

SERVICE
AN RCA FAMILY PUBLICATION



(The RCA Electron Microscope)

APRIL, 1961



RCA SERVICE COMPANY



SERVICE

Vol. 17

No. 2

April, 1961

Published for the employes of the RCA Service Company—a division of the Radio Corporation of America—with home offices at Cherry Hill, Del. Twp., New Jersey

Editor
J. GRUBE

Personnel Dept., Bldg. 201-1
Cherry Hill, Del. Twp., Camden 8, N. J.

The Cover

Installation and Service Specialist A. P. (Jack) Vees, Technical Products Service, checks the RCA Electron Microscope at the Franklin Institute, Philadelphia.

This precision instrument (Type EMU-3) is invaluable in all types of research and control work requiring magnifications beyond the limits of the light microscope. Its basic range is from 700X to 50,000X (times) and, with the addition of high magnification accessories, the range may be extended to 200,000X.

Its application in industry and science is almost unlimited. See page 9.

Safety is . . .

No accident . . .

For "the operation of 2,409,155 man-hours without a disabling accident . . . July 21, 1960-December 29, 1960," the BMEWS Service Project recently and pridefully accepted an Award of Merit from the National Safety Council.

The Project's commendable reduction in lost-time accidents was achieved through its careful administration of the BMEWS Accident Prevention Program at Sites I, II and III; at NORAD and SAC locations and at all stateside locations.

Safety program supervisors at these locations were warmly congratulated on their vigilant adherence to the principles of accident prevention, and their ability to cope with tight schedules and unusual technical difficulties without sacrificing their high standards of employe safety.

Credit was given, too, to BMEWS Service Project employes for their cooperation in adopting recommended safe working practices.

No foolishness . . .

A Consumer Products Service tech is getting scant sympathy for his cut, bruised and strained right hand. He tried to get his truck off a strip of ice by placing a rag under the spinning wheels, violating every safety precaution he ever knew. Worse, had he been successful, the truck would have run down the road without a driver. The tech admits himself to be both careless and foolish (*after* the accident).

No chances . . .

The two-lane highway was straight, level and dry, the weather clear, the night dark. The tractor-trailer driver stated that the car approaching him, close to the center line, drifted toward the other side of the road, then made a sharp turn into him. The police concluded that the car's driver dozed, drifted off the roadway onto the gravel shoulder, possibly came awake, tried to correct his vehicle but lost control. He was DOA at the hospital . . . a Government Services Manager, more than missed by his wife and two children; but also missed by his many Service Company friends.

Corporate Affairs

For Outstanding Achievement

To Dwight O. North, Fellow of the Technical Staff, RCA Laboratories, Princeton, the 1961 David Sarnoff Outstanding Achievement Award in Science "for insight in interpreting the role of the theorist at RCA Laboratories and for resourcefulness in translating theory into practical results."

To J. Wayne Porter, Systems Engineer, BMEWS, RCA Missile and Surface Radar Division, Moorestown, the David Sarnoff Award in Engineering "for development and implementation of the means by which the BMEWS discriminates between missiles and other space objects."

To Harold B. Law and Edward G. Ramberg, RCA Laboratories, Princeton, the David Sarnoff Team Award in Science for basic contributions to the science of electron optics.

To Messrs. Dinman, Cashen, Hendrie, Rummell and Honens, RCA Industrial Computer Systems Department, Natick Mass., the David Sarnoff Team Award in Engineering for the application of advanced system concepts and practical engineering to the successful design of the RCA 110 industrial control computer.

Scholarship

RCA has established a scholarship at the University of Alaska, providing a grant of \$800 during the academic year to an outstanding student in mathematics, physics, chemistry or engineering science. The new scholarship is the first to be established by a major electronics company at the world's farthest north university.

Broadcasting

RCA Victor Company, Ltd., Canadian subsidiary of RCA, is building and will install the most powerful low-band TV transmitter in North America, for the Canadian Broadcasting Corporation's new station CBXT-TV, in Edmonton.

The new transmitter will be capable of broadcasting with an effective radiated power of 318 kilowatts, which is

almost double that of any low-band station in Canada and three times as powerful as any in the United States.

The high-power output is achieved by a special super-grain antenna designed by RCAV engineers.

Computers

Basic circuitry operating at speeds approaching that of light has been devised by RCA as the first big step toward an ultra swift electronic computer for the U. S. Navy.

