MELPAR-A-GRAPH

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THIRD QUARTER NEW BUSINESS UP 65%

RELIABILITY ORIENTATION SERIES BEGINS

Melpar's Reliability Department began a series of presentations on October 17 designed to reinforce our awareness that the reliability of our products depends on everyone who contributes to their design, fabrication and use. According to Mr. R. G. Murrell, Director of Reliability and Quality Control, the reliability of Melpar designs and products has always been a major consideration throughout the company. In recent years an even greater emphasis has been placed in this area with the requirements becoming more stringent. He noted that our current Minuteman Program is an outstanding example of this on a production effort, where reliability has become the motivating force as well as the desired result.

The Reliability Orientation Series is being presented in order to support these requirements throughout design, development and production. Most of Melpar's management and technical personnel are being given an opportunity to participate in some form of formal education, orientation, or training in reliability through this series of presentations.

$300,000 SPEECH COMPRESSION CONTRACT AWARDED TO MELPAR

The Company has received a $300,000 contract to design, develop and produce a speech compression communications system for the Army Signal Corps. Systems of this type could ultimately permit transmission of up to ten voice messages over a conventional single voice channel. The full-duplex formant tracking vocoder will convert spoken words into electronic pulses which are reconverted at the receiving end into an electronic "voice" approximating that of the speaker. The contract calls for delivery in about twenty one months.

(SEE SPEECH CONTRACT, PAGE 4)

New orders placed on the books during the third quarter totaled in excess of $15 million and represents an increase of 65% over the same period of 1961. It is also the second highest third quarter in the Company's history.

The Company reported net income of $275,768 for the third quarter, a 51% increase over that period last year. Third quarter sales increased 27% to $10.2 million. The Company's net income for the first nine months this year jumped nearly 25% to $720,500, from $577,517 for that period in 1961, while sales rose 5% from $26.1 million to $27.4 million.

In the interim report to stockholders, President E. M. Bostick said he was now certain that improvement of sales and earnings for the full year over those of 1961 would be attained.

DR. COLEMAN APPOINTED HEAD OF THE NEW PHYSICS RESEARCH DEPARTMENT

The appointment of Dr. Howard S. Coleman as Head of the newly formed Physics Research Department was announced on October 29th by Dr. P. E. Ritt, Vice President-Research.

Dr. H.S. Coleman

The new department brings together the Materials Section under Dr. J. L. Pentecost, the Physical Electronics Section under Dr. C. Feldman, the Solid State Physics Section under Dr. N. Fuschillo, and the Physics Section under Dr. R. C. Jones.

Dr. Coleman brings to Melpar more than twenty years experience in directing research programs in physics and allied disciplines. He is the author of over 200 publications and government documents reflecting his research achievements in the fields of Physics, Optics, Metallurgy, Aerodynamics, Meteorology, Photography, Astronomy and Chemistry.

Dr. Coleman began his career at Pennsylvania State University as an Instructor in Physics and Director of the Optical Research Laboratory where one of the more significant programs under his direction was in physics of solids research involving studies of gaseous and intermetallic diffusion. During and after World War II he was in charge of optics research programs dealing with the inspection of optical fire control equipment for which he received a Joint Army-Navy Citation.

Accepting an appointment as Associate Professor of Physics at the University of Texas, Dr. Coleman was Director of the Optical Research Laboratory in addition to his teaching duties at the graduate and undergraduate levels. The research programs under his direction at the University of Texas included atmospheric optics, thin-film research and infra-red projects relating to Snooperscope and Sniperscope improvements. The atmospheric programs involved

(SEE PHYSICS RESEARCH DEPT., PAGE 4)

GARLOCK ELECTED TO MELPAR BOARD

Mr. Lyle S. Garlock, an Eastern Airlines vice president and former Assistant Secretary of the Air Force, has been elected to the Board of Directors of Melpar, Inc. His election raises the number of Melpar's board members from five to six.

Mr. Garlock joined Eastern Airlines in October 1961 as Vice President-Government and Community Relations after 27 years in Government service. He was appointed Assistant Secretary of the Air Force for Financial Management by President Dwight D. Eisenhower in August 1954 and was re-appointed by President John F. Kennedy in January 1961.

