



The IEEE

Newsletter

N. J. Meeting:

Hitachi Rep To Speak

"Advanced Loss-Reduction Techniques in MM Wave Instruments" will be discussed by H. Hirotani of Hitachi Electronics Co., Ltd., Tokyp, Japan, on Wednesday, February 18, 1976, at the North Jersey MTT Chapter meeting.

Recent advances in MM Wave Low-Loss Filter and Transmission techniques continue to improve channel and power handling capabilities. These techniques are particularly suitable for implementation in Satellite Ground Stations, Low-cost Terminals and various MM Wave Measurement instruments. This talk summarizes recent advances and applications in Japan.

Mr. H. Hirotani received his B. S. Degree in Electrical Engineering from Tookohu University, Japan, in 1966. Since joining in 1966, Mr. Hirotani has been engaged in the research and development of MM Wave channel dropping filters. He is a member of the Institute of Electronics and Communication Engineers of Japan.

For further information contact E. W. Niemiec, ITTDCD (201) 284-2323.

Time: 8 PM, Wednesday, February 18, 1976.

Place: ITT Avionics Auditorium, 500 Washington Ave., Nutley, N. J.

Pre-Meeting Dinner: Park One Restaurant, 1 Park Ave., (off Rt. 3, Eastbound side) Lyndhurst, N. J. at 6 PM.

N. J. Meeting:

AT&T Tour

On Thursday, January 22, 1976, the North Jersey Communications Society will sponsor a tour of the ATT Underground Site at Netcong, N. J. This location houses the ATT National Relocation Center in addition to other network facilities. Communications equipment at this site include ESS 1 (4-wire), Microwave and cable broadband transmission facilities.

This tour will be extremely interesting, since the location provides government

N. J. Meeting:

Failures Vs.

Root Cause Analysis

"Failures vs. Root Cause Analysis" will be the topic discussed by Augustine "Gus" Magistro, of Picatinny Arsenal, at the February 11, 1976 meeting of the North Jersey Section Reliability Chapter meeting.

Throughout the development of any technical development activity, hardware failures occur. A primary task of management and systems engineers is to establish the normal performance limits for the hardware, recognize abnormal performance (failure) when it takes place, determine the cause of failure, and derive effective solutions. The determination of the cause of failure is often the most formidable task presented to engineers during a development. Failures are often the result of the unexpected and the intense pressure to meet schedule and cost goals. In many cases, the apparent problem is treated and several apparent problem symptoms are also treated, but often the same failure recurs. Significant costs in dollars, time, and

as well as commercial communications for AT & T. For this reason, IEEE members and guests (adults only!) should contact either of the following persons in order that an estimate of attendees can be provided to ATT: Norman Hettinger at (201) 529-1170, Ext. 249; or Al Favorito at (201) 529-4600, Ext. 2047.

Time: 8 PM, Thursday, January 22, 1976.

Place: ATT Netcong Site Netcong, N. J.

Pre-meeting Dinner: Clyde's Other Place, Rt. 10W (behind Suburban Furniture), Succasunna, N. J. (20 minutes drive west of Rt. 287, on Rt. 10)

N. J. Meeting:

Profit From Reliability

"Profit From Reliability" will be the topic covered at the January 14, 1976 meeting of the North Jersey Reliability Chapter, to be held at 8 PM at the Singer-Kearfott Division in Little Falls, N. J.

The meeting will bring out the ways proper application of the principles of reliability engineering can help the company achieve a profit in the long run. This meeting will be predominantly a series of movie films dealing with reliability — each followed by a question and answer period. Some of the films planned include: "Environmental Factors Affecting Reliability of Electronic Equipment"; "Quality for Profit"; and "The Search for Reliability."

For further information, contact: Ralph Hernandez at 288-2000, Ext. 5930, or Dan Bogush at 256-4000, Ext. 3757.

Time: 8 PM, Wednesday, January 14, 1976.

Place: Singer-Kearfott Division, Plant 3, Rear Parking Lot, Auditorium, Little Falls, N. J.

anxiety are suffered by several levels of management each time the corrective action is inadequate.

It became evident that a technique which assured that the root cause of a failure was detected and removed was essential. The root cause analysis technique was developed and produced dramatic and effective results. The basic root cause for each failure was clearly established, and in the majority of the cases it was reproduced in the laboratory. Demonstration of a complete understanding of the failure mechanism preceded any attempts at engineering solutions. This technique is a special presentation of the scientific method and it is believed that root cause analysis is of general benefit in solving a variety of engineering problems.