The new circuitry can do its job 100 times faster than the circuits in most data processors now in use, which means electronic action can take place at a pace approximating 186,300 miles per second.

Transponders

United Air Lines has ordered fifty-one air traffic control transponders from RCA, for installation on its fleet of Caravelle jets due to enter service this summer, and on its Boeing 720 jetliners scheduled for delivery in 1962.

United is the first purchase of the RCA transponder by a major domestic

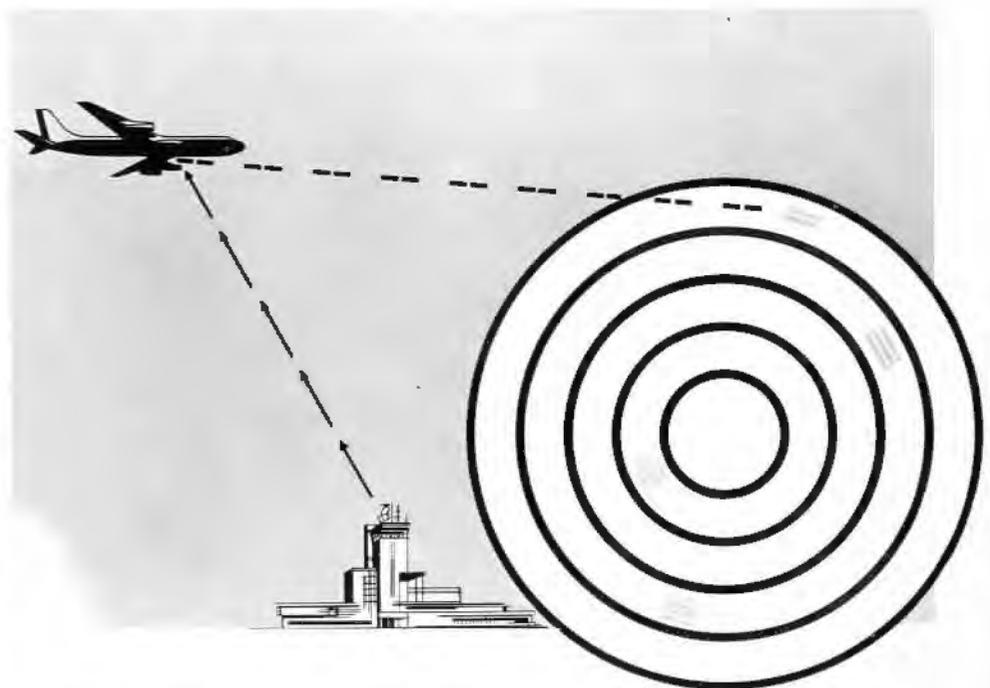
airline. The device is being used overseas, however, and RCA has delivered units to foreign airlines.

Federal Aviation Agency regulations require the use of transponders on all aircraft operating above 24,000 feet. Current transponders automatically report aircraft range and direction, while the new RCA transponders are designed for later addition of the altitude factor.

In use aboard an aircraft, the transponder is triggered by the air traffic radar on the ground. The reply from the transponder appears on the controller's radar screen in code form, providing him with instant identification of each aircraft equipped with such a device.

Because the transponder transmits its own signal, as contrasted with a conventional radar beam which is reflected by the aircraft, the net result is a substantial increase in the range of air control radar on the ground.

This means that planes using such equipment can be detected and identified at greater distances and the handling of aircraft preparing to land can be expedited, particularly in areas of heavy traffic.



AIR TRAFFIC CONTROL TRANSPONDER . . . positive, instant, and automatic

Government Services

FIELD OPERATIONS

Rally. Forty Government Services Field Operations Managers met at Cherry Hill early in March for a fact-loaded three-day program on projected field operations for the year 1961; received, as well, a run-down on composite Service Company plans and those of associated RCA divisions.

As a group, they represented the Facilities at Los Angeles, Dayton, Westmont, Riverton, Tucson, Alexandria; the SAGE Powerhouse Operations; the Air Defense Command; the Strategic Air Command.

Also BuShips East and West Coast; the Navy Aviation Engineering Service Unit; the Redstone Training Instructors and Redstone Pictorial Services; the U. S. Naval Ordnance Test Station; Bell Labs Services; Reliability & Technical Support; Tech Publications; Training Devices; Federal Aviation Agency-West; and the Western, Southwestern and Eastern Army Areas.

