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Rose Technic

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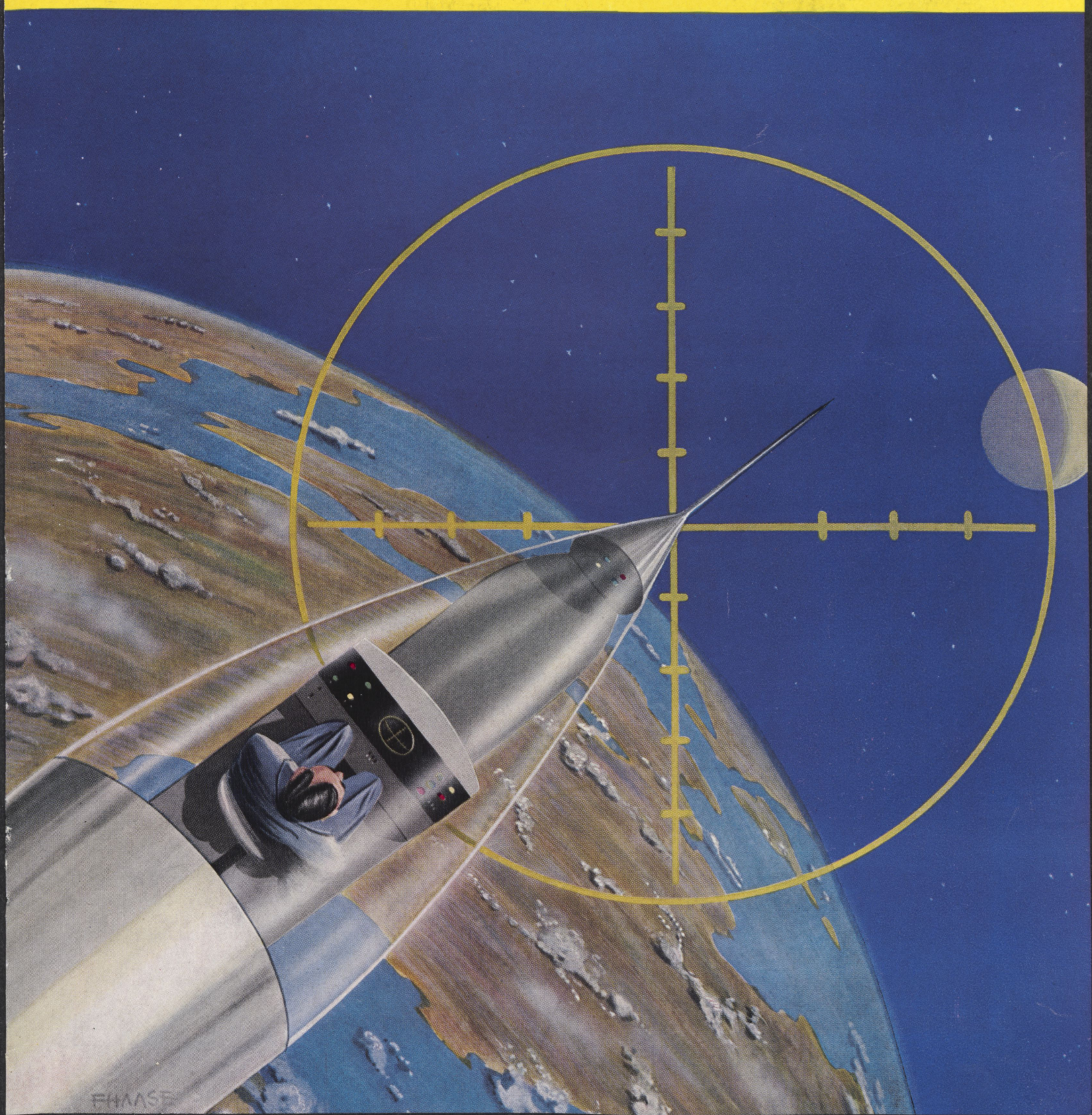
November 1949



Want to make a river run uphill?

Steel pipe ready for installation at Grand Coulee Dam, Washington

EVERY DAY, America's engineers are performing miracles with water . . . creating vast, crystal lakes where valleys were before . . . transporting entire rivers across mountains in steel pipe. But there's still a big job to be done. For 108 million Americans still lack adequate water supplies, and 17 million acres could be made into fertile farms with proper irrigation.

The jobs at hand and the jobs ahead will require steel in tremendous quantities . . . for pipe of large diameter and small . . . to reinforce massive concrete dams . . . for bridges that carry pipe across broad streams . . . for cables that suspend it across yawning chasms.

It adds up to a tremendous task for America's steelmakers. And it's only one of steel's many tasks that will utilize the services of thousands of trained men, for steelmaking today is a precision operation. Chemical and metallurgical laboratories have assumed an importance equal to that of roaring blast furnaces and open hearths.

Preparing men for key positions in the great steel industry is big business at United States Steel. Today U.S. Steel has more people in training than all but a few of America's greatest universities.

Helping to build a better America, the number one job at United States Steel, offers careers with a real future to men who can qualify.

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USS

UNITED STATES STEEL

Rose Technic

VOLUME LXI, NO. 2 NOVEMBER, 1949

In This Issue

Cover

SPIRIT OF TOMORROW, by Frank Haase. This picture depicts the not-too-distant rocket flights of tomorrow which have been predicted by the "Buck Rogers" of yesterday.

Plates courtesy Sperryscope, published by the Sperry Corporation.

Frontispiece

V-2 being hauled to the position at the desert testing station of the armed forces. This 46-foot missle was the first successful rocket built by man.

Cut courtesy General Electric Co.

PHOTO CREDITS: Cover—Sperryscope; Artist, Frank Haase. Frontispiece—General Electric. Page 8-9—Martin Star. Page 10—Columbia Enameling & Stamping Company. Page 11—Rose Technic. Page 15—Rose Technic. Page 16—Al Todd. Page 17—Cincinnati Enquirer. Page 22—Rose Technic.

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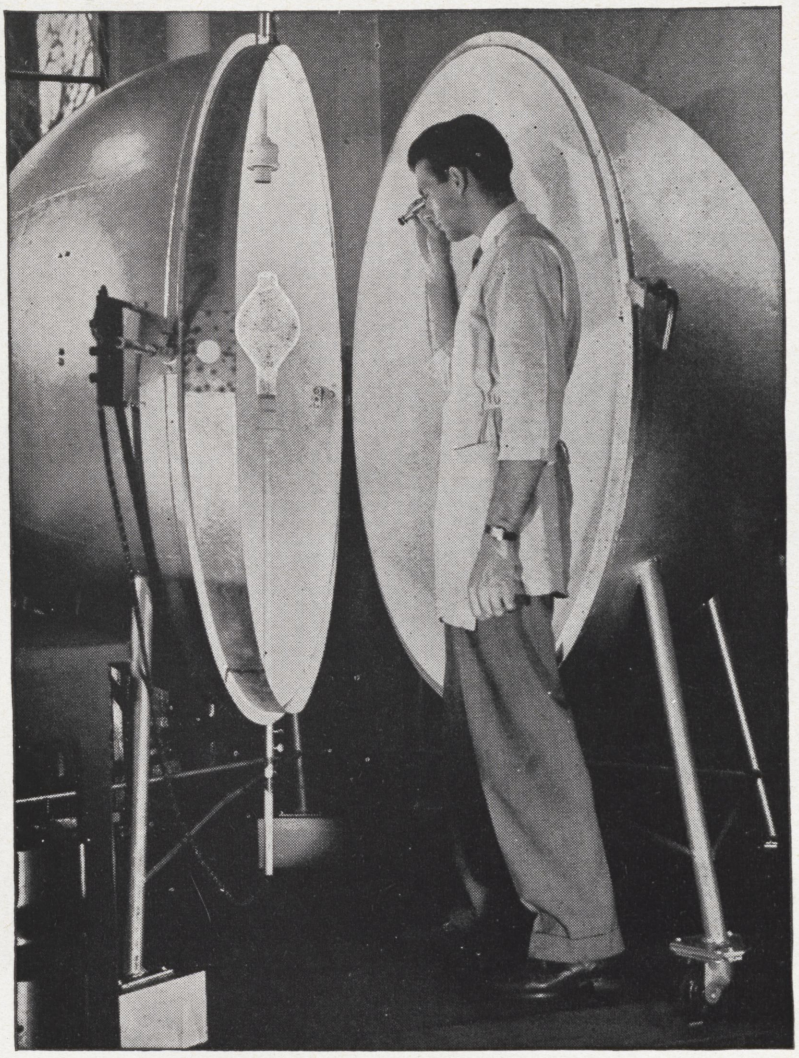
VISION...

Vital Ingredient of a Name



What is vision? An inspired revelation? Or . . . the faculty or sense of sight?

Pick your own definition. They're both important in your future. With Westinghouse, they are both important, too.

Even before the time George Westinghouse dramatically proved the superiority of a-c power distribution, climaxed by his daring demonstration at the Columbian Exposition in 1893, the vision (inspired revelation) of Westinghouse had been repeatedly demonstrated. It's a vision that's burned brightly through the years.

In this bold challenge to status quo, Westinghouse staked his name and future on a conviction that better, cheaper power could be delivered with alternating current.

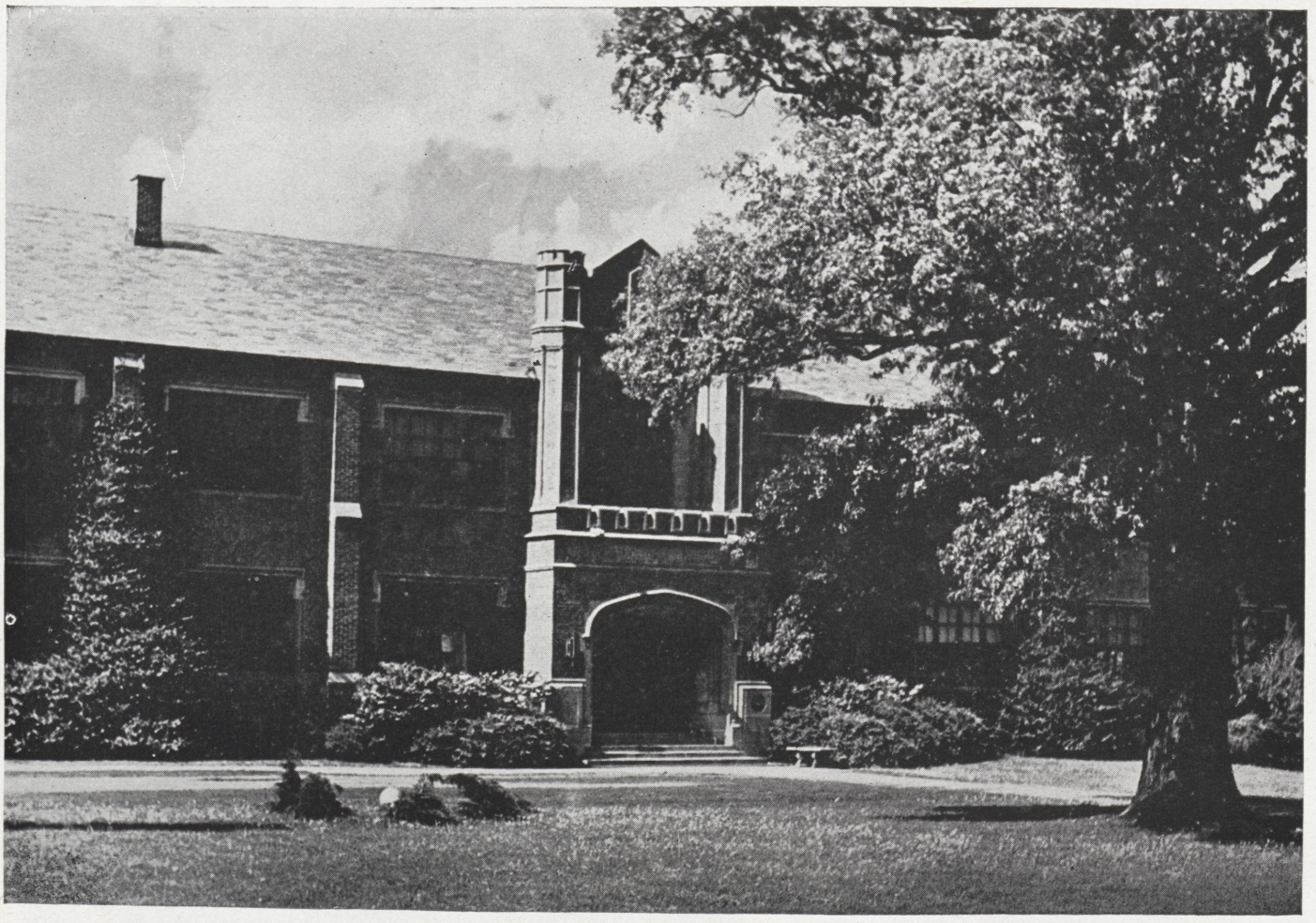
The same spirit of enterprise by the Westinghouse organization has repeatedly broadened the usefulness and diverse application of electric lighting.

