V. Chigas

WE WHO ARE preoccupied with the microwave industry are surrounded by evidence of its flourishing condition. As we relax over the Sunday papers, we cannot fail to be struck by the increasing numbers of pages of employment ads for microwave engineers. As we take the family out for a Sunday drive along most any highway, if we dare take our eyes off the car ahead, we must note the clusters of buildings comprising so-called "industrial parks," and observe that microwave firms form a relatively large percentage of these groups. We must conclude that since emergence from the laboratory such a short time ago, microwaves has rapidly become a big business, and in common with all business, competition has become a force that each firm must reckon with in its own way. Signs of the times have been amply available — mergers, stock issues, expansion by borrowing, in order to prevent watering down of equity. We present these company profiles to indicate how representative companies in the microwave industry meet problems that the realities of modern business deal out to them. We hope that each will prove of interest and value to our readers; and we welcome comment and suggestions.

COMPANY PROFILE

MICROWAVE ASSOCIATES, Inc.

BOX SCORE

NAME: Microwave Associates, Inc.
LOCATION: Middlesex Turnpike, Burlington, Mass.
PRODUCTS: Magnetrons, silicon diodes, duplexer tubes, varactors, waveguide components, etc.
HIGHLIGHTS: Strongly R & D oriented, this firm is prepared to meet ever increasing demands for new, improved microwave products.



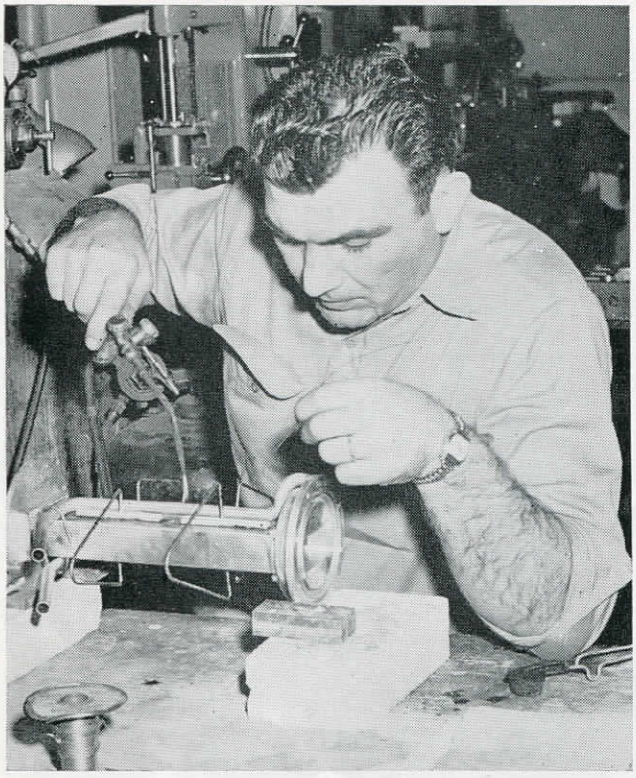
Left to Right: Richard Walker, Vice-President Engineering; George Kariotis, Vice-President Sales; Vess Chigas, Executive Vice-President, and Dana Atchley, President.

Microwave Associates, Inc., of Burlington, Mass., is a company whose directors say that "in this competitive electronics industry, a growth company must offer specific capabilities to succeed." These capabilities must include, not only engineering skills, but also aggressive management and sound business judgment.

The firm was started in 1950 by three engineers, two of whom, Vess Chigas and Richard Walker are today Executive Vice-President and Engineering Vice-President, respectively. They rented 2800 square feet of floor space on Columbus Avenue in Boston, Mass., and their plan was to do microwave consulting, research and development work, and to establish a line of millimeter wave components for the swelling microwave industry.

In the first year the company did R&D work for the Signal Corps, including some pioneering in circular waveguide elements, as well as design and development of special items for industry. Encouraged by these early operations, the young company decided to enter the electron tube field, and was successful in receiving the award of an Industrial Preparedness Study contract from the Signal Corps for two magnetron types.

