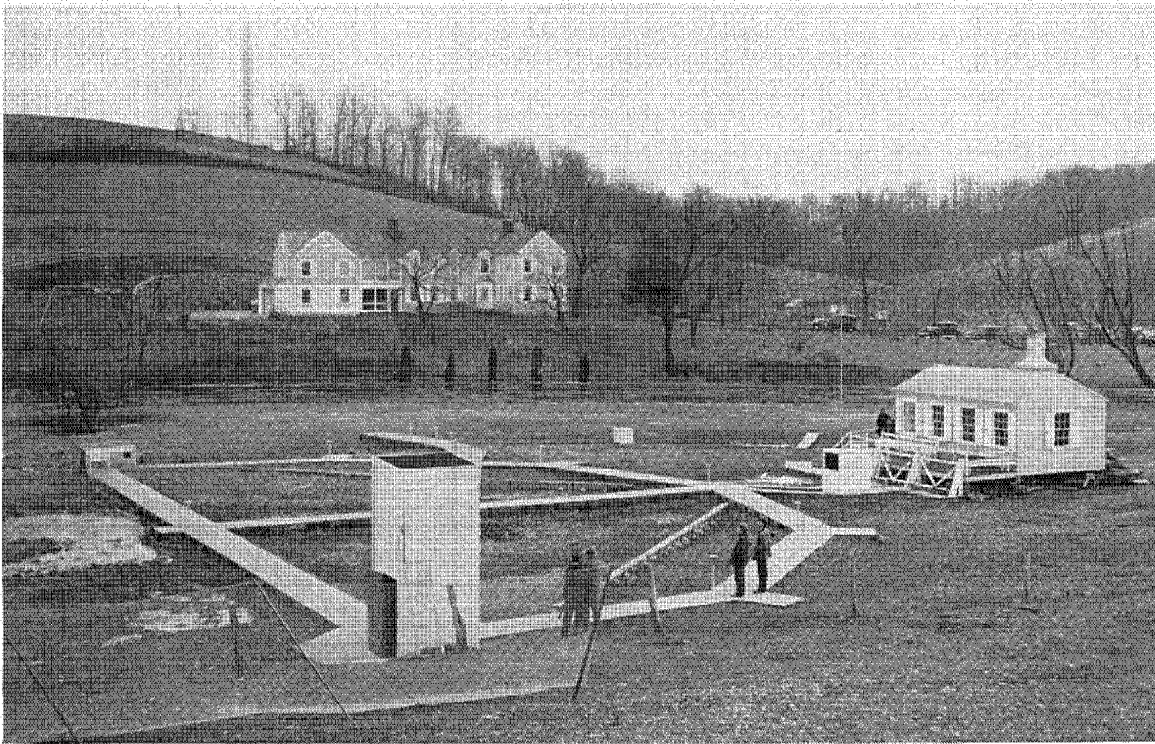
Across the Desk

As an indication of progress, we note in "Old Hickory News," which is published in the industrial city of that name in Tennessee, that work has started on the construction of 200 more houses for employes of the Du Pont Rayon Company, Inc. A number of them will be of brick veneer structure, and provision has been made by the architects so that no two homes adjoining will be alike in appearance. Architects do well in providing for a pleasing variation in that respect, if only to avoid monotony.

The return of more seasonable weather prompts home gardeners to get an early start with flowers and vegetables. Many will make use of hotbeds and coldframes, which will be removed from dusty cellars, garages and barns and duly installed in some favored place where there is a southern exposure. Those who build their own will be interested to know that a du Pont product called "Cel-O-Glass" is well recommended for the purpose. Lighter than window glass, flexible, and with other advantages, it meets the requirements better than most other materials.

Remington's Display in New York City

A SUITE of rooms in the Empire State Building has been leased by Remington Arms Company, Inc., for New York quarters. Included is a large display room that has been specially decorated and furnished. There are on exhibition complete lines of Remington shotguns and rifles, shotshells and rifle and pistol cartridges, and an extensive display of cutlery. The facilities are for the convenience of local and out-of-town customers.



Where members of the Burris Run Skeet Club, near Wilmington, Delaware, enjoy their sport. The low trap is arranged so that it may be turned half-way around and used for trapshooting

Skeet Challenges the Shotgun Shooter

This year-round sport has quickly gained nation-wide popularity. A few notes here for beginners who are taking up the game

SKEET has been called "a highly exasperating form of clay-bird shooting," nevertheless, it has a compelling fascination for the ever-growing number of its devotees. It is not an easy game to master, but it has a "come-on" that keeps the would-be expert hopefully plugging away until he can score a "twenty" or "twenty-one." And then, perhaps, at the next shoot he has a "sinking spell" and breaks only "seventeen," which so hurts his pride that he starts anew to practice with a high resolve to get this game "down" for good. As in golf, so in Skeet, par scores reward only those with more than average skill. It is the zest of struggle to attain perfection that keeps all sports alive.