Tally. Division Vice President J. F. Murray, Field Operations, called upon Service Company management en masse for instructive discourses beginning, in the opening session, with President A. L. Conrad who discussed recent RCA and RCA Service Company developments. He was followed by Treasurer E. H. Griffiths (a finan-

cial review), Mr. Murray (the organization), and Division Vice Presidents D. R. Creato (the law and Government Services) and S. D. Heller (Government Services).

Beyond the normal schedule of speakers drawn from Government Services management proper, the field representatives were given an unusual indoctrination in Defense Electronic Products by speakers from Camden, Moorestown and Hightstown—on the DEP organization, its product, its activities in Airborne Systems, Missile and Surface Radar, Surface Communications, and Astro-Electronics.

Unique, too, was the morning-long presentation by the Electronic Data Processing Division, with emphatic talks on the future, goals, and technical aspects of EDP and EDP Government Marketing, climaxed by a demonstration of the 501 System.

The BMEWS and MTP Service projects were covered by slide film. Division Vice President Zaun brought the group up-to-date on New Projects. Nuclear Engr. Services Manager Charles Pearce reviewed the Nuclear and Scientific Services, and T. J. Tully, Manager of Administrative Controls & Systems, spoke on the Alaskan "White Alice" project.

The Pictures. Above, Mr. Murray (center) chats with (l. to r.) Managers



Home Office and Field get together . . .

Tom Whitney (Field Engr. Operations), Bob Fleisher (Special Contracts, Air Force), John Boulton (Field-ADC), Chuck Basney (Air Force Services), Bill Brackett (Navy Services), Jim Jackson (Tech Publications).

Below, at left (l. to r.) Field Operations Managers O'Donnell, Miller, McNutt, Masters, Thomas, Smith, Sauret, Whalen, Whitney, Ward, Vreeland.

At right (l. to r.) Davis, Edwards, Langevin, Kruschka, Jackson, Ingram, Sauer, Rielly, Russell, O'Neill, Skiba, Siddall, Turner.

Standing (l. to r.) Campbell, Archer (Marketing), Mr. Murray, Raser (Administration), Connors, Fleisher, Green, Cafaro, Shawn (Marketing), Conrey, Basney, Couturie, Boulton, Borth, Brackett, Hart (Personnel).



At the GOVERNMENT SERVICES FIELD OPERATIONS Managers' Meeting for the year 1961

Missile Range Programs

Edwin A. Speakman, Division Vice President of Missile Range Programs, believes that a new era in missiles and satellites is just beginning, and that Government Services, through its successes on the Missile Test Project, is in a good position to contribute materially to the future programs.

"The gigantic Atlas and Titan missiles," he said, "will eventually give way to a new family of weapons as keepers of the peace—cheap to build, easy to move, handle, hide and protect."



MR. SPEAKMAN . . . "a new family of weapons" . . .

"While the Minuteman and the Polaris hold promise of attaining some of these objectives by the use of solid fuels, hardened bases, and submarine launchings, it is noteworthy that these weapons and others to come will require major improvement in equipment, service, and reliability."

To illustrate how rapidly the missile and space age is growing, Mr. Speakman pointed out that by 1965 an estimated 300 satellites will be in orbit, all equipped with sensors to detect unique phenomena and saturate the radio spectrum with transmissions to and from range stations scattered around the earth.

If Government Services is to continue its growth in future space programs, Mr. Speakman said, it must concentrate its effort on "performance at lower cost, expand existing programs by providing improved services, and promote new business in areas which have optimum profit potential."

Mr. Speakman came to Service Company in September, 1960. Previ-

ously he had been Vice President of the Fairchild Engine and Airplane Corporation and for five years was General Manager of Fairchild's Guided Missiles Division.

In 1940, Mr. Speakman was Assistant Superintendent of the Radio Division, Naval Research Laboratory in Washington, D. C., and in 1945 became head of the Laboratory's Electronic Countermeasures Branch.

He joined the Research and Development Board of the Department of Defense in 1949 as Executive Director of Electronics, and in 1950 was made Vice Chairman of the Board with responsibility to coordinate military research in electronics, guided missiles, aeronautics and atomic energy.

New Projects Training

New Projects Training Services group has been active at the RCA manufacturing plant in Cambridge, Ohio, which was recently converted to military equipment production and is in use by the Surface Communications Division.

