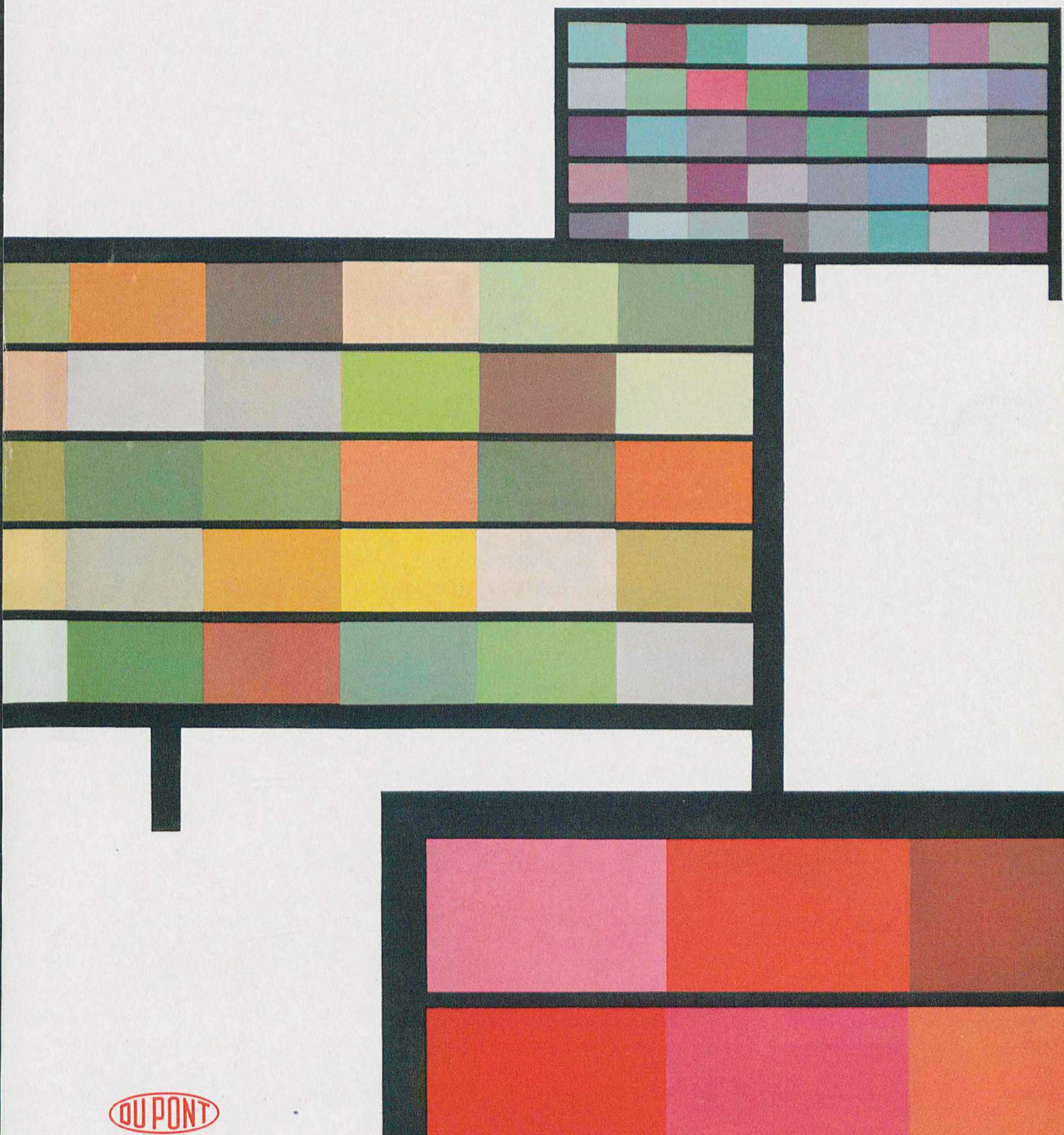


magazine



How to select a paintbrush



A good brush performs better ... wears longer ... saves you money



There are several qualities to look for when selecting a good paintbrush. First, see if there is (1) a full head of bristles in a firm setting. Then look closely at several individual bristles. They should be

(2) finely tapered with slightly curled tips. **2** Make sure a generous portion of the bristles have (3) tips that are split or "flagged." Finally,



look for a brush that has (4) bristles varying in length. A brush with these qualities will give you excellent performance. It has a greater working and paint-holding capacity—eliminates excessive dipping. The brush will (5) release a finish smoothly and evenly on any surface. You save time, paint with ease, do a professional-looking job.



Now, better performance with improved TYNEX[®] nylon bristles



When buying a paintbrush, look for (6) the trademark TYNEX on the handle. Quality paintbrushes made with bristles of TYNEX nylon give you better performance. They pick up a full load of paint at every dip and lay on a smooth, streak-free coat. And brushes bristled with TYNEX have durable bristles that (7) clean easily ...rinse thoroughly ... dry quickly—are always ready for re-use.

FREE—additional facts everyone should have on choosing and using a paintbrush. Tips on painting unusual surfaces, on holding a brush and on the correct painting stroke. Learn how the professional painters



do it—how they dip their brushes and how they clean them.

You can have this valuable information without cost or obligation. Just send your name and address to E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department, Room 86-45, Du Pont Building, Wilmington 98, Delaware.

TYNEX is the registered trademark for Du Pont nylon bristles

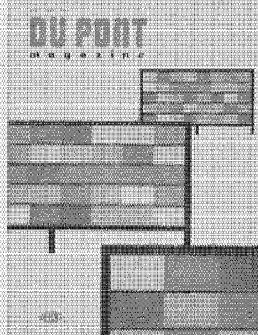


TYNEX[®]
NYLON BRISTLES

BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

OUR COVER

Farming and spring cleaning—two timely subjects in April—are both suggested by Vince Hoffman's cover. True, the Du Pont paint test farm he has shown produces an unconventional crop. Like dirt farmers, however, the men who run it are immensely concerned with the effects of weather. Right now, Pigments Dept. research men are wondering how well their experimental vehicles, binders and pigments will stand exposure to April showers, not to mention ultraviolet light and mildew. The improved paints that grow out of such studies are worth investigating if April makes you think of freshening your house. Jobs for Du Pont pigments don't stop here, though. How they are answering many new calls for color in consumer goods is told in the article that begins on page 2.



PLAY CAN BE PERILOUS

Almost three times as many employees of Du Pont plants and laboratories come to physical grief engaging in sports as are hurt on the job, a recent analysis of lost-time injuries shows. Over the last three years, only 196 of 82,000 employees incurred such injuries at work, while 553 were thrown for a loss on the playing field. (Total off-the-job injuries in the same period: 4,671.)

Baseball accounted for 178 lost-time injuries, basketball for 68, swimming for 45 and hunting for 30. Skating, bowling, boating, fishing, football, and volleyball were others among the hazardous top ten.

Despite their high rate of leisure-time accidents, Du Pont workers are still banging themselves up at a rate below the

national average—indicating, we surmise, that the memory of on-plant safety training lingers on in the hours after work.

AID TO EDUCATION

More than a million dollars will be given by Du Pont to 122 universities and colleges this year under the Company's 39-year-old program of aiding education.

Aware of the task colleges and universities face in maintaining their teaching standards in the face of record enrollments, the Company has earmarked \$585,000 of the total to help in this effort. The rest of the money goes to support fundamental research on campuses and to finance fellowships for postgraduate students in science and engineering.

THE REASON WHY

This dark and wintry scene was photographed for us by Ted Dutton, who wrote the taconite article beginning on page 18. With his pictures—too underexposed to be used with the article—came a note that would warm the ventricles of the coldest-hearted editor: "Went up to the range to get these drilling and loading pix, and took them at 20 below in a snowstorm."



PHOTO CREDITS

Page 3: courtesy Armstrong Cork Co.; Page 7, bottom: courtesy The Firestone Tire & Rubber Co.; Page 11, top: courtesy Tracerlab, Inc.; bottom: courtesy Knolls Atomic Power Laboratory; Pages 18, 19 and 20: center and bottom: courtesy Reserve Mining Co.; Page 20, top: courtesy Erie Mining Co.; Page 21, top: H. Armstrong Roberts; Page 23: courtesy California Himalayan Expedition; Page 25: courtesy Armco Steel Corp.

CHANGE OF ADDRESS

To insure receiving your next copy, send your new address promptly to:

Editor, Du Pont Magazine
Wilmington 98, Del.

Send old address with the new, enclosing if possible your address label. Post offices will not forward this magazine unless you provide extra postage.

2 COLOR SELLS ITSELF

5 WHEN IS WHITE WHITE?

10 ATOMIC "CANARIES"

12 THE CULTURE OF THE
BUSINESSMAN

14 GOLDEN CARGO

16 THE AUTOMATIC SUIT

18 BIG BOOM ON THE MESABI

22 COLORADO'S DON QUIXOTE
OF BUSINESS

24 MEANWHILE, BACK AT THE
PLANT

26 WILD WEST RIDES HIGH

29 NEW PLASTIC PANELS

30 FABRICS IN YOUR FUTURE

32 SPRING CLEANING FOR YOUR
RADIATOR

34 SPRAY GUN FOR HIRE

36 THE GOOD OLD SWEATER-TIME

FEATURES

6 SECOND-BEST IN HISTORY

21 AGRICULTURALLY SPEAKING

28 WHAT'S NEW

• • • • •

GORDON H. KESTER

Editor

Copyright 1957, E. I. du Pont de Nemours & Co., Wilmington, Delaware. All rights reserved. This magazine or parts thereof may not be reproduced in any form without permission in writing from the publisher. Printed in U. S. A.

COLOR

Precisely to what degree color will boost the s



Today's emphasis on design and color in everyday consumer goods is reflected in these photographs. Du Pont pigments play a key role in adding colors that are both attractive and practical, thus enhancing sales appeal.



sells itself

a product is hard to pin down. Yet so strong is the evidence of its power that color figures

prominently in the styling and marketing of nearly every consumer item

By EMILY HEINE

In the business magazines of 20 years ago you had no difficulty putting your finger on a dozen articles extolling the usefulness of color as a sales tool. Today these pronouncements are less common and the implication is noteworthy: Manufacturers no longer need to be convinced that the rainbow is itself a pot of gold.

Color may not sell singlehanded, they point out, but a colored product wins the consumer's nod more readily than an equally functional but less attractive one. As a result of this growing allegiance, our world is much brighter, in literal terms at least, than it was ten years ago.

Americans, in fact, have gone beyond mere "color-consciousness" to become almost completely "color-minded," says Faber Birren, a consultant who has kept an unwavering eye on your color likes and mine for the last 25 years. It's taken for granted that such everyday equipment as refrigerators, vacuum cleaners, typewriters and automobiles will bloom in fresh, appealing shades.

At least part of the explanation lies in the social facts of the day. With more money to spend, Americans are increasingly particular about how things look, more aware than ever of style. With the disappearance of maids and gardeners, they are doing more of their own work, and they want equipment that's both attractive and practical. Reports from several manufacturers show that color, most often pink, yellow or green, was used on about one out of five major kitchen appliances they sold in 1956. Some predict that color will account for half the total in a few years. In steel kitchen cabinets, the color count now runs as high as 90 per cent. The do-it-yourself yardman can have his power lawn mower in such snappy combinations as blue and gray, red and cream, or silver and orange.

Making the color picture even brighter are technological improvements, catalyzed in part by World War II. New materials include plastics that can be made in as many as 70,000 shades. New methods, such as coloring an acetate solution before the fiber is spun, have helped the color properties and broadened the usefulness of older materials. New technical knowledge has made possible the increased durability and lightfastness of paints.

Blooming as a result is the U. S. pigments industry, which produces most of the coloring materials for paints, printing inks, floor coverings, plastics and the solution-colored textile fibers. Production of chemical pigment colors climbed from 110 million pounds in 1945 to 147 mil-

lion in 1955, U. S. Tariff Commission reports show.

In themselves, pigments are lifeless powders. Some of them come from the earth; newer ones are the work of chemists. But all of them possess the ability to transform other materials into things of beauty. The Du Pont Pigments Dept., a leader in the field, produces finely divided colors of inorganic and organic types, in 25 classifications from arylide red to zinc yellow.

And while pigments themselves are relatively inert, studies of them are active indeed. Du Pont technical servicemen, for instance, concentrate on finding out just what their pigments will—and won't—do under a broad



Upsurge of color in home furnishings has brought new demand for harmonizing floorings. Uniformity of Du Pont pigments helps insure color matching.

range of conditions. The Company's customer service work based on this knowledge will be centralized next year when a new laboratory near Wilmington is completed.

Extra research assignments turn up frequently, as color moves into new places. Some colorants, such as the phthalocyanine blues and greens that DuPont sells as "Monastral" pigments, are almost ideal. But technical men still expect to find ways of bettering the behavior of red and yellow pigments under stringent conditions.

Just as creating durable colors is a job for experts, so is the choosing of attractive ones, since the American public has a fine disregard for colors that don't please it. What makes recent efforts unique is the skill with which color trends are being plotted and new shades picked.

FROM GARAGE TO KITCHEN

Interestingly enough, these trends frequently cut across product lines. As an automotive color, blue-green was relatively unknown as recently as 1953. Today it's a top favorite, and other current trends are toward shades in the copper, pink and rose ranges. Such light and bright pastel colors not only took a big share of this market but also found their way into kitchen appliances, housewares, paints and wallpaper.

Extending colored pigments as much as 50 to 1 to get these pastels has, in turn, extended demand for that whitest of commercial pigments, titanium dioxide. Having completed expansions of two older plants, DuPont now is building another at New Johnsonville, Tenn., to help meet the mounting demand for its "Ti-Pure" titanium dioxide.

What else is current in color?

Color and design specialist Howard Ketcham tells of one client who copied the auto makers by building boats with two-tone paint jobs and other extra styling features. Sales zoomed and he oversold one model for three years.

Ketcham also selected eight colors for telephone handsets, of which ivory, green and beige are the most popular. Even though they cost more, they're snapped up about as fast as they can be turned out.



Printing inks take increasing amounts of pigments to meet demand for color in both packaging and advertising.

Typewriters are offered in more than half a dozen shades, including blue, green, pink, yellow and red.

The humble office stapler, long standardized in black or chrome, now comes with a multitone base and a colored plastic top that matches the new telephones.

Telephone booths as well as telephones are beginning to blossom out in color. The impetus came when booths in New York City did six times their previous business after they'd been painted red.

And, while nobody that we have heard of is offering a purple cow, Faber Birren directed us to a purple fertilizer spreader that looks appropriately springlike in a home garden setting.

Color is also being called upon increasingly to help sell products other than those it enhances directly. Package design has become a field all its own, with brilliant cans and cartons vying for the impulse shopper's eye. Since the war, magazine advertising in color has skyrocketed, now accounts for nearly half of the total. New supermarket selling aids are counters painted in attractive pastels that set off foods advantageously.

Meanwhile, in products bought primarily for style, the influence of these color trends is plain. Armstrong Cork Co. reports that its current flooring patterns aren't necessarily more colorful than they have been in the past, but they must be coordinated more closely with other home furnishings, especially kitchen appliances. Neutral beiges or grays are favorite field tones, with pink, yellow and turquoise popular as accent colors. In wallpapers, pastels remain strong, although muted colors are pushing them, Faber Birren reports. Dennison Manufacturing Co. says demand for more colorfully printed Christmas gift wrap has increased steadily. Color variety is wider, supplementing standard greens and reds.

What's ahead for color? Most merchandising men believe the hunger for it isn't likely to diminish any time soon. The world as they see it looks rosy indeed.

Plastic housewares bloom with color. Red, yellow and light green are favorites, a DuPont survey shows.

When is white white?

The question is of more than academic interest to users of stationery and printing paper brightened with Du Pont's fluorescent white dye

Talk about who's got the whitest line in town used to be the private province of detergent manufacturers. Now, led by Fox River Paper Corp. of Appleton, Wis., makers of cotton-fiber—rag—papers are beginning to raise the whiter-than-white banner. Superwhiteness in Fox River paper is achieved with a fluorescent white dye, Du Pont Paper White BP, and the result has been the basis of an unusually successful sales effort.

Even before Paper White BP, of course, Fox River cotton-fiber papers were white. What the Du Pont dye has done is to turn 11 grades of very respectable quires into aristocratic esquires. Paper White BP is what's known as an optical brightener. Its fluorescence neutralizes the off-white light reflected from paper, making it appear whiter—or, as papermakers say, brighter. In grades where opacity also is desired, the proper balance is reached by using Du Pont "Ti-Pure" titanium dioxide in combination with Paper White BP. The new Fox River papers, named Arctic Whites, are notable for the way they make printed and typed material stand out. They appeal particularly to businessmen who want attention-winning letterheads.

Switching 11 grades of paper—bond, onionskin, velum, bristol and thin card—to the brighter color was a bold move. The change-over was heralded by an announcement campaign that kept paper merchants cliffhanging. First the mails brought them sun glasses, then a plastic revolver ("good hunting soon"), then bear statuettes ("the family's on the way"), and finally the merchandising kit.

