



The IEEE

Newsletter

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

JANUARY, 1985

Volume 31, Number 7

Publication No: USPS 580-500

"The IEEE Newsletter" is published monthly except June by the North Jersey Section of The Institute of Electrical and Electronics Engineers, Inc., a nonprofit scientific society dedicated to the advancement of electrical and electronic engineering and the allied arts and sciences. Headquarters: 345 E. 47 Street, New York, N.Y. 10017. Sent automatically and without additional cost to each member of the North Jersey Section. Printed in U.S.A. Second-class postage paid at New York, N.Y. and at additional mailing offices.

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Deadline for receipt of material is the 1st of the month preceding the month of publication. All communications concerning editorial and business matters, including advertising, should be addressed to: The Newsletter, c/o Girard Associates, Inc., 6 Robert Terrace, Mt. Arlington, N.J. 07856. (201) 398-5524.

Subscription: \$0.75 per year through dues for members: \$1.50 per year for non-members.

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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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Voice/Data Carrier: Private User Case Study

"Voice/Data T-1 Carrier--A Private User Case Study," from planning thru operations, is the subject of a presentation to be made by Mr. Gerald C. Babayan at the January 30, 1985 meeting of the Joint Chapter of the Computer and Communications Societies of the North Jersey Section.

About The Talk

The use of T-1 carrier as a wideband (1.544 Megabits/sec) digital transmission scheme for private users has finally begun to gain momentum. T-1 (also called DS-1) was limited to common carriers and some private microwave users up until recently, when the phone companies began to offer T-1 as a tariffed service. The practical, real-world experience of an early, private user will be presented, to include planning, implementation, and operation. The many issues and problems associated with introducing this new integrated voice/data facility into an on-going corporate operational environment will be discussed. Advantages accrued and practical recommendations will be given.

T-carrier has been heralded as a common denominator for all telecommunications, including voice, DP/MIS, automated office, videoconferencing, etc. The presentation will start with a brief tutorial on what T-1 is.

About The Speaker

Gerald C. Babayan is the Telecommunications Manager at Schering-Plough Corporation in Madison, N.J. responsible for worldwide planning and implementation of

telecommunications, networks, and services, both voice and data. He joined S-P in 1978 to establish and formalize their telecomm effort, and has implemented T-1 service, and ETN network, and an S685 PABX. Previously, as a telecomm consultant/analyst at NLI, he was involved with networking of voice and data, private microwave, and pioneering work with TDX. Mr. Babayan is a West Point graduate, with concentration in EE and Computer Sciences and served 5 years in the Army Signal Corp applying communications technology.

Time: 8 PM, Wednesday, January 30, 1985.

Place: Jersey Central Power & Light Co., Route 24 and Punch Bowl Road, Morristown, N.J.

Additional Information: James Morgan (201) 766-0969 or George Pick (201) 884-6040.

NJ PACE Meetings

Monthly meetings of the North Jersey PACE Committee will be held at the ITT Tower Lobby, 500 Washington Avenue, Nutley, N.J. at 8 PM on the second Wednesday of every month. Free refreshments will be offered to all.

There are many active hot PACE Projects funded by IEEE's USAB from which you benefit. Here's your chance to learn about them and give your input!

Call Maitland McLarin, PACE Chairman at (201) 335-6847 for additional information.

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51 HAWTHORNE ST
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07656

Upgrade Your Membership In '85

RESOLVE TO START THE NEW YEAR by advancing to a higher membership grade. For information on requirements and forms for Senior Member and Member grades, contact: Don Weinstein, Kulite Semiconductor, 1039 Hoyt Avenue, Ridgefield, N.J. 07657, (201) 945-3000.

Student Activities

By **STELLA LAWRENCE**

OFFICE OF NAVAL RESEARCH GRADUATE FELLOWSHIP PROGRAM 1985
Deadline: January 31, 1985

As a means of increasing the supply of U.S. citizens trained in disciplines of science and engineering critical to the U.S. Navy, the Office of Naval Research (ONR) is announcing the expansion of the ONR Graduate Fellowship Program. ONR plans to award as many as 45 new three-year fellowships to recent outstanding graduates to support study and research leading to doctoral degrees in specified disciplines.

