

MELPAR-A-GRAPH

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

Volume 3, Number 1

December, 1957

COLUMBIA PIKE NO. 2 AIDS BXR GROWTH

The first contingent of Bailey's Cross Roads Engineering Department personnel to shift operations from the main BXR building to the Company's newest addition, Columbia Pike No. 2, (pictured below) is scheduled to make its move during the coming weekend.

An outstanding feature of the especially wired and equipped building is its lighting scheme, utilizing a new type of fluorescent fixture installed in a precisely arranged pattern to yield a virtually shadowless illumination level. The lighting installation, as well as all other fitting-out work, was made by Maintenance Supervisor J. M. Barnes' electricians and carpenters.

Upholding the Company's characteristic expansion theme, construction crews are hammering away at still a third building in the Columbia Pike chain; also of 20,000 feet in area, it is to be ready for occupancy early in 1958.

SPEECH COMPRESSION SYSTEM GAINING WIDESPREAD INTEREST

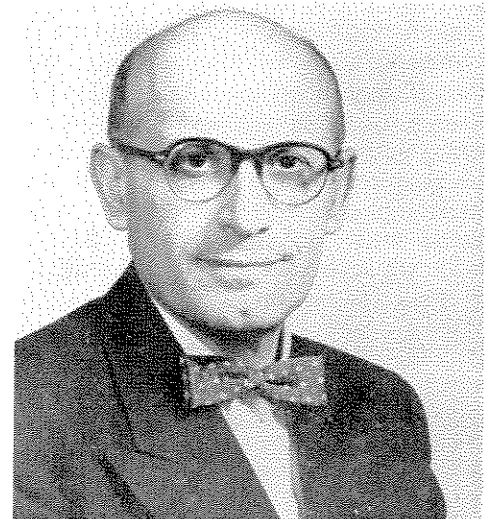
Melpar's development of a speech bandwidth compression system capable of transmitting speech within a bandwidth of 150 cps as opposed to the 3000 cps required for conventional speech transmission is generating increasing interest among people concerned with the communications field in general.

Immediately following a presentation of the system by Project Engineer S. J. Campanella at the recent Aero-Communications Symposium of the Rome-Utica Chapter, IRE, Mr. Campanella received a telegraphic request to repeat the lecture at a forthcoming meeting of the IRE's Fort Worth, Texas, Chapter.

The system has been the subject of a featured talk by Mr. Campanella before the 54th meeting of the Acoustical Society of America at the University of Michigan, and will be presented locally on 9 December at the Pepco Auditorium, Washington, before the Professional Group on Communication Systems.

R. I. COLE ELECTED A FELLOW BY IRE

Ralph I. Cole, Melpar's Manager of Military Project Planning, has been elected a Fellow in The Institute of Radio Engineers. The Institute's Board of Directors conferred their highest member grade upon Mr. Cole with an accompanying citation: "For his contributions to engineering management".



R. I. Cole

With the exception of the late Dr. W. G. Tuller, posthumously elected in 1956, Mr. Cole is the only member of Melpar's staff to have attained this IRE ranking.

Formal presentation of the award will be made by the Washington Section, IRE, at its annual banquet in February. In further recognition, Mr. Cole will be the Institute's guest at the banquet climaxing the IRE 1958 National Convention, to be held during March.

In 1929, Mr. Cole began a long and distinguished career in engineering management, first with the Army Signal Corps and later the United States Air Force, serving both as a civilian and as a Lieutenant Colonel in the USAF.

In July, 1952, Mr. Cole left the post of Chief Engineer and Technical Director of Watson Laboratories (Rome Air Development Center) to join Melpar. He won his BS degree in 1927 at Washington University, St. Louis, and an MS in Physics at Rutgers University in 1936.



photo by Norton.

OPINION

The story is familiar, of the farmer who was sole eye-witness to the head-on meeting of two freight trains. Called to testify, the farmer was asked what he thought when he sighted the two trains on a collision course. The farmer replied that, after analyzing the situation, he had pronounced it an unorthodox way to run a railroad. He was so right.

But it's reasonable to suppose that no one planned it that way; no one would advocate all that noise, dust, and confusion as standard operating procedure. Chances are it was a little railroad, young, and with its ballast still unsettled. The man in charge of timetables (Daily Ex Sat. Sun.) probably forgot to coordinate his efforts with those of the man in charge of Sat. Sun. Only.

As time went on and the railroad gained experience, such mix-ups no doubt became infrequent. Timetables grew more precise; engineers were confronted with more sophisticated signal networks; automatic switching shunted slow freights aside while the red ball went through.