SALESMAN CALLED FIRST IN '52

Like an iceberg, the larger part of the Arctic White story isn't apparent. But the swift rise of the new grades is based on the patient labors of five years. Du Pont dye salesman A. C. Sutherland, himself an Appleton resident, introduced his papermaking neighbor to the original Paper White back in 1952. Tests both at Fox River and in Du Pont's Chicago dyes laboratory stretched out over two years before the first trial run was attempted. Sutherland assisted in production and, at the suggestion of the Chicago lab, added a special dyeing auxiliary to enhance the dye's performance. The idea worked and the run was a success. When a second trial proved even better, Fox River decided to begin making BP-brightened Anniversary Bond. By then it was late 1955, and Du Pont had twice improved the Paper White formula.

Fox River offered its merchants Anniversary Bond and Anniversary Onionskin whitened with the Du Pont dye last year. When sales of these two grades doubled, the papermaker called Sutherland back to help work out the best formulations for each of nine additional grades.

Nor is the story ended. Tonnage orders are coming in and new accounts have been sold because of the ultrawhite paper. As a result, Fox River is eyeing its seven unchanged grades of paper in the sulfite and 25 per cent cotton class and visualizing them, like the first 11 Snow Whites, as the next candidates to be labeled "fairest of them all."



Checking paper samples are, left to right, Fox River chemist John Nelson, superintendent Arnold Beaman, Du Pont's A. C. Sutherland.

Second-best in

*As it was for most of our customers,
last year was one of good business for Du Pont.*

*Here are highlights from the Company's
annual report to stockholders*

Du Pont's sales, earnings and dividends in 1956 were the second highest in the Company's history, outshone only by the record year of 1955. Profit margin narrowed, however, as some prices were cut and the cost of doing business continued to climb.

Sales were \$1,888 million, one per cent lower than in 1955. Physical volume of sales, however, was about three per cent higher than in the previous year. The year ended on an optimistic note as dollar sales for the final quarter of 1956 hit a record level.

Total earnings were \$8.20 per share of common stock, down from \$9.26 the previous year. Dividends totaling \$6.50 a share were paid on the common stock, 50 cents less than in 1955.

Federal taxes on 1956 income were estimated at \$252 million, or \$5.53 per share of common stock.

THE COST-PRICE SQUEEZE

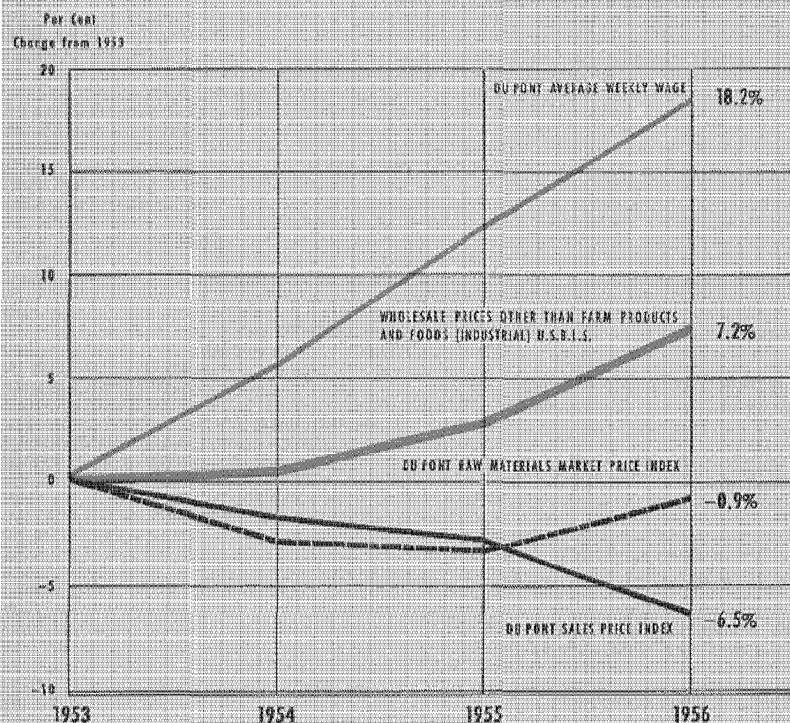
A major problem confronting Du Pont and other industrial concerns is that of arriving at competitive selling prices—prices that satisfy customers and thus contribute to steadily expanding markets, and ones that also yield a reasonable return on investment. This problem has become particularly acute during the past year, when costs have risen steadily in a highly competitive market.

The most striking cost increase has been in Du Pont's average weekly wage. At the end of 1956 it was about 18 per cent higher than in 1953. The market price index of major raw materials bought by the Company, after declining in 1954 and 1955, has risen in 1956 to about its 1953 level. The U. S. industrial price index has also increased about seven per cent. In contrast, Du Pont's sales price index has declined each year since 1953. In 1956, it was about six per cent below the 1953 level.

The increase in the cost of doing business, evident for the past several years, was accelerated in 1956. In some instances, boosts in production and technological improvements made it possible to absorb increased wage and material costs without cutting into return on investment. Indeed, in some product lines the Company has been able to lower prices in spite of higher costs. Nevertheless, the prices on some other Du Pont products had to be raised late last year.

Traditionally, Du Pont has sought to lower prices. This usually widens markets, which ben-

TRENDS OF SALES PRICES, MAJOR COSTS



history

efits the Company, its customers and stockholders. But when higher costs can't be absorbed by greater production or improved technology, a reasonable return on investment can be maintained only by increasing prices if competitive conditions permit.

The Company hopes that costs can be held sufficiently within bounds in 1957 to limit further shrinkage of profit and to make unnecessary substantial boosts in the prices of its products.

NEWER FIBERS GAIN AT EXPENSE OF OLD

Total sales of Du Pont textile fibers, measured in physical volume and in dollars, decreased in 1956. The quantity of nylon, "Orlon" acrylic fiber, and "Dacron" polyester fiber sold during the year rose, but not enough to offset reduced shipments of rayon and acetate. This growth of the newer synthetic fibers at the expense of the older types is general in the textile industry.

The decrease in dollar sales resulted from price reductions on the newer fibers, which are expected to expand their markets in the years ahead. In anticipation of this growth, new manufacturing capacity for "Orlon" is under construction at Waynesboro, Va.; for nylon industrial yarns at Richmond, Va.; and for "Dacron" at Kinston, N.C.

PLANT EXPANSION

Du Pont spent \$157 million in 1956—a record figure—to improve and expand existing plants and laboratories and to build new ones. This compares with \$119 million spent in 1955.

Sizable expenditures were made on projects for nylon, tetraethyl lead antiknock compound, neoprene synthetic rubber, "Orlon" acrylic staple, titanium pigments, sulfuric acid, "Alathon" polyethylene resin, "Hypalon" synthetic rubber, vinyl acetate, "Fabrilite" coated fabrics, paints and thinners, "Butacite" polyvinyl butyral resin, "Freon" fluorinated compounds and cellophane.

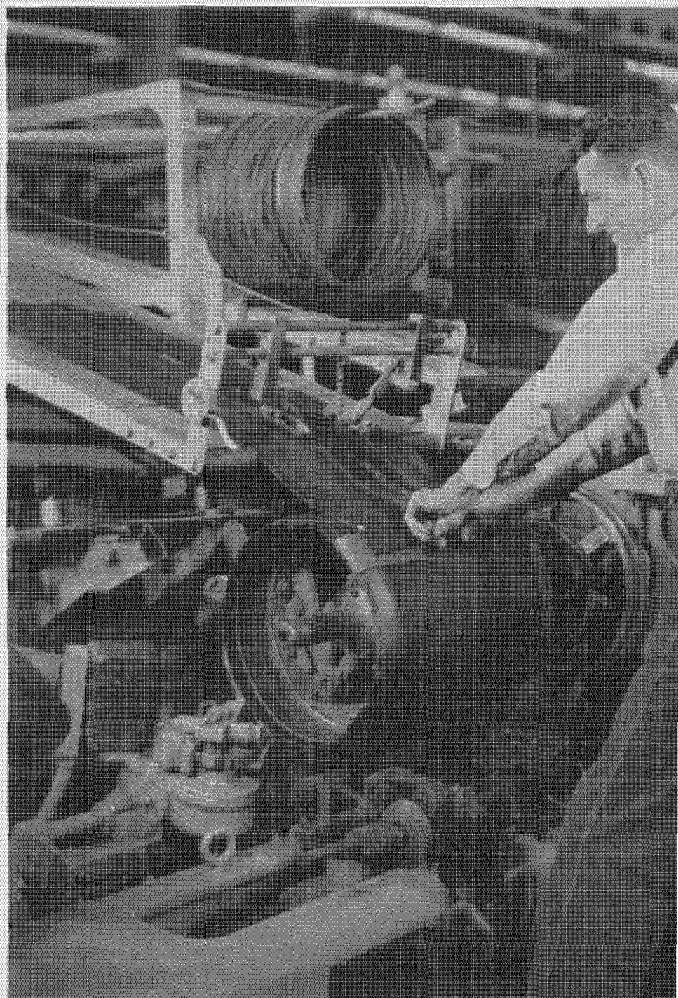
Products began flowing from four new plants during the final quarter of the year—neoprene synthetic rubber at Montague, Mich.; sulfuric acid at Columbia Park, Ohio; paint products at Tucker, Ga., and "Freon" refrigerants at Antioch, Calif. Production of tetraethyl lead started at Antioch early in 1957.

In addition to expanding facilities for textile fibers, the Company is building a plant for the production of pure silicon at Brevard, N.C., and another for the manufacture of titanium pigments at New Johnsonville, Tenn. Construction of a new cellophane plant near Tecumseh, Kan., is scheduled to start this spring.

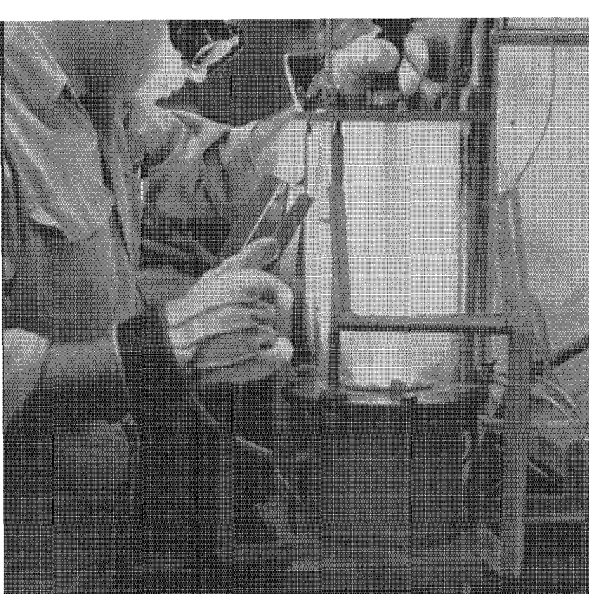
(continued on page 8)



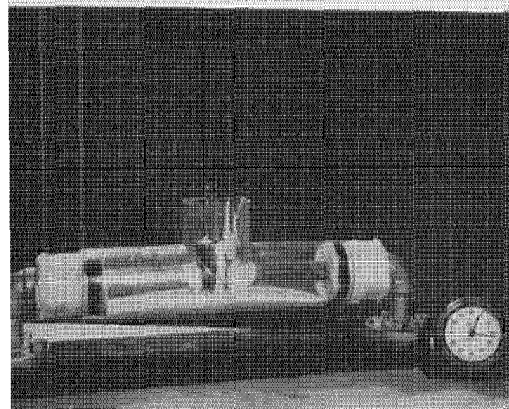
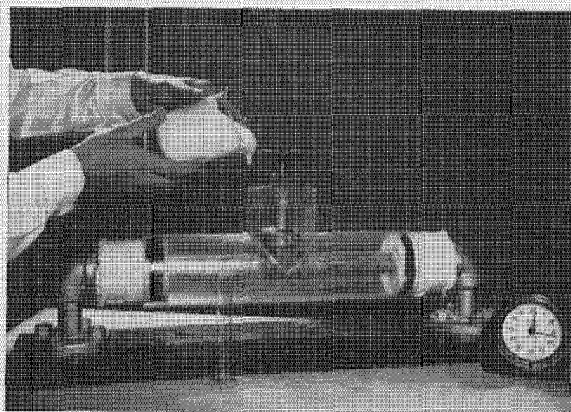
Record \$157 million went for plant expansion in 1956. This truck hauls first "Freon" from new Antioch, Calif., plant.



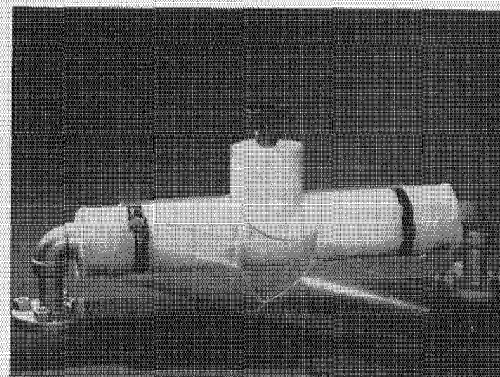
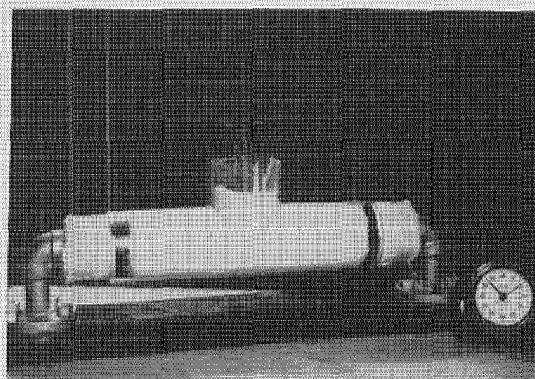
Added nylon capacity will make available more industrial yarn for tires like the one shown being manufactured here.



Broad study of special metals—here titanium is vacuum-melted—is task of new Metals Laboratory.



"Hylene" organic isocyanates, products of newly formed Elastomer Chemicals Dept., are ingredients of urethane foams. In this demonstration, a valve is covered with foamed-in-place insulation.



RESEARCH AND DEVELOPMENT

Three new laboratory buildings have been completed recently at the Experimental Station near Wilmington. Each of the industrial departments and the Chemical and Engineering Departments now have facilities there for long-range and fundamental research.

Additional high energy radiation facilities are being constructed at the Station to complement a two-million-electron-volt generator now being used to explore the effects of radiation on chemical reactions. A Metals Laboratory is also being built to permit broader research on special metals such as titanium.

Approximately 2,200 technical people were engaged in research and development during the year; expenditures were about \$77 million, excluding laboratory construction and technical assistance to sales and production.

GOVERNMENT PROJECTS

In November the Company agreed to study, at the request of the Atomic Energy Commission, the feasibility of using heavy water to moderate reactors for electric power generation. Such a system interests the Commission because it promises to permit use of natural uranium as fuel. Many alternative systems require a more expensive fuel, artificially enriched with the fissionable isotope of uranium.

The studies are to be performed as part of the existing contract under which the Company designed, built, and is operating the Savannah

River Atomic Energy plant near Aiken, S.C. This plant employed about 8,000 laboratory and plant operating personnel in 1956.

BRIEFS

... An eleventh Du Pont industrial department, the Elastomer Chemicals Dept., was established the first of this year. Formerly the Elastomers Division of the Organic Chemicals Dept., its products include neoprene synthetic rubber, rubber chemicals, "Hypalon" synthetic rubber, and "Hylene" organic isocyanates.

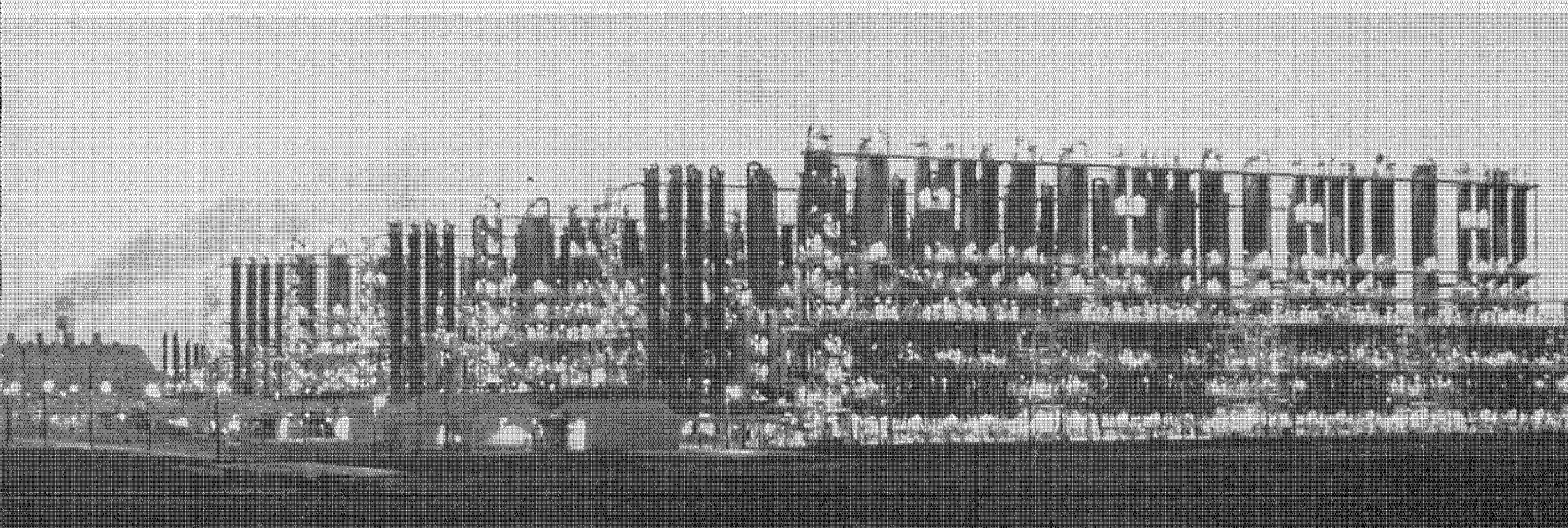
... Employee benefits—vacations with pay, pensions, life insurance, and aid to ill or injured employees are some of them—cost \$109 million in 1956, equivalent to 22 per cent of salaries and wages for time actually worked.

