MELPAR-A-GRAPH

MELPAR, INC. • A SUBSIDIARY OF WESTINGHOUSE AIR BRAKE CO.

Volume 6, Number 2 April, 1961

## FIRST QUARTER NEW BUSINESS TOTALS $7,461,588

New contracts and additional increases in current contracts amounted to nearly seven and one-half million dollars during January, February and March according to N. J. Sargis, Director of Contract Administration. In addition to contracts reported separately in this issue, other awards included:

—$283,863 from Stromberg-Carlson as additional funds for procurement and fabrication of long lead spares for GPERF. Assigned to L. Bonham's section of the Communication and Navigation Systems Laboratory.

—A $66,269 contract to Field Service for Field and Organizational Maintenance training on ALD-4, MLM-1, and GLM-1 from ATC, Randolph Air Force Base, Texas.

—A contract for $38,741 from the U. S. Naval Ammunition Depot, Crane, Indiana, for an Acceptance Test Set for MK 12 MOD O TDD, assigned to the Production Division.

—A letter contract for $54,949 for study work to be done by the Tucson Laboratory on electronic equipments employed in US Army Aircraft.

—An increase of $72,823 in the Bureau of Naval Weapons contract accelerating the efforts of the Molecular Electronics Section of the Research Division in its program to develop methods of producing molecular circuits.

—A letter contract for $65,000 to the Production Division for modification of MK 8 MOD O TDD to MK 8 MOD 1 from the Bureau of Naval Weapons.

—A contract for $310, 598 from the Bureau of Naval Weapons resulting from an unsolicited proposal for two models of "Velocity Detection and Ranging System." Assigned to the Radiation Systems Laboratory.

—An increase of $95,000 in a study contract sponsored by Wright Air Development Center, ARDC, USAF which incorporates Phase III under study of "Micro-Airborne Subsystems Analysis for Molecular Electronics" being conducted by the Communication and Navigation Systems Laboratory.

# MELPAR AWARDED FCC CONTRACT FOR UHF TV ANTENNA ON EMPIRE STATE BUILDING

Melpar has been awarded a $248,000 contract from the Federal Communications Commission to develop and install a special UHF television transmitting antenna on the antenna tower of the Empire State Building in New York City.

According to Dr. R. Wayne Masters, Manager of the Antenna Laboratory, the antenna will be the radiating component of a complete UHF transmitting system which is being installed at Empire State by the FCC for the purpose of assessing scientifically the relative merits of UHF in direct comparison with the present lower frequency VHF television transmissions in metropolitan areas. Dr. Master's previous experience as Chief Electronic Consultant on the existing multiple television antenna system will be of considerable value in the new development program. H. H. Hibbs has been designated as Project Engineer on the contract by Dr. Masters.

FCC Commissioner Robert E. Lee's comments (in an address reported in the December 1960 issue of "DXing HORISONS" magazine) are of particular interest with regard to the importance and implications of these tests.

"With the unequivocal denial of additional VHF space, the recently approved Congressional action of providing funds for a government controlled experimental operation of a UHF television station in New York City takes on additional significance. (While) I do not know what the ultimate conclusions of this test may be, I think I can enumerate the possibilities. . . ."

(A) "It may demonstrate that the UHF is a superior service in a metropolitan area and that we may safely move television into UHF."

(B) "It may demonstrate that UHF will not work well within a metropolitan area, and that we will have to continue to use VHF in such areas."

(C) "It may demonstrate that UHF will work well, but because of the economic factors relative to making it work well, it might not be practical in large metropolitan areas."

(D) "It may develop improved receivers and improved broadcasting techniques that would make it (UHF) more competitive with VHF."

Shifting all TV transmission into UHF bands within 5 to 7 years (approximately the life of TV receiving sets) has been advocated in the event that the experimental UHF television station (for which Melpar is building the transmitting antenna) proves this action feasible. It has been estimated that this would make channels available for about 200 additional stations, and would permit the reassignment of the 12 channels now being used by TV to the mobile radio communication services now needed by industry, police, fire, forestry, educational institutions, private and public agencies, and to satisfy compelling military requirements.

