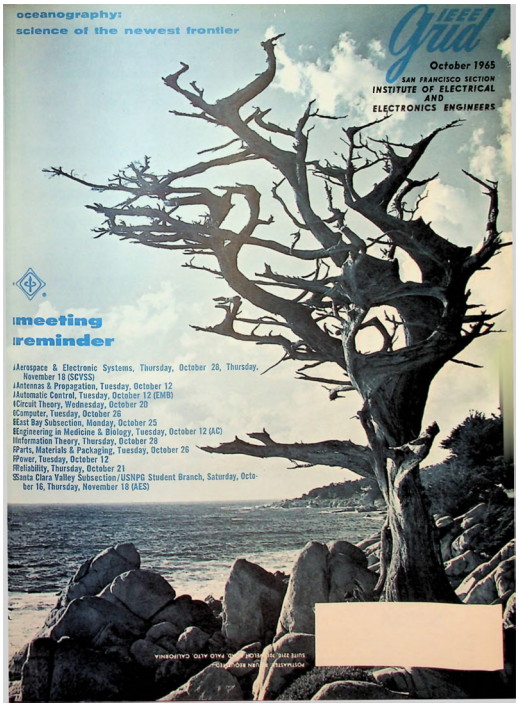
EDITOR'S PROFILE of this issue

from a historical perspective …

with Paul Wesling, SF Bay Area Council GRID editor (2004-2014)

October, 1965:
Cover: The Witch Tree in Monterey introduces a meeting on ocean engineering.



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At time of scanning, the bound volumes are held by Paul Wesling. July, 2021 Contact p.wesling@ieee.org

oceanography:
science of the newest frontier

IEEE Grid
October 1965
SAN FRANCISCO SECTION
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

meeting reminder

- Aerospace & Electronic Systems, Thursday, October 28, Thursday, November 18 (SCVSS)
- Antennas & Propagation, Tuesday, October 12
- Automatic Control, Tuesday, October 12 (EMB)
- Circuit Theory, Wednesday, October 20
- Computer, Tuesday, October 26
- East Bay Subsection, Monday, October 25
- Engineering in Medicine & Biology, Tuesday, October 12 (AC)
- Information Theory, Thursday, October 28
- Parts, Materials & Packaging, Tuesday, October 26
- Power, Tuesday, October 12
- Reliability, Thursday, October 21
- Santa Clara Valley Subsection/USNPG Student Branch, Saturday, October 16, Thursday, November 18 (AES)

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ELECTRO MECHANICAL

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TUBE

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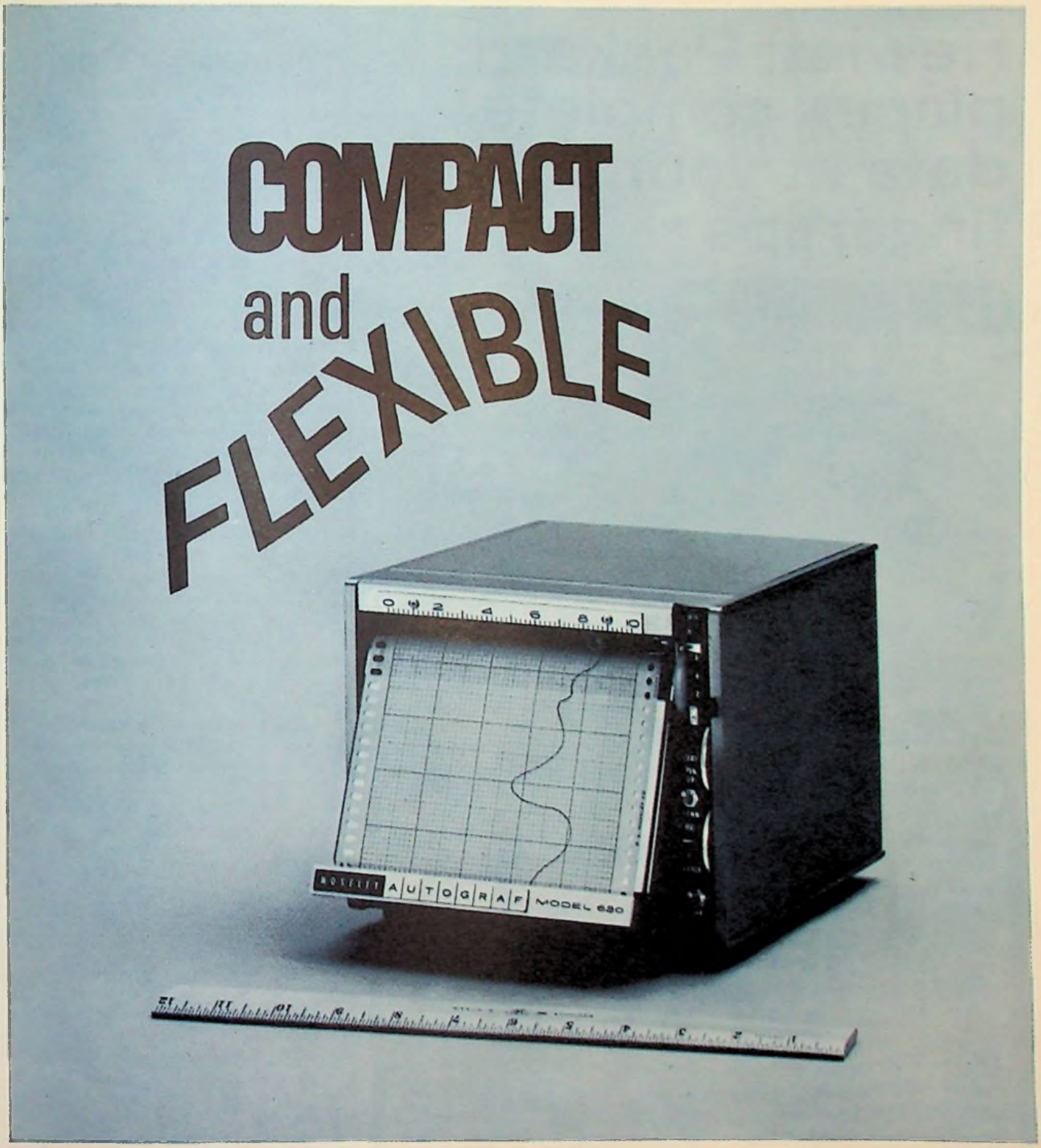