For further information, contact: Sid Markowitz at 328-5486, or Dan Bogush at 256-4000, Ext. 3757.

Time: 8 PM, Wednesday, February 11, 1976.

Place: Singer-Kearfott Division, Plant 3, Rear Conference Room 1, McBride Ave., Little Falls, N. J.

TUTORIAL SEMINAR SERIES

Thursdays, 7:00 to 9:00 PM, starting Feb. 26, 1976, Punchbowl Room, Jersey Central Power & Light Co., Madison Ave. at Punchbowl Road, Morristown, N. J.

Eminent speakers have been selected for each topic covered. Each week's session will serve as an independent topic.

Section I consists of 4 weeks of current information by recognized scientists in the field of integrated circuits.

Section II consists of 4 weeks of excellent presentations of state-of-the-art technology on four very current topics.

Section I - Integrated Circuits

Feb. 26, 1976 - "EVOLUTION OF MOS TRANSISTOR AND ASSOCIATED DEVICES" - Dr. Dawon Kahng, FELLOW IEEE.

The MOS device in its many forms represents an exceptionally large usage factor in I.C.s currently and in the future. Evolution and principles of operation will be covered. Dr. Kahng is supervisor of the Device Physics Group at BTL.

March 4 - "CHARGE COUPLED DEVICES" - Dr. George Smith, FELLOW IEEE

Dr. George Smith, head of MOS Device Laboratories, BTL will cover the basic device concepts (for which he received the IEEE Morris N. Liebmann Memorial Award in 1974). He will then cover the three major application areas: imaging, memory and analog signal processing.

March 11 - "SOLID STATE NETWORK DEVICES FOR TELEPHONE" - Dr. Ralph Wyndrum, FELLOW IEEE

Dr. Wyndrum is head of the Loop Transmission Technology Department at Bell Telephone Laboratories. He will cover special solid state networks for telephone usage.

March 18 - "PATHWAYS IN PATTERN GENERATION FOR I.C.s" - Dr. Eugene Gordon, FELLOW IEEE

The ultimate packing density of components is inherently connected to the possible techniques of pattern generation and exposure. Conventional light and electron beam patterns will be discussed. Dr. Gordon is Director of Pattern Generation Technology Laboratory at BTL.

Section II - Modern Topics

March 25 - "MAGNETIC BUBBLES" - Mr. Paul C. Michaelis

Mr. Paul Michaelis is a co-recipient for the 1975 IEEE Morris Liebmann Award for the concept and development of single-walled magnetic domains (Magnetic Bubbles) and for the recognition of their importance to memory technology. Nonvolatile, low cost memory is promised in the future utilizing these techniques.

April 1 - "NEW DEVELOPMENTS TOWARD LOWER COST SOLAR CELLS"

Dr. Henry Kressel, FELLOW IEEE, RCA Sarnoff Laboratories

Recent interest in large scale photo-voltaic energy conversion has led to the study of potentially low cost methods of forming solar cells in silicon and other materials.

April 8 - "ELECTRO AND ACOUSTO -OPTIC LASER BEAM DEFLECTION & MODULATION" - Dr. Erhard Sittig, FELLOW IEEE

Dr. Sittig is supervisor of activities involving optical information storage, display devices, automatic inspection systems for photolithographic masks and photolithographic exposure systems at Bell Telephone Laboratories.

April 15 - "OPTICAL COMMUNICATION" - Dr. Mauro Di Domenico

Dr. Di Domenico is head of the Optical Devices and Optical Sub-Systems Department of Bell Telephone Laboratories. He will cover optical fibers, GaAs laser sources, silicon avalanche photodiode detectors and optical carrier system performance.

REGISTRATION FORM

Mail to: Dr. Bob McMillan, 171 Orange Rd., Montclair, N. J. 07042

Make check payable to "North Jersey IEEE"

Please enroll me in: _____ Section I, Integrated Circuits, \$20.00
_____ Section II, Modern Topics, \$20.00
_____ Both of above, \$30.00

Name _____ Phone (H) _____

Address _____ (W) _____

_____ Company _____

Full-time students will be admitted without charge upon receipt of a statement from the Student Chapter Advisor of their active student and IEEE status.

For further information: R. McMillan 645-5467 (office) or 645-5472 (sect'y) or 744-6794 (home); or call Al Cox 484-3500 (office) or 821-8232 (home).

