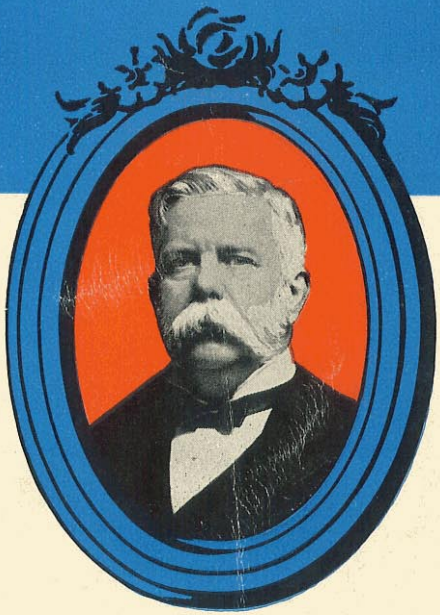


WESTINGHOUSE

Family Day

OCTOBER 19, 1946

EAST PITTSBURGH, TRAFFORD, AND LINHART PLANTS

General Information

Information Booths are located at each entrance and guides are stationed throughout the plant to aid you in finding the production aisles, exhibits and demonstrations. The guides are identified by orange lapel ribbons.

Routes and directions are clearly indicated by arrows to lead you quickly to all points of interest.

In addition to the demonstrations in the production aisles and offices, you will find the following special exhibits to be interesting and spectacular.

PENNSYLVANIA ELECTRIC LOCOMOTIVE
Far Side of Yard opposite P.R.R. Station

JET PROPULSION ENGINE
Under Main Viaduct

DISTRIBUTION APPARATUS DISPLAY TRUCK
South Side of Section "R"

YARD LOCOMOTIVE—RADIO DISPATCHING
Under Main Viaduct

SPECIAL DEMONSTRATIONS
Viaduct Garage

HOME APPLIANCES AND APPARATUS
FROM OTHER WESTINGHOUSE PLANTS
Officials' Garage

HIGH POWER DEMONSTRATIONS
Morning—9:30, 10:30, 11:30
Afternoon—1:30, 2:30, 3:30
A-C High Power Laboratory

ARTIFICIAL LIGHTNING DEMONSTRATIONS
Morning—9:30, 10:30, 11:30
Afternoon—1:30, 2:30, 3:30
Trafford High Voltage Laboratories

To Our Visitors:

Welcome to Westinghouse.

We are very glad that we again can open to you the gates of our great East Pittsburgh plants.

It has been ten years since we have been able to be host to you. In those eventful years there have been many changes and much progress.

We are pleased to have this opportunity to show you where the men and women of Westinghouse work, what they do, and the products they make.

We appreciate your presence with us today and extend to you a warm welcome.

T. I. Phillips

T. I. Phillips,
Vice President

George Westinghouse

Family Day this year comes at a most appropriate time—for this month we celebrate the one hundredth anniversary of the birth of the man who founded this company.

Born on October 6, 1846, George Westinghouse received his first patent in 1865, shortly after his service in the Union Army was concluded with the end of the Civil War. He was then nineteen years of age and he stood at the threshold of a half century of breath-taking industrial advances. During the years to come, the foundations of modern times were to be laid. Railroads were to tie the coasts together with an intricate web of steel, factories were to spring up across the land, and manufactured power was to come to the aid of men's muscles in the production of the nation's goods. During those years the United States was to grow from an infant country to one of the world's strongest powers. In this epoch-making march of events, George Westinghouse was destined to play a leading role—both as an inventor who profoundly interpreted the needs of his times and found ways of meeting them, and as a man of action who knew how to build the things he invented.

His first major contribution, and one of the most important ever made to the railroad industry, was the air brake. At the age of twenty-two, he became president of the Westinghouse Air Brake Company, the first of more than sixty concerns which he headed during his lifetime.

In the 1880's he became interested in the manufacture of power. First he formed the Philadelphia Company for distributing natural gas to Pittsburgh industries. His inventions and leadership in this field made inexpensive fuel available for industrial use. This was a decisive factor in attracting steel industries to Pittsburgh, and it did much to help this city become one of the leading industrial centers of the world.

In 1886, sixty years ago this year, he formed the Westinghouse Electric Company to promote the use of alternating current. The early growth of this company was in the face of strong opposition, and not until 1893, at the Columbian Exposition at Chicago, could Westinghouse demonstrate on a large scale the complete practicality of alternating current for almost every purpose. This was followed shortly afterward by his epoch-making installation of the first waterwheel generators at Niagara Falls, an event that set the pace for power developments all over the world.

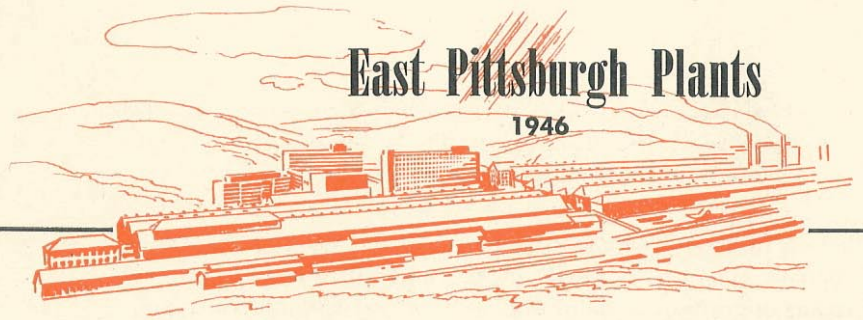
The leadership and inventive ability of Westinghouse was felt in many other revolutionary developments during his lifetime—the first turbine-generators for generating electricity from a central station, the first practical turbine and gear drive for propelling ships, the first main-line electric locomotive.