Currently a program on the Flight Control Group AN/GKA-5 is well established by Training Services personnel at Cambridge, and a new program has been introduced on the RCA-produced hardware for the Minuteman WS-133A Weapon System; the latter for assemblers, testers, troubleshooters, and quality control personnel.

Also for SurfCom Division, which has the development contract for the TSEC/KW-7 cryptographic equipment with the National Security Agency, New Projects Training Services taught an eight-week maintenance course at Cherry Hill to representatives of the U. S. Army, Air Force, Navy, Marine Corps and National Security Agency.

At Redstone Arsenal

For Division Vice Presidents S. D. Heller and J. F. Murray, Jr., the highlight of their trip to Huntsville, Alabama, was a conducted tour of the George C. Marshall Space Flight Center and the Central Control Building and test stand of the mighty Saturn missile.

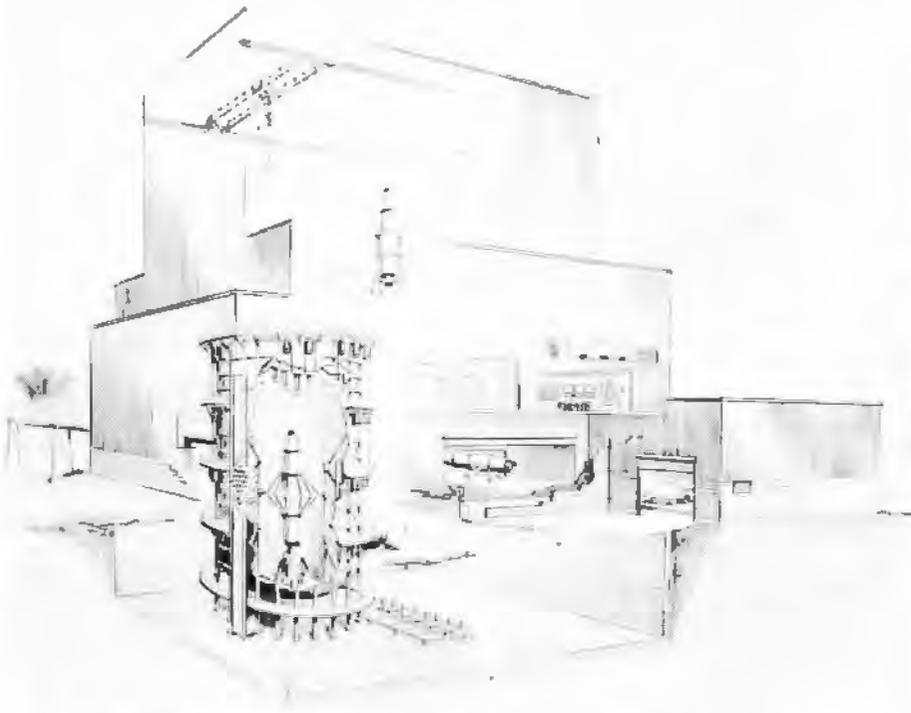
The Saturo, a cluster of Jupiter missiles, will eventually be transported from its inland home—possibly by barge down the Mississippi River—to the launching pads of Cape Canaveral.

The Vice Presidents visited Jim Glenn, Manager, Redstone Pictorial Services, and E. M. Thomas, Manager of the group who has been providing training services to the U. S. Army at Redstone Arsenal since May of 1952.

These training services have been provided in the fields of surface-to-air and surface-to-surface guided missiles, including the Nike, Ajax, Hercules, Corporals 1 and 2, Hawk, LaCrosse, and Terrier missile programs.



MR. MURRAY AND MR. HELLER with NASA's Mr. Beachboard (center) in the Control Center at Redstone Arsenal



PRELIMINARY SKETCH of the Mark I Aerospace Simulator and Building

N & S Services

Of Service Company's many diverse activities, one of the most remarkable is the Nuclear and Scientific Services organization, whose concern ranges from the amount of radiation absorbed by the patient in the dental chair to the design of an eight-story high space environmental test facility.

Comprised of physicists, graduate engineers and technical specialists with valuable experience in the nuclear and high vacuum field, the group has conducted a number of programs in nuclear instrumentation, reactor installation, systems engineering, radiation measurement, instrument calibration, equipment maintenance, and personnel training.