Meeting this contract required additional capital which was supplied out of the pockets of the founders, and from a few key personnel who joined the firm and were given an opportunity to invest in the company.



Soft soldering cooling tubes on an S-Band isolator

Having entered the magnetron field, the company decided also to produce duplexer tubes, and expanded to new quarters of about 6000 sq. ft. in 1951. As the young company worked on establishing their electron tube producing facilities and on the Signal Corps contract, they successfully bid on additional R&D work and received contracts for waveguide components, magnetrons, duplexer tubes and semiconductors. Here, then, was a turning point to be faced by the management; which way to go to obtain the additional facilities and people to meet these new contract requirements? Vess Chigas arranged for a $100,000 loan from a Boston Bank; but about this time Chigas and Walker met with Dana Atchley, then Technical Coordinator for ABC-Paramount Theatres, Inc. They had known each other professionally earlier; and Atchley became convinced of the potential of the young company. He interested ABC-Paramount in Microwave Associates, and in 1952, ABC-Paramount invested in the firm, buying up 50% of newly-issued shares, and Atchley joined Microwave Associates, Inc., as President of the Corporation.

The company was now located on Cummington St. in Boston, and with the growing demands for space kept adding square feet in this plant; 6000 ft. in 1952 for R&D functions, then again late in 1952, more space to accommodate the demand resulting from their decision to enter the microwave diode line. By 1955 Microwave Associates had expanded along Cummington Street in five buildings occupying about 20,000 square feet.

At about this time, the Western Union Telegraph Company became interested in the firm and in the significance of its products and potential contribution to future communications techniques. They entered the Microwave Associates picture with strong financial backing, purchasing shares such that ownership now rested on an equal basis between ABC-Paramount, Western Union, and management.

A new building, located along route 128, known sometimes as "Electronics Highway" was next in the expansion program, and in 1957 the company moved to this new location. This plant provides Microwave Associates with 50,000 sq. ft. of operating space; and as this is being written, a new wing is being constructed, which will add another 18,000 sq. ft., and which will house completely the enlarged semiconductor operations, including both R&D and production functions. With an eye to the future, there is ample land for further growth.

The rate of growth, at a glance, amounts to this: between 1951 and the present, the number of employees rose from 13 to 360. In its first full year of operation, Microwave Associates did $80,000 worth of business. At present, it is passing the rate of $5 million per year.

Organization

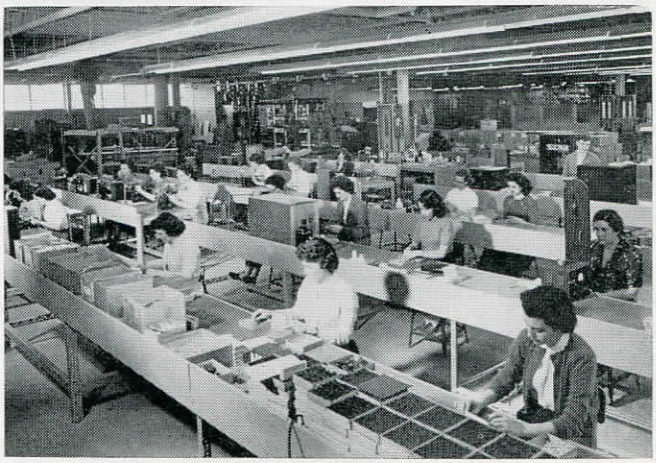
Reasons that the company advances for its success are not primarily modern technical facilities or strong financial backing. Both are, obviously, important; but also important are the presence of authority where it is required and the ability to move and execute its programs rapidly.

President Dana Atchley does not allow himself to be tied to day to day operations, but remains free to plan and develop future areas of endeavor.

