plans assume that wages will grow at their current annual rate of 7 or 8 percent. Others project a negligible growth of only 1 or 2 percent.

With such a large, built-in "finagle factor," the figures generated are none too reliable because there are no standards for actuaries the way there are for engineers. The only way of finding out what a company's data really mean is to ask its actuaries.

Still, Mr. Regan believes the Security and Exchange Commission figures he accumulated for the study do have a real, practical value.

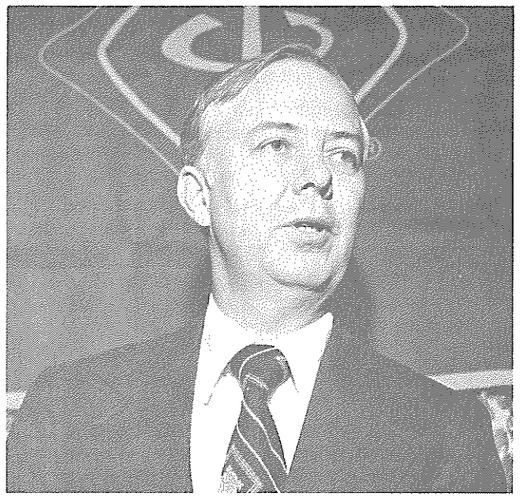
"All that IMS wanted to do was publish in one place all of the numbers disclosed in SEC findings," he says.

"I think that when a securities analyst—or a banker who might have a loan outstanding with one of these companies—uses the study he will look to see how the numbers compare with others in the same industry.

"And then he will go beyond that and try to find out if all these companies use the same set of assumptions, or whether there are radical differences. Does one company have a much higher turnover? Does it have younger workers?

"Nobody would even think to ask those questions unless they had something like this study, with all the data in one place."

AT THE ANNUAL DINNER



Banquet speaker John S. Mayo

Section officers flank new Fellows

New Senior Member Dick Tax and spouse

Membership Chairman Joe Fink and wife

The IEEE Newsletter

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

Volume 25 July 1978 No. 1

"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.

NEWSLETTER STAFF

Editor . . . . . Sidney Bell
Managing Editor . . . . . B. Blair
Business Manager . . . . . M. M. Perugini

Deadline for receipt of material is the 1st of the month preceding the month of publication. All communications concerning editorial matter should be addressed to: Sidney Bell, Editor, 162 Mohawk Drive, River Edge, N. J. 07661. All communications concerning business matters, including advertising, should be addressed to: The Newsletter, c/o Girard Associates, Inc., 399 Howard Boulevard, Mt. Arlington, N. J. 07856. (201) 398-5524.

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

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.

NJ Section Meeting Will Hear Both Presidential Candidates

Irwin Feerst and Jerome Suran, IEEE presidential candidates, will be our guest speakers at our August 9th meeting. This meeting is sponsored by the North Jersey Section and its Professional Activities Committee. It will be held at the ITT Conference Center, Nutley, N.J., at 7:30 PM. This meeting is open to all EE's, IEEE members and their guests.

Irwin Feerst received his BEE degree from City College of New York in 1951. He earned his MEE degree from N.Y.U. in 1955, and another MSEE degree in 1974.

He is a licensed Professional Engineer in the State of New York and an independent consultant in the areas of CRT displays, electromechanical servo systems, signal processing, medical electronics, radar analysis, and power supply design. Prior to 1969 he was employed by several corporations and for seven years an Assistant Professor of Physics and Electronics at Adelphi University.

Irwin is the founder, editor and publisher of a newsletter entitled the "Committee of Concerned E.E.s." This publication is now in its sixth year. Through these efforts he has had his hand on the pulse of the engineer and is most in tune to the problems besetting the profession and the practicing engineer.

He is a petition candidate for the position of President of the IEEE.

Jerome Suran obtained his BSEE degree from Columbia University in 1949. In 1976 he was awarded the degree of Doctor of Engineering, honoris causa, from Syracuse University for his pioneering work in solid-state technology and for the development of the implantable heart pacemaker.

Prior to joining General Electric in 1952, he held engineering positions at the J.W. Meaker Co. and at Motorola, Inc. As Manager of the General Electric Company's Electronics Laboratory, he has been active in the development of solid-state devices and circuits and in the management of the Laboratory operations. He is co-author of two books on transistor circuits, has published 40 papers in professional journals and holds 18 patents. He was a non-resident instructor of MIT from 1959 to 1963 and is an adjunct professor at Syracuse University.