Harry Reese, Jr., is their Manager. A former development engineer at the Oak Ridge National Laboratory, he designed and developed special instrumentation for high voltage accelerators and for the Aircraft Reactor Experiment. He also, prior to his Service Company association, was Assistant Manager at Curtiss-Wright's Nuclear Power Department.

At Tullahoma, Tennessee. In the USAF program to increase capability in the testing of satellites and space craft, Nuclear and Scientific Services

was given full management responsibility for the establishment of design criteria and the system design of the Mark I Aerospace Environmental Chamber, at the Arnold Engineering and Development Center, Tullahoma, Tennessee.

This space simulator is designed to test full scale satellites on the ground, under controlled conditions which are very close to those found in space. In this way it is possible to obtain information which cannot be secured from satellites in orbit.

The chamber has a clear test volume 35 feet in diameter by 65 feet high, and can simulate outer space conditions up to 300 miles.

To maintain the high vacuum present at these altitudes, the system design includes a combination of pumps capable of evacuating gases at the rate of two million cubic feet per minute. In addition, the Mark I will simulate rocket vibration, low temperatures encountered in outer space, and solar radiations. Walls of the chamber will be designed to maintain temperatures at minus 330° fahrenheit.

At Princeton, New Jersey. Another major N & S Services responsibility is the installation of RCA equipment in the model C-Stellarator at Prince-

ton University's James Forrestal Research Center.

The C-Stellarator research facility will enable scientists to experiment in developing power by nuclear fusion. Super high vacuums of 10^{-10} millimeters of mercury, and temperatures approaching 100 million degrees centigrade will be attempted.

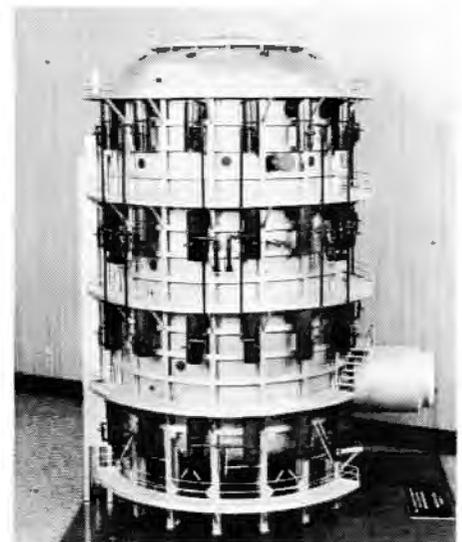
Radiation and Instrumentation Services. Both the medical world and industry benefit from nuclear service surveys covering the performance of X-ray emitting equipment.

Doctors and dentists and other professional men using radiological equipment are issued certificates after surveys, if their equipment is operating within the radiation level prescribed by the United States National Bureau of Standards.

RCA's "Film Badge" service and health physics programs protect personnel from the hazards of radioactivity and X-ray radiation in many industrial plants and laboratories.

Nationwide. N & S Services maintain offices in major cities across the country to install, operate and maintain specialized nuclear and scientific equipment.

Air Ionizers. A recent addition to the N & SS tasks is the design, construction and installation of air ionizers. This work is being done in conjunction with the Princeton Laboratories. At present ionizers are being made primarily for research organizations so that they can investigate the properties of air ions on humans.



MODEL of the Aerospace Simulator

Commercial Services

CONSUMER PRODUCTS

How Important Is Courtesy?

"How many times," Division Vice President Borgeson asked in a letter to branches, "can you recall having heard the complaint: Well, they certainly were courteous, but the service was terrible? Chances are, never. For courtesy works that way with people.

"We don't imply," he continued, "that service takes a back seat to courtesy. After all, service is our business. But we do say that we must have a combination of both. Courtesy is an integral part of good service, and no service can be good without it."

With this opening gun, CPS set aside the months of March and April for their annual Consumer Relations Contest, emphasizing courtesy as the common denominator of successful home service.

To the Winners. Backing up their bet that customer satisfaction can be improved nationally, even though the present complaint ratio is low, CPS management has made attractive incentive prizes available to the two branches in each district who top all others in a two-month span of accelerated courtesy.

District Managers will rate their branches weekly on the number of complaints received (as related to opportunities); the number of favorable responses received (through the use of Courtesy Cards inviting customer comment); and the reports of a "Mystery Caller" who will "shop" each branch by phone to determine the effectiveness of the service given.