... Du Pont received its twelfth National Safety Council Award of Honor for its 1955 safety performance. The number of disabling injuries per million man-hours worked was .43 in 1956, compared with .39 the year before. The latest available frequency rate is 3.77 for the whole chemical industry and 6.96 for all industry.

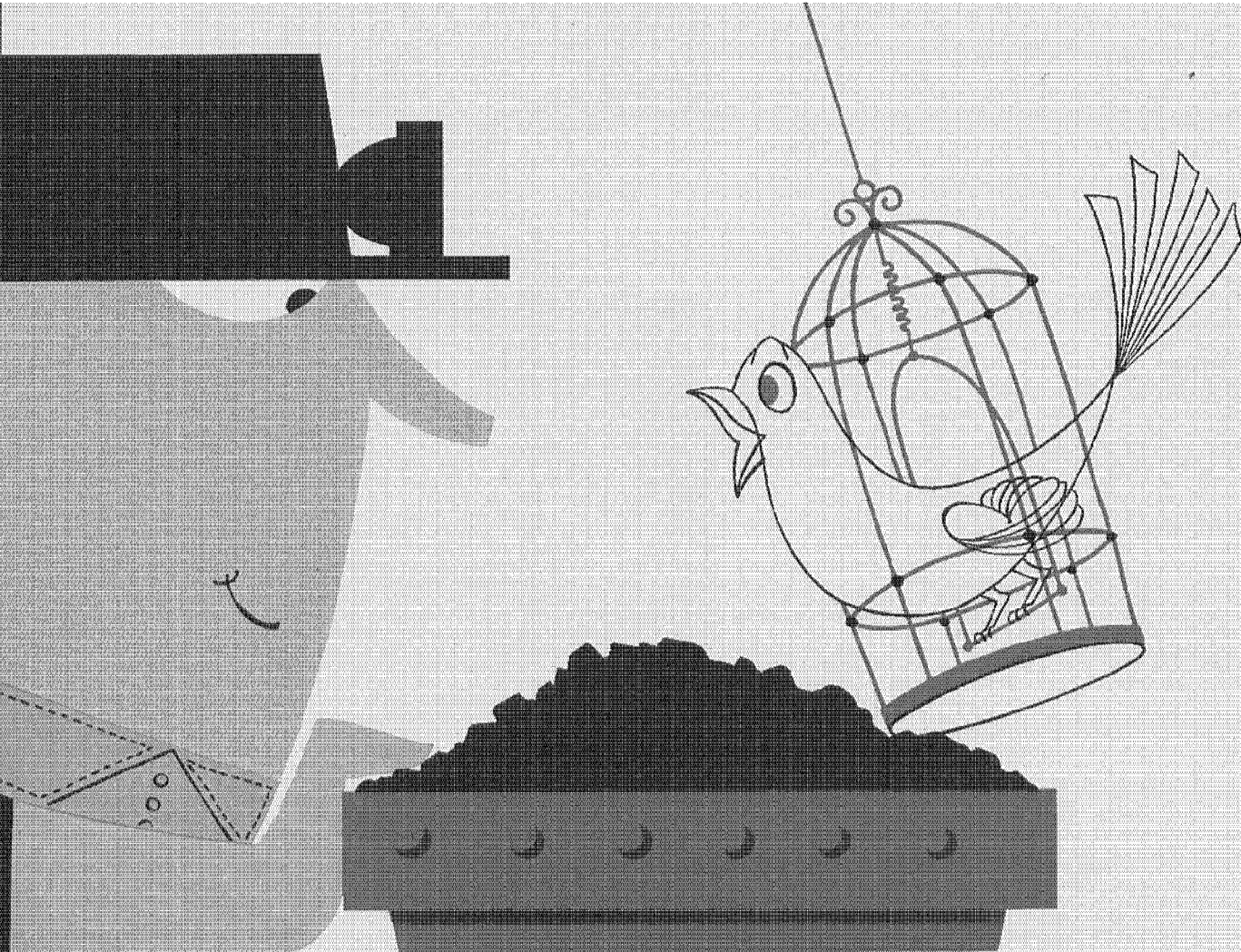
... Two foreign subsidiaries were organized during the year—Du Pont Company (United Kingdom) Limited in England, and Du Pont de Venezuela C. A. in Caracas. The English firm, which has been selling weed killers, is considering construction of a neoprene plant in Northern Ireland. The Venezuelan company began building a finishes plant at Valencia, and is a distributor of Du Pont products.

... There were 168,675 owners of Du Pont preferred and common stock at the year-end, representing a gain of 9,666 during the year.

End of '56 saw 153,832 owners of common stock. Scene is Company's annual meeting in Wilmington. ▶



Heavy water is separated from river water in this area of Savannah River plant, built and operated by Du Pont for AEC.



ATOMIC "CANARIES"

... sound a photographic warning of excess radiation exposure

By JAMES E. DOUTHITT

Early one morning in the spring of 1924, more than a hundred miners reported for work in the Benwood coal mine near Wheeling, W. Va. They had hardly reached their stations when an explosion rocked the area. Destruction was nearly complete.

Several hours later, a team from the Bureau of Mines pushed its way through the tense crowd and began the job of rescue and salvage. Up front, the first rescuers carried with special care several cages of canaries. These men knew the safety and ventilation equipment of the mine had been destroyed. They took canaries into the shaft to detect odorless and colorless gases. Some of the birds died, but the men of the rescue team, warned of the lethal gases, lived to carry on their work.

Today atomic power production and the use of radioactive materials for research and medical treatment require similar safety devices to protect men from the invisible hazards of radiation. Industrial radiographers who use

radioactive materials to inspect castings and welds, doctors and technicians who use medical x-ray machines, workers in atomic energy installations—all of them depend on the safeguards against radiation exposure built into their equipment. But as an additional safety check, there are now in use several types of detection devices—atomic "canaries" that tell the user, in case of stray radiation, the degree of his exposure.

One such device is Du Pont dosimeter (it means measure the dose) film, developed especially to monitor radiation encountered by personnel. Du Pont supplies dosimeter film to such organizations as Tracerlab, Inc., of Boston, Mass. To its subscribers, Tracerlab distributes badges containing a Du Pont dosimeter film packet. The amount of exposure, or blackening, of the films in the packet gives an accurate measurement of radiation to which the wearer was exposed. Because the films provide a permanent record of periodic and total radiation received,

subscribers can see to it that exposure is kept below the danger level.

An example of this service is a project Tracer-lab conducted for the Denver and Rio Grande Western Railroad, in cooperation with Standard Oil of California, to investigate the rate of wear of parts in a diesel engine. A steel wrist pin, which connects a piston with a connecting rod, was treated to make it radioactive, and installed in D.&R.G.W.'s locomotive No. 5584.

Each time the engine turned over, a few microscopic particles of steel rubbed off the pin and entered the lubricating oil. Usually too small and too few to measure, these radioactive particles could be counted easily and accurately by a Geiger counter located in the crankcase. The counter fed its information to a chart recorder in the cab. At the end of each run, the chart was checked for information on wear and the efficiency of dust and oil filters.

The Denver and Rio Grande and many other companies using radioactive materials require their workers to wear dosimeter badges. At the end of a specified period, the badges are sent to a monitoring lab for examination. The films are processed, the amount of radiation absorbed is determined by measuring film densities, and a report is then issued to the subscriber.

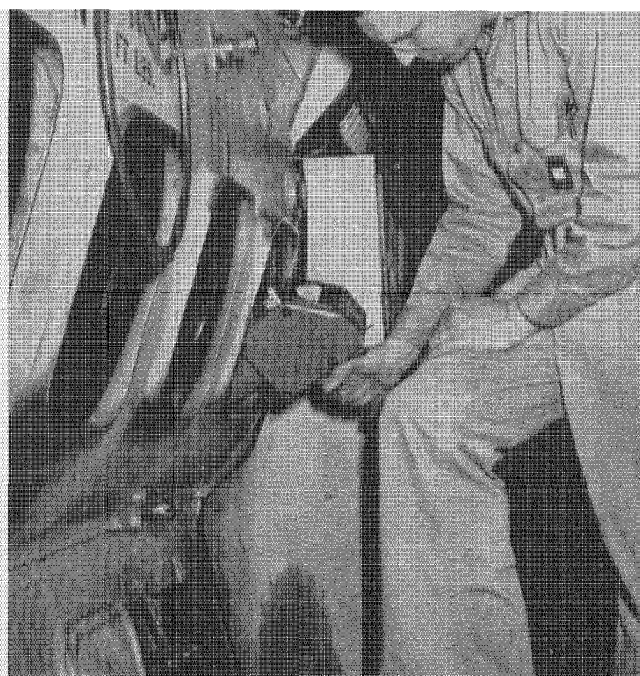
DENTAL X-RAY FILM USED

The use of film to measure the amount of exposure to radiation is not new. Before World War II, x-ray technicians in many hospitals wore or carried dental film packets to check exposure. Even today, this practice is still widespread.

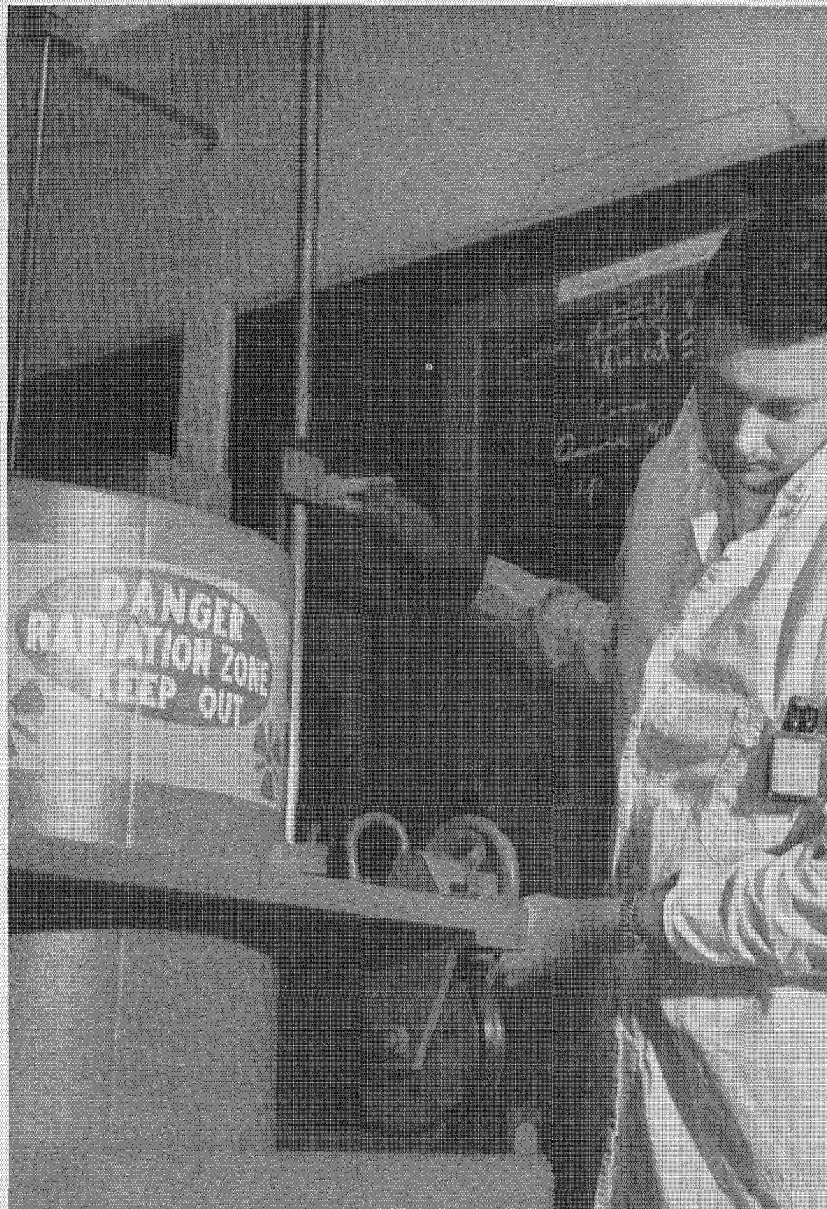
Du Pont became active in photographic dosimetry during the war years. The Photo Products research laboratory was asked to produce films with certain sensitivity characteristics. Lab personnel were requested not to speculate on the ultimate use of the film. After the war, it was revealed that the film packets the lab produced had been used to measure atomic workers' exposure to radiation.

From the experience gained in this project Du Pont chemists have developed many types of dosimeter packets with different combinations of film types. The films are chosen to record a wide range of radiation, or a narrow, specialized range, depending on whether the wearer is engaged in industrial, scientific or medical work. With atomic power plants and other atoms-for-peace projects in the offing, these protective film packets can be expected to grow more varied.

Technician at Knolls Atomic Power Laboratory also wears film badge as he handles gamma ray source. Film is processed periodically as check on exposure.



Dosimeter film, inside badge, records amount of radiation scientist is exposed to while he monitors radiation from "hot" wrist pin in a diesel engine.



THE CULTURE OF THE BUSINESSMAN

By CRAWFORD H. GREENEWALT

IN THE relationship of education to business we observe today a fine state of paradox. On the one hand, the emphasis most business places on a college degree is so great that one can almost visualize the time when even the office boy will have his baccalaureate. On the other hand, we seem to preserve the belief that some deep intellectual chasm separates the businessman from other products of the university system.

Not long ago a young English professor was speaking of a collection of letters written by a Boston businessman back in the 1840s. He expressed amazement that this gentleman and some of his commercial confreres were members of a club which had numbered among its principal ornaments Ralph Waldo Emerson.

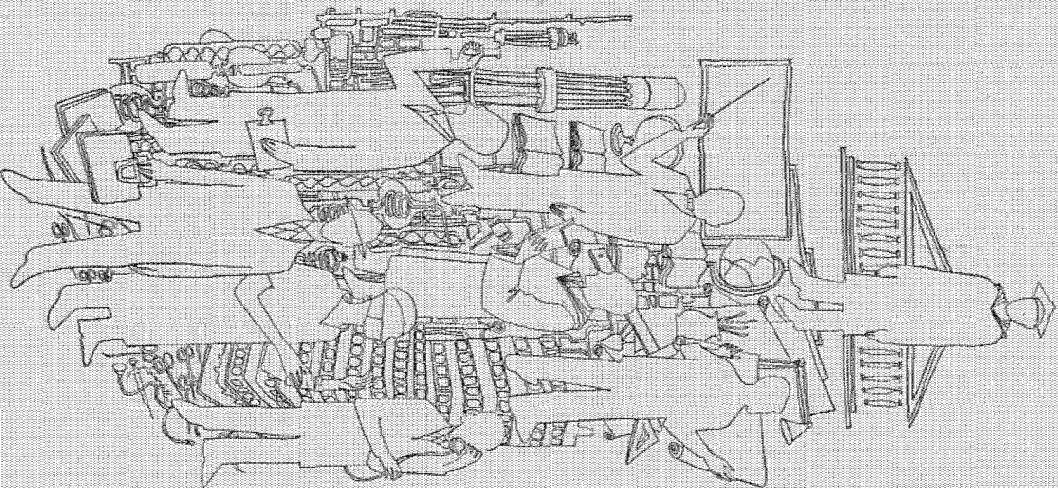
"Imagine Emerson hobnobbing with some of our modern business people!" he remarked morosely.

Well, I don't know. I have a feeling that Emerson might do worse, and I get a little weary of the notion that business people are quite the Philistines that many seem to think. For some reason, we tend in this country to characterize vocations by stereotypes, none too flattering but still deeply embedded in the national conscience. In this cast of characters the businessman comes on stage as a crass and uncouth person complete with top hat, paunch, and large watch chain, scoffing at all cultural preten-

sions and unindulgent of all save gain. It is not a pleasant conception and no more truthful or less unpleasant than our other stereotypes—the absent-minded professor in his ivory tower, the drunken reporter, the longhaired musician, the toolless plumber, or the interfering mother-in-law, to name a few.