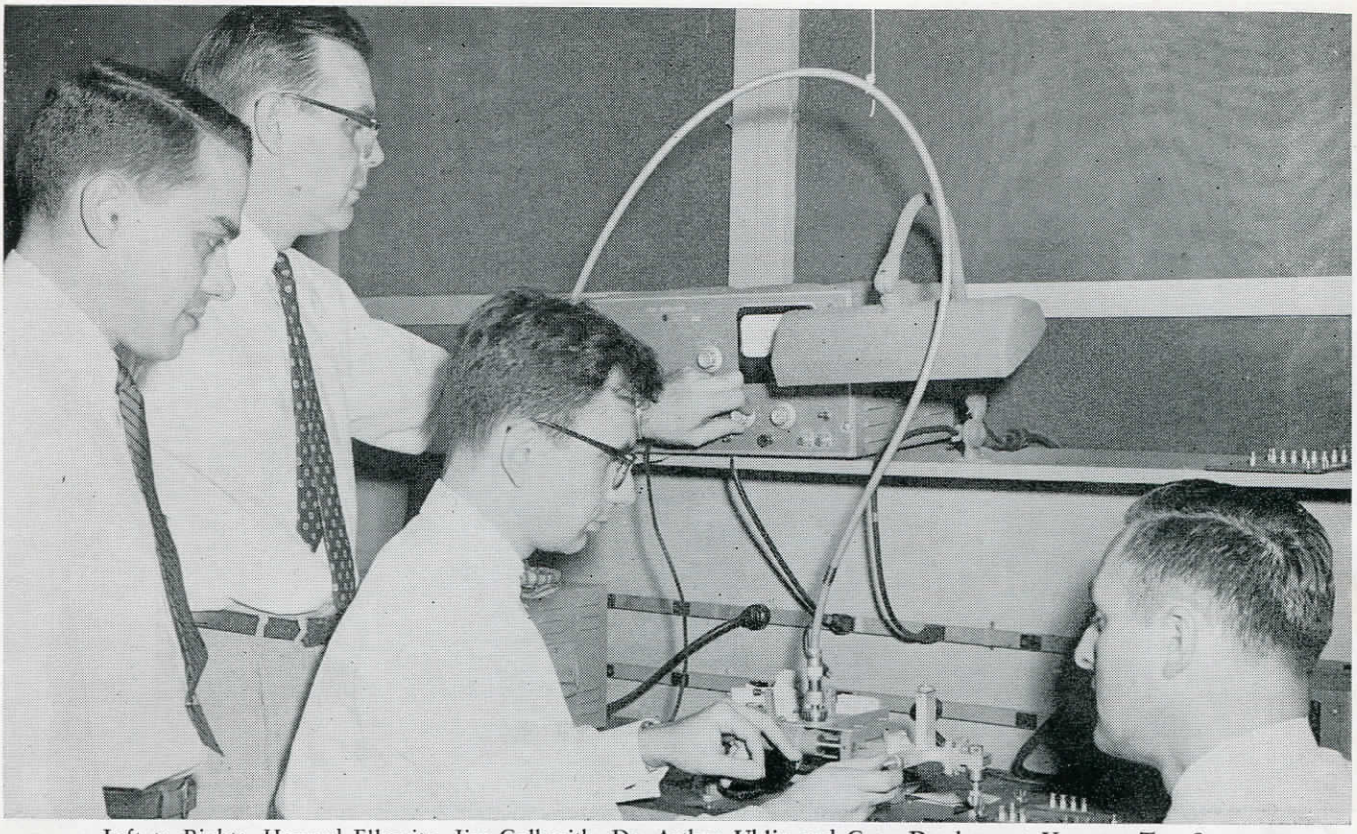
Chief executive officer, Vess Chigas, as Executive Vice President, does not like to "dilute expert talents" and believes in delegating authority as liberally as possible. This, he says, gives better incentive at all levels, and equally important, translates into efficiency.

