

DU PONT

MARCH • 1946

MAGAZINE



BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

★ ★
Testing Dye Fastness

For life's fragrant moments...

depend on du pont

There's a magic in perfume, finely scented cosmetics, fragrant soap, and in the bottles and jars on the dressing tables of millions of American women — there by the grace of American perfumers and synthetic aromatics. More and more today, manufacturers rely on aromatic research to hold a haunting fragrance... to match a favorite blend... to add to feminine loveliness the precious enchantment of perfume. Makers of industrial products, too, are learning the value of synthetic aromatics in enhancing the sales appeal of their merchandise. Whatever a manufacturer's perfume problem, Du Pont's aromatic chemists have the "know how" — can find the answer. You can always depend on Du Pont.



du pont aromatics

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY



E. I. DU PONT DE NEMOURS & CO. (INC.)
ORGANIC CHEMICALS DEPT., AROMATICS SECTION, WILMINGTON, DEL.



patchwork quilt on the line—it's washday at the Du Pont Technical Laboratory at Deepwater. The strips of sample dyed and printed cloth which the young lady is pinning up undergo severe laundering and exposure tests to determine fastness of the dyes. The brilliant vat colors shown here are the most durable of the dye family.

This picture illustrates one of the many ways in which the Du Pont Company is preparing for the pent-up demand for color. Wartime restrictions dimmed the civilian color scheme, but now that the lid is off the dyestuffs industry, things are different. Right now it looks like a mass movement to outshine the peacock. With the ex-servicemen and women leading the parade, civilians are hurrying to climb on the band-wagon.

Du Pont is ready for the color parade. Our expanded facilities have been converted already from military to civilian products. And for the future, our research chemists again are devoting their entire efforts to peace-

a more colorful life for us all.

The glowing finish of yesterday's fine old carriages and victorias represented *glorious days* of arduous handiwork. You'll see why when you read "Down Memory Lane" on page 20.

The East Coast of these United States is replete with carefully-lettered signs stating that George Washington "slept here," "ate here," or "visited here." The article "Where Washington Walked" in this number describes the site chosen for the new "Washington Works" of the Plastics Department.

The four great steps in the improvement of automobile wheels and tires are listed in this chronological order: pneumatic tires, demountable rims, all-steel wheels, and balloon tires. Another development may well be the greatest boon yet to the motorist—tires with rayon cords for passenger cars. The story "The Best Tires Ever," page 4, tells how you benefit from rayon research, and some eye-opening facts about rayon in automobile tires.

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EXPLOSIVE RIVETS ★

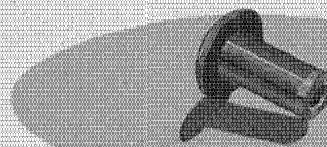
NOW SHIFT TO PEACETIME USES

FAST-working fasteners—Du Pont Explosive Rivets—which helped speed plane production during World War II, are now available to industry in general.

They are not new . . . many of them went into the fuselages of America's fighting airplanes, the B-29, "Corsair," the "Marauder," and scores of others. The rivets helped simplify design, and speed construction, when speed held top priority.

And now these have been adapted to the peacetime mass production of many metal-product fabrications. They retain the basic features of the earlier types, but a new wrinkle lies in the extension of the cavity (this contains the explosive charge) along the whole length of the rivet shank. This does away with the necessity for close-tolerance drilling, and provides fasteners which will accommodate a wide range of metal thicknesses. As before, the rivets are fastened in place by firing the small explosive charge in the shank of the rivet.

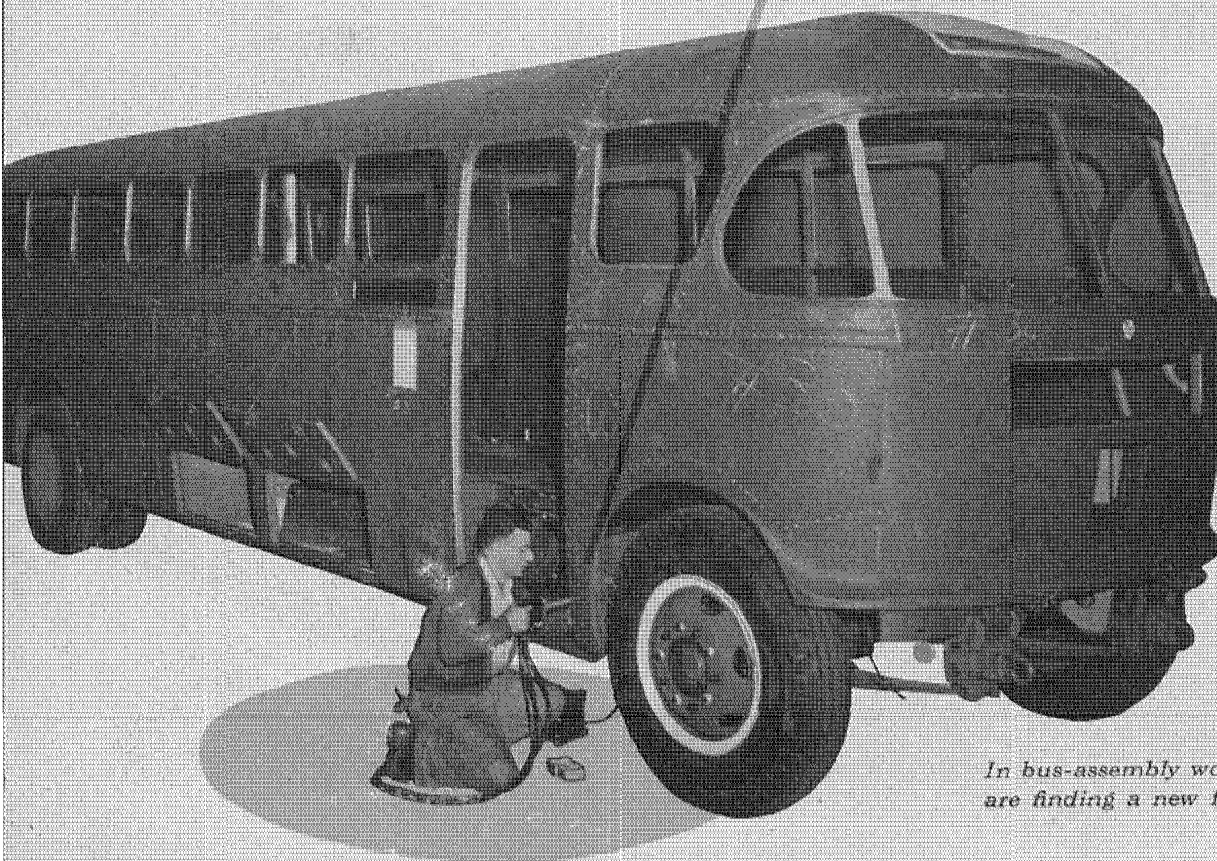
Riveting by this method is a simple, two-step operation, with one person performing the entire chore. After the rivet is seated in the punched or drilled hole, the operator applies the tip of an electrically-heated iron to the rivet head.



Heat fires the explosive charge in approximately two seconds, depending on the size of the rivet, and the material from which it is made. The shank expands, filling the hole completely, and a barrel-shaped head, formed on the "blind" end, locks the rivet securely in place. The strength of the explosive type of rivet is only slightly less than that of the conventional "solid" rivet.

These improved rivets are now provided in 1/8", 5/32" and 3/16" diameters, and will be produced in additional sizes. They are made of various materials including several aluminum alloys, brass, copper, steel and Monel metal.

Explosive rivets will be useful in the automotive industry for construction and maintenance of chassis, bodies, and attachment of accessories and parts. In

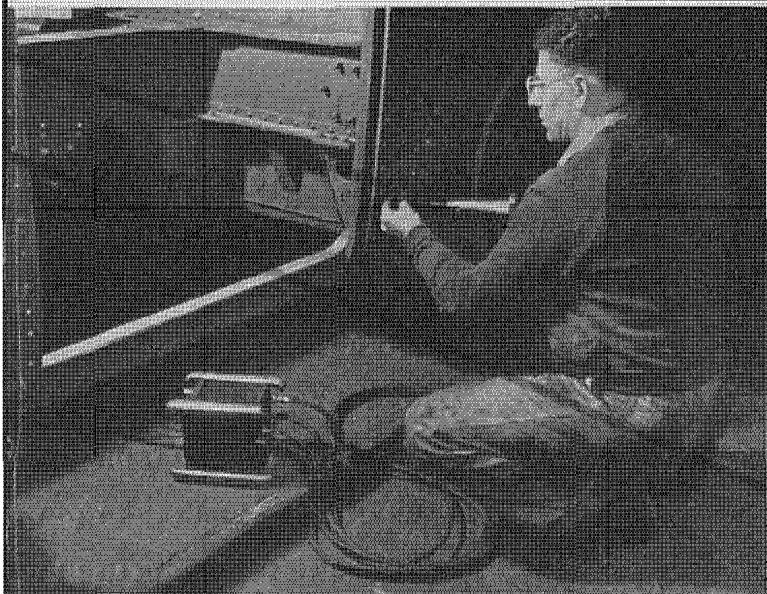


In bus-assembly work explosive rivets are finding a new field of usefulness.

Heat transferred from a Du Pont Riveting Iron fires the charge, and presto, a strong, tight joint is formed.



Left: He holds the iron on center of rivet head and perpendicular to the work. That's important.



refrigeration—cabinet construction for farm and home freezers, locker plants, commercial refrigerators—explosive rivets will be helpful at many points.

They are well adapted for the construction of pre-fabricated housing, for attaching paneling and similar applications. They will be suited to the construction and sealing of air-conditioning ducts and in the heating and ventilating field for the fabrication of furnaces, stokers and housings.

Other fields of usefulness include: chassis work, cabinet construction, and attachment of parts in radio and television; assembly of small craft, construction of ducts and compartments aboard larger ships, in boat building; for interior panels, accessories, air-conditioning systems, and refrigerating units of freight and passenger cars for railroads; in general assemblies, filing cabinets, desks, tables and chairs for metal furniture; for washing machines, vacuum cleaners, ironers, toasters and other items among household appliances; and for affixing name plates permanently and firmly in place on innumerable manufactured or fabricated articles.



Even an electric soldering iron with a special tip can be used, if necessary.

THE BEST TIRES EVER! ★

By GEORGE ALBEE

TIRE manufacturers have announced new tires for passenger cars which will be the best ever offered to the public. Conservative manufacturers, not given to extravagant claims, are saying that the new casings will run for forty or fifty thousand miles; and there are even those who feel that soon tires will last for the life of the average car.

What is more, there is good reason to believe that these new tires will offer increased riding comfort and greater security against blowouts.

Years ago, it was an unusual tire which ran for more than two or three thousand miles. And that tire was a rarity indeed which did not plague its owner, during its all-too-brief lifetime, with a varied assortment of punctures and blowouts.

As year followed year, tires were much improved. A number of contributions to tire manufacture were made by the Du Pont Company. The Rubber Chemicals Division alone, for instance, developed a number of products for use in rubber, which increased the life of tires. But that is another story. Here we are concerned with the work done by the Rayon Department.

Most ordinary textile rayon is made from wood pulp. The pulp is soaked in caustic, extra liquid is squeezed out, and the alkali cellulose which remains is shredded into a light, fluffy mass. When it has been stored awhile under controlled atmospheric conditions it is treated with carbon bisulphide to form sodium cellulose xanthate. (Which looks much like the ground-up pumpkin pulp that goes into the making of a pumpkin pie.) The xanthate is then put into solution. By sending jets of this solution through a spinneret into an acid bath, it is coagulated in fine filaments.





With rationing restrictions lifted, American motorists will soon throng the highways to make good use of better gas and, importantly, better cord tires.

During the early years of its life, rayon was used mainly for knitted and woven clothing. However, with an improved tire yarn in mind Du Pont set out to find a way to produce rayon which could be made into strong, durable cords.

Such cords would have to be extremely tough—and it was a tough problem.

The first step in its solution came with the discovery that a stronger rayon could be made by using cotton linters as the original source of cellulose, in place of wood pulp. Linters are the fuzz on the cotton seed. It was found, also, that the viscose solution had to be prepared and handled with extreme care.

But perhaps the most important lesson was one

which the silkworm had learned thousands of years before. As he spins his filament, the silkworm *stretches* it. This gives it strength. Wire manufacturers do much the same thing in making steel wire.

And so with the stronger type of rayon on which the Du Pont experimenters were working. They stretched it—and found that its tensile strength, as a result, was more than twice that of textile rayon of that day. They made rayon with a tensile strength on the order of seventy thousand pounds to the square inch—strength comparable to that of structural steel used in a building.

Where and how to test the new type of rayon were the next questions.

The glistening, symmetrical cords made of the new

rayon had one property which was highly unusual. Within certain limits—the hotter they got, and the drier they got, the stronger they got!