NJIT Extension Program in
Morris County

M.S. in ELECTRICAL ENGINEERING

Early evening courses taught by NJIT faculty ■ Conveniently located at the educational facilities of Hewlett-Packard Corporation Greenpond Road, Rockaway

Offered Monday evenings,
15 sessions beginning January 21:
Integrated Circuits I

Registration begins January 10, by
appointment only.

Applications now being accepted for spring
1985. For further information contact:
Extension Programs
New Jersey Institute of Technology
Newark, New Jersey 07102
(201) 596-3640



New Jersey
Institute of
Technology

Fellows selected in 1985 will receive \$13,000 for the first year of tenure. ONR will pay the institution full tuition and fees and provide \$2,000 to the Fellow's department. If academic progress is satisfactory the ONR will pay \$14,000 for the second year, and \$15,000 for the third year.

ONR Fellows are encouraged to continue their studies and research in the summer at a Navy laboratory. ONR will raise the Fellow's monthly stipend to \$1,500 during the summer while at a Navy laboratory. ONR will also pay the cost of travel to and from the laboratory for the Fellow as well as the cost of a three-day visit to the laboratory by the Fellow's faculty advisor.

ONR Graduate Fellowships will be awarded in nine major disciplines including the following:

Electrical Engineering: Integrated Circuit Design and Fabrication; Communications; Solid State Devices; Electromagnetics; Signal Processing; Quantum Electronics.

Mathematics: Applied Mathematics, etc.

Computer Science: Software and Systems; Artificial Intelligence; Architecture, Algorithms, and Software; Advanced Automation; Robotics.

Applied Physics: Laser Physics; Surface Physics; Physical Acoustics; Underwater Acoustics; Opto-electronics.

Life Sciences: Genetic Engineering, Biocybernetics and Artificial Intelligence, etc.

Participants must be U.S. citizens or nationals and receive a baccalaureate degree in 1985.

Application materials and further details may be obtained from: ONR Graduate Fellowship, American Society for Engineering Education, 11 Dupont Circle, Suite 200, Washington, D.C. 20036. (202) 745-3616, (202) 293-7080.

Preference will be given to applicants who indicate an intention to pursue continuous study and research leading to a doctoral degree in, or closely related to one of the nine major disciplines.

Application deadline: January 31, 1985.
Offers of appointment around March 31, 1985.

WINTER MEETING OF THE IEEE POWER ENGINEERING SOCIETY

The Power Engineering Society cordially invites all students to attend the Winter Meeting in New York City. The Meeting will be held from February 3-February 8, 1985 at the New York Penta Hotel, 32nd Street and 7th Avenue. There will be NO FEE for STUDENTS with proper I.D. card.

Student Faculty Industry Program-- Wednesday, February 6, 1985

A full day's program for students is planned for Wednesday and is intended to acquaint students with the technical and management career opportunities offered by the power industry.

9:30 AM, Skytop Room—"Work Opportunities for Young Engineers in the Electric Power Industry"—Chairman: T.J. Lehner, Philadelphia Electric Company. Young Engineers: L.S. Wright, Duke Power Company; C.W. Calhoun, Stone and Webster Engineering Corporation; J.L. McDermott, General Electric Company. Presentation: "High-Tech Careers in the Electric Utility Industry," P. Kushkowski, Northeast Utilities Service Company.

Noon—Skytop Room—"Faculty/Student/Industry Relations Luncheon (By Invitation Only)"—Chairman: R.B. Adler, Philadelphia Electric Company. Presentation: "Utilities—Managing a Revolution," W.C. Hayes, Editor-in-Chief, Electrical World.

2:00 PM, Skytop Room—"Student/Faculty/Industry Round Table Discussion"—Chairman: R.B. Adler, Philadelphia Electric Company.

Following the Luncheon students will have the opportunity to address questions to the Faculty and Industry audience, and to meet with representatives from many facets of the industry. This session will conclude with a hospitality hour.

