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Papers of
THURSDAY, FEBRUARY 26, 1959

BRIEF BIOGRAPHIES -- M.I.T.

The following persons from M.I.T. have been responsible for major research efforts at the Servomechanisms Laboratory in the development of the APT System.

APT CONF. BIOG's.

Dr. Gordon S. Brown (34 Heath's Bridge Road, Concord)

Dr. Brown, now head of the Department of Electrical Engineering, largest of M.I.T. departments, established the Servomechanisms Laboratory in 1941. Born in Australia in 1907, Dr. Brown came to M.I.T. in 1929 and received a B.S. degree in 1931, an M.S. in 1934, and a Doctor of Science in 1938 -- all in electrical engineering. Starting as a research assistant in 1931, he rose to full professor in 1946, and became head of the department in 1952. During World War II, Dr. Brown engaged in an extensive research program for the armed services. Honors for his wartime work included the President's Certificate of Merit, second highest civilian award. In 1952, Dr. Brown received the George Westinghouse Award of the American Society for Engineering Education. In recent years he has engaged in pioneer work in evolving a new synthesis of science and technology for training young electrical engineers to meet the demands of the future. Dr. Brown is a member of many scientific associations, has written numerous technical articles, and is co-author of the book Principles of Servomechanisms. He is director-at-large of the IRE, and a trustee of the Electronic Engineering Educational Foundation.

John Francis Reintjes (177 Orchard Street, Belmont)

Mr. Reintjes, 46, is associate professor of electrical engineering and director of the Servomechanisms Laboratory. A native of Troy, N.Y., he received E.E. and M.E. degrees from RPI in 1933 and 1934. He joined the M.I.T. staff in 1943 as a visiting professor of electrical communications in the wartime Radar School. Following work in industry as an engineer, he returned to M.I.T. and in 1947 was named assistant professor of electrical engineering. In 1953 he became associate professor and was named director of the Servomechanisms Laboratory. While at the M.I.T. Radar School, Prof. Reintjes collaborated with other staff members in writing a textbook entitled Principles of Radar. This book is recognized as outstanding in the radar field. Prof. Reintjes has contributed to the research activities of Lincoln Laboratory and the Research Laboratory of Electronics. He is a member of the Institute of Electrical Engineers, the Institute of Radio Engineers, and the American Society for Engineering Education.

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2. Biographies -- M.I.T.

Dr. George C. Newton, Jr. (21 Aberdeen Road, Wellesley)

Dr. Newton, 39, is associate director of the M.I.T. Servomechanisms Laboratory. He has been a member of the M.I.T. faculty since 1947, and prior to this was associated with Sperry Gyroscope Company engaged in the development of fire-control systems for bomber defense. Dr. Newton holds a B.S. in E.E. from M.I.T., received in 1941, and a Sc.D. degree, also from M.I.T., which he was awarded in 1950. He has had technical papers published in a number of professional journals, and has acted as a consultant for a large number of industrial organizations. Dr. Newton has supervised several projects at M.I.T. concerned with servomechanisms, radar systems and computers. He is a member of the American Institute of Electrical Engineers, IRE, Sigma Xi, the Franklin Institute of the state of Pennsylvania, and the American Society for Engineering Education. In 1953 he received the Levy Medal of the Franklin Institute.

John E. Ward (15 Robinson Road, Lexington)

John E. Ward is executive officer of the Servomechanisms Laboratory. The 39-year-old native of Toledo, Ohio holds two M.I.T. degrees -- B.A. in 1943 and M.S. in 1947. From 1943 to 1945 he was a staff member of the Radiation Laboratory at M.I.T., where his work included radar homing systems for glide bombs, design of radar test equipment, and a radar bomb scoring system. Ward joined the Servomechanisms Laboratory in 1945, and received successive appointments as research assistant, staff member and project engineer until his appointment as executive officer in 1955. He has worked on design, systems design for bomber turrets, flight test instrumentation, servo data repeaters, and integration of digital computers in control and data processing systems. He has written numerous technical papers and is co-author of the book Notes on Analog-Digital Conversion Techniques.

Douglas T. Ross (33 Dawes Road, Lexington)

Known as "Mr. APT" to his colleagues, Douglas T. Ross, 29, is head of the computer applications group of the M.I.T. Servomechanisms Laboratory. A cum laude graduate of Oberlin College, where he majored in mathematics, Ross came to M.I.T. as a teaching assistant in the Department of Mathematics. In 1952 he joined the staff of the Servomechanisms Laboratory and since then has been interested in the application of large-scale digital computers. In 1954 he received his M.S. degree from M.I.T. Ross and his colleagues developed new techniques for the evaluation of the fire control system of the B-58 airplane. During this work, he became interested in the problems of communication between humans and computers, and presented a paper on a new concept in automatic programming at the 1956 Western Joint Computer Conference. This led to increased efforts at M.I.T. on automatic programming for numerically controlled machine tools. The work, sponsored by the Air Force, has been sparked by Ross, and has involved a joint effort that is nation-wide in scope. Since 1957, the A.I.A.'s subcommittee

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for numerical control has sponsored a national program that involves some 20 aircraft companies. The intensive research that is part of this effort to develop the APT System has been led by Ross during the past two years. Development of the APT "language," key to the system, is attributed to his work. Ross has presented a number of papers on automatic programming before various technical meetings throughout the country. He is a native of Canandaigua, N.Y.

Donald F. Clements (28 Duff Street, Watertown)

The important position of project engineer for the APT System at M.I.T.'s Servomechanisms Laboratory is held by Donald F. Clements, a 35-year-old native of Easton, Pa. Clements received his B.S. in electrical engineering from Lafayette College in 1944, and then served for two years as an aviation electronics officer in the United States Navy. Following a year of work in industry, he returned to college for his graduate degree, and in 1946 received an M.S. in E.E. from the University of Delaware. From 1947 to 1953 he was a member of the faculty at the University of Delaware, teaching electrical engineering. He came to M.I.T. in 1953 as an instructor in E.E. and in 1954 joined the Division of Sponsored Research engineering staff. Prior to becoming project engineer, he was associated with the digital instrumentation group at the Servomechanisms Laboratory and worked on analog-to-digital converters and on automatic data reduction systems.

Arnold Siegel (55 Thatcher Street, Brookline)

One of the first automatic programming systems for numerical control was designed and developed by Arnold Siegel in 1955. Much of the credit for current development of the system should go to Mr. Siegel's pioneering efforts. He is a graduate of Columbia University, where he received a B.A. degree in 1950 and a year later received a B.S. in Electrical Engineering. In 1953 he earned an M.S. in E.E. from Rutgers, and then joined the research staff at M.I.T. Since 1953 he has conducted programming research on Whirlwind I and IBM 704 computers, developed new general and special purpose applications for large scale computers, and acted as a computer consultant. Siegel, 31, has served as a consultant to IBM Corporation on automatic programming for numerical control. He is a native of Elizabeth, N.J.

Clarence G. Feldmann (322 Brookline Street, Cambridge)

Clarence G. Feldmann, 23, is one of the full-time research assistants at the M.I.T. Servomechanisms Laboratory. He has contributed two sections of the programming system as well as helped assemble the total system as sections have been received from participating members of the aircraft industry. Feldmann graduated from Principia College, Elsah, Ill., in 1957 with highest honors. He started his college work as a major in creative writing, but became interested in mathematics and changed fields of study during his sophomore year. In addition to his work with the Servomechanisms Laboratory,

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Feldmann is working toward an S.M. degree in mathematics, which he expects to receive in June, 1959. He is writing his master's thesis on human-computer communication techniques.

Robert B. Polansky (158 Auburn Street, Cambridge)

Robert Polansky is another of the youthful group of computer experts working on development of the APT System. Only 23, he is a graduate of the University of Wisconsin with a B.S. in Physics, and is currently studying for his S.M. degree while working at the laboratory. He has conducted extensive research in computer theory and operation on various machines, and also has done summer work as an operator in industrial plants during vacation periods. Polansky is a member of the national honorary mathematics fraternity, Pi Mu Epsilon. At the Servomechanisms Laboratory he has been concentrating on development of the prototype APT III computer system, which allows automatic programming for three dimensional regions. He is a native of Wisconsin Rapids, Wisc.

Jerome Wenker (32 Fayette Street, Cambridge)

Jerome Wenker has been a member of the Servomechanisms Laboratory at M.I.T. since 1956, following his graduation with a B.S. degree in mathematics. As a member of the Computer Applications Group of the Laboratory, the 25-year-old Wenker has been concerned with analyzing and programming an initial version of the APT II system for the Whirlwind computer. This work served as the basis for the APT II System which has been produced through the joint effort of A.I.A. and M.I.T. Wenker utilized his experience with Whirlwind to analyze and code sections of the IBM 704 computer version for the system. He is a native of Minneapolis, Minn.

Sam M. Matsa (7019 46th Avenue, Elmhurst, New York)

Sam Matsa, a native of Greece, was graduated from Athens College, Athens, in 1952. In 1955 he was awarded the degree of B.S. in electrical engineering from Purdue University with highest distinction. In 1956, he received his master's degree in E.E. from M.I.T. His thesis topic was "The study of matrix problems and methods of solution of simultaneous equations with the aid of the IBM 650 computer." While at M.I.T., he held a Whitney Fellowship. He has been associated with several industrial concerns, including the U.S. Steel Company and Magnecord, Inc., of Chicago. While at M.I.T., working as a research assistant in the Servomechanisms Laboratory, Matsa played a large part in developing the laboratory APT III prototype. In December, 1957, he joined the staff of the IBM Corporation and has continued work with them in automatic programming for numerical control.

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