## APPLIED SCIENCE DIVISION AWARDED $344,992 CONTRACT

A $344,992.00 contract was awarded to the Applied Science Division by the Rome Air Development Center with Advance Research Projects Agency sponsorship to continue its study on the "Application of Recognition Theory to Missile Identification and Decoy Discrimination".

Because of the successful application developed under its earlier contract, Melpar was awarded an extension by the Advanced Research Projects Agency, Department of Defense, to continue and exploit the original efforts, resulting in the new contract.

**PAPIN FLIES HELICOPTER IN DRAMATIC TEST OF THE EFFECTIVENESS OF NEW FLIGHT SIMULATOR TRAINING SYSTEM** . . . Melpar Senior Engineer F. E. "Scotty" Papin, shown above as he entered the HSS-2 Helicopter (left) and in the cockpit (right), successfully flew the new, all-weather, sonar-equipped, rotary wing aircraft for the first time on March 30 at the Sikorsky plant in Stratford, Conn. Though Mr. Papin is a licensed fixed-wing pilot, his only previous helicopter experience was obtained in the Helicopter Simulator for the HSS-2 during its design and development at Melpar. Since the time spent by Scotty in the Helicopter Simulator did not include any pilot instruction, he was accompanied on the flight by a pilot and co-pilot in the event he needed assistance.
Scotty's feat very dramatically demonstrated the effectiveness of training on the HSS-2 Helicopter Simulator. In Scotty's opinion ". . . an instructor using the simulator instead of the aircraft, could teach a novice to perform all the basic operations of handling a helicopter." He also observed that he is ". . . confident that for no less than 50% of basic flight training time, the simulator could replace the aircraft." "It can also replace the aircraft for a greater portion of transition training of pilots who have been flying other craft." The HSS-2 Helicopter Simulator was designed, developed and built under contract with the U.S. Naval Training Device Center (an activity of the Office of Naval Research) by the Simulation and Training Systems Laboratory under the direction of Section Head, T. G. Walkinshaw. It is the first complete helicopter simulator ever built and can simulate all the craft's modes of flight, as well as all of its systems. Photos Courtesy of Sikorsky Aircraft

# PRODUCTION CONTRACT RECEIVED FOR BULLPUP TRAINERS

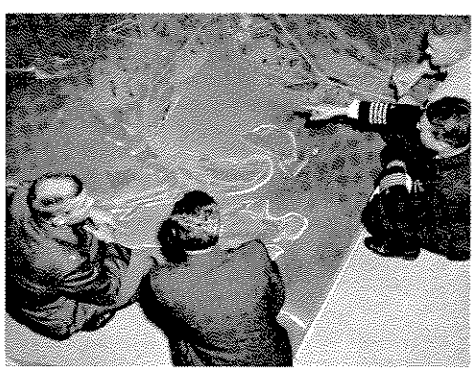
Melpar has received a letter of intent authorizing initial funding of $500,000 on a production contract for seven Bullpup Air to Surface Missile Trainers from the Aeronautical Systems Center of the Air Materiel Command, USAF. This is in addition to the previous $572,000 contract for three such trainers which was assigned to the Simulation and Training Systems Laboratory in July 1960 for design and development of the prototype model and two production models.

Principal mission of the trainer is to train pilots in pre-launch, launch, and guidance techniques required to control the missile successfully.

Visual displays are provided through filmed approaches to the terrain model (see picture) from various altitudes and approaches. Variation of the projector speed by the instructor enables simulation of a range of approach speeds for the pilot.

Air to Surface aircraft flight in the Missile Trainer is presented by simulation of the altimeter and by visual display of pre-programmed flight paths of which the trainee is aware. After the trainee "launches" the missile, the trainer records the missile flight path deviation and the trainee's corrective actions, providing immediate scoring and debriefing information.

The new contract has been assigned to the Production Division under Section Head, J. W. Hall.



**The terrain model (scale 4000:1) used in development of visual displays for the Bullpup Tactical Delivery Missile Trainer is examined by members of the Armed Forces Industrial College on a recent visit to the Simulation and Training Systems Laboratory.** Photo by Sakamoto.

