

DUPONT

MAGAZINE HOLIDAY, 1947



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BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

Holiday, 1947

DU PONT

MAGAZINE Vol. 41 No. 6

DU PONT
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BETTER THINGS FOR BETTER LIVING...
THROUGH CHEMISTRY

E. R. Manchester, Editor

R. J. Woodruff, Jr., Managing Editor

CONTENTS

TETRAETHYL LEAD SAGA	1
OIL FROM SEWARD'S ICEBOX?	4
TRIM THE TREE WITH BUBBLES	6
"CORDURA" RAYON IS RUGGED	8
SOMETHING NEW FOR FISHERMEN	10
CHEMICAL CROP INSURANCE	12
HOLIDAY GIVING FOR BETTER LIVING	14
THE BEST BRUSHES HAVE DU PONT	
NYLON BRISTLES	16
SK-I-D! WATCH OUT!	18
FACE LIFTING FOR A HOTEL	19
WATCH THE BIRDIE!	20
DID YOU KNOW	21
WHAT'S NEW	22
THE HOLIDAY COVER	24

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tion. Page 15, Detecto Scales, Courtesy of Knox Gelatine.



At the Chambers Works in New Jersey, Du Pont has made tetraethyl lead since 1922.

Tetraethyl Lead Saga

After 25 years' experience in making TEL, next January Du Pont will start to sell and service this gasoline additive on a nation-wide scale

Thirty years ago tetraethyl lead was just a laboratory curiosity. It might still be, if Charles F. Kettering, then research director of General Motors Corporation, had not asked Thomas Midgley, Jr., to learn what made motors knock and what could be done about it. This knocking was setting a limit to the efficiency of gasoline engines.

Midgley found the trouble was in the chemical composition of gasoline. Then he began looking for some additive to reduce or eliminate the knocking, because neither he nor the petroleum refiners at that time knew how to make a gasoline that would not knock. Thousands of compounds were studied,

but only one, TEL, was satisfactory from all angles. Just a little of it mixed with ordinary gasoline prevented knocking within certain limits; and this permitted higher compression ratios, which greatly increased the efficiency of motors. For that discovery and the initial ethyl bromide process of making tetraethyl lead, full credit goes to General Motors.

In 1922 Du Pont agreed to develop a manufacturing process and to produce TEL for General Motors. Thus were brought together the research and engineering talents of these two progressive organizations. Both shared the hope that with high compression motors, made possible by better gasoline, higher standards of efficiency could be attained with benefits for all concerned. That was then a long range goal.

Early in 1923 General Motors introduced the leaded gasoline in a sales test at a Dayton, Ohio, service station, and shortly after at ten more in Cincinnati. Motorists liked this peppery gas—wanted more of it. But the anti-knock ingredient was then being

produced only in a small Du Pont pilot plant at Deepwater Point, New Jersey. Commercial production was not started until the fall of that year.

RESEARCH AND SEA SEARCH

After the field tests, it was clear that much more bromine would be needed than was planned—bromine to produce tetraethyl lead; and ethylene dibromide to prevent deposits of lead forming in engine cylinders. The Dow Chemical Company, chief supplier, with its then-existing facilities, couldn't produce enough for both requirements. More bromine had to be found. So General Motors, Du Pont and later Standard Oil of New Jersey conducted an intensive search for new sources of supply.

One project led to the purchase of a cargo vessel. This was converted into a floating chemical plant—something entirely new in world history—and sent out into the Atlantic Ocean in April 1925 to extract bromine from sea water. Chemists aboard the ship, christened *SS Ethyl*, proved this could be done. Today, a large part of all the bromine used in making ethylene dibromide is extracted from ocean water at seaboard plants in North Carolina and Texas.

CLEAR SKIES AHEAD

With this digression, let's go back again to 1923. Early in September the first tetraethyl lead plant unit began operating, and General Motors distributed the output through service stations of the Standard Oil Company of Indiana. Meanwhile, Standard Oil of New Jersey had become interested in manufacturing TEL by a newly discovered reaction which required no bromine, and also made possible production economies.

The development of a commercial process for utilizing the new reaction was carried out simultaneously by Standard Oil and Du Pont. From Du Pont laboratories came the more successful one. Late in 1924 the first full scale ethyl-chloride-process plant was

built and placed in operation at Deepwater Point.

During that year sales of TEL grew rapidly, and in August, General Motors and Standard Oil jointly organized the Ethyl Gasoline Corporation (now Ethyl Corporation) to market the fluid which Du Pont, under a new contract, was then producing in volume by the older process.

The year of 1925 was one of continuing development in an effort to produce, sell and service tetraethyl lead safely. Nearly a year passed before major difficulties were overcome.

LARGE SCALE PRODUCTION

Then, in the Spring of 1926, with the ethyl-chloride-process more fully developed, Du Pont continued as the sole manufacturing agent for the Ethyl organization, expanded plant facilities and produced within the next two decades more than two billion pounds of TEL compounds. This work was done in nine operating units—four at Deepwater Point, now called Chambers Works; five at Baton Rouge, Louisiana. All of these plants were designed, built and operated by the Du Pont Company until September 1945, when the Ethyl Corporation took over the Baton Rouge operation. In short, Du Pont has produced, under contract, most of the tetraethyl lead that has been advertised and sold thus far.

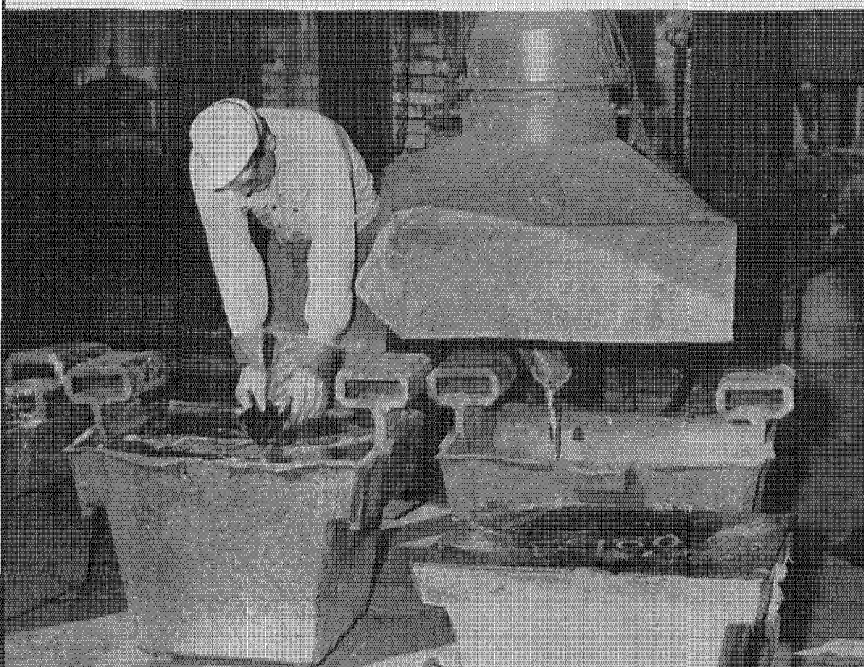
STARTING NEXT YEAR . . .

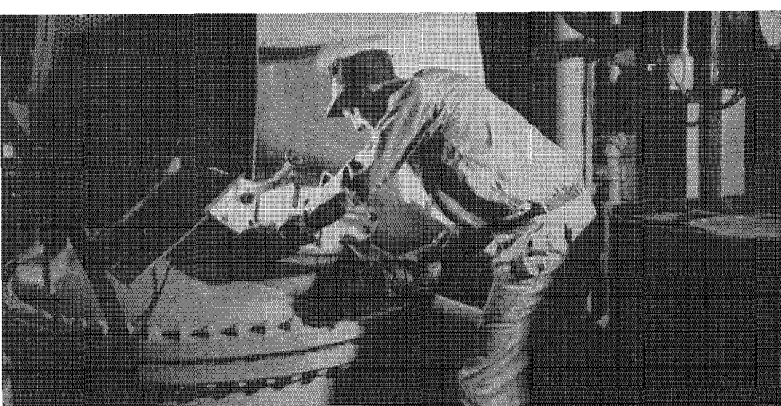
This Company's contractual relations with the Ethyl Corporation will end December 31, 1947. Thereafter, Du Pont proposes to manufacture and sell anti-knock compounds containing tetraethyl lead for its own account. The TEL manufactured at the Chambers Works will be marketed as "Du Pont Tetraethyl Lead Compound." Two types will be supplied—"Motor Mix," identified by a yellow color, and "Aviation Mix," which will be blue.

These products of the Organic Chemicals Depart-

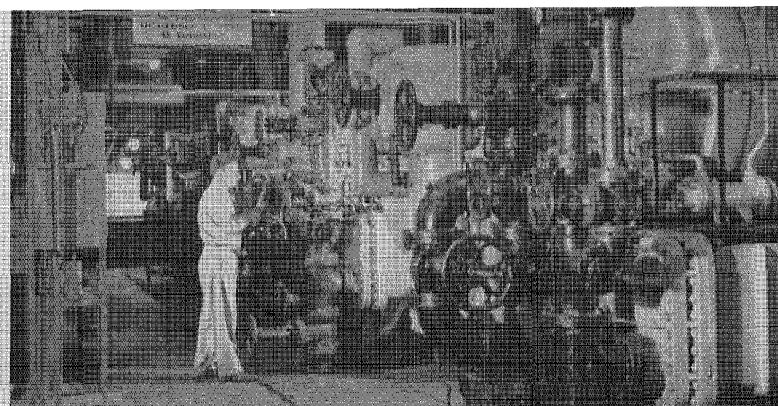
An operator here is removing impurities from a large pig of lead. Note the stream of molten metal pouring into a mold. Lead will be used in making TEL compounds.

After being carefully blended, Du Pont tetraethyl lead compounds are loaded into steel drums. This operator is preparing to remove a filled one from loading chamber.





An operator performs one of the finishing steps in producing soluble oil colors. Du Pont makes a complete line.



Several of the compressors used to produce refrigeration in the manufacture of tetraethyl lead compounds.

ment will be distributed through its Petroleum Chemicals Division. For years this organization has been supplying the oil industry with more than a score of other petroleum additives, such as antioxidants, stabilizers, cutting compounds, deactivators, gasoline colors, lubricant assistants, and the like. The addition of "Motor Mix" and "Aviation Mix" to this line is thus a logical development, one that has grown out of this Company's research and manufacturing activities.