MESSAGE FROM ED FARKAS, NY Section Student Activities Chairman

If you are reading this column then the college you attend probably has an IEEE Student Branch. If you have any questions regarding Branch operations, SPAC's, Prize Paper Contest, getting involved with the IEEE through committee work, volunteer positions with technical society chapters and conferences (such as the Winter Power Meeting or ELECTRO/85) just call me or your Section SAC (Student Activities Chairman).

Your Student Activities Editor is anxious to print news of the activities of Student Branches in the METSAC area New York, North Jersey, Long Island, and Princeton. Please send the names of your new student officers and other pertinent information to Prof. Stella Lawrence, Dept. of Engineering Technologies, Bronx Community College, W 181 Street and University Ave., Bronx, N.Y. 10453, (212) 220-6044.

Managing New Ventures In A Corporation

"Managing New Ventures In A Corporate Environment" is the title of the January 29, 1985 meeting of the New York/North Jersey Chapter of the IEEE Engineering Management Society. Aristides C. Fronistas will be the speaker.

About The Talk

Corporate new ventures provide a path for the development of strategically important new business opportunities. Factors for the success of such ventures include strong customer orientation, high product quality, and simultaneous loose-tight control. The new AT&T is committed to the successful development of its new ventures.

A.C. Fronistas is Venture Technologies Manager at AT&T Technologies Inc. He has been with Bell Laboratories since 1981. Previously, he worked for Stanford University, IBM Corp., and Grundig GMBH. He received his BSEE from Cairo University, his MS from Columbia University and his PhD from Stanford University.

Membership in the IEEE or the Engineering Management Society is not prerequisite for attendance at the lecture or the dinner.

Time: 7:30 PM, Tuesday, January 29, 1985.

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

Further Information And Pre-Meeting Dinner Reservations: Marty Izaak (212) 397-7438, Barry Gourary (201) 783-5570, Vern Casper (914) 666-3353.

How Should Engineers Manage Income Taxes

"How Should Engineers Manage Their Income Taxes" is the title of the February 26, 1985 meeting of NY/NJ Chapter of Engineering Management Society. Jerome Alter, CPA will be the speaker.

About The Talk

Tax laws are changing at an unprecedented high rate of speed, becoming more important than ever for engineers to keep up with the latest tax savings opportunities. The money engineers save by knowing the tax laws go right into their pocket without any deductions.

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About The Speaker

Mr. Jerome Alter is a certified public accountant and owner of his own CPA firm at 276 5th Avenue, NYC. He received his BA degree from City College of New York. Mr. Alter worked as a CPA for Seidman & Seidman, and Gluckman, Schacht and Greenberg, and became vice president in charge of finance at the Rex Baby Carriage Manufacturing Co. He is a member of the American Institute of Certified Public Accountants and the New York State Society of Certified Public Accountants. He previously has had many speaking engagements addressed to engineers and scientists on tax matters.

Time: 7:30 PM, Tuesday, February 26, 1985.

Place: Willkie Memorial Bldg., Street level, 20 West 40th St., NYC.

Pre-Meeting Dinner: 5:30 PM, Swiss Bear Restaurant, 20 E. 41st St., NYC.

Further Information and Pre-Meeting Dinner Reservations: Ms. Elaine DiLisio (212) 564-6915, Mr. John Van Savage (201) 544-2334, Manuel Correa (914) 681-6484 or Tibor Benton (516) 929-8300, Ext. 3478.

Membership in IEEE or Engineering Management Society are not prerequisite for attendance. There is also no charge.

Robot Dynamics And Controls Video Conference Planned By Sections



The North Jersey, New York and Princeton Sections of the IEEE are tentatively planning to present an important video conference on "ROBOT DYNAMICS AND CONTROLS."

Presented in conjunction with the IEEE's Educational Activities Board this One-Day Live Videoconference Via Satellite Network is planned for February 27, 1985.