I'VE known a great many business people. My own impression is that it would be impossible to crystallize a "typical" example out of the lot and, what's more, a completely pointless exercise. I know businessmen who are bores, some who lack the social graces, some who are dull companions, and some whose intellectual interest is limited to the business that engages them. On the other hand, I know some who are learned men of vast and unerring scholarship, some with the sensitivity of poets, and some with the patient calm of saints. I know a number whose knowledge and feeling for music is as sophisticated as any. I know one who is an authority on Browning, and another who has as profound an appreciation of the pre-Raphaelites as Ruskin's.

Businessmen, in short, are not ambulatory balance sheets and profit statements, but perfectly normal human beings, subject to whatever strengths, frailties, and limitations characterize man on this earth. They represent a cross-section of society—



Continued from The Saturday Review. Copyright 1957 by Saturday Review, Inc.

the brilliant and the dull, the generous and the grasping, the expansive and the petty, the sensitive and the crass, the good and the bad—all grouped to complement each other.

I find it hard to believe that business would draw *all* its people from the culturally disenfranchised. Men elect to enter the field of business just as they may choose some other vocation—the law or journalism or the clergy or teaching—sometimes through a leaning or predilection, more often through pure chance.

THERE is, in fact, considerable mobility between vocations. I, for one, started out as a scientist and wound up, for various reasons, working at a desk instead of a laboratory bench. Several promising engineers and administrators have left us for the ministry or for teaching. We have a few who have reversed the process.

I realize that it is popular to regard the large business unit as a machine in which human tolerances are held within precise limits and some All-Seeing Eye charts the manners, dress, and political views of each candidate for advancement. One of the magazines devoted to business has the curious conviction that the wives of business executives are screened critically as part of the criteria for their husbands' promotion.

All this of course is pure fiction, at least according to our experience. The Gray Flannel Suit is a pretty superficial symbol after all (I don't own one), and among my most valued associates taste in dress covers a pretty broad pattern. The same goes for personal habits and enthusiasms. As for wives, I can report that among my close co-workers there are a number whose ladies I have never seen.

It is not conformity in the outward signs that represents the danger; it is conformity in thought and in thinking. And on this level I suspect that business is less constrained than other ways of life.

Assuming that education's objective is to cultivate the soil of human thought, its place in business is the same as in any other field of human endeavor. The man of talent who turns to business for a career will find just as much in the way of creative opportunity as he would in any other field.

MUCH of the support for the establishment of colleges and universities has come out of our industrial growth, from businessmen who wished to share the rewards of their enterprise. In addition, art galleries, libraries, historic restorations, public parks and gardens, museums, and many other such institutions offer testimony today to the public-spirited benefactions of men who were successful in the business and industrial field.

As many have pointed out, business must share part of the responsibility for keeping our colleges on a strong financial basis. Much is being done in this direction, and more will be done ultimately. But I confess to some irritation with the nomenclature which associates "education" so intimately and so exclusively with the university. This view seems to accept a rather shocking series of premises: First, that a college graduate is necessarily educated; second, that all non-graduates are necessarily uneducated; and third, that the educational process ends with the diploma.

Each of these assumptions, of course, is nonsense. The proper concept of a university, as many have described it, is simply that of a catalog that sets forth the areas of human thought and indicates the avenues through which each may be explored. After that it is up to the individual. He may go as far along the road as his personal taste and capacities dictate.

HOW many of us can look back upon the day we became college graduates and say that, on that day, we were educated people? I am sure I cannot, and I know few who can. Most, if not all, of the interests which broaden and enrich our lives and our careers are developed long after college. One of my own interests is Roman history, yet at graduation I could have identified neither Tacitus nor Diocletian. My fancy for serious music was not developed in college; in those days I listened respectfully to "Whispering" and "Avalon" like everybody else. I've been running a hard race for many years against the list of books and authors I hope eventually to know; I caught up with Thackeray only last year.

There are, of course, young men who enter the business world and be-

come so engrossed in immediate affairs that they ignore all else. They live in a narrow cell of their own making; the world looks at them and deplors their lack of culture. But this process is by no means exclusive to business; we see it at work in every other element of life. We see professors of history with few interests outside the period and the area of their own parochial specialty. We see artists indifferent to everything but their canvases; physicians who are lost outside medicine; lawyers who are unlearned in all save law.

Too often, I fear, we criticize the one-dimensional businessman while somehow finding excuses or even applause for the one-dimensional professor or artist or scientist. Yet I find it hard to differentiate. The narrow cell has the same walls and the same limitations whether it is an office, a laboratory, a studio or a classroom.

NO, EDUCATION is not the province of any one group or any one type of activity. One does not automatically become cultured in one trade and uncultured in another. All of us have our specialties—otherwise we become mere dilettantes. Every tree must have its trunk, but it can put out branches in profusion, and the branches will spread and intertwine with one another to produce the whole specimen. And the purpose of education must be to encourage that growth.

Despite our mass attendance at college and our mass exposure to culture, education remains an individual achievement. I am afraid the emphasis, in education as elsewhere, has been in recent years on the group, with the tendency to obscure the star in the constellation, the soloist in the ensemble. Yet it will always be true, I am sure, that the individual will provide the basis for progress. Self-direction is difficult; it is frustrating and often downright unfashionable. Men of uncommon endowment will always represent a minority group within the ranks of society, subject to all the sanctions and discriminations which minorities have always suffered. But it is the uncommon man who will achieve the goal of a true education. For, short of a personal and highly individualistic effort, there is no other way to acquire an education at all.

ship, finished with "Dulux" marine enamel, suggests its cleanliness.



Latest way of trimming transportation costs is with special-duty tankers.

Here's one uniquely equipped to haul its . . .

Golden cargo

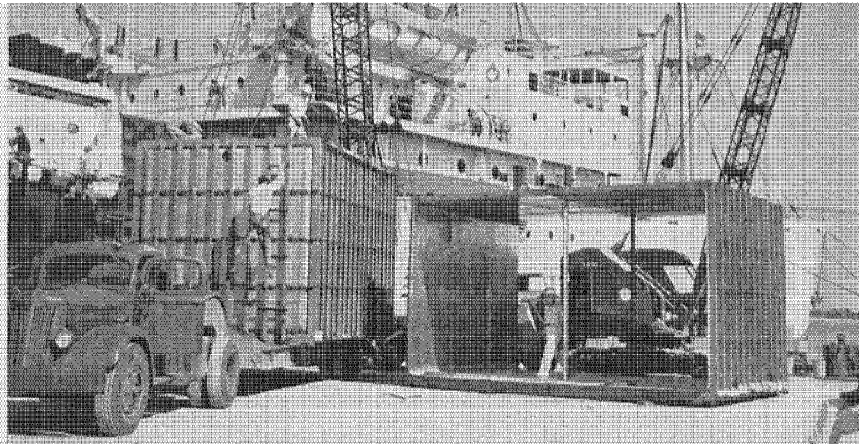
There's more stirring in transportation these days than lightweight trains, jet passenger planes and a multibillion dollar highway program. Currently making a splash in the news is a special-duty ocean tanker whose cargo system is a transportation first. The ship carries fresh orange juice in huge stainless steel tanks, speeding the vitamin-laced drink from grove to breakfast table.

Fruit Industries, Inc., of Bradenton, Fla., started marketing fresh orange juice in cartons in 1954. Immediate consumer acceptance pushed the company into developing a complex distribution system. It employed 85 refrigerated trucks to haul the juice to more than 2,000 dairies across the nation. The dairies, in turn, delivered direct to homes and

food stores. But by last year, with demand outstripping truck deliveries, Fruit Industries was caught woefully short of transportation. Thus was born the idea that, a few months later, took shape in the gleaming white S. S. *Tropicana*, a converted 8,000-ton cargo vessel. Last February, on her maiden voyage, the *Tropicana* steamed in 56 hours from Port Canaveral, Fla., to Whitestone, Long Island, with 650,000 gallons of fresh juice.

"That's equivalent to 217 refrigerated truckloads," says Anthony T. Rossi, president of the firm. "Later we'll boost cargo capacity to about a million and a half gallons by adding more stainless steel tanks. We'll be able to deliver the juice to our Whitestone packaging plant for

Huge stainless steel tanks that now carry orange juice are hoisted aboard *S. S. Tropicana* by workmen during conversion last year.



\$15,000. Trucking the same gallonage would cost \$265,000."

Getting the juice into breakfast glasses while it's still fresh calls for extraordinary handling skill. The company manages it by chilling the juice to 28°F.—in equipment cooled by Du Pont "Freon-12" refrigerant—as soon as it leaves the 65 squeezing machines. While the juice is waiting to be pumped aboard ship, it's held temporarily in one of the largest cold storage rooms in the South, cooled by 480 tons of refrigeration.

On its northern journey, the juice isn't refrigerated because heavy insulation around the tanks helps hold the temperature to a safe 28-30°. Du Pont "Dulux" marine white enamel on the ship's hull and superstructure helps, too, by reflecting the sun's hot rays. But that isn't all the paint does. The durable white finish helps the ship maintain the look of cleanliness so important, psychologically, in the food business.

Once the *Tropicana* docks, another refrigeration system chills the juice as it is pumped into storage tanks, and holds it at 28° until it's packaged and on the way to consumers. Cartoning machines fill both quart and half-pint cartons, the latter distributed through vending machines located in schools and offices.

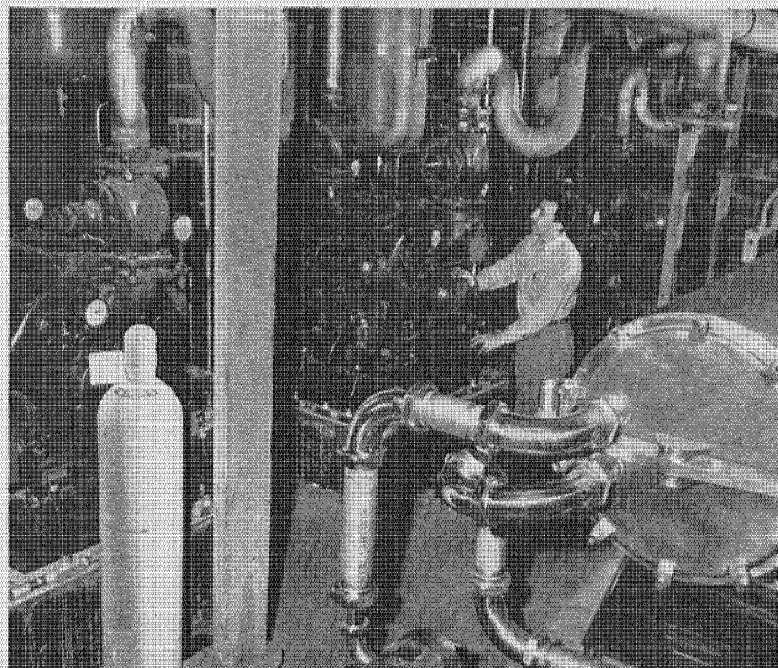
"Keeping the juice fresh is only half of it," says Rossi. "We turned to 'Freon' for cooling because it's odorless and virtually nontoxic. In case of a leak in refrigeration equipment, these are important points when you're dealing with a food product."

Intensive tests under government aegis showed that the juice retains its flavor and vitamin C content. Neither quality showed a measurable decrease after four weeks of storage at 32°.

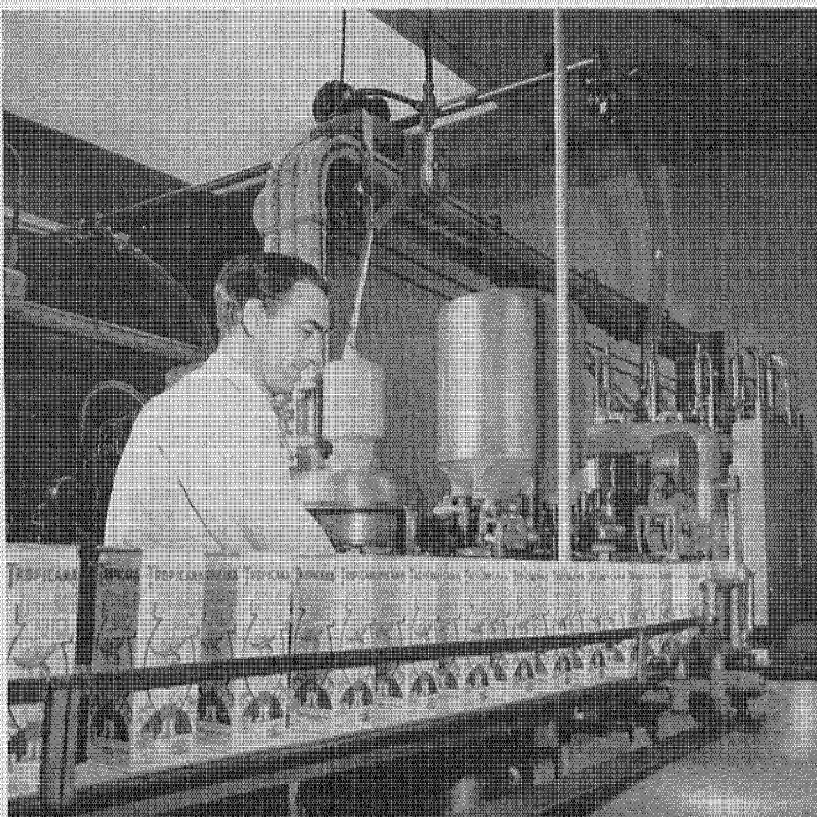
Fruit Industries now plans to build packaging terminals in Boston and Baltimore and, when the St. Lawrence Seaway is completed, at a Midwest port. Ultimately, the firm hopes to ship fresh juice to Europe.

Going down to the sea in ships, once a romantic affair, is taking on a highly technical tinge as specially-equipped vessels like the *Tropicana* begin plying the seaways.

Filled cartons of fresh orange juice stream out of loading machine at 140-a-minute clip. Fresh juice, on the scene only three years, has carved out a big market.



After 56-hour voyage from Florida, juice is pumped ashore to Long Island packing plant and held at 28° by "Freon-12" refrigerant.



Here, men, is a summer suit that comes on



a home washer and dryer ready to wear. In short . . .

The automatic suit

By J. ALLAN HOVEY

A few issues ago we predicted a time when laundering and pressing clothes made with synthetic fibers would be almost wholly automatic, basing our report on Du Pont research findings.

It turns out to have been a very short limb we went out on. Appearing on store racks now are men's summer suits that can be machine-washed and machine-dried, emerging clean and relatively unwrinkled in about an hour, with creases and pleats still there.

This sartorial triumph, the first of many automatic wash-and-wear garments to come, bases its success on three factors:

1. The right fabric. In this case, the cloth contains a high percentage of "Dacron" polyester fiber. Like nylon and "Orlon" acrylic fiber, "Dacron" soaks up little or no water and thus dries quickly. The fabric also retains its crease and sheds wrinkles readily.

2. The right tailoring. Swirling and spinning in a washer, then tumbling in a dryer exerts a powerful strain on a garment's vitals. Shoulder padding, linings and sewing thread in the new automatic wash-and-wear suit are designed to take this beating and to dry quickly.

3. The right drying procedure. For best results, the suit should be dried in a vent or exhaust-type dryer with adjustable temperature control and a cooling cycle. It should be tumbled for about 30 minutes at low to medium temperature, then tumbled for 5 to 10 minutes with no heat. Many 1956 and '57 dryers have the necessary temperature controls and cooling cycle. You can use other dryers, but the suit may need touch-up ironing when it comes out.

You don't have to handle the new automatic suit automatically, of course. It can be dry cleaned or, like a conventional wash-and-wear garment, machine-washed and drip-dried. One word of warning, though: Don't try to put your regular wash-and-wear suit through the

dryer. It's not designed to stand the gaff.

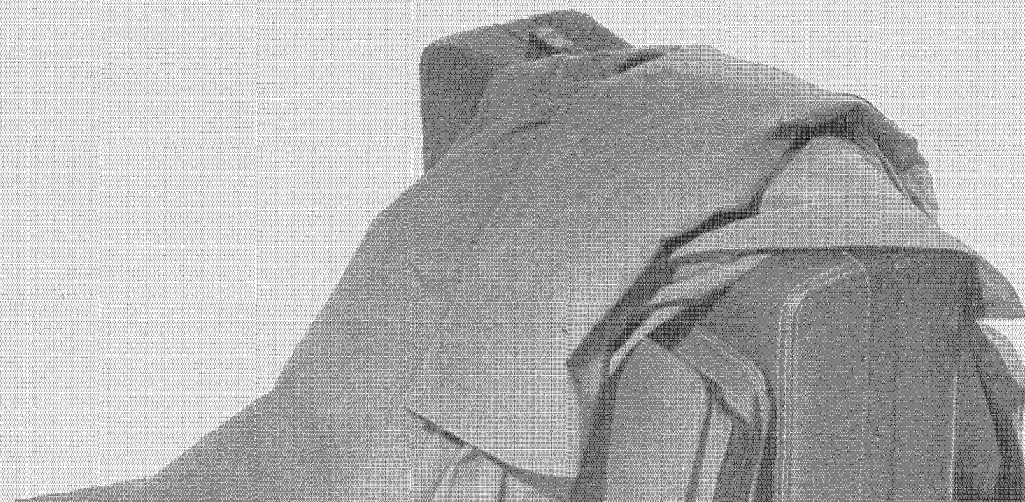
The new automatic wash-and-wear suits, as we said, are available in limited numbers this spring. The manufacturer is Haspel Brothers Co. of New Orleans, a wash-and-wear pioneer. The fabric contains 65 per cent "Dacron", 25 per cent rayon and 10 per cent mohair, and comes in a range of shades. The announced price is about \$60 with the usual one pair of pants.