## Research Division Receives Solion Contract From Navy

A contract has been awarded to Research Division to investigate Sol devices as a new approach to accelerometer applications in guidance systems by the Naval Ordnance Laboratory of the Bureau of Naval Weapons.

Based on the conductivity of ions, and capable of converting mechanical energy into electrical energy, the Solion is still a relatively new type of electrolytic device. Solion cells can be constructed to be sensitive to a variety of stimuli, namely acoustic vibration, acceleration, and electromagnetic radiation. Multiple cells can be constructed to function as: dc amplifiers, to take logarithms, powers, roots, derivatives and products of electrical outputs; and to perform integrations. The variety of outputs is largely controlled by the geometry of the electrodes in the cell.

Active in Solion research since 1957, the Research Division's current Solion investigations are under the direction of Dr. J. F. Ambrose, Physical Chemistry Branch Supervisor.

## HEFFRON PRESENTS MARCH TECHNICAL LECTURE

Problems encountered in simulation of the main rotor of a helicopter, and resolution of those problems through the use of a digital computer were discussed by W. G. Heffron of the Advanced Programs Analysis Staff at the Evening Technical Lecture held on March 22, 1961.

In discussing the number and magnitude of problems involved in the program, Mr. Heffron indicated that, without utilization of a high speed digital computer to process test flight data, the problem of determining a feasible simulation method would have been insurmountable. In concluding his lecture Mr. Heffron emphasized the increasing importance of computers as a research tool in R & D programs today. Mr. M. J. Costello, Senior Systems Analyst, Office of the Company Consultant, briefly described the computer equipment currently available at Melpar.

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# MELPAR GETS SPECIAL AWARD FOR ITS B-58 EFFORTS

Melpar has been awarded a special commendation by Convair Division of General Dynamics Corporation for its role in production of the world's fastest and most devastating bomber—the Air Force's B-58 Hustler.

As prime contractor for the bomber that flies at twice the speed of sound, Convair cited Melpar for "significant contributions" to the B-58 program which makes possible enemy air penetration at more than 60,000 feet altitude and elusion of radar defense networks at near sonic speeds at 500 feet altitude.

The award, presented by Convair President C. Rhoades MacBride and accepted by Charles B. Raybuck, Vice President-Contract Management, cited the company for its dedicated B-58 systems design and development efforts, production performance, cost reductions and extraordinary management guidance. At the presentation, during which a limited number of other companies were also honored as members of the B-58 industry team, Melpar was particularly commended for its technical achievement in moving quickly from prototype to production of a bomber recording system compatible with other of the B-58's advanced systems.

Melpar's cost improvement achievements also came in for praise when it was pointed out that price of the system had been cut from $150,000 to $75,000. Also noted was its early and successful achievement of a subsystem qualification program, as well as extraordinary management efforts in all facets of the B-58 program in quick response to the demands of program changes."

In concluding his letter of commendation to Melpar President, E. M. Bostick, Convair Vice-President, Frank W. Davis stated that "Melpar can be proud of the part it has played in adding this formidable and versatile weapon to America's defense arsenal." "We at Convair again commend you and look forward to your continued efforts to supply the Air Force highest quality products at the lowest possible cost."

**MELPAR TO WORK FOR ARMY CHEMICAL CORPS . . . Mr. N. J. Sargis, Director of Contract Administration, signs a $700,200 contract with Army Chemical Center Procurement Agency (ACCPA) to develop and fabricate prototype models of Chemical Corps expendable detection devices for lethal agents. Others from left: Col. Stuart G. Fries, CO of ACCPA, Dr. Paul E. Ritt, Melpar's Director of Research, Lamar Walker, ACCPA Contract Specialist, George H. Wood, Contract Administrator (Melpar), and Ellis W. Bankert, Contract Officer. Work on the contract is being directed by Section Head D. M. MacArthur of the Research Division.** (Official U.S. Army Photo)

## *Antenna Lab Develops Antenna Range Simulator*

A compact, low-cost, transportable unit, the Melpar Antenna Range Simulator, first delivered to Republic Aviation last month, is capable of simulating fixed or moving targets without utilizing extensive pattern ranges.

