

"THE EMC PREDICTIONS"

"The D, S&E values and their roller coaster indications of a 'feast or famine' pattern of demand—including the substantial oversupply indications—have been available for consideration by all since 1961. They, plus Rivers' correlation, have had the benefit of an accuracy based on measurements and interpolations of past events. No predictions have been involved.

"However, during the period from 1964 until 1974, while there were such ample indications of an oversupply of engineers for very much of the time, the many bulletins and other releases of the Engineering Manpower Commission (EMC), aimed at the high school guidance readership, repeatedly contained predictions of future shortages and only of shortages of engineers! In retrospect, based on this information, the indications are that the EMC was wrong for as much as 77% of the time!"

More follows under the following titles:

"The Trojan Horse"

"The Plot Thickens."

"ENGINEERING EDUCATION SUFFERS TOO"

"The sabotage story is not yet complete. The erosive effects of engineer oversupply and resulting economic insecurity have also wrought their havoc in engineering education. Despite the best efforts of some fine engineer-educators, too much of engineering education is currently riddled with hypocrisy and inadequacies."

"A PAST TO REMEMBER—A FUTURE TO MOLD"

"This emblem of our country's 200th birthday has, as a relevant corollary, the statement: 'Those who ignore history are condemned to relive it.' 'Recent history indicates that predictions of future demand for engineers are essentially impossible due to many unpredictable economic and political factors. It indicates that the quality of recent engineering and engineering education has been far below potential and that the public and profession have thereby been poorly served.'"

"SUGGESTIONS FOR ACTION"

"One closing thought: Though I have worked hard and long in NSPE, ASCE, and other societies, and will try to continue to do so, it is my firm belief that all our societal efforts in any

of the areas of employment guidelines, public relations, ethics, competitive bidding, legislative lobbying—or-you-name-it—could all be 'Mickey Mouse' as long as engineers are prevented from doing their professional best by an unnecessary, pervading and seemingly manipulated status of economic insecurity. Such has been our past history. Shall we let it also be the future?

It's now your move!"

Although we have presented less than 10% of Mr. Alpern's report, it was not done to distort the report or to present

a biased opinion. This is presented here to stimulate your thought, whet your appetite, and, we hope, to displace your apathy.

Your Professional Activities Committee would like to introduce Mr. Alpern to you as a guest speaker at one of our Section PAC meetings. This now is entirely in your hands. We will invite Mr. Alpern only to a filled auditorium of interested members and guests. If you want your PAC committee to invite Mr. Alpern as a guest speaker, fill out the Feedback Card and return it as directed.

Feedback Card

Refer to article "Quantity Instead of Quality."

1. I believe there is a:

Shortage of engineers. _____

Surplus of engineers. _____

2. Would a discussion on the "Supply-Demand for Engineers" be of interest to you?

Yes _____ No _____ Don't know _____

3. Should your Professional Activities Committee schedule a meeting to discuss

Supply and Demand for Engineers?

Yes _____ No _____

4. Will you attend this meeting?

Yes _____ No _____

5. Do you believe that PAC and USAB news is of importance to you?

Yes _____ No _____

6. Would you like to see the coverage of PAC/USAB news continued in this

Newsletter?

Yes _____ No _____

7. This Newsletter is published 11 times per year. How many issues do you read

per year?

Please check one.

- a. 0-2 _____ c. 6-8 _____
b. 3-5 _____ d. 9-11 _____

Any further comments will be appreciated. Please clip and return to: PAC, c/o Richard

Tax, 51 Hawthorne Ave., Park Ridge, N.J. 07656.



The IEEE

Newsletter

PUBLICATION OF THE NORTH JERSEY SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

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NEWSLETTER STAFF

Editor Ray Vaccari
Managing Editor B. Blair
Business Manager M. M. Perugini
Publications Chairman Joe Winston

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REPORT ALL ADDRESS CHANGES TO:
IEEE Service Center
445 Hoes Lane
Piscataway, N. J. 08854
(201) 981-0060

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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at Mount Arlington, N. J.

Candidates Debate

Candidates for IEEE President will debate at Princeton University on October 13, 1977.

The debate is set for 8 PM at the Convocation Room, Engineering Quad, Princeton University.

For additional information, contact: S.J. Vahaviolos, (609) 639-2426.