EDITORIAL

Morristown is accessible from all parts of North Jersey. From Bergen County, take Highway 80 to the intersection of 287 (now open north of Morristown). From Newark, take Highway 280 to the turnoff for Rt. 287 South. From Sommerville, take 287 North.

IEEE events scheduled: Tutorial Seminar series, starting Thursday, Feb. 26, 1976 in the Punchbowl Room of JCP&L, Morristown (Many section meetings have been held there); and IEEE Dinner Dance, Saturday, March 6, 1976 at the Governor Morris Inn, Morristown.

Plan to attend both events and at least one section meeting in the Spring of '76.

Section Writes Governor Byrne

NOTE: The following letter was sent on December 1, 1975. By the Section Chairman, Bob McMillan, to the Governor of New Jersey, Brendan Byrne. If you have any comments, use the Feedback Card.

To: The Honorable Brendan T. Byrne
Governor of New Jersey
Trenton, New Jersey 08625

From: Dr. Robert E. McMillan, P.E., Chairman of the North Jersey Section of the Institute of Electrical and Electronics Engineers. (5000 North Jersey Members)

Subject: Urgent New Jersey needs which hinge upon massive engineering input.

cc: 1. Mr. Robert M. Welch, Chairman of the Engineering Intersociety Relations Committee of New Jersey Society of Professional Engineers (NJSPE)
2. Mr. Wally Grant, President, NJSPE

Enclosures: 1. North Jersey Newsletter Editorial on Energy
2. List of Engineering Society Leaders in New Jersey

In light of national inaction as well as some alleged state action, I urge you to consider several positive actions as Governor of the most highly industrialized state of this country:

1. Through meetings with other Governors and by direct communication to the President of the United States, urge a direct U. S. supported development commitment for a comprehensive "drastic" energy program of 10 to 20 Billions of dollars annually. See enclosure

(1) for this writer's views on urgency and some of the facets of the energy program which should be accelerated.

A healthy New Jersey depends on a continuing supply of energy.

2. There exists engineering technology which could reduce automotive accidents by one or two orders of magnitude, at an ultimate savings to New Jersey Residents of about 1 Billion dollars annually. I should be happy to discuss this with you or anyone you wish to designate. Again, development of proven technology is required. Your active support could bring about a federally funded program.

3. National Food supply will ultimately be threatened by pollution in air and water including the ocean. Please urge a considerable federal upswing of priority on this issue. Consider also:

- a) Dwindling raw materials and recovery of useful material from trash.
- b) Exploitation of the ocean for food and raw materials.

Again, many engineers will be needed.

4. Closer to home, please investigate the allegation that the legislature, when restoring funds to colleges and universities, restored 50% of the cuts to most colleges, but only 34% to New Jersey Institute of Technology, one of the nation's principle sources of engineers !

Of all of the universities outputs, engineers will be this state's most valuable asset. Any downtrend of quality, quantity or research effort by our engineering institutions will vitally hurt New Jersey.

Thank you for considering these views. Should you wish to contact me (or any of the other engineering leaders in enclosure 2) please feel free to do so.

Very respectfully yours,
Robert E. McMillan
Chairman, North Jersey Section

Computerized Tomography

The N. Y. Chapter of the IEEE Computer Society will present a talk on one of the most important new applications of computer technology to clinical medicine: computerized axial tomography, i. e. the computerized reconstruction of a cross-sectional "slice" of a three-dimensional object, on January 20, 1976.

For further information: Dr. Monahan, (212) 650-7775.

Time: 6:00 to 7:30 P. M., Tuesday, January 20, 1976.
Place: Andre Meyer Department of Physics (Nuclear Medicine), 2nd Floor, Annenberg Bldg., Mt. Sinai Medical Center, (Enter on Madison Ave. entrance near 100th Street, N. Y. C.)

Medical Image Processing

The IEEE Computer Society announces a talk entitled, "The Computer's Eye View Down the Microscope — Image Processing and Pattern Recognition," by Judith M. S. Prewitt of the National Institutes of Health.

Ms. Prewitt will discuss computerized pattern recognition of cells (such as white blood cells and cancer cells) in order to determine their disease state, and the automated counting and classification of such cells.

Time: 6:30 PM, Tuesday, February 3, 1976.
Place: United Engineering Center, Room 113, 345 E. 47th St., N. Y. C.