Where were there tires in use which developed unusual amounts of heat—so that this heat-strength property of the cord could be checked?

Du Pont approached the tire manufacturers, requesting road tests where test trucks in the Southwest made high-speed runs on hot roads under heavy loads. Permission was obtained to try out tires made with cord of the new Du Pont rayon under such grueling conditions. Then the Rayon Department anxiously awaited the results.

Come in they did—and they were almost unbelievable; even sensational.

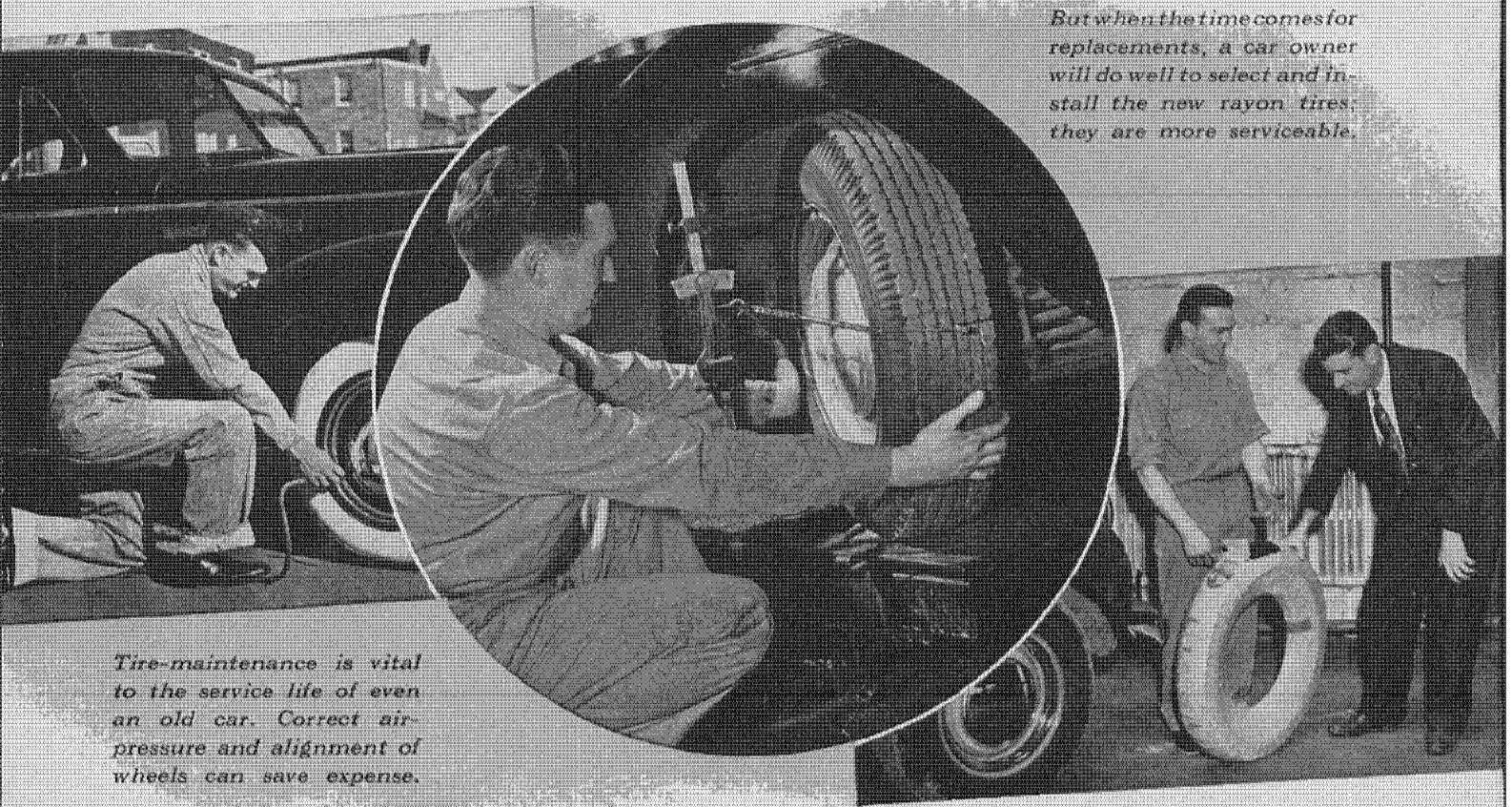
sands of wheeled vehicles never seen, never known, never imagined before—jeeps, half-tracks, gun-carriers. They had to be able to go anywhere, to stand anything from flinty desert roads to jungle muck. They had to have tires that could take treatment no other tires had ever taken—tires made, what was more, with synthetic rubber, which generated more heat while running than did natural rubber.

The tires were tires with rayon cords.

So outstanding was their performance under war conditions that all doubt—if any had remained before—was swept conclusively away. Nobody who had even the slightest acquaintance with rayon cords could help but know they were better.

In consequence—perhaps by the time you read this

But when the time comes for replacements, a car owner will do well to select and install the new rayon tires: they are more serviceable.



Tire-maintenance is vital to the service life of even an old car. Correct air-pressure and alignment of wheels can save expense.

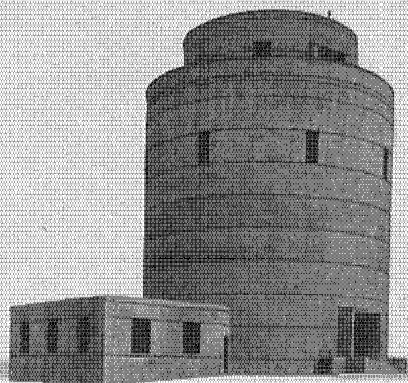
In one case, where the mileage obtained with tires of that day was only 600 miles—this was under conditions where the thermometer climbed above 100 and stayed there!—the rayon-cord tires ran 18,000 miles. In another test, where the usual mileage was 3,000, the rayon tires ran 80,000! (Incidentally, even after 80,000 they were still good.)

Du Pont called the new material "Cordura" high-tenacity rayon. Several tire manufacturers became interested in it, and tires with cords of "Cordura" were serving on buses and trucks in considerable numbers when war was declared.

Mechanized war called into being hundreds of thou-

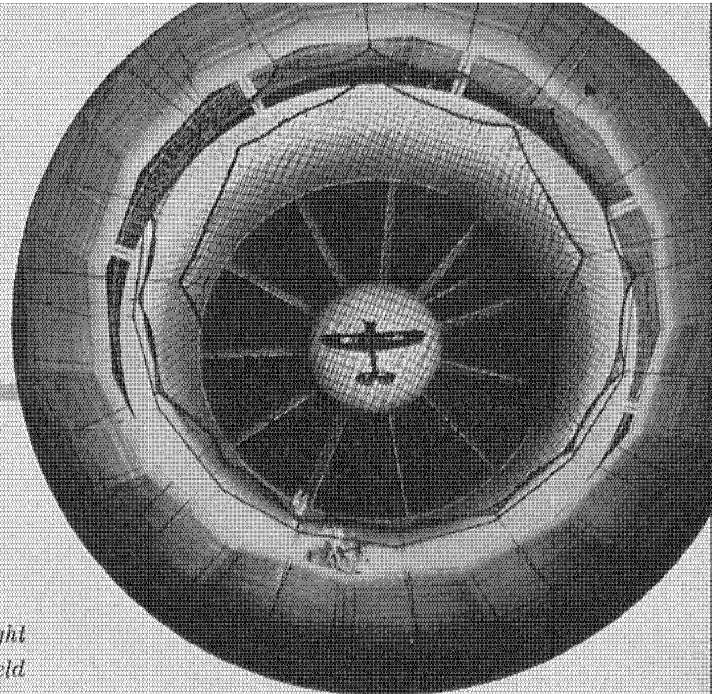
—every American tire manufacturer without exception may have rayon-cord tires on the market. Just how much mileage they will give you, no one knows. But it is safe to say that they will give you far more than any others you have ever used—along with greater comfort and greater safety.

Other companies besides Du Pont, of course, will supply rayon to the tire manufacturers. But we of the Du Pont Company are keenly proud of the fact that this important, progressive step in tire manufacture has grown out of long-time Du Pont textile research. For "Cordura" high-tenacity rayon yarn, one of this Company's "better things", was first in the field.



EVER SEE A VERTICAL TUNNEL?

Model airplanes are tested in free flight inside the new wind tunnel at Wright Field



MOTION-picture film is used so extensively in the entertainment field that one may easily overlook the part it plays in scientific research. Millions of people think of nylon in terms of stockings and parachutes, but not in connection with testing model airplanes. That's why this story, in which film and nylon figure, may be worth re-telling.

From the Public Relations Office of the Air Technical Service Command at Wright Field, Dayton, Ohio, we obtained a news release about the new *vertical* wind tunnel illustrated here. It looks like a de luxe silo, this sturdy structure of concrete eighty feet high. But there's no cattle food inside. This is a testing laboratory. Largest of its kind in the world—it is as well constructed and equipped as a Government lighthouse.

The test tube or "tunnel," centrally located within, is twelve feet in diameter and is lined with polished maple. It extends to the top where a big, four-bladed propeller, turned by a 1,100 h.p. motor, draws up an airstream through the tunnel and forces it down the annular passage between the inner cylinder and surrounding concrete wall. The ascending column of air serves to keep aloft models of new planes in free flight. By adjusting the pitch of the propeller, the velocity of this airstream can be controlled at will with the motor operating at a constant speed.

Tests are conducted from a recessed observation balcony opening into the tunnel throat halfway up the test section. Here, too, copper rings extending around the cylinder are installed on the inner wall and banded together, forming a part of the equipment for an electromagnetic control system we'll mention later.

The small wooden planes used in this wind tunnel have a wingspread of only two to three feet—about one-thirtieth that of a full-scale plane. They are built to amazingly exact dimensions and represent near perfection of the model-maker's art. These miniatures are accurate to within one-hundredth of an inch; they are balanced by weights to within one-tenth of a gram. Each one contains a complete set of controls, including

ailerons, flaps, rudders and elevators. All parts are operable by remote control with the precision of a pilot.

The test operator in the observation balcony is the pilot. He controls the flow of electrical current through the copper rings previously mentioned; and they, in turn, magnetically activate the controls of the plane. Thus, he can make a model spin, dive, climb or go through any other maneuver and watch its performance. But he doesn't have to rely on his memory of what happened—and that's where photographic film comes into the picture.

Synchronized motion-picture cameras located at the top and side of the test section of the tunnel are recording every motion and reaction of the plane in flight. The pictures are made at high speed and later projected at slow speed, so that the technicians can get a slow-motion view of the entire performance for intensive study. After the test, when the propeller stops functioning, the model plane, lacking any airstream support, is forced to land, not on the floor below, but in a resilient nylon net stretched across the base of the test section.

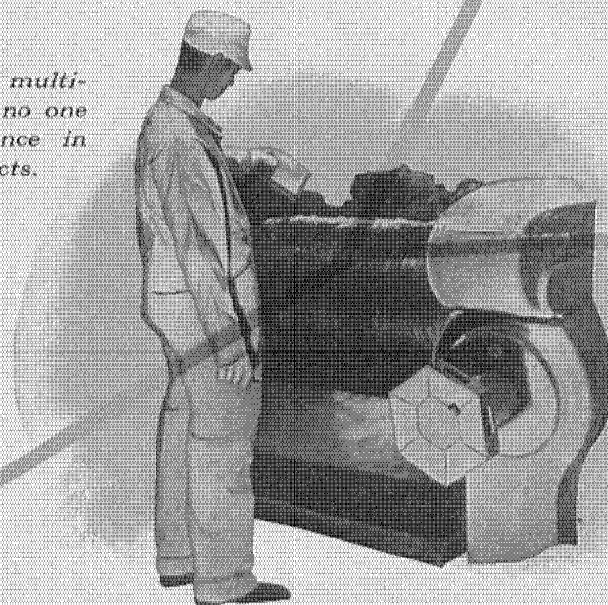
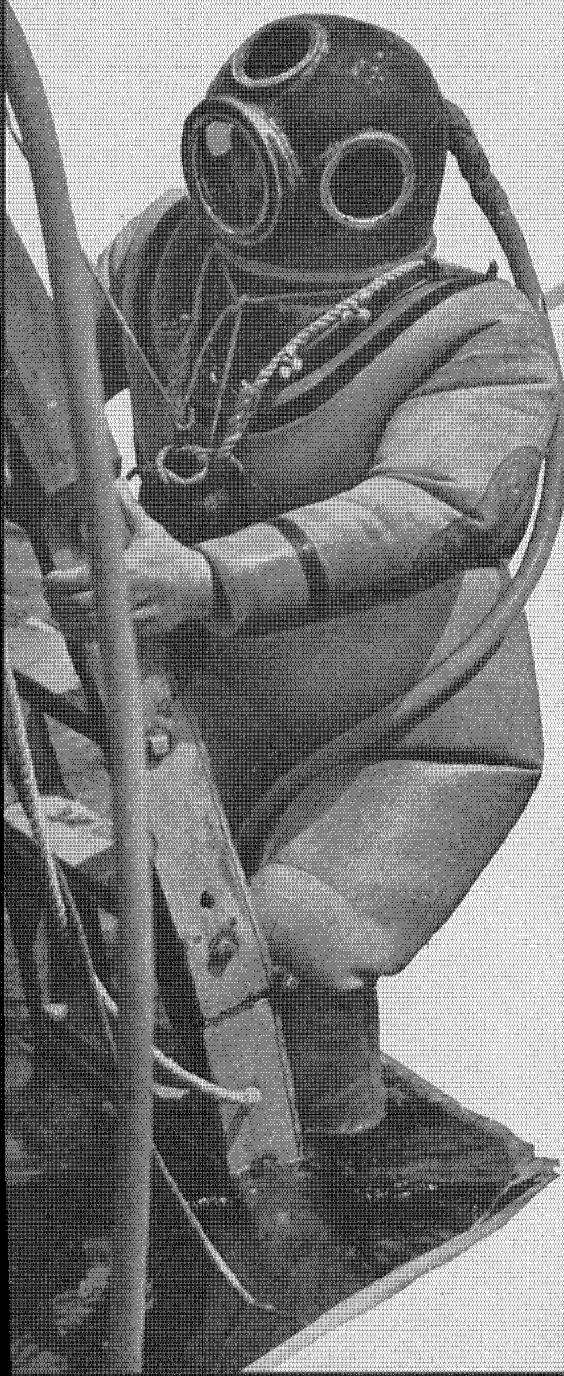
Aerodynamic tests with model planes of new types still in the blueprint stage will, it is believed, result in the saving of large sums of money, working hours, and even the lives of test pilots.