How can a suit lose its wrinkles without also losing its crease? Well, your body heat helps to wrinkle your coat and pants in the first place. The heat of the dryer and its tumbling action remove the wrinkles by nudging the molecules in "Dacron" back into their original alignment. Sleeve and trouser creases and pleats stay put, however, because they were pre-set into the suit at a much higher temperature than the dryer reaches at the low to medium setting.

This "heat memory" of "Dacron", by the way, turns the home dryer into a practical touch-up presser. Suppose your automatic wash-and-wear suit is wrinkled but not soiled enough to need washing. Tumble-dry it in the way we've described; take it out relatively unwrinkled and ready to wear.

Automatic wash-and-wear marks the latest step in a trend dating from 1952. That year some 1,200 suits of the drip-dry variety were test-marketed in ten stores. Last year 1,200,000—one out of every five summer suits sold—were wash-and-wear. As the automatic concept takes hold, industry observers say, wash-and-wear is probably in for a period of even more spectacular growth.

Men's summer suits are only the beginning, of course. This fall may see men's and boys' slacks that are designed to go the automatic route, too. Next year, automatic wash-and-wear ranks are expected to include men's and boys' sport coats, rainwear and other apparel.



BIG BOOM ON THE MESABI

It isn't wholly a financial one. Part of the boom comes from the Du Pont explosives that are making rubble out of taconite, one of the hardest rocks in America

By TED DUTTON

DULUTH, MINN.

"Drill enough holes, load them with enough explosives and you could blow Minnesota off the map!"

This assurance, plus an encouraging cost estimate, was music to the ears of ironmining experts in Duluth. That was in 1947, when they wanted to know whether explosives could mine taconite economically. The answer—an emphatic yes—has helped trigger one of the hottest industrial booms in modern U. S. history.

It also plunged Du Pont blasting technicians into one of the toughest and most intriguing workouts they've faced to date. It happened this way:

By 1947 the fabled Mesabi seemed on the verge of final eclipse. More than two billion tons of its high-grade hematite ore had been gulped by blast furnaces. One ray of hope, however, was the possibility that Minnesota's taconite, a rock with low iron mineral content, could at last be mined economically.

Fortunately, there already existed a workable concentration process for magnetic taconite, of which Minnesota boasted more than 1.7 billion tons. The process had been devised years earlier by E. W. Davis, a University of Minnesota mineralogist, but attempts to commercialize it had failed at a time when rich ore was plentiful. Perhaps the time had now come when taconite could compete.

Inspired simplicity characterized the Davis process. Huge crushers would pulverize the chunks; rod-and-ball mills would further reduce them. Magnetic separators would remove powdered iron ore concentrates. The concentrates, too fine to be shipped or fed into blast furnaces, would be dumped into balling drums that would roll the iron ore into moist pellets the size of small walnuts. The pellets would then be hardened in furnaces before shipment.

So far so good. But how to mine taconite? The iron ore particles lay scattered through gray-black metamorphic rock, Pre-Cambrian sediments altered by time and pressure into just about the hardest rock on the continent. Taconite blunted churn-drill bits, often after only a few feet of progress in drilling. Then came the jet piercer. This

revolutionary drill was really no drill at all. Fueled by kerosene and oxygen, it squirted a 4,300°F. flame jet at the rock. A stream of cold water helped make the superheated rock spall, or flake away, while steam helped blow the debris up and out of the hole. The jet piercer, tests showed, could rip through taconite at up to 40 feet an hour, burrowing an access hole into which explosives were loaded.

It remained for explosives technicians to devise an economical way to break up the super-hard rock. The tools were right—high-density, high-energy rock-busters like Du Pont "Nitramex" blasting agent and the less costly "Nitramon" blasting agent and "Nitramite" nitro carbo nitrate. Even so, it was no snap. Besides myriad technical headaches, there was the omnipresent cost factor. Taconite needs three times the normal handling per product ton. It also faces two-fronted competition from domestic ores and from vast new high-grade ore deposits in Labrador and Venezuela. Efficiency is the watchword. You can't waste a penny—anywhere.

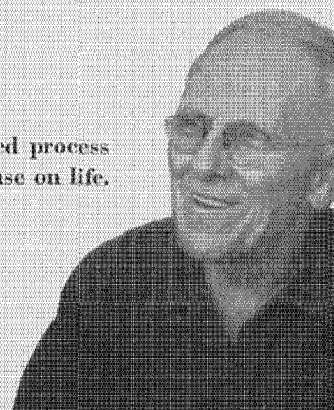
"Still, you can't be skimpy with your explosives, either," mining engineers warned. "Powder breaks up rock cheaper than anything else."

Time proved the point. Pit men quickly learned that by increasing the explosive loads they would have used in ordinary hard rock they saved money in the end. Light loads meant poor fragmentation. This led to costly secondary blasting. It also meant excessive down time on primary crushers, which could handle five-foot chunks of flint-hard rock, but only at prohibitive cost to their insides.

But fine fragmentation had drawbacks, too. For instance, blast holes had to be loaded nearly to the top. This broke up the rock, all right, but it sent pieces whizzing to kingdom come—sometimes a half mile from the blast. Ironically, if you cut down top-loading to reduce this "fly," you piled broken taconite 70 feet high. Then the huge electric shovels loading ore into trucks might bring avalanches tumbling down.

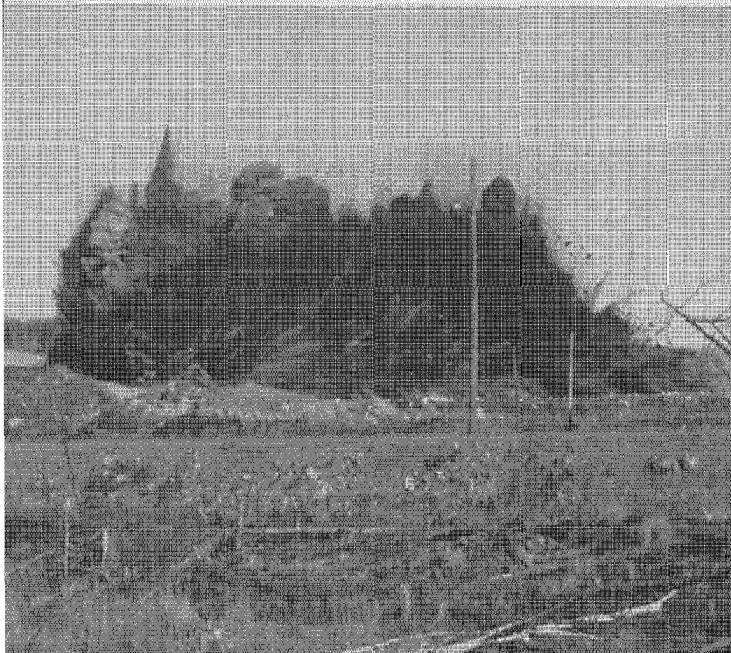
Such paradoxes could only be solved by patient trial and error. Yet a system has been worked out, and today

Professor E. W. Davis fathered process that has given Mesabi new lease on life.

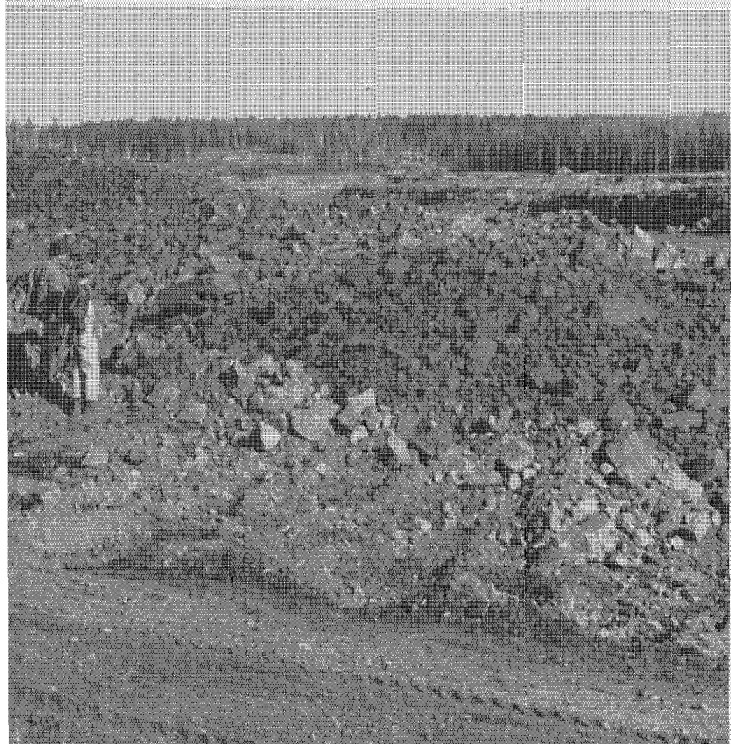




Crew loads Du Pont blasting agents into holes sunk by the jet piercer, left. Its 4,300° F. flame pierces the hard taconite.



"Ker-thud! Ba-room!" Shock waves roll across the pit" as 75 tons of blasting agents lift 300,000 tons of taconite.



taconite blasting is by way of becoming an exact science. For safety's sake, few are privileged to watch blasts. But it's a thrilling experience, not to be forgotten. Shortly before a shot, Du Pont may receive an order for, say, 150,000 pounds of "Nitramex", "Nitramon" and the needed primer charges in their cylindrical steel cans. Also needed are Pelletol No. 1, a pelleted, waterproof blasting agent, and many reels of "Primacord" detonating fuse, a plastic-covered cord that detonates almost instantaneously along its length.

Loaded explosives trucks roll from Du Pont's Barksdale, Wis., plant or from magazines at the towns of Hibbing, Virginia or Ely. Atop the face to be shot, jet drills have put down long rows of holes six inches or more in diameter, more than 30 feet deep, spaced 19 feet apart. When the trucks arrive, loading crews go expertly to work, lowering the cans into the holes with ropes.

First come the gray explosives containers—powerful "Nitramex" 2H. Then down goes the red primer can with its double strands of "Primacord". Finally comes Pelletol No. 1, which is simply poured in to fill the open spaces at the bottom of the hole. Lower density "Nitramon" or "Nitramite" goes in the upper portion of the hole, along with another primer. Several feet of rock chips complete the loading of the hole.

FUEL OIL AND FERTILIZER

Recently the continuing search for efficiency and economy in taconite blasting has led to the use of ammonium nitrate prills for a portion of the explosives load. The material is of the type used for fertilizer, and it's supplied in paper bags. Fuel oil is mixed with the ammonium nitrate to sensitize it and improve its explosive efficiency. This is done by simply adding oil to the prills shortly before or after they are loaded into the hole. This mixture is used as a top load above the stronger and denser "Nitramex" 2H and Pelletol No. 1.

With loading complete, the holes are linked together with a trunk line of "Primacord". Firing of each successive row will be delayed by 17-thousandths of a second with special delay connectors that set the rows off in sequence, working back from the face. This will leave space for the broken rock to pile uniformly, insure the proper fragmentation and cut down vibration where that is a problem.

Now, with the block rigged for firing, sirens wail and the area is cleared. Electric blasting caps are taped to the initiation point in the network of "Primacord". The blasting crew retires to a steel shelter. The blaster rams down the plunger at the blasting machine.

Abruptly, a giant mushroom of blackish dust and smoke leaps into the air. Fly rock whistles skyward. "Ker-thud! Ba-room!" Shock waves roll across the pit. Then the smoke thins gradually to reveal a gaping hole and a giant pile of broken taconite. More than two million cubic feet of America's hardest rock have been reduced to rubble.

Three firms are mining and concentrating taconite in Minnesota today—Reserve Mining Co., Erie Mining Co., and the Oliver Iron Mining Division of U. S. Steel. To date they've invested more than \$500 million in the area, massive proof that the long-nurtured dream for reviving the mighty Mesabi is now reality.

Here's well-broken taconite left by blast above. Iron content is 25-30%. Processing yields pellets containing 63%.

AGRICULTURALLY SPEAKING

SEED TREATMENT KEEPS ON GROWING

Many more farmers than usual probably will plant sorghum this spring, especially in areas where several years of below-normal rainfall have badly depleted subsoil moisture. New hybrids that promise far better than standard yields make sorghum increasingly attractive in terms of profits as well as drought resistance. Agricultural research men warn, however, that all sorghums are susceptible to seed rot and are seriously affected by two seed-borne diseases, loose and covered kernel smuts. New sorghum seed treatments approved by the U. S. Dept. of Agriculture include both Du Pont "Arasan" SF-M thiram seed disinfectant and protectant and "Delsan" A-D seed protectant. "Delsan" A-D looks the more promising in field tests, Du Pont researchers report.

"Delsan" A-D seed protectant also has earned new recommendations for use on vine crops—cantaloupes, cucumbers, pumpkin, squash and watermelon. By following package directions, users can ordinarily expect increased stands and yields due to reduction of losses from seed decay, damping-off and seedling blights. The improved formulation of "Delsan" A-D, which was introduced last season, has already won recognition as an effective seed protectant for beans, corn and peas.

The new liquid formulations of "Ceresan" mercurial seed disinfectants we told you about last fall are drawing praise from seed processors for their uniform coverage, ease of handling and agreeable odor. Incidentally, "Ceresan" 100 now comes in one-gallon drums for on-the-farm treating of small grains, flax and cotton to control certain seed- and soil-borne disease organisms.



Got rabbit troubles? The U.S.D.A. recommends this chemical repellent to keep them from ripping your young trees and shrubs: Add one gallon of asphalt water emulsion to one gallon of water. Stir in two pounds of "Arasan" SF-X thiram seed disinfectant and mix thoroughly. Brush-paint the mixture on trunks. To make a foliage spray, dilute this formulation with another gallon of water and add an additional pound of "Arasan" SF-X.

Few people have seen a nematode, but the tiny worm probably ranks as farmers' No. 1 crop-robber. Chemicals that kill not only nematodes but also virtually all living matter in soil are increasingly important to agriculture. Du Pont vapam soil fumigant, now ready for its first big season of use, has ease of handling as well as potency in its favor. Water-soluble, it can be applied by sprinkling can, hose proportioner, broadcast spray or through irrigation systems. It also can be injected directly into the soil without further dilution.

Spring's the time to do something about harvesting apples like these next fall. Du Pont "Thylate" thiram fungicide, introduced in 1956, offers control of both scab and rust on all apple varieties. These Red Delicious, protected by "Thylate", show a typically fine finish.

Americans today eat about two-and-one-half times as much turkey as they did before World War II. To help make their bumper crops of poults gain fast on less feed, turkey growers are turning to high-energy starter rations supplemented with Du Pont methionine, an amino acid that's already well established as a growth booster in the broiler industry.

Colorado's Don Quixote of business

Somewhere in the Rockies . . . address indefinite . . .

*Du Pont nylon helps Gerry Cunningham sell
his unique mountaineering equipment*



Gerry Cunningham makes a sleeping bag. His successful business specializes in climbing equipment.



Garments made by Gerry range from nylon outfit his wife models to Himalayan costume he is wearing.

He's a bright young man, but cavalier toward appointments and sometimes molasses-slow with deliveries. Although his inventory may be nonexistent, he's prone to take off for weeks when the spirit dictates.

His "factory" is a trackless half mile from a rutty wilderness road high in the Rockies. He publishes no address other than Ward, Colo., a decaying ghost town six miles away. He rebuffs walk-in trade with a perpetually hung sign: "No trespassing . . . Gerry is Closed Today!"

Gerry Cunningham, affable, articulate, succeeds as few mortals have in being independent without a handout or inheritance. He can afford it. At 34 he runs one of the nation's most robust small mail-order businesses, a leader in its field. His credo, which helps explain his idiosyncrasies, is to "stay small, play hard, and produce the best climbing equipment in the world."

Gerry scores high on all counts. After 11 years, he's still a one-man proprietor. He skis, climbs and hunts incessantly. His packs, parkas, tents and sleeping bags of Du Pont nylon decorate the backs of most topflight U. S. mountain climbers.

He has designed experimental survival kits for the Navy, Air Force and Army Quartermasters. He has outfitted more Alaskan, Andean and Himalayan expeditions than he can recall—including recent American campaigns on Makalu and K-2, and the British blitzkrieg on Everest.

Orders drift in from Germany, Peru, Japan. Gerry admits grossing \$30,000 annually, almost without trying. Nylon and other Du Pont products supply a powerful assist to an ingenuity in design that keeps the eyes of the sporting goods industry turned his way.

Gerry came by this gift obliquely. At Antioch College, where he studied engineering, one of his principal accomplishments was some rock climbs in a nearby limestone quarry. Gerry's affinity for the vertical prompted enlistment in the 10th Mountain Division at Camp Carson, Colo. He saw action in Italy and Alaska, devoting his spare time to redesigning bulky G.I. equipment. Back in home-



Back-packing outfit by Cunningham weighs only 14 lbs., includes tent, pack, sleeper and rain cape made of light and strong nylon fabric.

town Utica, N.Y., he started selling custom-made packs, parkas and tents to mountaineering acquaintances. After a year, he moved business and wife Ann to 20 acres of mountain meadow 40 miles northwest of Denver.