For example, the quartz tube filled with Krypton with a brilliance nine times greater than the sun; the bacteria-killing Sterilamp; fluorescent and mercury-vapor sun lamps; talking lamps; heat lamps; lamps to produce black light . . . and on and on through the 10,000 different types and sizes . . . plus a multitude of electronic tubes with equally versatile and vital applications.

Yes, vision is essential in winning a name but it is doubly important in protecting it, especially a name whose reputation is staked on the commitment . . .

G-10072

YOU CAN BE SURE . . IF IT'S Westinghouse



ROSE POLYTECHNIC INSTITUTE

announces the appointment of

Mr. Noble C. Blair, Jr., '34

as

ADMISSIONS COUNSELOR AND FIELD REPRESENTATIVE

Mr. Blair's services are available for counsel to prospective students and in the placement of Rose graduates.

ROSE POLYTECHNIC INSTITUTE

TERRE HAUTE, INDIANA

THIS IS HARRY WORKHOVEN (*arrow*), at the time he retired from Standard Oil. His sons—a dentist and a radio announcer—are on either side of him. The others at the table are two Standard Oil employees and one retired employee.

A good place to stay is a good place to start

Mr. Workhoven worked 41 years for Standard Oil—a long time, but in this company, not an unusually long time. Each month, dozens among Standard Oil's 48,000 employees receive 20-, 30-, or 40-year service pins. The men and women who wear them have reason to know that Standard Oil is a good place to work.

Among the things that make it so is Standard Oil's employee benefit program, one of the finest and broadest in any industry. This program includes group hospital and surgical operation insurance, covering employees and members of their immediate families. It includes sickness and disability benefits, group life insurance and vacations. Our employee retirement plan sends monthly checks to retired Standard Oilers.

Peace of mind and pride of accomplishment are the common properties of Standard Oil employees. That is why so many of them stay with us through the years. Their long service is an endorsement of Standard Oil, for in this country an employee is free to choose his employer.

A company that is chosen by many people as a good place to stay is also a good place to start.

Standard Oil Company

(INDIANA)

STANDARD

STANDARD SERVICE

Engineering Myopia

A Tau Beta Pi Essay

Why aren't more engineers successful businessmen? Is it because of the particular degree they hold, their inability to apply their learning, is it their way of thinking—or might there be something lacking which is not connected with any particular field? It seems this latter point could be the difficulty if it refers to the attribute of social acceptability. That is, the engineer must meet and work with many different types of people, both other engineers and also those who speak an entirely different language. Generally, all people—and engineers—are judged to an extent by their manners, mannerism, and by the way they conduct themselves, including their bearing and appearance.

Seemingly, an engineering education produces a great number of individualists who fail to see the necessity of working *with* someone to accomplish the desired end instead of each doing exactly what he pleases and how he pleases. Also, it appears that somewhere crudeness or at least roughness (again showing individualism) became synonomous with the term "engineering student" and not a few feel they must don the cloak and act the part. If politeness and common courtesy must eventually be practiced then why not begin the day a student enters school? Some students seem not to be conscious of any need for neatness in personal appearance and respect for others (in some cases this respect has been replaced by a degree of contempt).

Are there any other reasons for this "rough engineer" personality? The very nature of engineering studies promotes disregard for other people's opinions of us; we study subjects which may be set down in black and white, weighed, evaluated, and looked at objectively without the consideration of human personality. Such education indirectly rules out the importance of humans and therewith the necessity of being able to make a favorable impression on all with whom we must associate.

As an example, we find it somewhat amusing to think of anyone appreciating the "liberal arts." All such courses are more or less classed by the engineering student as being on the level with basket-weaving and ancient Greek musical instruments—that is, anyone who doesn't contribute directly to the fabrication of goods or merchandise is merely a burden rather than an asset to society. We tend to picture ourselves as the realists, the materialists, the "builders of the nation" and of the arts student as the idealist or dreamer.

Now, have we as engineering students no shortcomings and blind spots? Using an extreme example, how many can see the stateliness of an old oak or the graceful beauty of a weeping-willow instead of the many fibro-vascular bundles, the cellulose, cortex, and chlorophyll that go into the making of a tree? How many can gaze at the majesty of the mountains and the time-worn canyons without seeing the cuts, fills, tunneling, and what-not required to build a road over the section? These are examples of the "engineering myopia" which is largely the fault of the type of education an engineer receives. In short, we can't see the forest for the trees.

The five-year course for engineers is a step in the right direction; it allows time for more non-technical subjects and permits a broader education.

The mere suggestion of accepting the codes and standards set up by custom is met all too often with an air of indignation and rebellion. It would seem appropriate to remember that intense individualism and eccentricity can be indulged in without serious consequences only by those who have reached the pinnacle and have "scratched their names in the rock."

ALFRED SCHMIDT, Tau Beta Pi

41 Hours To The Moon

By Mort Hief, jr., m.e.

The Chinese first used rockets in warfare over five centuries ago. It was not until the Germans began launching the V-1 and V-2's in the recent war that rockets became rapidly and destructively important. The development of the German V-2 rocket has pointed out to the world the great potentialities of rocket flight.

The development of rockets as uninhabited missiles capable of being fired to any point on the face of the earth appears to be within the realm of possibility in the relatively near future, due to the fact that large amounts of money have been made available for rocket research. Since rockets operate most efficiently above the earth's atmosphere, the problem of using them for human transportation is complicated due to the necessity of re-entering the atmosphere and landing safely. Everyday rocket travel, therefore, appears to be in the rather distant future.

However, great strides have been made recently in the development of the Viking by the Navy. A total of ten Viking rockets are to be built and launched under the Navy's long-range program which is aimed toward the development of an American high-altitude rocket that will exceed the German V-2 in performance.

The first Viking was fired at the White Sands Proving Ground, Las Cruces, New Mexico, where the initial rocket of the Viking series reached an altitude of 51½ miles and a speed of 2,250 miles an hour on May 3, 1949. The first flight was a test of the Viking's propulsion and control systems, both of which performed well. The 51½-mile altitude, though sufficient to prove the basic design, did not indicate the rocket's full capacity.

Although the Viking was originally conceived and will be used as a vehicle for carrying research instruments into the upper atmosphere, its development will materially advance the guided missile art and the national defense. The 45-foot long pencil-like vehicle weighs five tons when fully loaded. It burns liquid oxygen and alcohol in a rocket engine that develops ten tons of thrust for over one minute.

Much information has been gained by static firing tests, where the rocket is checked out, fueled and fired as for a flight, except that it is securely fastened to its launching stand and therefore remains on the ground. Although the idea of static testing is not new to the rocket art, the use of static firings as pre-launching checks of the assembled rocket is a Viking innovation; in addition to providing valuable data on the rocket's performance, the static tests indicated that the first Viking was in good operating condition prior to its flight firing.

The first Viking reached its peak altitude 163 seconds after take off. After ascending 15 miles under powered flight, the giant rocket coasted to its zenith and then fell back to the earth 10 miles from the launching site about 6 minutes after take off. The maximum velocity attained was 3½ times the speed of sound.

German-built V-2 rockets have heretofore borne the brunt of this research work, but their maximum power is only about one-half of that which the Viking will eventually be capable of delivering. The Navy predicts that the Viking will reach the almost incredible speed of 5800 miles per hour.

At that speed you'd travel from Baltimore to Washinfgton in 25 seconds; from Baltimore to Los Angeles in 26 minutes! The moon would be only 41½ hours away. That's traveling!

The 5800 miles per hour of the Viking will be reached when the rocket is carrying a payload of 100 pounds and will occur at a height of 38 miles above the earth's surface at 75 seconds after launching. At that height and time the fuel supply of liquid oxygen and alcohol will be exhausted, but the Viking will "coast" on straight up for another 197 miles to a height of 235 miles, more than twice the height reached previously by a V-2.

The V-2, also, was difficult to control in flight because it used carbon vanes in the rocket nozzle to control the direction of thrust. In the Viking, the rocket engine is mounted in gimbals with a control gyro dictating reorientation of the line of thrust. This method saves weight and likewise

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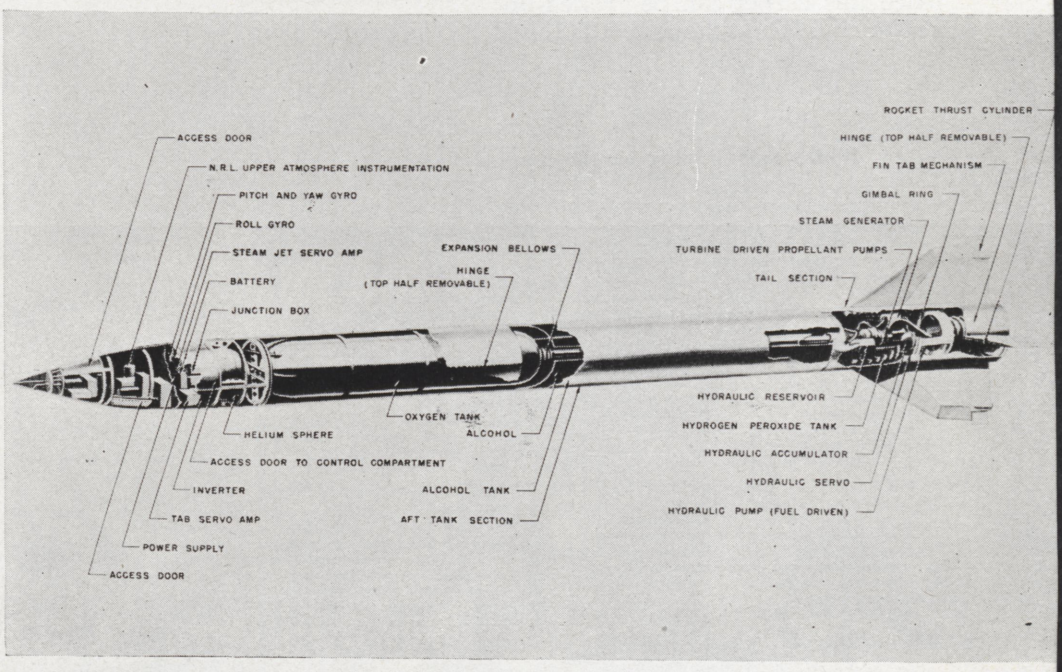
The Viking Rocket.