The Model 100 Simulator shipped to Republic is designed for flight-line test of X-Band aircraft radar. Used at very close range, the device employs a nutating probe of variable eccentricity and controllable speed moving in the focal plane of an electromagnetic lens to produce a plane wave return from specified directions and ranges when a suitable transponder or signal generator is connected to it. The anechoic chamber in which the system is contained absorbs unwanted internal reflections and excludes outside interference signals.

Modified simulators, designed, built and tested to specific needs, can be furnished with quick delivery, as was the first Model 100 for Republic, which was shipped in two weeks from date of order.

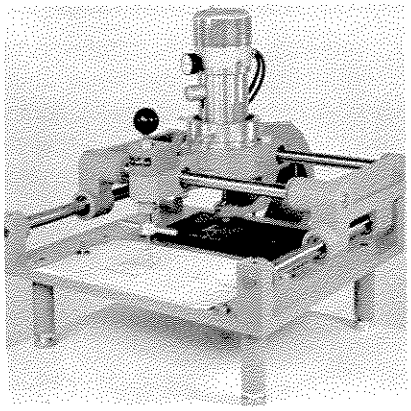
## RESEARCH DIVISION PHYSICISTS PRESENT PAPER

A paper titled "A Zero-Field X-Band Maser Spectrometer" by N. McAvoy, Quantum Electronics Branch Supervisor, M. R. Kagan, Senior Physicist, and VW. T. Townsend, Physicist, was presented by Mr. McAvoy at the April 24th meeting of the American Physical Society held at the Sheraton-Park Hotel in Washington, D. C.

The paper reports on the construction of an X-Band paramagnetic resonance spectrometer using a maser as either an oscillator or detector (or both) and gives theoretical and experimental evaluations comparing the sensitivities of a conventional spectrometer with a maser-type spectrometer. According to the authors, the new maser spectrometer is expected to be more sensitive in orders of magnitude than conventional spectrometers, and will enable Melpar scientists to investigate theoretically suspected chemical and physical processes heretofore not subject to experimental observation.

The maser spectrometer (also known as an electron spin resonance spectrometer) was developed by the Research Division.

# New Products Corner



## ART-MECH

(This is the eleventh in our series of reports on new products being marketed by Melpar's Special Products Department.)

Melpar's latest product, ART-MECH, is a device which produces printed circuit layout transparencies in one-tenth the time and for one-tenth the cost required by conventional methods.

Equally adaptable to model shop, laboratory, and production facilities, ART-MECH speeds the conversion of layout sketches into transparencies, eliminating the need for enlarged tape layouts and expensive cameras. It also reduces the elapsed time required for the complete process of fabricating printed circuit boards.

Enabling rapid conversion from a freehand sketch on 0.1″ grid paper to a full-size transparency of the circuit, ART-MECH provides positioning accuracy of better than ± 0.005″ on hole locations through the use of a precision reference template. This machine also employs a routing tool to produce the conductor path pattern on the film. The resulting transparency can then be placed over an emulsion-coated, copper-clad board. After exposure to light, the board is etched, then returned to ART-MECH for drilling under the high-speed drill head, again using the layout sketch as a pattern. The transparency may also be used to prepare a silk screen for quantity production of printed circuit boards. Various accessories for this compact, economical machine are available for a wide range of printed circuit needs. The ART-MECH is covered by a patent pending.

## BIER AUTHORS PRINTED CIRCUIT ARTICLE

D. L. Bier, Applications Engineer, of the Special Products Division, authored the article "Better Printed Circuitry Through Process Knowledge", in the March 1961, issue of "Missile Design and Development."

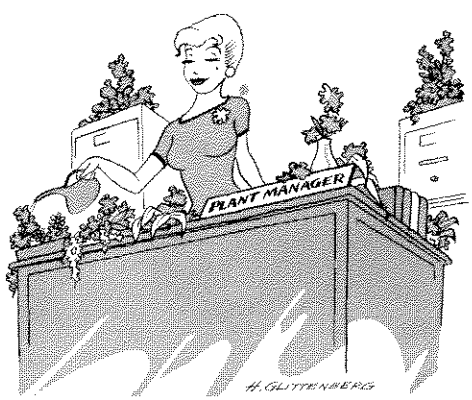
In discussing the production of printed circuit boards, Bier points out the critical role of the designer in influencing and controlling the production process. In relating effectiveness of design to the layout, artwork, fabrication and assembly of boards, he demonstrates convincingly that a working knowledge of printed circuit manufacturing utilized by the designer will produce better printed circuits and eliminate the tendency to over-design for reliability.