Branches will be scored on how promptly the telephone is answered, the courteousness of the response; the knowledge shown of various types of contracts and of pricing policies; what the promise date is for giving service, and how well basic technical and clerical information is handled.

King Customer. Plenty of do's and don'ts are recommended to win the favor of the man behind the dollar that fills the paycheck.

Among the do's: Be cheerful, polite,



"FRED FUMBLE"



"TOM TACTFUL"



"FRED FUMBLE"



"TOM TACTFUL"

sympathetic and interested. Be a good listener. Be absolutely certain that every promise made can and will be kept. Avoid unnecessary delays, causing loss of time and temper. Identify yourself immediately, and use the customer's name freely in your conversation.

Among the don'ts: Don't let it show, even if it is a tough day. Don't be abrupt. Don't forget that the customer has a right to believe he is right.

And the customer? He's defined as a person—who is not dependent on us as we are dependent on him—who is not an interruption of our work but the purpose of it—who is not an outsider in our business but a part of it.

Early indications are proving the prescription to be just the tonic needed. Courtesy begets courtesy—and success—for those who practice it as a part of daily life.

EDP SERVICE

To Sweden. EDP Service Training Center at Cherry Hill, mecca for students in electronic data processing, recently graduated its first Swedish trainees.

The three men—Inga Dahlberg, Rene Nielson and Sven Ericson—will work as a team in the service and maintenance of an RCA 501 system

(Continued on page 8)



501 AIR SHIPMENT is checked by Division V.P. Vreeland, RCA International

now installed in the headquarters of Sveriges Kreditbank, a leading Swedish financial institution in Stockholm.

They received intensive training for a ten-week period, using the advanced methods and training aids available at the Training Center, plus individualized instruction and a maximum of equipment time.

The RCA 501 system consigned to the Kreditbank was air-freighted across the Atlantic in January. Less than a week later, it was operating at their headquarters in Stockholm.

For the flight (by chartered Pan American transport) the computer console and other pieces of equipment

were wrapped in transparent polyethylene, to eliminate the weight of normal crating and so that handlers could readily see the type of freight involved.

With the second shipment of a 501 system by air to Stockholm, RCA neared completion of its "Datacentralen,"—the first RCA/EDP Center in Europe.

For speedy installation, the computer and allied units were fully assembled and tested prior to shipment. And even before departure, there was a major paperwork job on order—the handling of accounts and records of a large Swedish bank.

The new center will be available for assignments from Swedish business and industrial concerns, as well as Government agencies.

From Turkey. Under the auspices of the United States Department of Labor, six Turkish Industrialists on a tour of U. S. industry recently visited the facilities of the EDPS Training Center at Cherry Hill.

The delegation was composed of Messrs. Necdet Ayas, the Planning Bureau Manager of a Sumerbank textile mill; Ahmet Aytakin, Chief Engineer of a state holdings enterprise in Sumerbank; Ilhami Mehmet Coskundeniz, an executor of marine banks in Istanbul; Hulusi Sensoy, Training

Chief for a power plant in Soma; Nahit Turkekul, Secretary of an oil company in Izmir; and Mehmet Necdet Ustundal, Management Specialist for an Istanbul bottle and glass factory.

The visitors were addressed by E. W. Lareau, Manager of Training, on the subject of large-scale industrial training and its associated problems.

Latest training techniques were demonstrated by J. S. Winston, Manager of Training Methods, including over-head projections, magnetic chalk boards, dynamic demonstrators, teach-



EDPS TRAINING Manager E. W. Lareau with Kreditbank's Mr. Inga Dahlberg

ing machines, and slides simulating motion by the analyzation of polarized light.

The guests toured the Center's creative department where training aids, slides, charts and motion pictures are produced; and saw how textbooks reflecting the latest innovations in EDP are evolved from basic research.

Climaxing the tour, the Turkish nationals were given a demonstration of the 501 fully transistorized business computer that is maintained at the Training Center.

In San Francisco. In June, a complete RCA Electronic Data Processing Center will open at 343 Sansome St., ready to handle the area's data processing needs on a job, time, or contract basis. It is the fifth in an RCA coast-to-coast network of ultra modern EDP Centers.



EDPS TRAINING Methods Manager J. S. Winston (seated, left) with U. S. Dept. of Labor representative and Turkish industrialists

The Electron Microscope

At Franklin Institute, a famous center of industrial research in Philadelphia, Dr. Wilsdorf and his staff are presently conducting a program of advanced study on the molecular structure of various metals, and the effect upon and changes in their characteristics under stress, strain, and other extremes.