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historical notes

ELECTRONICS MUSEUM

As the Perham Foundation begins its $225,000 fund-raising drive to build the Foothill Electronics Museum, three new directors have been named to the advisory board, according to Ralph M. Heintz, Jr., president of the foundation.

The new advisors are Herschel Brown of Lockheed, Herbert Hoover, Jr., and David Packard of Hewlett-Packard. They have joined 17 other individuals who serve the foundation in an advisory capacity.

Heintz also revealed that two peninsula firms have already pledged $55,000 towards construction of the museum. "We're off to a fine start," Heintz said. He expects 60 percent of the money needed will come from the major manufacturers in this area. Smaller manufacturers will be contacted in the drive for the remainder.

Upon the successful completion of the fund-raising effort, the foundation will turn the money over to Foothill College, which will build the museum on the campus in the area surrounding the observatory. Completion of the 10,000-square-foot structure is expected in 1967.

Heintz said that the real work of the advisory board will not begin until the museum is completed and exhibits are arranged. Then the advisors will guide in the development of the displays, showing original inventions and subsequent developments up to the present highly sophisticated electronic systems. Most of the members of the advisory board have been active in electronics for many years, Heintz added.

The Founders' Day celebration at the college, to be held Saturday, October 30, will feature the Space Science Center. The first unit of the center, the observatory with 16-inch reflecting telescope, will be formally dedicated at 4 p.m.

At the no-host dinner following dedication, the Perham Foundation is expected to announce the completion of the $125,000 first phase of its fund-raising effort to build the Foothill Electronics Museum. The second phase, with a $100,000 goal to complete the 10,000-square-foot structure, will be launched at the dinner.

All interested members of the IEEE are invited to the Founders' Day celebration. "The electronics industry is making possible the museum, and therefore members of the industry are indeed founders in the truest sense."

Reservations may be secured by calling the Office of Community Services at 948-8590, Ext. 282.

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contents

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meeting ahead

OCEANOGRAPHY

The Santa Clara Valley Subsection and the student branch at the U.S. Naval Postgraduate School, Monterey, will hold a joint meeting on oceanography in Monterey on Saturday, October 16.

James M. Snodgrass, head of the special developments division at the University of California's Scripps Institution of Oceanography, will speak to members, their wives and guests at the Officers Club, U.S. Naval Postgraduate School in Monterey. The discussion will cover oceanography from its beginning to its present advanced state. Samples of the diversity of disciplines that comprise modern oceanography, and that will be considered, are radio telemetry and acquisition of radio frequencies for communications in oceanography and the international negotiations necessary to conduct oceanographic experiments.