Revolution In X-Rays

The Multigroup Chapter of North Jersey IEEE is sponsoring a talk by Joseph B. Kruskal on the subject of X-Ray Tomography on October 19, 1977, at 7:30 PM in the Punchbowl Room of Jersey Central Power & Light Corp., Madison Avenue at Punchbowl Rd. in Morristown.

Despite many major advances in X-ray sources and detectors since Roentgen's discovery, X-rays are still used to make pictures in basically the same way. A conventional X-ray picture is like a shadow cast by a cloud: each point in the image shows the total X-ray attenuation along a line through the object. In 1970 Sir Geoffrey Hounsfield first demonstrated a useful method for displaying an image showing the local X-ray attenuation at each point in a plane slice. There are now hundreds of computerized tomography machines in routine medical use, costing hundreds of

thousands of dollars each. Dr. Kruskal displays several medical tomographs, but his talk will focus on the method by which X-ray attenuations of the conventional kind are mathematically massaged to create these new images.

Dr. Kruskal has been a member of Technical Staff at B.T.L. Murray Hill, since 1959, in the Mathematics and Statistic Research Center. He received his B.S. and M.S. from the University of Chicago and his PhD. in mathematics from Princeton in 1954. He held several academic positions from 1954 prior to joining Bell Laboratories.

He has held many high posts in technical societies, including: President, Psychometric Society, 1975; President, the Classification Society, 1972-75; and Fellow of American Statistical Association.

He is a member of: American Mathematical Society, Mathematical Association of America, Society of Industrial and Applied Mathematics (SIAM), The Psychometric Society, American Statistical Association, The Classification Society, Institute for Mathematical Statistics, Sigma Xi (Honor Society), and Pi Mu Epsilon (Honor Society).

Time: 7:30 PM, Wednesday, Oct. 19, 1977.

Place: Jersey Central Power & Light, Punchbowl Room, Madison Avenue at Punchbowl Rd., Morristown, N. J. (easily accessible via 287).

DATED MAIL
OCTOBER, 1977

Chip Microcomputer

A seminar will be held by the N.J. Computer Society on the MCS-48 family of single chip microcomputers introduced by Intel.

The seminar will take place at International Telephone & Telegraph, 500 Washington Ave., Nutley, N. J. in the Chart Room, 7:30 PM, Thursday, October 20, 1977.

The basic presentation will consist of the family outline, system design, hardware implementation and discussion of the instruction set. There may also be a hands-on demonstration of a basic working system.

The speaker will be M. Lania, B.E., M.S. Computer Science, Stevens Institute of Technology, 1972 Systems Application Engineer, Intel Corp.

For further information: Frank Kruglinski, (201) 627-6207.

Time: 7:30 PM, Thursday, October 20, 1977.

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

Pre-Meeting Dinner: West's Sea Cove, Rt. 46, Clifton, N. J. at 5:30 PM.

Nuclear Controversies

Dr. Benjamin Stevenson will discuss from a technical point of view the issues that are now stalling a massive increase in available nuclear energy. The meeting will be at 7:30 PM, on November 9, 1977, in the Punchbowl Room at Jersey Central Power and Light, Morristown. This will be a combined Multigroup-North Jersey Section meeting.

Issues such as the breeder reactors: thorium vs plutonium, safe handling of fissionable material, waste disposal, thermal pollution, security and other topics will be discussed.

Electrical Engineers should be particularly careful to keep informed on these sensitive topics. If U.S. runs short of energy, and suffers industrial decline, the national consequences will be tragic. See you there!

Time: 7:30 PM, Wednesday, November 9, 1977.

Place: Jersey Central Power & Light Corp., Punchbowl Room, Madison Avenue at Punchbowl Road, Morristown, New Jersey (Easy access to Madison Avenue via Route 287).

Letter To The Editor

Dear Ray:

Although we never met, I wish to air a complaint for the third or fourth time. I was chairman of the New Jersey Section of AIEE in 1960-61 and have been a member of IRE/AIEE-IEEE for over 40 years. I also served on ADCOM-Communication for IEEE, was chairman of the Radio Communications Division of AIEE, etc.

However, I wonder why The North Jersey Newsletter is published and will suggest it be discontinued. I received my August issue today (8/16/77)—too late, as usual, if I did want to go to anything and filled with the same information mailed to me with my ballot. I also believe Bob McMillan's note is in poor taste, even though his point is legitimate.