ROOF WENT ON NONE TOO SOON

"We lived in a tent while I built the store," says Gerry, referring to a 10 x 15-foot fieldstone workshop. "We put on the roof two hours before our twin boys were born."

Keeping his shop humming, among other things, are "gowns by Gerry." That's the loose metaphor climbers bestow on super-tough, fly-weight nylon duds designed, cut and sewn by Cunningham. These range from knee-length wind parkas to gusseted, padded Himalayan costumes, distinctly unfashionable, but necessary for survival in sub-zero, high-altitude storms.

Tents and sleeping bags from Gerry Mountaineering Equipment Co. are noted for warmth, light weight and resistance to wind and water. Gerry cuts them from a 2½-ounce nylon fabric specially woven by a New York

mill. His latest creation, a light, double-walled mountain tent costing \$150 without poles or stakes, was pronounced by Americans on K-2 "the only decent tent we had."

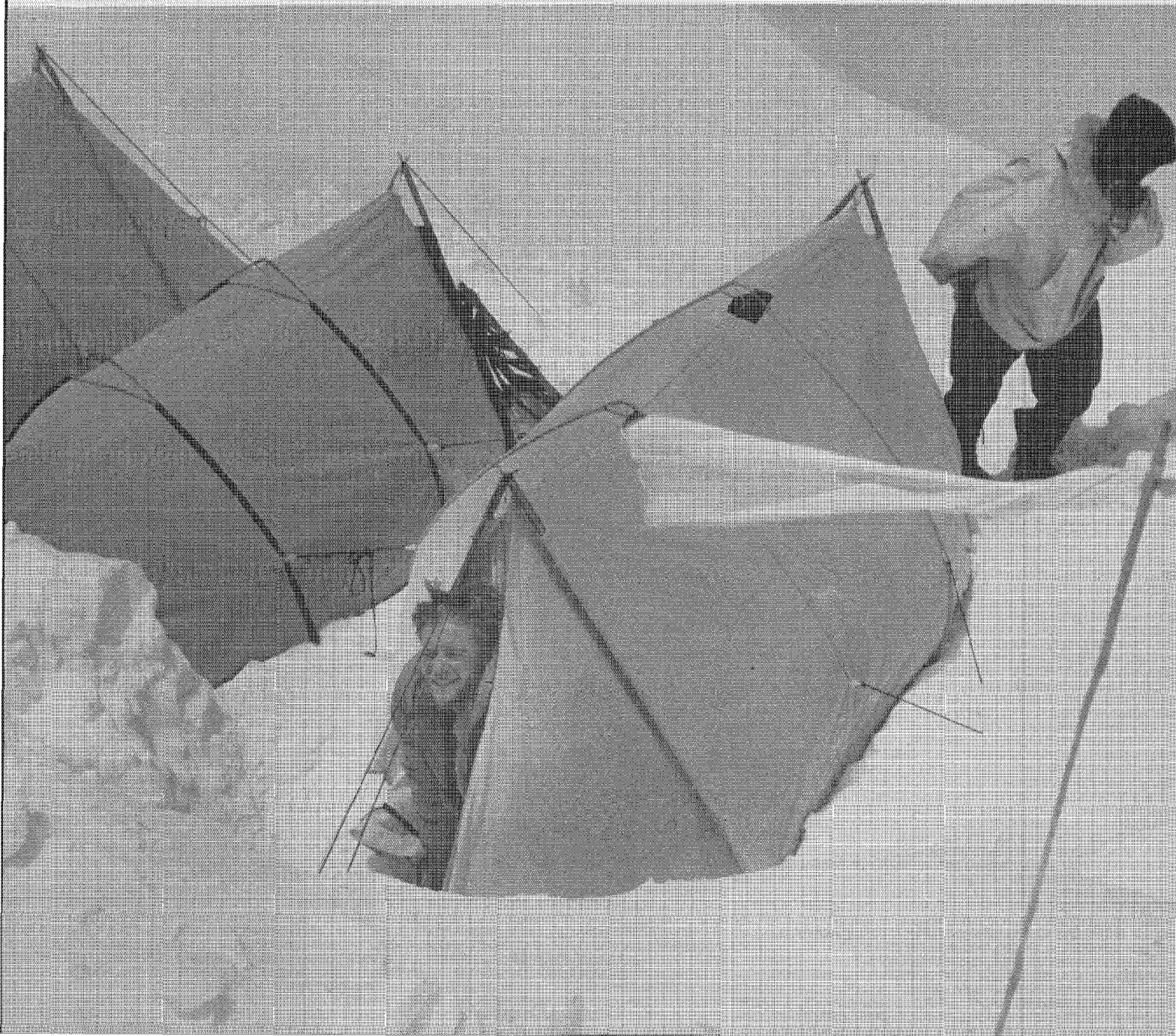
Gerry markets many less glamorous items for garden variety climbers. One specialty is a weekend outfit compressing food, tent, sleeping bag, rain cape and back pack into a mere 14 pounds.

An accomplished climber in his own right, Gerry boasts mountaineering friends the world over. "They're swell people and good customers," he declares. "But they drop in, window shop, chat and use up precious time."

Gerry desperately needs time to catch up with manufacturing and delivery schedules—and to plan his expedition to Pakistan this summer. With another couple, he and Ann will set out to conquer Karun Koh, an unclimbed Karakoram peak.

"The three-month trip will be a matchless test for our equipment. Thinking of it that way," he adds with a typically unorthodox rationalization, "we can afford to forget how tough it will be on business."

Tents manufactured at shop in the Rocky Mountains were used in the far-off Himalayas during 1951 expedition on Makalu.



Meanwhile, back at the plant

*... the rattle of gunfire can be heard.
Don't round up that posse, though. It's all in
sport, and the boss is probably one
of those with a shootin' ar'n*

By E. S. McCawley and JOHN LINKLETTER

The production line and the firing line are being brought closer together these days as a growing number of industrial workers sharpen their shooting skill in company-sponsored gun clubs. Employee target ranges and trap and skeet fields are as definite a part of the American scene as those company-built golf courses, tennis courts and swimming pools you see everywhere.

The thrill of the chase is behind a lot of the gun clubs' popularity. About 16 million hunters are licensed in this country; add to that an estimated four million unlicensed gunners—target shooters, woodchuck hunters, those who plink with a 22 rifle and so on—and you come up with about half again as many shooters in the U. S. as there are golfers, tennis players and skiers combined.

Obviously, few companies have the means to set up game preserves for employee nimrods. But rifle and pistol ranges and fields for trap and skeet are easy to build. And many shooters who like to hunt also find a challenge in keenly competitive club matches where a bullseye or a clay pigeon becomes the elusive quarry.

Armco Steel in Middletown, Ohio, for example, has a flourishing employee gun club that started in 1935 as an independent group. It later accepted company sponsorship and is now so firmly established that it sponsors a widely



known sporting event, the Armco National Industrial Invitational Trap Shoot.

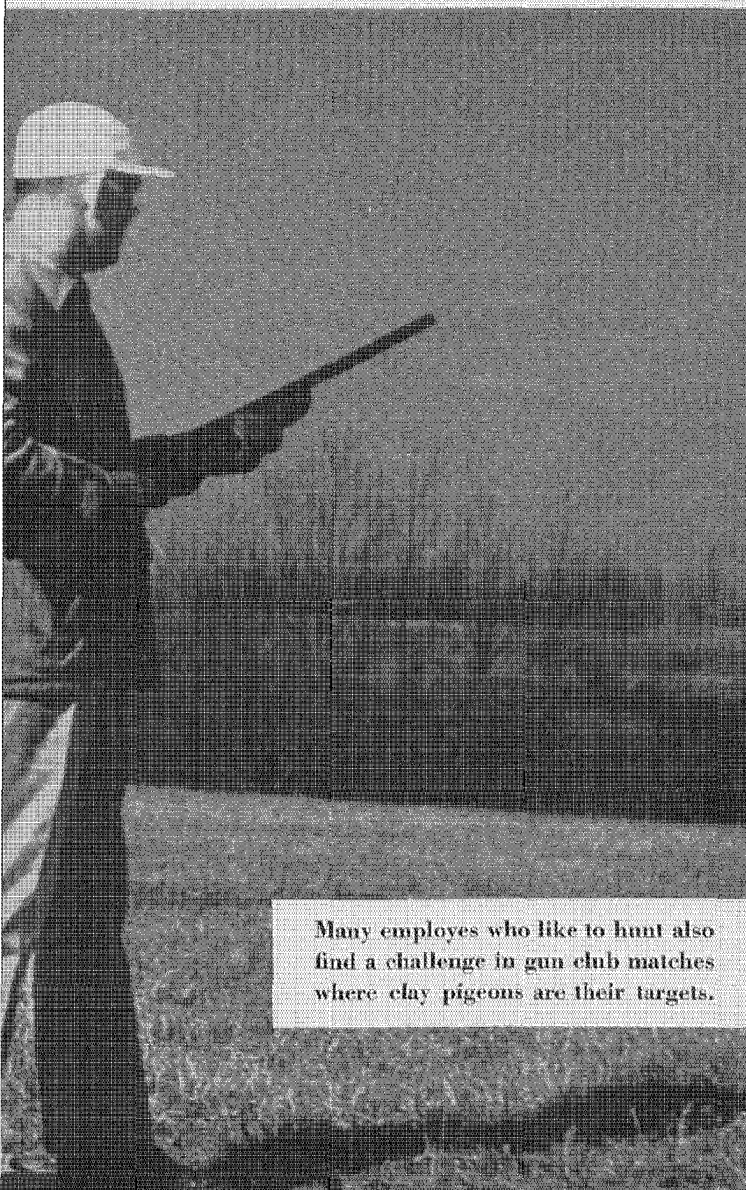
Armco management first helped the group install traps on company property. In 1940 the club became part of the company-financed recreation program. Armco now subsidizes the purchase of shotgun shells, while club members, who customarily shoot once a month, pay for their own clay pigeons and traps.

The National Industrial Invitational Trap Shoot, which the group will sponsor for the eighth consecutive year next September, attracted 65 five-man industrial teams to Middletown last year.

FOR YOUNGSTERS, OLDSTERS

How does Armco rate the value of its gun club? Ralph Wright, assistant to the works manager in Middletown, has this to say:

"We consider trap shooting an important part of our recreation program here at Armco. Certainly we've found that it develops camaraderie by bringing together people with a common interest from the various parts of our organization. Trap shooting is particularly valuable because it's a sport enjoyed by young and old alike. A man too old for softball can still get pleasure out of firing a shotgun."



Many employees who like to hunt also find a challenge in gun club matches where clay pigeons are their targets.



Annual trap shoot sponsored by Armco gun club attracts industrial shooters from all over nation.

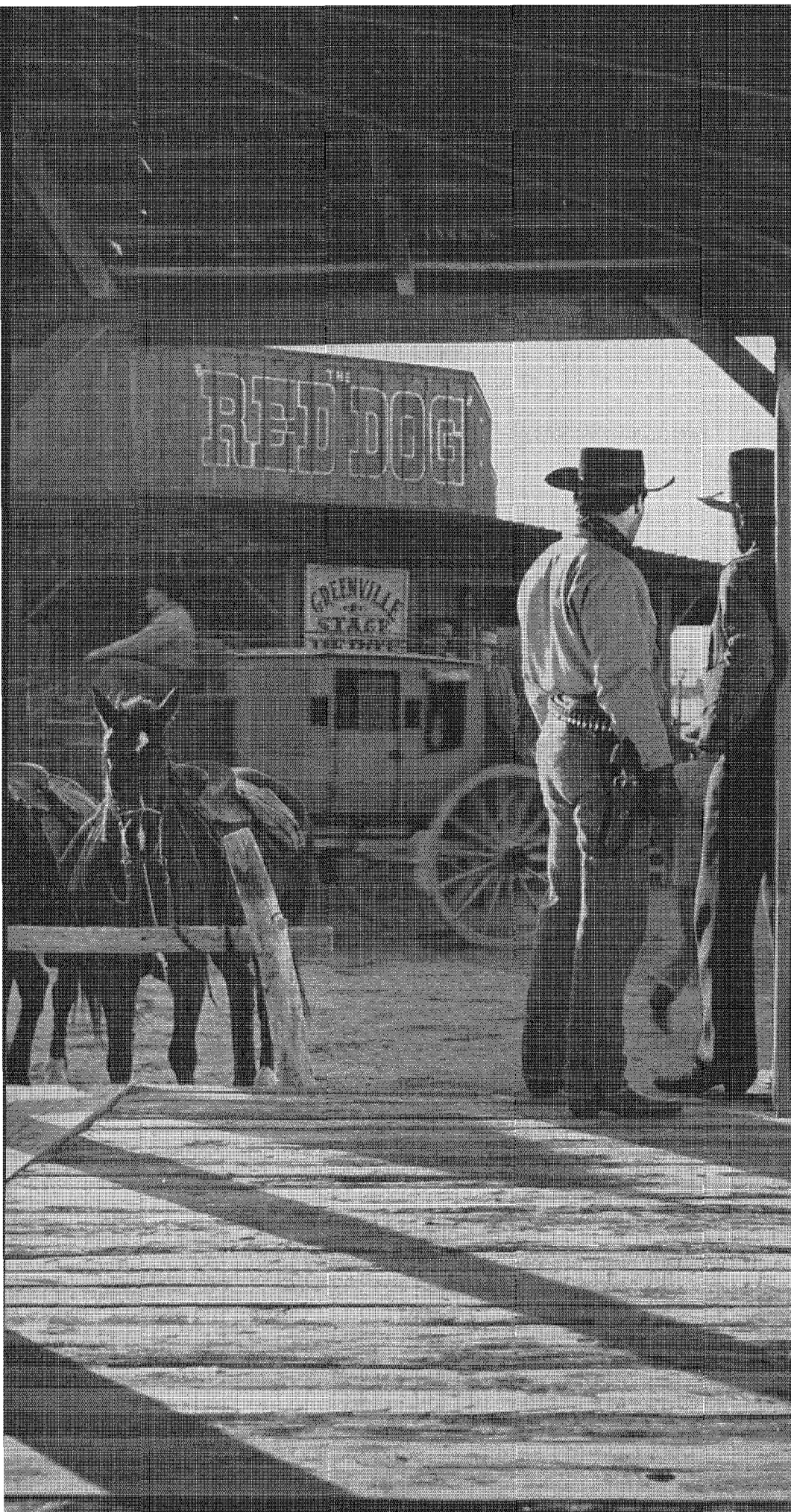
Another company whose employees are going trigger-happy with the boss' blessing is General Motors. GM has a team of 30 men in each of its five plants in Dayton, Ohio. The men compete in an industrial league in Dayton, shooting monthly for ten months each year.

"To say that shooting has been successful here would be short of the truth," reports J. J. DiMatteo, recreation director of GM's Moraine Products Division. "It's one of the most popular activities we sponsor, and members of management are so enthusiastic about it that many of them have joined the teams."

Setting up a good shooting program presents no real problems. Local sportsmen's organizations and gun clubs frequently are willing to help, and most companies have experienced shooters on the payroll who can start the ball rolling.

The National Rifle Association of America, 1600 Rhode Island Ave., N.W., Washington 6, D.C., will supply complete information on how to organize rifle and pistol clubs. The Amateur Trapshooting Association, Vandalia, Ohio, and the National Skeet Shooting Association, 3409 Oak Lawn Ave., Suite 208, Dallas, Texas, can furnish rules covering their respective sports. In addition, Remington Arms Co., Inc., D-3, Bridgeport 2, Conn., offers complete data on all four types of shooting.

As with any other employee activity, the success of an industrial shooting program depends on proper organization and planning. Employee interest already exists in most cases. This latent enthusiasm needs only a small assist from the boss to put it on target.



WIL

Bad men get banged at and good

Any parent who has had the living room cluttered by junior gun slingers can tell that makers of western movies never had so good as they do today.

TV producers in the film capital are employing more than twice as many actors, writers, directors, cameramen and other technicians as the makers of feature films, according to veteran movie man Mitchell Hamberg. As president of Flying A Productions, Inc., Hamberg is in as good a spot as anybody to feel the pulse of the western movie business.

Flying A (the A stands for cowboy Gene Autry) probably was the first outfit to produce westerns especially for TV. It started back in 1950 when edited versions of early Hopalong Cassidy features were blazing a new way to new entertainment and merchandising history. Under Armand Schaefer, executive producer and then president of Flying A, a staff of writers and support talent evolved a new type of western movie in which Gene Autry, as the star, set the pattern for the horse operas that followed.

Since then, Flying A has shot more than 400 films. In addition to the Gene Autry series, there have been such action-adventure series as "Champion, the Wonder Horse," "The Range Rider," "Buffalo Bill, Jr.," and "Annie Oakley." Last fall the company finished 26 more films in the "Annie Oakley" series, bringing the total to 81 in the lifetime of the popular program.