Coffee Pots, Bed Pans, Photo Trays

By Ralph F. Connor, sr., m.e.

Selling Price is one of the important factors affecting the manufactured product of Columbian Enameling & Stamping Company. Except for the high quality, required for hospital and photographic materials, this is especially true.

Being in an area wherein labor costs are high this company has tried to cut labor costs to a minimum. Unit processes, assembly lines and mass production are employed to offset high labor costs. Unit processes, whereby blank sized material hand placed in the press and drawn is spun, trimmed and rolled without more handling by the press operator, are especially adapted to the problems of this plant.

The long assembly line while insuring less handling also insures a better product and better control of that product. A special problem resulted from the use of the assembly line. In the ovens finished products frequently fell from the racks, eventually causing a jam in the oven. As a result the ovens *and the line* had to be shut down and the jam removed.

To remedy this trouble, the floor of the furnace now has a "magic carpet" made of nickel alloy steel. Appearing much like an ordinary fence this carpet can be "rolled-up" at one end. When the carpet is rolled up the fallen article comes out with it. The company manager reports that horse shoe pitching on the company's time has now ceased, thanks to the magic carpet.

The plant, located at 19 and Beech streets in Terre Haute manufactures various household, hospital and industrial enamel ware. The general layout is as follows:

(A) fabrication — blanking, pressing, spinning (steel) to form

(1) welding — small intricate parts which can not be formed with the base unit.
  (a) spot
  (b) percussion
  (c) seam welding

(2) annealing — cold formed products which are too intricate for one draw are annealed between successive draws.

(B) compounding — measuring, smelting, pulverizing materials for enameling.

(C) dipping — applying the enamel solution on the steel form.

(D) drying and firing — bonding enamel to formed steel.

(E) packaging and shipping.

(F) maintenance

(G) power plant

The raw materials of this factory consist of light gauge steel, either in sheets or rolls, and various silicates and other chemicals which make up the enamel. Both raw matreials are taken from the rail car and stored for use. Frequently rejected sheet steel from other plants can be purchased and used at the plant with a considerable saving. All movement of materials is by gasoline tractors.

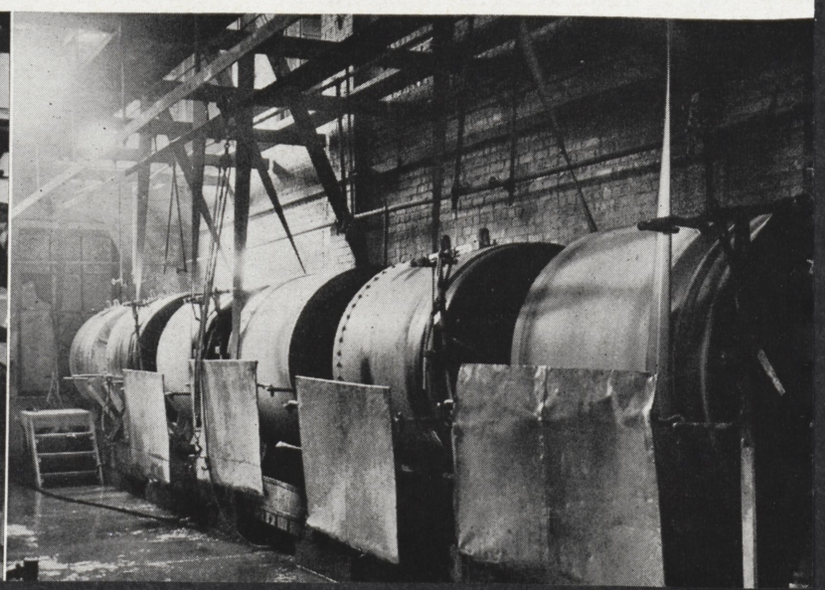
Sheet material is sized before blanking. Rolled strip stock is fed into the blanking machine continuously. Whenever possible blanks are standardized — that is, one blank is used for several items. A decrease in costs is thereby realized. Since most blanks are circular, sheet material must be circular cut on circle shears or hand-fed blanking presses, whereas coil stock is blanked in high speed presses.

The drawing processes are the most exacting. Shallow draws can be made with one stroke on the machine. Deep draws must be made in a series of draws, often annealing is required between these draws.

Without a doubt the most interesting process in the plant is the trimming and beading of a formed shape. This complete series of operations is limited to one draw press. Usually

White coat dipping on the line.

Ball mills for pulverizing.



the blank is fed to the draw press by hand-safety devices protecting the operator. During positioning a soap spray covers the dies. Air lifts the drawn cup—using a cup as an example—from the die and the cup rolls down an incline to a spinning lathe. Hydraulic cells press the cup on a form in the lathe and as the cup rotates it has the rim trimmed and rolled to shape.

If necessary a spinning operation, which removes the draw marks can be included. The operation is so controlled that one cup is spun, trimmed and beaded while the next blank is being drawn. When the spinning lathe drops the finished product it is carried by a conveyor to a factory bin. A shop truck moves that bin to a welding machine where the handle is welded.

A bailer, making complete bucket bails, is another unusual process in the plant. Coiled wire fed into the machine is run through the handle and shaped, dropping from the machine in a neat line for use in the packing department. The output of this machine is so great that it is operated for only very short periods of time.

Adjoining the press department is a complete tool and die shop which prepares the dies and punches for the press department.

In order that all material may be fully utilized the scrap from all presses, blanks, etc. is baled in a hydraulic press. The bales weighing about 100-150 pounds are returned to steel mills as scrap.

Utensils having bails or handles, are formed in separate parts, for instance the handle and the cup proper. The handles are made in progressive dies, two or three operations being formed simultaneously. These handles are then welded to the cup.

Some pieces, such as bed pans, must be formed in two pieces and then seam welded.

Completely formed units are sent to the pickling vats for cleaning and surface preparation. The steel as used often has rust spots and in the drawing presses soap solutions are added. These are removed with caustic after which a sulfuric acid solution is used to rough microscopically the surface for bonding. A nickel salt bath adds a small amount of nickel to the surface preventing oxidation.

A continuous drying furnace utilizes process steam for heating. During the pickling and drying operations the utensils are stacked in special monel baskets which are unaffected by the solutions. An overhead rail with an air cylinder lift moves the baskets from vat to vat. Each basket remains in the vat 15 to 30 minutes while the temperature is maintained at least 150° F.

While the sheet steel has been formed the enamel has been processed from silicates, clays and oxides. While the exact materials were not made known, it is known that the silicates are the base, clays are binders and oxides are normally coloring agents. The measured raw materials are smeltered in an oil-fired furnace. So that the pulverizing operation can be simplified the hot smeltered "glass" is poured into a tub of water. The cool water breaks the glass into small pieces. This material can be stored or used immediately in the pebble mills.

Pebble mills grind the glass to a fineness that feels velvety smooth to the fingers. Actually a giant cylindrical tumbler, the pebble mills employs granite or porcelain balls over a period of 30 hours to grind the glass. Water is used as a binder during the process. No dust results from this practice. The coloring material is added as an oxide to the original mixture. The final preparation of the enameling solution is entrusted to a ceramic engineer. Proper amounts of water and solium nitrite solution are mixed with the pulverized paste.

The solium nitrite solution is the drying gent, the percentage of it present in the dip solution controls the flow and the speed at which the now liquid enamel dries on the surface of the ware. Too little nitrite solution will present a "running" surface and too much a "lumpy" surface on the finished product.

All multiple-coated enamel ware receives a ground or base coat. This ground coat is the only material which will form a good bond with the metal surface. White enamel ware must be refired after re-dipping with a white enamel.

The ground coat appears blue during the smelting and pulverizing process, after baking it appears blue-black. A mottled effect can be obtained by suspending white crystals in the dark dipping solution.

Skilled operators dip the ware in the various enamel solutions, placing the finished product on a three point stand for bead or on the assembly line. If beading in colors such as red or blue is required an assistant working with the "dipper" wipes the rim clean and another member of the team applies the enamel on the bead or rim by hand, applying the colored enamel with the fingers which have been dipped into the liquid enamel.

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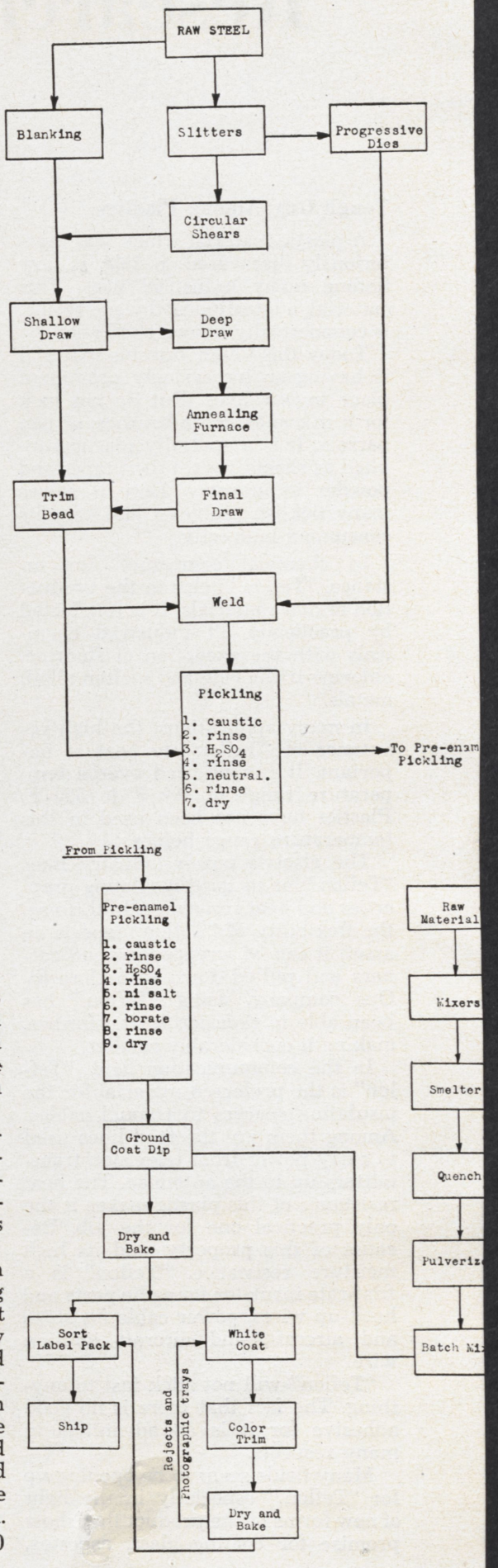
Flow Diagram
Columbian Enameling & Stamping Co.



Research and Development

By George Eddy, jr., m.e.

Tough Guy Among Plastics

A plastic material which was mysteriously discovered in 1938 is now finding many industrial uses. This material, a tetrafluoroethylene resine, is commercially known as "Teflon."

Today this tough, durable material is having an increasingly prominent place in our lives. But do not look for it in combs, tooth brushes, or pen barrels. It is a specialty plastic supplied as sheets, rods, tubes, tapes and powder to industry. Here it solves many ticklish problems and benefits consumers indirectly.

In chemical companies, for instance, "Teflon" helps in the production of new materials. It is unaffected by practically all industrial chemicals with the exception of fluorine, chlorine trifluoride and molten alkali metals.

In many applications, the high resistance of "Teflon" to heat is important. It can be used over a temperature range of 100 F to 550 F. Plastics have not been used in this temperature range before.