Why not move up your publishing date at least two weeks to solve the middle of the month delivery problem.

Philip T. Sproul
Senior Member

A good suggestion. There are going to be some changes made this year in Newsletter policy that concerned members like yourself will appreciate.

I don't agree, however, with your comment that Bob McMillan's "Salute to Apathy" was in poor taste. When only 100 out of 5,000 members voted in the recent election, it triggered a response from Bob who knows that something has to be done, soon.

- Each member should ask himself:
- (1) Why am I a member of the IEEE?
 - (2) Is the IEEE fulfilling my expectations?
 - (3) If not, wouldn't it be worth my while to do something about it?

Unfortunately, to 4,900 members, the answer to the last question is no. This is the problem that faces the new executive committee and one that Bob McMillan takes to heart. Good try, Bob, and good luck, executive committee. R.V.

Lightning Protection For Underground Utilities

The October meeting of the North Jersey Power Engineering Society will feature a discussion by Dr. Robert Owen on "Lightning Surge Protection of Underground Distribution Systems."

The talk will cover the fundamentals of single and multiple arrester protection schemes for underground distribution systems. Recently obtained data on attenuation and distortion of surges on UD cables will be presented along with future trends in the application of conventional and gapless arresters in UD systems.

Dr. Owen is a Staff Engineer in the Systems Engineering Section of Power Systems Division of McGraw-Edison Co. He is responsible for transient analysis of power systems, insulation coordination studies, and studies involving the application and protection of utility system equipment. He received his PhD. from Illinois Institute of Technology in Chicago. He is a registered professional engineer and a Senior Member of IEEE.

Time: 7:30 PM, Thursday, October 20, 1977.

Place: Jersey Central Power and Light Co., Madison Ave. (Rt. 24) and Punchbowl Rd., Morristown, N. J.

Con Ed Tour

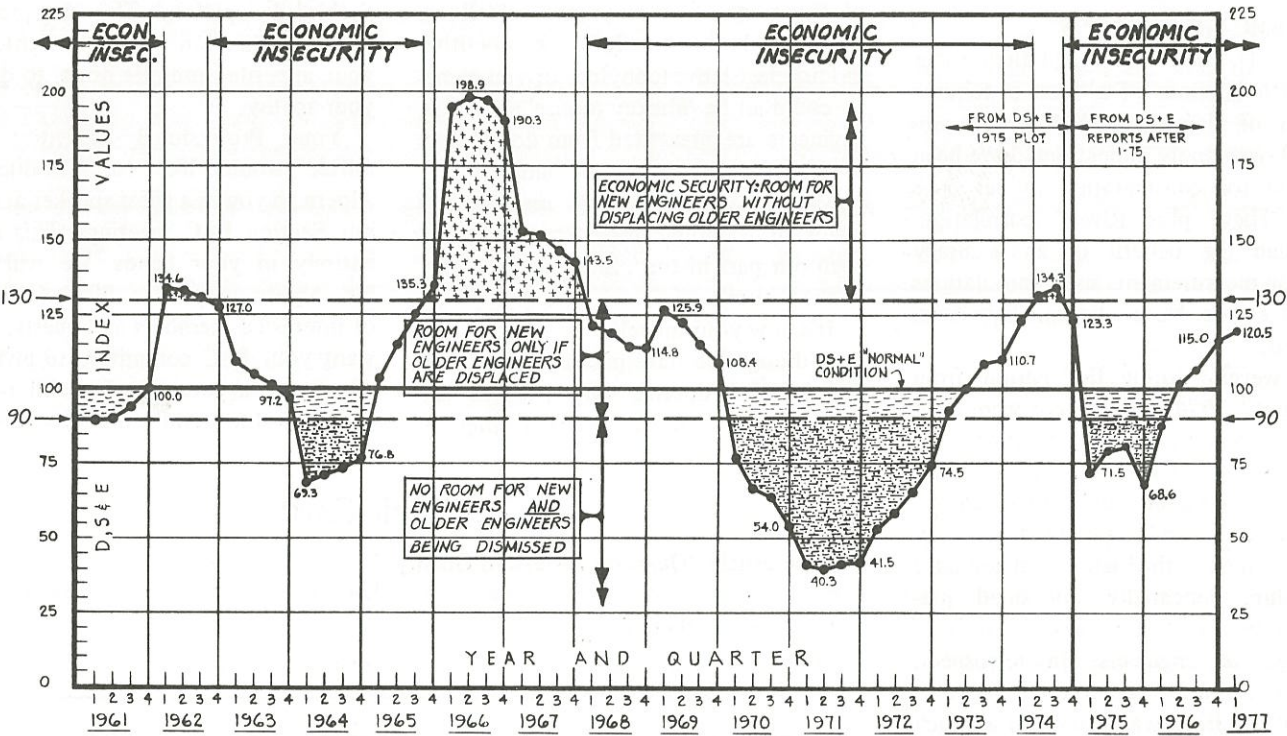
The N.Y., N.J. & L.I. Instrumentation and Measurement Joint Chapter is conducting a visit at 7:30 PM, October 27, to the Con Edison Energy Control Center, 128 West End Ave., New York City (between W. 65th St. and W. 66th St.).