There are three supporting reasons for this. First, consider the basic raw materials of TEL—lead, salt, petroleum, sea water, sulfur, and molasses. With the exception of sea water, *all* of them are processed by one or more of Du Pont's ten industrial departments.

Second, the TEL plant at the Chambers Works is fully equipped and operating efficiently under most careful supervision to insure the safety and health of employees. The Company's record in that respect has been exemplary as is well known throughout the chemical industry.

Third, the Organic Chemicals Department is well equipped for research and development work. The Petroleum Chemicals Laboratory, which also houses an Engineering Laboratory, is located adjacent to the Jackson Laboratory, one of the largest of its kind in this country, with hundreds of research workers available for consultation on problems related to organic chemistry. The staff of the Petroleum Chemicals Laboratory, which specializes in its own field, can also call upon the Du Pont Chemical Department research groups at the Wilmington, Delaware, Experimental Station. In the Engineering Laboratory at the Chambers Works, petroleum chemicals and additives are tested under operative conditions. Facilities for this work are being rapidly expanded.

SALES AND SERVICE

Du Pont expects not only to sell its Tetraethyl Lead Compound, but also to render those services, which refiners, distributors, and vendors of petroleum products have been accustomed to receive. Preparatory work to that end is now under way.

The Petroleum Chemicals Division has already established TEL district sales offices at Wilmington,

Delaware; Los Angeles, California; Chicago, Illinois; Tulsa, Oklahoma; and Houston, Texas. Field service laboratories are also maintained in these cities, with one exception. The California laboratory is not located at Los Angeles, but at El Monte, where a road-testing laboratory is being established.

For the past six months scores of salesmen and technicians have been trained intensively at Du Pont's new service school, which provides competent instruction, at collegiate and postgraduate levels, on all phases of manufacturing, blending, transportation, storage, handling, and use of petroleum additives and chemicals. Strong stress has been laid on the maintenance of Du Pont safety standards and strict adherence to medical regulations. The men who have completed this comprehensive program of study and work are well qualified for their sales or service responsibilities.

THE WAY OF PROGRESS

Chemical research and development work on fuels and lubricants largely account for the present-day efficiency of American transport facilities on land, sea and in the air. Much of the comparatively recent progress in this field began with the development and use of tetraethyl lead in the early 1920's, when increased motor efficiency was set up as a long range goal. It is not immodest to say that Du Pont's work has helped to attain that objective.

Initially, TEL, was an expensive additive. But through improved processes and increased production, the price has been greatly reduced with benefits to all concerned.

Du Pont believes that it can contribute much to the improvement of petroleum products. Further progress calls for still better engines, fuels, and lubricants, each adapted to the other for efficient operation. There are many problems to be solved. Du Pont's research organization will do its best to help find the answers.

We make no promises of results to come other than the pledge implied in this Company's slogan, "Better Things for Better Living Through Chemistry." The work now under way constitutes another long range goal, not for the petroleum industry alone, but for all others Du Pont is privileged to serve.

Oil from Seward's Icebox?

Du Pont explosives are now helping explore potential oil fields far above the Arctic Circle

By D. M. WILLIAMSON

A few months ago, while we at home drowsed in the heat of midsummer, the Navy, through its contractors, was feverishly shoving lumber, explosives, food and equipment ashore on a gale-swept, ice-littered beach at Point Barrow, Alaska, the most northerly tip of land in America. The supplies, shuttled in landing craft from a convoy lying offshore, will feed, clothe, and furnish tools this winter for the group of 350 geophysicists, geologists, surveyors, drillers and shooters who are searching for oil in a 35,000 square mile parcel of arctic wasteland known as Naval Petroleum Reserve No. 4.

If the Navy's hunch is right, Alaska may some day be in the same oil-producing category as Venezuela, Mexico, Iran, or Saudi Arabia.

The Point Barrow Base, established in 1944, is now an orderly village of Quonset huts containing everything from offices, to a laundry and the "Top of the World Club." But one hundred and eighty-three miles to the southeast lies Umiat, the bleak subbase which is one of several focal points for this three-year-old geophysical search for arctic oil. Between the two bases there are no highways, no railroad, not even a trail.

During nine months of the year this entirely barren region is covered with ice and snow. The only inhabitants are a few hundred Eskimos living at Pt. Barrow, a few herds of caribou, and a few bears, wolves and migratory birds. In the three summer months, when the sun never sets, thaws transform "Petfour"—Naval terminology for the Reserve—into an impassable quagmire, dotted with lakes, winding rivers and streams.

The success of Petfour obviously depends on the work of the seismograph crews. Following V-J Day, the field operations were taken over by civilian contractors working for the Navy's Bureau of Yards and Docks. Hoover, Curtis & Ruby, Inc., of New York City, and Lytle & Green of Des Moines, Iowa, formed an organization called Arctic Contractors. Seismic prospecting is being done by the United Geophysical Company of Pasadena, California.



Seismograph "shot" throws a dark plume against the Arctic landscape



Du Pont Seismograph "Hi-Velocity" Gelatin stacked like cordwood in temperatures down to -60° . Here a "weasel" is loaded.

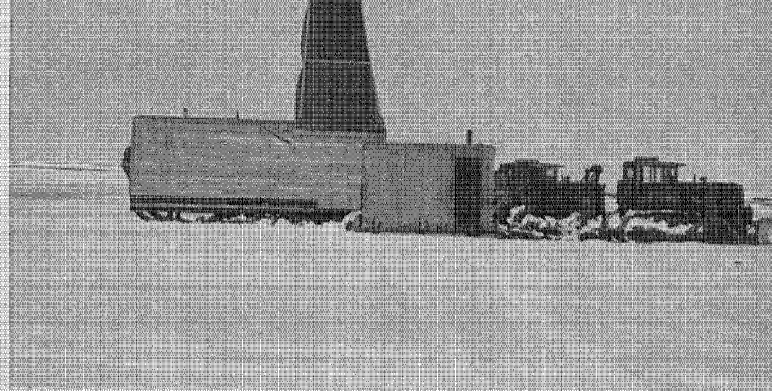
PROBLEMS AND HAZARDS

From the outset, Arctic Contractors faced multiple problems and hazards in getting men, equipment and supplies to the scene of operations. The greatest obstacle is difficulty of transportation. Pt. Barrow, for instance, is accessible by sea only for a few days in August, and each year, Navy convoys of two or three vessels have come up through the Aleutians and the Bering Sea, dodging ice floes and fog banks to supply the base by means of a typical ship-to-shore amphibious operation.

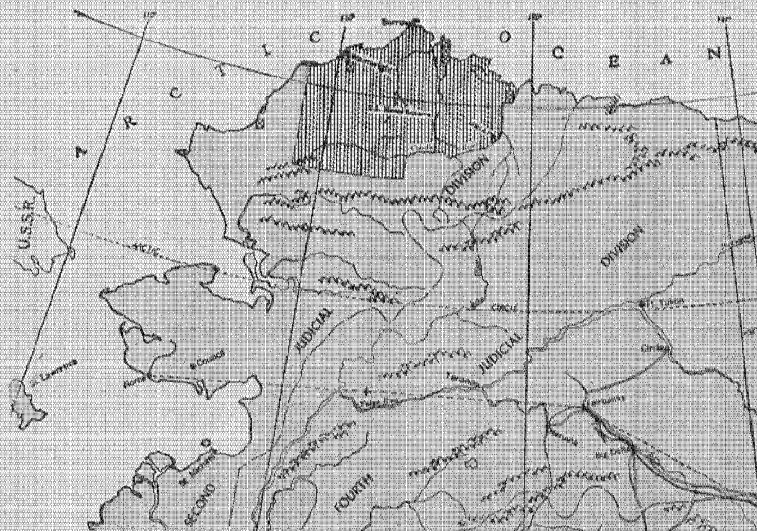
But that's only the beginning. To transfer men and supplies from Pt. Barrow inland to the field camps, the contractors are using planes—when weather permits—and several types of self-propelled vehicles and huge tractor-drawn sleds.

(Continued on page 24)

Shooter punches hole in primer cartridge for blasting cap. Note nearby charges assembled with Du Pont "Fast Couplers."



Sled-mounted drilling "wanigan," towed by two caterpillar scrapers is enclosed so drillers can work in bad weather.



Petfour is located at the "tip of America" (lined area) and is 35,000 square miles of frozen waste or lake-dotted quagmire.

Shooter and assistant lowering primed column of Gelatin into hole. "Weasel" (background) is handy in ice, snow and mud.



Unique low-boiling property of a Du Pont chemical makes possible these electric ornaments.

It's almost time to trim the family Christmas tree, and no doubt you are planning to do a better job of illuminating it. You can, for supplies of electric lamps and sets, including those new Noma Bubble-Lites—an innovation last year—are now available in quantities to meet the popular demand.

Colored lamps that merely glow are common enough. But those that also provide motion and make trees appear to be shimmering in lively colors are so new that we believe you'll want to know more about them.

The illustration, left, shows the assembly of a Bubble-Lite. Its Du Pont plastic base— injection-molded in two parts—houses a little electric light bulb. This serves not only as a light source for the walls of the base, but also as a heat and light source for the candle-shaped, sealed-glass tube that is shrink-fitted into the upper part of the fluted shell base. Perforations and slots near the collar of this shell carry off excess heat from the lamp.

Note that the "candle" is filled nearly to the top with a liquid and the space above is a partial vacuum. The liquid sealed within this glass tube is nonflammable methylene chloride, a product of the Du Pont Electrochemicals Department. Why is this chemical used? Because of its low boiling point—104°F.—which is only about five degrees higher than the normal body heat of a healthy person.

What happens when the little lamp in a Bubble-Lite is turned on? The thin-walled base becomes colorfully luminous. Heat from the lamp causes bubbles to form and ascend through the liquid inside the "candle"; and light from the same source is transmitted through the glass, the liquid and the bubbles, making the entire column radiant with color and alive with motion, even to supplying a candle-flame effect at the tip.

This development is the result of several years of experimentation by the Noma Electric Corporation which operates a plastic-molding plant in New York City, manufactures and fills the candle units at Peru, Indiana, and has many other collateral interests in its field. Christmas tree lights that in themselves provide color and motion with no mechanical aid must be counted a real achievement. At any rate they will add a really enlivening note to Yuletide decorations. They are bright, they are colorful and they bubble!

• • • • •
Bubble-Lites are easily fastened to the tree. Base of each one has a clip which holds candle in an upright position. (Top photo) A gentle tap with fingernail starts the lamps bubbling.