As the ATSC continues its experimentation and development of the helicopter, the vertical tunnel is expected to be the scene of much important research on rotor blades. Mounted on a streamlined hub at the base of the tunnel, model rotor blades can be tested for vibration and stress analysis while subjected to simulated flight conditions created by the up-sweeping airflow. Parachute models will be tested for "sway" in the airstream and, when attached from beneath to a force recording mechanism, will be checked to determine the weight the chute can safely support in descent.

American air supremacy must be maintained, and you may be sure that the scientific work at Wright Field will continue to be a big factor in the development of better and better planes for war and peacetime needs.

RUBBER CHEMICALS

Scores of materials with multi-syllabic names, but let no one discount their importance in processing rubber products.



IF THERE is anything less exciting than a life-insurance rate book, it could be a price list of industrial chemicals. Age 47—Premium \$40.11 is understandable to most adults, but Di-ortho-tolyl-guanidine—44 cents per pound in ton lots doesn't mean much to a layman.

"What is the product with the hyphenated name?" you ask.

A Du Pont price list before me shows that it is one of twenty-seven rubber accelerators, grouped with such jaw-breakers as Aldehydeamines, Benzothiazoles, Dithiocarbamates, Guanidines, Thiazoline, Thiramams . . .

"Not so fast," you cut in. "Just what does a rubber accelerator do?"

"Helps to speed up the process of vulcanizing rubber and improves the strength and toughness of finished products."

"So what?" you reply.

"So you can buy a new set of tires for that jalopy of yours—tires that will last and take the beating you are giving them."

"That's interesting; tell me more."

"'Neozone' A and a dozen other antioxidants are serving our nation well," I venture to say, when you cut in again: "What in blazes is an antioxidant?"

"Could be some substance to prevent oxidation," I suggest, and a little dictionary research confirms that it is.

If your house burns down, don't bother to look in the ruins to salvage rubber boots or raincoats; they

WHAT ARE THEY?



won't be there. But the value of rubber goods destroyed accidentally by flames is small compared to what is consumed slowly by flameless fires. Sunlight, ozone, radiant heat from hot pavements are injurious to automobile tires. Even the air in your office is slowly burning your rubber bands. Oxidation of all kinds is a great destroyer of vulcanized rubber products; hence, chemical antioxidants are incorporated in them to retard such tendencies—and they do prolong the useful life of manufactured rubber articles. Garden hose, overshoes and thousands of other things made of rubber in our day are much better products because they are better compounded and processed.

Consider automobile tires, for instance. In 1910, a good tire would give about 2,500 miles of road service. But in 1940 a tire of the same size, containing more rubber and capable of being driven at much higher speeds, usually gave its owner 15,000 to 30,000 miles of service. And its initial cost, compared with that of its 1910 prototype, was about one-half. Of course, the cord tire, new fibers such as high-tensile rayon, and the use of carbon black have contributed to this result, but the skillful use of accelerators and antioxidants has been a great factor in this advancement.

Consider next the four peptizing agents listed under lettered and numbered designations. You know, of course, that crude rubber goes through a sort of kneading operation, mechanically performed between heavy revolving rollers, before it is ready to mix with other

ingredients and to be processed into the finished product. But rubber isn't like bread dough; in fact, it is exceedingly-tough stuff to mix with other compounding ingredients—and that takes a lot of time. At least it did before rubber chemists introduced in the batch certain peptizers—chemical softeners—to expedite the milling.

Time saved in processing saves money in production, and likewise makes possible lower consumer prices for finished articles. Probably you never heard of the RPA peptizers—you may never hear about them again—but they are on the job helping to keep costs down for users of rubber goods.

Rubber Colors

You have probably admired the gaily-colored toy balloons so commonly seen whenever a circus comes to town. Dyes and pigments compounded in the rubber itself account for the bright and brilliant hues that make these toys attractive to children. Rubber colors are also applied to many articles that are in no sense toys—hot-water bags, garden hose, household gloves, bathing caps and suits, floor coverings, to mention only a few. And the color range is more extensive than many people would suppose it could be. As shown in the price folder, there are colors for natural and synthetic rubbers in both solid and latex forms, twenty in the first group, nine in the second.

Also listed under a miscellaneous classification are a dozen or more processing materials, from Aquarex BBX to Unicel. Just how they serve in the production of rubber or rubber-like materials must be left to your imagination.

The product groups mentioned include almost a hundred items—ninety-seven, to be exact—and we are told that there are others not listed. Even so, this brief summary will give you some idea of the kind of products the DuPont Company's Rubber Chemicals Division supplies to the rubber industry.

You didn't realize there were so many?

Naturally. You're not a rubber chemist, or a compounder or fabricator. Consumers are concerned with *finished* products of this industry, not the raw materials or processing chemicals.

"Precisely," you say with a wry smile. "Have you read any good books lately?"

"No," I counter, "but some day you'll read one that will make you cheer the work done by the chemists, engineers and plant operators of America's rubber industry. Their wartime efforts enabled our nation to overcome almost insuperable odds. The background facts are common knowledge."

Pre-war, the United States was the world's largest importer of crude rubber, chiefly from the East Indies. After Pearl Harbor, the Japs completely shut off these sources of supply, leaving us with only an inadequate stock-pile that had been accumulated in this country. That was another crippling blow. Our enemies thought we were down for the count—said we couldn't possibly get back on our feet and fight on. But we did . . .

"With synthetic rubber?" you venture.

"Yes, sir."

And that brings us back to the processing chemicals the public knows so little about. They had been used

(Continued on Page Twenty-three)

NOW THAT the long-looked-for day has come, when we as a nation turn from the ways of war to the ways of peace . . . it seems fitting that each vital industry of America should make a sober estimate of what it hopes to contribute to the different, but no less urgent, needs of our peacetime economy.

More specifically—what has been the progress of Du Pont plastics during the war years, and in the light of that progress, what can they reasonably expect to offer in the future?

During the war years, Du Pont brought out two wholly new plastics, in addition to improved forms of others.

Polythene—One newcomer—used extensively for many applications during the war—is Du Pont *polythene*. This chemically inert thermoplastic is the lightest of all thermoplastics commercially produced. Polythene is admirably suited for insulation of wire for high-frequency current, where its low electrical losses and general physical and chemical characteristics are unequaled by any other material. Its water absorption is less than 0.005%. It is being and will be used in television cables, as containers for highly corrosive chemicals, as a packaging material, and for shower curtains, umbrella coverings, bowl covers and a host of other things. Polythene, originated in England by Imperial Chemical Industries, Ltd., has been developed and improved by Du Pont.

Nylon—Another newcomer is *nylon* for use as a plastic. Nylon offers unusual toughness and a high service temperature, which permits steam sterilization. Also, nylon retains its impact resistance at extremely low temperatures. Nylon has been used for electrical coilforms in telephone headsets. It is being used today in tumblers, tableware, slide fasteners, and combs. A whole new field of use for nylon is in extrusion jacketing of insulated wire, where it contributes resistance to abrasion, to gasoline and other organic solvents. There are now five formulations of nylon to furnish different properties and characteristics for different requirements.

Nylon Paintbrush Bristles—Also new are tapered nylon bristles for paintbrushes. When the war began, they had not been perfected; today they have years of service behind them. The Navy has used millions of them. Repeated tests show that nylon bristles, tough and resilient, possess a combination of advantages unobtainable in any other type of bristles—and they outwear the best hog bristles from 3 to 5 times.

"Lucite"—"Lucite" methyl methacrylate resin returns from war with its virtues of transparency, weather-resistance, good optical qualities, lightness in weight, proved by service in many critical applications. This plastic was used on many of our warplanes for enclosures, turrets, sighting domes, etc. So great was the Army's and Navy's demand that production was increased tenfold with *five* resultant price reductions. Builders of civilian airplanes will surely profit by their war experience with "Lucite." Peacetime markets have stored up a huge demand for both plain and colored "Lucite"—for compact, medical instruments, television lenses, sparkling display fixtures, decorative home furnishings—uses old and new.

Heat-Resistant "Lucite"—An added wartime development is a new formulation, HM-122, high heat-resistant "Lucite" molding powder. HM-122 provides heat-resistance 30 to 40°F higher than that of general-purpose acrylic powders. In war it has been used for military vehicle lenses, parts of sextants, airfield landing-light lenses. In peace it will serve, among other uses, in automotive, refrigerator and radio parts. It can be produced in a variety of attractive colors. Two other new formulations of "Lucite" powder provide ease of molding with various degrees of heat resistance.

Other Du Pont Plastics—The war years saw those old reliables, "Pyralin" cellulose nitrate plastic and "Plastacele" cellulose acetate plastic, take on a wider variety of jobs, often saving weight and conserving precious metal. "Butacite" polyvinyl butyral resin, the tough plastic used as the interlayer of safety glass, has also been used successfully between sheets of "Lucite" to protect airplane enclosures of pressurized cabins against shattering.

From Du Pont's extensive *research*, several promising new plastics are expected to be ready during the first five post-war years. To produce these plastics and to meet expanding demand for existing ones, Du Pont is erecting a *new plant*, in addition to the present operation of one of the largest plastic plants in the country. These plastics will help perform many tasks better and more economically; they will also make many products more attractive, more salable. And so, Du Pont faces the future with confidence—confidence that in the years ahead more people can use plastics for a greater number and a greater variety of purposes.

NOW WE CAN TELL

By ARTHUR M. VALZ

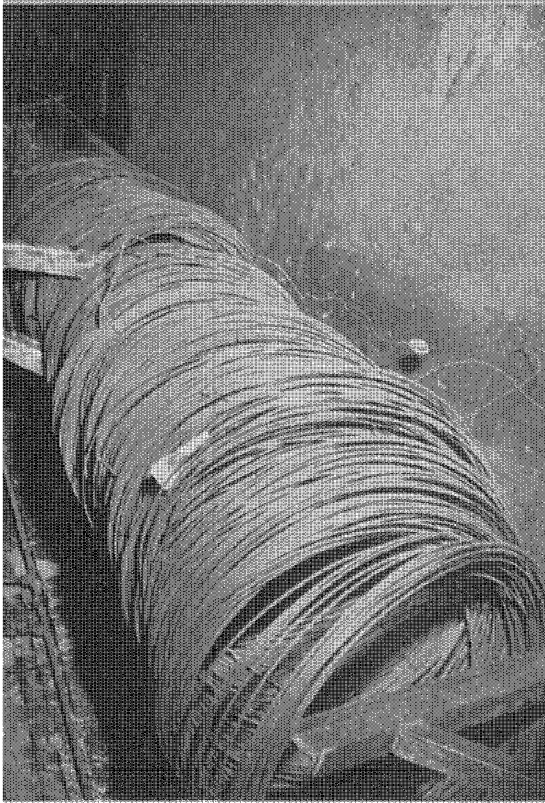


A **SECRET** order of the Patent Office prevented a public announcement of the DuPont Sodium Hydride Descaling Process, developed during World War II, to remove oxide scale from metals and alloys. Now we can tell you about this process, which an editor of *The Iron Age* refers to as "the most significant development in pickling (descaling) in decades."