The electric power industry likes "Teflon" for its good insulating properties and heat resistance. In this use, the flexibility of "Teflon" tape is an asset; it can be wrapped around corners and pulled down to a close fit. One company, using "Teflon," has been able to redesign a transformer, making it considerably smaller.

In the communication field, "Teflon" is the preferred material for the insulating spacers in coaxial cables. Among them are the feed lines used to carry power from television transmitters up to the antennae. The heat resistance of this plastic makes it the only practical one for the job. Because of this property, and its high moisture resistance, "Teflon" is a first-rate insulator for radio parts and hook-up wires, power cable for ships and aircraft, and aircraft ignition wire.

"Teflon" will not stick fast to anything. The fact that there is no good adhesive for it is an advantage in many respects.

Many fields seem to be opening up for "Teflon," especially in the light of new forms of the product that show promise for coating glass, asbestos, steel and other materials. As new uses are found, the price will undoubtedly keep going down. Already it has dropped to about one-fifth of that gold-nugget original listing of $50 a pound.

Air Cooled Diesel Engines Developed

Two new aircooled Diesel engines have recently been developed, which are sufficiently unique to warrant attention on the part of designers and users alike.

These engines are of opposed piston design, full Diesel type, four-stroke cycle, compression ignition, featuring the well known Lanova combustion principle. They are naturally aspirated and have a wet sump.

The engines were initially designed for small portable Diesel-generator sets; however, they have many other applications including the following: Air-conditioning units in railroad passenger cars; and refrigeration of freight cars; for air-conditioning of Diesel-powered buses; refrigeration of truck and trailer bodies; portable auxiliary lighting plants; and for small tractor and farm equipment.

The crankcase is a two piece aluminum alloy casting, split symmetrically at the vertical center line of the engine. Cylinder heads, pistons, and other structural parts are of aluminum alloy.

The engines are designed for use with hand starters or a 12 volt starting system. They will start by hand at 35° F. without starting aids.

High fuel economy is also claimed for these engines.

Three-Jet XB-51 Shows Unusual Design

It has been announced that the most unconventional jet aircraft de- States is the new three-jet XB-51 ground cooperation fighter-bomber.

A variable-incidence wing on the XB-51 and the uncommon position of two of its three jet powerplants, mounted on pylons extending from the fuselage, together with the sweepback of the wing and tail surfaces, gives the whole craft a radically different appearance. Placement of the tandem main landing fear which, retracts into the fuselage, adds to the strangeness of the design.

The basic advantage of the variable-incidence wing on the XB-51 is to permit takeoff and landing of the airplane in a near-horizontal altitude in order that both landing gear units can be fully utilized. This type of wing also permits quicker takeoff and slower landing speeds. Further, it allows slightly higher maximum speed by permitting the airplane fuselage to assume a minimum drag atitude while the wing is at its near zero-lift incidence.

The principal objection to the device is the structural problem created, since one of the wing spars must be moveable about the other.

The XB-51 has a wing span of approximately 55 feet and is approximately 80 feet long. Gross weight is approximately 80,000 pounds. The top speed is 600 mph at sea level.

The craft features 35 degree sweep in its wing and empennage. Small, retractable wingtip landing gear units prevent wingtip damage during ground maneuvers.

Color Television System Developed

A new all-electronic, high-definition color television system, completely compatible with the present system of black-and-white television, has recently been developed by RCA after years of research and development.

The new color television system requires no changes in transmission standards of present black-and-white television. Its performance is equivalent to the present black-and-white service, both for color and reproduction of the color signals in black-and-white. The new system enables present television sets to receive color programs in monochrome without any modification whatever and without any converter or adapter. Color programs can be viewed either on new color receivers or on existing receivers with adapters.

The Engineer and Ambition

A Tau Beta Pi Essay

By Bob Exline, sr., e.e.

We often hear people say, "That fellow has ambition," or "That fellow has no ambition," and yet, the attribute called ambition is not a quality we can readily define. What then, is the difference between the two men?

Ambition might properly be described as that mental attitude which makes a man want to accomplish some end result. Ambition then, is a means to an end, not an end in itself. It is in itself neither good nor bad. It is the end to which we allow it to lead us that decides its merit. We so often associate ambition with greed and selfishness that we have a tendency to think of ambition as a bad thing. However, this need not be the case. If our ambition as engineers is to help humanity, whether by being a good example as a leader or worker among men, or whether by work in scientific fields which will benefit mankind, who can say ambition is not good?

Ambition is to the engineer what gasoline is to the automobile or what coal is to the locomotive. It makes him go; it gives him drive; it stimulates his efforts. A man may possess the brightest mind in the world or he may have the best education, but if he does not have the drive to use his mind and his education he is like the automobile which is out of gas. He is a fine machine but rather useless. As the car cannot run without gasoline, neither can people move forward without some ambition. However when the gasoline is carelessly handled it may burn the very car which it was meant to help. So too with ambition which is not controlled. When ambition becomes the master instead of the tool it may not only destroy the man, but it may also bring distress to many men. Men such as Hitler are outstanding examples of what happens when ambition becomes master.

When a man advances in the world those around him are apt to contribute his success to luck, or to any other reason tending to discredit the person's ability. How many times do we hear it said about persons who have risen rapidly, "Some people get all the breaks." Perhaps so but it might be added that some people make their own breaks. A person who knows what he wants and has the ambition to go after it will usually find that in the course of time the goal is reached. Many people know what they want but few people have the ambition and determination to keep working toward their goals. People who have no goal are apt to find themselves in a position similar to that of Columbus when he discovered the new world. When he started he didn't know where he was going, when he arrived he didn't know where he was, and when he got back he didn't know where he had been. If the leaders of the world in any field were polled it would undoubtedly be found that every one of them has a considerable amount of ambition. Men do not rise to the top by sitting back and waiting for the world to lift them. We have to climb at least part of the way under our own power, and we have to have to have the ladder ambition to help us with our climbing.

As the engineer starts his climb he is looking to better jobs and a better future for himself and his family. He is ambitious not only to improve his own lot but perhaps to help those around him. However many engineers during the long climb toward success lose their desire to help all mankind in their efforts to realize their own personal ambitions. Their ambitions have become an end in themselves instead of a means to an end. Success is not worth the trouble unless it is accomplished in a way we can be proud of. It is better to have accomplished a little in the right direction than to have gone far in the wrong direction. We therefore have to guide our ambitions along the right paths and be sure we are going the right direction.

Of course just having a lot of ambition will be of little value if other qualities such as fairness, social congruity, technical skill, and strength of character are lacking. Before we can use the fuel we must have the engine, so too before our ambition is of any use we must be capable engineers. So ambition comes in also in helping a person secure an education in his chosen profession.

If the engineer keeps in mind the opportunities which his education gives him to benefit mankind, and lets his ambition drive him in the right directions, he is making the best possible use of his talents.

Editor's Note: This was the winning essay of a recent Tau Beta Pi contest.

Operation Rosie

By Alex Vogl, sr., m.e.

In recognition of the return of that famous old Rose Spirit, the TECHNIC is herewith publishing a correspondent's report of the midnight raid during which some eighty loyal Rose sons recovered our proud but battle-scarred elephant from the Franklin College campus.

Oct. 7—2300— Sixteen Franklin students gain entrance to the Rose Field House, load Rosie onto a waiting truck and make a clean get-away. A Rose freshman happens to copy a license plate number, but forgets to report.

Oct. 9—1600— Mr. George Moench, Bursar, discovers Rosie's absence. The license number turns up and is promptly traced to Franklin campus.

Oct. 9—1800— Dr. Wilkinson dispatches four Rose students to Franklin to negotiate a peaceful settlement and bring home the elephant.

Oct. 9—2030— Negotiators contact Franklin dean. Operation to return Rosie from unknown hiding place starts. Rosie is definitely not on Franklin campus.

Oct. 9—2200— One hundred twenty-five Rose men assemble on the campus to launch a liberation drive. A large truck is rented by Gunter Thiel, Frosh President. A great amount of indecision appears. Dr. Wilkinson phones Franklin Dean who promises co-operation.

Oct. 9—2300— The hours drag on. Telephone conversation with the "boy diplomats" reveals no progress to this point. Speeches made by several "boy orators" urge the assembled warriors into action. Speech by Dr. Wilkinson warns that he has been informed that Franklin is waiting, has Rosemen badly outnumbered. Following his remarks, Dr. Wilkinson leaves for his home. More speeches by the same "boy orators," this time urging that the plan be abandoned.

Oct. 9—2345— Popular opinion has its way despite much noise by converted stay-at-homes. First five cars carrying thirty-eight men leave for Franklin.

Oct. 9—2400— The "boy orators" go home to bed. Six more cars carrying forty-two men, leave for Franklin. Because of its slowness the truck stays at Rose.

Oct. 10—0200— Negotiators succeed in having Rosie brought from hiding onto Franklin campus. State police alerted for possible clash.

Oct. 10—0230— First group of cars assembles five miles north of Franklin. Jasper Haller's car is sent in to scout the town and try to spot Rosie. A few minutes later the parked cars are discovered by Franklin observers. Thereafter Franklin cars cruise by every ten minutes, keeping count on Rose manpower. Second group of Rose cars arrives at rendezvous point. It is decided to enter town separately, reassemble at Courthouse at 0315.

Oct. 10—0245— Jasper's car returns from scouting, reports that the town is wide awake. Rosie has not been seen.

Oct. 10—0315— Eighty Rosemen assemble at the Courthouse. Rosie has been spotted on the Franklin campus. Several State Police cars are present, direct the Rose column to stay put until they investigate.

Oct. 10—0330— State Police gives O.K. to proceed to campus, but orders strictly no violence.

Oct. 10—0335— Rosie in full sight on campus lawn, painted with blue "FRANKLIN's" on each side. About a hundred fifty Franklin men are guarding her. Vogl's car moves in to tie on to Rosie's rig, is ordered back by police.

Oct. 10—0345— Franklin spokesmen offer to return Rosie Sunday night, are answered with silence. They offer to return her Saturday night right after the game, are answered with laughter. They offer to return her between halves at the game. Spokesman Bill Slagley answers that we came to get Rosie, and we are not leaving without her. Much shouting follows and local scraps begin to break out. State Police firmly quelch the outbursts. Tension mounts. Meanwhile Fred Gradous and G. J. Rathimisany (our well-loved "Indian") are busily pumping up Rosie's flat tires.

Oct. 10—0355— Franklin's Dean arrives, instructs his men that he will take the sternest of measures if anyone interferes with Rosie's removal.

Oct. 10—0410— Police order all but fifteen Rosemen to leave for Terre Haute. They are pursuaded by Gunt Thiel to let all stay until a truck can be secured.

Oct. 10—0430— A second truck is hired with aid of Troopers. Rosie is loaded aboard. John Winters and Jim Moulton do a quick repaint job with Don Moore's black paint (see cut). Truck driver's wife and daughter climb aboard and the caravan leaves for Terre Haute.

Oct. 10—0800— Rosie and remnants of caravan make triumphal entry onto sleeping Rose campus. Rosie is transfered to original truck and a parade is immediately organized.

Oct. 10—0830— Parade moves by Coach Phil Brown's home, then proceeds by the fraternity houses through the business district, and on to Dr. Wilkinson's home. The president's reaction: "Good work, men!"

Oct. 10—0930— Victory breakfast at Theta Xi House for the twenty tired warriors who are still on their feet. Rosie is returned to the campus and chained down in the boiler room.

Oct. 10—2100— Rose fights Franklin to a 21-21 tie as Browns "Brownies" turn in their best-played game of the season.