All of these contributions filled major needs of the nation, and all were so stamped with permanence that today his inventions and the products of his companies are woven into the very texture of our industries, power systems, and modern forms of transportation.

Now, one hundred years after the birth of this great leader, we are again at the threshold of a new age. Another war is over—this time a global war, not a civil war, and we have new destinies to fulfill. We have atomic energy, radar, television, jet propulsion, the gas turbine. And it is no accident that the Westinghouse Electric Corporation is at the forefront of progress in all of these. The same pioneering spirit which led George Westinghouse to great and timely achievements still guides the men and women of the company which he founded. Their future is as full of promise as was his when, as a nineteen-year-old inventor, he stood at the beginning of a half century of progress, gifted with the ability to discover the needs of his times and willing to dedicate his talents to fulfilling them.

East Pittsburgh Plants

1946



The birth of the Westinghouse Electric Company, on January 8, 1886, though modest, was well planned. Eight men, including Mr. Westinghouse, rented a plant site at the corner of Garrison Alley and Fayette Street, Pittsburgh, with a floor space of 20,000 square feet. They hired about 200 employes and announced their intention of manufacturing the generating and distribution apparatus necessary for alternating-current systems, and the motors, lamps, metering equipment, and switchgear required by that system. Thus began the Company which has progressed so naturally and rapidly.

In 1895, the Westinghouse Company moved its operation from the Garrison Alley Shop to East Pittsburgh. As the business grew, even this plant became insufficient to handle the volume and diversification of Westinghouse products, and other plants were built and acquired in various parts of the country. Today, there are 30 modern, completely equipped plants.

However, the East Pittsburgh plant is still the largest, covering an area of 244 acres with more than 5,800,000 square feet of usable floor space and requiring a capacity of more than 180,000 connected horsepower. Here the 27,000 employes are engaged in the manufacture of basic electrical equipment of every sort—17,467 carloads of it in a single year.

The East Pittsburgh plant is the birthplace of products used in the central station industry, including generators, switchboards, switchgear, and supervisory control equipment. Here also is manufactured equipment used for the electrification of industry, including more than 30,000 distinct types and sizes of motors—electronic, manual, semi-automatic and fully-automatic controls—motor-generator sets, mining locomotives.

The transportation industry receives from East Pittsburgh such equipment as motors and control for electric locomotives, street cars, and trolley coaches—Diesel-electric generators, and smaller generators for train lighting and air-conditioning.

Lightning arresters, circuit breakers, regulators, rectifiers, and capacitors are made at East Pittsburgh for the protection, regulation and conversion of electric power.

An adjacent plant in Trafford, Pa., makes Micarta, a Westinghouse-developed material much in demand for insulation and industrial purposes—mica products, treated fabrics, papers, and tapes for the insulation of electrical apparatus.

Trafford is also the location of a modern plant devoted to meeting the printing requirements of the Company and Subsidiaries for printing, stationery, and office supplies.

The Research Laboratories in East Pittsburgh have already been the source of many far-reaching basic developments, which the engineering staff and the unlimited production facilities have carried forward into realm of everyday use.

Among the many achievements of the East Pittsburgh plants will be found America's first large turbine-generator, revolutionizing generation of electricity from coal—the first radio broadcasting station, KDKA—the autovalve lightning arrester and the "De-ion" air circuit breaker—Micarta—induction motor with squirrel-cage winding—automatic substation, eliminating necessity for attendants—individual roll drive for steel mills—power train, mobile generating plant.

Today, you have the opportunity to see the plants, the machinery, and the products, and—above all—you will see that it is the collective skill of our employes that has made Westinghouse outstanding throughout the electrical world.

The following pages of this booklet give brief descriptions of the products and activities of the Divisions and Departments at the East Pittsburgh, Trafford, and Linhart plants.

Transportation and Generator Division

The 4500 employes of the Transportation and Generator Division are engaged in the development, sale, and manufacture of electrical apparatus for use by public utilities, transportation companies, and many other industries. Most of the apparatus is "tailor-made" to meet requirements of specific applications. Modern civilization as we know it would not be possible without equipment such as that produced in this division.

There is an investment of over sixteen million dollars in the machine tools and other manufacturing facilities in this one division.

Electric generators driven by water power, steam turbines, and Diesel engines are major products of the division. They range upward in size to the largest generators man has yet built. In addition to many types of special generators, this division also manufactures synchronous condensers, frequency converters, and induction regulators for the regulation of power and light systems.

Most of the electric power generated is in the form of alternating current for efficient transmission over long distances to the locations where it is used. However, some applications of electric power require direct current. The most efficient apparatus to convert alternating current to direct current is the Ignitron rectifier, a comparatively recent Westinghouse invention. Increased capacity for the production of aluminum, magnesium, and other vitally needed materials has been due largely to the development of this efficient equipment.

After electric power is generated, it must be transmitted and then put to work. Motors transform electrical energy into mechanical energy. This division produces the large motors which propel ships and drive many types of heavy industrial equipment. Motor-generator sets are also produced for various applications. These sets consist of a motor driving one or more generators. They are used to supply direct current, particularly for variable speed drives, and for the generation of high-frequency alternating current used for induction heating of metals.