Light, strong air hose made of rayon cord is welcome at construction jobs like this.

"Cordura" Rayon is Rugged . . .

This high-tenacity Du Pont yarn is doing many important jobs in industry.

"Cordura" rayon has the tensile strength of structural steel, but doesn't try to compete with it. Instead, this rayon cord, introduced 13 years ago by Du Pont, is making itself a reputation for outperforming other textile fibers in a number of industrial applications.

The tire industry was the first to try "Cordura," and with excellent results. As a replacement for the conventional reinforcing fabric, cords of "Cordura" added many thousands of road miles to the life of heavy-duty bus and truck tires, and greater mileage and increased strength to passenger tires. Even by using less yarn and less rubber, manufacturers were

getting a lighter, tougher, more heat-resistant tire.

To the list of better products, now add v-belts, conveyor belts (on an experimental basis), and several types of hose. Consider, for example, a rayon cord air hose of the same inside diameter and same bursting strength as one made with another textile reinforcement. Why rayon? Because its use results in as much as 50 per cent saving in yarn, up to 20 per cent reduction in the total weight of the hose, and greater flexibility!

Many new uses for "Cordura" are still in the development stage, but those pictured are already well established and most of them have received an "okay" from industrial users.



This game salmon thought the nymph was real. Fish was successfully boated a few minutes later.

Something new for fishermen

***Realistic crickets, grasshoppers and nymphs
made of Du Pont neoprene***

By C. M. WETZEL

The history of fly fishing begins near the close of the Fifteenth Century, but few people realize the great strides taken by the sport since that year of 1496 when Dame Juliana Berners wrote her, *Treatyse of Fysshynge Wyth an Angle*.

Much water has passed over the dam in this interval. Year by year more people are taking up the sport and obtaining that restful relaxation that only comes from going fishing. Recent national surveys indicate that 24,000,000 sportsmen in the United States are paying out their money at a rate approximating \$4,000,000,000 per year for hunting and fishing expenses. When one considers that this is about a billion dollars more than the yearly retail sales of filling stations, it adds up to *Big Business*. Fishing probably accounts for more than half of this sum.

The Du Pont Company has recently made another

contribution to the advancement of the sport. Through the use of neoprene—the rubber made by Du Pont—realistic crickets, grasshoppers, and nymphs are now available to fishermen. These lures were developed by the Mimicry Company of Detroit, Michigan, and through experimentation they have been able to make them cheaply enough to be sold commercially. The nymphs especially are a work of art. Just by looking at them you can tell that they will catch fish. Because fly fishing with nymphs is a modern innovation, perhaps it would be well to talk about its evolution.

From Juliana Berners' time, down through 1653 when Izaak Walton came out with his *Compleat Angler*, all fly fishing was done with wet flies; that is, the artificials were sunk and retrieved underneath the surface of the water. This method continued in force with little improvement until around the close of the Nineteenth Century. Then Frederick M. Halford, through his writings, made the fly fishers conscious of the fact that trout could be taken on top of the water with dry flies. Unlike the wet variety, dry flies floated

on the surface just like their natural prototypes: the May flies, stone flies, and caddis flies—insects that hover over most of our trout streams. The method of angling was distinctly sporting, for one could see the trout leap out of the water and take the imitation.

Sometime later, about 1912, G. E. M. Skues had the shrewdness to observe—through post mortem examinations—that trout feed largely on larvae and nymphs, that is, the immature underwater stages of those same May flies, stone flies and caddis flies. The imitations he designed proved successful. Since then nymphs have been copied more closely until now, with the advent of those put out by the Mimiery Company, it seems that perfection has been reached.

So, the next time you go fishing try the neoprene nymph. Cast the fly diagonally downstream letting the current carry it where it will, and you may be pleasantly surprised by a strike that will literally rip the rod from your hand.

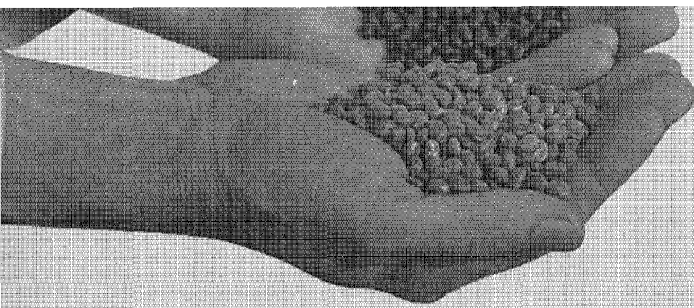
Good luck and tight lines!

.....

Here the author tries out a nymph made of Du Pont neoprene on the famed "Fisherman's Paradise," Spring Creek, Penna.

Real? No, but these artificial lures are so lifelike that they fool most game fish. They can be fished either "wet" or "dry."





Chemical Crop Insurance

That's what many farmers call Du Pont seed disinfectants

By JOHN W. SPAVIN

A microscopic quantity of disinfectant spread over seed practically assures the farmer a good crop—free from many of the seed- and soil-borne diseases that frequently cause seed decay or produce unhealthy plants. Dead cotton plants, diseased vegetables, scabby potatoes, or smutty wheat, oats or barley resulting from untreated seed can mean the difference between money in the bank and disaster for a farmer. That is why farmers consider the cost of a few cents extra per bushel for treated seeds as money well invested.

One reason why seed- and soil-borne diseases cause so much trouble is that they reproduce so rapidly. Some bacteria can double their number every 20 minutes. Molds and fungi increase in the same rapid proportion. Thus all seeds need full protection . . . protection that is obtained by using Du Pont seed disinfectants.

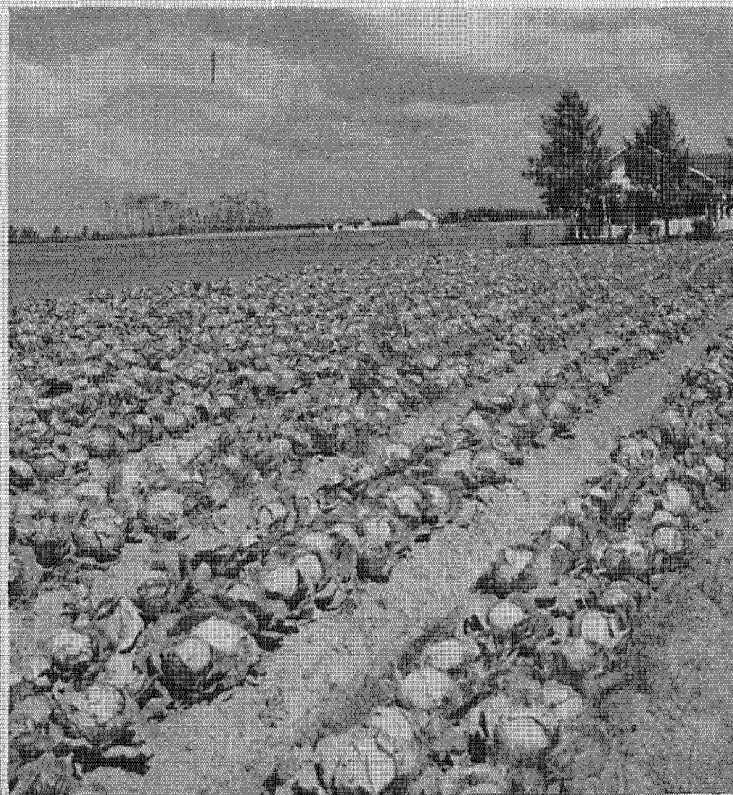
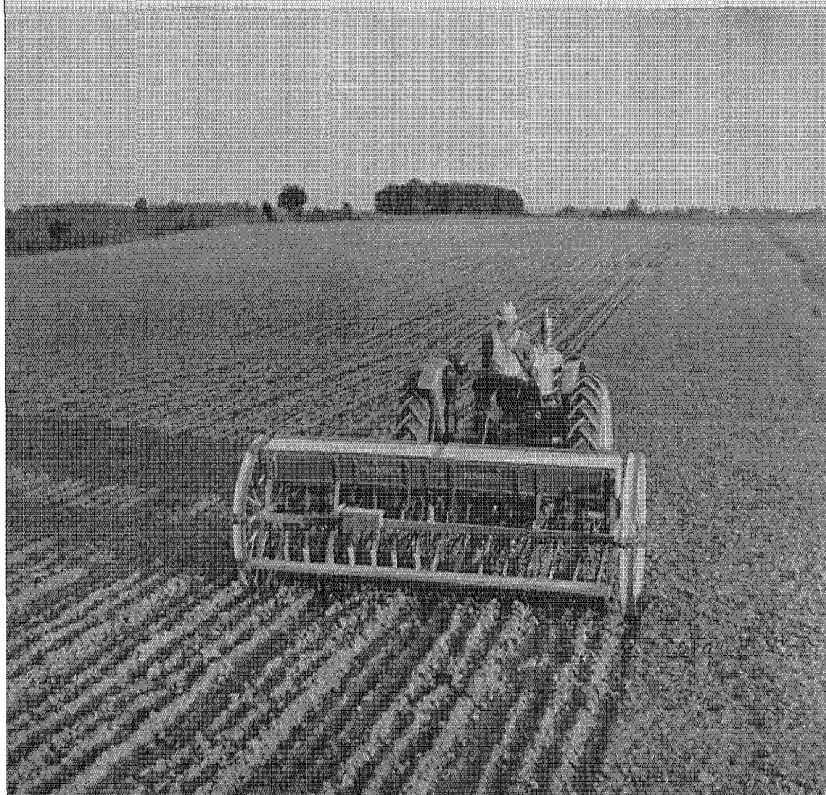
Until a year ago, the conventional way to treat seeds was to mix the disinfectant dust with the seed. Then Du Pont's agricultural research men combined a

new disinfectant, and a new way of applying it to provide what is known as the slurry method. Developed after many years of research, this method uses "Arasan" SF in a water-suspended form called slurry—a thin mixture about the consistency of buttermilk. It is applied with a machine which synchronizes the flow of seed and slurry so that every unit of seed receives the same accurate dose of disinfectant.

At first only seed corn could be used in the slurry machine. Corn, peanuts, rice, sorghum and 25 kinds of vegetable seeds—ranging in size from the tiny lettuce seed to the lima bean—can now receive a protective coating of "Arasan" SF in a slurry treater. Du Pont will soon announce another new seed disinfectant formulated for the slurry treatment of cereal grains.