Heading the sales force is Vice-President George Kariotis, who operates at a busy pace from both the home office and on the road to co-ordinate the company's efforts with those of seventeen sales representatives throughout the U.S. Having no company field salesmen, he and his sales engineer often service key accounts on a personal basis in order to effect the closest liaison between customer, problem, and home office engineering.

Joseph Bothwell, Vice-President for Finance has helped to maintain a firm financial position with the fluidity necessary to allow the firm to operate with competitive freedom. The proper investment of funds in proper areas at the right time has been a key factor in the company's development.



General assembly and inspection area.

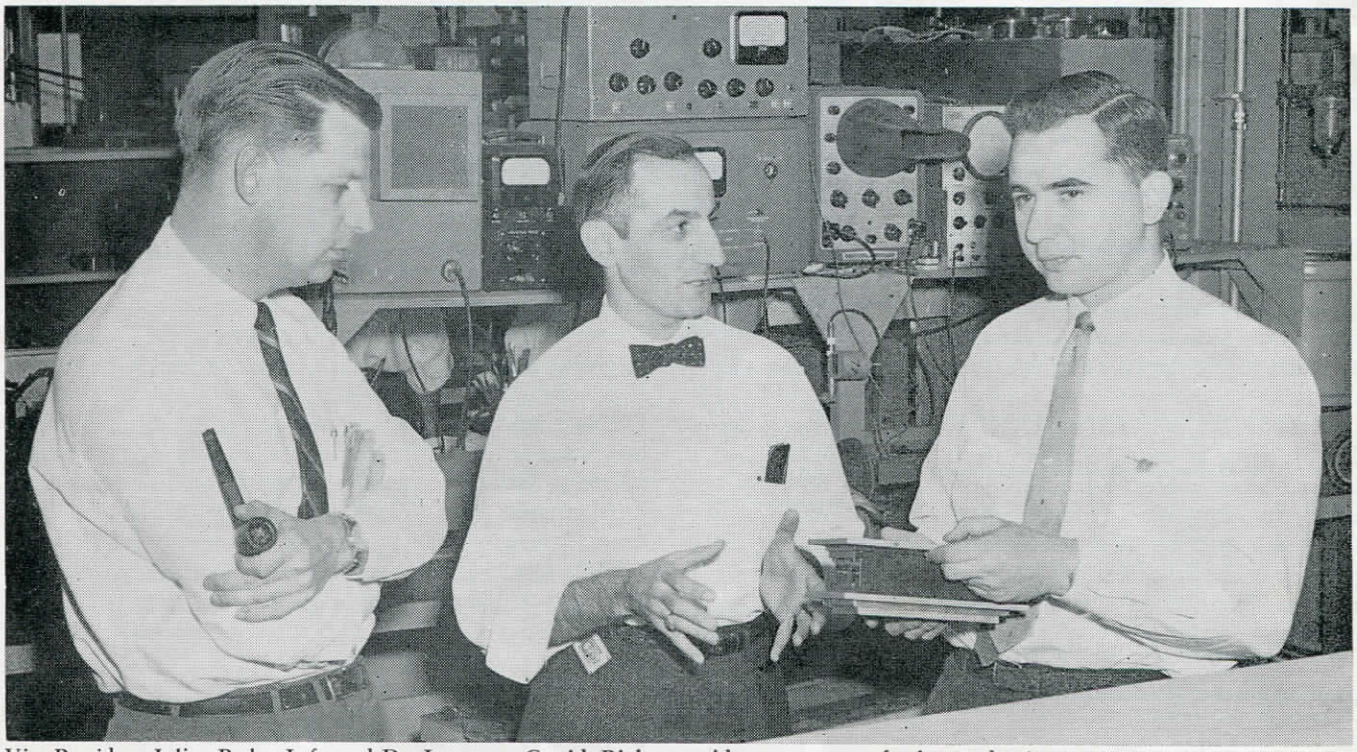


Left to Right: Howard Ellowitz, Jim Galbraith, Dr. Arthur Uhlir and Gene Deschene at Varactor Test Setup.

