MELPAR-A-GRAPH

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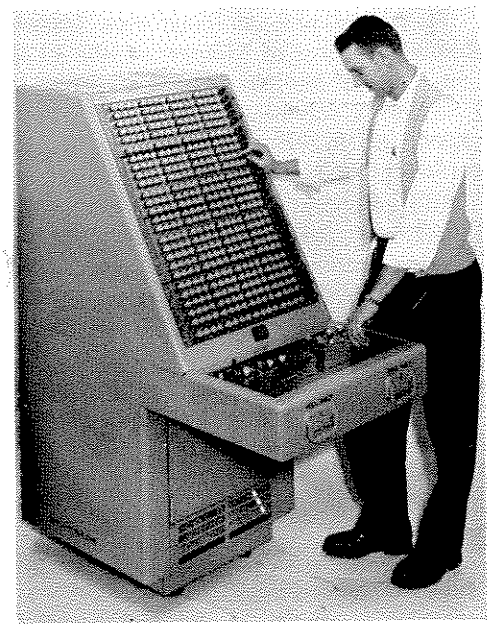
GIRDHS DATA BLOCK SIMULATOR TO BE SHIPPED FROM BXR

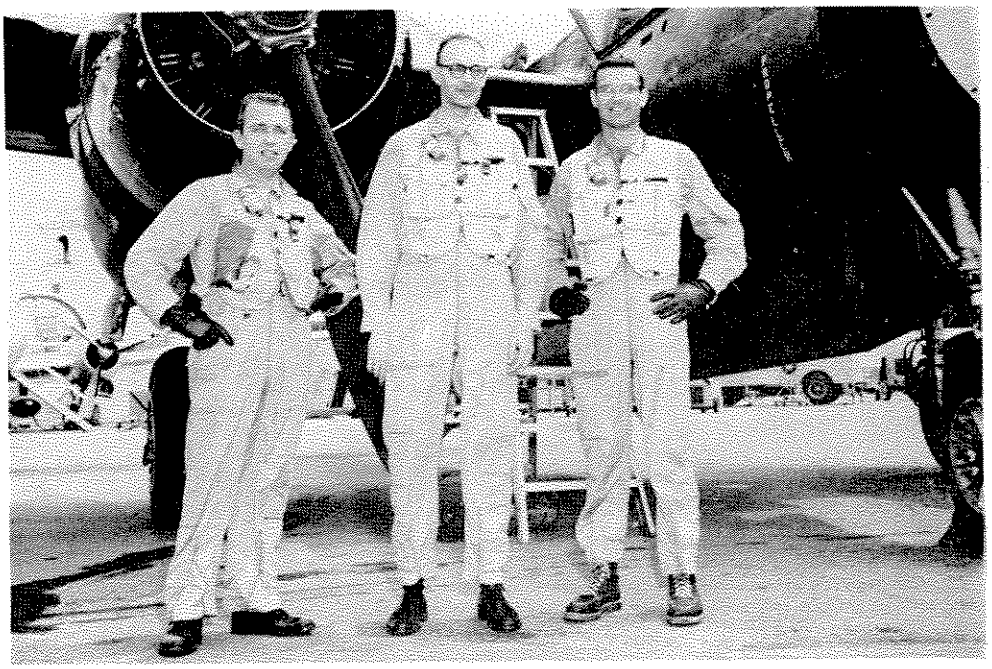
The last item of support equipment for the Ground Installed Reconnaissance Data Handling System, better known as GIRDHS, will soon be shipped from the Bailey's Crossroads plant. Known as the Data Block Simulator, the equipment is one of a total of six items comprising the Ground Support Equipment.



BUTTON, BUTTON . . . 442 of them, all told, on the main control board for the GIRDHS Data Block Simulator to be shipped soon. Wire Technician Leadman B. O. Guthrie checks over the operation. photo by Tafroe

This unit permits the hand setting of a great variety of test data blocks which can then be read into any one of twelve different functional sub-systems of the GIRDHS. It also simulates the output of the GIRDHS tape transports at all speeds, whether running backward or forward. The simulator has 442 electrically interlocked push-button switches arranged for ease of operation on its sloping panel.

Development and construction of the Data Block Simulator, as well as the other five items making up the support system for GIRDHS, was under the direction of L. Lerner, Manager, of the Ground Support Equipment Branch.