Peas and beans were among the first vegetable seeds to be treated by the slurry method. Experiments showed that slurry-treated pea seed produced from 12 to nearly 40 per cent more plants than did untreated seeds planted and raised under the same conditions. Production field tests on these vegetables proved that slurry-treated seeds produce yields as good as those obtained when dust disinfectants were used.

Above: Soybeans in right hand are treated with "Arasan" SF. Treatment of seeds with Du Pont seed disinfectant before planting reduces many diseases and increases yields.



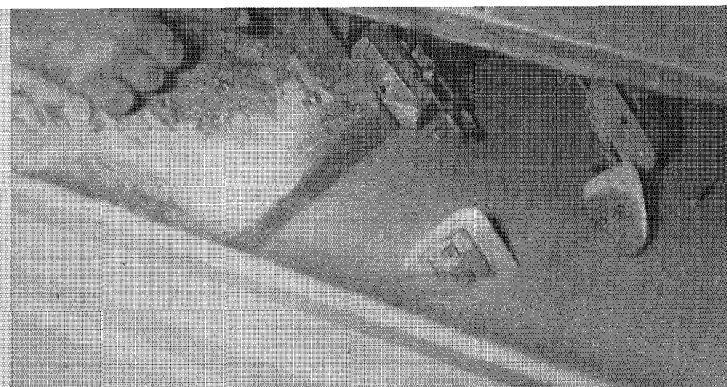


Filling a Slurry Treater with "Arasan" SF, the Du Pont seed disinfectant which helps protect many kinds of farm crops.

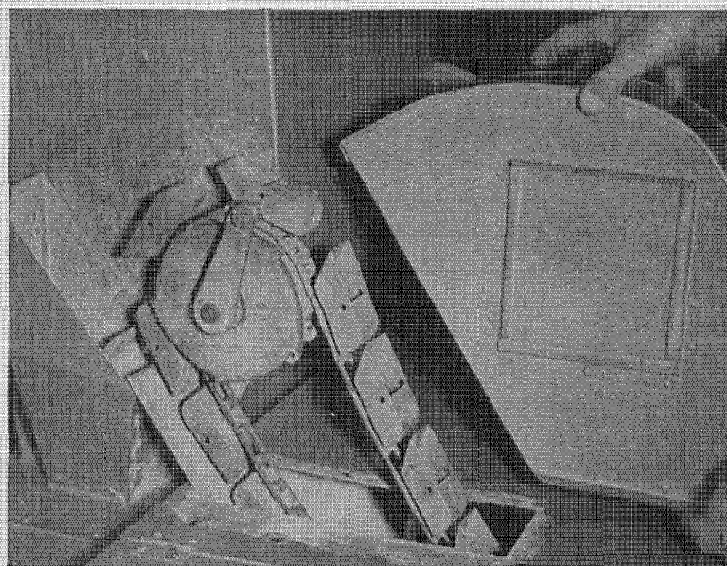
Because of the simplicity and ease of treatment, seed treaters and canners of peas, beans and other vegetables are rapidly adopting the slurry method of treating. Commercial seed growers and seedsmen will also soon use this new method to insure their customers, both farmers and backyard gardeners, of top quality seed, protected from disease, and with a high percentage of germination. Seeds treated with Du Pont seed disinfectants are not only protected against bacteria and fungi in the soil, but they are also protected while in storage from such above ground enemies as weevils and other insects.

By constantly searching for better ways to aid farmers, Du Pont is not only contributing to the welfare of American agriculture, but also helping farmers to produce more food at a time when a hungry world needs all that we can grow.

Nylon-bristled agitators gently move tender vegetable seeds like peas through the treating chamber without breakage. In this way each seed is completely covered by the slurry.

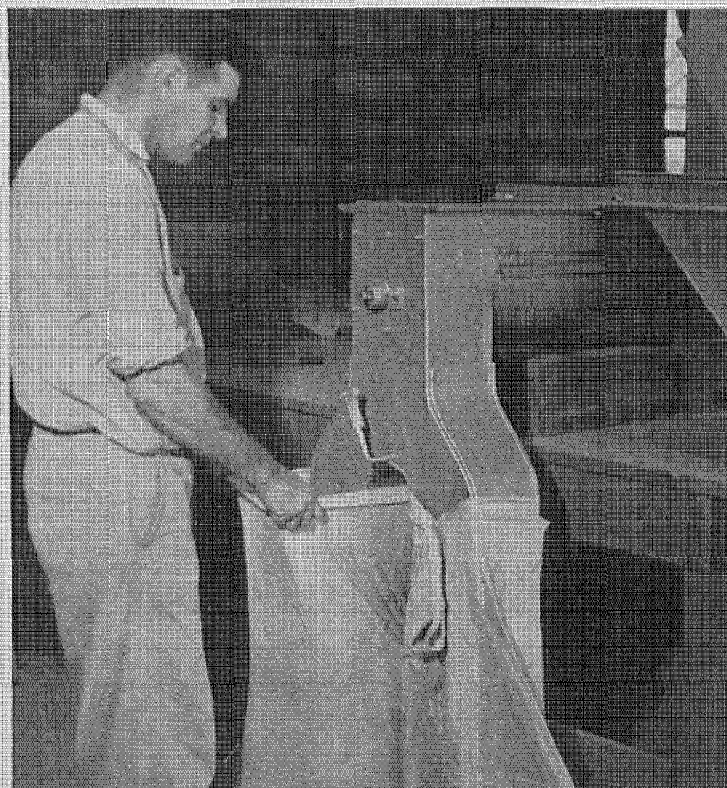
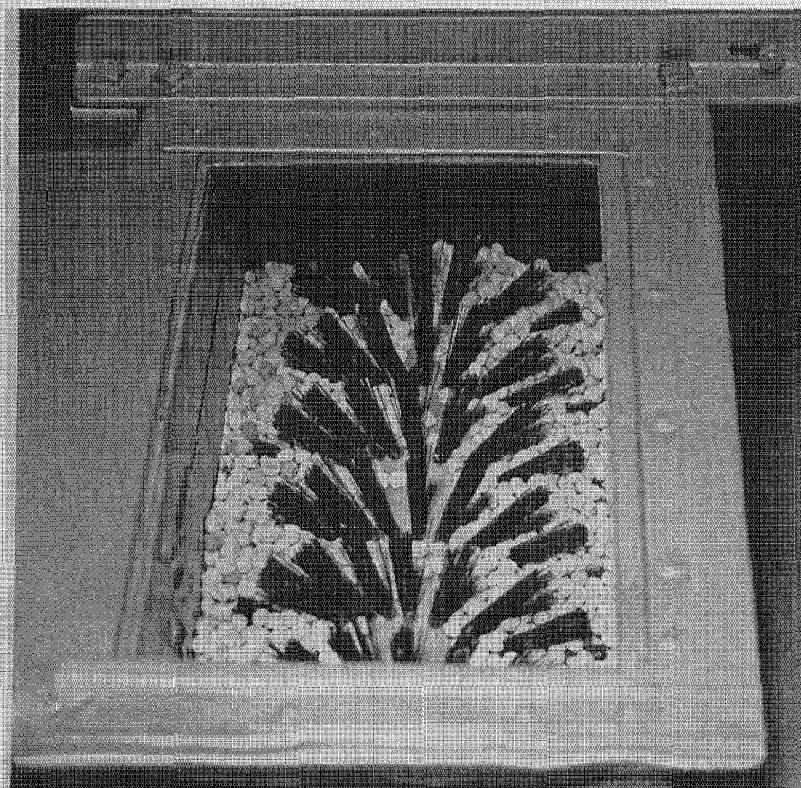


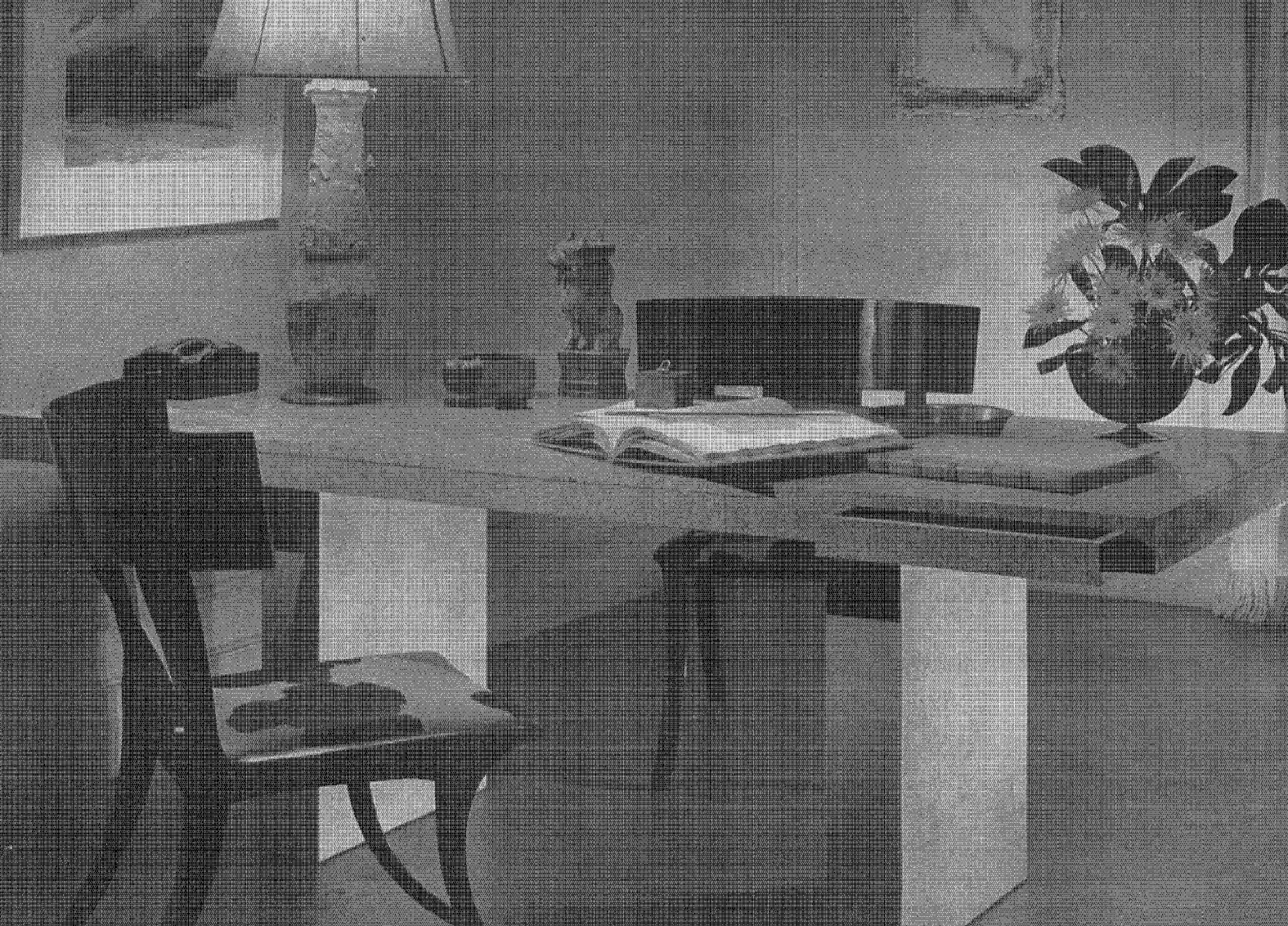
Agitators, whose tops are shown just out of the slurry, keep an even suspension of "Arasan" SF during operation.