Since the early days of the transportation industry, Westinghouse has led the way in the application of electric power to drive vehicles. Motors, generators, and control equipment are produced to operate street cars, trolley coaches, electric locomotives, Diesel-electric locomotives, and for many other miscellaneous applications.

The new type of street cars now operating in Pittsburgh and other large cities are powered by Westinghouse apparatus. Equipment for about 300 new street cars will be produced during the last six months of this year. In addition, equipment will also be produced for approximately 200 trolley coaches which are also used in many cities.

During the war years, the manufacture of transportation vehicles for civilian use was strictly limited. This has resulted in a demand which is the greatest in history. New manufacturing equipment is being installed and other facilities rearranged to meet this unprecedented demand.

The Transportation and Generator Division is looking forward to continued expansion, with modern manufacturing facilities, and an organization composed of highly skilled technicians and workmen to meet the needs of the future.

Motor Division

The Motor Division is responsible for the manufacture of alternating-current induction motors, in ratings from 1 to 200 horsepower, although sometimes ratings as large as 450 horsepower are manufactured.

These are the motors which furnish the drive for all present-day industries. The food and grain industry use them for conveyors, grain elevators, and grinding machines—the laundry industry uses them for washers and centrifugal driers—the paper and lumber industry use them—the petroleum industry for pumping and refining equipment—the printing industry for driving presses—the rubber industry for tire machinery and molds—the textile industry for driving looms—in all our shops, machine tools are driven by alternating-current motors of the sizes manufactured in the Motor Division. There are companies manufacturing automobiles who have as many as 200,000 horsepower of motors installed, resulting in as many as 30,000 motors in one automobile factory.

In fact, most of our consumer products today depend upon the output of alternating-current electric motors. Our refrigerators and ranges cannot be made without them. Our automobiles are dependent upon them. Even our little fans, blowers, pumps, and compressors must be driven by motors manufactured by the Motor Division.

The Division also manufactures direct-current motors from 1 to 200 horsepower which are used in the machine tool and metal-working industries, foundries, steel mills, aboard ship, and in many other vital applications.

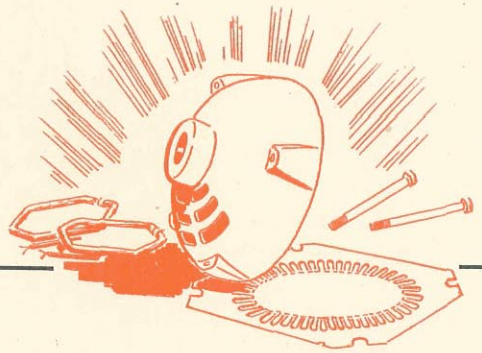
Motor generator sets, involving both a-c and d-c machines up to the 200 horsepower rating are manufactured by this division and are used for changing a-c power into direct current for such applications as battery chargers, special control functions and so forth.

Here also synchronous motors and generators are built, filling primarily the same application, on the motor end, as alternating-current induction motors. The small synchronous generators are used for emergency power plants in hospitals, municipal buildings and airports, and wherever a small amount of a-c current is needed and the main power line is not available.

In addition to the above equipment, the Motor Division is also responsible for the following lines of apparatus—a-c and d-c arc-welding and arc-welding electrodes used in all forms of metal fabrication from the building industry to ship construction and down to the smallest fabricated parts in our individually owned garages—copper-oxide and selenium rectifiers which are also used to change alternating current to direct current—a complete line of resistance-welding controls using electronic equipment also is manufactured by the Motor Division and is used in fabricating automobiles, refrigerators, ranges, airplanes, and other products involving sheetmetal work.

In a new plant at Buffalo, the Motor Division will also manufacture copper wire for the use, not only of the Motor Division, but of all the other Westinghouse divisions.

GARRISON ALLEY SHOP
1896



Feeder Division

The Feeder Division manufactures parts for all other divisions and shops of Westinghouse—for motors, switchboards, and generators at East Pittsburgh; for turbines at South Philadelphia, transformers at Sharon, fractional horsepower motors at Lima, household appliances at Mansfield and East Springfield; for meters at Newark, and elevators at Jersey City; for radio and electronic equipment at Baltimore.

The Trafford Foundry Department includes an iron foundry, a pattern shop, and a power house. The Foundry makes iron castings ranging in weight from several ounces to 190,000 pounds. The Pattern Shop produces wood and metal patterns for the Linhart Foundry and outside steel foundries, as well as for Trafford Foundry. The Power House supplies the electric power, steam, and compressed air for the Trafford area.

The Metal Stampings Department, located approximately one mile from East Pittsburgh, produces a wide variety of sheet steel parts for motors, generators, and other electrical apparatus. Hot press forgings and castings in permanent molds are also produced at this location.

The Screw Machine Department, known as Section "I", supplies a wide variety of small copper, brass, bronze, steel, aluminum, and fibre detail parts for assembly into finished apparatus.

The Plastic Molding Department, known as Section "Z", is a self-contained unit consisting of material compounding, plastic molding, and finishing operations. This department produces thermo-setting and cold molded plastic parts.

Linhart Foundry at Linhart, Pa., is a producer of copper base and aluminum alloy castings for application in turbines, transformers, switching equipment, meters, and rotating electrical apparatus.