Then surely, oldtimers began mutter-

ing about red tape and loss of initiative . . . things were different in the hey-day of Old 97; then, all a good man had to do was carry the mail.

Even pretending that the oldtimers are right (and they aren't, really); the fact is, that there wasn't even very much mail. If the oldtimers wanted to communicate, all they had to do was rise up and holler. So small was the field of interest, that only the rarest problem was able to grow unseen and flourish into a neurosis.

Now our mythical railroad is a large operation indeed. For all its wheels to keep turning, not spinning, it wants something more than instructions given on the run. The gruesome word can't be avoided; it is in the dictionary. Procedures.

Pronounce it three times, loud and clear, and you'll be its master. Remember that procedures are nothing more than negotiated agreements between various interested parties, spelling out the currently sensible way to keep things from coming unstuck. So use them, don't abuse them. You might need one some day.

Man Beats Machine!



Take heart, men. All is not yet lost. Science, spouting Sputniks all around the premises, may act as though it has hired the hall and is calling the tune; but homo sapiens is not licked yet. The checker-playing championship of the world still belongs to us.

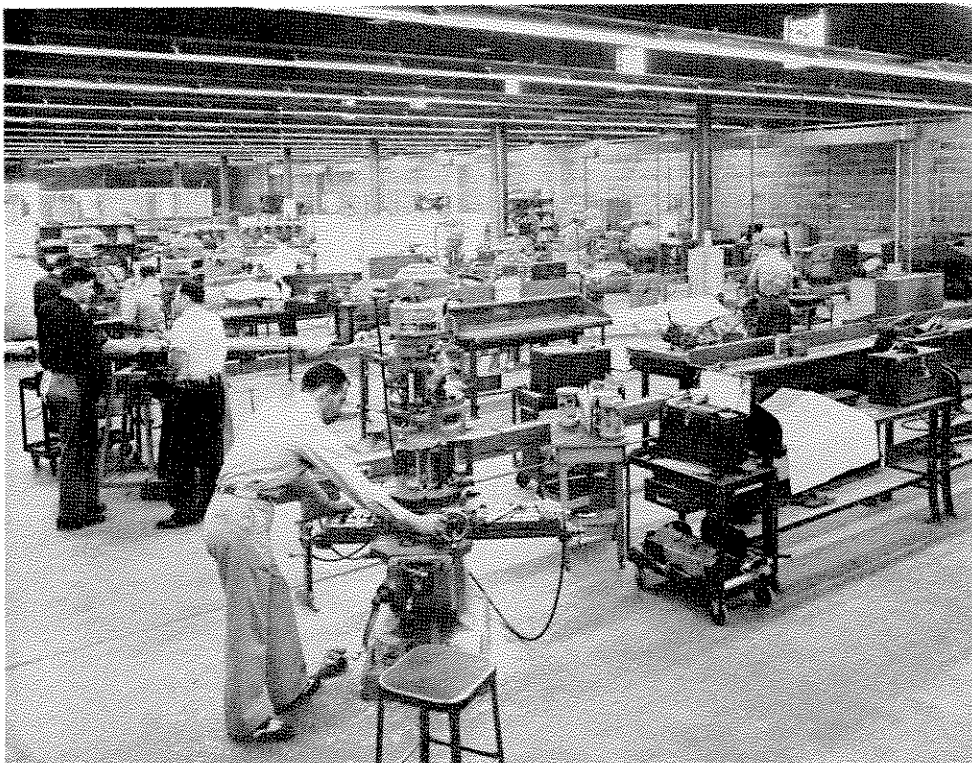
In its invaluable publication "Looking Ahead", the Second Bank-State Str Trust Co. of Boston has revealed best news story of the year. An electronic computer, built to play checkers, eked out a few victories over ordinary players but went down to humiliating defeat when matched with a champion.

ULTRASONIC EYES PROTECT SECURITY

Ultrasonic radiation devices have been adapted for Security use, in order to provide around the clock protection for certain closed areas at Falls Church.

The Walter Kidde Co. system was installed by Electricians J. A. Beatty and W. O. Thomasson, and Electrician Group Leaders P. H. Hiers and O. K. Willt of the Maintenance Department, from layouts made by L. E. Evans and F. L. Carau of the Quality Control Department.

The air of the room to be protected is filled with ultrasonic waves, creating constantly amplified and transmitted echoes from each object in the room. Any moving object will generate an echo differing in frequency from the pitch of the original waves; any such frequency difference is used to set off an alarm at the central guard station.