TV westerns have been a boon to actors, vastly increasing the number of available jobs. In addition, TV telescopes the length of time it takes an actor to establish a name. Just one 13-week series can establish a national reputation for a performer, a feat which probably would have taken years of plugging in conventional movies.

Gail Davis, for example, is still virtually unknown under her professional name,

WEST RIDES HIGH

triumph in record numbers as television spurs production of cowboy films

he's a heroine to millions of kids as Annie Oakley. Youngsters the country over have pestered their parents into buying replicas of her clothing, guns and other accessories.

How else does a TV western differ from a conventional one? Into 26 minutes, the TV production crams virtually the same story that once took 60 to 90 minutes to tell. Subtleties, such as they were, are gone completely. Today, you can separate the good guys from the bad guys at a glance.

Because of the small screen, TV action needn't be as spectacular. For instance, mob scenes that require 50 people to be convincing on a theatrical screen can be carried off effectively with 10 to 20 actors.

A feature western used to take anywhere from 10 to 21 days to make. A TV western is filmed in three. The TV features actually are made in pairs—two a week. As a rule of thumb, the producer's job is to put out two TV westerns on a budget about 20 per cent below that for a normal theatrical feature—this in the face of operating costs that are riding the “up” escalator in the movie business as they are every place else.

CAMERAMAN KEPT BUSY

On the set itself, probably the hardest-pressed man of all is the head cameraman. His job, even under normal conditions, calls for one of Hollywood's most difficult combinations of talent. It's his responsibility, for instance, to see that the machinery for putting the picture on film operates in cadence with the pace set by the director.

Making TV westerns, according to William Bradford, ASC (American Society of Cinematographers), Flying A's director of photography, may call for shooting up to ten times as many scenes in a single day as are usually done by a feature film company. This situation, of course, cuts the cameraman's operating tolerances drastically. There just

isn't time for him to figure on a certain percentage of retakes.

Nor does the director of photography on a TV filming job have the time he would normally devote to technical details. To keep retakes to a minimum, Bradford shoots Flying A's footage on Du Pont “Superior” 2 negative film, which offers both exposure latitude and dependability.

Because of time limits, companies making TV westerns on location often operate into the late afternoon. As the sun starts to sink, Bradford shifts to the new, high-speed “Superior” 4 negative film, and squeezes every possible minute of production time out of available daylight.

EXTRA ADVISER ON SET

When a Flying A company is on location, Du Pont representative J. W. DuVall is an extra adviser, providing technical guidance that helps maintain rigorous shooting schedules. DuVall's regular service also includes daily visits to the labs processing Flying A films. Bradford rates such service as an important reason why he's able to turn out good pictures under stringent schedules.

TV westerns, according to Hamilberg, play to a thumping 15 to 20 million persons a week. They have established themselves as front-line sales tools for such products as baked goods, cereals and dairy foods, where nagging kids can influence purchasing. Merchandise tied in with the characters in Flying A's productions—both for retail sale and as premiums—racks up some \$10 million in annual business.

Nor does a western series die when the last bad man bites the dust. The films earn virtually the same viewer ratings on the sixth rerun as they do the first time around. Turnover of youthful audiences being what it is, all signs point to the sun continuing to shine brightly in western movie skies.

Director of photography William Bradford discusses a scene with Dick Jones, right, who plays Buffalo Bill, Jr.



Millions of kids know Gail Davis, right, as Annie Oakley, star of TV film series.



J. W. DuVall of Du Pont, right, offers technical aid to Flying A movie makers.

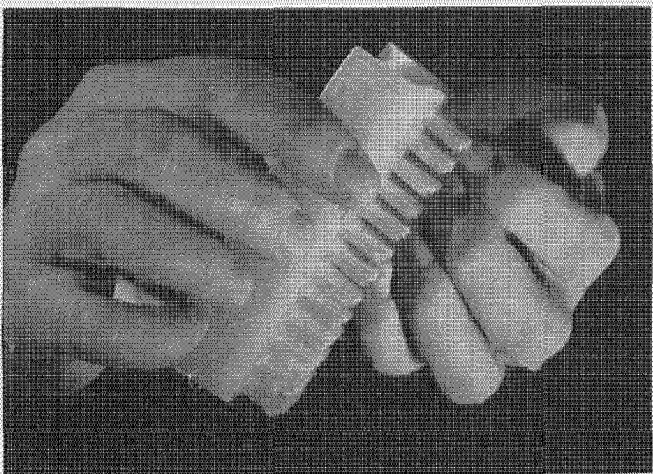


What's New

• **"CRONAFLEX"** engineering reproduction films, made with new "Cronar" polyester photographic film base, soon will be available from Du Pont for photographic reproduction of engineering drawings, plans and maps. The new films hold size accurately, withstand abuse, and take pencil, ink and erasure changes.



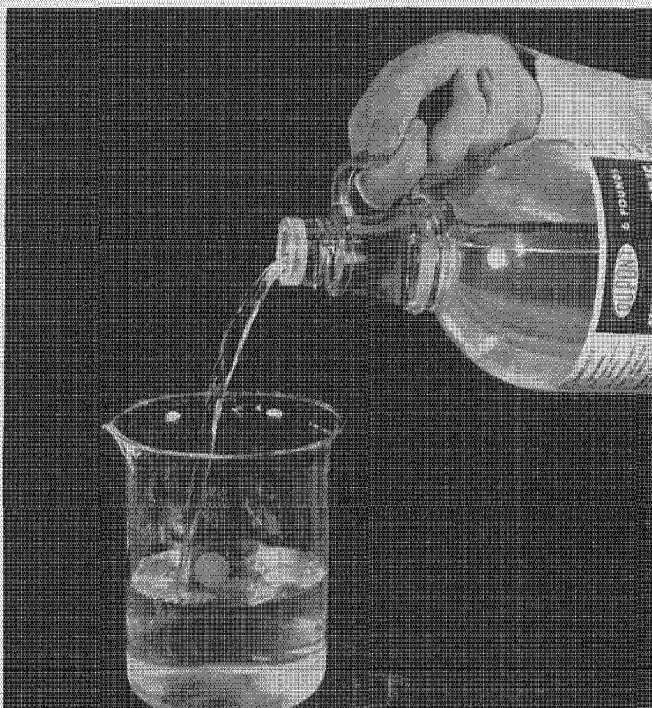
• **HAND TOOLS** likely to be exposed to oil and grease have grips of oil-resistant neoprene and fiber. The manufacturer, True Temper Corp., 1623 Euclid Ave., Cleveland, Ohio, says the grips absorb shock and are virtually slip-proof, even when your hands are wet.



• **IT FLOATS**, this new nail brush made by Du Pont. Now available in most drug and department stores, its "Tynex" nylon bristles are set in a lightweight block of "Alathon" polyethylene resin.

• **CATALYZED EPOXY RESIN PAINT**, an anticorrosion coating, now is offered by the Du Pont Finishes Division. One of its first applications: protecting exterior metal on the covered railroad hopper cars that carry bulk chemicals.

• **SHOE THREAD** that combines low cost with high strength is offered by Premier Thread Co., Pawtucket, R. I., for use in lockstitching and inseaming. It's made from Du Pont "Super Cordura" high tenacity rayon yarn.



• **NEW HANDGRIP** adds another safety feature to Du Pont five-pint reagent bottles. Like the dripless polyethylene sleeve introduced a couple of years ago, the grip makes laboratory pouring safer and easier.

• **PIPE AND TUBING** of "Teflon" tetrafluoroethylene resin with diameters up to four inches are available from Haveg Industries, Inc., 900 Greenbank Road, Wilmington, Del. The company also supplies 1, 1½ and 2-inch steel pipe lined with the durable plastic.

• **TWO NEW BOOKLETS** describe the properties and uses of Du Pont sulfamic acid and "Ludox" colloidal silica. Sulfamic acid is best known for its use in industrial cleaners, and "Ludox" for its slip-retardant effect in floor waxes. You can get either booklet by writing to Grasselli Chemicals Dept., Nemours 2533-DM, Wilmington 98, Del.



NEW PLASTIC PANELS

Here's an attractive material that decorators and designers are finding increasingly useful.

Made of Du Pont methyl methacrylate monomer by Wasco Products, Inc., of Cambridge, Mass., the $\frac{1}{8}$ -inch-thick sheets of translucent acrylic plastic shown here have embedded in them such things as leaves, fibers, butterflies, metallic fabrics and woven straw. Described by Wasco as virtually shatterproof, the lightweight "Acrylite" panels can be used as room dividers, luminous ceilings, portable screens, shower enclosures and sliding doors for kitchen and dining room cabinets.

As a room divider—between living and dining areas, for example—the plastic panels shut off the view without shutting off light. And the embedments—the fern or maple leaf patterns might be appropriate—lend a deft decorative touch.

Their usefulness isn't limited to the home, either. Wasco suggests "Acrylite" panels as space dividers in offices and booth dividers in restaurants, and recommends the material for the top surface of shop display cases (it doesn't show finger marks). Hotel reception desks also could be faced with the panels, lighted from behind to shed a softly diffused glow in the lobby.

"Heated to a pliable state," says Wasco, "Acrylite" also can be formed into trays, decorative boxes, serving or ornamental bowls, dishes, handbags and many other functional, decorative objects . . . A material of infinite potential, its uses are limited only by the imagination of the user."

The panels are sold in sizes ranging from 23 x 35 to 53 x 75 inches, and cost from \$1.25 to \$1.90 a square foot. They are also available in thicknesses other than one-eighth inch, the manufacturer says. Wasco is currently offering a choice of 15 embedment patterns.

Du Pont nylon stars in all four of these upholstery fabrics shown at the winter market. Mrs. Liebes designed chenille fabric, second from left, for *House and Garden's* "House of Ideas."



Buyers at Chicago saw this room, designed by John Wanamaker for Du Pont exhibit featuring man-made fibers.

Carpet sample above is nylon-wool combination; others are 100 per cent Du Pont carpet nylon. Colors never before considered practical for the floor are being used. Nylon's ease of cleaning helps trend.

Redecorating this spring? Then take a look at some of these . . .

Fabrics in your future

By FAUNEIL J. RINN

"Home," I said, "was never like this."

"It soon will be," replied Dorothy Liebes, New York textile designer and a Du Pont consultant on fabrics for the home furnishings field.

The occasion was the winter home furnishings market in Chicago, where buyers from all over the country come to choose the items you and I will be shopping for in the months ahead. I met Mrs. Liebes in the Du Pont Textile Fibers exhibit, where three stunning rooms featured the newest in carpets, upholstery fabrics, draperies and case-ments. The rooms were designed by Charles T. Haight of B. Altman, Olga E. Gordon of John Wanamaker, and Walter Bahno of W. & J. Sloane.

What struck me about the DuPont display was the wide variety of colors and textures in the new carpets and upholstery. Here, for example, were carpets of Du Pont nylon in bright purple, bold red and white, and pastels. Their frosty look is a special characteristic of nylon. Pretty, but how about practicality, I wanted to know.

A once common expression among designers, Mrs. Liebes said, was that colors like these were "not for the floor." Carpets of 100 per cent nylon have helped change that, she said, because they can be cleaned easily with minimum risk of losing their texture. The result is a new freedom for designers to use colors they like without being impractical. New combinations and blends of nylon with other fibers also offer broad style possibilities, she added, including new textures and cross-dyed effects.

New styles in home furnishing fabrics don't just happen, I was told. Mrs. Liebes, who developed the upholstery fabric shown second from the left on the opposite page, described how it came about. Incidentally, this fabric is used in the "House of Ideas" sponsored by *House and Garden* magazine.

"The material was to cover a chair by a window overlooking a garden," she said. "A young family lived in the house. This meant to me that they probably would have contemporary furniture and would like gay colors. It was my job as designer to create a fabric that would complement the architecture of the house and the rest of the interior."

"We decided the colors should relate to the outdoors and also to the redwood shade of the room. So we picked several textured nylon and rayon yarns in the blue-green family and worked out a hand-loomed sample. The architect and decorator both liked it, as it happened, and it was turned over to a mill for commercial production."

New carpet constructions of DuPont nylon are created

similarly by designers. Then samples are tested by the rug manufacturer, and usually by Du Pont's Textile Fibers Dept. as well, to make certain that the carpet will wear and hold its texture satisfactorily.

The Chicago market, Mrs. Liebes told me, fore-shadows several new trends in home decoration.

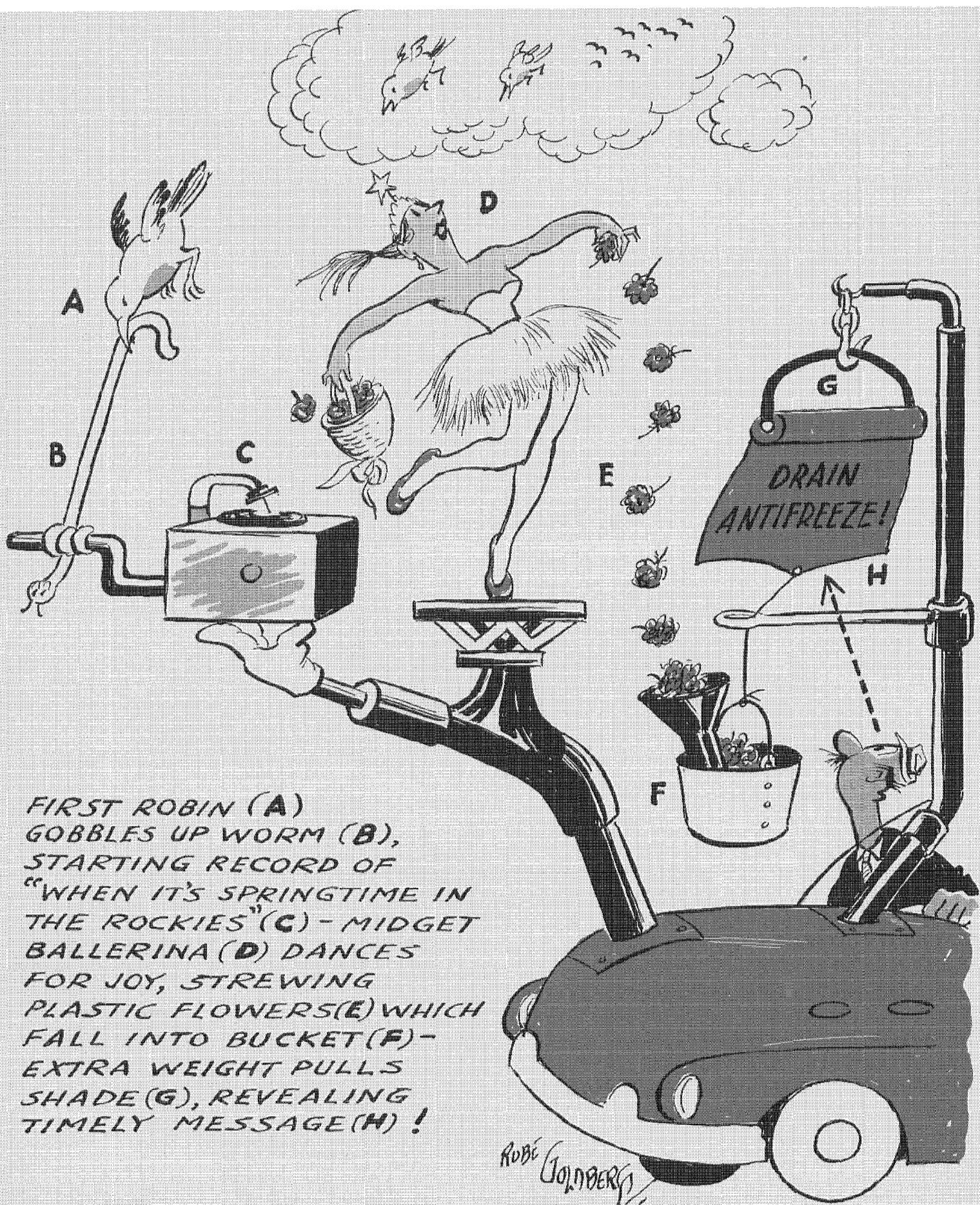
For carpets: more pronounced textures and cleaner colors. The shaggy, deep pile of Du Pont nylon will be a new look. Tufted and woven carpets are available in practical twist-set friezes and loop-pile constructions. Sable gray, fire engine red and pale vermouth green are among the popular colors.

For casements and draperies: a trend toward both pastels and bright colors in sheer fabrics of "Dacron" polyester fiber. Also expected to be popular are bold prints on cotton and rayon fabrics made with warp constructions of "Dacron" for added strength and stability.

For upholstery: fabrics of nylon and rayon and 100 per cent nylon in geometric patterns, scaled down for today's smaller rooms. More metallic yarns, especially the washable kind made with Du Pont "Mylar" polyester film, will be added for interest. There also will be more multi-colored weaves, she said, in contrast to fabrics in solid colors.



Carpets and fabrics of man-made fibers, Du Pont exhibit shows, fit both modern and traditional décor.



FIRST ROBIN (A)
GOBBLES UP WORM (B),
STARTING RECORD OF
"WHEN IT'S SPRINGTIME IN
THE ROCKIES" (C) - MIDGET
BALLERINA (D) DANCES
FOR JOY, STREWING
PLASTIC FLOWERS (E) WHICH
FALL INTO BUCKET (F) -
EXTRA WEIGHT PULLS
SHADE (G), REVEALING
TIMELY MESSAGE (H)!