Nikola Tesla Symposium

Nikola Tesla was an engineer and inventor whose patents form the basis for much of today's power and communications industries. The man and his works will be honored at symposium on January 30, 1976. Sponsors of the symposium include the IEEE Power Engineering Society and their New York-Long Island Chapter, as well as the New York City Bicentennial Corporation.

The program will be technical as well as historical in nature, with a review of Tesla's ideas, present state-of-the-art, and a look to the future.

During a special luncheon, (\$10 fee; details to be announced with the Winter Power Meeting), the first annual Nikola Tesla award will be presented to an outstanding engineer in the electrical energy conservation field. There will be displays of Tesla memorabilia and slides depicting the Tesla Museum shown at the symposium. A special Tesla Commemorative Program is also scheduled.

The symposium will be held as part of the Winter Power Meeting on January 30, 1976 and all those registered for the meeting are welcome.

For further information, contact: Thomas Klein at (212) 460-2894.

Status Report: Homes' Aluminum Wiring

The Long Island Reliability Section of IEEE will sponsor a program entitled "Status Report on Aluminum Wiring For Homes," by James P. Moran of the Aluminum Association, on January 7, 1976 at 7:30 PM at PINY, Farmingdale .

The technical aspects of the Consumer Product Safety Commision's investigation of residential branch circuit wiring, in addition to the studies and laboratory research in process at the National Bureau of Standards for the CPSC are a pertinent concern of EE's and Long Island homeowners. The chance to ask questions and clear up any misunderstandings which exist as a result of the CPSC activities makes this meeting a 'must'.

For further details, contact H. Wolf at (516) 575-2860.

Westchester Meetings

"The Engineer and Professionalism -- The IEEE United States Activities Board" will be the topic discussed by Leonard B. Farrell at the January 22, 1976 meeting of the Westchester IEEE Subsection. Mr. Farrell is Director of Professional Services for IEEE. The meeting will be held at 8:00 PM at the Westchester Community College.

On February 19, 1976, the Subsection will celebrate "Engineers' Week" with a dinner at Max's Rathskeller, 736 N. Broadway, White Plains. The principal speaker will be Mr. Arthur L. Rossoff, newly-elected Director of IEEE Region I. Dinner will be \$11 per person for members, \$5 per person for student members. For tickets and information contact: Mr. Hilton U. Brown, III, c/o IBM Corp., 1133 Westchester Ave., White Plains, N. Y. 10604; office phone (914) 696-1776, home phone (914) 834-2617.

GI Microprocessor

The New York Chapter of the IEEE Computer Society will present a talk and demonstration of the General Instrument CP-1600 microprocessor development system, by Frank Gruppuso, the MOS design engineer of the microprocessor. on Saturday, January 24, 1976 , from 10:00 A. M. to 12:30 P. M.

For further information, call Frank Gruppuso at (516) 733-3000.

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It is not necessary to inform the North Jersey Section when you change your mailing address. The NEWSLETTER and other section mailings use a list provided by IEEE's national headquarters in New York. This means the Section has no need to maintain a mailing list or addressing plates. Section membership records are changed when Headquarters notifies us.

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IEEE Adds Keogh Plan To Member Benefits

The Institute of Electrical and Electronics Engineers, Inc. (IEEE) has announced the establishment of the "IEEE Self-Employed Retirement Plan and Trust." This is a Keogh or self-employed retirement plan jointly developed by the Institute and the Continental Illinois National Bank and Trust Company of Chicago (Continental), which is available for adoption by members of IEEE and their spouses throughout the United States. Among the investment options provided under the plan are three funds of the Continental Individual Retirement Trust (CIRT), a pooled collective investment trust. Pursuant to the requirements of the Federal securities laws, interests and participations in the CIRT have been registered with the Securities and Exchange Commission. Mr. Arthur Stern, President of IEEE, pointed out that eligible members who decide to adopt a plan before the end of 1975 will be able to enjoy income tax savings this year.

The IEEE is the world's largest professional engineering society. Of its approximately 175,000 members, over 145,000 reside in the United States. Continental Bank, in business for more than 115 years, is the eighth largest national or state bank in the country.

The features of the IEEE Keogh Plan, as jointly announced by Continental and IEEE, are:

- Members and spouses of members with income from self-employment (including outside consulting, partnership, and sole proprietorship income) may establish for themselves and their partners and employees a retirement plan and trust with Continental and contribute up to 15% of such income up to \$7,500 per year on a tax deductible basis.