The videoconference will emphasize various dynamic methods for control of general purpose robotic manipulators. It will examine several different strategies for accomplishing accurate robot arm control in a practical environment. This includes coarse sensing and finite sensing through several techniques in a constantly changing environment.

The human arm goes through a huge number of techniques and sensing which we often take for granted. Applying that to be duplicated by a robotic manipulator is not a simple task. It is rather complex. However, great strides have been made. In this videoconference you will see where the technology is today and where the design issues in research are going.

Topics include:

- * Adaptive controls and its problems
- * Sensor based control
- * Flexible linkages and modern control of robotic manipulators
- * Increasing the intelligence of the system
- * Force feedback control
- * Assembly
- * Future directions

Throughout the presentation, practical applications will be demonstrated.

Technical Consultant for the program is Alan A. Desrochers, Rensselaer Polytechnic Institute.

Presenters are: Professor Wayne Book, Georgia Institute of Technology; Dr. Larry Sweet, General Electric Company; Professor Steve Dubowsky, Massachusetts Institute of Technology and Dr. Dan Whitney, Charles Start Draper Labs.

Costs for this video conference are as follows: \$75 to IEEE members; \$175 to non-members; \$25 to full-time IEEE student members; \$75 to full-time non-IEEE students.

At this time it is intended to hold the video conference at the following locations: WNET, 356 W 58 Street, NYC — and — Rutgers University, Piscataway, N.J.

For additional information and to advise of your interest you may contact: Charles P. Rubenstein, (212) 677-7420 (B), (516) 598-3448 (H); or F.J. Koblenz, (201) 344-0202 (B), (201) 665-1525 (H); or Alex Czeto (609) 771-2203 (B), (201) 541-6494 (H).

Date: April 17, 1985

Time: 7 PM—RECEPTION
8 PM—DINNER

Place: CHANTICLER, Millburn
376-2222



Banquet Menu

Reception — 7:00 PM

Tart Shells Portuguese
Stuffed Mushrooms Graham
Broiled Chicken Livers Monticello
Aubergine Supreme
Pastries Hors d'Oeuvres Assorte
Cantonese Egg Rolls - Sauce Anglaise
Frankfurter Puffs
Veal Souffles a la Oscar
Danish Liver and Potato Souffles
Quiche Lorraine
Shrimps Soto Mayer - Sauce Romanoff
Miniature Pizzas
Baked Clams Crosettie
Clams on Half Shell
Oysters on Half Shell
Veal Scallopini a la Tiberius
Chicken Montmartre
Petite Stuffed Cabbage - Hungarian Style
Baked Stuffed Shells - Sauce Marinara
Rice Pilaf
Fresh Chinese Vegetables
Baked Sugar Cured Ham
Petite Party Breads
Unlimited Cocktails
Wine and Beer

Dinner — 8.00 PM

Salad Valencia
Assorted Imported Cheeses Passed
Imported Flat Breads
Roast Prime Ribs of Beef - Sauce Naturale
Stringbeans Almondine
Glazed Belgian Carrots
Potato Chanticler
Petite Dinner Rolls/Butter
Coffee/Cream
Chocolate Mousse
(Liquor during and after dinner - individual responsibility)

SECTION BANQUET—APRIL 17, 1985

A time to relax, unwind and enjoy —
A time to pay tribute to our New Fellows —
A time to honor our new Senior Members —
YES it's time for the Annual Section Banquet

Following the enthusiastic response of those who attended the Banquet the past seven years, we are returning to the Chanticler in Millburn. The affair is scheduled for Wednesday evening, April 17, 1985. Each ticket is \$22.00 and includes a complete prepaid Cocktail Hour preceeding dinner. Spouses and guests are welcome.

Reservations required by April 10, 1985. Complete the reservation form below and return it with your payment. If any additional information is required concerning the Banquet, contact Richard Tax at 573-0387.

Inquire about corporate tables.