These little buckets hold just the right amount of slurry which is dumped simultaneously with seed into the treating chamber.

Seed is bagged or packed as it comes from the Slurry Treater. The operator wears no mask because it is a dustless operation.





Dunbar Furniture Mfg. Co.

Holiday giving for better living

Here are just a few practical gifts to make a Merry Christmas last for years. They are finished with dependable Du Pont finishes.

Shawyer Bros., Inc.

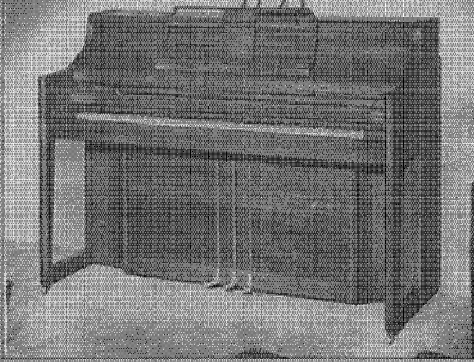


"What shall I give this Christmas?" That is the 64 dollar question as Yuletide approaches. Stumped? Well, just look at these attractive gift suggestions with their beautiful, utilitarian Du Pont finishes. In stores and shops that look like Santa Claus' own warehouse you will find many of them.

Does Mother need some household appliance? Then why not give her a sewing machine, a food mixer, a washer, or an ironer. And Dad? He's sure to like a console radio, a bathroom scale or a mantel clock.

A piece of luggage for your daughter? Maybe she would rather have a pair of earrings or choker of simulated pearls. Have you a friend who likes to shoot? Then what could be better than a gun! If tennis or golf interest him more, he'll be pleased with a new racket or a set of "woods."

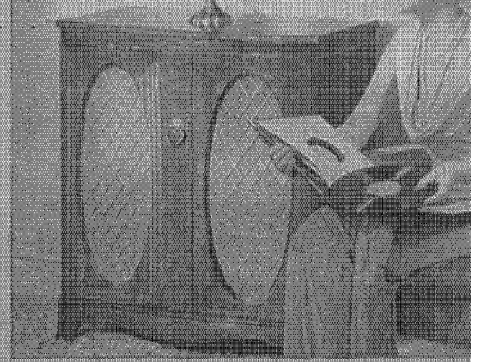
Whether your gifts include a spinet-type piano, a piece of modern furniture or a cedar chest, if they are protected with Du Pont finishes, rest assured that each one is as good as Du Pont chemists know how to make it for the purpose—and they do know.



W. W. Kimball Co.



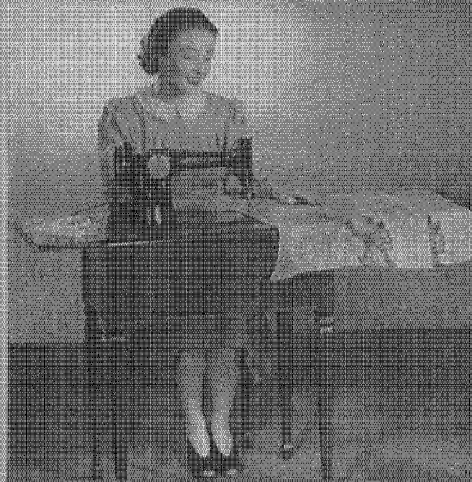
The Lane Company, Inc.



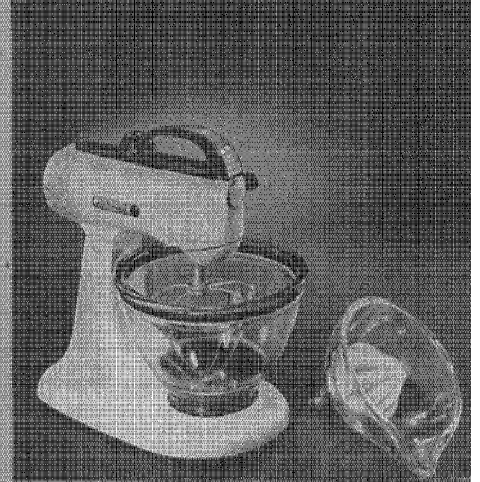
Hendrix Bait



Remington Arms Co., Inc.



Singer Sewing Machine Co.



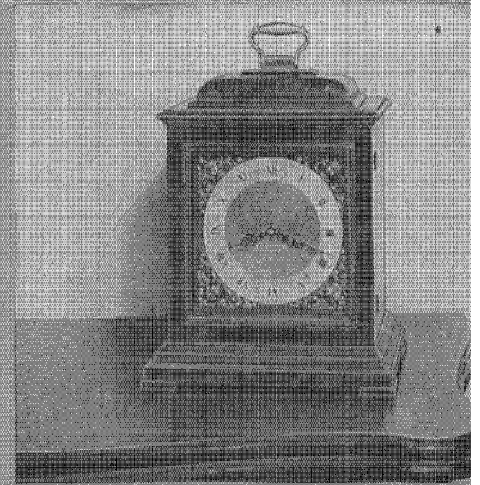
The Hobart Mfg. Co.



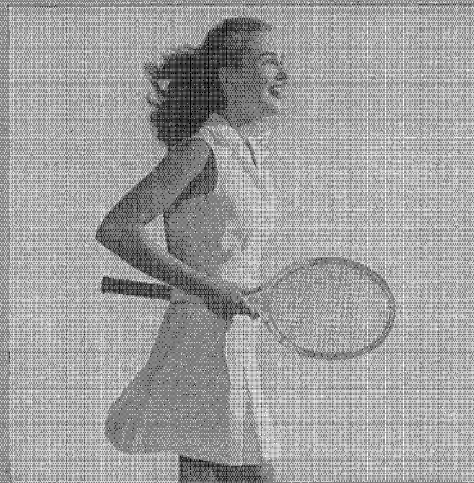
Detroit Scales Inc.



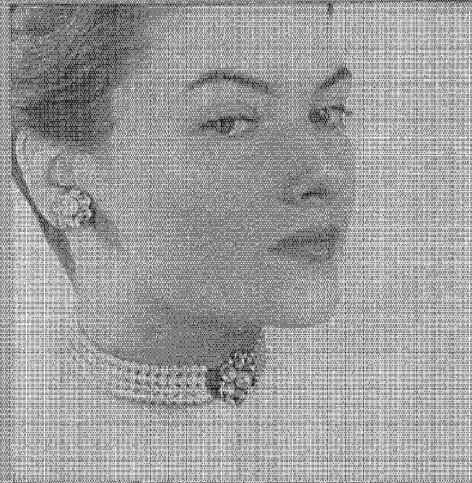
The Ironite Ironer Co.



Seth Thomas Clock



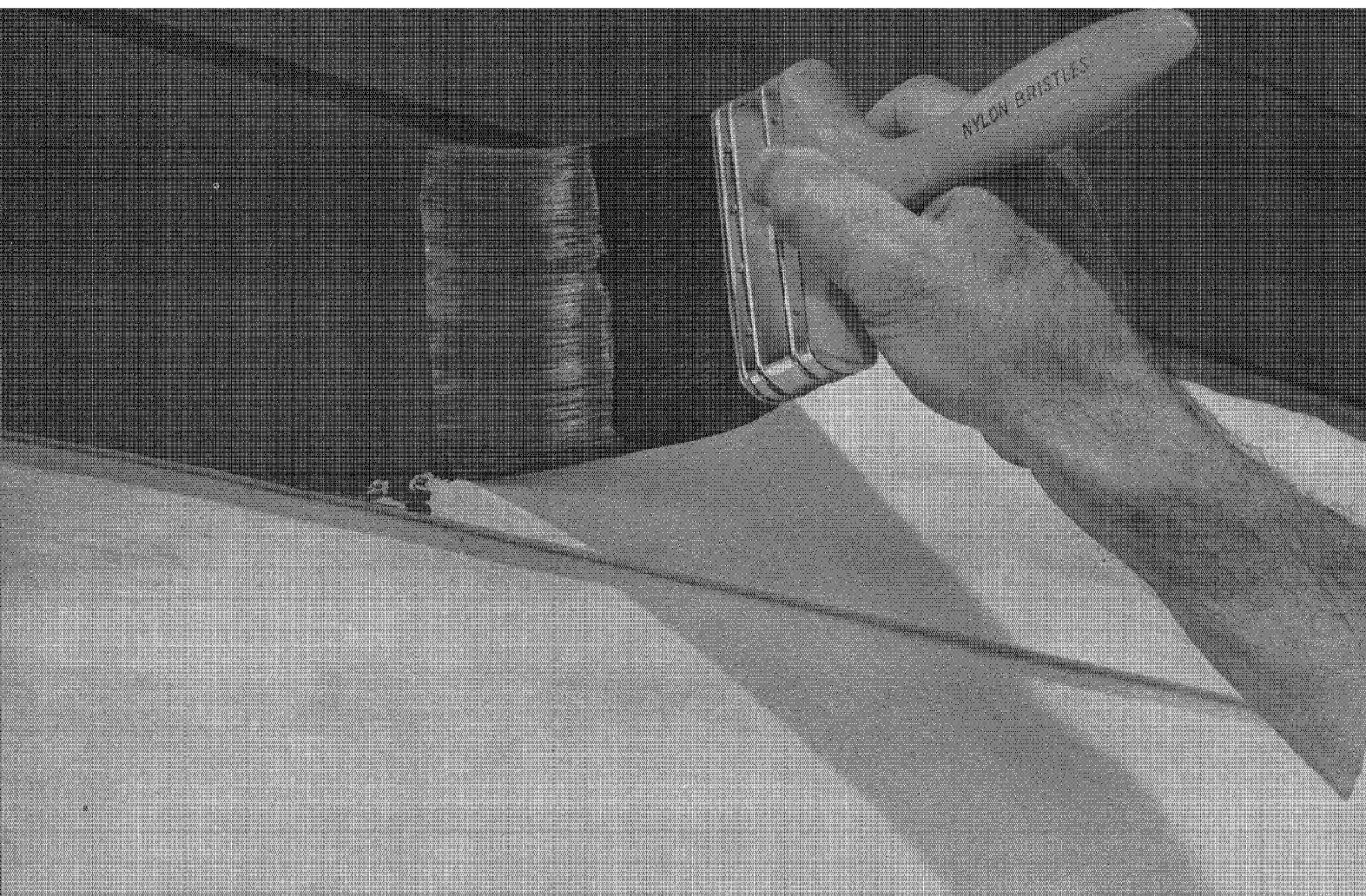
A. G. Spalding & Bros., Inc.