This recent discovery contributed to the war effort

and industry a descaling process which excelled the older methods. Heretofore, scale—oxides forming on the surface of metals in the process of fabrication—was dissolved by soaking the work in an acid pickling bath in order to etch off any surface rust or scale. Alloy steels, and particularly the stainless steels, are more difficult to pickle than ordinary carbon steels. When acid pickling is used, pitting of the metal can occur if due care is not

Coils of scaly stainless-steel wire are ready for the sodium hydride bath—a fused caustic solution that reduces scale for easy removal but does not otherwise affect the metal.



exercised, and a loss of two to three per cent of the base metal may result.

Even before the war, DuPont chemists had been experimenting to find an improved descaling method. Experiments revealed that it was possible to form sodium hydride directly in the caustic bath from sodium and hydrogen. They discovered that molten caustic soda at 700° F. containing 1.5 to 2 per cent of sodium hydride—a reaction product of sodium and hydrogen—made a superior pickling bath.

The new process is applicable to alloy steels, particularly the stainless steels, nickel, cobalt, copper, and all metal alloys and bimetals or composites, which either do not react with molten caustic or whose physical characteristics are not adversely affected by the temperature employed. It is not feasible to descale aluminum and its alloys by this method because caustic soda at 700° F. may attack them.

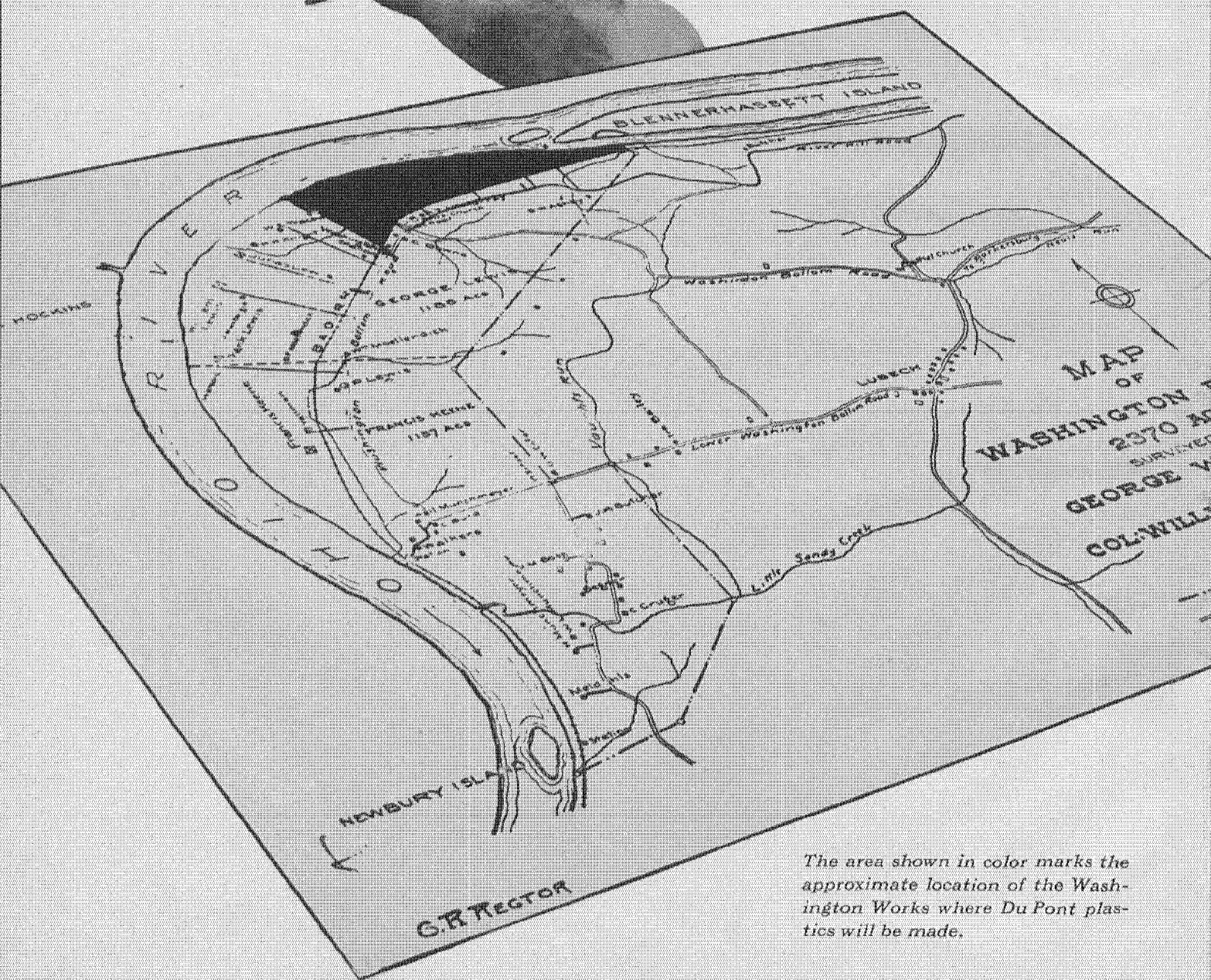
The time of immersion of metal in the fused bath varies from only a few seconds to twenty minutes, depending upon the thickness and nature of the scale. The bath penetrates throughout the work and produces uniform descaling of all surfaces. Prolonged treatment does not harm the material for the reaction ceases when action on the scale is complete. The original dimensional

(Continued on Page Nineteen)



Center, Right: After the treatment the coils, weighing about 1½ tons, are removed. For a close-up view of

WHERE



The area shown in color marks the approximate location of the Washington Works where Du Pont plastics will be made.

WASHINGTON WALKED



The new Du Pont plastics plant site in West Virginia is steeped in historical associations.

ALONG one sweeping curve of the Ohio River a few miles below Parkersburg, West Virginia, is the little village of Washington. You know the name well, for it identifies our nation's capitol, one state of the Union, thirty counties, and some forty other cities, towns and post offices in this country, according to the latest U. S. Postal Guide.

The West Virginia town has a population of less than 1,000, but its residents have a special reason for civic pride, for the town site and large areas surrounding it were grant lands owned by George Washington even before the Revolutionary War.

How he acquired the property is a story that really began in the 17th century with frontier troubles between English and French colonial governments. Three wars, started on European soil, had spread to the New World before the outbreak of the French and Indian War in 1754. This fourth conflict started with a dispute over the possession of the Ohio River Valley. The first armed clash occurred at Great Meadows where Major George Washington built Fort Necessity and defended it against the French until he was forced to surrender on July 4, 1754, for the first and only time in his military career. The incident is mentioned because the site of this fort—now in Fayette County, Pennsylvania—is near the Du Pont Company's Fairchance powder plant.

Washington, West Virginia, which is more than 100 miles from Fort Necessity, as the crow flies, comes into this story both before and after the French and Indian War. Here's how that happened: Before hostilities began, Governor Dinwiddie of Virginia realized that if the French were to be shut out of the Ohio valley, he would have to recruit an expeditionary force. In order to stimulate enlistments he issued a proclamation setting aside 200,000 acres of Ohio land which was to be distributed among officers and men for military services. About half of this land area was located between the Little Kanawha and Big Kanawha rivers.

After the war, in 1772, Lord Dunmore, then Governor, made the promised distribution and among the lands granted, George Washington, according to the record, received 2,314 acres. That his tract was a choice one is clear, for in Washington's Journal, October 27, 1770, he described it as follows:

"Opposite the Little Hockhocking there is a bottom of exceedingly good land through which there runs a small water course. I suppose there may be of this bottom and flat land together two or three thousand acres."

This area, in Wood County, West Virginia, has been known as Washington Bottom for 173 years. Inci-

dentally, directly across the river are more good lands in Washington County, Ohio.

In speaking of historical name associations, we should also mention that at the upper end of Washington Bottom the view across the Ohio River is obstructed by Blennerhassett Island. Its name, too, is remembered by students of American history, for it was in the palatial home of Harman Blennerhassett on this island, that Aaron Burr hatched the abortive scheme of establishing a new empire in southwestern United States and Mexico. The scheme fell through, and Aaron Burr was held for treason, but was finally acquitted. Blennerhassett was big news in those stirring early days of the 19th century.

Washington Bottom with all its military and political associations has remained an agricultural community. Not until recently was much thought given to its industrial potentialities. It's true in the 1890's a canning factory was established there. There was also a mill. Last August, when newspapers reported that the Du Pont Company was exercising options to purchase about 400 acres of land formerly owned by George Washington, the story made the headlines. This land was acquired to provide adequate space on which to expand the manufacturing facilities of the Du Pont Plastics Department.

Some of the plastics to be manufactured at the Washington Works are "Lucite" methyl methacrylate molding powder, and nylon in its various plastic forms, such as bristling filaments and molding powders. These products served our nation's military needs, and there is every reason to believe that the peacetime demand for them will increase.

Another DuPont plastic, relatively new, but with outstanding properties for electric-wire insulation, is polythene. It is well suited for many other industrial applications. The polythene polymer is manufactured at Belle, West Virginia, but the Plastics Department will establish at Washington Works large-scale facilities to modify and further process this polymer for use in the manufacture of rods, sheets, tubing and other forms.

Aside from these specific projects, it is expected that as a result of the Company's continued research on plastics, several other new products may be ready for commercial introduction within the next five years. One thing is certain, the new plant site will provide plenty of space for further expansion of plant facilities whenever the need arises.

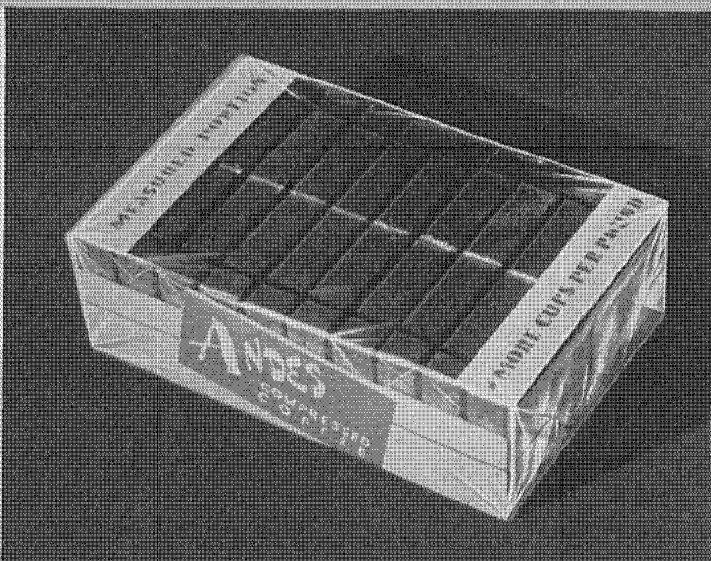
The Washington Works will supplement the existing manufacturing facilities at the Arlington Works in New Jersey. It is planned to start construction in May.

This "cooler" should have a warm reception, because each "drink" is wrapped separately in cellophane for greater convenience and sanitation.

A variety assortment of cheese to suit the taste of house guests. Note that this package enables one to see all four of them.



PACKAGES WITH



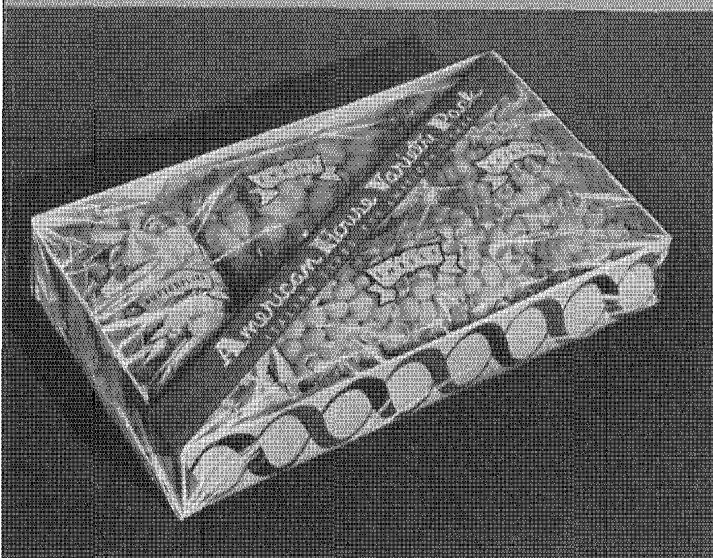
Shoppers will find it difficult to resist the appeal of coffee rings or of chicken when displayed in eye-catching packages like these.

A familiar product in a convenient package. Measured portions of coffee save precious time in the kitchen for the housewife.

Ready to serve—cake products pre-cut, wrapped in cellophane and informatively labeled. Housewives like this package, for it saves time.



A FUTURE ★ ★



The macaroni family is on parade in a package that almost says, "Try us all once, and then you can select the ones that you like best."