Use this form for Banquet reservations enclosing a stamped self-addressed envelope. Reservations required by April 10, 1985. Mail reservation request to:

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

Enclosed is _____ Please forward _____ tickets (make checks payable to North Jersey Section IEEE) to:

Name: _____

Address: _____

_____ Zip: _____

I would like to share a table (seating _____) with the following:

Engineers

We Are Improving Communications Through Your Imagination



At CASE RIXON, you will find a system of internal communications designed for the professional. It allows you to concentrate on improving global communications instead of fighting red tape. The spirit of our company is one of dedication, enthusiasm and adventure. CASE RIXON believes in its product and believes in its people. We recognize and reward innovative thinking and we appreciate the impact your ideas can have on the data communications industry.

For those individuals who are interested in accepting responsibility and who grow with each challenge, CASE RIXON offers the ideal climate for making real contributions. We currently have

opportunities in the following areas:

- Network Management Architecture
- LANS Research Engineering [Broadband]
- Hardware Design Engineering
- Software Design Engineering
- LSI Design Engineering
- Applications Engineering (pre and post sales support)

For complete information about these outstanding positions, call John Jaeger at [301] 622-2121, or send your resume in confidence to: CASE RIXON COMMUNICATIONS, Inc., 2120 Industrial Parkway, Silver Spring, MD 20904. An equal opportunity employer.

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At CASE RIXON, you will find a system of internal communications designed for the professional. It allows you to concentrate on improving global communications instead of fighting red tape. The spirit of our company is one of dedication, enthusiasm and adventure. CASE RIXON believes in its product and believes in its people. We recognize and reward innovative thinking and we appreciate the impact your ideas can have on the data communications industry.

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THE COMPUTER SCIENCE OF ROBOTICS AND COMPUTER VISION

A Series of 10 videotaped lectures on computer sensing and visual perception with applications in robotics.

Lecturer: Tom Binford, Professor of Computer Science, Stanford University

Bramson ORT Technical Institute
Thursdays, 5:30-8:30 PM, Beginning January 31, 1985

Description: Programming systems, distributed systems, sensors, geometric modeling, simulation, planning vision sensors, industrial vision systems, applications, advanced vision systems, vision hardware, and VLSI implementation.

Recommended prerequisites: Familiarity with linear algebra, orthogonal polynomials, and statistics.

Textbooks: *Machine Perception*, N. Ramakant, Prentice-Hall, 1982, \$29.50; *Computer Vision*, Ballard, Prentice-Hall, 1982, \$40.50. **Registration:**

Registration: \$250 for IEEE members; \$350 for non-members. Full-Time Students will be accommodated on a space-available basis: \$100 IEEE student members, \$250 non-members. (IEEE student membership = \$17/year.)

College Credit: Course ET495 is available as a 3-credit undergraduate HONORS course at Bramson ORT. Contact Dr. Charles Rubenstein for additional information.

Please register early by returning the completed form and check payable to the **IEEE New York Section**.

For more information and group discounts, contact: Dr. C. Rubenstein, Bramson ORT Technical Institute, 44 East 23rd St., New York, N.Y. 10010, (212) 677-7420.

REGISTRATION FORM IEEE N.Y. SECTION SERIES ON COMPUTER VISION (Open to non-members)

To: Dr. Charles Rubenstein, Bramson ORT, 44 East 23rd Street, New York, N.Y. 10010

Name _____

Affiliation _____

Address _____

Phone _____ Amount Encl. _____

Signature _____

IEEE Member No. _____

PACE NEWS

Professional
Activities
Committee for
Engineers

By R. Tax

RESPONSE—Should PACE Be Limited?

Our November "Newsletter" printed the views of a past North Jersey Section Chairman. He was disappointed to see 75 percent of the content dedicated to PACE and refers to a vocal group associated with the "aerospace industry" in our July, 1984 issue. He accused this group of trying to change the law of supply and demand and would further prefer a balance of editorial material with the role of PACE played down.

The author of this letter, H.E. Blaicher, raised some points that should be addressed. I remember the July, 1984 "Newsletter." This was a four-page issue with two pages of PACE material. Without the PACE material, we may not have had a July issue at all. Where was the rest of the material? We never received any more.