From here, the giant utility controls and monitors New York City's and Westchester County's energy supply. Here man, computer, and instruments interface to govern electric generation, transmission and distribution, and gas and steam sendout.

Space is limited so reserve early! Contact: Randolph D. Grossberg, Consolidated Edison Company, 4 Irving Place - Room 1300, New York, N.Y. 10003; (212) 460-4020. No one will be admitted without a confirmed reservation.

Time: 7:30 PM, Thursday, October 27, 1977.

Place: Con Ed Energy Control Center, 128 West End Ave., N.Y.C.



Curve Data from "ENGINEER/SCIENTIST DEMAND INDEX" by Deutsch, Shea & Evans, Inc. 1961 -- 100; Seasonally Adjusted. Emphasis of 130 and 90 lines, shading, and interpretive statements from Rivers' analysis by Milton Alpern, P.E.

FIGURE 1. RELATIVE DEMAND FOR ENGINEERS, and its IMPACT -- 1961 to 1977

Quantity Instead of Quality: Engineering Shortage?

By Dick Tax,
North Jersey PAC Chairman

"Quantity Instead of Quality: A Sabotage of Engineering and Its Education by 'Engineer Shortage' Propaganda?" This is the title of a study and report by Milton Alpern. The graph shown is from this same report. Milton Alpern, P.E., is a director of the National Society of Professional Engineers (NSPE), Fellow of the American Society of Civil Engineers, and past member of the NSPE Task Force on Engineer Supply and Demand. Mr. Alpern is not anti-management, he does not oppose academics, and he is not against the practicing engineer. He definitely is for the Engineering Profession.

Should you be interested in having Mr. Alpern as a guest speaker, please utilize the Feedback Card in this issue.

Excerpts from his report follow: "Sabotage and Propaganda—Pretty strong words, and not chosen lightly. After you have read the following, perhaps you will conclude that they are most appropriate. This article presents evidence and analysis which indicates that the deterioration and impotence of our engineering profession, which most of us feel, is not an accidental phenomenon,

but rather the result of a deliberate, long-term, concealed, but effective, 'Trojan Horse' effort to produce an oversupply of engineers.

"The evidence seems to implicate the Engineering Manpower Commission's 'engineer shortage' propaganda as unwarranted and as spawning excessive recruitment of high school youngsters into engineering colleges, thereby producing this engineering oversupply syndrome. Working in our supply-and-demand economy, this has caused economic insecurity and shortened career spans for many engineers and a general professional impotence which—of greatest importance—has hurt the general public. Analysis indicates that this 'Trojan Horse' has effectively overwhelmed and negated most individual and societal efforts to upgrade the profession, and that it will continue to do so unless stopped by responsible engineers. Let's look at the details."

"AN OBJECTIVE APPRAISAL OF WHERE WE ARE"

"If we take off our blinders, climb out of our apathy and really look at where our actions and lack of actions have led, we are faced with some embarrassing questions and paradoxes:

"Why did the engineering community passively allow the firing of three engineers of the San Francisco BART system and the forced resigning of two engineers from B. F. Goodrich Co. (11 (to name just a few of many such situations), for their very ethical acts of accurately reporting lack of safety in certain designs that they reviewed? Why didn't or couldn't we engineers or society prevent their punishment by the industrial and political forces involved? . . . "Why has the profession been unable to assure a proper financial return for engineers that is both commensurate with the significant public value of their work, and of a scale necessary to back up truly professional quality effort?"