MR. L. S. GARLOCK

Melpar's new board member was named Air Power's "Man of the Year" by the Air Force Association in 1961 and is currently a member of the Policy Council of that association. In 1959 he received the National Civil Service League Award. Born in Walnut Grove, Minnesota, Mr. Garlock graduated from the University

(SEE GARLOCK, PAGE 4)

HYBRID SPEECH COMPRESSION SYSTEM DESCRIBED AT ACOUSTICAL MEETING

Mr. D. C. Coulter presented a paper entitled "Hybrid Formant-Tracking Channel Vocoder" at the 64th meeting of the Acoustical Society of America, held November 7-10 in Seattle, Washington. Co-authors of the paper with Mr. Coulter were Messrs. S. J. Campanella and D. M. Early.

The paper described the results of a joint effort of Melpar's Research and Engineering Divisions to develop a speech compression system demonstrating a 90% phonetically balanced word list articulation rating. According to the authors, the system incorporates several novel features. These include the hybriding of the best features of previous format tracking and vocoder systems to achieve the result of articulate voice communications at a low bit rate of 1,000 bits per second, and the incorporation of new adaptive concepts in formant and pitch tracking.

Mr. Coulter also demonstrated the improvement in speech compression devices during the last six years by means of tape recordings of speech processed through the subject system compared with recordings made with Melpar's earliest models.

BYLANDER AND MITCHELL REPORT ON VAPOR GROWTH OF SILICON JUNCTIONS

An interdisciplinary effort between two Research Division scientists involving Physical Chemistry and Physics, resulted in a technical paper reporting "Progress on the Vapor Growth of Silicon P-N Junctions on Insulating Substrates."

The paper was presented by Mr. E. G. Bylander to the Technical Conference on Advanced Electronic Materials which was sponsored by The American Institute of Mining, Metallurgical and Petroleum Engineers. Dr. M. M. Mitchell was co-author of the paper with Mr. Bylander.

The authors discussed the selection of high-temperature substrates and demonstrated the feasibility of growing single-crystal silicon areas on molybdenum film deposited on an insulating substrate. Their report concluded that junction size in polycrystalline films must be of order of magnitude of grain size. They also reported that polycrystalline diodes were shown to have surprisingly good characteristics and devices formed in faceted crystals had exhibited characteristics typical of similar single-crystal devices. The authors acknowledged the help of Messrs. C. L. Brien, P. L. Garner, J. R. Murphy and J. S. Smith.

GOING UP!

Promotions include J. N. Beyrent to Planning Coordinator, D. G. Brunetti to Test Equipment Supervisor, C. G. Grimm to Shop Foreman, and R. D. Hurley to Inspection Foreman.

B. C. Langley advanced to Chemical Engineer, M. H. Lloyd to Quality Control Engineer, R. B. Oliver to Senior Planner, and T. L. Poe to Chemical Engineer.

M. J. Robey was promoted to Principal Engineer, K. R. Roy to Field Service Engineer A, and J. L. Schwier to Shop Foreman.

N. E. Walter moved up to Senior Quality Control Engineer, W. J. Watson to Senior Engineering Assistant, and G. H. Zuch to Inspection Foreman.

HSS-2 WEAPONS SYSTEM TRAINER EVOKES "WELL DONE" FOR NTDC

Melpar employees who had a hand in the design, development, and production of the HSS-2 Weapons System Trainer (the first and only full-flight regime helicopter trainer in military service) will be interested in the following news note. Appearing in the 4 October 62 issue of the *Sands Pointer*, a news-letter published by the U.S. Naval Training Device Center, under the caption "A 'WELL DONE' FOR U.S. NAVAL TRAINING DEVICES CENTER" the article is reprinted below:

We are very pleased to report the following "WELL DONE" sent to the Commanding Officer of Fleet Airborne Electronics Training Unit, Atlantic by the Commanding Officer of Helicopter Anti-Submarine Squadron ONE (key West).

"This squadron has utilized HSS-2 Weapons System Trainer 2F64 for a period in excess of one year. Utilization of this training device has reduced the expense of pilot training in the HSS-2 aircraft and contributed materially to this Squadron's achievement in winning the Chief of Naval Operations Safety Award for Fiscal Year 1962."