Jos. H. Meyer Bros.



The Maytag Co.



Nylon-bristled brushes have excellent paint pick-up, give uniform flow, are long lasting.

The best brushes have Du Pont Nylon Bristles

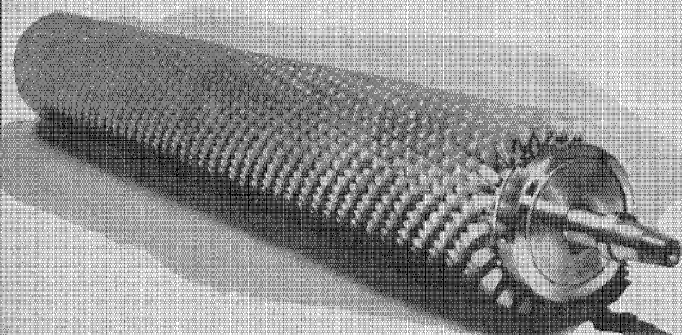
Less than ten years ago a specially-developed Du Pont nylon filament was first used to replace natural bristles in toothbrushes. Today, 85 to 90 per cent of the better-quality toothbrushes have nylon bristles.

Because they are sanitary and easy to clean, it was natural that manufacturers should next try them in hairbrushes. Now about 80 per cent of the top-grade hairbrushes are nylon-bristled.

These highly successful applications suggested the use of nylon in a variety of other types. As a result gentle nylon-bristled brushes are now available for the application of face powders and other cosmetics, in addition to a wide assortment of brushes, in various shapes and sizes, for specific cleaning jobs in the home.

The development of nylon tapered bristles opened the way to make paint brushes more serviceable than before. When painting either smooth or rough surfaces, it has been found that nylon-bristled brushes outlast those of ordinary type five to one.

Tough and strong, the nylon bristles in this furnisher brush will not absorb textile dyes and can be cleaned for reuse.

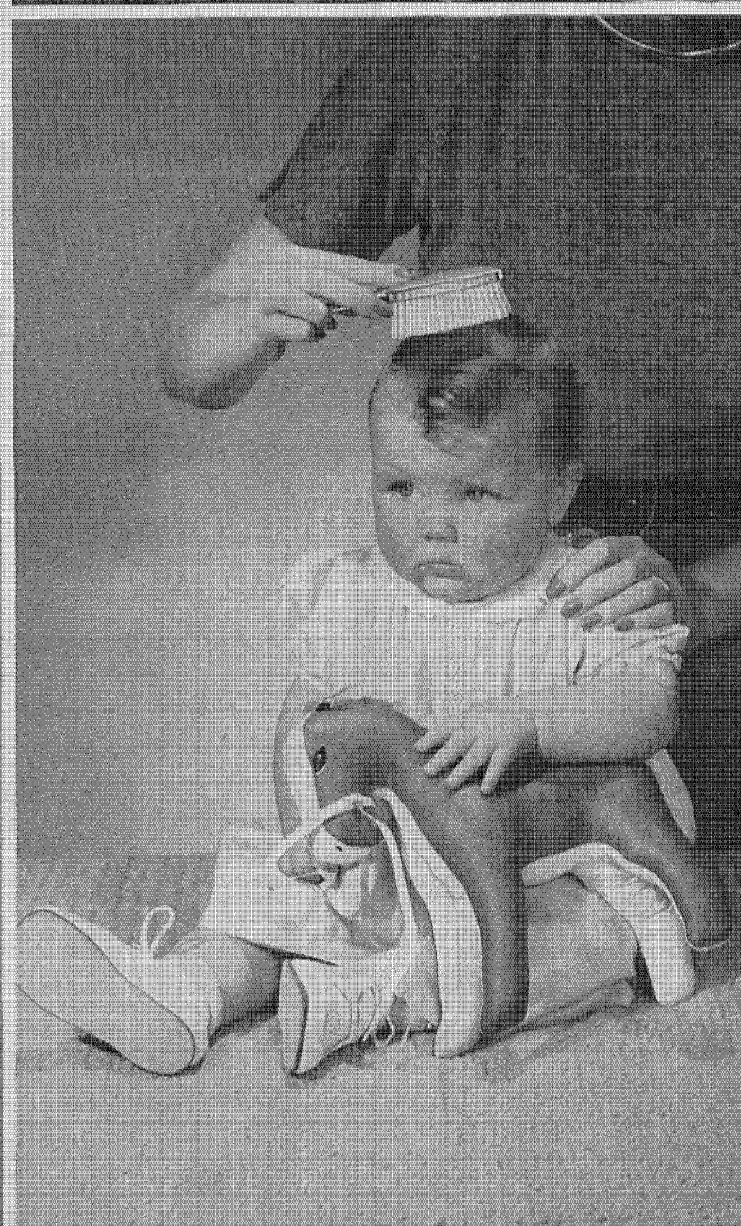
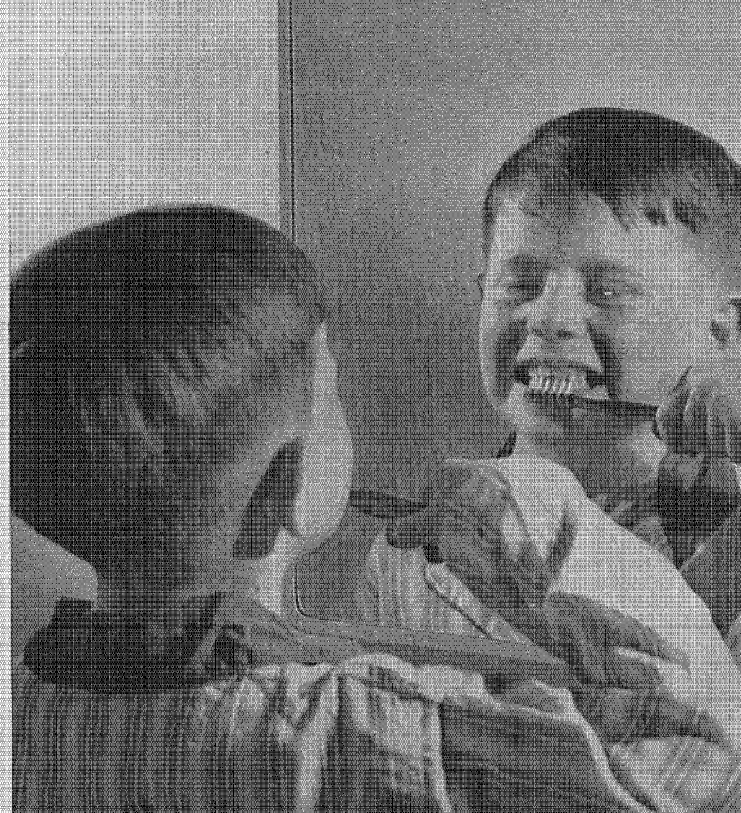


In the industrial field mechanical brushes bristled with nylon have made an even better record. Some of them are exposed to immersion for long periods in strong solvents and chemicals. Continuous flexing or high-speed rotary motion does not impair their quality. In certain applications their serviceability, compared to the best natural bristles, is indicated by a twelve to one ratio.

Reductions in replacement costs, with savings in time and trouble, help to explain why more and more manufacturers and dealers are offering brushes bristled with nylon.

.....

Resilient, water-resistant and easily kept sanitary, nylon-bristled brushes come in varying degrees of stiffness for children's teeth, baby's hair and the housewife's chores.



Sk-i-d! watch out!

You are far safer at work, or wading through the traffic of a busy street, than you are in your own home. This is hard to believe, but statistics tell the truth. And these accidents in the home, yearly taking their toll, are all the more tragic because nine-tenths of them are unnecessary.

You wouldn't believe people would touch an electric light switch while they are bathing—but they do. You wouldn't believe people would drop a lighted cigaret into a wastebasket—but they do. You wouldn't believe people would wax the floors and then set a little "throw" rug at the head of a steep staircase—but they do!

A humorous newspaper columnist once suggested putting the rugs out of doors on the front lawn and bringing the grass into the house. Even as a safety measure this would be a little extreme. It is a fact, however, that a small rug on a floor polished to a high gloss can be a major household danger spot. A skidding rug can result in a fall which can break bones, cause serious spinal injury or even death.

It is only common sense to anchor all rugs. The Du Pont Company manufactures a rug underlay which accomplishes exactly this, as its name—"Rug Anchor"—implies.

Du Pont "Rug Anchor" is a thin sheet of synthetic sponge rubber as flexible and limber as a piece of cloth. Permanently molded into its surface is a design, on a smaller scale, like that molded into a nonskid automobile tire. The underlay is not sticky or gummy. It can be lifted from the floor without clinging to it. Any "sidewise" force applied to "Rug Anchor," however, immediately makes the transverse lines of the nonskid pattern cling—and they refuse to budge.

Because the rubber of which "Rug Anchor" is made is chemical rubber rather than natural, it is little affected by the oxygen of the air, or by floor oils and waxes. It is dustproof and waterproof and immune to attack from moths. Bought by the yard and cut to fit each individual rug, "Rug Anchor" can be installed once and forgotten. It lasts for years. And it prevents those dangerous, painful tumbles.





This is the living room of one of the newly-reddecorated suites. (Below) The "New Look" as applied to a room.

Face Lifting for a Hotel

Wilmington's Hotel du Pont gets a refurbishing. Many Du Pont products used.