"THE REASON"

"The basic reason that engineers can do so little to increase their economic security, despite their education and dedication, is that, as a practical matter, there seems to always be another engineer waiting in the wings to take one's job, client or position!"

"EVIDENCE OF ENGINEER OVERSUPPLY"

"Look at the graph in Fig. 1."

There is much more here as he refers to the work of Robert Rivers.

Computer Control Of The Port Authority

The New York and Long Island Section of the Joint Power Engineering Society and Industry Application Society will sponsor a general meeting on computer control as applied to the new Port Authority Bus Terminal Extension.

Mr. James Mundy Jr., Senior Engineer System Sales, with Honeywell Incorporated will discuss computer control of

the lighting and HVAC systems and their expected impact on energy efficiency.

Another aspect of the installation which will be discussed is a subsystem which will purge smoke from selected areas and pressurize adjacent areas in the event of a fire.

Time: Refreshments 5:30 - 6:00 PM, Meeting 6:00 - 7:30 PM, Wednesday, October 26, 1977.

Place: 1 World Trade Center, Rm. 62 South, N.Y.C.

Trends In Local Digital Switching

A seminar on Trends in Local Digital Switching will be sponsored by the IEEE Communications Society, New York Section, on November 15, 1977, from 9 AM to 4:30 PM, at the United Engineering Center, 345 E. 47th St., N.Y.C.

Advances in digital technology have made a major impact on the design of modern switching systems. This seminar will explore transmission considerations and recent developments in switching systems.

The program covers:
Transmission Planning for the Evolving Digital Network, by W.L. Ross, Bell Telephone Laboratories, Holmdel, N.J.

A Class-5 All-Digital Office, David Hinshaw, Strongberg Carlson, Sanford, Fla.
Digital Switching Applied to Automatic Call Distribution, Dennis Kaliher, Rockwell International, Cedar Rapids, Iowa.

Integrated Transmission and Switching, Howard Gunn, TRW/VIDAR, Mountain View, Calif.

Additional speaker on topic not available at this time.
Round Table Discussion, Speakers & Audience.

The fee, payable to IEEE COMSOC, is: \$40 members, \$45 non-members. Mail to: P.M. Paterno, Chairman Education Committee, N.Y. Telephone, Rm. 143C, 1095 Ave. of the Americas, N.Y.C. 10036.

For further information contact: P.M. Paterno (212) 395-2109.

REGISTRATION FORM

Please register me in the seminar on Trends in Local Digital Switching.

Name _____

Firm _____

Business Address _____

Phone No. _____

Member IEEE _____

Do not Write In This Space

Non-Member _____

Fee Paid \$ (Cash, Check, MO)

Date _____

Fee Includes Lunch and Coffee Breaks

GEMB Meetings

The Metropolitan New York Chapter of the IEEE Group on Engineering in Medicine and Biology announces its program for October will cover "What's New In Cardiac Pacemakers". The Speaker for the October 5th meeting is Dr. Philip Hurzeler, Cardiac Pacemaker Center, Montifiore Hospital, Bronx, New York.

The November 2nd meeting will cover "Pulmonary Function Testing." The speaker will be James Wilson of Respiratory Data Systems.

Time: 7:30 PM, Wednesday, October 5, 1977.

Place: Rockefeller University, South Laboratory, Room 204, 66th Street and York Avenue, New York City.

Pre-Meeting Dinner: 6:00 PM, Tower Cafeteria, 64th Street and York Avenue, New York City.

Discovery Of Bubbles

The Magnetics Chapter of the Princeton Section meeting to be held Thursday, October 27, 1977 will cover "The Discovery of Bubbles." The speaker will be A.H. Bobeck, Bell Laboratories, Murray Hill, N. J.

The memory technology called "magnetic bubbles" is just over 10 years old. It is interesting to reflect back to the circumstances that led to the use of cylindrical magnetic domains for data storage. This talk is not intended to be a primer in magnetic bubbles. Rather, significant events in the time period from 1947 through 1972 will be covered in a casual, and hopefully entertaining, manner.

Time: 8:15 PM, Thursday, October 27, 1977.

Place: Auditorium, Administration Bldg., Allied Chemical Corp., Columbia Rd. & Park Ave., Morristown, N. J.