Basic to the expansion of any company is a continuing supply of top-notch technically trained personnel. Dr. Jerome Kornreich notes a good supply of such people in New England. He also notes that whether electronic firms are in the same product line competition or not, they co pete with one another for the same technical help.

Engineering Vice-President Richard Walker heads the electron tube and waveguide component Section; Vice President Julian Pathe is in charge of R & D for power tubes, while Dr. Lawrence Gould leads R & D for duplexer tubes and ferrite devices.

Steve Stavro, as production manager for tubes, co-ordinates efforts in magnetron and duplexer production engineering and production. With the co-operation of Joe Rousseau, Carl Burkart, Ken Conway and Bill Stanney, the production group has made significant strides in the past year in modernizing machinery and methods, and in increasing output.



Vice-President Julian Pathe, Left, and Dr. Lawrence Gould, Right, consider statements of tube production manager Steve Stavro, center.



Microwave Associates, Inc. main building — new wing rising at the left.

Newly appointed manager of semiconductor operations is Jim Galbraith.

Dr. Arthur Uhlir,* formerly of Bell Labs., heads the strong semi-conductor Research and Development Section, and Gene Deschene puts his talents to good advantage in supervising all production.

Typical key personnel rounding out the management team are Norman Houlding, Sam Harris, Howard Ellowitz, Dan Lanciani, Allen Swartz, Arthur Blaisdell, Harry Merchant, Dave Jenny, Jack Spanos, Ralph Collins, Erik Stromsted and Bill Foster.

Company Products and Activities

As the missile programs continue to expand, the demands on R&D rise logarithmically. Microwave Associates feels that it has met these demands. In support of this feeling, they quote assignments completed by their R&D groups, such as miniaturization of existing power tubes, design of improved broad band pressurized waveguide windows, and the solution of numerous gas physics problems.

The company points to the successful development of a variable capacitance diode (varactor) which, in conjunction with their specially designed parametric amplifier, increases sensitivity of existing radars by rather remarkable factors.

Perhaps the most important of Microwave Associates' line in terms of contribution to the industry is in the field of microwave silicon diode detectors. Almost 100 different types are produced, and President Dana Atchley says "We feel that we have contributed substantially to improving microwave reception by designing and producing more sensitive silicon diodes than were available before we entered the field."

Sales Manager George Kariotis indicates the important contributions of the company's R&D departments in magnetron design. These have resulted in the use of a special cathode, which increases tube life, and unique features which permit operation under tremendous shock, vibration and acceleration conditions. Recent concentration has been on further development of low and medium power Ka band tubes. A magnetron manufacturer since 1952, the company now makes nearly 50 types, adding new designs annually.

Duplexer tubes capable of handling multi-megawatt powers, specialized microwave test equipment, and an extensive array of waveguide components round out the company's product line.

*See microwave journal, sept./oct. 1958 page 17.

Financing — Sales — Outlook

A brief mention has already been made of the financial facets of the company's history. In June of 1957 a public offering of shares in the Company was underwritten by Lehman Brothers, and the Company became publicly owned. Company employees are well represented in this ownership, with a third of them holding shares.

In one and one-half years the market value of the stock has risen from seven to about thirty dollars per share.

Presidents of ABC-Paramount, Western Union, their top technical vice-presidents, and a senior partner of Lehman Brothers join with management board members in giving close attention to all matters affecting the future of the firm.

This combination places strong importance on continuing Research and Development; this is evidenced by the following figures; company sponsored R&D programs budgets increased from $99,000 in 1956 to $300,000 in 1957, and in this year were again increased to $400,000.

Sales in 1958 were the best in the company's history, and represented a healthy 64% increase over 1957 sales.

Probably as significant a pointer to the future of Microwave Associates as any collection of facts and figures is the common reply to thet question, "What's going into the new wing?" The most heard answer at Microwave Associates is "IDEAS . . . lots of new ideas!"