Copper rolling, drawing, annealing, and refining are performed at the Copper Mill, located some two miles from the East Pittsburgh plant.

The Wire Insulating Department furnishes insulated wire for the many Westinghouse plants. The insulations may be generally classified as enamels, papers, and textile coverings.

The Plating Department, known as Section "U-1", electroplates metal parts for the assembly divisions. This department applies a wide variety of metallic and non-metallic coatings.

The parade of parts which flowed from these plants of Feeder Division during the war period reveals an imposing list of outstanding achievements. From January 1, 1941 until V-J day, a divisional total of 1,542,000 manufacturing orders were processed and delivered. The Metal Stampings Department consumed 390,000,000 pounds of sheet steel and considerable quantities of copper, brass, aluminum, and bronze sheet material. Forty-four million pounds of round copper wire were purchased for covering in the Wire Insulating Department. The molded items produced in the Plastics Department required the compounding of 18,000,000 pounds of molding mixtures. Over a hundred million pounds of copper bar and rectangular wire were delivered by the Copper Mill. The Linhart Foundry cast and shipped 32,700,000 pounds of copper and aluminum base castings. The Trafford Foundry consumed 177,500,000 pounds of core and molding sand, 92,500,000 pounds of coke, 13,000,000 pounds of limestone, 132,000,000 pounds of pig iron, 31,000,000 pounds of steel scrap, 68,500,000 pounds of commercial iron scrap to produce 235,100,000 pounds of gray iron castings.

The departments of Feeder Division since V-J day in August, 1945, have turned their efforts from war production to the manufacture of parts for peace-time electrical products. During the past three months alone more than $9,000,000 worth of parts have been produced for peace-time apparatus.

Micarta Division

The Micarta Division at Trafford, Pa., is recognized as the largest plant of its kind in the world. The original plant, erected in 1929, had a total working area of ninety thousand square feet; today the floor space approximates two hundred and sixty thousand square feet. With present facilities, including presses up to 3750 tons capacity, more than one million pounds of material can be produced per month. Enough paper and cloth are used in one year to cover twenty-five thousand miles, or a complete turn around the earth at the equator.

Micarta is a Westinghouse trade-name that covers all of the molded products manufactured by the Micarta Division. It is a plastic material using paper, cotton cloth, asbestos, wood or Fiberglas as filler materials. The fillers are impregnated with a fluid synthetic resin that is composed basically of phenol (carbolic acid) and formaldehyde (embalming fluid). These ingredients when properly compounded with other chemicals produce a fluid resin that can be changed to a solid by the application of heat. This change from a liquid to a solid is known as polymerization.

The filler materials, after being impregnated, are partially dried and later cut into sheets, rolled on metal mandrels or chopped into small sizes and molded in steam heated hydraulic presses. Carefully controlled temperatures as high as 350°F. and pressures exceeding one ton per square inch are used.

Micarta products are, pound for pound, as strong as structural steel; yet they weigh only half as much as aluminum. The electrical properties are unsurpassed, and the effects of moisture, acid, and alkalies do not impair its usefulness. Ordinary metal working tools are used to machine Micarta into many useful industrial and decorative applications.

About forty per cent of the products manufactured by the Micarta Division are used by other Divisions of Westinghouse . . . innerdoor liners for refrigerators, molded wheels for electric stairways, controller handles, and bus bar insulation are a few applications.

The balance of the production is sold to outside customers. Applications for Micarta are present in almost every industry imaginable; the modern automobiles use noiseless Micarta timing gears; the rayon in your clothes is produced in acid resisting Micarta spinning buckets; the paper you write on is made possible by wear-resisting Micarta suction box covers and doctor blades; much of the steel you see has been rolled on water-cooled Micarta bearings; table tops and bar counters are covered with eye-appealing decorative Micarta.

The Micarta Division also produces treated papers, cloth, and cable tape for electrical insulation. Much of the base material for insulating varnishes made by the Benolite Corporation (a Westinghouse Subsidiary) is manufactured at Trafford. These products also are sold to outside companies and account for a goodly portion of this Division's business.

Headquarters Manufacturing Division

The personnel and facilities of this division are devoted solely to seeking newer and better ways to build products that add to the comfort, safety and more abundant life of the users of Westinghouse apparatus and appliances.

During the recent war, the personnel of this division, working on drafting boards and in laboratories, helped create many ingenious war products which aided greatly in bringing about more quickly the end of the conflict. These same people are now using the facilities and "know how" to help create more and better peace-time products for all.

Printing and Publications Division

The Printing and Publications Division at Trafford, is engaged in supplying the printing needs for the engineering, manufacture, advertising, and sale of the equipment produced by the Company and its Subsidiaries. Forms for office use and production lines—booklets and folders for Advertising price lists, catalogs, instruction and renewal parts data for salesmen and customers—labels for cartons and shipping containers.

An average of 1500 printing orders are handled per month for quantities ranging from several copies to hundreds of thousands, in sizes ranging from ¼ inch square to large posters in multiple colors, and the number of pages ranging from one to a thousand.

The division is staffed with personnel trained in the Graphic Arts, who are available for consultation in the many printing problems of the divisions, and subsidiaries.

To meet the heavy demands for printed material, the division operates a plant laid out for efficient flow of materials and production, and equipped with modern printing machinery.

The press equipment produces approximately 150,000,000 printed sheets in one year, or 96 carloads of paper. In addition, six tons of various colors of inks are used.