"JUST TAKE A PICTURE of the enlarged Machine Shop lay-out at Arlington." Thus easily was the photographer given his assignment. Unfortunately, one picture can cover only so much territory; this view is merely of the milling machine section. Hidden in the distance are the lathe and drill sections, plus a vast miscellany of other tools (laid out for maximum efficiency, we hasten to add).

photo by Norton.

ALEXANDRIA GROUP FIXING STANDARDS

Test, selection and modularization of standard preferred circuits is being conducted by the Operations Analysis Department at Melpar's Alexandria Plant. The project, being pursued under the provisions of a contract from the U. S. Naval Air Development Center, Johnsville, Pennsylvania is being directed by Project Engineer H. Lane Dudley. Engineer A. M. Maher and Technician Roland Burrows complete the group.

The project involves 32 circuits which were recommended by the Bureau of Standards. Regulator, video, pulse and audio circuits will be evaluated and specifications prepared. Eventually, modules of 10 circuits will be delivered as samples of modularization techniques.

The modules will utilize printed circuits being prepared by the Chemistry Laboratory at the Falls Church Plant. Since the contract requires that consideration be given to automatic assembly of the circuits, Mini Mech is being used.

This Melpar designed equipment automatically positions and assembles electronic components on printed circuit boards. Double printing and precisely controlled plating time for the printed circuit boards is necessitated by the requirement that solder plate be 6 to 8 mils thick for processing by Mini Mech.

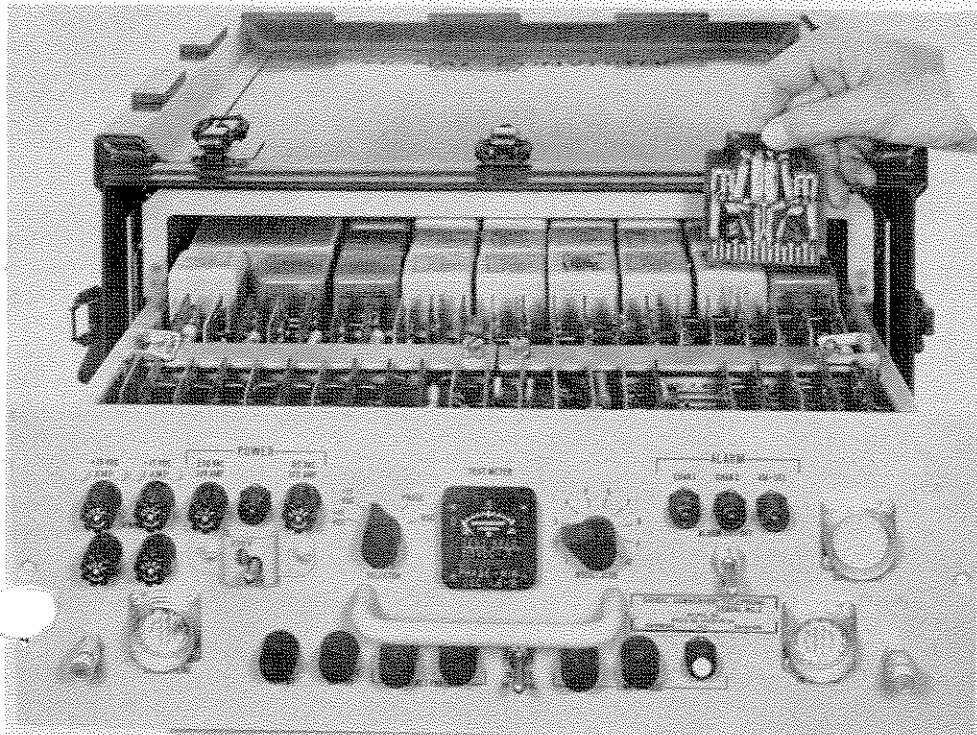
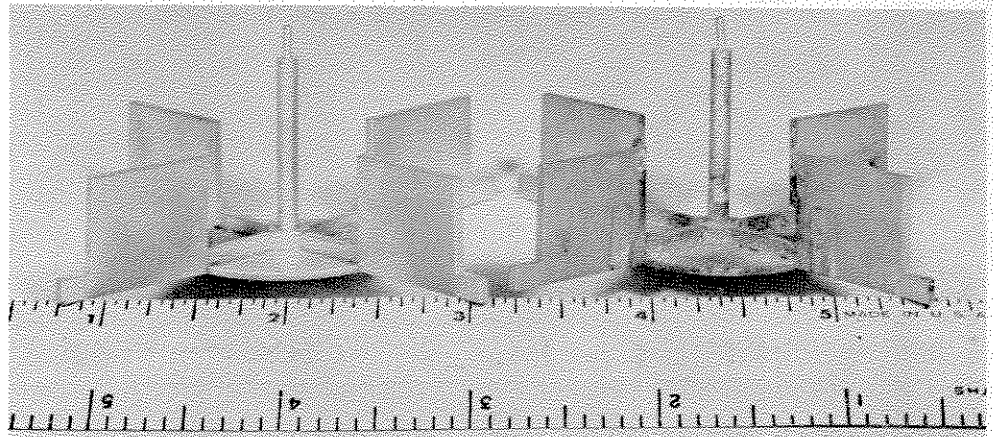