- The assets of such plans may be invested in a choice of five investment options, which can be changed by notice to Continental at the end of any month, including an Equity Fund (investing primarily in common stocks), a Fixed Income Fund (investing in bonds, notes, debentures and mortgages), a "Money Market" Fund (investing in U. S. government securities, bankers acceptances, and high grade commercial paper), individual certificates of deposit (minimum \$1,000), and individual savings accounts (no minimum).

- Continental charges a one-time start-up fee of \$5 per participant and no regular additional carrying charges; Continental also charges an annual fee of 0.5% for management of plan assets invested in one of the three funds.

The establishment of the IEEE Keogh Plan is the result of over a year of effort by an IEEE volunteer committee, and IEEE staff, officers and counsel, as well as many months of joint developmental work by IEEE and Continental Bank. In the course of this development, the plan was drafted to conform with the requirements of the Internal Revenue Code and the new pension reform law and Continental has developed a special prospectus for the plan under the Securities Act of 1933 exclusively for IEEE members and their spouses. Important features of IEEE's agreement with Continental permit IEEE to monitor the performance of Continental as trustee, to replace the trustee if necessary, and to amend the plan by agreement with Continental as may be necessary to meet the interests of its members.

The IEEE Keogh Plan is one of a number of retirement plans which the Institute has sought to make available to its members since the Pension Act passed Congress last year. The Act also authorizes individual retirement accounts (IRA Plans). The House and Senate Labor and Tax Committees contemplated that assets of IRA Plans could be invested in pooled collective trust funds, such as the CIRT. The Institute is advised the Continental has obtained regulatory clearance from the United States Comptroller of the Currency for the investment of IRA assets in the CIRT and that the Internal Revenue Service has ruled that IRA's may be pooled in such a collective investment trust without loss of tax exemption. Continental has sought from Securities and Exchange Commission, but has not obtained, a determination letter that assets of IRA plans may be invested in the CIRT on the same basis as Keogh plan. However, coordinating changes in certain provisions of the federal securities laws which would clearly permit such investment unfortunately were not made at the time the Pension Act was enacted. IEEE is continuing to work with Continental on this question.

The Institute has previously arranged for a nonqualified retirement annuity plan, and continues to explore possibilities for small employer regular pension plans and a so-called "carve-out" plan for engineers employed by larger employers whose corporate pension plans may not be well suited for the needs of the engineering profession.

Stern Appears Before Senate

"It should be national policy to motivate industry to increase its research and development activities and thereby contribute to our leadership throughout the world," said Mr. Arthur Stern, IEEE President. The remarks were part of his testimony before the Senate Committee on Aeronautical and Space Sciences and two other Senate subcommittees considering bills relating to national policy and priorities for science and technology on Wednesday, November 12th. The IEEE, in a statement endorsed by its Board of Directors, has previously recommended that an equivalent of 3% of the gross national product be spent on R&D. In his testimony, Mr. Stern stressed the importance of such a policy by noting that "the history of leadership in the world has always been tied to the history of technological leadership."

Supporting legislation calling for the re-establishment of a Presidential Science and Technology Advisor, Mr. Stern commented that such a person "must sit on the important councils of the Executive Office of the President." In connection with the testimony of Mr. Stern, he submitted a written statement signed by the presidents of 12 societies (including IEEE) who are members of the Association for Cooperation in Engineering (ACE). They also supported this proposal and noted that "the contributions of science and engineering are so important to our national progress and well being that scientific-engineering leadership and advice are needed at the highest levels of government."

"We (members of ACE) are most pleased with the prospect of a scientist or engineer of proven scientific or technical capability with experience in public service or administration and preferably a member of one of the National Academies of Science or Engineering, as the Science Advisor to the President . . . The prime objective should be to re-establish a capability to assist and advise the President concerning the implications of science and technology in the vast array of national economic, industrial, social, political and foreign policy problems with which he must deal."

Mr. Stern also spotlighted the contributions and needs of those working within the engineering profession. The IEEE President said, "It is inconceivable to make a major step toward recognizing science and technology and its central role in this country without looking out for the practitioners of science and technology."

Safety Aspects Of Nuclear Power Plants

The New York and Long Island Section of the Joint Power Engineering Society and Industry Application Society will sponsor a meeting on the safety aspects of nuclear power plants on January 21, 1976.