HOLIDAY WEEKENDS

The Company has rearranged its work schedules so that Melpar people can enjoy two long holidays during the Holiday Season this year.

We will have the advantage of a four day holiday over Christmas by working Saturday, December 29th in place of working on Monday, December 24th. Similarly we will have three days in which to celebrate the arrival of the New Year by working Saturday, January 5th instead of Monday, December 31st. Employees are reminded that we are scheduled to work on the Saturday following each holiday as substitutes for the two Mondays that would normally be work days. These Saturdays are not additional days of work.

We are scheduled to begin our first work day in the new year on January 2, 1963.

MERRY CHRISTMAS AND A HAPPY NEW YEAR!

ENGROSSED IN THEIR ATTACK ON COSTS . . . . the VIP Committee is shown above during one of their monthly meetings. From left to right: Mr. E. A. Golden, Engineering and Manufacturing; Mr. G. C. Moreland, Accounting; Mr. J. Spivak, Purchasing; Mr. R. Lane, Research Division; Mrs. D. R. Johnson, Office Services; Mr. A. B. DePasquale, Personnel; Mr. R. A. Bublitz (Chairman), Management Controls; Mr. R. A. Jardell, Engineering Services; Mr. E. M. Lane, Security; and Mr. F. J. Drummond, Contract Administration.

Photo by Glittenburg

VALUE IMPROVEMENT PROGRAM ATTACKS COSTS

We at Melpar have a vital role to play in maintaining the strength of our ation through our research, development and production programs. We have an equally vital role to play in making our technological contributions to the national defense and space efforts at the lowest possible cost consistent with the requirements placed upon us by the Department of Defense and NASA.

During recent months our national leadership has emphasized the need to control costs in our defense and space programs lest they become an impossible burden on the economic strength of the country. Secretary of Defense McNamara has committed his Department to a relentless war on reducing these costs and has invited defense supporting industries to unite in this battle.

Melpar has joined the battle to reduce costs with annualized savings of $71,000 reported during September and $104,000 during October. These savings resulted from the Value Improvement Program (VIP) which was established by the Company in July to coordinate the efforts of each division and directorate in our campaign to reduce costs.

VIP is dedicated to achieving savings in *all* areas of the Company's operation. Every department is responsible for improving value and each supervisor, as an integral part of his job, must be concerned with the control of costs. He is the key person who implements value improvement proposals.

Since VIP is a Company-wide program crossing divisional and directorate lines of responsibility, President E. M. Bostick has assigned the administration of the program to Dr. L. A. Schmidt's Management Controls Directorate. Value Improvement Analyst R. A. Bublitz has been charged with the conduct of this important program for Management Controls.

Joining us in June of this year, Mr. Bublitz comes to Melpar from Line Material Industries, Division of McGraw-Edison Company where he was the Industrial Engineering Manager. He brings particularly valuable experience to his new assignment in the area of work standards, work simplification, methods improvement and value analysis. Assisted by the Value Improvement Committee of which he is the Chairman, Mr. Bublitz is responsible for developing and recommending the use of techniques to achieve maximum savings in all areas of the Company.

The VIP Committee meets monthly to discuss and develop specific value improvement ideas and to make recommendations for action. Each member is the focal point for proposals from his division or directorate and coordinates the program in his respective area. As a body they may undertake special projects. For example, the committee is currently evaluating the need for and use of the thousands of forms and reports generated in our daily business activities VIP Committee members are: Mrs. D. Johnson, Office Services; Messrs. F.J. Drummond, Contract Administration; E.A. Golden, Engineering and Manufacturing; J.F. Hilfiker, Plant Engineering; R.A. Jardell, Engineering Services; E.M. Lane, Security; R. Lane, Research; G.C. Moreland, Accounting; A.B. DePasquale, Personnel; and J. Spivack, Purchasing. In addition, Engineering and Manufacturing has established seven subcommittees so that all locations and divisions are represented.

Evaluating and implementing specific value improvement proposals through the VIP Committee and other appropriate channels, Mr. Bublitz ensures that accepted cost reduction proposals get the widest possible application throughout the Company. Savings resulting from our VIP activities are reported monthly and are read with keen interest by Melpar's top executives as well as by our customers in the Department of Defense.