Pre-Meeting Dinner: 6PM (5:30 for bar), Rod's 1890's Ranch House, Rt. 24 at Convent Rd., Convent Station, N.J.
For Dinner Reservations Call: Mrs. Lucille Still, (201) 455-2002.

For Information Call: P.F. Tumelty, (201) 455-4984 or R. Hasegawa, (201) 455-4307.

Quality Partners: Industry/Government

The North Jersey Section Reliability Chapter will hold its annual joint meeting with the North Jersey Section of the American Society for Quality Control on October 19, 1977. This year the joint meeting will be preceded by a cocktail hour and a pre-meeting dinner.

The guest speaker will be Mr. Charles Tantillo, who is the director of Quality Assurance Directorate of the U.S. Government Defense Contracts Administration. Mr. Tantillo will speak on the importance of a good relationship between the government and industry in an effort to achieve a quality product.

Time: Cocktail Hour 6 PM, Pre-Meeting Dinner 7 PM, Meeting 8 PM, Wednesday, October 19, 1977.

Place: ITT Clubhouse, 417 River Rd., Nutley, N. J.

The price for the pre-meeting dinner will be approximately \$6; tickets will be available at the door. Any questions can be answered by Ralph Hernandez, (201) 575-8000, Ext. 262 or (201) 935-8205.

Professionalism Debate

The American Institute of Astronautics and Aeronautics is sponsoring a debate on "Professionalism In Engineering."

The Northern New Jersey Section of the AIAA invites the IEEE members to attend a meeting on the meaning of professionalism in the sciences and engineering.

Panel Participants:

Mr. Lou Cecchi, director of placement, Rockwell International, Los Angeles, Calif.

Dr. Dennis Chamot, assistant to the executive secretary, the Council of AFL-CIO Unions for Professional Employees.

Mr. James Harford, executive secretary/general manager, American Institute of Astronautics & Aeronautics, Inc.

For advance reservations, please call: J. Jeffrey Irons (212) 581-4300, or C.L. Ferrara (201) 777-2800, Ext. 2523. Meeting Room Fee—\$1 per person.

Time: 7:30 PM to 10:30 PM.

Date: Tuesday, October 11, 1977.

Place: Montclair State College, Student Center, Ballroom "A".

Mobile & Base Station Antenna Systems

Antenna Systems for Mobile and Base Stations will be discussed by application engineers from antenna manufacturing companies at the 2 PM, October 12, 1977, meeting of the New York Metropolitan Section Vehicular Technology Society.

Subjects to be covered include: antenna types and applications, propagation patterns, tower effect, combiners, multi-couplers, isolators, cavities, and harmonic filters.

Elections will also be held for officers for the 1977-1978 period. The incumbent officers are running for re-election. Nominations will be taken from the floor.

For further information: Hal Bloomberg, N.Y.C. Police Dept., (212) 374-7647.

Time: 2 PM, Wednesday, October 12, 1977.

Place: Press Room, 2nd Fl., Police Headquarters, One Police Plaza, N.Y.C.

PAC Committee Meeting

The PAC Committee meets on the 2nd Wednesday of every month at the ITT Conference Center, 500 Washington Ave., Nutley, N.J. Discussions cover professional activities, working conditions, engineering surplus, salary, benefits, pensions, employment, etc.

Call Richard Tax (201) 391-9075 after 7 PM for additional information.

"OP AMPS 77"

The New York, North Jersey, and Long Island Joint Chapter Instrumentation and Measurements is sponsoring a Fall study series entitled OP Amps 77 (Active Filters). It will be held on Tuesdays, November 1, 8, 15, 22, 29, 1977 from 7:30 PM to 9:30 PM at the ITT conference center, 500 Washington Street, Nutley, New Jersey.

The schedule is as follows:

November 1 — "OP Amp Update" Bob Baird, RCA Solid State, Somerville, N.J.

November 8 — "Single OP Amp Active Filters", Ken Sohn, N.J. Institute of Technology, Newark, N. J.

November 15 — "Multiple OP Amp Active Filters", Jim Tow, Bell Telephone Labs, Holmdel, N.J.

November 22 — "Hybrid Micro-electronics", Ike Pratt, Ft. Monmouth, N.J.

November 29 — "Gyrators", Lee Hermansen, Amprex, Slaterville, R.I.