Robt. Goldberg

The supply of midget ballet dancers being limited, we know of no present plans to mass produce Rube Goldberg's remarkable new invention. Meantime, your own good sense will have to tell you it's time to arrange . . .

Spring cleaning for your radiator

For years now, like the crocuses—or is it croci?—antifreeze makers have popped up each spring to warn their customers that winter-worn antifreeze solutions should be drained and discarded. Even the best so-called “permanent” antifreezes are likely to exhaust their corrosion-inhibiting properties over the winter, their manufacturers warn, and the arrival of warm weather can signal the start of cooling system trouble if old solutions are retained.

These warnings have been reinforced by similar urging from such disinterested parties as the Society of Automotive Engineers, the American Society for Testing Materials, the National Bureau of Standards and car manufacturers themselves in their service manuals.

Has this impressive weight of advice made itself felt? Only with three out of five users of “permanent” antifreeze. The others still leave antifreeze solutions in their cooling systems for more than a year.

EXPERTS NOT DISSUADED

Nothing daunted, the experts are back on the stump this spring to sound their annual warning for the benefit of the unconvinced two-fifths. Their argument is this:

True, reputable brands of antifreeze contain inhibitors to guard against acid, rust and corrosion. Both Du Pont “Zerone” and “Zerex” antifreeze, for example, have special chemical inhibitors. But no inhibitor lasts indefinitely. It's used up even faster if a faulty gasket lets acid-causing exhaust gases into the antifreeze solution. Other factors contribute to this process. Once the inhibitor is exhausted, you've had it. The addition of more inhibitor to an old solution won't solve the problem, for inhibitors react with acids to form salts, and an abundance of these salts can themselves be corrosive.

In short, the advisers say, it's likely to be cheaper in the long run to use fresh antifreeze each year than to take a chance and wind up replacing a radiator, water pump or other cooling system part.

Hood styling trends in postwar cars have reduced radiator area, too, which means that a cooling system must operate at peak efficiency to dissipate engine heat. Especially if you're unlucky enough to be trapped in one of those beach-bound traffic jams on a summer weekend.

Antifreeze is designed to protect against freezing, and its heat transfer properties are entirely satisfactory in the wintertime. But in hot weather, the “permanent” type isn't as efficient a coolant as plain water. Grease and rust in a cooling system, if they aren't removed in the spring, also cut down on summer cooling capacity.

Most automatic transmissions, by the way, are now tied into the car's cooling system through an intercooler, where transmission fluid gives up its heat to the radiator solution. Sediment in this intercooler, if it isn't cleaned out in spring, can restrict heat removal. And excessive heat can cause expensive damage in a transmission, automotive sources point out.

After antifreeze drainout, it's recommended that you clean and flush the system before refilling with fresh water. Du Pont Fast Flush does the job in about ten minutes while your engine idles, cleaning out rust, scale and grease. Or, if you can't spare ten minutes, simply pour in Fast Flush and drive around for a few days before you drain. The results are the same.

Then, to protect against rust and corrosion in the summertime, you're wise to add a chemical inhibitor, Du Pont Anti-Rust and Water Pump Lubricant, at the time you refill with fresh water.

Whether you have your cooling system spring-cleaned at a service station or do it yourself isn't important. What is important, according to antifreeze makers and other qualified advisers, is that it be done each spring.

• • •

IN SPRING, A MOTORIST'S FANCY SHOULD TURN TO . . .

1. Draining out old antifreeze solution.
2. Cleaning out rust, scale and grease with a chemical cleaner.
3. Having cooling system parts checked—hoses and connections, fan belt, thermostat and radiator pressure cap.
4. Filling radiator with fresh water and adding a chemical rust inhibitor for protection during summer months.

SPRAY GUN FOR

Custom applicators, members of a botanical m

By KARL WERLINE

Weeds can ruin almost anything that man has created. Their depredations last year alone, according to experts, cost industry upwards of a billion dollars. Judging from the growing activity of commercial weed eradication services, however, these losses are due to be chopped considerably.

The custom applicator, as he is known professionally, is gunning for industry's weeds in refineries, utility substations, manufacturing plants and along highways and security fences. His ammunition includes such potent chemicals as Du Pont "Telvar" weed killers.

Killing weeds, if you're thinking of doing it yourself, isn't usually as simple as dumping a chemical on a weed patch. It's necessary to match the chemical against the type of weed, soil condition and time of year. Maybe you don't want to spend several years acquiring this kind of technical know-how. Or maybe the cost of assembling your own spraying equipment—you can't go out and buy a complete self-propelled rig—is way out of proportion to the few days a year you need it.

Then this is where the custom applicator can help you. He has accumulated enough experience and special equipment to tackle your weeds and, what's more, guarantee the results of his work.

Typical of such weed control specialists is Western Soil Management of Newark, N. J., and Philadelphia. Its parent company, established in other fields of service work, became interested in weed control in 1954. Today the firm is equipped to serve a lumberyard with only a few thousand square feet or a refinery that involves hundreds of acres.

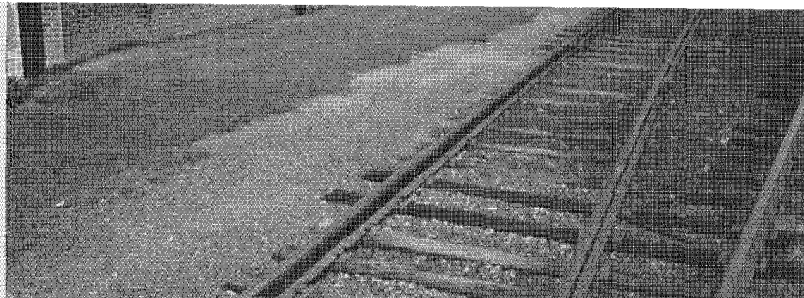
"Because chemical control costs less, lasts longer and gives superior results," says F. S. Kirkpatrick, vice-president, "manual and mechanical cutting of weeds are becoming a thing of the past. When a customer calls us, we survey his job, select the herbicides, make the application and guarantee effectiveness to his satisfaction. We haven't had a customer who has gone back to cutting."

Anyone can guess the cost of weed damage to all of industry, but putting a price tag on the damage to individual firms is another matter. "How can you measure the fire hazard weeds and brush create around oil tanks or in lumberyards?" Kirkpatrick asks. "Try to put a price on the discomfort and lost time caused by poison ivy. How much does it cost to jeopardize plant security with overgrown fence lines? Just as difficult is measuring the direct damage to such equipment as pipelines and fences."

An area inaccessible to truck, such as on top of this dike, is reached by Western Soil's operator with hose from truck.

IRE

hit industry's weeds



on rail spur in June held down weeds and grasses the rest of the year.

Throughout its operations, Western Soil depends heavily on Du Pont "Telvar" monuron and diuron weed killers—herbicides that work mainly through the roots of plants. "Telvar" not only kills most weeds and grasses, its residual action also keeps soil free of regrowth for months after application. Properly handled, it presents no hazards to persons or equipment.

TAMPA FIRM ALSO LIKES "TELVAR"

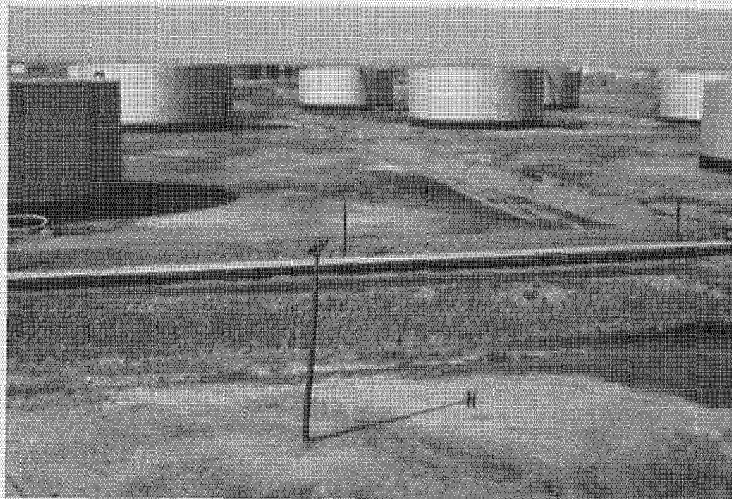
Working in a region with dual problems of sandy soil and heavy rainfall, another applicator, Southern Mill Creek Products Co., Inc., of Tampa, Fla., uses "Telvar" exclusively. Mill Creek finds that "Telvar" DW diuron weed killer provides weed-free maintenance for substantially less than the cost of mechanical cutting.

It cites this typical example: A steel fabricating plant spent about \$3,000 in direct labor to cut the weeds in its railroad switching yards. By the time three laborers worked through the yard, the first weeds had grown up again. The following year Mill Creek was called in on the job. The applicator sprayed with "Telvar" and halved the previous year's cost, maintaining a clean yard for the entire season.

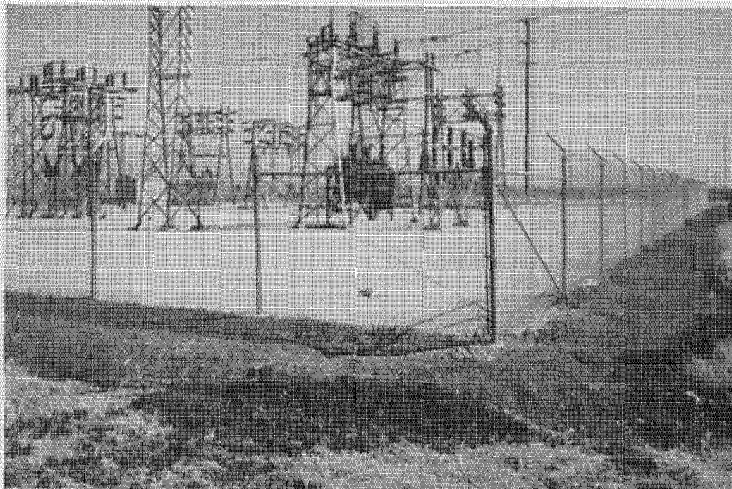
Applicators like to get started on a job before weeds sprout. Then tracks, yards and other areas stay clean the year round. In addition, early-season control is generally lowest in cost.

In the tank farm of one refinery, for example, it cost \$200 an acre to establish weed control. To maintain it, less "Telvar" was needed the second year, and the cost was reduced to \$165. The third year, confronted only with plants that grew from seeds, the refinery spent \$130 an acre.

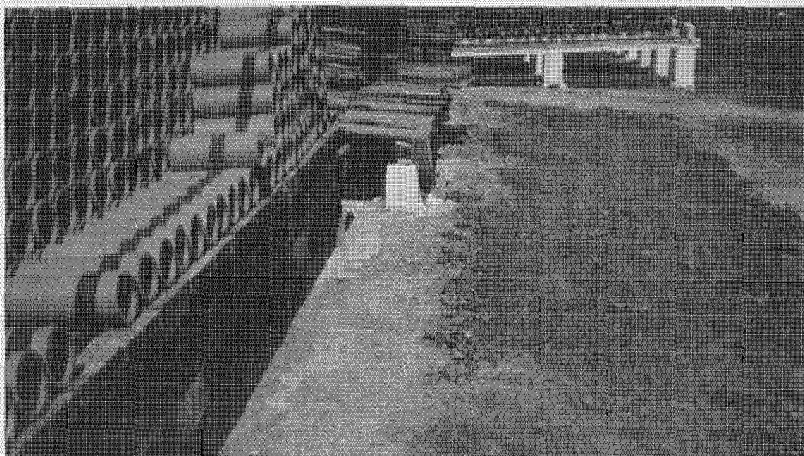
Custom applicators are discovering that once a client's weed worries have been solved professionally, he's likely to come back for more help. Repeat business is the mainstay of the applicator's trade, a fact that speaks well for the stability of this professional service to industry.



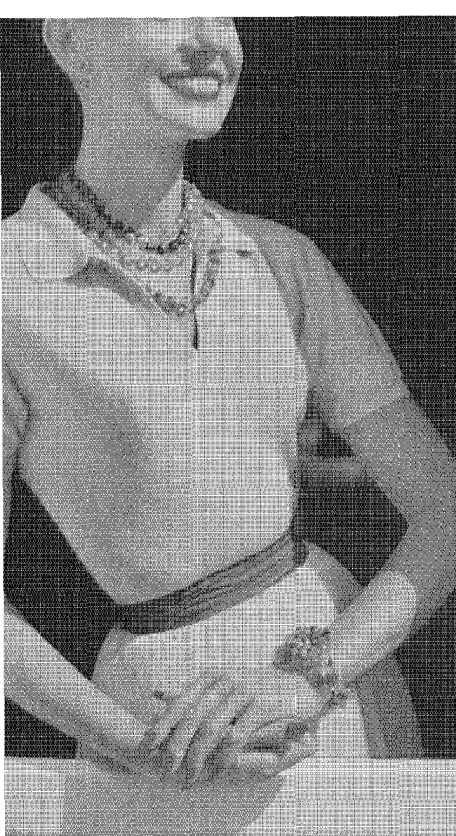
Tank farms are among important areas where custom applicator uses "Telvar". Weed fire hazards are greatly reduced.



Security fence lines, too, receive part of the specialist's attention. Residual action of "Telvar" inhibits regrowth.



"Telvar" is usable in most areas because it's nonflammable, non-volatile, noncorrosive.



Spring sweaters of "Orlon" include shirt style, worn buttoned or open.



Like other sweaters of "Orlon", this one can be washed without blocking.



Fashion-right for evening is sleeveless model with a matching cardigan.

The good old sweater-time

... is a round-the-calendar season nowadays.

A Du Pont fiber has helped make it so

What's new in the sweater business this spring? Business, that's what. Manufacturers who formerly left on vacation after Christmas orders had been shipped now stick to their knitting through the winter months. Keeping them there are the ladies, who have decided that they *like* wearing sweaters in the spring and summer.

Proof of the trend lies in statistics for delivery to stores. From 1954 to 1956, shipments for the April-June period shot up by more than two million women's sweaters. In addition, a recent consumer survey has women confirming the fact that they buy more sweaters than ever in warm weather.

Why? One reason continues to be fashion, which has changed the sweater from a strictly utilitarian item to an important part of every woman's wardrobe.

You find decorated sweaters stylish enough for festive evenings, dressmaker styles for casual or dressy occasions, bulky knits designed for sports or leisure. And the colors are there to suit all tastes.

There's another theory that names air conditioning as an ally to style in spurring warm weather sweater sales.

Designers are creating sweaters suitable for women to slip on in the cool comfort of air-conditioned restaurants, theaters and offices.

Many manufacturers also say that a key factor in year-round sweater popularity is the advent of "Orlon" as a basic fiber. Sweaters of "Orlon" acrylic fiber have a luxurious softness that appeals to women, and their ease of care is especially appreciated in warm weather. Washing is simple—just suds and rinse; blocking isn't necessary.

Light weight is another point favoring sweaters of "Orlon" for spring and summer. They're not too heavy to carry or to wear comfortably. These qualities also attract travelers and vacationers who want to follow the sun with wardrobes that are both stylish and easy to care for. A sweater, they find, is good looking as part of a costume, and can double as a coat when breezes turn cool. Also high on the list of travel clothes are dresses of man-made fibers with trimmed-to-match sweaters of "Orlon".

Here are fashion notes about the sweaters of "Orlon" women will be buying this spring and summer:

... Both delicate pastels and gay, clear colors will be important.

... All-over embroidery and dainty eyelet embroidery in solid colors lend a feminine touch.

... Blouson styles add new personality to bulky knits.

... A new blend with a luxury touch, 85 per cent "Orlon" and 15 per cent angora, is a choice for the girl who has everything else.

... A fashion first is a Jacquard knit sweater and skirt, dyed to match and both made of "Orlon".

There's safety in the shine

if there's Du Pont Ludox® in the floor wax

Her hurried steps across highly polished floors are *safer* steps because there's "Ludox" colloidal silica—Du Pont's anti-slip ingredient—in the floor wax. Tiny, *transparent* spheres of "Ludox" in the wax exert a "snubbing" action on every footstep . . . arrest the foot's forward motion . . . give the foot positive traction. Have your maintenance man insist on a floor wax that combines *safety* with gloss and water resistance—a floor wax properly formulated with Du Pont "Ludox". E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Dept., Wilmington 98, Del.

For safety underfoot,
specify floor waxes containing

LUDOX®
COLLOIDAL SILICA



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



The easiest way we know to put the squeeze on insects and plant diseases is with Du Pont Squeeze-Dusters • Each flexible container—made of “Alathon” polyethylene resin—needs only a gentle squeeze and, poof, the dust is off in a cloud • A new 6% Chlordane

Squeeze-Duster joins the family this spring to battle such pests as cutworms, Japanese beetles, chiggers, roaches and ants. It can be used both indoors and outdoors •

Also in Squeeze-Dusters at your garden supply store are such standbys as Rose Insecticide and Fungicide, Floral Dust, Vegetable Garden Dust and Tomato Dust.



Du Pont Garden Chemicals



BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

Watch "Du Pont Theater" on Television