ABOUT TO GO UP to check out an airborne radar system, is J. W. Gerdes, Assistant Manager of Project Coordination at Melpar-Boston. Flanking Mr. Gerdes are members of the flight test crew from North American Autonetics. Other Research Department men participating in the flights, which originated from Los Angeles International Airport, were Research Group Leader R. E. Marcille and Senior Research Engineer P. R. Miles.

The purpose of these checks was to complete a comprehensive study of problems involved in the design of a collision warning and terrain avoidance system for airborne utilization by U. S. Army aviation. The Airborne radar system design was accomplished through a joint effort between Boston and Project Engineer C. F. Parker and Consulting Project Engineer W. S. Alderson of the Antenna and Radiation Systems Engineering Section of Falls Church. The work was done under contract from the U. S. Army Signal Research and Development Laboratories.

GOLD PLATING SAVES MONEY

"We can save money by gold-plating some of the parts." This was the considered opinion of the Arlington Division group concerned with producing Melpar's MP 1322 "S" Band Beacons.

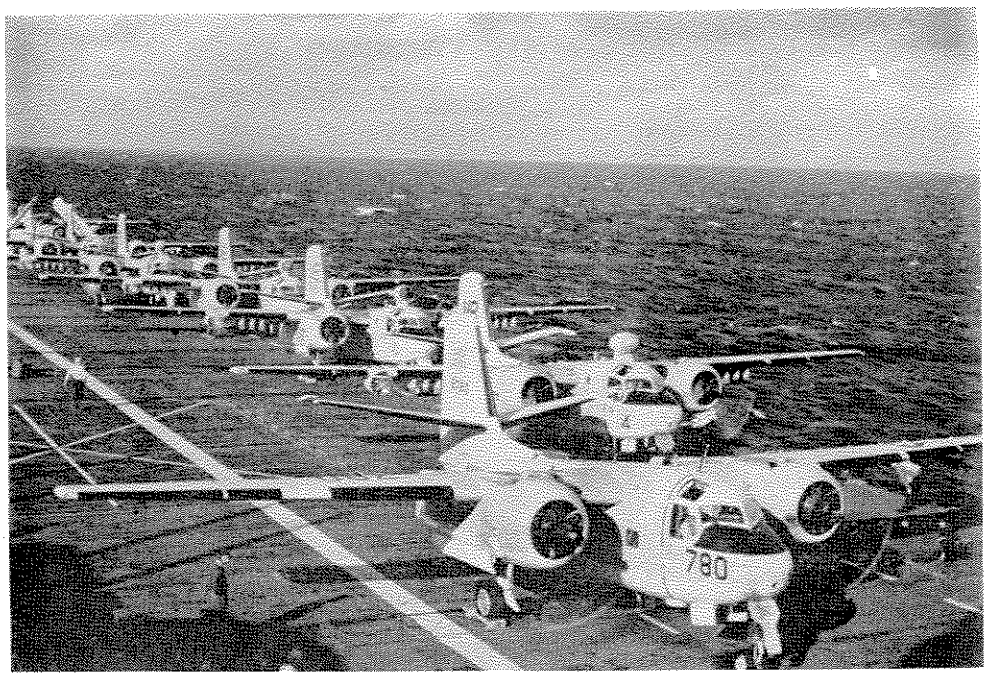
A great number of the major parts going into this equipment are made of magnesium not only to save weight but also to gain some of the vibration damping characteristics inherent in the metal. Unfortunately, magnesium is extremely susceptible to corrosion and represents one of the more difficult finishing problems to be found in commonly used metals.

Due to the construction of the equipment, the protective film to be applied to the magnesium parts was required to provide adequate corrosion protection, a good ground contact, satisfactory solderability, limited discoloration due to handling and atmospheric conditions, act as an efficient radiator of heat, and only affect dimensions in a minor way.

These requirements precluded using standard finishing techniques including paint. Silver plating had been tried but it require protection from discoloration by applying a flash coating of rhodium, costing approximately four times as much as gold.

Senior Engineer K. C. Bennett, of Project Engineer M. E. Hill's group, working with J. R. Sayers, Supervisor of the Chemistry Section's Pilot Plant Development, investigated and concluded that gold-plating was the least expensive of the possible solutions.

SEEING TASK GROUP ALFA AT SEA



INVISIBLE MEN . . . Inside Navy TF-1 Transport number 780 just before take off from the aircraft carrier Leyte are R. E. Snow and S. J. Campanella. This picture was taken by a Navy Photographer using Mr. Campanella's camera which was then handed through the plane's door to the owner just before takeoff on a flight returning the two Melpar men to the mainland.