Jerry was appointed to the Advisory Board of the Syracuse University Institute for Energy Research for 1978. He was Vice President of Publications Activities with the IEEE for two years and is currently Vice President of Educational Activities with the IEEE. He was active on a committee of the National Academy of Science, is on the accreditation committee of the ECPD and is a Professional Engineer in the State of New York.

He is the Boards candidate for the position of President of the IEEE.

We invite all engineers, IEEE members, their wives or husbands and guests to attend. This is your opportunity to meet the candidates, evaluate their goals and inform them of your expectations and needs. Please, take advantage of this opportunity.

Time: 7:30 PM, Wednesday, August 9, 1978.
Place: ITT Conference Center, 500 Washington Ave., Nutley, N.J.
Refreshments: Refreshments will be served.
For Additional Information: Richard Tax, North Jersey PAC Chairman (201) 573-0387 after 7 PM.

Job Openings!

Openings are available at Bendix Flight Systems Division in the technical areas listed below. All positions require a BS in Engineering and a minimum of 2 years experience.

HARDWARE DESIGN - Requires experience in digital and analog circuit design and analysis; background in advanced control and display systems helpful; and capability in A/D and D/A Input/Output circuitry, control logic, and power supplies, CRT and related control circuit experience desired.

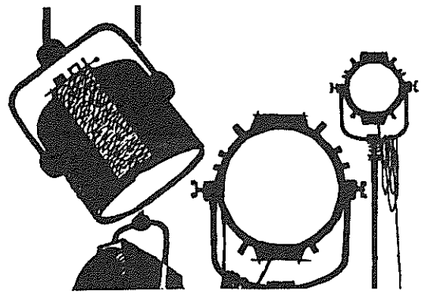
SOFTWARE ENGINEERING - Requires background in software development - preferably related to advanced digital control and display systems. Experience in realtime assembly language programming and scientific programming also required. Familiarity with scaling and number conventions, and microprocessor programming desired.

PACKAGING DESIGN - Background in military and ARINC packaging of complex electronic and electro-mechanical avionics assemblies desired. Experience in stress and thermal analysis related to packaging also necessary.

RELIABILITY - Requires experience in reliability analysis and product reliability assessment methods - including predictions, FMEA's, demonstration testing, and component engineering through failure analysis.

MAINTAINABILITY - Requires knowledge of military and commercial aircraft maintainability concepts. Must also have ability to conduct analyses and implement maintainability goals during product development.

For prompt confidential consideration call (collect), or send your resume to: Tom Worrell (305) 592-3610, Suite 451, 3900 N.W. 79th Avenue, Miami, Fla. 33166.



SPOTLITE ON NORTH JERSEY

School is out! That's true for the kids, but for engineers school is never out. In this profession, we worry about becoming educationally obsolete. In the North Jersey Section, we have an Education Committee that can help you from becoming obsolete.

This committee organizes the educational courses which we offer in North Jersey. The committee is rebuilding because its former chairman moved to New England. Dr. Len Gardner of AARADCOM has offered to get things moving for the 1978-79 season.

For you non-military types, AARADCOM stands for Army Armament Research and Development Command (formerly Picatinny Arsenal) and Len is Chief of the Computer Instrumentation Branch there. He started in California (UCLA, USC, Golden State) and has been working his way East. Until a year ago he was at the Rock Island, Illinois Arsenal. Now that he's here, he needs your help.

We would like to have your help on the committee. Len will need coordinators for individual courses, so if you want to get involved in the educational phase of IEEE, here's your chance. Call me at 465-2316 if you are interested.

You could also help us decide what courses to offer. In the past we have offered courses such as:

P. E. Review Course
Symmetrical Components
Protective Relaying
Microprocessors

Right now Frank Relotto is teaching a very popular microprocessor course. Very popular means that there are sixty students and there are probably sixty more people who wanted to attend but couldn't because we had to limit the class size. Obviously, we will run this course again next year.

But we have also had some bombs, defined as course offerings in which there wasn't enough interest to put together a reasonably sized class.

We need your help. We have 4500 members out there in a wide variety of engineering disciplines and it's awfully difficult for us to guess what you want to learn. Please tell us what courses you would be interested in.

We will probably run one or two courses in the Fall and a couple more in the Spring. They could be one day seminars or they could meet one night a week for a number of weeks.

We often talk about engineers becoming obsolete. There is one way to keep that from happening to you. Tell us what you want to hear about and we'll do our darndest to put together the courses you want.