Approximately 60 per cent of the total volume of paper must travel through folders after being printed. The folding operations are performed on machinery having a total capacity of 50,000 pieces per hour.

In the type casting department approximately one ton of metal is cast daily, or about 64,000 average type pages in a year. About 400 tons of type metal are in active use or will be used in the course of a year.

The lithograph department uses 25,000 feet of photographic film each year. This film is developed to an aluminum plate which is then processed for printing. Approximately 12,000 plates (17″ x 22″) are made and printed yearly from which about 16,000,000 printed sheets are produced.

Meter chart paper for meters manufactured at our Newark Works is printed on Rotary and New Era equipment. These machines print in two colors, punch and stamp the hourly time markings in one operation.

The distribution of Westinghouse literature is also the responsibility of the division, where there are 300,000 addressograph stencils comprised of names and addresses of the Westinghouse organization, district offices, subsidiaries, jobbers and important customers. These stencils are kept up-to-date and are used in addressing a total of 3,000,000 pieces of mail each year. A field location of the Trafford U. S. Post Office is located in the plant, where mail is accumulated and delivered daily direct to the trains.

Loose-leaf Catalogs and Price Books are assembled to meet the individual needs of our customers and in accordance with specifications determined by direct contact with the customers by company representatives. Over 13,000 such catalogs are assembled and delivered to customers yearly.

To further assure that printed material, stationery items and office supplies are always available and to take advantage of volume printing purchases, this Division is the central agency through which all requests are placed for such items as pins, pencils, binders, forms, envelopes, letterheads, and similar office supplies. This means that stocks of about 11,000 items must be maintained, and that the 4,500 requisitions received each month must be cleared quickly and correctly.

Another important responsibility of the division is that of maintaining printing standards established for the Company as a whole. Among these are trim sizes, punching, formats, arrangements, methods of reproduction, proper identification and proper distribution.

Factory Service Division

The Factory Service Division consists of the Power Plant, Maintenance, Tools, Forge, Shipping, Plant Transportation, Receiving, Telephone and Works Engineering Departments. All are essential to the functioning of the East Pittsburgh plant.

The Power Plant furnishes electricity, steam, heat, air and drinking water for the East Pittsburgh plant.

The Maintenance Department is responsible for the maintenance of buildings, electrical repairing and installation of new wiring, sheet metal, structural iron work, brick laying, crane repairing, millwrights, riggers, concreting and painting.

The Tool Room manufactures dies, jigs, fixtures, special machines, tools, and performs heat treating operations; also maintains locomotives and the overhauling of machine tools.

In the Experimental Department of the Tool Room, engineers create designs which are executed by the engineer mechanics. In the Gauge Laboratory it is possible to measure within ".000002 (two millionths of an inch). The air is conditioned and filtered, and a room temperature of 68°F. is maintained to assure accurate measurements.

The only production work in Factory Service Division is performed in the Forge Shop where the following parts are manufactured—special bolts, forged bars, rings, gear blanks, slide rails, motor frames, drop forgings, and some heat treating.

The Receiving Department receives all material entering the plant and delivers it to its destination.

The Shipping Department packs all out-going material for domestic and foreign shipping, using special processing for items going to the Navy.

The Plant Transportation Department is responsible for movement of material within the plant and maintains a fleet of auto trucks and passenger cars for transportation between the plants and offices.

The Telephone Department is responsible for the telephone and teletype equipment which handles 500 telegrams per hour and 1,100,000 automatic telephone calls per month.

The Works Engineering Department designs processing equipment, test floors, heating, ventilating, air conditioning, electrical equipment, and any new buildings or changes to old buildings.

Manufacturing & Repair Department

Part of the Headquarters Staff personnel of the Manufacturing & Repair Department are located at East Pittsburgh where material ordering and expediting, engineering data and process specifications, stock inventories, and stock control are coordinated between the M&R plants and the various divisions at East Pittsburgh on repair and manufacturing activities.

At the present time the M&R Department has 34 plants strategically located throughout the country and tooled with specialized equipment for all classes of apparatus repairs, both electrical and mechanical. In addition, 16 of the plants are equipped to fabricate, wire and assemble panelboards, switchgear, and control. Other manufacturing activities include renewal parts, line material, and Micarta fabrication.

Headquarters Engineering Departments

The Headquarters Engineering Departments consist of a number of groups performing different service functions to assist in the engineering, manufacture, and sale of equipment.

The Industry Engineering Department is comprised of engineers who specialize in the application of electrical equipment to the more important industries. These engineers continually study each industry to find better ways and means of applying Westinghouse products to it. This results in new and improved manufacturing methods, better and more uniform products, and the utilization of the latest and most approved electrical products and systems.

The Industry engineers cooperate with all Westinghouse engineering and sales forces in the handling of engineering in the negotiation and sale of Westinghouse equipment.

Consulting engineers are available for consultation on the broader phases of industry applications including power station, transmission line, and transportation problems.

The Laboratory Sections operate the High Power Laboratories and the High Voltage Laboratories, which are equipped with suitable apparatus and personnel to make a large variety of electrical and mechanical tests on new devices developed by the engineers of the divisions. New materials purchased outside or compounded within the Company are also studied.

The Materials and Standards Section prepares and distributes throughout the Westinghouse organization uniform standards and specifications, keeps in close touch with national technical societies, trade associations and government agencies in an effort to keep the Company in line with national standardization. The design and standardization of most of the name plates used throughout the organization are also the responsibilities of this group.