## ANTENNA ENGINEER TO PRESENT PAPERS AT PHOENIX IRE CONFERENCE

Engineer A. Maestri of the Antenna Laboratory will present two technical papers at the 7th Region Technical Conference of the IRE, to be held April 26-28, at Phoenix, Arizona.

The first paper, titled "Hydro-acoustic Simulation of Antenna Radiation Characteristics," will describe what is probably the first application of hydro-acoustic simulation in modelling large antennas.

In the second paper, titled "Wave Guide-fed Biconical Horn," the author will discuss the particular configuration and operating characteristics of the horn as distinguished from the typical coaxial cable fed horn.




## Research Division Ships First Measuring System

Another first for Melpar's Research Division was the delivery to McDonnell Aircraft Corporation of the first high temperature microwave dielectric constant measuring system. The device will enable McDonnell to perform measurements at any specific temperature throughout the range from room temperature to 3000° F.

The Research Division has been engaged in high temperature research for about three years and had, until recently, the unique capability of measuring dielectric constants at temperatures in excess of 2500° F. Hughes Aircraft, Bausch & Lomb, and the Wright Air Development Division are some of the companies and government agencies who have availed themselves of this capability on a sub-contract basis.

The high temperature research and the construction of the measuring system was directed by L. K. Eliason, Supervisor of the Measurement and Standards Branch. The Melpar technique, "A Tentative Method for Measuring Dielectric Constant and Loss at Microwave Frequencies," has been formally presented to the American Society for Testing Materials by G. C. Zellner, Physicist in the Measurements and Standards Branch, for consideration by ASTM as an accepted testing procedure. Mr. Zellner is secretary of the ASTM subcommittee responsible for initiating standard electrical test procedures on ceramic materials for general acceptance by ASTM.

## DR. MASTERS ADDRESSES LOCAL IRE MEETING

R. Wayne Masters, Manager of Melpar's Antenna Laboratory, spoke to the Antennas and Propagation group of the Washington Chapter, IRE, at the March 23 meeting. Subject of the talk was "Television Transmitting Antennas."

Dr. Master reviewed for the group the development of TV antennae, giving particular emphasis to a novel traveling wave structure.

A distinguished leader in the antenna field, Dr. Masters joined Melpar in May 1960. He holds a number of singular patents in the field and served as Chief Electronic Consultant for the multiple TV antenna transmitting system on the tower of the Empire State Building in New York City.

# SPD FEATURES PRODUCT LINE AT IRE SHOW

An estimated 68,000 visitors to the IRE Annual Convention, held from March 20-23 in New York City, were given the opportunity to see Melpar's Special Products line, complete with operating exhibits and a "do-it-yourself" introduction of ART-MECH, Melpar's printed circuit layout machine. Messrs. Bradley, Rudman, Dennison, and Bier of SPD manned the Melpar booth, and reported a busy and sometimes hectic week in keeping up with the steady throng of visitors stopping at the booth.

One highlight of the week was the TV taping on the exhibit floor of a demonstration of ART-MECH. The tape was prepared as part of the "Today at IRE" show, sponsored by the International Resistance Corporation and televised each night during the week of the show in New York City, Philadelphia, and Los Angeles. The layout machine (see New Products Corner for write-up) was the major drawing card of the Melpar display.

The Photoelectric Reader exhibit with a special 4-color control unit also provided a popular exhibit, demonstrating its color detecting ability. (Incidentally, those "doubting Thomas" visitors who slipped dollar bills or other colored paper under the reader, were promptly rewarded with the proper color indication by the faithful device.)

One of the first commercial applications of the Model 150 Reader—in a machine that precisely places identification labels on tiny transistors—was exhibited in the IRE booth of the W. H. Brady Company, Milwaukee label manufacturer. A major shirt manufacturer is also experimenting with the Reader as a device to control the cutting of shirt material.