Less than a decade ago Skeet was a new sport. In 1926, W. H. Foster, editor of *The National Sportsman*, and the late C. E. Davis, both of Andover,

Massachusetts, undertook to provide a pleasing and informal variety of practice for field shooting by means of clay targets and traps. They invented this new game without realizing that it was destined to gain nation-wide popularity in a surprisingly short time. Born in the Bay State, this game was christened "Skeet" by Mrs. Gertrude Hurlbutt, of Dayton, Montana. She thought this old Scandinavian form of the word shoot would be apt, and Messrs. Foster and Davis thought so too.

At Ballard Vale, Massachusetts, they set up two traps, one to throw targets from a high point and the other to start them flying from a position near the ground. They drove stakes to mark stations from which the shooters would aim at the elusive clays from a variety of angles, and when all was ready friends were in-

vited to try this new game. We are told that there was much talking and joking between shots and many a "bird" got away untouched, but shooting in this manner proved to be real sport and a general good time was enjoyed by all.

From this simple start, Skeet has grown steadily in favor among sportsmen. Today, there are more than 800 Skeet clubs scattered throughout the United States and several foreign countries. Leagues and state associations have been organized. Championship tournaments are held regularly, with shooters manifesting the same interest in breaking Skeet targets that they have all along shown in the older sport of trapshooting. Of course, developments and refinements have been added since Messrs. Foster and Davis invented the game. It still affords excellent practice for field shooting,

but nowadays men and women who never hunt live birds, find Skeet entirely sufficient unto itself.

It is not our purpose here to go into the details of field layout, equipment, rules, guns, loads and the like. Previously, in this magazine, the reader has learned that a round of Skeet calls for a series of twenty-five shots—two targets from each of the eight stations, representing incoming and outgoing "birds"; four pairs of doubles, that is, two targets thrown simultaneously, to be shot at from stations 1, 2, 6 and 7, and one optional target, the twenty-fifth, which the shooter may call for at any station he may choose.

Assuming that the ambitious beginner already knows what is required, the question of shooting technique arises. How may one learn to excel at this sport? What are the fundamental facts to bear in mind? Prominent Skeet shooters and other close students of the game are able to give the tyro some useful pointers, and we shall hope to render a service by quoting excerpts from *Skeet Shooting Hints* and The du Pont Skeet Handbook as follows:

Frank G. Treager, Jr., of Roseland, New Jersey, is the 1933 champion of that state, having broken 100 straight. He was also high gun at the Tri-State Shoot, where he broke 99 x 100 in competition with the expert shooters from Pennsylvania, Delaware and New Jersey last year. Mr. Treager has this to say about the shooter's stance:



Mrs. Anna Mary Vance, of Waban, Massachusetts, takes aim at a flying Skeet target, and with usually satisfactory results. In 1932, at Lordship, Connecticut, she was Runner-up in the Great Eastern States Ladies' Championship event, but in 1933 she won the title

"The shooting position is the same as the field position when expecting to flush a bird; that is, the gun is held down and somewhat forward in the position of 'ready,' and the target is called for. The gun is thrown to the shoulder after the target is seen in the air, and not before. A free, easy style of constant swing is required, and following through even after pulling the trigger while maintaining a constant lead on the target, is necessary. Targets should be broken as near as possible to the center of the Skeet field and over Station No. 8. To sum up, the beginner should cultivate: alertness, concentration, easy stance or position, swing, lead and follow-through, and practice to improve skill."

Should the shooter use both eyes or close one when shooting? In the opinion of Russell W. Elliott, of Kansas City, Missouri, who is a nationally-known shotgun expert and the author of "Vision in Shooting," the correct answer depends upon individual characteristics of vision. We gather that if a shooter cannot see equally well with both eyes, that fact has its bearing not only upon the immediate question, but it also determines whether it is better for him to shoot from the right shoulder or not. If his left eye is stronger, he should shoot from that side, and vice versa. In general, Mr. Elliott notes:

"It has not been my experience that both eyes being open is a material asset in single target shooting, as there is plenty of time for the one-eyed shooter to pick up the target and break it before it is out of range. However, when shooting doubles in Skeet or in the field where a slow shooter is at a disadvantage, then the larger field of vision to pick up the first glimpse of the target gives the man who uses both eyes a material advantage."

Skeet is not only a man's game, but it also offers unlimited entertainment and recreation to women, the seasoned shooters as well as the beginners. Women who are taking up this sport will do well to accept the following hints from Mrs. A. M. Vance, of Waban, Massachusetts, who is a particularly well-qualified mentor. She won the Great Eastern States' Ladies' Championship at Lordship, in 1933, by breaking 90 x 100.



Frank G. Treager, Jr., of Roseland, New Jersey, was the state champion Skeet shooter in 1933, as well as high gun in the Tri-State Shoot. He is defending his laurels in the 1934 State Championship Event as this issue goes to press

She says the secret of good Skeet scores is "absolute concentration," and she has developed that faculty through a series of "reminders" which she mentally repeats to herself just before each shot. For example, to quote:

"At the stations from three to six inclusive . . . I think 'shoot ahead and under,' having in mind a definite picture of the shot as successfully executed at that particular station in the past. This picture, which consists chiefly of the gun muzzle in relation to the target, must be conjured up with photographic clarity in spite of all distractions and held paramount in mind during the interval between the call for the target and its appearance."

At Station No. 8, with its two incoming shots, she thinks, "Be quick!" during the same period.

When shooting at doubles, she endeavors to shut out of her mind the fact that two targets will appear in the air. She concentrates entirely on the first one to be shot at, and, when it is broken, makes a quick recovery and breaks the second.

The prowess of women on the Skeet field and their possibilities of qualifying as experts are suggested in a few lines by Gertrude L. Travis, editor of the Women's Department of *Skeet Shooting*, as follows:

"To bear out the assertion that a woman can become a good Skeet shot and can get a full measure of enjoyment from the sport, we have only to look at a considerable list of women, who, without previous shooting experience, are engaging in regular events often with scores well above those of more experienced male competitors. We can turn,

as an extreme example, to an eleven-year-old girl who recently broke seventy-three out of one hundred targets in the most important Skeet-shooting event yet staged. Certainly, if this little girl can acquire the skill and display it so successfully in competition, the normal women should be able to do the same."

Scoring ability at Skeet is developed by practice, but it is put to the acid test in tournament events, and it is well worth while for the beginner to accept the counsel of those who know the psychology of competition. The following thoughts by Robert Churchill in his book, "How to Shoot," are well recommended:

"Concentrate on each shot as an entirely independent, all-important thing in itself. Forget and designedly shut out everything else.

"Never allow yourself to become overconfident—this breeds carelessness . . .

"Ignore your score and, of course, that of others.

"Forget there is a finish. The score book always shows up the man who counts his score; he usually starts well and finishes badly.

"There is only one competitor to beat—that is the 'bird.'"

What kind of score may a novice at Skeet reasonably expect to make?

No one can answer that, for there is a great difference in natural aptitudes and abilities. But perhaps Captain E. C. Crossman, in his book, *When Skeet Birds Fly*, comes fairly close to an average when he says:

"The beginner, no matter how much field experience, who breaks just half the birds in the first rounds is shooting well. The average man does not break half of them. From fifteen up is a good, respectable score; twenty or more is in the class of experts; staying in the twenty class is fine, consistent shooting—but few shooters do it. They may average twenty, but they slip below it quite often."

If it be true that the joy of accomplishment is the measure of difficulties met and overcome, one can well understand why shotgun shooters find Skeet so satisfying as a challenge to their abilities, for it is not easy to attain or maintain consistently high-scoring averages.

Skeet numbers among its devotees people from every rank and station in life, men and women, captains of industry, finance and trade as well as their humblest employes. And because it is a democratic sport where all meet on a common level by custom and common consent, it has gained a wide-

spread popularity among all sport lovers.

Many long-established gun clubs have introduced Skeet-shooting for the enjoyment of their members, which is also true of a long list of golf and country clubs identified by such names as Detroit, Kirtland, Annandale, Sleepy Hollow, Sea Island Beach, Del Monte, Piping Rock, Westchester, Seven Pines, Philadelphia and others of equal standing.

It is also noteworthy that many prominent individuals of large means have provided Skeet grounds on their private estates for the entertainment of house guests. Among them may be mentioned Walter Chrysler, H. B. Joy, R. J. Reynolds, W. R. Coc, Col. Robert L. Montgomery, Mrs. W. W. Aldrich, Emory L. Ford, William B. Osgood and others.

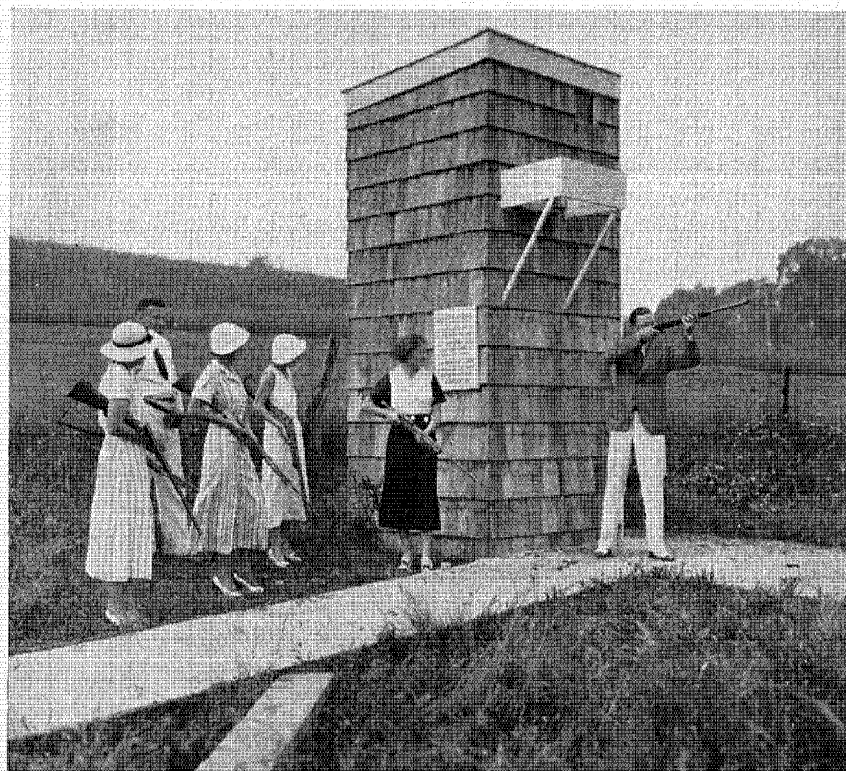
It would seem that the motion picture colony in California might well be surfeited with thrills, yet such screen stars as John Barrymore, Samuel Barrymore, Colt, Robert Montgomery, Jackie Cooper, Ned Sparks and Jack Holt have taken up Skeet and they are reported to be enthusiastic about the game.

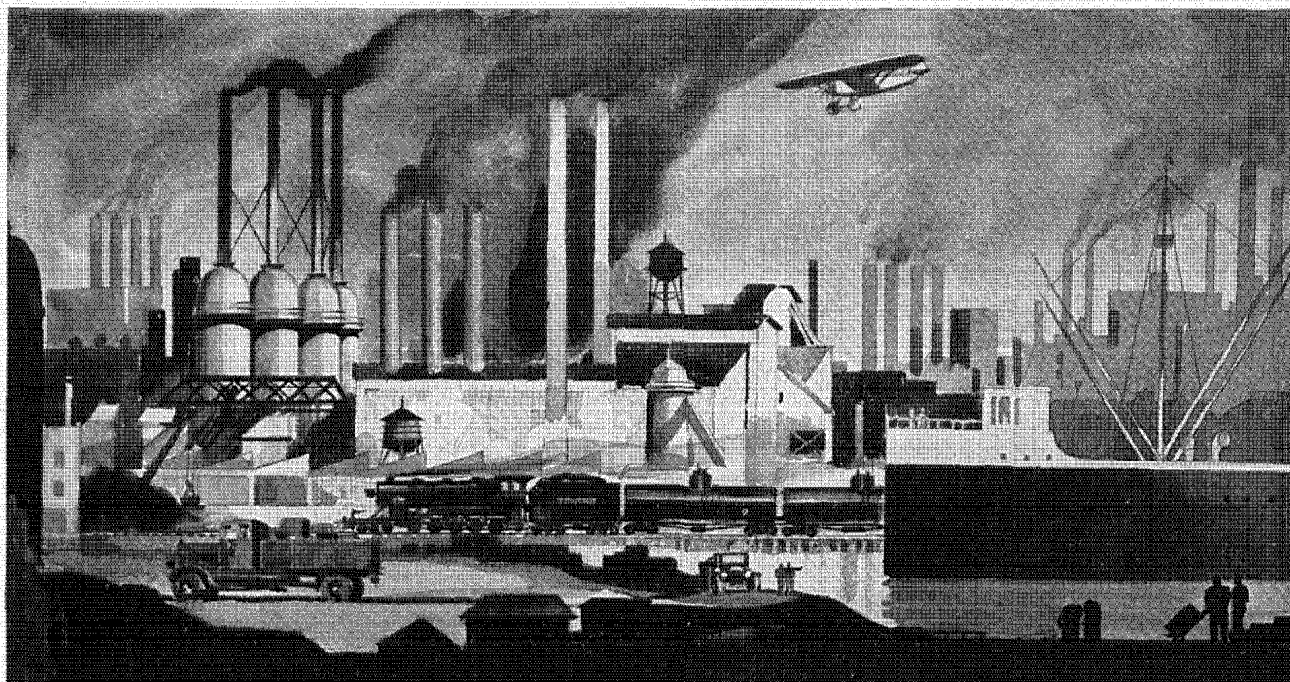
And so we leave with you this thought: If you enjoy trapshooting, you will find Skeet exhilarating. If you delight to go afield with dog and gun, when the law permits, try a round of Skeet as the next best means of securing the same thrills. And if you are hesitant to shoot with others of longer experience at the game, remember that they, too, were beginners once.

The National Skeet Shooting Association, 108 Massachusetts Avenue, Boston, Massachusetts, will be glad to supplement the information set forth here, and if you desire to lay out a Skeet field and equip it, the du Pont Sporting Powder Division of this company will supply blueprints for that purpose.

Skeet offers a challenge to you. Go out and "shoot a string" of twenty-five targets without missing one.

With balmy days just ahead why not accept the first opportunity to try your skill at Skeet? This view shows a group of enthusiastic Delawareans enjoying the pastime





"Cellophane" Fights Off Tons of Dirt

By ROLAND HINTERMEISTER

SCIENTISTS have estimated that literally tons of dirt in the form of fine particles are diffused through the atmosphere in the average American city. And almost any housewife can tell you how pitifully soon her curtains and linens become soiled at an open window.

Consider the effect of this on the thousands of soilaible articles found in department stores, and you can begin to realize what the cellulose film, "Cellophane," is doing to keep merchandise clean for the consumer's use. For in many stores, sheets, pillow cases, blankets, lamp shades, lunch-con sets, hosiery, stationery, towels, boudoir-chair covers, notions and many other items are being sold in "Cellophane"-wrapped packages.

Another benefit to the customer, in addition to more sanitary merchandise, is freedom from defects due to any excessive handling the product may receive. The appearance of the package itself is also enhanced by this wrapping material, and in many

cases, items so packaged actually become suitable for gift purposes. And all this is accomplished without destroying the invaluable right of the customer to see what she buys!

A point often overlooked is the fact that "Cellophane" transparent wrapping saves the consumer the cost of any initial laundering of such articles as shirts, infants' wear, towels, sheets and pillow cases. For a sheet the saving might be ten or twelve cents, and for a shirt, the saving would run even higher—any-

where from fifteen to twenty-five cents. Otherwise, the cost of the first laundering would have to be added to the purchase price.

The next time you are in a department store, take notice of the increasing number of articles which are being sold in "Cellophane"-wrapped packages. The executive staffs of these organizations are constantly seeking to find ways of improving their operating methods, with the ultimate objective of giving better service to customers. That "Cellophane" has also made the selling problem easier is obvious, but the greatest satisfaction to the proprietors of these large retail establishments comes from the knowledge that this product permits them to supply merchandise which is not only sanitary but also immaculate enough to satisfy the most fastidious store patrons.



Towels wrapped in "Cellophane" mean complete visibility and freedom from dust, dirt and pulled threads

Some Questions and Answers

That you may have a better understanding about explosives, blasting accessories and how to use them

Q. What are the different types of dynamite for agricultural work?

A. Extra (Ammonia) Dynamite is the most common dynamite for agricultural use. The dynamites in this classification are made in strengths from fifteen per cent to sixty per cent. Nitroglycerin dynamites, which contain nitroglycerin as the only explosive ingredient, are also important. They should contain the actual amount of commercial nitroglycerin designed as their percentage strength. For example, a forty per cent nitroglycerin dynamite should actually contain forty per cent nitroglycerin by weight. Bulky (high cartridge count) dynamites, which contain ammonium nitrate as the principal explosive ingredient, are other important types.

Q. Where should explosives be stored?

A. Explosives should be stored in a dry, ventilated building away from dwellings. They should be stored in the original unopened cases or with the cover nailed on. The cases should be off the ground and placed where children, irresponsible persons or animals cannot get at them. Fire is the greatest hazard in connection with explosives so stored. Therefore, the explosives should not be stored in shops where a forge or other sources of fire may be present. Grass and other inflammable materials should be cleared away from buildings for a distance of twenty-five feet. Blasting caps should be stored in a separate building from high explosives, and both should be placed under lock and key.

Q. What is meant by the term "low freezing"?

A. Low freezing means that the dynamite does not ordinarily freeze at any temperature encountered in the United States.

It is perhaps not strange that many people who might save both time, money and effort by using explosives in various kinds of work, seldom do so, because they are not familiar with the products and do not know what kinds to buy or how to use them.

Experts of several manufacturing organizations identified with the Institute of Makers of Explosives have prepared a series of questions and answers for the guidance of people who want to know more about explosives, accessories and blasting practices.

We commend the information presented here for your careful reading. Perhaps you will have occasion to use explosives yourself some day.

Editor.

Q. What are the two ways of priming or inserting the cap in the cartridge of dynamite?

A. Priming in the side and priming in the end. When priming in the side of the cartridge, the hole should be punched diagonally into the side of the cartridge about two inches from the end, so that the cap will lie as nearly as possible parallel to the axis of the cartridge. When priming in the end, the paper should be folded back at one end of the cartridge, and a hole made with a wooden punch about the size of a lead pencil into the exposed dynamite, into which the blasting cap, crimped on the freshly-cut end of a piece of fuse, is placed and tied.

Q. What is a blasting cap?

A. A blasting cap consists of a copper capsule loaded with an initial priming substance. The load is carefully measured and is then pressed

securely into the capsule, so that ordinary handling or jarring received in shipment will not loosen the charge. There are two standard sizes of blasting caps—No. 6 and No. 8.

Q. What is an electric blasting cap?

A. An electric blasting cap consists of a copper capsule loaded with an initial priming substance, sealed with sulphur and waterproofing, and it is ignited by a very fine resistance wire which is heated by an electric current. Electric blasting caps are also made in two strengths—No. 6 and No. 8. They should be detonated by means of a blasting machine.

Q. What is safety fuse?

A. Safety fuse is used to fire blasting caps, which in turn detonate dynamite. It consists of a small center thread surrounded by a small train or core of black powder, the whole of which is wrapped in a covering of paper, jute, thread, asphalt and other waterproofing materials. It is so made that the powder burns at a uniform speed through this train, with an allowable variation of ten per cent either way.

Q. What is the proper way to light fuse?

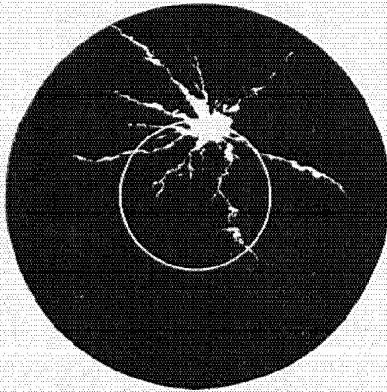
A. Lighting a fuse is a very simple operation. Before lighting, the fuse should be slit with a knife so as to expose the fresh powder. When a safety match is used, the head is placed in the split end of the fuse directly in contact with the powder. The closed safety match box is then used to ignite the match head which, being in contact with the powder in the fuse, ignites it. In case parlor matches are used, the match head can

(Continued on page 24)

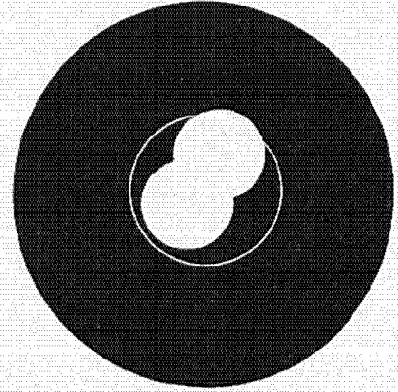
The New Sharp-Shoulder Bullet

The Remington Arms Company, Inc., introduces the first .22-caliber sharp-shoulder bullet

cartridge to be manufactured commercially for indoor target shooting needs



Left—The effect on a target shot at 25 yards, using a bullet of the regular type



Right—Showing the result of shooting with the new-type bullet which makes a clean-cut hole

For several years, there has been a demand among small-bore target shooters for a type of cartridge that would punch a clean hole in the target to facilitate spotting and scoring, in line with the practice that has been followed, with respect to a cartridge used in police and revolver club target practice.

At first glance the solution of this problem would appear to be reasonably simple, and amateur attempts were made by certain enthusiasts, who cut off the nose of the bullet. Such crude attempts, of course, were not conducive to good target accuracy, but they illustrated the principle desired. This practice, furthermore, reduced the weight of the bullet and consequently increased the muzzle velocity.

Actual design for production of the sharp-shoulder type of .22 long rifle bullet presented many difficulties, in order to obtain absolute uniformity of shape and the desired degree of stability in flight. Many

designs were submitted and tested before a satisfactory sample was obtained, largely due to the fact that the accuracy of the .22 long rifle "Kleanbore" cartridge has been so remarkably consistent and the groups have been so small that the standards already established presented a difficult goal to reach with such a radical change in bullet design.

By utilizing the brass shell originated by the Remington Arms Company, Inc., in conjunction with our "Kleanbore" priming mixture and special powder supplied for "Hi-Speed" cartridges, it was possible to establish a muzzle velocity with the proposed sharp-shoulder bullet of 1,300 feet per second. This high velocity resulted in the desired degree of stability in flight and overcame the previous difficulties with respect to "tipping," a defect that is seriously objected to by target shooters.

The cartridge is of the "Kleanbore" lead-lubricated type and has all of the desired characteristics with respect to freedom from corrosion, pitting, or fouling of the barrel, and the necessity for cleaning the bore of the rifle is eliminated.

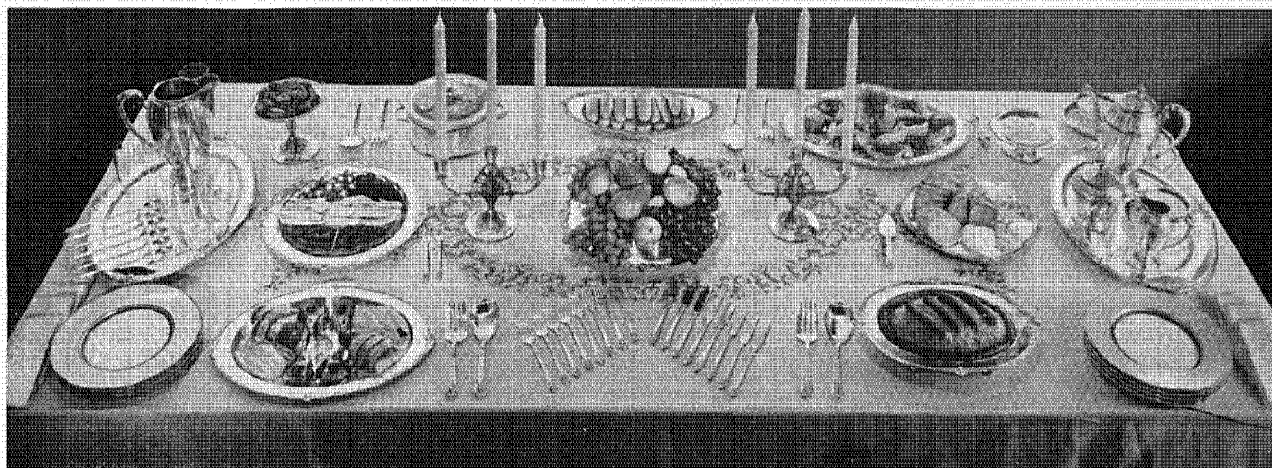
It is recommended for short-range use indoors particularly, and out-

(Continued on page 24)



Knowing just where the bullets strike is, of course, satisfying to the target shooter. Note the sharp-shoulder bullet cartridge in this young man's hand. The inset enlargement shows the detail better

A Smart Setting for the Buffet Party



A BUFFET party has that certain something that has stirred the imagination of hostesses, East and West, North and South. Less elaborate parties are the order of the day, and the friendly, sparkling informality of the buffet service is welcomed with the cheers and praises that its spontaneous charm deserves.

A buffet party is the easiest kind to give. It's the maximum of fun with a minimum of bother. The cost is slight.

This buffet table, set for eight, has an effective arrangement and balance. Such a table may be covered with a linen damask, lace or embroidered linen cloth, as the hostess may prefer

One needs no maid to serve. All the planning is done beforehand. Simple, inexpensive foods are the most appropriate. And you can set your table with special charm and sprightliness.

Above is illustrated an attractive setting for a buffet supper. The silver is the new "Marquise" pattern in

1847 Rogers Brothers' Silverplate, which harmonizes perfectly with furniture and decorative accessories now in vogue. The centerpiece, casserole, vegetable dish, platters, coffee set and pitcher, as well as the flatware, are the finest silver plate.

The International Silver Company, makers of 1847 Rogers Brothers' Silverplate, use chemicals manufactured by the "R. & H." Chemicals Department of the du Pont Company.

Ditch Blasting With Dynamite

DRAINAGE is a subject of considerable interest to many property owners, and it has been discussed frequently and from many angles. However, the continuing demand for more information about ditching with dynamite prompts these few lines.

More and more, the explosive expert is finding means to control and, in a sense "harness" the tremendous force of dynamite, just as engineers have developed ways to use electrical energy and the power of internal-combustion engines more efficiently.

The trained agricultural blaster can make a narrow, deep ditch or a shallow, wide one. By the propagation method, any length of ditch can be blown almost in the twinkling of an eye. No longer is it necessary to clear the right of way of stumps and bould-

ers before making a ditch. Modern methods make it possible to do the entire job with a single blast.

Where a ditch up to thirty feet in width, with a depth of five to twelve feet, is required, the procedure is to space the holes five or six feet apart in a single row on the center line. The holes are made five to eight feet deep, and the loading varies from twenty to fifty sticks of ditching dynamite to a hole. In order to accommodate the load, the holes are first sprung by exploding a small charge at the bottom, thus making a chamber to receive the working load. By the propagation method, which can be used only in wet soils, the explosion of one charge sets off all the others in the row, for the water in the soil carries the so-called wave

of detonation from one hole to the next one in very rapid succession.

Wide, shallow ditches of three to five-foot depth and ranging up to thirty feet or more in width can be blasted by shooting a single row of holes on each side, and then blasting the center section. This is known as the relief and spreading method. The depth and spacing of the holes, and the amount of dynamite loaded in each one, all depend upon a number of variable factors. But the point of interest is that broad, shallow ditches can now be made with explosives.

Methods of cleaning out ditches have also been improved; in fact, the technique of ditch blasting work of every kind has undergone a very marked improvement during the past few years.

We Congratulate the Railroads

(Continued from page 6)

utmost carefulness. Everything was scrupulously clean, and there seemed to be every appliance necessary to secure the conditions requisite to make nitroglycerin as it should be made."

A series of demonstrations and experiments was conducted to show him how the dynamite would behave with sparks and fire under various conditions; also, shock tests were made—some of them very severe—and they were all convincing enough to warrant the investigator's comment to the effect that he saw no reason why, under proper regulations, the product should not be taken as freight freely.

It remains only to add that his opinion, expressed as far back as 1881, has been verified by the experience of all the railroad companies, particularly since well considered rules and regulations pertaining to the shipment of explosives have been made and enforced.

Your Humble Servants . . .

(Continued from page 7)

they may enjoy the vacation period.

In Tudor City and other haunts of the young in metropolitan New York, live groups of girls who are making careers for themselves in the business life of the city. Just out of college, without any or, at least, too many years of business experience behind them, they make Aladdin and his magic look like an amateur when it comes to stretching a budget. And yet they manage to know the best values that New York has to offer. Styles, plays, music, art and all the other interests, down to the latest gossip about the great and near-great, are an open book to them.

Their apartments, in a limited space, breathe an atmosphere of fine choice and comfort. If you are fortunate enough to get an invitation to dinner, the chances are that the hostess will whisk out of a closet a

du Pont lacquered cloth and spread it over the table with every assurance that it is entirely suitable for the occasion.

If you are not familiar with these du Pont cloths, you will like them upon closer acquaintanceship. Peasant patterns, polka-dots, checks, plaids, stripes and floral designs, in a range of colors in harmony with the present vogue, offer a wide range of choice. A soft-napped back protects the polished table surfaces.

What a relief these tablecloths have made of washing and ironing! And what a relief from laundry bills that so frequently follow informal dinners when friends gesture with a careless glass and children still find tableware clumsy devices that spill things!

Some Questions and Answers

(Continued from page 21)

be placed against the powder in the fuse and lighted by scratching with a rough stone. There are also several fuse lighters on the market which are very satisfactory for this purpose.

Q. What are blasting machines?

A. Blasting machines are portable electric generators which operate by rotating an armature by the downward thrust of a rack bar. They are designed for firing electric blasting caps connected in series only and, therefore, they deliver a fairly low current or amperage. When not in use, blasting machines should be stored in a dry place.

Q. What is the cause of misfires?

A. Misfires usually result from faulty practices in storing and handling materials, or in lighting fuse. The chief source of misfires is the improper use of fuse. A misfire occurs in blasting when a fuse does not burn through and fire the blasting cap, or when a blasting cap or an electric blasting cap fails to fire the charge.

Q. When should a misfire be investigated?

A. Misfires occurring when firing with fuse are dangerous. If a charge fails to fire when primed with cap and fuse, the safe practice is to let the charge stand for twenty-four hours before investigating the cause for failure, or replacing the charge. In the case of electric blasting, if the charge fails to explode when the blasting machine is operated, the machine or source of electric current should be disconnected and after a delay of thirty minutes, the entire operation may be safely checked.

The New Sharp-Shoulder Bullet

(Continued from page 22)

doors, under favorable conditions. It will produce groups in match rifles equal to the 25-yard groups that are found characteristic of .22 long rifle "Kleanbore" and Palma Match ammunition. It is not recommended for the longer ranges because of the loss in velocity, due to wind resistance. It has also been found to be quite satisfactory in single-shot target pistols and revolvers, but will not operate in automatic pistols and certain types of automatic and repeating rifles, due to the interference in feeding into the chamber, caused by the sharp shoulder. Target shooters almost invariably load each cartridge individually into the chamber of the arm and, consequently, the necessity for adapting the cartridge to repeating and automatic arms is of no particular importance.

A Century Ago

The following advertisement was appearing in the *New York American* one hundred years ago this month:

GUNPOWDER

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

In step with
THE NEW MODE
...Scuffless Heels



Exquisitely distinctive sandals and high cut pumps that add the right formality to all-day-long ensembles. Such beauty and fine workmanship demand a heel covering that will not scratch or scuff and ruin the loveliness of the shoes. To insure lasting beauty, Laird Schober have adopted du Pont "Pyraheel," the new non-scuff material, for the heels of their flawlessly made shoes. They await your selection at these fine stores.

Laird Schober



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Life-sustaining

AIR *that* **DESTROYS !**



REMOVE air from the world, and all living things—humans, animals and plants—must perish.

Is it not strange that scientists should search unceasingly for better ways to remove air, to *shut off* air, from many of the things man makes? Yet it is so.

For air, while sustaining life, promotes nature's process of oxidation, and moves swiftly to consume your property. Combined with moisture, it starts rust and corrosion which eat into structural steel, ships, trains, and tractors.

For centuries man has tried to halt the inroads of oxidation, to reduce the colossal waste of corrosion.

Chemists in the du Pont laboratories have achieved remarkable results. From these laboratories has come an outstanding finish for protecting industrial machinery. It is Dulux Industrial Finish. It is made to resist corrosion . . . to withstand the effects of heat and oil . . . to give longer-lasting protection.

This is but one definite example of du Pont service to industry. In the last ten years, du Pont chemists, seeking finishing materials of greater service value, have been re-

sponsible for many of the major developments in finishes.

To the automobile industry they gave Duco, and Dulux. To textile mills, food plants and others, they gave Dulux Mill White—to the marine industry, Dulux Marine Finishes. In addition, there is Brush Duco for furniture and woodwork in the home, Dulux for refrigerators, and du Pont paints and varnishes to beautify and protect the home.

Everywhere you go, you find leaders in industry relying on du Pont finishes to meet specific problems, to perform specific services. E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware.



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