The Hotel du Pont is getting the "New Look." At this writing, forty of the Hotel's 300 rooms have been painted, redecorated, and some of them refurnished. More are now underway. The principles of Du Pont Color Conditioning—selection of colors to suit special conditions—have been used throughout. Dark rooms have light colors, sunny rooms have cool colors, and so on. With new paint, drapes, bedspreads, carpets, and upholstery, you get the effect that each room you walk into is totally different from its neighbors. The Gold Ballroom has a new coat of "Dulux" white enamel and gold paint, and kitchen walls have been tiled a gleaming white.

Du Pont rayon, nylon, and plastics are a party to this face lifting, too. All of the new rooms and suites have nylon marquisette glass curtains. Gold drapes of nylon brocade will hang in the ballroom. There are nylon bedspreads, shower curtains and one huge all-nylon pile rug that has the spring of new turf. Most of the rooms have rayon drapes and slip covers.

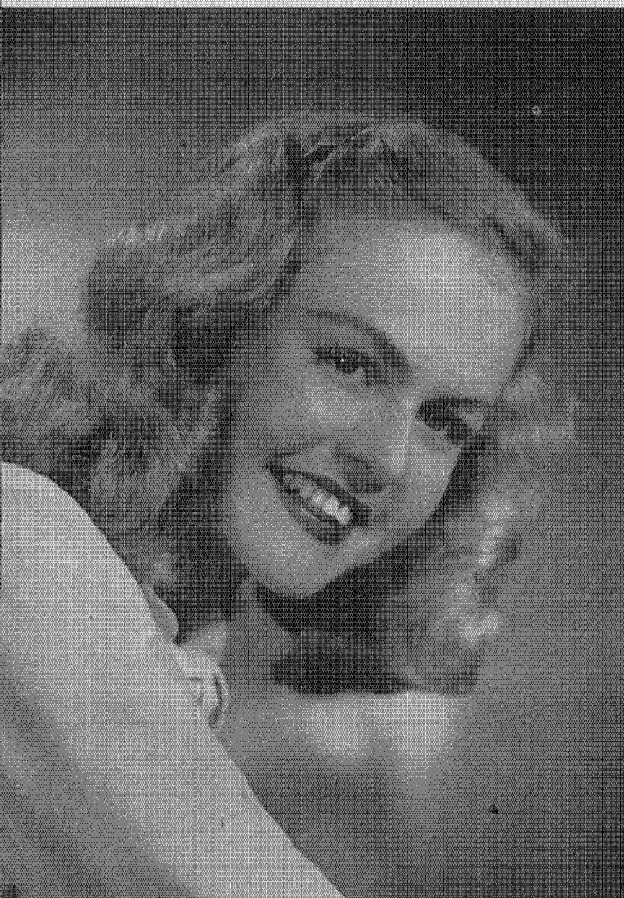
These are just the first stages in the over all rejuvenation plan. With more people on the move than ever before, obviously it must be a gradual process.





"Watch the Birdie!"

A Du Pont exhibit shows difference between photography of yesterday and today



Portraiture has come a long way since a New Yorker named Alexander Woolcott made the first photographic portrait in 1839. That was the era of head clamps, regal backdrops, and the glassy smiles that now cause so much amusement when we look at a portrait of the old vintage.

The print above shows how an 1890 studio has been recreated by the Photo Products Department at the Du Pont Exhibit Center in Wilmington. In a setting of marble-topped tables, iron hat racks, oil lamps and crinoline, a papier maché bride and groom stiffly pose for their wedding picture. Under the folds of the focusing cloth a photographer busily manipulates a clumsy wooden camera.

Inside the exhibit a collection of current portraits by America's leading professional photographers makes sharp contrast with the stiff poses of the earlier era. Gone now are the self-consciousness, the fear and awe that were mirrored in the faces of those who "sat for pictures" fifty years ago.

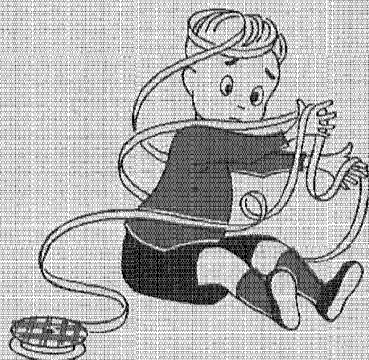
Equipment and materials have kept pace with advances in photographic technique. Today's portraits are records of personality and mood. Brides and grooms now pose naturally. A "sitting" is no longer an ordeal of fidgeting.

Thousands of Americans every year visit portrait photographers. They want to "give themselves" to friends and family. Portraits have become increasingly popular gifts for Christmas, birthdays, anniversaries, and other special occasions. No other gift is quite so personal.



Did you know

THAT . . . the internationally famous Merriam-Webster Dictionary (consisting of 3,350 pages, 600,000 entries and costing \$1,300,000 to publish) is now being bound in Du Pont "Fabrikoid" pyroxylin coated and impregnated bookbinding material?

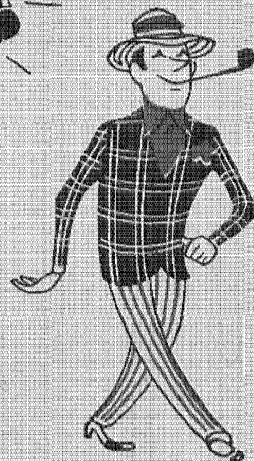
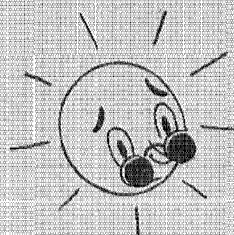


THAT . . . most of the handy rolls of "Scotch" and "Texcel" tapes that you use around the house are made of Du Pont Cellophane?

THAT . . . in 1870 there were only 1,000 so-called chemists in the United States? Last year the National Roster of Scientific Personnel showed the impressive total of 95,000 chemists and chemical engineers.



THAT . . . Phenothiazine is the "nearest ideal worm remedy" for farm livestock because, as the U. S. Department of Agriculture reports, it "kills more kinds of worms in more kinds of animals than any other known drug?" It is now being produced in the Grasselli Chemicals Department's new plant at La Porte, Texas. "The Story of Phenothiazine," a sound movie in color, is now available for showing.



THAT . . . nearly 1,000 different dyes are manufactured by the Dyestuffs Division of the Organic Chemicals Department for the textile, paper, leather and other color consuming industries? Besides this, hundreds of combinations of these colors are made to fill individual requirements.



THAT . . . in the Dakotas and Montana Du Pont Ditching Dynamite is used to produce drinking water for cattle and sheep? When springs dry up or water holes become bogged, blasting will usually restore a steady supply of clean water.

THAT . . . every day last year the Du Pont Company used the equivalent of over three train loads of combined fuel oil, coal and coke to produce its "better things for better living . . . through chemistry?"

THAT . . . two Du Pont plastics, "Lucite" acrylic resin and nylon, are used in the manufacture of the new lightweight Zenith "75" hearing aid?

What's New

• **"NITRAMEX"** ammonium nitrate-base explosive is a recent development of Du Pont research. It has a blasting action similar to 75 per cent gelatin, yet is safer to handle and more economical to use. This companion product to "Nitramon" blasting agent concentrates energy at the bottom of well-drill holes so as to break up especially tough formations in quarries and open pit mines. The extra strength often permits wider spacing of the holes, thus reducing drilling costs, and producing more tonnage from each shot. For additional details, write to the Technical Section, Explosives Department D-15, Wilmington 98, Delaware.



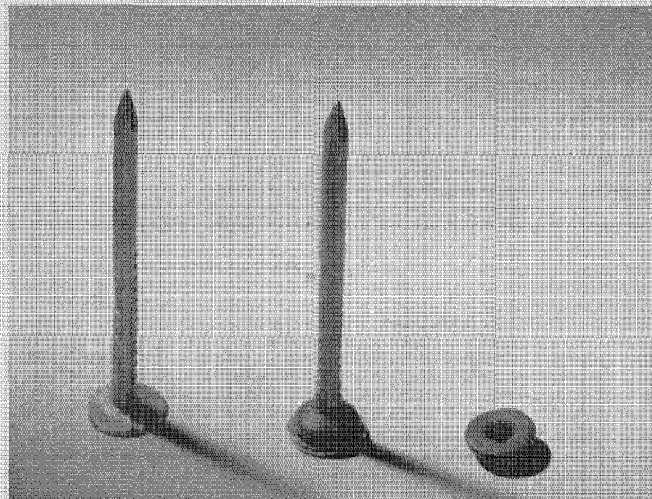
• **COSMETIC AID.** Face powder goes on evenly with this specially designed brush made with Du Pont nylon bristles that are baby-soft, resilient, easy to keep clean, long lasting and shed water quickly. As you can see, they are firmly fixed in a wire frame set in a white plastic handle. This glamour brush is manufactured by Better Brushes, Incorporated, of Palmer, Mass.

• **ATTENTION, ALL HANDS!** A full color motion picture, "Keeping Your Boat Shipshape," tells boat owners how to give their craft lasting beauty and protection with "Dulux" Marine Finishes. It is a twenty-minute story about a new boat owner who had to sell his wife on his new hobby. Prints are available for yacht clubs, power squadrons and other interested

groups. To schedule a showing, write the Du Pont Company, Department D-16, 7010 Du Pont Building, Wilmington 98, Delaware, giving alternate dates, the name of your organization and the approximate number of spectators.

• **FREE ON REQUEST.** An illustrated booklet describing the various types of Du Pont coated fabrics engineered for home, business and transportation upholstery needs has recently been issued by the Fabrics Division. It can be obtained by writing to D-17 at the Company's New York office, 350 Fifth Avenue.

• **"PARZATE" FUNGICIDE.** This is Du Pont's newest and most versatile organic fungicide. It was especially developed and formulated for the convenience of growers who wish to simplify their disease-control programs through the use of a single product instead of several. Plant infections such as early and late blight of potatoes and tomatoes can be controlled effectively. For more information about it, write to the Agricultural Promotion Section, Department D-13, 2541 Nemours Building, Wilmington 98, Delaware.



• **NEOPRENE WASHERS FOR NAILS.** Does your metal roof leak around the nail holes? Then here's a new way to stop that trouble. Use weatherproof aluminum nails with a neoprene washer under the head of each nail to form a watertight seal, thus preventing leakage due to corrosion. The Du Pont-made rubber will not soften when exposed to summer heat, or harden and chip out in wintry weather. The Gora-Lee Corporation of Stratford, Connecticut, developed the process of making and assembling the washers. Two companies are now supplying aluminum nails complete with neoprene washers—Nichols Wire & Steel Com-

pany of Davenport, Iowa; and Independent Nail & Packing Company of Bridgewater, Massachusetts.