Recent efforts in SPD's aggressive marketing program have included not only the IRE exhibit but also the inauguration of a national advertising campaign. H. I. Rudman, SPD Manager of Marketing, reports that the mails have been especially heavy with inquiries as a result of SPD's magazine advertisements in "Electronic Products," "Electronic Design," and "Missile Design and Development." One of the advertisements featured MELPAK E-200 casting resin, while the other two emphasized printed circuits using resistance fused eyelets.

Primarily because of the need for reliability, Melpar, featuring resistance fused eyelets, has been selected to supply printed circuit boards for use in several missile systems including the Titan B, BOMARC, NIKE, and Polaris II.

The SPD line of microwave components, consisting primarily of directional couplers and UHF band-pass filters, have recently been supplied to several military and industrial organizations. Among the deliveries has been the shipment of directional couplers to the Naval Ordance Test Station at China Lake, California.

The potting, bonding, and marking compounds available from SPD are also under evaluation and test by a number of potential users. One of these materials, MEL-INK M-100A, has proved so impervious to a well-known cleaning solvent, Clorothene, that Dow Chemical Company is recommending this SPD marking compound to its customers.

Special Products was established in December 1959 "to apply the company's technology and experience to the development and production of a line of products to be made available to the military, prime contractors for military business and to commercial organizations." (Melpar-a-graph, December 1959) Under the direction of E. H. Bradley, Manager, the Special Products Division appears well on its way to fulfilling its goals.

## COMSTOCK ADDRESSES MAC SPARES PROVISIONING PANEL

B. C. Comstock, Senior Standards Engineer, spoke to the MAC Spares Provisioning Panel of the National Security Industrial Association at the panel's New Orleans meeting on January 12. Title of the talk was "Some Effects of MIL-D-70327 on Spares Provisioning."

Comstock reported to the Panel on the developments within the Military-Industry Ad Hoc Committee under the DOD Standardization project 703-27. Ben is an NSIA representative to the committee which has been in operation for three years for the purpose of simplifying problems of preparing engineering drawings for items designed for the military services.


Special Products Division Manager, E. H. Bradley (center) makes a very earnest sales pitch to one of the many visitors to the SPD exhibit at the IRE Annual Convention in New York City.

# Metzger to Present Paper at NAECON

William Metzger, a Senior Engineer in the Communication and Navigation Systems Laboratory, will present a technical paper at the National Aeronautical Engineering Conference, to be held May 8-10 in Dayton, Ohio.

The paper, titled "A Survey of Airborne Electronic Circuits for Molecular Development Guidelines," will describe a survey and statistical analysis of the functional characteristics of airborne electronic subsystems, equipments, and circuits used in weapons systems now in the Air Force inventory. The paper is a condensation of the results of Phases I and II of Melpar Job A1076.01, Contract AF 33(616)7364 which was sponsored by Wright Air Development Division, ARDC, USAF.

Objective of the study program is to consolidate and combine airborne weapon systems data, in order to draw general conclusions for optimized use in the development of molecular electronics circuits.

## STUDENT LEADER AND ATHLETE WINS MELPAR MATH AWARD

Ralph Charles Hesse III, 18, and a senior at Manassas, Virginia's Osbourn High School, was presented with the annual Melpar Mathematics Award by Charles B. Raybuck, Vice-President for Contract Management.

Known as "Chuck," young Hesse took first place in Osbourn High School's math contest which is part of a nation-wide competition, sponsored annually by the Mathematical Association of America and the Society of Actuaries.

Popular and athletic, as well as scholarly, Chuck is president of the school student body and was chosen "outstanding lineman" of Osbourn's football team. In addition, he participates in varsity basketball and track athletics, is treasurer of the school's Key Club and has been elected lieutenant governor of the American Legion's Virginia Boy's State this year.

He is the son of Mr. and Mrs. Ralph C. Hesse, Jr., of 611 Sudley Road, Manassas, and plans to attend the United States Naval Academy next Fall.

A second-place award went to Ted Fecteau, 18, son of Mr. and Mrs. Joseph Fecteau of Gainesville, Va., and third place was won by Bob Bickle, 18, son of Mrs. Ola C. Bickle of Sunnybrook Estates, Manassas. Both are also in the senior class.