MRS. AVERAGE CONSUMER had to put up with many inconveniences during the war. Crowded stores, long hours of waiting to be served, scanty supplies of merchandise, ceiling prices—these were some of her troubles. She had plenty of others too. Wartime buying will be remembered particularly by the housewife who had to keep the family larder stocked with food.

During the emergency she was restricted and controlled not only by her pocketbook, but also by her ration book—and changes in ration point values frequently presented added troubles. With meats, cheese, butter, lard, canned fruits and vegetables rationed, the American shopper had to think twice before she purchased much of anything. All too often she accepted, not what she wanted, but only what her grocer could supply. The same situation prevailed everywhere in stores of every kind.

During the war she even learned it was bad taste to ask, "What brands of cigarettes do you have?" She stood in line and bought whatever kind the dealer had to offer. Wartime shopping took a lot of her time—and it made her value-conscious. Now that the food crisis is over, the tables are beginning to turn, and she will be less docile and more choosy. If a particular retailer does not please her with his goods and services, her patronage may go elsewhere.

Many a dealer, to regain her confidence, will have to show why she should continue to buy goods from him. One of the most convincing ways he can get back into her good graces is to display his merchandise attractively so that she can quickly see, appraise its value and make her decision. That's where the package comes into the picture.

Effective display is a fundamental requirement in present-day merchandising. Progressive dealers know this, which explains why many old-style service stores are being converted as fast as possible to self-service. Experience has shown them that consumers, given the opportunity to select merchandise for themselves invariably buy more.

For example, following a recent survey in food stores, it was found that three out of four shoppers interviewed admitted having bought one or more items on impulse—items they had not planned to buy before entering the stores. Furthermore, when asked why they had purchased those items, two shoppers out of three said they had been influenced by the displays. Even with wartime restrictions the total number of items purchased without previous plan averaged 51% in self-service stores.

Because impulse buying is so important a factor in sales stimulation and because bottlenecks in shopping traffic at meat, produce and dairy departments retard sales, many retailers are remodeling their stores to make these departments self-service.

Meats may soon be displayed in open refrigerated cabinets of a new type. Already, a number of these cases are in use. They permit customers to pick out delicatessen meats and pre-packaged steaks and roasts, visibly wrapped, labeled, weighed and price-marked. Likewise, frozen foods openly displayed will soon compete for attention in more and more stores, and experiments are



fundamentals, they help satisfy the requirements of modern merchandising and help toward attaining the objective of low distribution cost—better goods at lower prices to the consumer, with increased volume resulting for the producer.

★

★

Left: Shoppers like good things in well-protected, visible packages—and those designed for convenience in handling and use are most acceptable.

Below: The good things include many products, but with the demand for cellophane exceeding the supply at present, it may be some time before you will see all of them packaged in this material.

now being made with pre-packaged fresh fruits and vegetables to find out whether similar self-service cases are needed to stimulate the take-me-home appeal.

The package can be its own best salesman—in this type of store. It should tell the consumer all she wants to know. If it shows the product itself, it automatically does this. And designers of post-war packages are attempting to meet the requirements of both consumers and retailers, as will be noted from a study of the accompanying illustrations.

Mrs. Average Consumer today is impressed by packages that will be convenient to handle and use. Any method of packaging that will make life easier for her by saving time or work is certain to have her approval.

From the retailer's viewpoint, the package that attracts and holds the shopper's attention long enough for her to see products contained and appraise their value, is the one that will do the best selling job.

When packages are designed around these basic

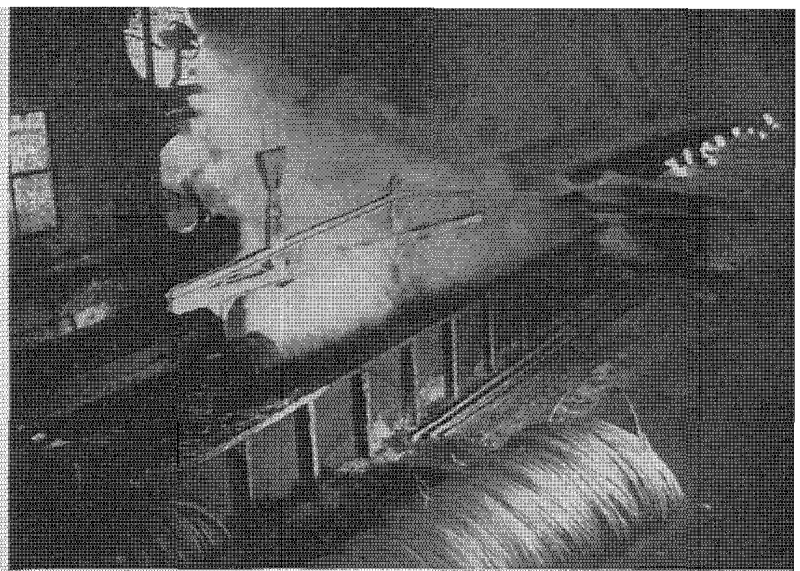


NOW WE CAN TELL ★

(Continued from Page Thirteen)

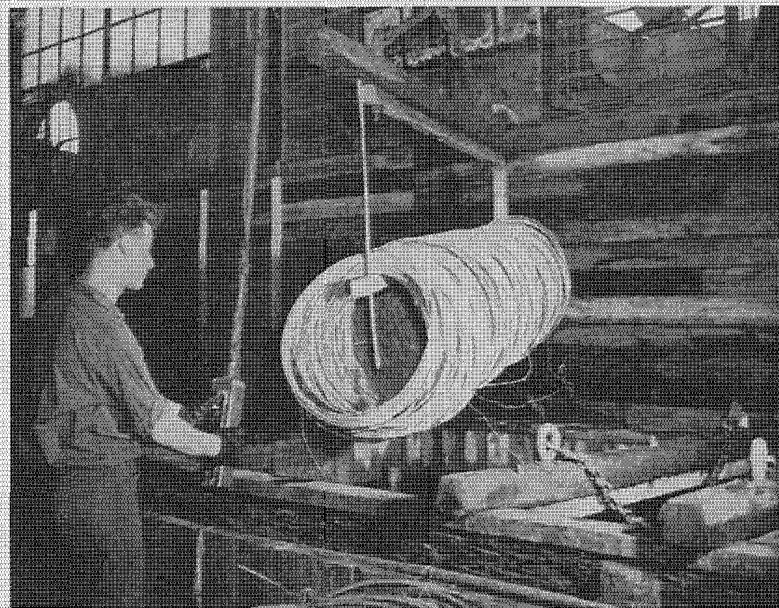
accuracy of the raw metal or finished article is retained during processing into stock.

After the sodium hydride bath, the work is dipped in a water quench, where steam generated by the hot metal blasts loose scale from the surface, leaving the material with a dull matte appearance. The work is brightened by submerging it for one or two minutes in a weak nitric acid solution. The acid is removed by the application of high-pressure sprays, leaving the surface smooth and clean. One trip through the system removes all oxides.



From the sodium hydride bath the wire goes into the quench tank. Contact with water generates steam. This blasts off scale, leaving the wire with a matte surface.

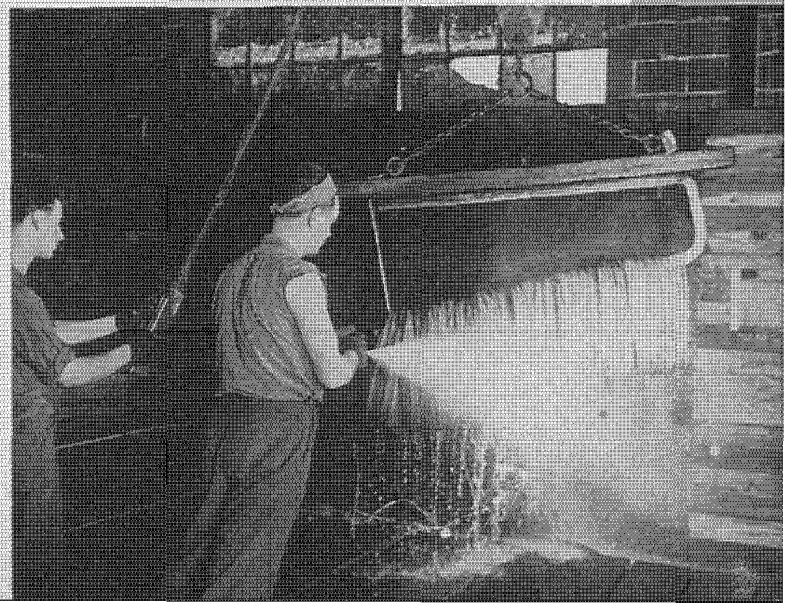
Following this treatment the wire gets a quick dip in an acid bath. It comes out, as shown here, clean, bright and ready for the final operation which is a thorough washing with fresh water.



Below: While elevated over a wash rack, a powerful jet of water removes all traces of the acid and the job is done quickly, effectively, thoroughly and economically.

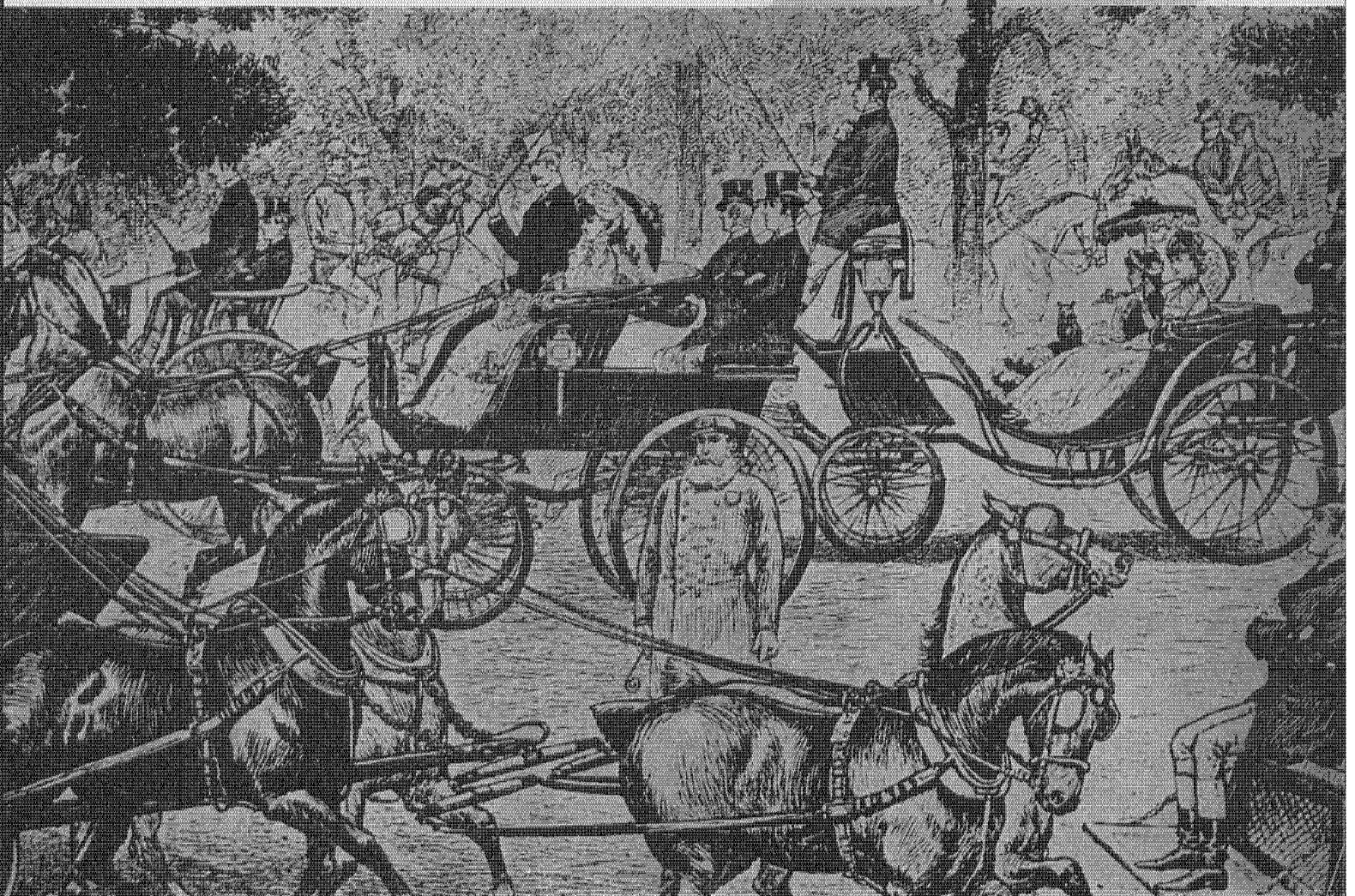
The Rustless Iron and Steel Corporation was the first to utilize the DuPont process at its Baltimore, Maryland, plant which has a capacity for treating 60 tons of wire, rod, and bar stock of the various grades of stainless steel per day. A number of other plants have also installed this descaling process because it can accommodate a large volume of work in a small space.