Some of the savings of the Value Improvement Program are made by the Engineering Division's Value Engineering Staff and Purchasing's Value Analyst. Using the Value Analysis approach, they begin with the question: "What will do the job or perform the function for the least cost?" The Value Engineering Staff uses this approach in reviewing product and system designs—the Value Analyst in appraising materials and components.

The dollar savings goals for VIP are high. During 1963 the monthly annualized savings rate is expected to reach $170,000. For the year, this would amount to total annualized savings of approximately $2,000,000 in overhead and direct costs. While it is still early to predict how close VIP will come to its goal, the program is gathering momentum. Its organization is defined—its goals established. Enthusiasm is building. In the coming months we will be reporting more about VIP and its progress.

Each Melpar employee is a VIP (Very Important Person) to VIP. Employee ideas for value improvement have played an important role in Melpar's progress. Most of our "old hands" know that finding ways to improve quality and reduce costs associated with the performance of their jobs is an important consideration in the evaluation of their job performance. If you have a value improvement idea, discuss it with your supervisor or with one of the VIP representatives in your division or directorate.

A successful Value Improvement Program will bolster the economic strength of Melpar as well as the Nation. You can share in that success.

Quand on parle bien la langue francaise, c'est beau! **But when the gallic tongue is transmitted through Melpar's speech compression system . . .** ***Alors, c'est magnifique!*** **Magnificent at least in the sense that this speech compression device was estimated recently to have processed French just about as well as English, even though the machine was developed specifically for English. The comparison was made recently when two French Army officers, Lt. Colonel Rouquette and Lt. Colonel Gaubert of the French Army's Tele-communications Research and Development Group located at Fort D'Issey Les Moulineaux, (Seine) France, visited Melpar to discuss the Company's Speech Bandwidth Compression System recently developed for the Air Force. Fort D'Issy Les Moulineaux is similar to our Fort Monmouth, New Jersey. The compression device is capable of operating at a bit rate of 1000 per second which represents a 20:1 speech compression ratio.**

A tour and discussion of other work in the Communications Department and an opportunity to consult with Messrs. S. J. Campanella and D. C. Coulter, the Research Division's speech compression experts, completed the itinerary for their visit.

Shown above left to right: Lt. Col. Gaubert, Lt. Col. Rouquette, Principal Engineer R. E. Irons, and Project Engineer D. M. Early.

Photo by Norton

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PHYSICS RESEARCH DEPT.

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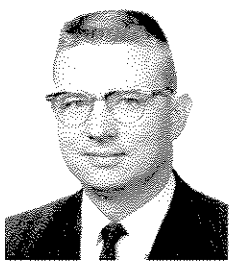
visibility studies of objects through the atmosphere using photographic, photoelectric, and visual photometric measurements in a laboratory 8.5 miles long. Thin-film studies were conducted involving metals, dielectrics, and mixtures of metals and dielectrics deposited simultaneously on substrates at different temperatures. Prior to joining Melpar, Dr. Coleman was associated with Bausch & Lomb, Inc. As Vice President of Research and Engineering, he was responsible for the research, development, and engineering of all Bausch & Lomb products. In addition he was responsible for process research, development and engineering required to manufacture those products involving plastics, glass-making and vacuum deposition.

Dr. Coleman is a member of the Advisory Committee on Electronics at the University of Rochester and Chairman of the Visiting Committee on Mathematics at Clarkson College of Technology.

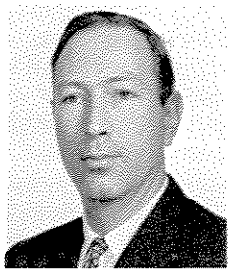
Dr. Joseph L. Pentecost, Head of the Materials Section, has been associated with Melpar since 1956 with the exception of a one-year period in 1960. He has worked principally in the fields of ceramics and materials for electronic applications. He was responsible for the dielectric materials development work on Atlas, Titan and Project Mercury re-entry antennas. During this program, he developed techniques for measurement of electrical, thermal and mechanical properties at termperatures up to 2,600° F and under simulated re-entry environments.