To the eighty men who ventured into the "cruel night" on the evening of Friday, October 9, many grateful thanks from your fellow students.

Campus Survey

By Warren Allen, soph. and Leonard Pyle, fresh.

Homecoming Pep Rally

The opening gun of the 1949 homecoming celebration went off with a "bang"; the Frosh wheeled Rosie along Route 40 to Seventh and Wabash, popping fire-crackers and shooting water from an oversized squirt gun along the way. After a short verbal skirmish with several policemen in protest over the arrest of an over-exuberant freshman, Rosie returned to the football field where the traditional bonfire awaited. Although the freshmen, under the leadership of president Gunther Thiel, had planned to set off twenty-five pounds of black powder in a 75 mm. anti-tank gun, "borrowed" from Memorial Stadium, complications set in and the gun was returned to the Stadium Friday morning. The thousand or more present at the bonfire witnessed the results of the Freshman Class's labors, which were rated by some who had seen previous fires as "exceptionally well done." As the fifteen foot pile of railroad ties blazed away, the Blue Key sponsored pep rally got under way. Refreshments of cider and doughnuts were provided by the R-men's club, while President Wilkinson, Wilbur B. Shook (president Rose Alumni Association 1948-49), and Coach Phil Brown gave short, appropriate pep talks. Haswell led cheering for the football team. After the pep rally, something new was added — a freshman "co-educational" hayride and wiener roast attended by approximately fifteen couples; because of a misunderstanding, the wieners failed to materialize, however, there were plenty of potato chips.

Alumni Events

An estimated 450 alumni and guests of the institute gathered at banquet tables Saturday night, October 1, to climax two days of homecoming celebration.

At an election of officers held Saturday morning in the field-house, the alumni named Merrill L. Bradfield, class of '39 and secretary-treasurer of the Allen-Steen Company of Terre Haute, as president for 1949-50. William S. Hawley of Tyler, Texas, '05, was elected vice president, and Darrell E. Criss of Terre Haute, '43, secretary-treasurer. Professor Herman A. Moench responded at the banquet for Mr. Bradfield, who was out of the state at that time.

Reunion dinners Friday evening highlighted the occasion for members of the classes of 1909, 1924, 1929, and 1939; at the banquet nineteen members of the class of '24, ten of '09, ten of '29, and fourteen of '39 were present.

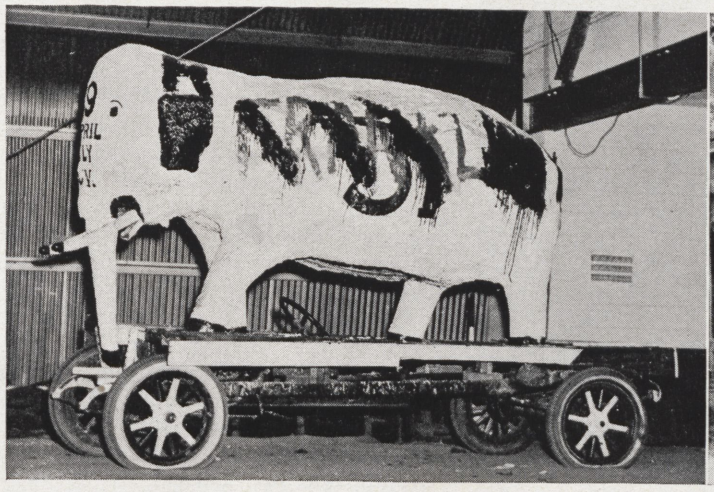
The banquet at 6 o'clock Saturday evening in the Maylower Room of the Terre Haute House brought together one of the largest alumni groups to return for the annual event. Retiring president Wilbur B .Shook, '11, as master of ceremonies, introduced Noble C. Blair, class of '34, the new field representative and admissions counsellor at Rose. Blair was formerly with the E. I. du Pont de Nemours Company in Wilmington, Del. The award of "Honor Alumnus," as determined by vote at the alumni business meeting Saturday morning, was made to Carl Wischmeyer, class of '05, vice president of Rose and Josephus Collett Professor of Mechanical Engineering. Guy Woody, class of '09, of Milwaukee made the award announcement.

Arranged by a committee consisting of Allen D. Merrill, '16, Hugh E. Wallace, '15, and Edward B. Denehie, '36, all of Terre Haute, the program for the evening included talks by President Ford L. Wilkinson and Coach Phil Brown. Among those at the banquet table were board members, John T. Royse, Crawford F. Failey, Oscar Baur, Dr. John White, and Chesleigh Grey. Retired mining engineer M. L. Oglesby, '92, one of our oldest living alumni, attended homecoming for his eighth consecutive year. James Arney responded as president of the senior class, members of which were guests of the alumni at the banquet.

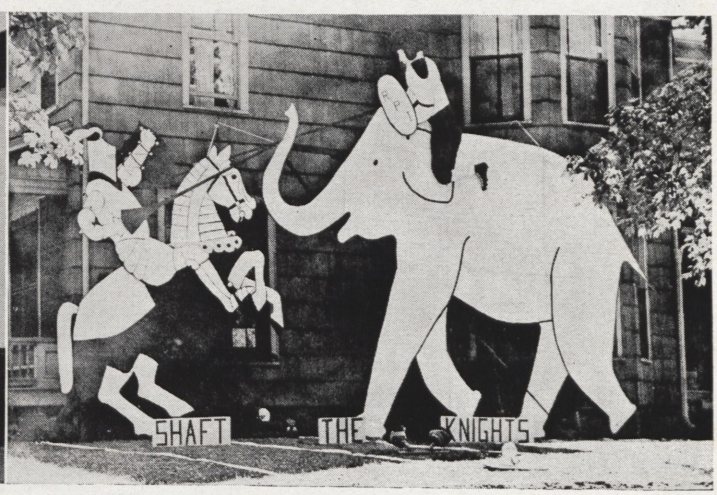
Prior to the Rose-Canterbury football game Saturday afternoon, alumni members inspected the foyer of the fieldhouse, which has recently been completed. Modern lounge furnishings in the foyer were donated by

Continued On Page 22

and Rosie the Wreck.



The "Winnah."



Fraternity Notes

Alpha Tau Omega

Homecoming provided an opportunity for the actives and pledges to meet a large number of their alumni brothers who returned to the campus and fraternity house to participate in the homecoming activities.

Gamma Gamma chapter held two evenings of open house during homecoming and a hayride Saturday, October 22. These social functions were planned by brother Riley McKeen.

Professor Irvin Hooper was elected faculty adviser for Gamma Gamma chapter by the fraternity. Sunday, October 9, Professor Hooper was initiated into the Alpha Tau Omega Fraternity.

Sunday, October 9, thirteen new brothers were initiated into the fraternity. The new brothers are Tom Burkett, Dick Englum, Bob Johnson, John Kelly, Dave Leeds, Al Mastrobattista, Stan Updike, Bob Waid, Clyde Willian, Jim Myers, Joe Perona, Dick Pierce, and Allan Scott.

Sigma Nu

Beta Upsilon made homecoming an extra special affair for returning alumni this year. Along with the bonfire and other school activities, the alumni enjoyed a party at the house where college cronies again got together. Following the dance Saturday evening, an open house was held for all alumni, actives, their dates and wives.

The week following homecoming was chosen for the initiation of new members. On Sunday, October 9, the following men were initiated: Jack Nunley, Edward Herbst, Harry Harrison, Charles Yohe, Harry Johnson, Bob Greminger, and Kay Harmas. A banquet was given Monday evening at the house in honor of the new men.

Beta Upsilon wishes to welcome two pledges into the fraternity. During the October 3rd meeting, Philip Gilmour and William Gray were pledged.

The chapter was fortunate in having Robert Waldo with us for two days. Mr. Waldo, who is Chapter Visitation Officer, advised the chapter on future proceedings.

The bowling team is still rolling along. At this time, Beta Upsilon is three games in first place. Sigma Nu also holds several team records.

Wayne Walter, who is a member of the social committee, has planned a hay ride to be held late in October. All actives, along with their wives and dates, are invited.

During the last meeting of the quarter, the chatper will hold election of officers. The new officers will begin their tenure next semester.

A. T. O.'s Homecoming.

Theta Xi

Homecoming was a big success for Rose Poly in all phases of its activities. Theta Xi did especially well in carrying out their carefully planned program. At the Alumni banquet held in the Terre Haute House, Kappa Chapter's capable president, Willard Ham, welcomed the alumni and gave a brief summary of the chapter's activities. Honored guests at the banquet included Coach and Mrs. Phil C. Brown, Dr. and Mrs. Odon S. Knight, Mr. and Mrs. Wilbur Shook, Mr. and Mrs. William Hollis, Mrs. Emily Appler, and Mr. Herb Crook.

The other usual activities of the week-end were also successful, especially the stag party on the Friday evening before Homecoming Day. Everyone enjoyed the party immensely, each consuming his share of the refreshing beverages. After midnight, no one was able to walk in a straight line for more than a "shadow's length."

Lambda Chi Alpha

The Alumni Banquet, which had been a feature of the chapter's homecoming activities was abandoned in favor of a party at the house following the bonfire. Refreshments, "bull sessions," and dancing were enjoyed. A meeting of the several alumni present resulted in the establishment of an alumni committee that has promised to play a more active part in the group's future undertakings.

Al Schmidt, who has been in charge of the current pledge class, reports that the boys show great promise. All participated in the "Hell-week" program on Saturday, October 22. Prior to this, some of the pledges had demonstrated their willingness to lend a hand when they assisted in dunking Stolzy in the shower as part of his birthday celebration.

During recent weeks several members of the faculty have been the dinner guests of the chapter. Among those who have visited were Professor McLean, Professor Knipmeyer, Mr. Bernstein, Mr. Kromp, Mr. Strum, and Mr. Duwelius.

Alumni News

By Allan Junkers, jr., mech.
Bill Banister, soph.

"Seamstress" Extraordinary

A Rose graduate hit the columns of the Cincinnati Enquirer last September 11. Dorothy Johnston described in her column how John B. Stineman, '37, has gone to town on his portable sewing machine.

"No sissy, John B. Stineman, who works . . . wonders to the delight of his wife, Jane, and the admiration of their friends, is a tall virile man who says he likes 'to work with his hands for relaxation and pleasure.' "

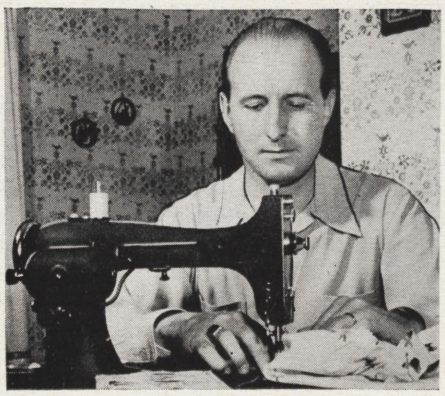
"It began, this unusual hobby of his, a year and a half ago when the Stinemans bought a portable sewing machine. Jane didn't know how to sew. John wasn't much interested in sewing but he was itchy to know how to run the contraption. He learned fast and the production line of curtains, pillow covers, and clothes began.

"John has lost count of the number of garments he has fashioned for Jane but they include a wool robe, wool jacket, black silk dress, blouses, and lots of cottons.

"He's adept at reading patterns and 'works carefully and conscientiously,' according to Jane, so that he doesn't have to baste but can sew right over the pins. It takes John two or three hours to cut out a dress and about two evenings to put the garments together. 'Then I turn the dress over to Jane for hand finishing,' he explains.

"A good quality dress, created by John, may be made for as little as $3, he estimates, if the material is obtained on a sale.

John B. Stineman



"The master of the Stineman family deserts his sewing machine at times to attend to other 'odd jobs' around the house. He has upholstered chairs, done needlework, and carpentry. For instance, one of his big jobs was the refinishing of the upstairs of his house into a dormitory for his four sons, John, 8; Joe, 6; Jerry, 5; and Jimmy, 14 months.

A graduate of the Rose Polytechnic Institute, Terre Haute, Indiana, John is a project engineer with the E. J. Nolan Corp., Evanston piping contractors.

"By means of his nimble fingers, John has dressed up his house and his wife, . . . and surprised relatives with neat handmade gifts at Christhas time. The only person he has neglected is himself.

" 'I've never made myself a thing,' he admits with a grin."

—Courtesy *Cincinnati Enquirer*

Woody

Walton L. Woody was born in Terre Haute, Indiana, February 10, 1891. During his early years in Terre Haute he worked in various factories and stores in the summers, carried papers four years, and was an active member of the Maple Avenue Methodist-Episcopal Church. He attended Wiley High School and spent one year at Indiana State Normal before entering Rose. Soon after graduating in 1914, he married Miss Nellie May Flesher. They have four children, Elizabeth Jane, Walton L. Woody, Jr., Richard Alan Woody, and Robert F. Woody, now a senior at Rose.

Soon after graduation he was hired by the National Malleable and Steel Castings Company of Cleveland, Ohio, and spent six months as an apprentice in the Chemical Laboratory at Indianapolis and Toledo before going to Cleveland where he has remained since. Mr. Woody has held many various positions with National, the most notable as manager of the Chicago Works, Sharon Pennsylvania Works, Melrose Park Works, and vice president of Operations and director.

Recently he has been elected vice president of the mammoth American Foundrymen's Society (1949-50) and president (1950-51). Mr. Woody's many activities include membership in the American Management Association, National Association of Manufacturers, American Iron and Steel Institute, Army Ordnance Association, Cleveland Chamber of Commerce, Cleveland University Club, Union League Club, Board of Managers of Rose Polytechnic Institute, and trustee of the First Baptist Church of Greater Cleveland.

'91 William S. Menden, New York, former president of the Brooklyn-Manhattan Transit Corporation, died Sept. 25 after a two weeks' illness. Mr. Menden was born in Evansville, Indiana, in 1970. In addition to his graduation from Rose as a civil engineer, Mr. Menden also received a Civil Engineering degree from Rose in 1932 and a Doctor of Engineering in 1933. He retired in 1941 as president of the BMT and until his death was an engineering consultant with E. W. Foley Inc. He was a member of the Engineers Club. Surviving are the widow and three children, Bertram (also a Rose graduate, '32), Dorothy, and William.

'95 William D. Wiggins, formerly vice president of engineering, Pennsylvania Railroad, died June 12, 1949.

'01 Word has been received of the death of Max J. Hammel, last March, at Los Angeles. Mr. Hammel was connected with advertising and publicity. He received an M.S. in 1917.

'03 Henry C. Gilbert, formerly secretary of the Jackson Electrical Construction Company, has gone into partnership to form the Gilbert-Hodgman Electrical Construction Company, Inc.

Graham A. Davies, Anchorage, Kentucky, died June 13, 1949. Preceding his retirement he was purchasing agent for the Louisville Gas and Electric Company. He leaves a widow and two children.

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41 Hours To The Moon

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gives a longer burning time for the fuel.

A prime factor in stabilizing a rocket is correction of roll tendency. The Navy is tackling this problem by proposing to release steam (generated to motivate a turbo-driven fuel pump) from special "roll jects." Release of the steam is controlled by a gyro. Roll control can be extended 17 seconds beyond the time the engine cuts off.

Besides these internal controls, a telemeter sends back a mass of valuable data on performance as well as higher-altitude atmospheric conditions. The telemeter, weighing only 15 pounds, sends 28 different items of information every 1/135 of a second. Data on temperatures, cosmic rays, position of control vanes, fuel pressure, and so on are transmitted to the ground and are recorded on motion-picture film by automatic cameras. These readings must be returned from the missile while in flight, because the delicate measuring instruments may be completely destroyed at the end of the flight.

To study the performance of rocket fuels, measurements must be made of the searing heat and of the supersonic speed of the gases that flame from rockets. Scientists make these measurements by modifying methods used by astronomers. The temperatures of rocket gases — too hot to measure by conventional means — can be found by studying the wave lengths of molecular radiation. The speed of the gases is found by Doppler-effect studies of the apparent wave lengths of sodium atoms as seen through two periscopes placed at different angles to the jet.

It is also necessary to know what happens to rocket controls when the missile is hitting 3800 miles per hour. To permit actual testing of these controls on the ground, a "flight-simulator" is under development at Schenectady, New York. When it is completed, the guiding equipment to be used in any new type of rocket can be attached and tested in exactly the same maneuvers the missile will go through when it is launched. The simulator will eliminate mishaps by thoroughly testing controls before flight.

Other developments in rocket research include supersonic wind tunnel testing at Aberdeen Proving Grounds, computing machines to find trajectory data in ten days or even minutes instead of three months for one mathematician, rocket-motor test pits, and improved gyro-control apparatus. According to Dr. Von Braun, who was technical director of the Peenemunde rocket station during the war, "The rocket today is in the same stage of development as was the airplane at the end of World War I."

The possibilities of rockets can be appreciated by comparing the 65-mile altitude of the German V-2, which later in this country reached over 100 miles, with the 10-mile altitude record of the airplane.

Should war come tomorrow the United States probably could step right into mass production of guided missiles able to seek and strike the highest and fastest flying bombers. However, unless compelled to begin production immediately, further improvement of design is desirable. Several years would be needed for perfection of the missile under peacetime conditions.

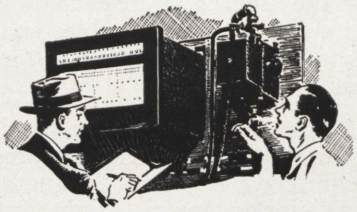
If development of this top-ranking defensive weapon has progressed to the point claimed by some guided missiles men, it can have profound effect on the current controversy over the relative capabilities of fighter planes and long range bombers, such as the B-36. The rocket may cause a comparative relegation of the interceptor-fighter to a secondary position and challenge strategic bombers more seriously than has been done by ordinary, manned jet fighters.

Of equal importance, there is in these tactical robot rockets hope for at least some degree of interception of long range intercontinental guided missiles of the future which would travel too swiftly for even the fastest jet fighter.

Any diminishing of the potentiality of a strategic bomber—such as might arise out of an enemy's use of guided missiles for anti-aircraft defense—would have direct relation on our use of the atomic bomb. The atomic bomb can be effective only if delivered to a target. If the ability of strategic bombers to reach a target is diminished, the value of the atomic bomb falls off accordingly.

THE MAIN JOB *of one entire laboratory at General Electric is to keep guesswork out of G-E products.*

ITS STAFF *specializes in giving help on tough measurement problems.*



TYPICAL SOLUTION *was development of first "turbidimeter," advancing work on water-purification equipment.*

1000 Specialists tell us "When you can measure..."

Lord Kelvin, writing in 1883, summed up once and for all the importance of measurement.

"When you can measure what you are speaking about," he said, "and express it in numbers, you know something about it, but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind."

The need for detailed and accurate "numbers" is as great today as it ever was. Recently, for example, General Electric engineers working on water-purification equipment were hindered by the lack of any accurate way to measure water's turbidity. Another group needed data on the vibrations in their equipment.

But at General Electric any group up against tough measurement problems does not have to be stymied for long. It can "appeal" its case, can seek the aid of men who make a specialty of measurement and allied problems—the more than 1000 staff members of the G-E General Engineering and Consulting Laboratory. GE & C serves the entire company, and is also frequently called on by other industries and government agencies.

It solved the two problems above by developing the first "turbidimeter" and a "recording vibrometer" now finding applications throughout industry—two out of thousands of similar problems handled by the laboratory each year.

The work of GE & C illustrates again how General Electric backs up research and creative thinking, implements new projects with the best available facilities, and so remains in the forefront of scientific and engineering development.

You can put your confidence in—

GENERAL ELECTRIC

COFFEE POTS . . .

Concluded From Page 11

The line, an overhead continuous mono-rail, consists of alloy steel racks. On these racks are adjustable points, which support the ware during the enameling, drying and baking operations. The line blends itself to the job since stations can be set up at any point along the line, thereby insuring proper drying time.

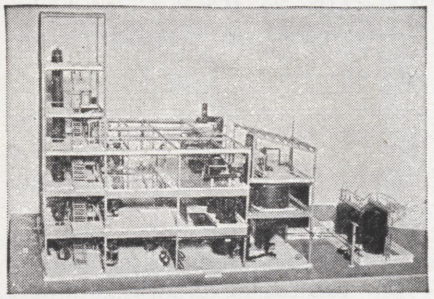
After drying the enamel ware is ready to be baked. The oven is a continuous furnace, coal fired at about 1600° F. Ware is pre-heated before reaching firing zone and is slowly cooled before leaving the furnace.

When the finished ware is removed from the line it is inspected, good ware going to packing tables and rejects to be rerouted over the line for repair.

After so much automatic handling the wrapping and packaging process is definitely a let down. Young engineers looking for a bright future could conceive a "Rube Goldberg" device to pack the ware and insure their future.

THE DU PONT DIGEST

FOR STUDENTS OF SCIENCE AND ENGINEERING



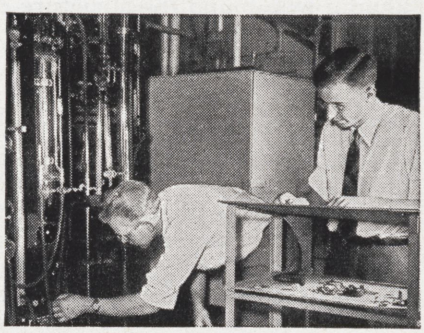
Scale model *of a part of the Du Pont adiponitrile plant at Niagara Falls. Here furfural, an agricultural by-product, is converted into a chemical intermediate for making nylon.*

yarn from corncobs!

A DU PONT PROCESS CONVERTS FURFURAL INTO A CHEMICAL FOR MAKING NYLON

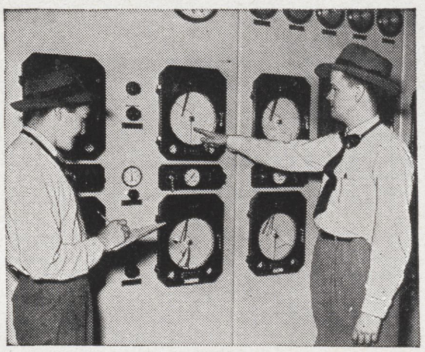
One of the fascinating things about nylon is the unlikely sounding raw materials that go into it. Popularly, nylon is said to be made from coal, air and water. This is because originally, in developing its chemical intermediates, chemists used benzene (from coal), ammonia (from air and water), and oxygen (from air).

But Du Pont is always looking for new ways of doing things. After the discovery of nylon in 1934, research men immediately began looking for alternative ways of making the two main intermediates—adipic acid and hexamethylenediamine. In 1935, when nylon was still in the laboratory stage and three years before its commercial debut, they started work on the possibility of using furfural in the process.



A. G. Sveinbjornsson, *Ph.D., Organic Chemistry, University of Kansas, 1948, and H. B. Copelin, M. S., Organic Chemistry, Cornell, 1941, studying new furfural derivatives.*

Furfural has been used in the chemical industry for 25 years, but it is little known to the layman. A tan-colored liquid with a faint bitter-almond odor, it is made from a wide variety of agricultural by-products. Among these are corncobs and hulls of cottonseed, oats, rice—all available in practically unlimited quantities from America's farms.