As a new and rapidly developing science which promises to become one of the most significant in the world's future, the early contribution of the engineering community to this science is extremely important. A more capable and qualified speaker to introduce the IEEE to oceanography cannot be found. He is the U.S. Representative for the State Department to the Intergovernmental Oceanographic Commission.

The meeting will begin at the Officers Club with a cocktail hour at 5:00 p.m. Dinner will begin at 7:00 p.m. and the presentation will follow. Upon completion of the meeting, members and their guests have been invited to dance to the music of the Officers Club dance orchestra. Cost of the dinner is $3.75 each. Reservations are required and may be obtained by calling Lt. Cmdr. Passantino in Monterey at 372-9133; Lt. Shortal, Carmel, 624-9371; Art Wells, San Francisco, JU 6-4074; or Don McCauley, Palo Alto, 326-4350, Ext. 4757 or Ext. 5841.

Reservations are required and should be made as early as possible.

cover

The Witch Tree at Monterey (which blew down in a storm last year) calls your attention to the unusually interesting joint meeting of the Santa Clara Valley Subsection and U.S. Naval Postgraduate School Student Branch, Monterey, on oceanography, Saturday, October 16, for which your early reservations are urged. (Photo courtesy of Monterey Peninsula Chamber of Commerce.)

MEETING CALENDAR

October 12, Tuesday, 8:15 p.m.—Antennas & Propagation

Research and development preparations for deep space communications

Dr. Lester C. Van Atta, NASA Electronics Research Center

Place: Lockheed Auditorium, Bldg. 202, Palo Alto
Dinner: Sakura Gardens, 2116 N. El Camino Real, Mountain View
Reservations: Charles Phillips, 321-4175, by Oct. 11

October 12, Tuesday, 8:00 p.m.—Engineering in Medicine & Biology

(Joint with Automatic Control)

The heart rate control system

Richard C. Dorf, chairman, electrical engineering dept., Santa Clara University; J. Unmack, National Sciences Foundation trainee, Santa Clara University

Place: Stanford Medical School, Room M-112
Dinner: 6:15 p.m., Red Cottage, El Camino Real, Menlo Park
Reservations: Con Rader, 326-1970, Ext. 328, by noon, Oct. 12

October 12, Tuesday, 7:30 p.m.—Power

Engineering the WEST plan

Willis T. Johnson, executive engineer, Southern California Edison Co.

Place: Engineers Club of San Francisco, 206 Sansome St., San Francisco
Cocktails: 5:30 p.m.
Dinner: 6:30 p.m., Engineers Club
Reservations: Engineers Club, GA 1-3184

October 16, Saturday, 5:00 p.m.—Santa Clara Valley Subsection/USNPG Student Branch—Ladies Night

Oceanography

James M. Snodgrass, division head special developments, Scripps Institute of Oceanography

Place: Officers' Club, U.S. Naval Postgraduate School, Monterey
Happy Hour: 5:00 p.m.
Dinner: 7:00 p.m. (same); cost: $3.75 each
Reservations: Lt. Cmdr. Passantino in Monterey at 372-9133 or Lt. Shortal in Carmel at 624-9371; Art Wells in San Francisco at JU 6-4074 or Don McCauley in Palo Alto, 326-4350, Ext. 4757 or Ext. 5841, at least one week in advance

October 20, Wednesday, 8:00 p.m.—Circuit Theory

Integrated differential amplifiers using complementary transistors

H. C. Lin, visiting lecturer, department of electrical engineering, University of California

Place: Ampex Cafeteria, 401 Broadway, Redwood City
Dinner: 6:00 p.m., Red Cottage, El Camino Real, Menlo Park
Reservations: Jan Mulvihill, 367-3169, by Oct. 19

October 21, Thursday, 8:00 p.m.—Reliability

Reliability and value engineering

Jack T. Nawrocki, value engineering manager, Philco WDL

Place: Room 101, Physics Hall, Stanford University
Dinner: 6:00 p.m., Ed's Chuck Wagon, El Camino Real, Mountain View
Reservations: Stewart Bessler, 327-4212, by Oct. 20

October 25, Monday, 7:30 p.m.—East Bay Subsection

Inspection trip and status report at the Bay Area Transit test facility

Deane N. Aboudara, electronics and equipment design engineer for Bay Area Rapid Transit

Place: Test Facility, 500 San Miguel Road, Concord
Dinner: 6:00 p.m., Concord Inn on Willow Pass Road, Concord
Reservations: Mrs. Emerson, Oakland, 835-8500; Mrs. Grey, Concord, 685-4441, or Miss Dhuyvette, San Jose, 291-4852, by Oct. 24