Two Melpar men, S. J. Campanella and R. E. Snow, recently spent a week observing Anti-Submarine Warfare operations and equipment with Task Group Alfa. Invited by the Navy to study the need for more advanced detection equipment, the men were greeted by Rear Admiral John S. Thach, Commander of the Task Group.

While on board the carrier, Messrs. Campanella and Snow were able to observe all facets of anti-submarine warfare from the principles of operation of present airborne electronic equipment to its full scale use in simulated kills on an "unidentified submarine."

In an interview with Snow and Campanella, Admiral Thach described the Navy's need for a device that cannot be fooled and is as all-seeing under the sea as radar is above.

After spending a week aboard the carrier and talking to a great number of persons concerned with anti-submarine warfare, the men were flown off the carrier and back to land where both described the sensation of "no-pitch, no-roll" as, "enough to make you land sick."

Mr. Snow is Associate Director of the Research Department at Boston and Mr. Campanella is a Technical Staff Assistant to the Chief Engineer.

RADAR FOR LIGHTNING DETECTION UNDER STUDY AT FALLS CHURCH PLANT

Among the many projects being conducted by the Antenna and Radiation Systems Engineering Section is a study of High Probability Intercept Radar design. The primary purpose of this type radar is to detect lightning storms and their centers, thus aiding aircraft in avoiding such disturbances. Project Engineer C. F. Parker is directing the work under the terms of a contract from the Air Force Cambridge Research Laboratory, Cambridge, Massachusetts.

Others engaged in the study project are Senior Engineers H. E. Culver and K. D. McDonald. Mr. Culver made a two week stay this summer at the tip of Cape Cod, Massachusetts, where he studied the effects of lightning on present long-range radar units.

The theoretical analysis of the lightning echo as a function of time was contributed by Consulting Project Engineer R. C. Jones, aided by Senior Engineer G. R. Lowery, and antenna information for the study is being supplied by T. W. Tunney, Senior Engineer, of W. O. Puro's Antenna Section.

BXR GROUP MEETS URGENT NAVY NEED FOR EQUIPMENT

One hundred man-years, packed into a fourteen month span, will bring to a successful completion in December, 1958, one of those "possible but not probable" tasks Melpar is called upon to accomplish for a customer. The $1,791,590 contract awarded to the Reconnaissance System Engineering Department at the Bailey's Crossroads plant by the Bureau of Ships, back in October 1957, required that a substantial number of two different type Electronic repeater systems be designed, developed and constructed; and be completed in a minimum amount of time due to the Navy's urgent need for the highly advanced equipment.

These two projects soon were known throughout most of Melpar as jobs 1376 and 1377. These jobs carried a RUSH or EXPEDITE label—as had job 1331 completed for the Navy only two months earlier by the same section.

Full co-operation from the Purchasing Department, Receiving, and Incoming Inspection hastened the flow of component parts into Melpar from vendors throughout the United States. Soon, Project Services, Arlington Division's assembly groups, the Chem Lab, Antenna and Radiation Systems Engineering and the Shipping Department played their roles, the net result deserving a "Well done."

A separate and final task to complete the contract then came; a Navy request that we assist in the installation, maintenance and operation of these systems. Senior Engineer H. M. Poulter was assigned to this task aboard a U. S. Navy destroyer on a cruise to San Juan, Puerto Rico.

The program was originally directed by Section Head D. C. Cleckner, prior to his reassignment to the Falls Church Plant. Responsibility for the systems under job 1376 was carried by Project Engineer J. W. Glover. Job 1377's systems were directed by Project Engineers H. C. Turnage and I. B. Penniman. Mechanical responsibility for both jobs was handled by Project Engineer W. W. Hemer. These were the men in the main, along with their Engineers, Technicians and all the service support groups, that can be proud of this accomplishment.

They didn't quite stop the clock, but as one member of the group put it, "I saw numbers on that clock, I'd never seen before."

TEAMWORK—CATALYST FOR SIMULATOR PRODUCTION

TEAMWORK — "Work done by a number of associates, all subordinating personal prominence to the efficiency of the whole." Evidence of this definition by "Webster" is exemplified by the Arlington and Engineering Divisions in the design and production of the MB40 Flight Simulator (F-101B Aircraft).

The team, Melpar, Inc., confronted with an accelerated schedule for 15 of the most complex Simulator Systems developed to date, expended a vast number of hours of effort in preparation for the production. Contract Administration, Simulation and Training Systems Engineering, Drafting, Planning, Purchasing, Scheduling, Industrial and Methods Engineering, Quality Control, Shop Manufacturing and Personnel all played their part in gearing for the job. The production schedule, which allows only a 60 day spread between the prototype and the next unit, and only 30 days between subsequent units with deliveries increasing to two per month later in the schedule, necessitated a close knit team effort.

The program differs in many respects from most others dealing with electronic equipment of comparable size and complexity, in that simultaneously with the development of the prototype unit by the Engineering Division, the fourteen "follow on" units are in full scale production at the Arlington and Columbia Pike Plants. The problem is further complicated by the fact that the aircraft being simulated is still in the process of being flight tested. While both of these situations will result in a number of changes in the simulator, need for the systems is urgent so that they may be used for training, prior to the aircraft becoming operational. The simulators provide realistic pre-flight training to pilots and radar operator trainees of the McDonnell F-101B Voodoo interceptor. The training is adaptable to increasing the proficiency of pilots and radar operators in the attack capabilities of the aircraft, its armament and fire control systems.

The simulation is probably the most complete ever attempted in a device of this nature and includes performance and flight characteristics of the F-101B, simulation of the aircraft radar, navigation, automatic flight control, ground guidance, communications, and armament systems.

Realistic problems for the trainees are presented by six target aircraft, being electronically simulated and used in intercept and attack missions. To complement this phase of simulation, ballistics computation are performed upon simulated missiles launched against these target aircraft and scoring results are computed to demonstrate the skill of the trainees. The maneuvering of the target aircraft is under the control of the simulator instructor and the "dog fight" is plotted to show the history of each flight.

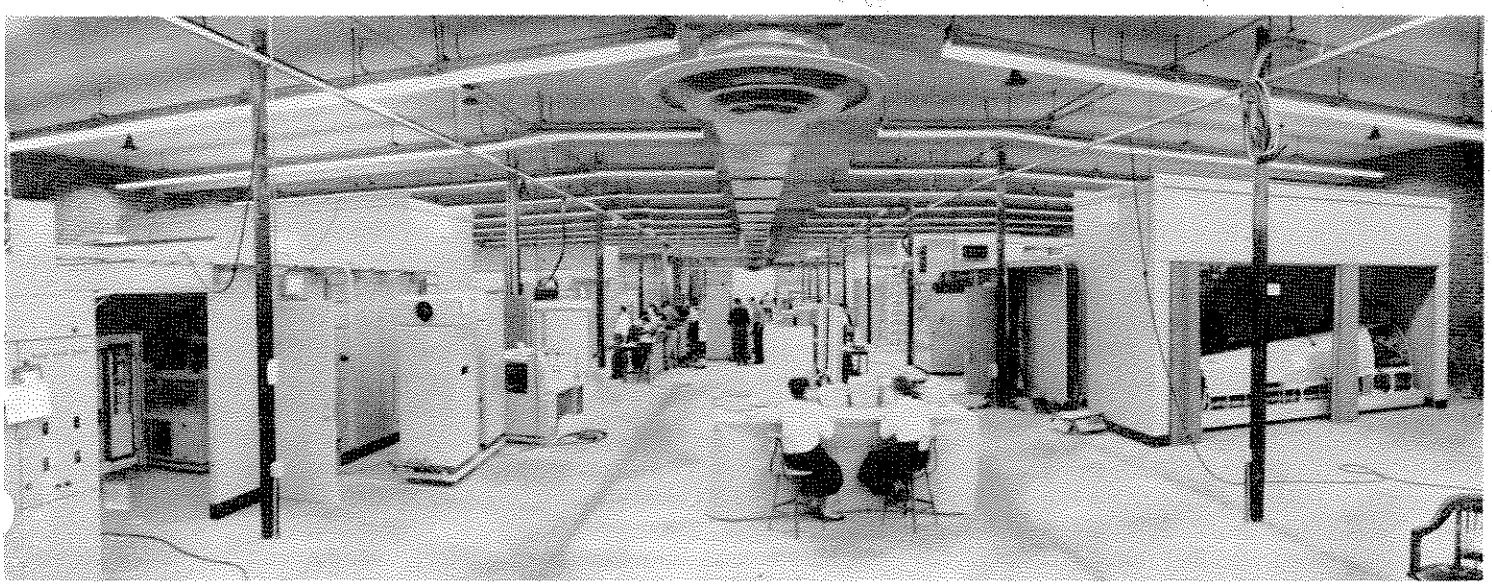
Simulation of six radio stations for navigation training are provided, and these can be located as desired, by the instructor, over a "training course" of 640,000 square miles.

A large variety of flight problems can be simulated to determine the pilot's and radar operator's proficiency in taking corrective action. These include simulation of storms, engine failures, control system failures, electrical and hydraulic systems and non-operation of aircraft equipment. The equipment required to simulate the characteristics, problems, and flight conditions which confront a crew in high performance aircraft requires a structure 25′x35′ with a height of 12′.

Three operators are required to control the various simulator capabilities and monitor the response of the training crew. One of these operators controls and monitors the pilot, one—the radar operator, and one operator controls the tactical or navigational problem.

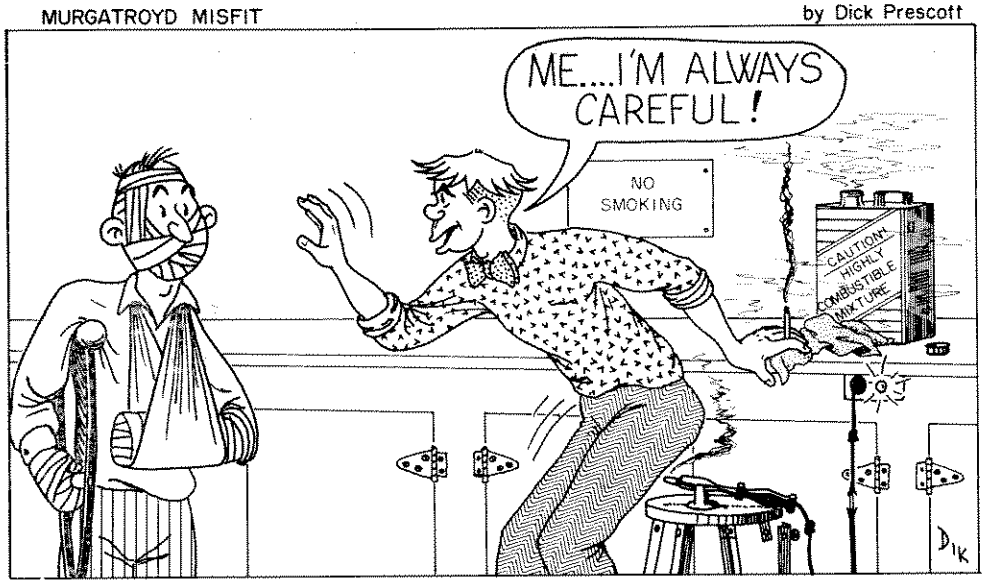
Today there is one trainer in the Simulation and Training System Engineering area undergoing final preparation for Air Force acceptance tests and two trainers at Columbia Pike in advanced stages of assembly and test. A fourth trainer is nearing the transition from assembly into the initial stages of systems test. The rest can be seen in various stages of completion in the shops and assembly.

This achievement has been made possible by the combined efforts of many segments of the company. It is truly a demonstration of teamwork.



VAST EXPANSE . . . required for Simulator Production is shown in this picture of the Final Assembly and Test Area located in Columbia Pike #3. Visible in the foreground are two trainers nearing the test phase prior to shipment. Other trainers in various stages of assembly are spaced along the aisle throughout the length of the building. Sub-assembly is done at Columbia Pike #4 and Arlington. Photo by Norton

MURGATROYD MISFIT by Dick Prescott



HEFFRON, BRISTOW PAPER DEALS WITH HELICOPTER SIMULATION

"A Method of Helicopter Rotor Performance Simulation" was the title of a paper prepared by Project Engineer in Charge W. G. Heffron and Project Engineer T. R. Bristow and delivered by Mr. Heffron at the convention of the National Simulation Council. The convention, sponsored by the IRE Professional group on Electronic Computers, was held in Dallas, Texas.

The paper resulted from work being done by the Simulator Preliminary Design Group in connection with the H-37A Helicopter Operational Flight Trainer. The paper dealt with the technique of calculating the aerodynamic forces and moments generated in the main rotor.

GOING UP!

Columbia Pike promotions saw R. E. Fontaine, R. T. Benson and W. T. Maltby advance to Design Engineer. C. M. Thompson rose to Senior Draftsman. W. J. Piekarski moved up to Senior Engineer. D. E. DeJulis and N. E. Sondheimer were promoted to 1st Class Heavy Assembly Task Leader. M. W. Cunningham advanced to 1st Class Heavy Assembler and E. S. Mast to Junior Engineering Assistant. E. F. Birckhead was promoted to Senior Technical Writer and C. T. Atwater moved up to Technical Writer. J. R. Rogers, J. D. Henderson and J. M. Farris rose to Heavy Assembly Task Leader.