C. R. Dewey, *B. S. Chem., Niagara University, 1941, and J. M. Estes, B.S. Ch.E., University of Missouri, 1937, engaged in production of adiponitrile at the Du Pont Electrochemicals plant in Niagara Falls, New York.*

14 Years of Research and Development

It seems a far cry from corncobs to nylon, and it was. The development from the first small-scale laboratory experiments to the present full-scale plant cost 14 years of time and about five million dollars. But it enabled chemists to produce large quantities of adiponitrile, the compound from which hexamethylenediamine is made, by an economical process which uses natural materials that are in continuous supply.

In the new process, furfural is converted by a series of steps to 1,4-dichlorobutane. The next step explains in part why Du Pont undertook the project in the first place. As producers of cyanides, they had sodium cyanide available for converting the 1,4-dichlorobutane into adiponitrile.

The final product, hexamethylenediamine, is then reacted with adipic acid to make nylon "salt." Still more processing and the salt becomes yarn, and the nylon flake used by the plastics industry.

Opportunities at Du Pont in many scientific fields

This is an excellent example of the interesting work in industrial organic chemistry carried on at Du Pont. It required the technical knowledge and skill of highly trained research and development men, including organic and physical chemists; chemical, mechanical, civil and electrical engineers, and others.

Only a large company with ample resources in men and money could afford to engage in research of such magnitude. To the young college graduate, Du Pont offers the broadest of opportunities in many scientific fields, along with the advantages of working directly with a small group of associates.

Keynote of Du Pont personnel policy is promotion from within on a competitive merit basis. A conscientious effort is made not only to choose college-trained people of promise, but to develop each individual as rapidly as possible.

DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Entertaining, informative—Listen to "Cavalcade of America" Tuesday Nights, NBC Coast to Coast

Continued From Page 15

Wilbur B. Shook, one of the designers of the building.

On display in the memorial foyer were two bound volumes containing the war records of all Rose students and faculty members who saw service in the two world wars. Handsomely bound in full morocco and lettered in gold, the volumes represent the culmination of an effort started two years ago by former president Dr. Donald B. Prentice. More than 500 service records are contained in the volumes. The binding was donated as a memorial to the war services of Rose students by the Moore-Langen Printing and Publishing Company.

Also on display were mounted photographs of students and campus scenes of Rose during the years 1895-1900. The photographs were obtained from the collection of the late Frank A. Whitten of Detroit, class of '98.

At their business meeting Saturday morning, the alumni discussed a plan prepared by a committee consisting of Walter L. Osmer, '20, Herman A. Moench, '29, and Darrell E. Criss, '48, all of Terre Haute, for the grouping of the present Rose Tech clubs into seven geographical areas for the purpose of aligning unorganized alumni. A representative from each area would constitute an alumni board of managers to work in close co-operation with the administration. Rose has distributed through 48 states approximately 2,000 living alumni.

Blazing Fury.

The ladies dinner at the Deming Hotel at 6:30 Saturday evening, was attended by approximately 200 wives of alumni members and Rose Faculty Wives Club members, which group sponsored the dinner. The dinner was held in the ballroom of the hotel.

Final event of the week-end's celebrations was the homecoming dance to the music of Jimmy Holler and his orchestra, sponsored by Blue Key and held in the Mayflower Room of the Terre Haute House. At the dance the trophy offered by Blue Key for the best decorated fraternity house was awarded to Theta Xi for its engineering of a knight versus elephant interpretation of the "beat Canterbury" theme.

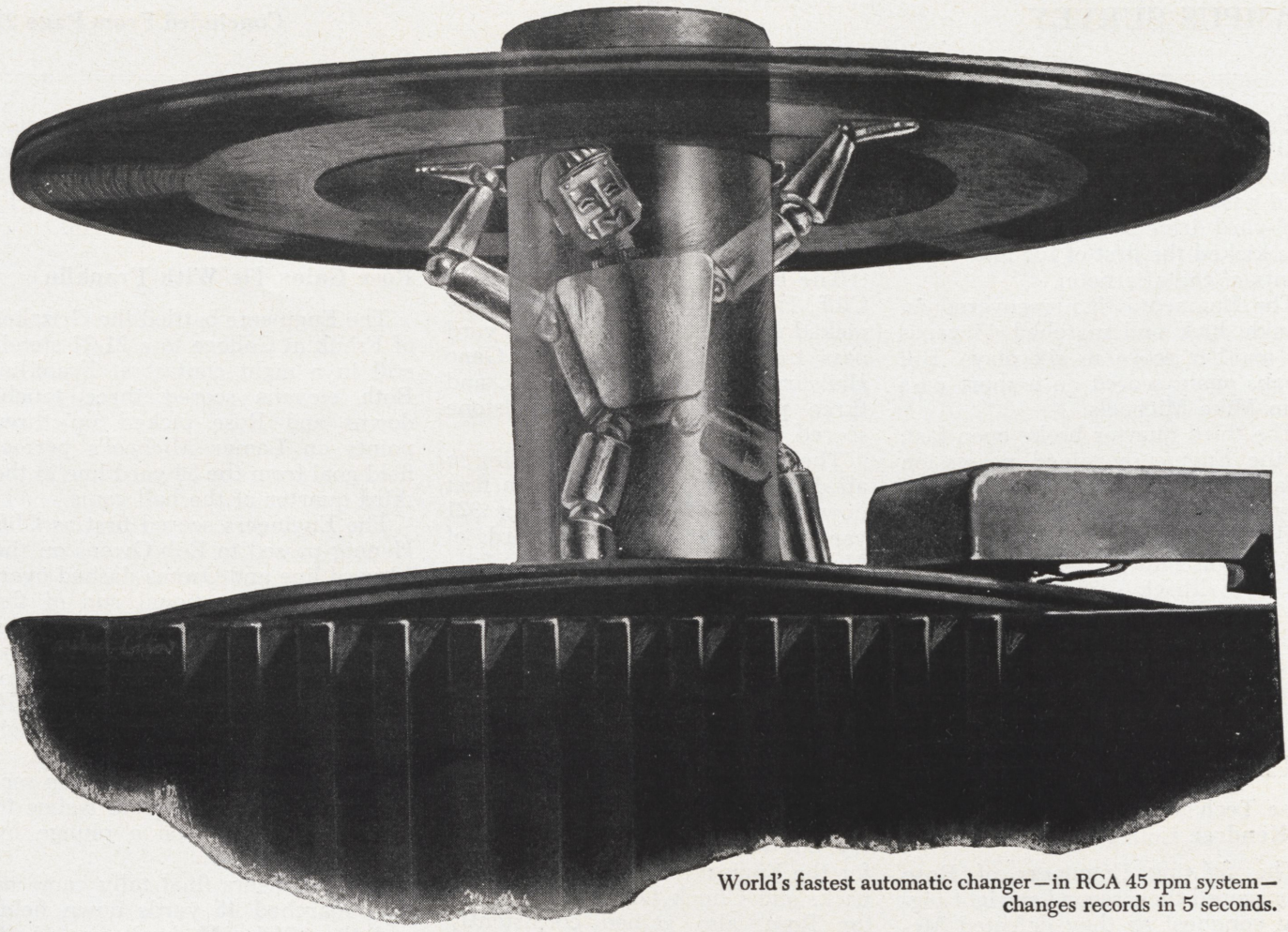
Among the changes noted by the returning alumni was the remodeling now in progress on the old gymnasium. The floor area, abandoned for athletics with the advent of the new gymnasium, is now being arranged to provide an auditorium with a stage, class rooms and offices.

A new outside entrance is being erected, and the rooms are being thoroughly insulated, ventilated, and handsomely decorated. Completion of the work is expected by November 1. The approaches to the field house have been landscaped and provided with sidewalks, and a parking area for visiting cars has been surfaced with cinders. The fieldhouse is completely in use now, a novelty for alumni who found the structure only half functional at homecoming last year.

Rose Tech Nips Indiana Central

The Fighting Engineers scored four quick touchdowns to Indiana Central's one in the first three quarters and upset the Greyhounds in a Hoosier Conference football opener 28 to 26. The Engineers played outstanding ball in all departments and capitalized on three Greyhound fumbles to score their touchdowns.

Concluded On Page 24



World's fastest automatic changer—in RCA 45 rpm system—changes records in 5 seconds.

Quick change artist

Hundreds of thousands are now enjoying RCA's thrilling new way of playing records . . . they marvel at its wonderful tone . . . and the speed with which it changes records.

Prolonged research is behind this achievement, research which sought—for the first time in 70 years of phonograph history—a record and automatic player designed for each other.

Revolutionary is its record-changing principle, with mechanism *inside* the central spindle post on which records are so easily stacked. Result: a *simplified* machine, that automatically changes records in 5 seconds.

Remarkable, too, are the new records—only 6⅞ inches in diameter—yet giving the playing time of conventional 12-inch records. Unbreakable, these compact vinyl plastic discs use only the distortion-free "quality zone". . . for unbelievable beauty of tone.

Value of the *research* behind RCA's 45 rpm system—which was started 11 years ago at RCA Laboratories—is seen in the instant acceptance, by the public, of this better way of playing records. Music lovers may now have *both* the 45 rpm system, and the conventional "78."

* * *

Development of an entirely new record-playing principle is just one of hundreds of ways in which RCA research works for you. Leadership in science and engineering adds value beyond price *to any product of RCA, or RCA Victor.*

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- Advanced development and design of AM and FM broadcast transmitters, R-F induction heating, mobile communications equipment, relay systems.
- Design of component parts such as coils, loudspeakers, capacitors.
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- Design of receiving, power, cathode ray, gas and photo tubes.

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Also many opportunities for Mechanical and Chemical Engineers and Physicists.

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Concluded From Page 22

Co-Captain Bill Weaks, scored the first Rose touchdown on the first play of the second quarter, taking an 18-yard pass from Willard Ham to end a 66-yard drive by Rose. Mike Michaels kicked the first of his four extra points of the afternoon.

The Engineers then recovered an off-side kick and marched 43 yards for another score in six plays. Bill Weaks again scored on a short pass from Mike Michaels.

The third quarter broke open fast, as the Engineers gained possession of a bad Greyhound punt and five plays later big Chuck Olmsted, fullback for Rose, cracked over from the one yard line.

Left halfback Cliff Hennig added the last touchdown for the Engineers as he scored from the one yard line to climax a 61 yard drive by the Engineers. Indiana Central came to life as Bob Wood's passes gave the Greyhounds three quick touchdowns and set up the other Greyhound tally.

Rose Tech Wins Over McKendree College

The fighting Engineers of Rose Poly scored their second straight pigskin conquest as they defeated McKendree College 14 to 6.

The Engineers pushed over early to tally in the first quarter ad scored again in the fourth quarter as the scrappy Rose machine made its initial home appearance of the current season. The Rose drives were sparked by Gene Hailstone and Cliff Hennig, two halfbacks for the Engineers. Hennig scored the first touchdown for Rose as he faked a pass and dashed 18 yards for the score. Mike Michaels kicked his first of two conversions for the day.

McKendree scored their lone touchdown in the third period after they recovered a fumble on the Rose 37, and marched to the Rose 12 yard line, where Nagel passed to Chaney in the end zone for the T.D.

The Engineers final score came as Cliff Hennig and Gene Hailstone picked up first downs, then a 23 yard pass from Mike Michaels to Gene Hailstone set up the final tally, and three plays later, Gene Hailstone scored.