October 26, Tuesday, 8:00 p.m.—Computer

Computers in space flight operations

Edward F. Oliver, Jet Propulsion Laboratories, Pasadena

Place: Old Plantation, El Camino Real and Bernardo, Sunnyvale
Dinner: 6:30 p.m., Old Plantation
Reservations: Dr. Wendell Sander, 321-7250, Ext. 257, by noon, Oct. 22

MEETING CALENDAR

October 26, Tuesday, 8:00 p.m.—Parts, Materials & Packaging

Electronic connections without soldering, welding or wrapping

(A discussion and demonstration of Termi-Twist connectors and Termi-Point wiring devices. A movie showing hand and automated equipment for making up to 1,100 connections/hr. will also be shown.)

Alan Margulis, district sales engineer; Gordon Osborne, packaging specialist, AMP, Inc.

Place: Conference Room 1A, Hewlett-Packard Co., 1501 Page Mill Rd., Palo Alto
No dinner

October 28, Thursday, 8:00 p.m.—Aerospace & Electronic Systems

Mariner IV System—a complementary lecture on how pictures were taken and how interpreted

L. Conrad of JPL will speak on camera and guidance systems; Dr. Loomis of JPL will speak on the geological interpretations of the pictures

Place: Lockheed Auditorium, Bldg. 202, Palo Alto
No dinner

October 28, Thursday, 8:15 p.m.—Information Theory

Report on the fourth Prague conference on information theory statistical decision functions and random processes

Thomas Kailath, associate professor, Stanford University, EE Dept., and Thomas Cover, assistant professor, Stanford University, EE Dept.

Place: Stanford Research Institute, Bldg. 1, Conference Room B, Menlo Park
Dinner: 6:30 p.m., Scotty Campbell's, 2907 El Camino Real, Redwood City
Reservations: Shirley Jackson, 966-3865, by Oct. 27

November 18, Thursday, 7:30 p.m.—Santa Clara Valley Subsection

(Joint with Aerospace & Electronic Systems)

Bios satellite

Pierre Hahn, Ames Research Center

Place: to be announced in November

meeting ahead

COMPUTERS IN SPACE

The role of computers in the space flight operations (SFO) of the Jet Propulsion Laboratories will be the subject of Edward F. Oliver's presentation at the October 26 dinner meeting of the Computer chapter. He is assistant data processing project engineer at JPL.

Mr. Oliver states that SFO computer programs are real time programs operating in various types of computers that interact with each other. These computers, geographically separated from each other, interrogate each other via hard-line connections or microwave. It is the function of the SFO programs to link the computer interface and respond to feedback controls generated as a result of data collection/data analysis performed by the man-machine interaction.

Brief descriptions will be given of the link-up of the computers within the space flight operations facilities at Pasadena (IBM 7044, 7094 and PDP-1, 4) and in Australia and Africa (SDS 910, 920), and the operating areas responsible for the computer programs. The remainder of the talk will be oriented towards the requirements for software interface definition and hardware-software interface definition during the various phases of design and development.

meeting ahead

HEART CONTROL

Richard Dorf, chairman of the electrical engineering department of Santa Clara University, and John Unmack, National Science Foundation trainee, will discuss a mathematical model of the human heart rate control system at the October 12 joint meeting of the Automatic Control and Engineering in Biology & Medicine chapters.

Dr. Dorf and Mr. Unmack will indicate the method used to derive the heart rate control system and how this system was analyzed with a digital computer.

Since the physiological systems are usually nonlinear, time-varying, and complex, newer and less commonly used techniques must be applied. A time-domain state-space approach, particularly applicable to physiological system analysis, will be described.

Van Atta *Nawrocki*

meeting ahead

R&D FOR SPACE

Dr. Lester C. Van Atta, assistant director for electromagnetic research, Electronics Research Center, NASA, Cambridge, Mass., and chairman of the Aerospace & Electronic Systems Group, will address the October 12 meeting of the Antennas & Propagation chapter.

Current space accomplishments are drawing heavily on existing science and technology. The space projects of the immediate future can depend on normal engineering refinements, but the more ambitious undertakings of the more distant future are dependent on major advances in science and technology. Among the future systems requiring major R&D are deep space communications, communications through blast-off and re-entry plasma, and clear air turbulence diagnostic equipment. In the particular case of deep space communications, if the problem is solved at microwave or millimeter wave frequencies, as an example, crucial areas for R&D effort are defined as efficiency of RF power generation in the vehicle, vehicle antenna gain, ground antenna effective area for reception, low noise receiving system, and effective utilization of bandwidth.

meeting ahead

COST EFFECTIVENESS

Reliability and value engineering will be discussed by Jack T. Nawrocki, value engineering manager for Philco Corporation's WDL Division, Palo Alto, at the October 19 meeting of the Reliability chapter.