Coincidentally, last year's Melpar mathematics winner, Werner Rohrs, an exchange student from Germany, made his home with Chuck and his family while in the United States.

In congratulating the winner, Mr. Raybuck said: ". . . In this day and age, Melpar recognizes the great importance of encouraging students to continue their studies so that they may realize their full scholastic potential. The rapid advances of science and technology in these troubled times make it imperative to the Free World that every scholarly endeavor be both encouraged and promoted.

"Melpar's best wishes go to you now and for your continued success in the future. . . ."

# GOING UP!

Promotions include W. M. Allen to Photo Lab Technician, C. S. Barrett to Electrical Engineer, C. L. Brien to Junior Chemical Engineer, and N. L. Cornett to Secretary.

L. K. Eliason advanced to Branch Supervisor, E. F. Evers to Senior Electrical Engineer, and L. E. Gray to Senior Administrative Engineer. D. F. Guinn was promoted to Senior Electrical Engineer, M. L. Hunt to Administrative Assistant, and W. H. Jacobson and S. C. Jusko to Senior Electrical Engineer. M. H. Lloyd rose to Junior Electrical Engineer, R. L. McConahy to Electrical Engineer, and F. A. Mercurio to Senior Electrical Engineer.

W. S. Montgomery was promoted to Material Control Supervisor, J. R. Moulton to Electrical Engineer, and P. C. Panchison to Time Inspector. G. B. Proto advanced to Test Engineer, and A. M. Ross to Specifications Engineer. A. Sacks was promoted to Shop Foreman and F. L. Temple rose to Electrical Engineer.

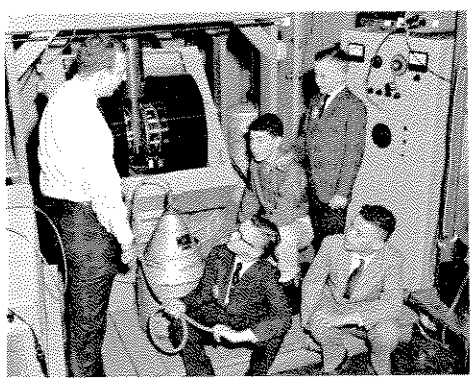
# Employees Paid $4,839 As Tuition Refund

Educational assistance payments to Melpar employees for the 1960 Fall Semester totaled $4,839.33. Personnel reports that these payments were for approved courses completed under the Melpar Tuition Reimbursement Plan. Under this plan, adopted by Melpar in September 1956, employees who successfully complete approved courses in a scientific or technical field are reimbursed half of the cost of their tuition by the Company. Total payments by Melpar to employees since the beginning of the Reimbursement Plan amount to $84,656.96.

## *Newsboys Good Deed Results In Tour of FC Plant*

Jimmy Stevens' alertness and honesty resulted in a tour of the Falls Church Plant for himself, and three other Washington Evening Star newsboys, according to Mr. E. M. Lane, Director of Security. A large package containing commercial materials belonging to Melpar was spotted by Jimmy in a gutter in the City of Falls Church where all four boys reside. Since the package was too heavy for Jimmy to carry alone, he enlisted the help of Robert Dunford, Charles Werth, and his brother Billy Stevens to carry it to their Evening Star Pick-up Station where they turned it over to their newspaper distributor for return to Melpar. The materials had dropped from a moving van belonging to a local moving and storage company under contract to transfer Residual Stores from the Falls Church Plant to the Bailey's Cross Roads Plant.

In appreciation for their good deed, Mr. Lane invited the boys to the Falls Church Plant for luncheon and a guided tour of the shops and laboratories. (See photo below.)



**DIG THAT CRAZY MAGNET . . . N. McAvoy, Supervisor of the Research Division's Quantum Electronics Branch, describes the Electron Spin Resonance Spectrometer to (l. to r.) Billy Stevens, Robert Dunford, Jimmy Stevens (standing) and Charles Werth (seated). The boys were given a tour of the Falls Church shops and laboratories following their return to the Company of some commercial materials which they found in a gutter in the City of Falls Church. They are all Washington Evening Star newspaper boys. (See story above.)** Photo by Sakamoto.