Made possible only through the use of the Electron Microscope, the Franklin Institute studies will eventually benefit and may revolutionize the use of metals and the semi-conductor field, particularly in the area of thermal electric cooling.

The Institute's program is one example of the work being done by the RCA Electron Microscope in industrial research foundations, in hundreds of other research fields, and in thousands of applications.

In Medical Research. Perhaps its greatest use is in the medical field—at the nation's great universities where constant research is conducted in Anatomy, Pathology, Biology and Dentistry—at Medical Centers where, as one example, the RCA Electron Microscope is enabling researchers to investigate and compare the detailed structure of normal and of cancerous cells—and in associated manufacturing firms such as Parke Davis & Company, whose virologists, using the RCA Electron Microscope, positively identified isolated polio virus.

In Government Research. To name a few of the many uses to which the



TYPICAL MICROGRAPH taken on the RCA EMU-3; Bismuth Telluride magnified 9,000X



AT THE FRANKLIN INSTITUTE—the EMU-3, physicist Alfred Baltz (seated), Tech Products Service Administrator A. J. Komer (left) and Specialist A. P. Veas

RCA Electron Microscope is put by Federal Agencies: the U. S. Bureau of Agriculture, in the improvement of farm products; the U. S. Bureau of Mines, in the study of clays, soils and minerals; the National Institute of Health, in radiation studies, and in research into diseases of the heart, cancer and other ills.

In Industrial Research. The RCA Electron Microscope is aiding research conducted by the automotive industry, by railroads, food, rubber, petroleum, textiles and drug concerns; by the radio and electrical industry, by the metal fabrication and manufacturing and chemical and processing companies. The laboratories of almost every major industry contains an electron microscope.

Service. Today, the number of RCA Electron Microscopes in actual use throughout the world approaches one thousand.

Most of them in this country are kept at peak operating proficiency by Tech Products Service Specialists working out of eleven strategically located field offices.

Working under Tech Products Region Managers, these experts are responsible for an average of twenty instruments per man.

They see that the units are properly installed; that customers receive instruction in basic operating techniques; and thereafter provide services necessary to maintain the instrument in top operating condition.

The measure is a preventive one through the RCA Service Plan, providing for inspection, adjustment, repair or part replacement before trouble actually occurs.

The plan also provides for furnishing all parts which fail through normal use, and for emergency service.

One of the most familiar figures in the microscope service field is A. J. (Al) Komer, Tech Products' Administrator of Special Industrial Products Service.

Al, an electrical engineer, has been with the Service Company for more than sixteen years. He's dedicated to the Electron Microscope and its service; was once an Installation and Service Specialist in the Philadelphia region.

Currently, as Chairman of the Philadelphia Electron Microscope Society, he is contributing to the plans for a 1962 meeting of the International Congress of Electron Microscopy, at which the Philadelphia chapter will be host.

Education

Eight From Alaska

RCA Institutes recently enrolled eight Alaskan Indians and Eskimos in the Television and General Electronics Course. They are the first of several Alaskan contingents which the U. S. Department of the Interior, Bureau of Indian Affairs, will sponsor for study in Electronics at the Institutes' New York and Los Angeles schools.

Under the program, the young Alaskans are given an opportunity to prepare themselves for work on defense and communications installations in their native Alaska, as well as in commercial electronics activities in Alaska and other States.

The course they are pursuing at the Institutes' day school requires six terms (one and one-half years) for completion. It provides the training necessary for three large categories of technicians employed in the electronics industry: (1) those who assist in an electronic development laboratory, (2) those who operate or maintain communication equipment, such as that used in broadcasting, commercial aviation, police radio systems or military projects, and (3) those who operate or maintain industrial electronic devices or data processing systems.

In the picture below, Instructor Salvatore Adelfio explains the operation

of an analog computer to seven of the eight Alaskans. Standing (l. to r.) are: Arthur Peterson, 21-year-old Indian from Fort Yukon; Percy Ipalook, 21-year-old Eskimo from Kotzebue; Joseph Pungowizi, 21-year-old Eskimo from Sevoonga; Russell Attwood, 20-year-old Indian from Ketchikan; Sam Kito, 23-year-old Indian from Petersburg.