Don Bathke, Section Chairman

Meeting Date Set

Meetings of The Executive Committee of the NJ Section are slated for 7:30 PM on the first Wednesday of each month throughout the year.

All members are welcome to attend the meetings which will be held at Jersey Central Power & Light Co., Madison Ave. and Punchbowl Road, Morristown, N. J.

Professional Activities

A professional activities meeting is held on the second 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.

Major Electronics Firms Show Deficit Fundings Of Pension Plans

Pension funds that are millions of dollars in the red may leave thousands of engineers poverty stricken in their retirement years, according to figures disclosed in a study commissioned by Investors Management Sciences, Inc. (a division of Standard & Poor's Corporation).

Typical figures show unfunded vested benefits—liabilities without assets—of $751 million for Westinghouse, $684 for AT&T, and $568 for General Electric. Lockheed's pension fund has $276 million in unsecured liabilities—66 percent more than the net worth of the entire company.

Consider LTV, which owes pensions amounting to $447 million—an amount that is fully 108 percent of the company's net worth. Westinghouse owes 35 percent of its net worth, and Beech's aerospace division has pension deficits that are 20 percent of the company's value.

Although the IMS study covered 1644 corporations, The Institute has only extracted figures for 15 firms that employ engineers, primarily aerospace and electronics companies (see chart).

Can these employers get out of the red in time to pay off? Or will pension-plan members be left holding the bag when retirement comes around?

Under the law, companies with pension plans are supposed to make them solvent. The Employment Retirement Income Security Act (ERISA) requires the elimination of unfunded costs over a 30-to-40-year period.

The total unfunded pension liability of the 1500-plus companies studied by IMS runs well over $48 billion, and unfunded vested benefits total nearly $23 billion. Even though only five percent of U.S. companies account for roughly 75 percent of the nation's major unfunded pension obligations, odds are that, instead of being amortized, these amounts will skyrocket in the next 50 years due to inflation and the expanded number of pension plan participants. And, under generally accepted accounting principles, companies are not required to make public the value of pension assets.

Company	Unfunded vested benefits
	($ MIL)
AT&T	684
Bendix	192
Boeing	107
Eltra Corp	63
General Electric	568
Honeywell	40
IBM	161
Lockheed	276
LTV	447
Martin Marietta	59
McDonnel Douglas	128
Raytheon	63
Teledyne	17
TRW	141
Westinghouse	751

The amounts under discussion are the unfunded vested benefits in a corporate pension plan—the amount of benefits that exceed the fund's assets. Vested benefits are those claims that, by law, cannot be taken away from an employee unless the fund goes broke. The particular benefits involved vary from one plan to another, of course.

Some plans that do go bust—but not all of them— are insured by the Pension Benefit Guarantee Corporation, which was created by ERISA. The PBGC pays vested (legally guaranteed) benefits, up to a maximum limit for each pensioner (see THE INSTITUTE, October, p. 1).

The money is supposed to come from a tax lien on company assets—but the maximum that can be seized from a firm is 30 percent of its net worth. For such companies as Lockheed and Westinghouse, the law leaves a large gap for the PBGC to make up—if it can.

If several conglomerates were to go bankrupt at the same time, the PBCG itself could go under. Already it is experiencing severe fiscal problems (see THE INSTITUTE September, p. 1).

The only bright spot in these figures is that they may not be completely reliable indicators after all. They are, in fact, "soft," according to Patrick J. Regan, who prepared the study for IMS.

Mr. Regan is vice president of BEA Associates, the Manhattan-based investment firm that prepared the 46-page report, 1977 Unfunded Pension Liabilities, which was released last July.

The problem lies in the games actuaries play, Mr. Regan explains. And they don't all play by the same rules:

"The actuary tries to estimate how many people will be working at a company to retirement age, so he needs numbers to determine the projected turnover, disability, and death rate.

"Then he projects the employee's earnings ahead and figures the percent of today's employees who will be around long enough to be vested."

In short, there are "a thousand-and-one estimates" that have to be made, and every company' sactuaries get their own numbers, by their own means. Naturally, the figures they wind up with vary widely and are "just not comparable from one company to the next."

For example, the expected stream of benefit payments has to be related to the size of the pension fund and discounted at some calculated rate of return.

"Most companies are using a rate of 5.5 to 6 percent," Mr. Regan says, "but some are using rates as low as 4 or as high as 8 or more."

Further, some plans base the amount of a member's benefits on his final salary. In figuring what that will be, some