The Liaison Engineers is a small group who keep in close touch with all of the divisions of the Company, with the purpose of assisting them with special problems.

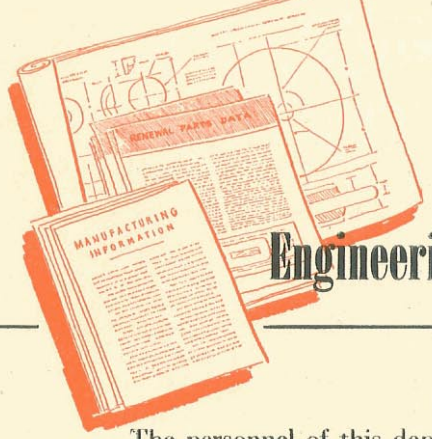
The Foreign Engineering Department supplies manufacturing and technical information on Westinghouse products to foreign associated companies who have entered into license agreements with Westinghouse. Under these agreements, companies in thirteen countries have been granted the right to use Westinghouse design and manufacturing data in the production of certain apparatus. Engineers follow the work done by the foreign companies, discuss their problems, and collect data that will aid them to make better products in an economical way.

The Educational Department is responsible for the recruitment, training and placement of all young college graduates required by the Westinghouse Corporation each year.

This year, to fill the vacancies created during the war years, over 500 young men have been recruited. Most of them are veterans who served in the military forces immediately upon graduation from college. Since most of these young men require further training before permanent assignment, they are placed on the Graduate Student Training Course for about a year. Graduates of this course now occupy many of the key positions throughout the Westinghouse Corporation.

In cooperation with several universities, Westinghouse employes at 18 company locations are offered a program of Graduate Study leading to Master of Science and Doctor of Philosophy degrees. To date 111 men have earned a Master of Science degree and 8 have earned a Doctor of Philosophy degree.

This Department also administers an extensive program of college scholarships and fellowships in Science and Engineering which are open to outstanding high school seniors and college students. Each year over 150 talented young men and women attend college with the aid of Westinghouse scholarships and fellowships ranging in value from $100 to $2400.



Engineering Service Department

The personnel of this department, numbering about five hundred, handles the clerical and semi-technical activities largely common to all divisions and departments at East Pittsburgh. The department is sectionalized and grouped in close proximity to the divisions they serve.

The Manufacturing Information Sections detail manufacturing information in the form of requisitions for approximately 100,000 shop orders yearly, calling for complete apparatus manufactured here. The requisitions are prepared in a manner so as to eliminate any further transcribing in the factory. Through the use of duplicating machines, time cards, diary records, cost records, identification and inspection tags, etc., are produced mechanically.

In the Renewal Parts Order Sections, about 240,000 orders for renewal parts are interpreted yearly. Some of the orders are partially or completely shipped from stock, others require the preparation of information to facilitate manufacture.

The Renewal Parts Data Section prepares Renewal Parts Data, listing the identification of all wearing and burning parts that will be required by various customers to maintain their apparatus and equipment in perfect running order. This data facilitates the work of customers' maintenance engineers in stocking required parts to avoid shutdown of apparatus.

Prints of all drawings, required by the departments, district offices and customers are furnished by the Reproduction Section. Here are made various kinds of prints; such as, brown prints, black and white prints, blue prints, photo copy prints, photostats, and complete reproduction of drawings on tracing cloth. From fifteen to seventeen thousand prints are made daily and approximately twelve million square feet of various kinds of papers are used yearly. About two million drawings are filed in this section.

The Mailing Section handles daily about 100,000 pieces of U. S. and Internal Mail, requiring accurate checking, sorting and distribution to the Post Office and all divisions and departments at East Pittsburgh.

Several hundred thousand semi-active general order and negotiation folders used by the Sales, Order Service, Accounting, Invoice and Shipping Departments are contained in the General File Section.

The Photographic Section has photographers available to photograph apparatus and portraits for the divisions and departments at East Pittsburgh. Thousands of negatives are indexed and located in a Fireproof Vault from which twelve to fifteen thousand prints are supplied monthly.

In the Document Vault Section are filed hundreds of thousands of shop orders, design, electrical and test specifications. These documents are required for reference by Design Engineers, Manufacturing Information Clerks and Renewal Parts Interpreters.

The Budget and Record Section computes all incentive records, determines budget allowances for work handled, and distributes the expense to those having received service. All identifying numbers used by the Company and type letters for all kinds of apparatus are assigned by this section.

Materials Engineering Department

The Materials Engineering Department is a development, consulting and service group directly concerned with the development, inspection, application and processing of such materials as paper and textiles, wire and cable, paints, chemicals, plastics, ferrous and non-ferrous metals.

In addition, Standards data are prepared; such as Process Specifications, P.D. Specifications, Material cards and Standards sheets correlating processes and material data.

Research Laboratories

The equipment you see in the aisles, whether it is a small one horsepower motor or a colossal water wheel generator capable of producing thousands of kilowatts of energy, all give evidence of the work done at the Westinghouse Research Laboratories. The magnetic iron, the copper conductors, the insulation between laminations and on the copper wire, came from the unspectacular test tube of the Research chemist.

Motors and generators are "old stuff" in the Westinghouse organization but the need to make better motors and generators in this competitive age is a life and death matter to the Company. The marks of a progressive organization are to have products which are the leaders in the field. To stay out in the front with improved products and new developments, the Westinghouse Electric Corporation has the Research Laboratories located 'on the hill' above Ardmore Boulevard.