Photo by Norton

Molten Salt Bath Makes 'Impossible' Welds



Equipment capable of dip brazing an aluminum assembly the size of an average chassis is now in operation at the Arlington Plant. The basic equipment includes an Industrial Model VA-1000 preheat oven, an Ajax Hultgren salt bath furnace, and process tanks for post-cleaning. The limiting equipment for work size is the salt bath furnace, whose working dimensions are 36" long by 24" wide by 22" salt depth.

This Arlington facility has joined aluminum parts judged impossible by any other method. Successful aluminum brazing requires an even temperature which is below the liquids of the parent aluminum, and above the melting point of the filler material. It is the nature of aluminum, that these two temperatures are so close

together that even the most skilled craftsman with a torch will spoil several assemblies to get one good one.

The key feature of the salt bath furnace is not that it contains over a half ton of molten salt, but that it will control the high temperature of the salt to a tolerance of 2°F. The preheat oven heats the work to over 900°F (freezing temperature of the molten salt), and also is used to harden heat-treatable alloys after brazing.

Designers interested in capitalizing upon the many advantages of dip brazing as opposed to conventional torch methods may draw upon the experience gained by Supervisor J. D. Harris and Foreman E. H. Weber in putting the new facility into production.

TRANSISTORIZED CHASSIS CUTS TERMINAL UNIT DOWN TO SIZE

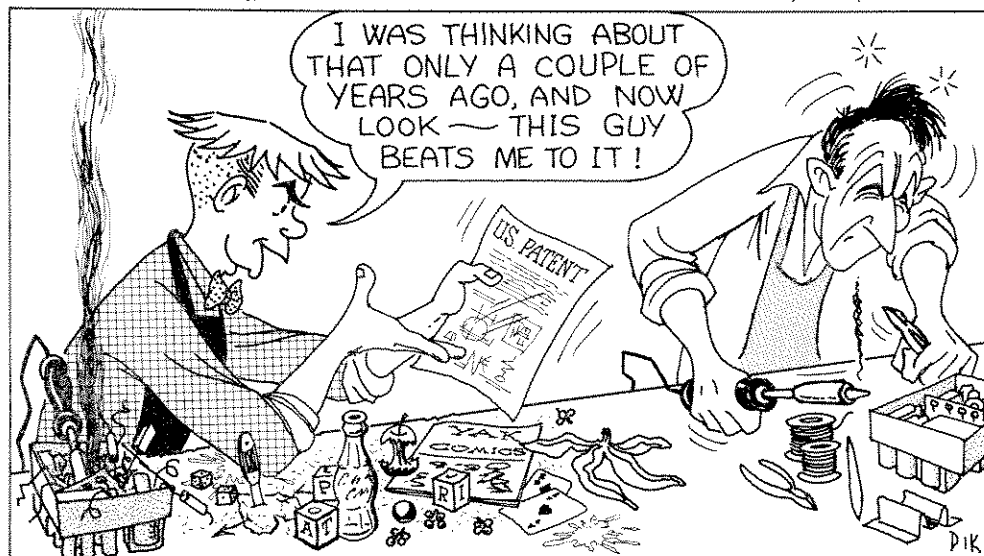
The tidy piece of equipment seen at left, which is not nearly as big as a breadbox, not too long ago would have been a massive rack of electronic wizardry approximately six feet high. It would have been loaded down with some 100 vacuum tubes of all descriptions, plus the countless satellite components required to make tubes behave.

But its basic concept demanded a fully transistorized construction; and by the use of about 150 varied transistors in circuits designed to exploit the transistor's special capabilities rather than to merely replace tubes, it was so contrived.

Developed for the U.S. Army Signal Engineering Laboratories, this communications terminal equipment project was directed by Project Engineer Morris Watson, supported by Senior Engineers E. A. Golden, C. S. Fama, and D. M. Early.

MURGATROYD MISFIT

by dick prescott



GOING UP!