Now, I believe the vocal group mentioned and associated with the aerospace industry has just as much right to be heard as any other group or individual in the IEEE. I do note that our "Newsletter" provided an opportunity for all to be heard and we encourage participation.

Blaicher says ".....a disproportionate amount of space has been dedicated to PACE NEWS." Well, I'm open for suggestions, however, reducing PACE NEWS is not one of them. PACE covers the issues that involve all Section Members whereas Society /Chapter news is generally of interest to only the specific membership of the Society/Chapter and therefore PACE requires more coverage. I personally, would like to see more activity in all areas.

In the letter, the American Engineering Association (AEA) is seen as trying to change the law of supply and demand. This is really blaming the victim. I believe it is the American ELECTRONICS Association that has distorted the picture with erroneous surveys and false press releases. They're responsible for the whole issue. However, they did have the help of Professor F. Karl Willenbrock, a past president of IEEE.

Who is trying to change the law of supply and demand--AEA or AEA? It appears Blaicher opposes controls by the Engineering Association only.

I'm not happy with that philosophy. I prefer a free market without controls and distorted reports about manpower shortages. I also oppose attempts to reduce PACE NEWS or activity. Since a balance is desired, we should try to increase the amount of other material in our Newsletter. --Richard F. Tax

QUOTE OF THE MONTH

"I don't attend Section business meetings; I only attend technical meetings." John Doe

More than one J.D. has made this statement with self esteem, never having realized that our Section business meetings make our technical meetings possible.

USAB-PACE Library

USAB-PACE LIBRARY

"GUIDE TO PATENTS"—Employed Engineers Who Own Their Inventions IEEE No. UHO 147-9

"GUIDE TO MANPOWER"—Foreign Engineers In The United States: Immigration Or Importation? IEEE No. UHO 164-4

"GUIDE TO PENSIONS"—How To Evaluate Your Pension Plan. IEEE No. UHO 161-0

"GUIDE TO AGE DISCRIMINATION"—Age Discrimination In Employment: Crucial Decisions Affecting Careers. IEEE No. UHO 153-7

"GUIDE TO ETHICS"—The IEEE Role In Engineering Ethics IEEE No. UHO 149-5

"GUIDE TO SERVICE CONTRACTS"—Your Rights As A Service Contract Employee. IEEE No. UHO 146-1

Call IEEE Service Center, Piscataway, N.J. (201) 981-0060 for information.

IEEE Professional Programs

In Oct. through Dec. 1976, I published a 3-part article in Long Island PULSE about how the U.S. Activities Board (USAB) wastes our regional assessment. As most of you know, U.S. membership dues are \$65, of which \$13 is the regional assessment that pays for U.S. professional activities. The professional programs and the assessment started in 1973, right after we changed the constitution to permit professional activities. The reason for the change was that thousands of members found themselves unemployed in the early 1970's, and clamored for IEEE programs that would obtain better career stability and more rewarding careers.

My article examined USAB programs and found most of them conferred no benefit whatever on salaried practicing engineers (who comprise 57% of the membership). In fact, several USAB programs back then were counterproductive to our interests. Since I wrote those articles, the regional assessment rose from \$10 to \$13 a year per U.S. member. That raise, together with increased membership, has boosted the annual USAB budget from \$1.07M in 1976 to \$1.7M in 1984. It would be interesting to get some measure of spending effectiveness in 1984.

One of the best barometers of USAB priorities is what USAB talks about. Two publications - THE INSTITUTE and IMPACT (the latter with circulation restricted to professional activists) - cover IEEE professional activities. Representative articles from these publications are:

- * Member implicated in plot to sell secret missile data
- * Fellows help write plan to boost U.S. schools
- * University of Penna's microsensor may fight tooth decay
- * Harvard to open a \$7.7M educational technology center
- * OTA releases reports on medical imaging
- * Genesis of Orange County fuel shortage contingency plan

Can you see any way that these articles pertain to the careers of salaried practicing engineers?