During the war the use of sodium was restricted to a few of the most essential purposes. This limited the application of the DuPont descaling process to only a few developmental installations. Now that sodium is more plentiful, American metal fabricators are free to install the process at will without license or royalty fees.



"DOWN MEMORY LANE" WITH

*The Reminiscences of Frederick Feuchter
of Philadelphia as told to Gordon Ware*



MANY of the pre-war passenger cars and trucks of America are still carrying heavy loads, and their endurance is a very real tribute to the technical and engineering skill that went into their manufacture.

One important factor in keeping these cars on the road is the durability of the "Duco" lacquer and "Dulux" synthetic enamel finishes that protect the vital metal from rust and corrosion. Without these fine Du Pont finishes many cars now in service would be on the junk pile.

Back in the early days these finishes were not available, and the only experience car painters had to draw

on was the old, established procedure for painting carriages—a long, tedious, laborious operation.

We were fortunate some months ago in meeting Mr. Frederick Feuchter, of Philadelphia, one of the real "Old-Timers" of the carriage-painting fraternity. His reminiscences of the business and his description of the systems and techniques used a half century ago were so interesting, that we want you to know about them.

Mr. Feuchter entered the trade as a 17-year-old apprentice 'way back in 1887, finally became the head of the finishing department, and stayed with one company for 27 years. It was strictly a "carriage house,"

building buggies, phaetons, broughams, coaches—and hearses. Everybody worked a 60-hour week, and apprentices received from \$2.50 to \$3.00 per week. If they showed promise at the end of a year, they got a dollar-a-week raise.

"One of the duties of an apprentice," Mr. Feuchter recalls, "was to prepare pigments—and was that a job! The best white we had was called Cremnitz White. This came from Germany in bricks. I had to put each one on a marble block and chip and break it into as small pieces as possible with a 'maul,' which was like a big stone pestle. Then I'd add a little varnish to the pulverized white, put it in a hand mill, and turn the crank for hours until we finally had a smooth pigment. Every once in awhile the foreman would come around, rub a little on his thumb-nail, and say, 'Better give 'er some more turns, boy!' It *always* needed some more turns!

"Carmine, which came as a dry powder, had to be put through the hand mill, too. Yes, an apprentice's life was just one long grind!"

Preparing these materials, however, was a picnic compared with the time and care needed for their application. Let's suppose one of the Philadelphia Van Astors has ordered a carriage. It has been built in the body shop and is now completed except for the painting. Will he get his carriage tomorrow? Next week? Next month? Well—let Mr. Feuchter tell us:

"Finishing the carriage was a job involving a good many operations, so perhaps I'd better number them.

"1. First, we had to give the whole body a coat of wood filler, or primer, and after it was on, the body had to sit for a couple of days before we could do any further work on it. Incidentally, this is just the *body* I'm talking about now; it was mounted on a truck for ease in handling. The wheels and under-carriage were finished separately.

"2. Then we'd give the job a 'lead coat,' which consisted of white lead with a little lamp black added, mixed with linseed oil.

"3. The next day, all nail holes and similar depressions had to be carefully puttied. And since the putty might shrink, we filled the holes only half-full at this time.

"4. Now, another lead coat, just like No. 2 above—and when dry the next day. . . .

"5. the final putty job was done, filling all holes completely.

"6. Now we're ready to begin putting on the 'roughstuff' coats. This job we're doing is to be in

black—most of 'em were then. This roughstuff, a gray pigment mixed in varnish, japan and a little drier, was used to build up a good surface for the finish coats.

"One coat was brushed on in one direction, the next coat at right angles to the first, and so on. Five or six coats would have to be applied, and there would be one day between each of these coats, for drying.

"7. When the final coat of roughstuff was dry, there would always be a lot of brush marks to be rubbed out, so we'd mix up some yellow ochre in varnish and 'turps' and spread it over the whole job. This was called the 'guide coat'—you'll see why in a minute—and was given a day to dry. Then the job was rubbed with a special stone and water. The yellow rubbed off fairly easily, but wherever there were brush marks, it filled in these marks. So, as long as any yellow showed anywhere, there were still brush marks in the surface that had to be rubbed and rubbed until every trace of yellow had disappeared. This rubbing usually took two days.

"8. Then came another prime coat of lamp black and lead in turpentine, which had to be put on very carefully with a camel's-hair brush so there would be no brush marks.

"9. After this coat had dried a day, it was sanded gently—and then was ready for the color.

"10. First, we put on a coat of flat color, generally made from Ivory Black mixed with varnish and turpentine. This was brushed out carefully, and another day had to be wasted for drying.

"11. Now, we're up to the color varnish coats—but we're still a long way from being through! These coats were varnish with black added. Four or five were put on, each coat containing less black than the one before it. These actually weren't 'color coats' as we understand them today, but were in effect a glaze that gave depth and beauty to the final finish.

"We'd put on a coat, let it dry for two days, and then rub it out with pulverized pumice and water. Then we'd put on another, let it dry two days, rub it out—and so on, until four or five coats had been applied. From twelve to fifteen days were used up in the process.

"12. The final rubbing of the last varnish coat on the body took a day or more—using pumice and water on blocks of felt. Are we all done now? Oh, no! We're through in the Paint Shop—now we must go over to the Finishing Shop, where I spent most of my time.

"13. In this shop the body got its final 'finishing touches'—and these could usually be done in one day unless it was a very ornate job. Here the stripes, and

FABRICS—FINISHES

FABRICS AND FINISHES DEPT.

FABRICS DIVISION

"Fabriloid" pyroxylin coated and impregnated fabrics for auto and furniture upholstery, ladies' shoes, bookbinding, luggage, novelties; Lacquered Fabric Tablecovers, etc.; "Fabrilite" synthetic resin plastic coated fabrics for raincoats, hospital sheeting, shower curtains, cleanable table cloths and household accessories; "Fabrilite" synthetic resin sheet stock (with or without fabric back) for ladies' handbags, shoes and belts; "Fairprene" synthetic rubber coated fabrics, sheet stocks (without fabric insert) and cements; P.C. "Cavalon" synthetic resin plastic coated fabrics for upholstery; P.X. Cloth—pyroxylin impregnated washable book cloth; "Rug Anchor" synthetic sponge rubber non-skid underlay; S.R. "Cavalon" synthetic rubber coated fabrics for heavy duty upholstery; "Texon" non-woven cellulose fiber sheet and roll stocks for shoe mid-soles and inner-soles; "Tontine" pyroxylin impregnated washable window-shade cloth; "Venture" rubberized flexible ventilating duct.

General Offices: Wilmington 98, Del.

BOSTON 15, MASS. 1919 Commonwealth Avenue
CHICAGO 14, ILL. 2100 Elston Avenue
CINCINNATI 2, OHIO 106 E. Court Street
DETROIT 2, MICH. General Motors Building
FAIRFIELD, CONN.
LOS ANGELES 3, CALIF. 5801 S. Broadway
NEW YORK 1, N.Y. Empire State Building
ST. LOUIS 8, MO. 3645 Delmar Boulevard

FINISHES DIVISION

"Duco," "Dulux," nitrocellulose, solvents, leather cements, pyroxylin solutions, paints, varnishes, synthetic-resin enamels, bronze powder, and special finishes for automobile refinishing and all industrial purposes; paints, varnishes, enamels, and pyroxylin cement.

ATLANTA 3, GA. 519-21 Peachtree Street, N. E.
BOSTON 15, MASS. 1919 Commonwealth Avenue
CHICAGO 14, ILL. 2100 Elston Avenue
CLEVELAND, OHIO Union Commerce Building
DALLAS 1, TEX. 2812 Gaston Avenue
DETROIT 2, MICH. General Motors Building
PHILADELPHIA 3, PA. 1616 Walnut Street
SAN FRANCISCO 6, CALIF. 235 Second Street

"Duco," "Dulux," and a complete line of finishing materials for automotive manufacturers.

DETROIT 2, MICH. General Motors Building

"Duco" Household Cement, "Duco" Polish, "Duco" Wax, Auto Top Dressings, "Pro-Tek" protective cream, and other "No. 7" Line specialties.

SAN FRANCISCO 6, CALIF. 235 Second Street
WILMINGTON 98, DEL. Du Pont Building

PLASTICS

"Pyralia" cellulose nitrate plastic supplied in sheets, rods and tubes; "Plastacel" cellulose acetate plastic supplied in sheets and molding powders; "Lucite" acrylic resin supplied in sheets, rods, tubes, molding powders and lens castings; "Lucitone" methyl methacrylate resin denture material; nylon monofilament and plastic; "Butacite" polyvinyl acetal resin; combs molded of "Lucite" and "Plastacel"; and toothbrushes molded of "Plastacel" polychene.

PLASTICS DEPARTMENT

Executive Offices: Wilmington 98, Del.

General Offices:

PRODUCTS DIVISION, Empire State Building,
New York 1, N. Y.

INDUSTRIAL DIVISION, MAIN SALES OFFICE,
Arlington, N. J.

Sales Offices:

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DETROIT 2, MICH. General Motors Building
LESTER, MASS. 511 Lancaster Street
LOS ANGELES 3, CALIF. 5801 S. Broadway
NEW YORK 1, N. Y. Empire State Building

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ELECTROCHEMICALS DEPARTMENT

Sodium; cyanides; peroxides; heat-treating salts; formaldehyde; hexamethylene-tetramine; gold, silver and platinum preparations; colors; ceramic decorating materials of all types; methyl chloride and other refrigerants; chlorinated hydrocarbon solvents; polyvinyl alcohols and acetates.

General Offices: Wilmington 98, Del.

BALTIMORE 2, MD. 204 O. T. Nat'l Bank Building
BOSTON 10, MASS. 140 Federal Street
CHARLOTTE 2, N. C. 414 S. Church Street
CHICAGO 3, ILL. 7 S. Dearborn Street
CINCINNATI 2, OHIO 2469 Carow Tower
CLEVELAND 14, OHIO 1226 Guardian Building
DALLAS 2, TEX. 2304 Summer Street
EL MONTE, CALIF.
HOUSTON 7, TEX. 2812 Center Street
KANSAS CITY 1, MO. Guibotte and Michigan Avenues
NEW ORLEANS 13, LA. 858 S. Front Street
NEW YORK 1, N. Y. Empire State Building
OKLAHOMA CITY 2, OKLA. 203 South Compress
PHILADELPHIA 3, PA. 1616 Walnut Street
PITTSBURGH 22, PA. 812 Fulton Building
SAN FRANCISCO 6, CALIF. 235 Second Street
TULSA 3, OKLA. 26 N. Guthrie Street
WICHITA 2, KANS. 223 S. Wichita Street

*Barada & Page, Inc., Exclusive Sales Agents.

PACIFIC DIVISION

21 Monte, California

SPORTING ARMS, AMMUNITION, TARGETS, TRAPS AND ACCESSORIES

Autoloading, pump-action, over-and-under shot-guns; autoloading, slide-action and bolt-action rifles; Remington rim fire and center fire cartridges and shot shells with "Kleanbore" priming; Peters rim fire and center fire cartridges and shot shells with Rustless priming; Remington traps and "Blue Rock" targets for trap and skeet shooting; Remington Oil, Gun Grease, Rust Remover and Powder Solvent.

REMINGTON ARMS COMPANY, Inc. and PETERS CARTRIDGE DIVISION

General Offices: Bridgeport, Conn.

Branch Sales Offices

ATLANTA 5, GA. 1518-19 Healey Building
BOSTON, MASS.
CHICAGO, ILL. 1413 Union Commerce Bldg.
DALLAS 1, TEX. 1241 Liberty Bank Building
GREENSBORO, N. C. Jefferson Standard Building
LITTLE ROCK, ARK.
MEMPHIS 5, TENN. 1701-2-3 Sterick Building
MINNEAPOLIS 6, MINN. 614 Plymouth Building
NEW YORK 1, N. Y. 350 Fifth Avenue
PITTSBURGH 22, PA. 2001 First Nat'l Bldg.
SALT LAKE CITY, UTAH 1102 Walker Bank Bldg.
SAN FRANCISCO 5, CALIF. 55 New Montgomery Street
SEATTLE 4, WASH. Dexter Horton Bldg., Second & Cherry Streets
ST. LOUIS 1, MO. 1810 Arcade Building

*See local directory

INTERNATIONAL FREIGHTING CORPORATION, INC.

General Offices: New York, N. Y.

NEW YORK 4, N. Y. 17 Battery Place
BUENOS AIRES, ARGENTINA Paseo Colon 285

INDUSTRIAL EXPLOSIVES

EXPLOSIVES DEPARTMENT

General Offices: Wilmington 98, Del.

Dynamite, "Nitramon" blasting agent, black powder in granular and pellet form and blasting supplies—a complete line of products for all industrial and agricultural uses.