Westinghouse makes more equipment than motors and generators. Thousands of the products come under headings of turbines, switchgear, circuit breakers, transformers, rectifiers, electron tubes, light bulbs, electric furnaces, etc. In each of these fields the product is backed by development of the Research Laboratories.

While much of the Laboratories' work is development and trouble shooting, there is considerable pure research going on at all times. This latter type of research mainly results in finding new knowledge. Each department of the Research Laboratories is headed up by a leading scientist in that particular field. Many of these scientists are internationally famous.

The Laboratory staff has about 400 members on its roll; about half are research scientists while the remainder is composed of laboratory aides and assistants, technicians, draftsmen, machinists, electricians, carpenters, and stenographic help.

The war period saw the Research Laboratories actively participating in the scientific aspect of the struggle. The more spectacular projects were radar, stabilized tank guns and atomic energy.

With the advent of peace, the emphasis on the ultimate usefulness of the projects has shifted. Radar guides ships safely in fog or night; principles used in stabilizing guns are being tried in autos and railroad cars; and the possibility of using atomic energy for electrical production is being studied.

The production at Research is not in pounds, or tons, or dollars and cents per day; the production is information. This information, often new but sometimes old, flows to the various departments of the Company where it is put to work.

Patent Department

The headquarters of the Patent Department are at East Pittsburgh, with additional personnel located at the Bloomfield and South Philadelphia Plants, and in Washington, D.C.

The Department concerns itself with all matters relating to patents, designs, trade-marks and copyrights, whether domestic or foreign. It bridges the gap between the actual development and design engineering work and the securing and conserving of *legal title* to the results of such work. Actually, our patent attorneys integrate the functions of the inventor-engineer, commercial man and lawyer with the ordinary duties of a patent attorney.

Industry Sales Department

All of the Industry Sales Departments are located in East Pittsburgh, and consist of Industrial, Central Station, Marine & Aviation, Transportation, Agency & Specialties, and Market Development.

These departments are in reality headquarters sales departments set up to handle negotiations and overall sales plans and programs on a customer classification basis.

The Market Development Department studies and recommends to our headquarters sales, district sales, and manufacturing division sales the importance of various markets for the products they are most interested in.

District Engineering and Service Department

East Pittsburgh is the headquarters of this department, which has the responsibility of seeing that Westinghouse apparatus is properly applied, installed and repaired.

This engineering service to customers is rendered any hour of the day or night, by approximately 800 engineers from 44 strategic locations in the United States. These engineers travel by every conceivable means of transportation (from the most modern airliner to pack mules) to remote points of the world.

Through daily contacts with customers in every industry, these men encounter all types of operating conditions and requirements, information on which is of assistance to our design and manufacturing engineers in making apparatus changes and in planning new developments to meet the needs of industry.

Accounting Departments

The responsibilities of these departments include verification, recording and paying all financial obligations of the Corporation; issuing invoices for goods shipped and services rendered; collecting and banking all payments to the Corporation; preparation of statements concerning the Corporation's financial affairs, assets and liabilities; verification of all property owned by the Corporation; supervision of forecasting and budgeting; supervision of all office methods and procedures.

Coordinating with the physical receiving and checking incoming shipments of materials and other commodities, the suppliers' invoices are processed for payment. Incoming transportation is accounted for, and claims are adjusted.

Computing and disbursing payrolls is the largest single clerical activity in our accounting system. Approximately 280 clerks are required to process time reports, compute pays and prepare payroll and pay checks of 20,000 hourly employes and approximately 7000 salary employes.

Upon advice of delivery of finished goods and other commodities by the Production and Shipping Departments, charges are prepared to the receivers of such shipments. For shipments among Westinghouse Divisions, interplant billings are made. For shipments to our customers, invoices are issued, entries made in our accounts receivable, collections made and deposited in the bank in the name of our Corporation.

Budgets for costs are prepared by the Accounting Department, in collaboration with all other activities; sales, engineering, manufacturing, production, time study, etc. Forecasting of operating results is accomplished by using management's forecast of probable future sales, and applying appropriately the budgets for costs for these sales.

Purchasing Department

The Purchasing Department is responsible for the purchase of all capital goods, production materials and maintenance, repair and operating supplies—over 25 per cent of the value of the Westinghouse sales dollar is represented by the cost of purchased material. At East Pittsburgh from five hundred to one thousand purchase orders are placed each day while twice that number of suppliers' invoices, aggregating in value more than a million dollars per week, must be approved and passed for payment.

Negotiations are conducted with the various possible sources of supply and after all bids have been received the order is placed, taking into consideration the four fundamentals of good purchasing—price, quality, delivery, and service.

After placement, each order is checked to make certain that it is acknowledged promptly and that the supplier agrees to deliver specified quantities of material of the right kind, at the right price and at the right time. If these requirements are met, the final steps are to establish that shipment is made as promised and that the actual invoice price agrees with that originally negotiated.

Since many of our suppliers are also our customers, purchasing must be so conducted as to enhance the reputation Westinghouse has for friendliness and fair dealing.

General Contract Department

The General Contract Department is a headquarters focal point for the overall Company's activities in the handling of orders and contracts.

The General Order Manual published and kept up to date by the Department is the Company's text book of order handling procedure.

A major responsibility of the Department is the coordination of shipping schedules for large orders which involve apparatus built by two or more divisions. For example, when we supply complicated equipment, consisting of various lines of apparatus, to a steel mill, it is important that shipments reach the customer at the time and in the order of sequence that he requires for a construction schedule. Orders falling in such categories are headed up by this Department, tieing in closely with all of the manufacturing divisions involved.

This Department serves as a clearing house in the preparation of sales contracts for executive signature, and in providing for contract surety bonds. It also acts in a consulting capacity to the Sales Department and to the divisions on contract details.

Toward the close of the war large numbers of orders were cancelled, imposing the tremendous problem of settlement of termination claims. A Termination Section of this Department has served as a clearing house to assist the manufacturing divisions in the details of settlement.

Industrial Relations Department

The major function of the Industrial Relations Department is that of maintaining harmonious relations among our Westinghouse employes and assuring each employe the opportunity of becoming and remaining a satisfactory and satisfied employe.

This Department handles such matters as Employment, Information and Service, Safety, Training, Suggestions, Library facilities, dealings with the employes' labor representatives and the Visitors Service Bureau. In addition, it is responsible for employes' athletic activities and all arrangements for such specific activities as this "Family Day".

There are two employment offices, one for taking care of all applicants for office or salaried positions, another for all applicants for shop or hourly paid positions. Here it is determined whether applicants have the necessary experience or abilities required to do the job for which they are applying and whether the applicant is likely to be a desirable employe. Applicants are also supplied with information concerning the job, the rate of pay, and the Company itself. When an applicant becomes an employe, he is provided with information concerning such items as Safety, Rules and Regulations and the benefit plans provided for each employe by the Company.

The Employe Information and Service Office covers an extremely wide variety of services to our employes which are usually of direct personal interest to them. It acts as a clearing house on all matters relating to Insurance Policies and Benefits, Hospitalization, visitations to the homes of deceased employes, Annuities, Retirement Records, employes needing special assistance, emergency loans, and many others. This activity also includes our libraries which provide reading material of an educational nature, and circulates books and magazines to all plants. About 4000 volumes are added annually to the many thousands already available to our employes.

The centralized handling of all suggestions submitted by our employes through the Suggestion System is also included in the activities of this department. Employes receive cash awards for ideas that they suggest on improvements in working conditions or methods of doing work. During the past eight years, 1938 to 1945, a total of 50,176 suggestions have been submitted, of which about 44 per cent have been accepted. For these suggestions, the Company has paid our employes a total of $222,270. Individual awards have ranged from a minimum of $2.50 to $2,586.50 for a single suggestion.

Another important function of the Industrial Relations Department is that of meeting with the labor representatives of our employes for the purpose of developing labor agreements or handling specific problems involving one or more of our employes. In this manner, common understandings are arrived at and all employes are assured uniform treatment.

Relief Department

The Relief Department is an employes' organization which has been in existence since 1907.

Its function is to provide income to members during periods of disability due to sickness or injury off duty. Benefits are payable from members' contributions. The Corporation contributes an amount necessary to defray expense of administration of the department.

The department is governed by an Advisory Committee; one-half of the members of which are elected by the membership every three years, and the other half appointed every three years by the Chairman of the Advisory Committee. Either the President of the Corporation or a vice president appointed by him is the Chairman of the Association.

Medical Department

A staff of nine physicians and fifteen registered nurses furnishes medical service to the employes of the East Pittsburgh Divisions.

Five fully equipped dispensaries are maintained to provide medical treatment to employes who receive injuries or who become ill while at work. Service at the Central and Trafford dispensaries is available twenty-four hours a day, six days a week. Over 13,000 visits were made by employes to our medical dispensaries during the month of August, 1946.

All new employes are given a physical examination and assigned work within their physical capabilities. Many employes receive annual physical examinations for their own safety as well as for the safety of those working with them.

In the Industrial Hygiene Laboratory at East Pittsburgh, a group of specially trained industrial hygiene engineers and chemists study new medical materials and processes; also, they study working environments in relation to the health of workers.

Health education pamphlets are distributed to all employes at intervals during the year.

The approval of payments for Workmen's Compensation and Relief benefits, as well as the processing of all claims under the Group Hospitalization plan, is carried on by the clerical division of the Medical Department.

Labor Affiliations

Local 601, U. E. R. M. W. A., affiliated with the C. I. O., was certified by the National Labor Relations Board in 1937 as the sole bargaining agent for all hourly paid employes of the Westinghouse Electric Corporation at its East Pittsburgh plant (including plants in East Pittsburgh, Trafford, Homewood Service Works, Linhart and Copper Mill), including all tool designers, machine tool designers, telephone maintenance employes, and junior and senior order clerks in the Shipping Department whether paid by salary or by the hour, but excluding supervisory employes.

The Association of Westinghouse Salaried Employes, affiliated with the Federation of Westinghouse Independent Unions, was certified by the National Labor Relations Board in 1940 as the exclusive representative for the purpose of collective bargaining for the following unit:

"The salaried employes of Westinghouse Electric Corporation at its East Pittsburgh Unit, excluding supervisory employes" and excluding "all tool designers, machine tool designers, telephone maintenance employes, and junior and senior order clerks in the Shipping Department".

"I want every man who works for the Company to understand that I look upon him as a part of our organization, and not as a mere mechanical time server. His interests are ours, and ours are his."

—GEORGE WESTINGHOUSE

WESTINGHOUSE ELECTRIC CORPORATION