The Engineers were outstanding in all departments, as they led in first downs 20 to 7, while gaining 321 yards on the ground to 123 yards of McKendree.

Canterbury Upsets Rose Poly

The Fighting Engineers were unable to piece together their pigskin machine that afternoon, as Canterbury College defeated Rose 13-0 in the Engineers Homecoming game before 2,000 fans.

Gene Hailstone, frosh halfback for Rose, averaged about five yards each try, but was unable to produce a tally for the Engineers. Cliff Hennig, halfback, and Chuck Olmsted, fullback, for Rose, also gained consistently during the contest, but were unable to score. Mike Michaels, excellent passer saw limited action for Rose, as he sustained a leg injury in the season's opener with Indiana Central.

Bob Owens, frosh right end, playing teriffic ball, caught a 38 yard pass on the Canterbury five and was tackled on the one yard line as the half ended.

Canterbury scored their first tally in the third quarter as La Fon raced 63 yards for a touchdown. The conversion attempt failed and Canterbury led 6-0. Then in the last period La Fon intercepted a Rose pass and lateraled to Courtney who ran 75 yards for a touchdown, and a P.A.T., to give Canterbury a 13-0 win.

Rose Gains Tie With Franklin

The Engineers battled the Grizzlies of Franklin College to a 21-21 standstill in a night contest at Franklin. Both elevens scored three touchdowns and Rose picked up three points on Lamar Michael's perfect field goal from the 30 yard line in the third quarter of the ball game.

The Engineers scored first as Cliff Hennig passed to Bob Owens on the 10 yard line and Owens dashed over.

The most sensational run of the game developed in the second quarter when Gene Hailstone, promising Rose Freshman halfback from Hillsboro, Ill., caught a kick-off on his own 10 yard line and raced 90 yards through the entire Franklin team to score.

Franklin scored a T.D. in the second period on a pass from Kehoe to Ruth and another on a plunge by Platt.

The Engineers final tally came as they marched 45 yards down field, and then Mike Michaels passed 18 yards to Bob Owens, sensational pass receiver, for the touchdown.

Franklin scored their final T.D., as Tranter passed to Platt for 60 yards and a touchdown, to tie the Engineers in the final minutes of the game.

Jim Phillips, Engineer linesman, sustained a slight concussion in the encounter, and will be forced out of action for some time.

Hanover Routs Engineers

The Engineers were unable to stop the Hilltoppers powerhouse, as the Hanover machine rolled to a 62 to 0 score.

Outstanding linemen for the Engineers were Riley McKeen, Bob Owens, Jode Morrow, and Bob Rinker; though none of the lads saw much action as Coach Phil Brown was saving his men for the next week's encounter. The passing of Mike Michaels and the running of Cliff Hennig and Chuck Olmsted proved good, but ineffective against such a power house as Hanover.

The Engineers lacked in all departments of offense, but showed up exceptionally well in the punting department, as Tom Price, Mike Michaels, Bob Owens, and Chuch Olmsted averaged 15 yards per try.

Concluded From Page 17

'09 Fred J. Frisz, president of the Alemite Company of Pittsburgh, Pa., died at Pittsburgh last September 19. After graduation as a mechanical engineer from Rose Mr. Frisz attended the School of Law at Georgetown University, where he received an LL.B. in 1918. He was a member of Knights of Columbus. Surviving are the widow, a daughter, and two sisters.

'11 George T. Christopher, president and general manager of the Packard Corporation ,has announced his retirement from office, effective the first of next year. Mr. Christopher received a B.S. in electrical engineering and has been active in the automotive world.

'20 Walter L. Osmer received a C.L.U. degree from the College of Life Underwriters on Sept. 13. Osmer is the Terre Haute district manager of the Equitable Life Assurance Society. He received a B.S. in civil engineering and a C.E. degree in 1930.

'35 Gordon Burt, B.S. degre in civil engineering with honors, has accepted a position as Sanitary Engineer and Superintendent of the Sewage Department of Portland, Oregon. Formerly he held the position of City Manager of Hayward, California.

'37 Carl R. Wischmeyer has been elected Chairman of the Houston Section of the I.R.E. Mr. Wischmeyer is Assistant Professor of Electrical Engineering at Rice Institute, Houston, Texas. Wischmeyer has a B.S. in electrical engineering from Rose, a Master of Engineering in Electrical Engineering from Yale (1939), and an EE degree from Rice Institute (1942). At Rose he received the Heminway medal and graduated with high honors. He is the proud father of Carl E. Wischmeyer, born several months ago.

'42 David Demaree is now with Lescher & Moahoney, Architects and Engineers, of Phoenix, Arizona.

'43 Howard H. Irvin has been appointed Chief Chemist at Marbon Corporation, Gary, Indiana. Irvin joined that corporation in September of 1943. Until this change he was employed as research chemist.

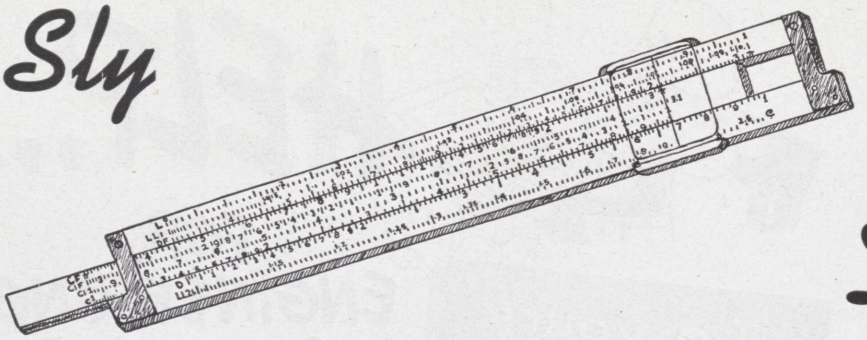
'44 Robert A. Manhart married Miss Betty Jo Ange of Albuquerque, N. M., last July 2. He was graduated from the electrical department at Rose and received an M.S. in electrical engineering from the University of Illinois in 1947. He is now the head of the electronics department for the Research and Development Division for the New Mexico School of Mines at Albuquerque.

'46 Robert and Mary Penno are the parents of a son, **Robert**, born last July 12. He is employed as a test engineer for the Allison Division of GMC at Indianapolis, Indiana.

'48 Victor Forsythe married Miss Sahra Campbell last August. He was graduated from the mechanical department at Rose with a B.S.

Karl Hauser married Miss Eleanor Johnson last July. Karl is now a chemical engineer with the Marquette Cement Corporation.

Sly Droolings



by Denzil Hammond, jr., m.e.

She: "Do you want to stop the car and eat, sweetheart?"
He: "No, pet."

* * * * *

Sad indeed was the plight of the insecticide salesman who returned home unexpectedly one night and found a big louse in his clothes closet.

* * * * *

State Politician: "Hows the sentiment out here?"
Farmer: "Not bad. There were six cars parked in my lane last night."

* * * * *

Once upon a time there was a boy penguin and a girl penguin who met at the equator. After a brief but charming interlude, the boy penguin went to the north pole and the girl penguin went to the south pole. Later a telegram arrived at the north pole, stating simply: 'Come Quickly I am With Byrd.' "

* * * * *

Lives there a man with soul so dead
Who never to himself hath said
To hell with these studies
I'm going to bed.

* * * * *

She: "I'm perfect."
He: "I'm practice."

* * * * *

He (soliciting for charity): "What can I put you down for?"
She: "Sir! How dare you!"

* * * * *

Once upon a time there was a young couple about to be married. She was concentrating on her trousseau and he was concentrating on her torso — and that's why her trousseau got torso.

* * * * *

Mandy: "Ah can't come to work tomorrow, Ma'am. Mah little boy is sick."
Ma'am: "Why, Mandy, I thought you said that you were an old maid?"
Mandy: "Ah is, but ah ain't one of them fussy kind."

An anxious mother was worried about her small daughter. She had noticed her going into the garage and other secluded spots with little boys and decided that it was about time to inform the youngster about the birds and the bees. "Mary, dear," the parent lead off, "I don't want you to go off alone with little boys. Sometimes they do naughty things."

"Oh, I know about that!" Mary interrupted.

"You do," gasped Mama. "Please tell me about it."

"Yes, Mother, but you must promise not to tell Jimmy's mother. You see, Jimmy did it. One day Jimmy asked me to go with him, and we went way off where no one could see, and . . ."

"Yes," the mother gasped again, "and what did he do?"

"Mother, you wouldn't believe it, Jimmy lit a match!"

* * * * *

A seven foot two inch man applied for a job as a life guard.
"Can you swim?" asked the beach manager.
"No," said the big boy, "but I can wade to beat hell!"

* * * * *

Three old men were discussing the ideal way to die. The first aged 75, said he'd like to crash in a car going 80 mph. The second 85 said he'd like to take his finish in a plane going 400 mph. "I've got a better idea," said the third, who was 95. "I'd like to be shot by a jealous husband."

* * * * *

A missionary society member approached Henry.
"We are having a raffle for a poor widow," he said. "Will you buy a ticket?"
"Nope," said Henry. "My wife wouldn't let me keep her if I won."

* * * * *

The difference between amnesia and magnesia is that the fellow with amnesia doesn't know where he is going.

The man had just given his wife a beautiful new skunk coat as a gift.
"I can't see," she mused, "how such a nice coat comes from such a foul smelling beast."
Wearily the man replied: "I don't ask thanks, dear, but I do demand respect."

* * * * *

Students Mother Goose:
Old Doctor Hubbard went to the cupboard
To pour himself a dram
But when he got there
The bottle was bare
"Blankety, blankety damn!"

* * * * *

The brain is a wonderful organ. It starts working the minute you get up and doesn't stop until you get in class.

* * * * *

A timberman on an early spring trip wandered unknowingly into the maple syrup district of Vermont. Taking a stroll in the woods one day, he noted a lot of buckets hanging on the trees. "Gosh a'mighty," he exclaimed in astonishment, "they sure have sanitary dogs around these parts."

* * * * *

My girl friend drinks nothing stronger than pop. But then pop drinks darn near anything.

* * * * *

The plain little old lady who stood beside a male customer at a department store counter was nervous and embarrassed; finally she said: "Please, Miss, I'd like two packages of bath room stationery."

* * * * *

He: "Do you pet with the lights on or off?"
She: "Yes."

* * * * *

Dere goes dat Lindy Jackson with her ten pickaninies. She sho do look repugnant.

Lan sakes alive! Again?

This is a picture of "PING"

It's a picture that gives automotive engineers clear-cut facts on performance—a picture that suggests how photography with its ability to record, its accuracy and its speed, can play important roles in all modern business and industry.

No, this is not the "doodling" of a man on the telephone. Far from it. It's the photographic record of an oscilloscope trace that shows, and times, detonation in a "knocking" engine. It all happens in a few hundred-thousandths of a second—yet photography gets it clearly and accurately as nothing else can.

Oscillograph recording is but one of countless functional uses of photography in bettering products and improving manufacturing methods. High speed "stills" can freeze fast action at just the crucial moment—and the design or operation of a part can be adjusted to best advantage.

And high speed movies can expand a second of action into several minutes so that fast motion can be slowed down for observation—and products be made more dependable, more durable.

Such uses of photography—and many more—can help you improve your product, your tools, your production methods. For every day, functional photography is proving a valuable and important adjunct in more and more modern enterprises.

Eastman Kodak Company, Rochester 4, N. Y.

Functional Photography

. . . is advancing business and industrial technics

Kodak

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Barbara Stanwyck

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A HAL WALLIS PRODUCTION
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Claud Pope

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