BIRMINGHAM 2, ALA. Brown Marx Building,
2009 First Avenue

CHICAGO 4, ILL. McCormick Building, 332 S. Michigan Avenue
DENVER 2, COLO. Midland Savings Building, 444 Seventeenth Street
DULUTH 2, MINN. Hartley Building, 742 E. Superior Street
HUNTINGTON 1, W. VA. West Virginia Building, 4th Avenue and 9th Street
JOPLIN, MO. Joplin Nat'l Bank Building, 102 Main Street
NEW YORK 1, N. Y. Empire State Building, 350 Fifth Avenue
PITTSBURGH 19, PA. Gulf Building, Grant Street and Seventh Avenue
PORTSVILLE, PA. Schuylkill Trust Building, N. Y. Cor. Centre and Market Streets
SAN FRANCISCO 4, CALIF. 111 Sutter Street
SCHANTON 2, PA. First Nat'l Bank Building, 207 Wyoming Avenue
SEATTLE 4, WASH. Hoge Building, 701-705 Second Avenue
SPOKANE, WASH. Old Nat'l Bank Building, Riverside Avenue and 7th Street
WILKES-BARRE, PA. Brooks Building, 15 S. Franklin Street

AMERICAN GLYCERIN DIVISION

General Offices: Wilmington 98, Del.

Tarpedo service for oil- and gas-wells to increase productivity.

BRADFORD, PA. Terminal Building
TULSA 3, OKLA. 320 Kennedy Building
WINCHESTER, KY. P. O. Box 116

SMOKELESS POWDERS

SMOKELESS POWDER DIVISION

General Offices: Wilmington 98, Del.

A complete line of smokeless propellant powders and black sporting powders.

FOREIGN OFFICES

(To which inquiries about Du Pont products may be addressed.)

BRIMSDOWN, MIDDLESEX, ENGLAND (Remington Arms Union Metallic Cartridge Co. Limited)

BUENOS AIRES, ARGENTINE REPUBLIC, Industrias Químicas Argentinas "Duperial", S. A., Paseo Colon 285

HAVANA, CUBA, Du Pont Inter-America Chemical Co., Inc., Hotel Lafayette, O'Reilly, Esq. a Aguilar

LIMA, PERU, Du Pont (Peru), S. A., Jiron Acáclado Villaran 319

LONDON W. 1, ENGLAND, Hanover House, 14 Hanover Square

MEXICO CITY, MEXICO, Du Pont, S. A., 16a Bolivar No. 235

MONTEVIDEO, URUGUAY, Industrias Químicas Uruguayas "Duperial", Avda. Gral. Rondeau 2050

SÃO PAULO, BRAZIL, Industrias Químicas Brasileiras "Duperial" S. A., Rua Xavier de Toledo, 14

SHANGHAI, CHINA, Robert Dollar Building, 51 Canton Road



**BETTER THINGS
FOR BETTER LIVING
... THROUGH
CHEMISTRY**

What's New

NEW styles of neoprene household gloves will be better than those worn in pre-war days. There will be gloves with roughened fingers, giving a non-slip finish that will assure a firm grasp on soapy dishes and other slippery things; gloves easy to pull on and off, some with a satinized inner surface, others with fabric linings . . . gloves with fingers to really fit the wearer's hands. There will be gloves with curved fingers to ease tensions at the knuckles . . . gloves designed with roomy palms to allow free circulation where a skin-tight fit would be undesirable. For rough work, such as gardening, fabric-lined and cushioned gloves will help to absorb perspiration; they will be made in gauntlet and knit-wrist lengths. In short, better-fitting neoprene gloves are extra serviceable and economical; they are likely to be in strong demand, for thousands of ex-war-worker housewives, having been taught to wear them in factories, will want to wear them in their homes.

A "LUCITE" methyl methacrylate resin battery container housing the 12-volt storage battery used on the jet-propelled P-80 "Shooting Star" has recently been made available for general aircraft use. According to the manufacturer, the Electric Storage Battery Company of Philadelphia, the plastic offers a twenty per cent reduction in weight compared with aluminum and rubber. It is sturdy enough to withstand any shocks incident to normal handling, and has good heat and acid resistance. Side rails, used for sliding the battery into place, are constructed separately and cemented to the sides of the transparent housing. The makers of the batteries report they are now working on the problem of molding the entire nine and three-quarter pound container in one piece.

Neoprene gloves are extra serviceable.



"Zelan" offers protection on wash day.

THE Du Pont Fine Chemicals Division is now offering "Zelan" AP durable water repellent for use by the textile industry. This new type, improved finishing agent is the result of research studies started before Pearl Harbor and carried forward intensively during the war. Military clothing and supplies made of fabrics treated with "Zelan" AP were undergoing field tests when the war ended in Japan. Now, civilians can share with our armed forces the benefits of this work, for "Zelan" is more durable and more resistant to moisture absorption after continued use.

RUBBER CHEMICALS—WHAT ARE THEY?

(Continued from Page Nine)

primarily for compounding and processing natural rubber. The industry had only a slight backlog of experience in adapting rubber chemicals to most of the new synthetic rubbers. This problem had to be solved quickly; otherwise, the whole war-production effort, so far as rubber was concerned, would bog down. Synthetic rubber would have been useless without the "know-how" of making rubber products from it.

Plant-construction news had been featured in the headlines. Naturally so; the American public is production-minded. The American rubber industry did build and now does operate the world's largest synthetic rubber plants. American-made rubber did much to turn the tide of war in our favor. To have produced it so

quickly and in such volume, considering that the start was made almost from "scratch," was in truth a modern miracle. But the job of adapting the scores of processing chemicals at the same time to make synthetic rubber serviceable enough for military needs was another major achievement in its own right. America's rubber chemists handled that job; and they did it under pressure and in an incredibly short time. Not much has been written about that phase of the synthetic rubber program, but I assure you it was a vital part—the rubber chemicals end.

As a final commentary—and don't overlook its significance—American, British, Russian and French troops some months ago rolled into Berlin on American-made synthetic rubber tires. And as everybody now knows, the Allied armed forces kept on rolling until Japan, too, was defeated in a city named Tokio!



E. I. DU PONT DE NEMOURS & COMPANY

INCORPORATED

GENERAL EXECUTIVE OFFICES WILMINGTON 98, DELAWARE

Inquiries regarding Du Pont products should be addressed to the nearest office

ACIDS, HEAVY CHEMICALS, METAL AND ORE, AGRICULTURAL CHEMICALS, SPECIALTIES

GRASSELLI CHEMICALS DEPARTMENT

Chemicals for leather, textile, paper, paint, rubber, battery, ceramics, sheet, tin plate, steel and petroleum manufacturers. Chemically pure acids; electrolyte; filter alum; insecticides and fungicides for fruits, vegetables, lawns, flowers and ornamentals; silicate of soda; soldering fluxes; zinc detergents; wood preservatives; and pest control specialties.

General Offices: Wilmington 98, Del.

ATLANTA 3, GA. 693 Humphries Street, S. W.
BIRMINGHAM 7, ALA. Box 67, Powderly Station
BOSTON 10, MASS. 140 Federal Street
CHARLOTTE 1, N. C. 414 S. Church Street
CHICAGO 8, ILL. 1701 Canalport Avenue
CINCINNATI 2, OHIO. 1804 Carew Tower Bldg.
CLEVELAND 14, OHIO. 629 Euclid Avenue
DETROIT 7, MICH. 1530 E. Hancock Avenue
HOUSTON, TEX. P. O. Box 347, La Porte, Tex.
LOS ANGELES 21, CALIF. 2260 E. 15th Street
LYNDONVILLE, N. Y.
MILWAUKEE 3, WIS. 1103 W. Canal Street
NEW HAVEN 13, CONN. Box 92, Station A
NEW ORLEANS 13, LA. 2431 Clio Street
NEW YORK 1, N. Y. Empire State Building
PHILADELPHIA 46, PA. 3500 Gray's Ferry Road
PITTSBURGH 22, PA. 804 Fulton Building
PORTLAND, ORE. 2133 N.W. York Street
RENSSELAER, N. Y. 34 Riverside Avenue
SEATTLE, WASH. 4000 First Avenue S.
ST. LOUIS 7, MO. 112 W. Ferry Street
ST. PAUL 4, MINN. 2303 Hampden Avenue
SAN FRANCISCO 19, CALIF. 1400 16th Street
SODAS, N. Y. 55 Maple Avenue
TACOMA, WASH. Taylor Way and Lincoln Ave.

*Sales Agents.

SEME SAN DIVISION

Seed disinfectants to prevent and control many seed-borne plant diseases and to improve crop yields. Household insect sprays and dusts.
General Offices: Wilmington 98, Del.

ORGANIC CHEMICALS

ORGANIC CHEMICALS DEPARTMENT

General Offices: Wilmington 98, Del.

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All completely and specially denatured alcohol formulas. Du Pont "Five Star" Anti-Freeze, Du Pont Anti-Rust Anti-Freeze Alcohol and "Fosolve" industrial solvent.

WILMINGTON 98, DEL. Nemours Building

DYESTUFFS DIVISION

Dyestuffs, dyestuff intermediates, organic chemicals, chemicals and dyes for the petroleum industry, sulfur dioxide, and nitrated filter cloths.

(Inquiries for products other than dyestuffs should be referred directly to the Main Office at Wilmington.)

BOSTON 10, MASS. 140 Federal Street
CHARLOTTE 1, N. C. 414 S. Church Street
CHICAGO 3, ILL. 7 S. Dearborn Street

NEW YORK 13, N. Y. 40 Worth Street
PHILADELPHIA 3, PA. 1616 Walnut Street
PROVIDENCE 1, R. I. 709 Hospital Trust Bldg.
SAN FRANCISCO 6, CALIF. 235 Second Street
WILMINGTON 98, DEL. Nemours Building

FINE CHEMICALS DIVISION

Detergents, wetting-out agents, textile assistants and finishing agents, solvents (Refer to offices listed under Dyestuffs Division). Aromatics, perfume, photographic and pharmaceutical chemicals.

CHICAGO 3, ILL. 7 S. Dearborn Street
NEW YORK 13, N. Y. 40 Worth Street
WILMINGTON 98, DEL. Nemours Building

"Cel-O-Glass," "Elmo" Fabric, "Vio-Ray" Window Fabric, Irradiated Ergosterol, Vitamin D₂, "Deltsterol" "D"-Activated Animal Sterol, Vitamin D₃.

WILMINGTON 98, DEL. Nemours Building

RUBBER CHEMICALS DIVISION

Antioxidants, vulcanization accelerators, rubber colors, neoprene, "S-D-O" corrosion-resistant coating, neoprene latex, rubber peptizing agents, accelerator retarders and activators, and special chemicals for rubber.

AKRON 8, OHIO. 127 Ohio Building
(Until June, 1946)
Thereafter High and Buchtel Avenues
BOSTON 10, MASS. 140 Federal Street
CHICAGO 3, ILL. 7 S. Dearborn Street
SAN FRANCISCO 6, CALIF. 235 Second Street
WILMINGTON 98, DEL. 2496 Nemours Building

PHOTOGRAPHIC FILMS*, PAPERS, CHEMICALS, INTENSIFYING X-RAY AND FLUOROSCOPIC SCREENS

PHOTO PRODUCTS DEPARTMENT

*Motion picture, x-ray, portrait, lithographic films, microfilm, 35 mm. amateur roll and 16 mm. safety motion picture film.

General Offices: Wilmington 98, Del.

BOSTON 11, MASS. 38 Chauncy Street
CHICAGO 1, ILL. 235 N. Wabash Avenue
HOLLYWOOD 38, CALIF. 6656 Santa Monica Blvd.
LOS ANGELES 15, CALIF. 1135 S. Flower Street
NEW YORK 1, N. Y. Empire State Building, and
NEW YORK 1, N. Y. 275 Seventh Avenue
SEATTLE 22, WASH. 1111 E. Madison Street

PIGMENTS AND DRY COLORS

PIGMENTS DEPARTMENT

Lithopone, titanium dioxide, extended titanium pigments, dry colors and coppers.

General Offices: Wilmington 98, Del.

BOSTON, MASS. 359 Washington Street,
Malden 48, Mass.
CHICAGO 3, ILL. 2101 Canalport Avenue
CLEVELAND 14, OHIO. 1221 Guardian Building
HOUSTON 2, TEX. 201 Main Street
NEWARK 5, N. J. 256 Vanderpool Street
PHILADELPHIA 3, PA. 117 S. 15th Street

TEXTILE FIBERS AND CELLOPHANE

RAYON DEPARTMENT

Comprising Acetate Division, Cellophane Division, Nylon Division, Rayon Division.

General Offices: Wilmington 98, Del.

ACETATE DIVISION

"Accele" acetate rayon yarn and staple fiber; cellulose acetate flake; vinyl acetate.