The cost for IEEE Members is:

\$40 Before October 1, 1977

\$45 After October 1, 1977

Cost for Non-IEEE Members is:

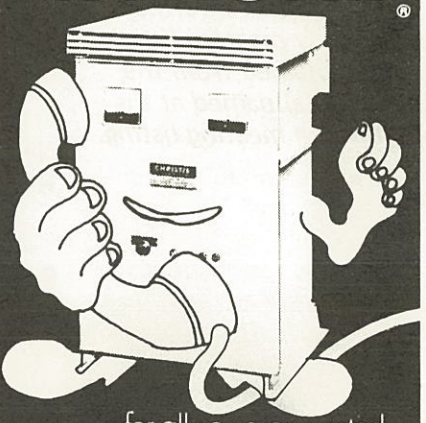
\$45 Before October 1, 1977

\$50 After October 1, 1977

Checks should be made payable to "Joint Chapter, I&M IEEE" and mailed to: Dr. Joseph J. Padalino, New Jersey Institute of Technology, Department of Electrical Engineering, 323 High Street, Newark, New Jersey, 07102.

For further information: In New Jersey - Dr. J.J. Padalino (201) 645-5321, In New York - Mr. D.C. Roberts (212) 422-4800, Ext. 8224.

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OCTOBER						
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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

METSAC
ACTIVITIES
CALENDAR

This calendar shows activities scheduled for the New York Metropolitan area during the next few months by the Long Island, New York and North Jersey Sections of the IEEE.

Additional information on any meeting listed can be obtained from the individual(s) named at the end of each meeting listing.



October 4, 1977—"Practical Symmetrical Components," Study Group—NJ Section, Ten Sessions, 7 PM, Jersey Central Power & Light, Madison Ave. & Punchbowl Road, Morristown, NJ. Frank Relotto (201) 283-0600

October 5—"What's New In Cardiac Pacemakers," Dr. Philip Hurzeler—Metropolitan GEMB, 7:30 PM, Rockefeller University, 66th St. & University Ave., NYC. Harry Rice (212) 554-7075

October 5—"Electrical Design For Water And Sewage Treatment Facilities," Study Group—NJ Section, Ten Sessions, 7 PM, Jersey Central Power & Light, Madison Ave. & Punchbowl Road, Morristown, NJ. John Domorski (201) 966-2456 or Jerry Koch (201) 944-1667

October 12—"Northeast Corridor Rehabilitation"—NY Transportation Division, 6:30 PM, General Electric Auditorium, 570 Lexington Ave. (corner of 51st St.), NYC. John McLaren (201) 963-2717

October 12—"Antenna Systems For Mobile And Base Stations,"—Metropolitan Vehicular Technology Society, 2 PM, Press Room, Police Headquarters, One Police Plaza, NYC. Hal Bloomberg (212) 374-7647

October 13—"Reliability And Its Applications," Study Group—NJ Section, 7 Sessions, 7 PM, ITT, 500 Washington Ave., Nutley, NJ. Ralph Hernandez (201) 575-8000, Ext 262 or Sergi Bogaenko (201) 256-4000, Ext 3651

October 17 (tentative)—"NYC Mayoralty Candidates Discuss Transportation Issues"—NY Transportation Division Joint With ASCE, 6:30 PM, United Engineering Center, 345 East 47th St., NYC. John McLaren (201) 963-2717

October 19—"X-Ray Tomography," Joseph B. Kruskal—NJ Multigroup, 7:30 PM, Jersey Central Power & Light Co., Madison Ave. & Punchbowl Road, Morristown, NJ. Robert E. McMillan (201) 645-5467

October 19—"MCS-48 Single Chip Microcomputer," M. Lania—NY Computer Society, 6:30 PM, United Engineering Center, 345 East 47th St., NYC. Cary J. Ringel (212) 460-2395

October 19—"Partners In Quality: Industry/Government," Charles Tantillo—NJ Reliability Group, 7 PM (Dinner), 8 PM (Meeting), ITT Clubhouse, 417 River Rd., Nutley, NJ. R. Hernandez (201) 575-8000, Ext 262 or (201) 935-8205

October 20—"Lightning Surge Protection Of Underground Distribution Systems," Dr. Robert Owen—NJ Power Engineering Society, 7:30 PM, Jersey Central Power & Light Co., Madison Ave. & Punchbowl Road, Morristown, NJ. John Longenfeld (201) 753-1100