Bailey's Cross Roads Engineering Department has announced the promotion of three men to Senior Engineer: W. M. Stone, E. C. Trexler Jr., and H. S. Schrader.

At Arlington, J. E. Lofquist rose from Mechanical Inspection Group Leader to Mechanical Engineer. J. L. Zobay was promoted to Mechanical Inspection Group Leader, and A. L. Kocher moved up to Mechanical Inspector 1st Class.

D. W. Pease, of Falls Church, was advanced to Senior Mechanical Engineer. New Senior Engineers are G. G. Chadwick and J. H. Williams. J. G. Marangoni was promoted to Engineer. Two Falls Church men, C. L. Benton and E. T. Dodson, rose to Senior Draftsman.

Named Task Leaders at Arlington were O. H. Bly and W. G. Ferland. J. D. Newsome rose to Heavy Assembler

1st Class, and F. P. Sullins advanced to Light Assembler 1st Class. J. D. Critchfield moved from Engineering Aid to Staff Assistant, and J. K. Duff was promoted to Junior Methods Engineer. S. F. Scrivener is now a Lead Stock Clerk.

At Falls Church, D. C. Liggett was named a Sub-Contracts Senior Buyer. J. M. Eliff rose to Senior Planner, and E. D. Case advanced to Technical Writer. E. C. Nalls is now a Carpenter Group Leader. J. E. Crews was promoted to Electrician 1st Class, and K. C. Compton moved up to Lead Welder.

D. C. McHugh is now a Senior Draftsman at the BXR plant. L. F. Hollar and G. A. Kolas rose to Lead Wire Technician 1st Class. M. H. Lloyd and C. E. Lowe were promoted to Senior Technician. J. R. Makfinsky is now an Engineering Assistant and W. W. Gunn a Junior Engineering Assistant.

DISTANT HORIZONS BECKON FIELD MEN

Melpar Field Service engineers not only are currently busy in widely separated parts of the United States, but have an eye for still more distant horizons. At the Naval Air Station in Oceania, Virginia, Engineer K. D. Truesdell is overseeing the installation of the first A4D-1 Operational Flight Trainer to go into operation.

Opened November 20 by Field Service Supervisor W. R. Sherman, an intensive training course in the operation and maintenance of the Company's newest contribution to the "Century Series" of

Flight Simulators, the RF101-A, is being given at Bergstrom AFB in Texas.

The 17 Air Force men enrolled in the RF101-A course comprise the largest group yet to be trained in handling a Melpar Simulator. The entire class has been assigned to eventual duty at AF bases overseas; the Company also is scheduled to detail Field Service engineers for duty at such locations.

Simulator Section engineers G. H. Jones, F. B. Love, M. R. Kelly, and Frank Chilton are following Mr. Sherman as instructors on the Bergstrom AFB assignment.

SCARCE CERAMICS MADE BY CHEM LAB

A saving of considerable time and money was affected recently when Melpar-produced ceramic parts were assembled as part of a special design VHF tuner. Faced with the problem of obtaining three high frequency insulators quickly, with none available on the open market, Engineers Frank Briglia and Edward Gibbons, under the direction of Project Engineer Phillip J. McCabe turned to the Chemistry Laboratory with their problem.

With the help of Senior Engineer Joseph L. Pentecost, Engineer Zarr Post and Chemical Technician Carroll Clatterbuck the problem was solved. Raw materials were mixed, molded and fired up to 2300 degrees Fahrenheit. The parts were then turned over to Machinist J. Schulze for finishing to the desired tolerances by using diamond abrasive wheels, before being metallized and soft soldered into place.

This marked the first use in a prototype of a ceramic part produced by the Falls Church Chemistry Laboratory. Previously, ceramic parts had been used as samples or for experimental purposes. The project benefitting from this example of Melpar teamwork is a portion of a Bureau of Aeronautics contract which has been sub-contracted to the Company by North American Aviation.

NO-WRAP WIRING METHOD ACCEPTED IN PRODUCTION

A production job involving 126 electronic chassis grouped into 14 consoles, now being built by Melpar's Arlington Plant, will feature the use of a new wiring technique of which the Company was an early advocate. Stemming from intensive research by the Naval Electronics Laboratory, the method virtually eliminates mechanical, or 'wrapped' joints as a prelude to soldering-in components.

Arlington's Methods engineers first used the process in building prototypes of terminal equipment. After rigid quality control testing by our own Quality Control personnel, the new technique was proved for line production. The savings resulting from this simplified handling of such items as tube sockets and component boards are expected to be significant.