"Cost effectiveness," a term used to describe the most reliability and performance for the least cost, will be discussed at it cuts across the lines of performance, reliability, maintainability, and value engineering. Reliability and value engineering have many common goals, but there may be occasions when the two are incompatible.

Mr. Nawrocki will touch upon customer requirements for least cost. He will describe techniques used in value engineering, such as value engineering models. The talk should interest designers and management engineers, as well as reliability engineers.

Lin *Johnson*

meeting ahead

CIRCUIT THEORY

Integrated differential amplifiers using complementary transistors will be the subject of H. C. Lin, visiting lecturer at the University of California, at the October 20 meeting of the Circuit Theory chapter.

Integrated differential amplifiers have some definite advantages over discrete component circuits. There are several reasons why complementary transistors are used in integrated differential amplifiers. The various schemes for realizing monolithic complementary transistor structures and their relative merits for differential amplifier applications will be discussed.

meeting ahead

POWER MEETING

Willis T. Johnson, a member of WEST Associates, will discuss the engineering of the WEST Plan at the October 12 meeting of the Power chapter.

Mr. Johnson will describe a number of the engineering details of the WEST Plan and its facilities, which have only recently become defined. This is a cooperative system and generation expansion program being conducted by the major electric utilities in six southwestern states and Southern California, under which large coal-fired power plants and extra-high voltage transmission facilities will be constructed on a coordinated basis. Mr. Johnson's talk will cover specific features of these, including the two "Four Corners" super-critical 750-megawatt turbine-generator units, the 500-KV interconnecting transmission system, and additional power plant projects now being considered. This description will be preceded by a summary of the background and organization of WEST Associates.

meeting ahead

LATEST ON BART

The East Bay Subsection will devote its October 25 meeting to an inspection trip and status report at the BART test facility, Concord, featuring Deane N. Aboudara, electronics and equipment design engineer for the project and chairman of the Industry & General Applications chapter.

Mr. Aboudara will give a progress report and conduct a tour of the test facility, during which a full-scale model of the BART car and other equipment will be seen.

ieee news

CEMENT INDUSTRY

Western representatives of the Cement Industry Committee of IEEE have announced that their annual technical meeting will be held at the Ponderosa Motel in Redding, California, on October 25.

For members not on the regular cement industry mailing list, preregistration forms may be requested by phoning either Paul O'Connor, Kaiser Engineers, at 271-4424; John Eliason, General Electric, 654-7120; or H. S. Robinson, Westinghouse Electric, 392-5353.

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NUCLEAR SYMPOSIUM

The 12th Nuclear Science Symposium will take place October 18-20 at the San Francisco Hilton Hotel, registration beginning at 5 p.m. on Sunday, October 17. Fees: $12 for members, $16 for non-members. Theme: Space—Laboratory — Power. Local information: J. F. Osborne, Room 175, Bldg. A, Atomic Product Div., General Electric, 175 Curtner Ave., San Jose, (408) 297-3000. A limited number of advance programs will be available at the Section Office.

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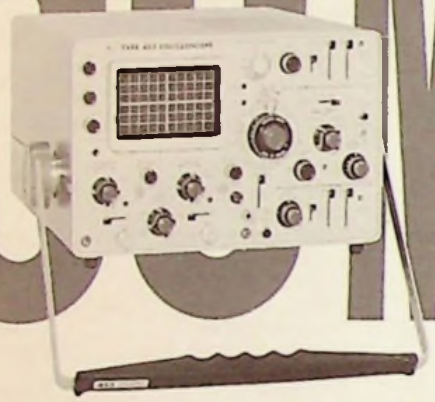
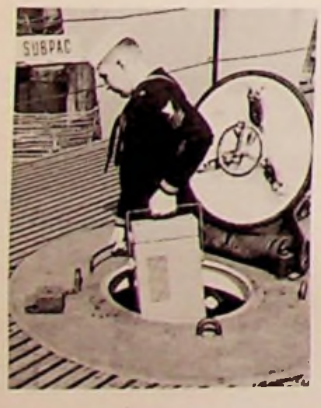


portability

with Dual-Trace and Sweep Delay



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