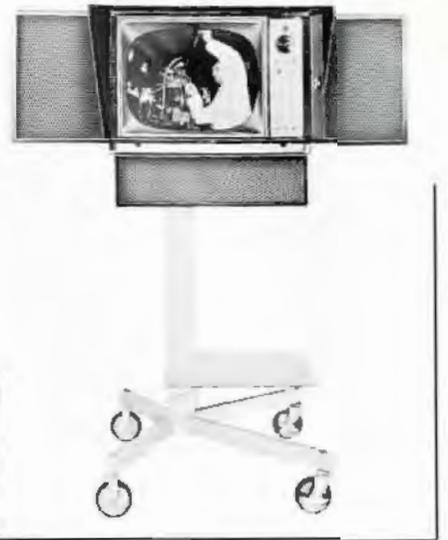
Seated, (l. to r.) Harry Kito, 18-year-old Indian from Petersburg, and Morgan Aukongak, 22-year-old Eskimo from Nome.

In the Ideal Classroom

At the regional meetings of the American Association of School Administrators in San Francisco, St. Louis and Philadelphia, an RCA audio system designed specifically for individual school classrooms was demonstrated as part of the "ideal classroom" exhibit.

The system permits program material input from any of five sources: AM-FM radio tuner, automatic record changer, tape recorder, television receiver and either the desk or lanyard-type microphone.

All of the components, with the exception of the TV receiver which is ceiling-mounted, are built into the teacher's desk. The system is operated



FOR SCHOOLS—specially designed TV set

by a simplified control panel, also built in, which contains three knobs for on-off, volume, and five-position program selection.

Using a common power supply and amplifier, the system reproduces audio programs through four flush-mounted ceiling speakers, placed in acoustically-correct locations for optimum performance.

The integrated classroom system permits constant control by the teacher and enables her to interject comments during the program presentation merely by switching the system pick-up to her desk microphones.

Custom ETV Systems

Consumer Products Service has introduced an ETV "package" into the rapidly expanding field of Educational Television.

Their proposal offers schools custom-designed receivers; a master antenna system for all sets; amplifiers and cables necessary to provide strong signals to all TV outlets; optional features to meet specific needs; and complete coverage maintenance service.

In providing sets, system and service, Consumer Products Service is emphasizing their unique position in the ETV market—"Single Source Responsibility for Single Source Reliability!"



FOR ALASKANS—an education in electronics

Mixed Pix



BAYONNE—Chief Tech Vinnie Owens was named North Jersey District Chief of the Month for branch reduction in chassis pulls



ST. LOUIS—Appliance techs, who sold 100 cases of Orbit each month for twelve, toast each other in Orbit cups

More "Sink or Swimmers" in the CPS Contest



COLLINGDALE—"Coll Dale" the frogman (tech Al Elko) with "Black White" the lifeguard (Sales Manager Al Redden)



CINCINNATI—Costumed for Kickoff (l. to r.): J. Dillon, R. Fothergill, J. Hamman, E. Stamp, R. Heffron, L. Stager, J. Barr



ALLENTOWN—Contestants "Nevada" Wagner, "Blimp" Mato, "Memphis" Burian, as they were called in their Navy days



ORANGE COUNTY—On "S" Day at the Fabulous Anthony Pools: Branch Mgr. L. R. Garcia, Sales Coord. M. J. Kessler, and friend.



WEST COLLINGSWOOD—TPS Mid-Eastern Region's Mobile and Microwave Service personnel and equipment. Field Super. Jack MacKenzie and Field Manager Porter McDonald are sixth and seventh from left

Before the Button's Pushed...



How much basic groundwork is required before a missile heads skyward? Before an elaborate radar network can detect it? Before *any* electronic equipment can become operational?

You know the answer . . . and RCA knows it, too.

For RCA Field Engineers have served virtually every U.S. Military service and command, as well as government technical agencies throughout the United States and in 40 foreign countries.

Including:

- Department of Defense
- Federal Aviation Agency
- National Aeronautics & Space Administration
- Important Prime Contractors to the Federal Government

The RCA Field Engineer banks on his background in systems engineering and evaluation, equipment installation, maintenance, servicing and instruction. He is familiar with electronic military equipment. He is stable, conscientious, co-operative. He is the "all-around" man required for technical support services.



GOVERNMENT SERVICES

RCA SERVICE COMPANY

A DIVISION OF RADIO CORPORATION OF AMERICA