CHARLOTTE 1, N. C. 414 S. Church Street
NEW YORK 1, N. Y. Empire State Building
PROVIDENCE 3, R. I. 58 Weybosset Street

CELLOPHANE DIVISION

Cellophane cellulose, plain transparent, moisture-proof, and colored, in sheets and rolls for packaging; also information regarding envelopes, tubes, bags, printed containers and specially converted items.

"Cel-O-Seal" cellulose caps and bands for sealing containers. Cellulose sponges.

ATLANTA 3, GA. 231 Trust Co. of Georgia Bldg.
BOSTON 10, MASS. 140 Federal Street
CHICAGO 2, ILL. 111 W. Washington Street
KANSAS CITY 6, MO. 21 W. 10th Street
NEW YORK 1, N. Y. Empire State Building
PHILADELPHIA 3, PA. 1616 Walnut Street
SAN FRANCISCO 4, CALIF. 351 California Street

NYLON DIVISION

Nylon: Flake and Yarn

CHARLOTTE 1, N. C. 414 S. Church Street
CHICAGO 3, ILL. 7 S. Dearborn Street
NEW YORK 1, N. Y. Empire State Building
PHILADELPHIA 3, PA. 117 S. 17th Street
PROVIDENCE 3, R. I. 15 Westminster Street
READING, PA. 35-43 N. Sixth Street

RAYON DIVISION

Viscose rayon yarn, staple fiber and tow, "Cor-dura" tire yarn.

CHARLOTTE 1, N. C. 414 S. Church Street
NEW YORK 1, N. Y. Empire State Building
PHILADELPHIA 3, PA. 1616 Walnut Street
PROVIDENCE 3, R. I. 58 Weybosset Street

AMMONIA AND ALCOHOLS

AMMONIA DEPARTMENT

Ammonia and allied products; anhydrous ammonia in cylinders; ammoniacal liquor in tank cars, aqua ammonia in drums, ammonium carbonate, ammonium bicarbonate; "Mycoban" mold and rope inhibitors; methanol, higher alcohols, urea, "Uramon" fertilizer compound, "Two-Sixty-Two" feed compound, "Zerone" and "Zerex" Anti-Rust Anti-Freeze, hydrogenated products, methacrylate resins and aliphatic acids and esters.

General Offices: Wilmington 98, Del.

CHICAGO 3, ILL. 7 S. Dearborn Street
NEW YORK 1, N. Y. Empire State Building
PHILADELPHIA 24, PA. Tacony and Vankirk Sts.
ST. LOUIS 7, MO. 3600 N. Broadway

FABRICS—FINISHES

FABRICS AND FINISHES DEPT.

FABRICS DIVISION

"Fabrikoid" pyroxylin coated and impregnated fabrics for auto and furniture upholstery, ladies' shoes, bookbinding, luggage, novelties; Lacquered Fabric Tablecovers, etc.; "Fibrilite" synthetic resin plastic coated fabrics for raincoats, hospital sheeting, shower curtains, cleanable table cloths and household accessories; "Fibrilite" synthetic resin sheet stock (with or without fabric back) for ladies' handbags, shoes and belts; "Fairprene" synthetic rubber coated fabrics, sheet stocks (without fabric insert) and cements; P.C. "Cavalon" synthetic resin plastic coated fabrics for upholstery; P.X. Cloth—pyroxylin impregnated washable book cloth; "Rug Anchor" synthetic sponge rubber non-skid underlay; S.R. "Cavalon" synthetic rubber coated fabrics for heavy duty upholstery; "Texon" non-woven cellulosic fiber sheet and roll stocks for shoe mid-soles and inner-soles; "Tontine" pyroxylin impregnated washable window-shade cloth; "Ventube" rubberized flexible ventilating duct.

General Offices: Wilmington 98, Del.

BOSTON 15, MASS. 1019 Commonwealth Avenue
CHICAGO 14, ILL. 2100 Elston Avenue
CINCINNATI 2, OHIO 106 E. Court Street
DETROIT 2, MICH. General Motors Building
FAIRFIELD, CONN.
LOS ANGELES 3, CALIF. 5801 S. Broadway
NEWBURGH, N. Y.
NEW YORK 1, N. Y. Empire State Building
ST. LOUIS 8, MO. 3643 Delmar Boulevard

FINISHES DIVISION

"Duco," "Dulux," nitrocellulose, solvents, leather cements, pyroxylin solutions, paints, varnishes, synthetic-resin enamels, bronze powder, and special finishes for automobile refinishing and all industrial purposes; paints, varnishes, enamels, and pyroxylin cement.

ATLANTA 3, GA. 619-21 Peachtree Street, N. E.
BOSTON 15, MASS. 1019 Commonwealth Avenue
CHICAGO 14, ILL. 2100 Elston Avenue
CLEVELAND, OHIO. Union Commerce Building
DALLAS 1, TEX. 2812 Gaston Avenue
DETROIT 2, MICH. General Motors Building
PHILADELPHIA 3, PA. 1616 Walnut Street
SAN FRANCISCO 6, CALIF. 235 Second Street

"Duco," "Dulux," and a complete line of finishing materials for automotive manufacturers.

DETROIT 2, MICH. General Motors Building

"Duco" Household Cement, "Duco" Polish, "Duco" Wax, Auto Top Dressings, "Pro-Tek" protective cream, and other "No. 7" Line specialties.

SAN FRANCISCO 6, CALIF. 235 Second Street
WILMINGTON 98, DEL. Du Pont Building

PLASTICS

"Pyralin" cellulose nitrate plastic supplied in sheets, rods and tubes; "Plastacel" cellulose acetate plastic supplied in sheets and molding powders; "Lucite" acrylic resin supplied in sheets, rods, tubes, molding powders and lens castings; "Lucitone" methyl methacrylate resin denture material; nylon monofilament and plastic; "Butacite" polyvinyl acetal resin; combs molded of "Lucite" and "Plastacel"; and toothbrushes molded of "Plastacel"; polythene.

PLASTICS DEPARTMENT

Executive Offices: Wilmington 98, Del.

General Offices:

PRODUCTS DIVISION, Empire State Building,
New York 1, N. Y.

INDUSTRIAL DIVISION, MAIN SALES OFFICE,
Arlington, N. J.

Sales Offices:

CHICAGO 3, ILL. 36 S. State Street
DETROIT 2, MICH. General Motors Building
LEOMINSTER, MASS. 511 Lancaster Street
LOS ANGELES 3, CALIF. 5801 S. Broadway
NEW YORK 1, N. Y. Empire State Building

SPECIAL CHEMICALS

ELECTROCHEMICALS DEPARTMENT

Sodium; cyanides; peroxides; heat-treating salts; formaldehyde; hexamethylene-tetramine; gold, silver and platinum preparations; colors; ceramic decorating materials of all types; methyl chloride and other refrigerants; chlorinated hydrocarbon solvents; polyvinyl alcohols and acetates.

General Offices: Wilmington 98, Del.

BALTIMORE 2, MD. 204 O. T. Nat'l Bank Building
BOSTON 10, MASS. 140 Federal Street
CHARLOTTE 2, N. C. 414 S. Church Street
CHICAGO 3, ILL. 7 S. Dearborn Street
CINCINNATI 2, OHIO 2409 Carew Tower
CLEVELAND 14, OHIO 1226 Guardian Building
*DALLAS 2, TEX. 2304 Summer Street
EL MONTE, CALIF.
*HOUSTON 7, TEX. 2812 Center Street
*KANSAS CITY 1, MO. Guinotte and Michigan Avenues
*NEW ORLEANS 13, LA. 858 S. Front Street
NEW YORK 1, N. Y. Empire State Building
*OKLAHOMA CITY 2, OKLA. 203 South Compress
PHILADELPHIA 3, PA. 1616 Walnut Street
PITTSBURGH 22, PA. 812 Fulton Building
SAN FRANCISCO 6, CALIF. 235 Second Street
*TULSA 3, OKLA. 26 N. Guthrie Street
*WICHITA 2, KANS. 223 S. Wichita Street
*Barada & Page, Inc., Exclusive Sales Agents.

PACIFIC DIVISION
El Monte, California

SPORTING ARMS, AMMUNITION, TARGETS, TRAPS AND ACCESSORIES

Autoloading, pump-action, over-and-under shot-guns; autoloading, slide-action and bolt-action rifles; Remington rim fire and center fire cartridges and shot shells with "Kleanbore" priming; Peters rim fire and center fire cartridges and shot shells with Rustless priming; Remington traps and "Blue Rock" targets for trap and skeet shooting; Remington Oil, Gun Grease, Rust Remover and Powder Solvent.

REMINGTON ARMS COMPANY, INC.
and PETERS CARTRIDGE DIVISION

General Offices: Bridgeport, Conn.

Branch Sales Offices

ATLANTA 5, GA. 1518-19 Healey Building
*BOSTON, MASS.
*CHICAGO, ILL. 1413 Union Commerce Bldg.
CLEVELAND 14, OHIO 1241 Liberty Bank Building
DALLAS 1, TEX. 1241 Liberty Bank Building
GREENSBORO, N. C. Jefferson Standard Building
*LITTLE ROCK, ARK.
MEMPHIS 5, TENN. 1701-2-3 Sterick Building
MINNEAPOLIS 6, MINN. 614 Plymouth Building
NEW YORK 1, N. Y. 350 Fifth Avenue
PITTSBURGH 22, PA. 2001 First Nat'l Bldg.
SALT LAKE CITY, UTAH 1102 Walker Bank Bldg.
SAN FRANCISCO 5, CALIF. 55 New Montgomery Street
SEATTLE 4, WASH.
Dexter Horton Bldg., Second & Cherry Streets
ST. LOUIS 1, MO. 1810 Arcade Building

*See local directory

INTERNATIONAL FREIGHTING CORPORATION, INC.

General Offices: New York, N. Y.

NEW YORK 4, N. Y. 17 Battery Place
BUENOS AIRES, ARGENTINA. Paseo Colon 285

INDUSTRIAL EXPLOSIVES

EXPLOSIVES DEPARTMENT

General Offices: Wilmington 98, Del.

Dynamite, "Nitramon" blasting agent, black powder in granular and pellet form and blasting supplies—a complete line of products for all industrial and agricultural uses.

BIRMINGHAM 2, ALA. Brown Marx Building,
2000 First Avenue

CHICAGO 4, ILL. McCormick Building, 332 S. Michigan Avenue
DENVER 2, COLO. Midland Savings Building, 444 Seventeenth Street
DULUTH 2, MINN. Hartley Building, 742 E. Superior Street
HUNTINGTON 1, W. VA. West Virginia Building, 4th Avenue and 9th Street
JOPLIN, MO. Joplin Nat'l Bank Building, 402 Main Street
NEW YORK 1, N. Y. Empire State Building, 350 Fifth Avenue
PITTSBURGH 19, PA. Gulf Building, Grant Street and Seventh Avenue
POTTSVILLE, PA. Schuylkill Trust Building, N. Y. Cor. Centre and Market Streets
SAN FRANCISCO 4, CALIF. 111 Sutter Street
SCRANTON 2, PA. First Nat'l Bank Building, 207 Wyoming Avenue
SEATTLE 4, WASH. Hoge Building, 701-705 Second Avenue
SPOKANE, WASH. Old Nat'l Bank Building, Riverside Avenue and 7th Street
WILKES-BARRE, PA. Brooks Building, 15 S. Franklin Street

AMERICAN GLYCERIN DIVISION

General Offices: Wilmington 98, Del.

Torpedo service for oil- and gas-wells to increase productivity.

BRADFORD, PA. Terminal Building
TULSA 3, OKLA. 320 Kennedy Building
WINCHESTER, KY. P. O. Box 116

SMOKELESS POWDERS

SMOKELESS POWDER DIVISION

General Offices: Wilmington 98, Del.

A complete line of smokeless propellant powders and black sporting powders.

FOREIGN OFFICES

(To which inquiries about Du Pont products may be addressed.)

BRIMSDOWN, MIDDLESEX, ENGLAND (Remington Arms Union Metallic Cartridge Co. Limited)

BUENOS AIRES, ARGENTINE REPUBLIC, Industrias Químicas Argentinas "Duperial", S. A., Paseo Colon 285

HAVANA, CUBA, Du Pont Inter-America Chemical Co., Inc., Hotel Lafayette, O'Reilly, Esq. a Aguilar

LIMA, PERU, Du Pont (Peru), S. A., Jiron Acisclo Villaran 319

LONDON W. 1, ENGLAND, Hanover House, 14 Hanover Square

MEXICO CITY, MEXICO, Du Pont, S. A., 16a Bolivar No. 235

MONTEVIDEO, URUGUAY, Industrias Químicas Uruguayas "Duperial", Avda. Gral. Rondeau 2050

SÃO PAULO, BRAZIL, Industrias Químicas Brasileiras "Duperial" S. A., Rua Xavier de Toledo, 14

SHANGHAI, CHINA, Robert Dollar Building, 51 Canton Road



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