By far the greatest waste of USAB media space has been this year's massive campaign about the crisis in pre-college math and science education. It is remotely possible that the gradual diminution of standards in pre-college education has led to something

that might be called a crisis, but it is not our crisis. It is the crisis of engineering professors who (together with corporate executives) dominate IEEE. Solution of their 'crisis' could bring a real crisis to IEEE's practicing engineer-members, because enrollment in U.S. engineering colleges now numbers about 130,000 students, the highest in the nation's history. Improvements in pre-college math and science education could further swell these enrollments, which would produce an engineering glut that could lead to mass layoffs during the next economic downturn. I'm not saying we should ignore the status of American education. What I am saying is this is not a professional problem, and it shouldn't be attacked with USAB funding. The Educational Activities Board is funded to cover the concerns of the education industry. There's where the funding for pre-college education should originate. Educators are squandering USAB funds. There's lots of other evidence that USAB is still wasting our regional assessment, and this could be a topic for future articles. But are they doing anything beneficial?

Despite the domination of USAB by non-engineers, there are still members of USAB and its task forces who get things done. People like Bob Barden, who testified in Congress about the need for pension reform; Dave Lewis who also testified in Congress about the problem of alien engineers; Harb Hayre, our National PACE Chairman, who ran a PACE convention where the members not only listened but also spoke of their concerns; Dick Tax, who attacked the Occupational Outlook Handbook that always says opportunities for engineers are magnificent (come rain or come shine); Frank Lord, who got articles into IMPACT that USAB preferred not to appear; etc. etc.

Efforts of people like these have produced results that are promising. A USAB task force seeking ways to change our pensions from defined benefit to defined contribution. The distinction between the two pensions is a good topic for a future article. Another USAB task force is collecting case histories of age bias discrimination, successfully overcome. Another is still at work with the problem of alien engineers being hired at substandard salaries. And there's lots more I could discuss.

There's a big conflict within IEEE to corner the lion's share of USAB funds. The participants in this conflict are practicing engineers, academics and corporate executives. Corporate executives want USAB funds to establish tax credits for R&D and to improve U.S. productivity (by some means that presently eludes me). Academics want USAB funds to sell continuing education courses as the only means by which engineers can stay current. Practicing engineers want USAB funds to improve pension benefits, fight wage busting, reduce employment of alien engineers at sub-standard salaries, reform patent agreements, ensure a lifetime career with adequate remuneration, and protect the public interest by raising standards of entry into the profession. The fourth group, that I have not thus far mentioned, are the apathetic members. They join IEEE to put it on their resume, obtain low cost insurance, and use its publications to light the charcoal under the Sunday barbecue. Your participation in one of these four groups will benefit your career. Which group is that?

ROBERT BRUCE

L.I. Section/USAB Liaison

(Mr. Bruce's article is reprinted from the November, 1984 issue of the "Pulse of Long Island").

Just out

FREE!

ENGINEERING START-UPS BULLETIN

Volume 1

P.O. Box 7100, Mountain View, CA 94039

Dear Engineering Professional:

You, like many professionals in engineering, may feel a little envious of others who have enjoyed the excitement and financial rewards offered by high-tech start-up companies. Our new Engineering Start-ups Bulletin describes positions for engineers in newly-formed firms. These companies are offering very attractive salaries, exceptional benefit programs, stock options, and other forms of equity participation—as well as leading edge projects where your contributions can directly impact growth and profits.

**\$28,000–\$105,000
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This new *Engineering Start-ups Bulletin* describes positions for engineers in newly-formed firms. These companies are offering very attractive salaries, exceptional benefit programs, stock options, and other forms of equity participation—as well as leading edge projects where your contributions can directly impact growth and profits.

Position openings include those in design and development (microwave, communications, mechanical, video, analog, voice mail, wafer fabrication, packaging and more); manufacturing; test; quality control; software/firmware sales; and marketing and technical support. Our latest Bulletin also includes select positions in engineering management. Specific salaries, bonuses, incentives and opportunities for advancement are described for every position.

Call Engineering Career Associates for your free copy. Because every professional on our staff has had a highly successful career in engineering prior to joining our firm, we can help you do the same.

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