At Arlington, V. H. Byus and A. D. Moon advanced to Project Engineer from Senior Engineer. C. E. Travers was promoted to Scheduling and Dispatching Supervisor, while C. J. Meacham and F. S. Rittgers advanced to Project Planning Supervisor. J. K. Hall moved up to Planning Coordinator. S. A. Palmer advanced to Senior Procedures Analyst and J. O. Pennington rose to Engineer. A. C. Sandy was promoted to Assistant Foreman. J. E. Ireland advanced to Senior Packing Planner. E. S. Doyle was promoted to Planner. M. A. Palumbo advanced to Senior Clerk Typist.

J. C. Anderson rose to Heavy Assembly Task Leader and J. L. Zobay was advanced to Incoming Inspection Foreman. C. L. Ennis moved up to Electro-Mechanical Inspector 2nd Class Task Leader. G. A. Osmolovski was promoted to Mechanical Inspector 1st Class and J. A. Clements advanced to Machinist A. F. T. Hennigan, T. H. Robertson and T. R. Hogenson were promoted to Planner. W. R. Hansbrough advanced to Junior Planner.

Watertown promotions saw C. T. Fobes rise to 1st Class Lead Wire Technician. J. A. Healy rose to Senior Planner.

At Falls Church T. R. Bristow was promoted to Project Engineer. G. W. Pierce rose to Buyer and R. H. Enders moved up to Lead Field Buyer and Expediter. V. L. Crawford was promoted to Senior Buyer. C. S. Hamill advanced to Staff Secretary. W. D. Ogle, G. D. Smith and R. C. Lipps were promoted to Senior Engineer. L. A. Abreo moved up to Engineer. W. E. Anderson rose to Government Property Administrator and G. F. Chatfield to Design Engineer. R. P. Myers and J. R. Tomlinson advanced to Engineer. W. O. Biggs was promoted to Engineer. C. V. O'Brien moved up to Junior Engineer. R. C. Reid rose to Junior Engineering Assistant.

W. W. Goings was promoted to Sheet Metal Man 1st Class and B. M. Tyler rose to Porter Group Leader. R. B. Hull advanced to Junior Spares Planner. W. A. Landymore was promoted to Spares Planner and W. A. Layer to Lead Porter. J. A. Homola and W. E. Kinsley advanced to Senior Technician. L. A. Sims rose to Lead Chemical Technician and C. J. Meder to 1st Class Mechanical Technician.

M. F. Beazley rose to Wire Technician 1st Class and A. B. Rust was promoted to Senior Engineer. R. L. Stockstill advanced to Technical Writer. N. J. Capps moved up to Senior Accounts Payable Clerk and V. M. McCleary to Tabulating Equipment Operator. E. G. Erber advanced to Experimental Machinist.

R. M. Woods and J. F. McAloney were promoted to Lead Chemical Technician. C. S. Hess rose to 1st Class Technician Assistant and T. A. Geist advanced to Chemical Technician. J. F. Hasky rose to Lead Chemical Technician and H. V. Hopkins moved up to Secretary.

At Boston, G. E. Fellows was promoted to Manager, Project Coordination. J. A. Lynch rose to Junior Research Aid. Promotions for men stationed in the field include D. A. Steele who moved up to Field Service Engineer and J. J. Felice to Senior Field Engineer. J. C. McDonnell rose to Senior Field Engineer.

Leesburg Pike promotions saw D. M. Early promoted to Project Engineer and W. G. Hall and R. E. Irons to Senior Engineer. J. W. Walker advanced to Engineer. J. R. Marcey rose to Planner and W. H. Boswell to Senior Planner. R. L. Pettit was advanced to Junior Engineer.

At Tucson J. E. Swafford was promoted to Section Head and R. D. Larson advanced to Senior Engineer. A. M. Maher, of Alexandria, rose to Senior Engineer.

Bailey's Crossroads promotions saw D. B. Boyce advance to Project Engineer and A. F. Saphonchak rise to Engineer. R. A. Ballard, W. A. Huffman and K. L. Meek were promoted to Senior Engineer. R. G. Ellis moved up to Planner. W. T. Smith and M. C. Rexrode were promoted to Senior Technician.