Dr. J. L. Pentecost

Dr. Penetecost is associated with Melpar's program for development of materials and processes for microminiaturization of electronic circuits. He has been particularly concerned with the selection and application of filled and unfilled plastic materials for such applications. Author of a number of technical papers and presentations describing his research in ceramics and high temperature measurements.

Dr. Charles Feldman, Head of the Physical Electronics Section, came to Melpar in 1959 with extensive experience in thin films research. Prior to joining Melpar, Dr. Feldman was associated with the Naval Research Laboratory. He has pioneered work in the formation of thin films of complex molecules such as barium titanate and in research in transparent luminescent films. Dr. Feldman has investigated thin films of ferroelectrics and phosphors, their interaction with electrons, and the semiconductor behavior of extremely thin films. From Dr. Feldman's research in thin films have stemmed more than twenty-five papers and presentations, eight patents, and several patents pending. He received an Applied Science Award from NESA (NRL) for his work on luminescent screens.



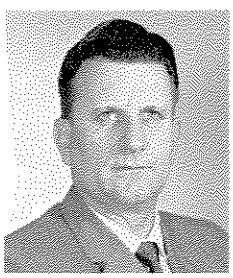
Dr. C. Feldman

Dr. Nicholas Fuschillo, Head of the Solid State Physics Section, has been responsible for the development of Melpar's research capabilities in this area since January of 1961. He is currently supervising research programs in solid state devices, semiconductors, metals and ionic crystals. While an Assistant Professor of Physics at Pennsylvania State University, Dr. Fuschillo took leave of absence to join the Franklin Institute as the head of the magnetics and semiconductors branch and initiated the Institute's magnetic spin resonance laboratory. Dr. Fuschillo was subsequently associated with C.B.S. Laboratories as Head of the Physics Department. Dr. Fuschillo is the author of fifty publications, presentations, and contributions to books dealing with solid state physics, chemical physics, and instrumentation.

Dr. N. Fuschillo

Dr. Roger C. Jones, Head of the Physics Section, joined Melpar in 1957 after having been associated with the Naval Research Laboratory. At NRL he designed portions of the early missile command guidance systems. After designing the gamma ray collimators for the first thermonuclear tests, he assembled and aligned the collimators at the various test sites on Eniwetok Atoll. Upon returning to the U.S., he constructed one of the first experimental curves for a thermonuclear reaction, using data from the Eniwetok tests.

Subsequently specializing in Plasma Physics, he performed the first rigorous analysis of the plasma gyrator, conducted some of the first experiments on beam-plasma interactions, investigated plasma oscillators and sheath instabilities and first observed the "spark phenomenon" in a magnetic induction discharge. He later engaged in extensive experimental work on electromagnetic wave-plasma interactions.



Dr. R. C. Jones

Since joining Melpar, Dr. Jones has worked on a variety of projects, involving countermeasures, fuzes, antennas, propagation, lightning phenomena, and other topics in the fields of plasma physics, solid state physics, nuclear physics and electronics. Presently he is directing work on laser research and development.

Dr. Jones has published several papers and classified articles, largely in the fields of plasma physics and electronics.

GARLOCK

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of Minnesota in 1931. His daughter, Mrs. Kathryn Garlock Croft is a former Melpar Minuteman Division employee having resigned in August of this year prior to her marriage.

SPEECH CONTRACT

(Continued from Page 1)

The equipment will allow telephone communication in a spectrum space approximately one-tenth that required for conventional speech. A number of these instruments could provide transmission of up to ten simultaneous telephone conversations over a normal single telephone channel.

The system will include speech bandwidth compression techniques developed by the U.S. Army Electronics Research and Development Laboratory at Fort Monmouth, N.J., and Melpar, as well as new methods of speech analysis and synthesis to be developed by Melpar. The Company has been engaged in research and development techniques for the past ten years. The aim of this research is to provide a formant vocoder that will give 85% phonetically balanced word intelligibility while maintaining good speaker identity. The equipment will operate in a digital mode at 1,200 bits per second.

The work on this contract will be a joint effort between the Engineering Division's Communications Department and the Research Division's Electronic Acoustics Laboratory.