October 20—"MCS-48 Single Chip Microcomputer," M. Lania—NJ Computer Society, 7:30 PM, ITT, 500 Washington Ave., Nutley, NJ. Frank Kruglinski (201) 627-6207

October 25—"Test Facility For Superconducting Power Transmission Lines: Meeting & Plant Tour," Eric B. Forsyth—LI ASME & Metropolitan Joint PES & IAS, 6:30 PM, Berkner Hall, Brookhaven National Laboratory, Upton, NY. Ralph Droste (201) 825-4400, Ext 201

October 26—"Computer Control Of The Port Authority Bus Terminal," James Mundy, Jr.—NY & LI Joint PES & IAS, 6 PM, 1 World Trade Center, Room 62 South, NYC. Patrick M. Duggan (212) 460-4062

NOVEMBER						
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DECEMBER						
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18	19	20	21	22	23	24
25	26	27	28	29	30	31

October 26—"The Electronics Revolution," Dr. Jerome Suran—LI Section, 8 PM, Polytechnic Institute of New York Graduate Center, Route 110, Farmingdale, NY. Daniel J. O'Donnell (516) 575-5756

October 27—"The Discovery of Bubbles," A.H. Bobeck—Princeton Magnetics Group, 8:15 PM, Allied Chemical Corporation, Morristown, NJ. R. Hasegawa, (201) 455-4307

October 27—"Tour Of Con Edison Energy Control Center"—Metropolitan Instrumentation and Measurement, 7:30 PM, (Reservations Required) 128 West End Ave., NYC. Randolph D. Grossberg (212) 460-4020

October 28-30—"Personal Computing Expo"—IEEE Computer Society, New York Coliseum. Cary Ringel (212) 460-2395

November 1—"OP Amps" 77 (Active Filters) Study Series,"—Metropolitan Instrumentation and Measurements, 7:30-9:30 PM, 5 Sessions, ITT, 500 Washington Ave., Nutley, NJ. J.J. Padalino (201) 645-5321 or D.C. Roberts (212) 422-4800, Ext. 8224

November 2—"Pulmonary Function Testing," James Wilson—Metropolitan GEMB, 7:30 PM, Rockefeller University, 66th St. & University Ave., NYC. Harry Rice (212) 554-7075

November 9—"Technical Aspects Of Nuclear Controversies," Dr. Benjamin Stevenson—Joint NJ Section and NJ Multigroup, 7:30 PM, Jersey Central Power & Light, Morristown, NJ. Robert McMillan (201) 645-5467

November 15—"Trends In Local Digital Switching." One Day Seminar—NY Communications Society, 9 AM to 4:30 PM, United Engineering Center, 345 East 47th St., NYC. P.M. Paterno (212) 395-2109

November 16 (tentative)—"NJ Erie-Lackawanna (Con Rail) Re-electrifications"—General Electric Auditorium, 570 Lexington Ave., NYC. John McLaren (201) 963-2717

November 16—"Biological Effects Of Microwave Radiation," Dr. J. Osepchuk—Joint LI Section & LI MTT Group, 8 PM, Polytechnic Institute of New York Graduate Center, Route 110, Farmingdale, NY. Daniel J. O'Donnell (516) 575-5756

November 16—"Fusion Power," Speaker from Princeton University—Joint ASME & NJ Power Engineering Society. John Lagenfeld (201) 753-1100

November 16—"Microprocessor Control On A Floppy Disk System," Dr. Robert Borrmann—NY & LI Joint PES & IAS, 6 PM, Stone & Webster, 1 Penn Plaza, NYC. Patrick M. Duggan (212) 460-4062

December 1—"Annual Student Night"—NJ Power Engineering Society, New Jersey Institute of Technology, High Street, Newark, NJ. John Langenfeld (201) 753-1100

December 14—"Emergency Power For Communication Systems"—Metropolitan Vehicular Technology Society, 2 PM, NYC Police Headquarters, 1 Police Plaza, NYC. Hal Bloomberg (212) 374-7647

January 25, 1978—"Telephone Line Transmission Impairments For Voice And Data"—Metropolitan Vehicular Technology Society, 2 PM, NYC Police Headquarters, 1 Police Plaza, NYC. Hal Bloomberg (212) 374-7647