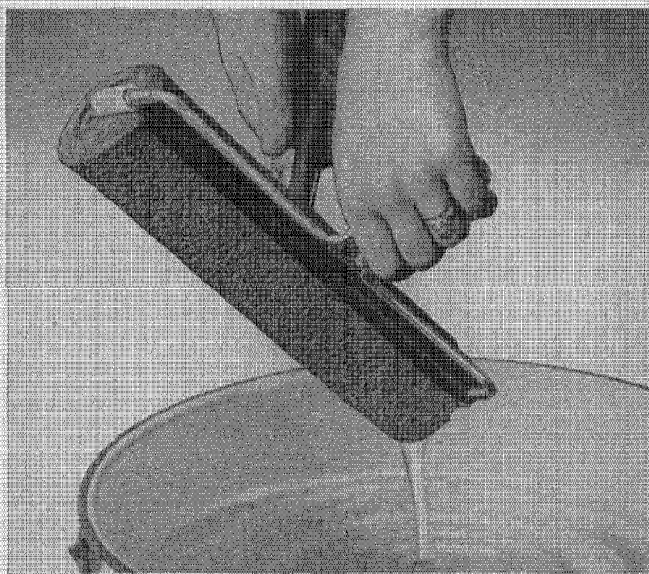


• **IT'S THE TOP!** Formed in one piece, the top of this popcorn vending machine is made of heat resistant, nonfragile Du Pont "Lucite" acrylic resin. There are no seams or corners in which dirt can collect; no metal framework to get hot. The crystal clarity of this plastic permits full visibility of the popping corn. The enclosure is dieformed by Steiner Manufacturing Company for Edo Aircraft Corp. both of Long Island, New York.

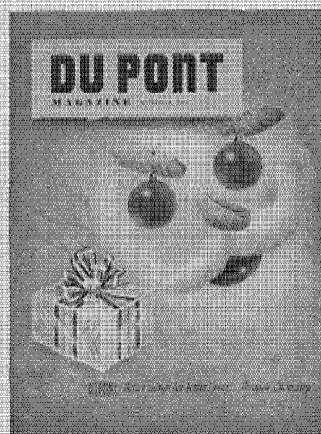


• **"JIFFY CUBE" MAKER.** Finger pressure alone in a jiffy releases an ice cube into the drinking glass. There is no need to hold this polythene cup under a hot water faucet or to pry out the cube. This Du Pont

plastic is flexible, resists sudden temperature changes, is tasteless and odorless. These convenient little cups are made by Plastray Corporation, Detroit, Michigan.



• **MANY PURPOSE MOP.** The business end of this "Vac-M-Mop" is a sponge-like material made from Du Pont neoprene rubber—neoprene because of its resistance to grease, oils, soaps and abrasion. Use it wet or dry to clean plain, carpeted or linoleum covered floors, windows, screens, walls and tile; also to apply liquid wax. In dry operation, the tiny suction cells pull dirt or animal hairs from a rug and also raise the nap; for wet cleaning, note the self-wringing device (see photo below). The Hollywood Mop Company, of Los Angeles, California, is the manufacturer.



Holiday Cover

Pardon a little skulduggery on the part of the editors, and the artists who produced the holiday cover for this issue of the Magazine. We've always felt that the best thing about the Christmas season is the undercurrent of mystery and wonderful suspense. So, to carry out our theme, we've worked in mysterious ways to place St. Nick on the cover. We don't think you'll have much trouble finding him.

There's no mystery, though, about that glistening package. We're glad to say that sheets of Du Pont Cellophane in yuletide colors and patterns are returning to stores. And there are accessory items such as Cellophane ribbons and tapes, and glittering Glassips to help you make your gifts something other than just packages.

The merriest of Christmases to you!

Oil from Seward's Icebox? *(Continued from page 5)*

Near Pt. Barrow is a steel-matted airfield adequate for C-54's, but mainly occupied by Stinsons, Bellancas, and Piper Cubs. During winter months all men, light equipment and supplies are flown to field camps in ski-mounted planes which land on runways scraped in the snow. In summer, the planes are equipped with pontoons. Much too often fogs, blinding snows and howling gales ground the planes for weeks at a time, completely isolating field camps from supply bases. Arctic Contractors' Polar Cab Company, which maintains cab service between the airstrip and Barrow camp, uses the slogan "We Aim to Freeze."

ARCTIC EQUIPMENT

The only other transportation is by "cat" trains—huge, Diesel caterpillar snowplows towing strings of "go-devils" gigantic cargo sleds, and "wanigans," which are sled-mounted bunk houses, cook shacks, and work shops. A "cat" train on the move is really a self-sufficient supply camp, crawling over the trackless wastes by compass at about five miles per hour.

The field crews, dressed like Eskimos, live in the mobile "cat" trains and work seven days a week except in the severest weather. Every day, except when weatherbound, seismic crews move out. Surveyors in tracked "weasels" mark the spots where holes are to be drilled. Huge, sled-mounted drill towers follow, towed by "cats." Mayhew and Failing drills are used, but oil men would scarcely recognize them because of the square housing built around the rig to protect drillers.

DRILL AND BLAST

Bore holes are generally drilled to a 60-foot depth into the "permafrost." When holes are bailed, the walls freeze in one or two hours, forming a natural, solid casing for the dynamite charge. While seismologists stretch out geophone lines, and adjust instruments, a shooter couples charges varying from ten to seventy

pounds of Du Pont Seismograph "Hi-Velocity" Gelatin 60 per cent. Priming one of the units with an electric blasting cap, especially designed for use in seismic prospecting, he lowers it to the bottom of the hole, loads the other two units, then fills the hole with water. The shot, which throws a dark plume against the white landscape, creates earth vibrations which are reflected back to the geophones, and thence to the recording device which makes a permanent photographic record of each shot. From these graphs an accurate picture of the underlying strata can be mapped.

At Petfour dynamite must withstand severe exposures. There are no dry storage magazines, and boxed explosives are stacked like cord wood in the open throughout the year. To meet requirements, dynamite must be non-freezing, water resistant and well packaged. Du Pont dynamite has proved entirely satisfactory, but the chief difficulty has been to keep enough on hand.

A RUSH-RUSH JOB

Last January dynamite supplies were so low that it seemed likely spring prospecting work would be delayed. To meet the emergency a truck shipment was rushed 2,600 miles in the dead of winter from the dynamite plant at Du Pont, Washington, over the Alcan Highway to Fairbanks, thence by plane to Pt. Barrow where "cat" trains completed the haul to the field camps. In August, a year's supply of Du Pont "Hi-Velocity" Gelatin came through in the annual convoy.

The contract with Arctic Contractors, while on an annual basis, will probably extend until the middle of 1950; meanwhile exploration goes on as fast as is humanly possible. Men of the Navy, Arctic Contractors, and of the United Geophysical Company deserve much credit for their pioneering work under difficult and hazardous conditions.

If Petfour *does* contain large stores of oil, our nation's oil reserves will be bolstered, and Alaska will have a new industry.



Before you buy — be sure to see Remington rifles and shotguns. It will pay you to wait until your local hardware or sporting goods dealer can make delivery. The complete Remington line includes shotguns, 22 caliber rifles, and high power big game rifles. Each gun is backed by 131 years of gunmaking . . . your assurance of dependability, long service, modern design and high quality. Millions of shooters depend upon the unfailing performance of Remington guns. And . . . when a Remington gun is loaded with powerful Remington ammunition, you have an unbeatable combination, that bags more game. *Remington Arms Company, Inc., Bridgeport 2, Conn.*

Woodsmaster, Gamemaster, Sportsman, Scoremaster, Sportmaster, and Fieldmaster are Reg. U. S. Pat. Off. by Remington Arms Company, Inc.

Model 11 five shot autoloading shotgun. Fast action, easy loading, light recoil, solid breech, 12, 16 and 20 gauges.

"Sportsman" three shot autoloading shotgun, 12, 16 and 20 gauges.

Model 81 "Woodsmaster" high power autoloading rifle. Holds 5 cartridges. 300 Sav., 30 and 35 Remington calibers.

Model 511 "Scoremaster" bolt action box magazine 22 repeating rifle. Six shot magazine capacity.

Model 512 "Sportmaster" bolt action tubular magazine 22 repeating rifle.

Model 121 "Fieldmaster" slide action 22 rifle.

Model 31 three or five shot pump action repeating shotgun, 12, 16 and 20 gauges.

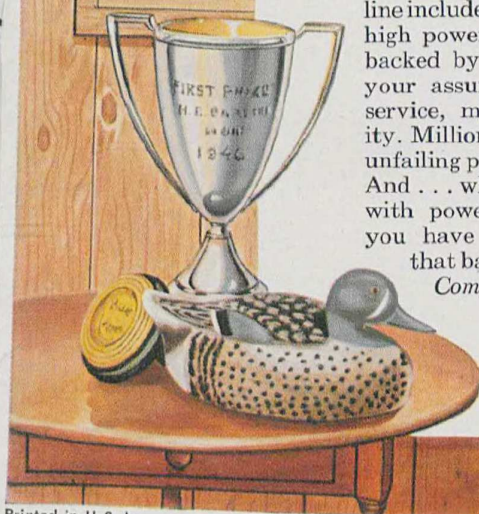
Model 141 "Gamemaster" the only high-power, slide action repeating rifle for big game. Six shot capacity. 30, 32 and 35 Remington calibers.

Remington

DU PONT

"If It's Remington—It's Right!"

CARL LINDGREN



SMART Decoration

... SEALING WITH "CEL-O-SEAL"

REG. U. S. PAT. OFF.

It's the *practical* way to colorfully enhance your package and seal in quality. Too, "Cel-O-Seal" guards against evaporation, leakage and tampering. And for brandy bottles, the Wind-O-Band* seal is smart for still another reason: it clearly displays the tax stamp, yet holds it securely in place.

"Cel-O-Seal" cellulose bands and "Wind-O-Band" cellulose seals are manufactured by E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware. They are also sold by Armstrong Cork Co., Lancaster, Pennsylvania, and I. F. Schnier Co., San Francisco, California.

*TRADE MARK

DU PONT "CEL-O-SEAL" BANDS

DU PONT "WIND-O-BAND" SEALS



BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

*DuPont Adm.
E.*