Mr. John T. Conway, executive assistant to the chairman of Consolidated Edison Co., Inc., New York City, will cover the design concepts used as related to safety required by good practice, regulatory agencies, etc. Mr. Len Rubenstein, project engineer, Stone & Webster Engineering Corp., will discuss the electrical and structural schemes related to safety as required by good practices, regulatory commissions etc. For further information, contact: Thomas Klein at (212) 460-2894.

Time: 5:45 PM, Wednesday, January 21, 1976.

Place: Stone & Webster Inc. offices, 41st Floor Training Room, One Penn Plaza, N. Y. C.

Refreshments: 5:15 PM.

Transportation Division Programs

The Transportation Division of the IEEE New York Section will sponsor three program meetings and a lecture series at the General Electric Co. Auditorium, 570 Lexington Ave., N. Y. at 6:30 PM:

A joint meeting with ASCE is planned for January 14, 1976.

A field trip is planned for April 7, 1976 to the Long Island Railroad to view the "Gas Turbine Cars."

A joint meeting with ASME is scheduled for May 12, 1976.

A technical lecture series entitled "The Energy Crisis and Rail Transportation" will be offered on six consecutive Wednesdays, beginning on February 18, 1976 through and including March 24, 1976.

Topics to be covered at the sessions will include: Flywheel Energy Storage System for Mass Transit Vehicles, State-of-the-Art in Electric Cars, Developments in the Gas Turbine Cars, Locomotive Hauled Cars, and Light Rail Vehicles.

Fees for the lecture series will be \$25 for IEEE and associated society members; \$30 for non-members, and \$10 for student members. Advance enrollment is requested. Make checks payable to New York Section IEEE Transportation Division, and forward them to: Mr. J. Mollure, GE Co., 641 Lexington Ave., New York, N. Y. 10022; (212) 750-2520.

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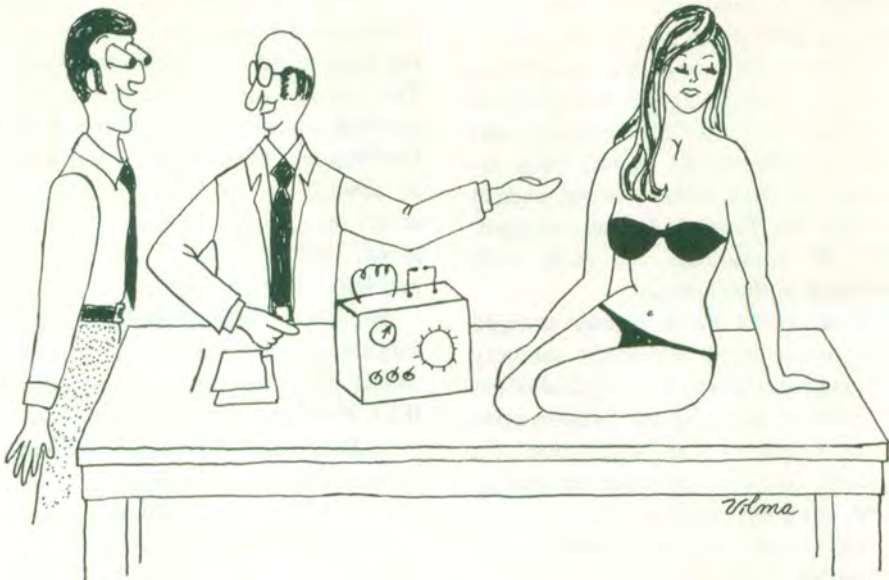
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sunday	monday	tuesday	wednesday	thursday	friday	saturday
FUTURE MEETINGS See inside this issue for full information on this month's and any future meetings already announced.				1 <i>New Year's Day</i>	2	3
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GEMB Meeting

The Metropolitan New York Chapter IEEE GEMB will hold a meeting on Wednesday, January 14, 1976 at 7:30 PM at Rockefeller University, South Lab, Room 204, 66th St. and York Ave., N.Y.C. Donald H. Murphy, Ph.D., of St. Francis Hospital, Roslyn, N.Y., will discuss "Non-Invasive Measurement of Left Ventricular Function." Pre-meeting dinner will be at 6 PM in the Tower Cafeteria, 64th St. and York Ave. For further information, call: W.H. Buchsbaum at (212) 240-5594.

March 6
NJ IEEE Section
Banquet



I JUST WHIPPED TOGETHER A FEW CMOS'S, CCD'S AND SOME ODDS AND ENDS AND SHE APPEARED!

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Comments on the Section Chairman's letter to Gov. Byrne: