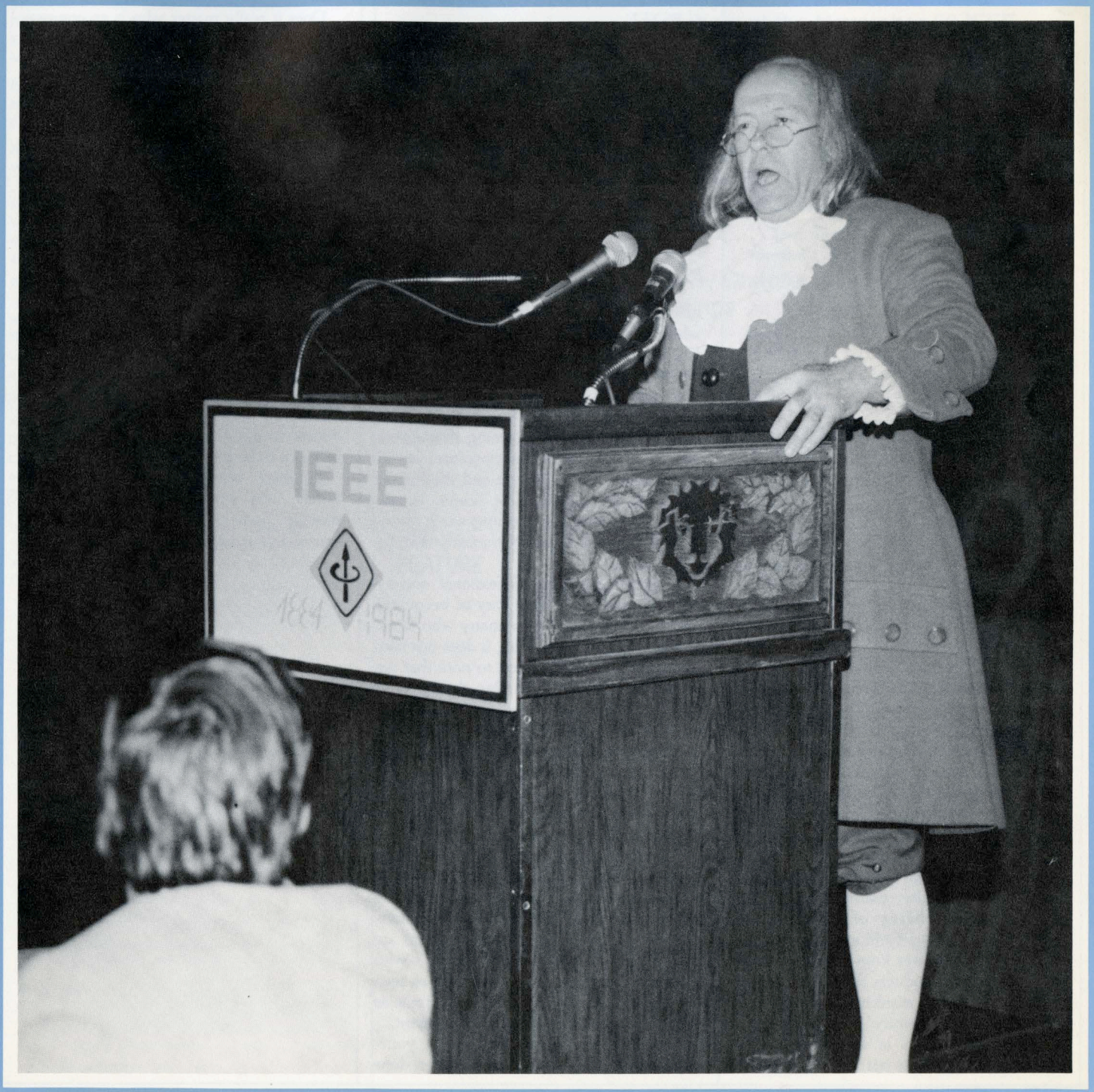
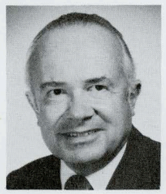
FEBRUARY 1985

IEEE GRID

MONTHLY NEWSMAGAZINE of the BAY AREA COUNCIL of the INSTITUTE of ELECTRICAL and ELECTRONICS ENGINEERS, INC



The Chairman's Corner



Frank Lord
Council Chairman

Who is an Engineer?

Later this month we participate in Engineers' Week, consisting of a series of events that momentarily raise the awareness of the community to engineering and its many contributions to the welfare of the public. All disciplines of engineering will be participating. The variety of activity that is encompassed by "engineering" is such as to cause one to wonder about its definition and how to define those who practice it.

In French the word "ingénieur" has an obvious relationship to the word meaning ingenious. In English "engineer" relates to engine in most people's minds. Rather than being thought of as professionals who exert ingenuity, many imagine that we drive trains. Many of us would be satisfied with the definition of an ingenious person who uses knowledge to create systems and/or products that improve the quality of life for mankind. But how do you measure ingenuity and knowledge and determine who is employing them effectively and who is not?

There are more definable ways of becoming classed as an engineer. One is to graduate from a college with a degree of BSXE. In this case the college says you are an engineer. Or are they just saying that you are a Bachelor of Science? There is also the question of accreditation, i.e., did some other recognized authority say that the college's course of instruction was of adequate quality to produce people worthy of BSXE?

Another way of becoming an engineer is to have an employer label you as one. There are many such engineers having no other credentials. When such a person is no longer with the company, as they say, is he still an engineer? The employers who create engineers include industry, government and the military. An employer can also choose to withhold the title and call engineers something else, such as Member of the Technical Staff, thus lumping them with chemists, metallurgists and statisticians.

One can also become an engineer by meeting state-administered requirements, which include tests and experience criteria. Those who successfully meet these requirements are licensed by the state as engineers and can exercise responsibility for the public safety that non-licensed engineers cannot. This route to becoming an engineer has the advantage of being uniform for all practitioners within a state and the license is clearly recognized. The license is not required for most engineering work, however, because of broad exemptions that the state grants.

Membership in a professional society such as ours might be a way of becoming an engineer and there are many who think this is sufficient. However, it does not take a great deal of observation to note that we have among our membership those whose ability to perform creative engineering work is doubtful. Some of these are even in positions of leadership in the national structure of the Institute.

You could be declared an engineer by your colleagues or peers. This happens informally in the workplace. Some engineers are recognized and admired by their peers for their engineering expertise and most everyone at that workplace is aware of it. Also there are usually a few non-functional engineers whose reputations are widespread. The knowledge of who's who among engineers at the workplace, as seen by engineers, is not necessarily the same as that which is visualized by management.

Finally, you could simply declare yourself to be an engineer. This has been done by many with flimsy credentials, who subsequently managed to convince an employer to grant the title. No matter how qualified you are, however, it is illegal to give yourself a title which is controlled by law in your state. Thuse, we IEEE members who think of ourselves as Electrical Engineers cannot call ourselves such in California unless registered in that discipline.

Does it really matter who is an engineer or not? There are several reasons to believe that it does. First, there is the matter of pride among those who are, in fact, engineers, and who are offended by the non-engineers who carry the engineer label. Also, consider that the Institute exists, in part, to serve the needs of engineers for technical information exchange and career development. How can that be done if we have not established a description of the functioning engineers? Also, the present lack of definition may be at the heart of the controversy over whether or not there is ever a shortage of engineers. If it is not known who the engineers are, how can they be counted and a shortage or surplus determined? It might not be so difficult to count the ingénieurs. Then it might be discovered that is where the shortage occurs. In other words, the problem would turn out to be one of quality, not quantity.

In these weeks preceding Engineers' Week, why not give this subject some thought. Some of you might even want to forward your ideas to the GRID.

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IEEE GRID

Vol. 32, No. 2 February 1985

SCV/EMS

Quality Production: Can It Be Achieved in California?

Debi Coleman, Macintosh Division operations manager for Apple Computer, will be the featured speaker at the February 20 meeting of the Santa Clara Valley Engineering Management Society. In her presentation, Debi will describe the development of the Apple Macintosh factory from conception to production of one computer every twenty-seven seconds.

Many people feel that the only way to achieve high product quality in large volumes and at low cost is to move production to the Far East. Debi will discuss the fundamental philosophy of the Macintosh factory, located in Fremont, which encompasses the Japanese technique of just-in-time delivery of zero-defect parts to ensure Apple's high standards of quality. Her address will also provide an analysis of the manufacturing process from a financial perspective.

Debi joined Apple Computer three years ago as financial planning manager for the Macintosh project. She became division controller for Macintosh and then controller for the Apple 32 project group. She was named division operations manager in May of 1984. Prior to Apple, Debi held several financial positions with Hewlett-Packard.

SCV/VTS

Digital Microwave Radio

Frank Thatcher, who assisted in the design and marketing of one of the first digital microwave radio systems in this country, will be the featured speaker at the February 25 meeting of the Vehicular Technology Society. His talk will cover basic PCM concepts, digital modulation techniques, advantages over conventional analog systems, propagation characteristics at 18 and 24 GHz, typical equipment arrangements and cost tradeoffs.

The meeting will be held at the San Francisco Press Club which boasts the City's best prime rib or seafood buffet.

OEB/IAS

Tour of ETI's San Ramon Facility

Electro-Test, Inc. is an independent testing and engineering company specializing in testing and analysis of electric power distribution systems for industrial, commercial and utility companies. The Oakland/East Bay Industry Applications Society will host a tour of the ETI facility in San Ramon on February 27.

The tour will include high voltage and high current testing, protective relay calibration and testing, medium voltage circuit breaker testing, ground fault testing, transformer insulation oil testing, safety rubber gloves testing, infrared scanning of electrical equipment, and other state of the art testing equipment.

SCV/Magnetics

Magneto-Optic Recording Technology

Dr. Mark Kryder, Magnetics Society Distinguished Lecturer, will address the February 19 meeting of the Santa Clara Valley Magnetics Society. In his talk, Dr. Kryder will introduce magneto-optic recording technology, discuss the deposition and optimization of the materials, and offer some projections on the characteristics of future magneto-optic recording systems.

Magneto-optic recording is a promising information storage technology offering the extremely high bit density of optical recording, and the erasability and rewritability of magnetic recording. Access time on a magneto-optic disk file to selected data is at least comparable to that of Winchester disk files.

Dr. Kryder has had a distinguished career, working in numerous research facilities in the U.S. and abroad. He is currently professor of electrical and computer engineering and director of the magnetics technology center at Carnegie-Mellon University. He is the author of over 65 publications on magnetic phenomenon and devices, and holds seven patents in these areas.

SCV/AES/CHMT

Venture Capital: A Perspective

Venture capital has become an important variable in the development of America's high technology businesses. It has grown from a small club of investors to a significant community of investment groups with multi-billion dollar yearly outlays.

The stories of fortune and failure associated with venture capital continue to fill the media, but the fundamentals of what business is all about do not change. The venture capitalist is still looking for investment opportunities that offer appropriate risk/reward and is still trying to identify the opportunities and teams that can grow to be very successful businesses.

Pete Thomas, of Technology Venture Investors, is the featured speaker at the February 21 joint meeting of the Santa Clara Valley chapters of the Aerospace & Electronic Systems and the CHMT Societies. His talk on venture capital will reveal that the process of raising venture money is a tedious one, challenging the patience of any entrepreneur, and that the criteria used to evaluate the team and business opportunity, although variable among venture firms, has some generic elements. Bottom line, the venture capitalist is convinced that the process is a functional one that skims the cream of the crop.

OEB/PES Short Course

Substation Design and Application

Substations are one of the most important components in the power system network, and there is wide diversity in the size and function of substations. The Oakland/East Bay Power Engineering Society is presenting a short course on this subject to be held on six consecutive Wednesday evenings during March and April.

The objective of the course is to introduce practicing power engineers to the practical applications of substations, and some of the new developments in the area of substation design.

There will be more information on this course in next month's GRID, or you may call Ken Riches at 415-972-3661 for details.

SCV/MTT

An Old Idea For Modern Times

The idea of distributed, or traveling-wave amplification dates back to a 1937 patent, but is very modern and very impressive when used with GaAs FETs.

Wayne Kennan, a product line engineering manager of GaAs MMICs at Avantek, will be the featured speaker at the February 14 meeting of the Santa Clara Valley Microwave Theory and Techniques Society.

Mr. Kennan's presentation will first cover the basics of distributed amplification, then survey several designs of the last five years, and finally describe Avantek's current 2-18 GHz MMIC distributed amplifier.

Consult the calendar of events for dinner reservation information and meeting details.

SCV/Communications

Data Compression to Transmit Color TV

As the old saying goes, a picture is worth a thousand words. That pretty much sums up the attractions of video teleconferencing, particularly when the accompanying business charts and technical illustrations are in vivid color. Unfortunately, color video pictures can cost tens of thousands of words of communications bandwidth.

To squeeze down the vast bandwidths that such services can occupy, a new video codec performs bandwidth compression at ratios of up to 1,440:1, enough to transmit color TV pictures through a 56 kbps telephone line.

Dr. Stan Fralick, a leader in the field of telecommunications and image processing, will be the featured speaker at the February 27 meeting of the Santa Clara Valley Communications Society. His talk will describe the processing required to achieve such compression and provide a demonstration illustrating the resulting picture quality.

This is a dinner meeting. Please see the calendar of events for details.

SF/IAS

Ground Fault Protection

The February 26 meeting of the San Francisco Industry Applications Society will be devoted to a practical study of ground fault systems and ground fault protection schemes. Speaker for the evening is Mr. Anthony J. Pinkey, product manager for Federal Pacific Electric of Raleigh, NC.

The first presentation, entitled Ground Fault Protection for Solidly Grounded Systems, will cover a description of ground fault current; how to detect it; how to set ground fault relays; how to calculate if a relay has been set properly, and how to coordinate relays on different stages of electrical distribution systems.

After dinner, Mr. Pinkey will deliver a companion talk on ground fault protection for underground/high resistance grounded systems. Ground fault currents act completely different if the system is not solidly grounded. The presentation will cover this case at length along with the protection schemes which can be applied. The talk will also examine the actual application of ground fault detection devices on the electrical system for the largest phosphate floatation plant in the world. This portion of the presentation was the subject of an IEEE technical paper presented at the Annual IEEE Industrial and Commercial Power Systems Technical Conference held in Milwaukee in 1983.

Those attending dinner at this meeting with advance reservations will be eligible for a raffle prize of the IEEE Green Reference Book on grounding practices. See the calendar of events for details.

SF/PES Spring Course

Real Time Control and Data Acquisition

The San Francisco Power Engineering Society has scheduled its Spring Course for six consecutive Wednesday evenings beginning March 13 and ending April 17. Entitled, "Supervisory Control and Data Acquisition in the Electric Power Industry," the course will be the third offered by SF/PES on using personal computers in power engineering.

The course assumes no prior knowledge of the subject and is based on the IEEE tutorial entitled, Fundamentals of Supervisory Control Systems. A copy of the tutorial and other useful materials are included in the course fee.

The preliminary course outline is as follows:

1. Introduction and rationale for Supervisory Control and Data Acquisition (SCADA) systems.
2. Considerations in applying SCADA to electric utility stations.
3. Communications techniques and configurations.
4. Remote terminal units.
5. A microcomputer application.
6. General considerations.

Course fees are $38 for members, $65 for non members, and $20 for full time students. Course will be held from 5:45 to 7:45 pm each Wednesday at the PG&E Building, 77 Beale Street in San Francisco. For more information, see the calendar of events.

Monterey Bay

Product Trends For Micros

New designs and product trends for small business microcomputers and peripherals will be discussed at the inaugural meeting of the Monterey Bay Subsection on February 12.

Bob Dilworth, president of Morrow Designs, San Leandro, will be the featured speaker and will focus on new designs from the U.S. and abroad. Mr. Dilworth was involved in the design of the Pivot microcomputer, a lap-top machine with LCD screen, MS-DOS compatibility, built in mini-floppies and modem.

The presentation will be followed by a brief organizational meeting to determine the interests of IEEE members in the Monterey Bay Subsection, and to discuss plans for future speakers.

See the calendar for more details.

Marketing and the Professional Consultant

by Dan Lombard
Executive Director, PATCA

The fact that "consultant" is no longer an assumed title used by unemployed specialists is now widely recognized by industry, and equally important, by consultants themselves. The financial commitment and lifestyle adjustments necessary to launch a practice have seen to that. And, when the consultant has the necessary skills (i.e., in demand) and spirit of entrepreneurship, the rewards can be spectacular.

The most recent survey of its membership by the Professional And Technical Consultants Association (PATCA), located in San Jose, shows that the average member bills time at $410 per day. However, not all consultants can claim that they bill clients five days a week. The consultant's ability to market his/her services has a direct effect on total billable days in a given year. It also has a dramatic effect on profitability, as marketing activities consume two very valuable resources — time and money.

PATCA was formed as a non-profit organization in 1975 to address this issue, and to serve as a supplement to the consultant's marketing activities. Two of the founding members, Dennis Paull and Roger Dorr, met as a result of Dorr's placing a paid ad for his consulting services. Paull saw the ad and responded, not because he was interested in retaining Dorr, but because he was curious as to how well the advertising worked.

This initial meeting led to meetings with other consultants, and six months later PATCA was incorporated as an organization to promote the professionalism of consulting, and to assist its members in marketing their various services.

During the past ten years PATCA has grown to a membership of over 450, with chapters in San Jose, Oakland, San Francisco and San Diego. It has also developed two important promotional features for its membership; a no-fee-to-the-client telephone referral service, and the organization's annual directory of PATCA consultants which now has a print run of 10,000 copies annually. The referral service, which uses a comprehensive computer database search mechanism, can be accessed free of charge by potential clients.

The typical PATCA member is a 45 year old male with 6 years as a consultant and 15 years prior experience in direct or related fields. Primary consulting segments are engineering - 38%; programming - 21%; management - 10%, production - 7%; marketing - 6%; service - 6%, and other - 11%.

While consultants employ many agents for their marketing, they cannot turn very far away from themselves when marketing achieves its objective: an opportunity to make a sale. Jim Reynolds, a productivity consultant and PATCA member, notes that he has his greatest challenge at that point — getting the order. Jim sees a lot of potential for his practice among the local high-technology community where crisis management has become institutionalized as a direct response to rapid growth. While companies often have already identified the problem, it is Jim's need to sell them on the advantages of his prior experience, outside objectivity, and the ability to quantify the results in order to make his sale. At a minimum, he estimates he can save the client three times his fee each year.

For many PATCA members in such areas as productivity consulting (the directory lists 14 consultants in this category), the sale can be a major challenge. For others in more specialized fields, marketing is still the major problem.

Michael Faklis bills himself as a computer scientist and is able to take advantage of the somewhat perverse situation where some mainframe software companies are better at marketing than they are at product development. They sell a lot of sophisticated software that does not necessarily work the way it should. Given that he has the experience with the particular software, all he needs do is let the right people know he has the relevant experience and is available. This, however, is not the simple marketing task that one might suppose.

In addition to the direct promotional activities of PATCA, there is an educational aspect to the organization whose charter it is to help the consultant resolve the issues of maintaining a practice and how to make the most of an opportunity to write a contract. This activity will be highlighted at the organization's upcoming first annual Consultants Conference, to be held March 10-17 at South Lake Tahoe.

Each of the four chapters of PATCA holds monthly meetings to hear presentations on a wide variety of subjects important to the consulting profession. These monthly gatherings also provide members with the opportunity for networking, trading experiences and passing on knowledge of open positions for consultants.

PATCA is governed by a board of directors elected by the membership to two-year terms. Current officers are: Ken Dinwiddie, president; Ann Tisue, vice president; Dave Pritchett, treasurer; and Mark Smith, Secretary.

Membership to PATCA is open to all consultants provided they submit the names of three clients or professional associates for reference. Fees are $195 per year and entitle the member to participate in all association activities including the following benefits:

Public recognition and advocacy for the value of using consultants.

Computerized referral service, free to potential employers, which matches member skills to caller needs.

Yearly 135 page directory cross-indexing member profiles with a 16 page list of the disciplines served by the members.

28 page annual survey of consulting rates and business practices.

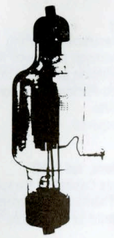
Monthly meetings with a variety of speakers.

Growing reference library for members including many appropriate publications.

As mentioned earlier, PATCA has scheduled its first annual conference to be held next month at South Lake Tahoe. A full week in length, the conference is designed as a forum for raising and debating issues of interest to both new and experienced consultants. There will be workshops moderated by successful long-term consultants with extensive experience in many areas of interest to PATCA members; a keynote address by Dr. B. Meredith Burke, a specialist in the Japanese economy, who will speak on consulting in an era of economic and demographic uncertainty; and numerous sessions on general career enhancement for consultants.

Through the efforts of PATCA the independent professional consultant here in the Bay Area doesn't have to go it completely alone. Whatever marketing problems are encountered by the new consultant, there will probably be someone within the organization who has faced a similar situation and can give advice.

THE PENINSULA ELECTRONICS STORY



by Emmet G. Cameron

Part Three

Continued from January

Bill Hewlett and Dave Packard were two products of Stanford's "Communications Laboratory" in the attic above Dr. Ryan's office on the campus. Under Fred Terman this lab had become a center of electronics developments, and one of the inventions accomplished here was Bill Hewlett's resistance-tuned oscillator. This instrument was the first product of the company which Hewlett and Packard founded in 1938 in a one-car garage in Palo Alto. Today the Hewlett-Packard Company, with sales of about four-billion dollars per year, is known all over the world as a foremost producer of electronics instruments and computers of all kinds.

Hewlett and Packard have served the electronics industrial-academic community with distinction. Among other honors, Bill Hewlett is one of the three Westerners who have been national president of the Institute of Electrical and Electronics Engineers, the others being Fred Terman and Barney Oliver. Dave Packard gave much time to Palo Alto's excellent public schools, and has served as Chairman of the Board of Trustees of Stanford University, and as Deputy Secretary of Defense.

Some of the contemporaries of Packard and Hewlett in Stanford's "Communications Laboratory" were Myrl Stearns, former president of Varian Associates; Noel Porter, who was production manager of Hewlett-Packard and former mayor of Palo Alto; Nathan Hall, a vice-president of Hughes Aircarft, and Dr. Edward Ginzton, developer of the atom-smashing linear electron accelerator, former Director of Stanford's Microwave Laboratory, and Board Chairman of Varian.

In the late thirties another of the real giants of the industry began his work in Stanford's Physics Laboratories. This was Dr. William Webster Hansen, who in his short lifetime was to collaborate in no less than three major developments, any one of which was sufficient for world fame. Dr. Hansen worked with the Varian brothers on the invention of the Klystron, was co-inventor with Dr. Felix Bloch of nuclear magnetic resonance apparatus, and in 1947 with Dr. Edward Ginzton developed the first of Stanford's linear accelerators. Bill Hansen's untimely death in 1949, at the age of 39, was a tragic loss to science and industry. His name honors the W.W. Hansen Physics Laboratories on the Stanford campus and Hansen Way in Palo Alto, where Varian Associates' 65-acre plant and lab complex is now located.

The Klystron vacuum-tube, which operates at microwave frequencies where conventional tubes are useless, was one of the great inventions that was invented, so to speak, on purpose. Dr. Russell Varian, a theoretical physicist, and his brother Sigurd, a Pan-American pilot, came to Stanford in the late thirties specifically to develop a vacuum tube for the high frequencies required by radar. They were driven by a conviction that without the means to detect approaching aircraft at night and in bad weather, the free world lay at the mercy of Hitler's mighty Luftwaffe. With Bill Hansen's help their efforts were successful, and dramatically timely, since the new Klystron tube played a major role in turning the tide of the Battle of Britain.

The second of Hansen's three major jobs of collaboration was with Dr. Felix Bloch, who had discovered the nuclear induction technique for determining the properties of atomic nuclei in 1945. In 1946, working with Bill Hansen and Martin Packard at Stanford, Bloch developed the nuclear magnetic resonance spectrometer. This instrument analyzes a material by recording its behavior in strong, precise radio and magnetic fields. This work won Bloch the joint award (with Purcell of Harvard) of the Nobel Prize in Physics in 1952, and NMR spectrometers have become major scientific tools all over the world.

In 1947, already suffering from the incurable disease that was to take his life, Hansen demonstrated a pilot model of the linear electron accelerator, developed in collaboration with Dr. Edward Ginzton. This machine is an atom-smasher which Dr. Ed Ginzton, now Director of the Microwave Laboratory at Stanford, went on to see the linear accelerator become more and more useful, and later planned and built an accelerator of monstrous size for advanced physical research. The machine, two full miles in length, is now located in the foothills behind Stanford, and is by far the most powerful linear machine in the world.

The surprising facility with which the electronics men of the area found new companies, which combine technical accomplishment with economic success, continues up to the present. In 1948 the Varian brothers, inventors of the Klystron, founded Varian Associates, which after 35 years of operation now has over 14,000 employees and operates at a sales volume of over $600,000,000 per year. The three major divisions of Varian Associates stand as additional memorials to Bill Hansen's three major contributions. The Tube Division's principal product is the Klystron vacuum-tube, the Instrument Division makes a broad line of instruments of which the foremost is the nuclear magnetic resonance spectrometer, and the Radiation Division produces commercial linear accelerators for cancer therapy.

Many of the electronics companies founded in the area are well-known all over the world. Ampex, a world leader in tape-recording equipment and famous for its pioneering Video-tape gear, was founded in 1944 by Alexander M. Poniatoff in San Carlos. Lenkurt was founded by Len Erickson and Kurt Apperson to develop and build radio systems for telephone communications and is now part of the General Telephone family. Dalmo-Victor Company of San Carlos was founded by T.J. Moseley and is one of the country's largest manufacturers of airborne antennas. And there are many others.

In recent years an interesting new trend has developed. The largest electronics firms in the country, intrigued by the phenomenal success of the Peninsula's home-grown companies, have established "outpost" laboratories on the Peninsula to tap the supply of talent in the area. Their names read like a roster of the great electronic companies — General Electric, Westinghouse, I.B.M., Zenith, Sylvania, Sperry Gyroscope, Philco-Ford, Lockheed, Link Aviation, Xerox, and Federal Telephone & Radio. All of these companies, and others, have established research and development activities within twenty miles of Stanford in recent years.

Continued on page 9

Calendar of Events

February-March 1985

TUESDAY FEBRUARY 12
Monterey Bay Subsection
Subject: Product Trends for Microcomputers
Speaker: Bob Dilworth (Morrow Designs)
Time: Dinner at 6:30 p.m., presentation at 8:00
Location: Dinner at Pasatiempo Inn, presentation at Intel, 400 Encinal, Santa Cruz
Reservations: Anne Krueger 408-429-2263
Article: Page 5

TUESDAY FEBRUARY 12
SCV Electromagnetic Compatibility Society
Subject: A Mechanical Approach to EMI Gasketing
Speaker: Michael Austin (EMC Shielding, Inc.)
Time: Dinner at 5:30 p.m., presentation at 7:30
Location: Dinner at Main Street Bar and Grill, 169 Main Street, Los Altos, presentation at Ford Aerospace, Bldg. 3 Auditorium, 3939 Fabian Way, Palo Alto
Reservations: Darryl Ray, 738-2888-X5006
Article: Page 11

THURSDAY FEBRUARY 14
SCV Microwave Theory and Techniques
Subject: Distributed Amplification: An Old Idea for Modern Times
Speaker: Wayne Kennan (Avantek)
Time: Dinner 6:00 p.m., presentation at 8:00
Location: Dinner at Stickneys, 1 Town & Country Village, Palo Alto, presentation at Hewlett-Packard, Main Auditorium, 3000 Hanover, Palo Alto
Reservations: Chuck Holmes 415-326-6231
Article: Page 5

FRIDAY FEBRUARY 15
SF Communications Society
Subject: ISDN—National and International Standards for a Globally Compatible Network
Speaker: Don Simpson (Pacific Bell)
Time: Lunch at 12:00 noon followed by presentation
Location: PG&E Cafeteria, Conference Room 301B, 77 Beale Street, San Francisco
Reservations: Not required

TUESDAY FEBRUARY 19
SCV Computer Society
Subject: Automated Manufacturing Research Facility
Speaker: Dr. Albert Jones (National Bureau of Standards)
Time: Cocktails at 6:00 p.m., dinner at 6:30, presentation at 8:00
Location: Dinner at Victoria Station, 855 E. Homestead Rd., Sunnyvale, presentation in the Oak Room Auditorium, Hewlett-Packard, 19477 Pruneridge Avenue, Cupertino
Reservations: Council Office, 415-327-6622
Article: Page 9

TUESDAY FEBRUARY 19
SCV Magnetics Society
Subject: Magneto-Optic Recording Technology
Speaker: Mark Kryder, (Carnegie-Mellon University)
Time: Coffee and conversation at 7:30 p.m., presentation at 8:00
Location: Hewlett-Packard, Stevens Creek Blvd. at Lawrence Expwy., Santa Clara
Reservations: Not required
Article: Page 4

WEDNESDAY FEBRUARY 20
SCV Engineering Management Society
Subject: Quality Production: Can It Be Achieved in California?
Speaker: Debi Coleman (Apple Computer)
Time: Presentation at 7:30 p.m.
Location: Amdahl World Headquarters, 1240 E. Arques, Sunnyvale
Reservations: Not required
Article: Page 4

WEDNESDAY FEBRUARY 20
SCV Sonics & Ultrasonics Society
Subject: Non-destructive Testing
Speaker: Bob Addison (Rockwell International)
Time: Presentation at 8:00 p.m.
Location: Hewlett-Packard Auditorium, Bldg. 20, 3000 Hanover Street, Palo Alto
Reservations: Not required

THURSDAY FEBRUARY 21
SCV Aerospace & Electronic Systems, and CHMT
Subject: Venture Capital: A Perspective
Speaker: Pete Thomas (Technology Venture Investors)
Time: Cocktails at 6:00 p.m. dinner ($12) at 6:30, presentation at 8:00
Location: Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto
Reservations: Council Office, 415-327-6622
Article: Page 4

FRIDAY FEBRUARY 22
SCV Section Engineers Week Banquet
Subject: Ground Water Contamination
Speakers: Dr. David Morell (EPA) and Daniel F. Criege, (SCV County Water District)
Time: Cocktails at 6:00 p.m., dinner at 7:00, presentation at 8:00
Location: The Bold Knight, Sunnyvale
Reservations: Council Office, 415-327-6622
Article: Page 11

SATURDAY FEBRUARY 23
SCV Antennas & Propagation Society
Subject: Computer Modelling on Electromagnetics
Speakers: Dr. G. K. Miller, (Lawrence Livermore National Laboratory), Professor R. Adler (Naval Postgraduate School)
Time: 9:00 a.m.-12:00 noon
Location: Auditorium, Bldg. 202, Palo Alto Research Laboratory, Lockheed Missile, & Space Company, 3251 Hanover St., Palo Alto
Reservations: Don Rucker, 408-738-2888-X6735
Article: Page 10

WEDNESDAY FEBRUARY 25
SCV Vehicular Technology Society
Subject: Digital Microwave Radio
Speaker: Frank Thatcher (Thatcher Associates)
Time: Cocktails at 6:00 p.m., dinner ($18) at 6:30, presentation at 7:30
Location: San Francisco Press Club, 555 Post Street, San Francisco
Reservations: Frank Thatcher, 415-956-6118
Article: Page 4

TUESDAY FEBRUARY 26
SF Industry Applications Society
Subject: 1. Ground Fault Protection for Solidly Grounded Systems
2. Ground Fault Protection for Underground/High Resistance Grounded Systems
Speaker: Anthony Pinkey (Federal Pacific Electric)
Time: First presentation at 5:45 p.m., dinner ($14.50) at 7:00, second presentation at 8:00
Location: The Engineers' Club, 160 Sansome Street, San Francisco
Reservations: Elizabeth Wilson, 415-428-4666
Article: Page 5

WEDNESDAY FEBRUARY 27
SCV Communications
Subject: Video Teleconferencing
Speaker: Stan Fralick (Widcom, Inc.)
Time: Dinner at 6:00 p.m., presentation at 8:00
Location: Dinner at the Golden Spike Restaurant (Stanford Barn) 700 Welch Rd., Palo Alto, presentation at the Physics Lecture Hall, Stanford University
Reservations: Jerry Miile 408-943-7815
Article: Page 5

WEDNESDAY FEBRUARY 27
OEB Industry Applications Society
Subject: Tour of Electro-Test Facility
Speaker: Electro-Test personnel
Time: 6:00 to 8:00 p.m.—refreshments served prior to tour
Location: Electro-Test, Inc., 3470 Fostoria Way, San Ramon
Reservations: Paul Boomer, 415-820-5666-X319
Article: Page 4

MONDAY MARCH 11
SCV Magnetics Society
Subject: Magnetometry in Space
Speaker: Mario Acuna (NASA)
Time: Coffee and conversation at 7:30 p.m., presentation at 8:00 p.m.
Location: Hewlett-Packard, Stevens Creek Blvd. at Lawrence Expwy., Santa Clara
Reservations: Not required
Article: Page 10

MARCH 13 THROUGH APRIL 17
SF Power Engineering Society Spring Course
Subject: Supervisory Control and Data Acquisition in the Power Industry
Speaker: Instructors chosen from Industry
Time: 5:45-7:45 p.m.
Location: Conference Rooms A & B, PG&E, 245 Market St., San Francisco
Reservations: David Poust, 415-972-1098 or John Hefler, 415-768-3232
Article: Page 5

THURSDAY MARCH 21
SCV Aerospace & Electronic Systems
Subject: Trends in Spread Spectrum Systems
Speaker: Dr. Francis D. Natali, (Stanford Telecommunications, Inc.)
Time: Dinner ($15) at 6:00 p.m., presentation at 8:00
Location: Dinner at Charley Brown's, 1116 N. Mathilda Ave., Sunnyvale, presentation in Building 160, Lockheed, Mathilda and 3rd Ave., Sunnyvale
Reservations: Bill Robertson 408-988-6100-X5153
Article: Page 10

SATURDAY MARCH 23
SCV Microwave Theory & Techniques Society
Subject: One-day Short Course—Advances in MIC Design and Fabrication
Instructor: To be announced
Time: To be announced
Location: Stanford Linear Accelerator Center, Palo Alto
Registration: Council Office, 415-327-6622

MARCH & APRIL
OEB Power Engineering Society
Subject: Short Course—Substation Design and Application
Speaker: To be announced
Time: To be announced
Location: PG&E, 1919 Webster, Oakland
Information: Ken Riches, 415-972-3661
Article: Page 4

TUESDAY APRIL 23
SCV Magnetics Society
Subject: Impressions of Perpendicular Recording Research in Japan
Speaker: James Monson, (Harvey Mudd College)
Time: Coffee and conversation at 7:30 p.m., presentation at 8:00
Location: Hewlett-Packard, Stevens Creek Blvd. at Lawrence Expwy., Santa Clara
Reservations: Not required

Peninsula, continued

This story, covering the origins of the Peninsula electronics industry, cannot possibly deal with the recent overwhelming development which has come to be known as Silicon Valley. This complex of almost a thousand companies producing semiconductor devices, computers, software, and the esoteric materials and equipments used in the manufacture of microcircuits, has had an explosive development defying any simple historical outline, and is now a world phenomenon.

Yet the story of Silicon Valley is a natural development of the Peninsula story. William Shockley, one of the inventors of the transistor, founded his company at one of the corners of the Stanford campus, because of the existence in the area of the required infrastructure and the supply of scientists, engineers and technicians. The people that Shockley hired went on to found Fairchild Semiconductor, and Fairchild people went on to found Intel and dozens of other companies.

Thus the cycle has been completed and the electronics industry of the Peninsula firmly established in leadership. What began with an idea — a principle in the mind of David Starr Jordan, has come to full flower. We have seen the outstanding teachers brought to Stanford by Jordan and others attract outstanding students, and these students, excellently trained, go on to found companies, advance the electronics art, and some to become themselves great teachers. The success of the local companies has brought new funds to Stanford, making possible fine laboratories and great machines, and the labs have continued to turn out men who became entrepreneurs, inventors, developers, managers and teachers.

The prophecy which Jordan made on October 1, 1891, has been fulfilled.

SCV Section

Engineers Week Banquet

The Santa Clara Valley Section's annual banquet commemorating Engineers Week will be held Friday February 22 at the Bold Knight in Sunnyvale. The per person price of $15 offers attendees either Veal Cordon Bleu or Filet of Sole with wine.

Two speakers will highlight the after dinner program. Dr. David Morell, senior policy analyst and project manager for the Environmental Protection Agency, Santa Clara Valley, and Daniel F. Criege, manager of operations and maintenance with the Santa Clara County Water District, will address the subject of Ground Water Contamination, a much publicized subject in recent weeks.

Theme of this year's Engineers Week celebration is "Engineers: Turning Ideas Into Reality." Early reservations are encouraged for the banquet. Call the Council Office at 415-327-6622.

SCV/Computer

Automated Factory Model at NBS

The Santa Clara Valley Computer Society will have the opportunity at their February 19 meeting to hear a presentation covering the work being done on the automated manufacturing research facility now under construction at the National Bureau of Standards (NBS).

Dr. Albert Jones of the NBS will be the speaker. He will describe the efforts to develop a generic approach for a real-time production control architecture for any industrial automation system. The operation of one robot used in the project will be shown in a short film.

Dr. Jones will discuss the techniques for using this architecture and its supporting databases and network communications.

See the calendar of events for dinner reservation and meeting details.

WESCON/85

First Call For Sessions and Tutorials

Wescon/85 will be held at Moscone Center, San Francisco this coming November. The Wescon office in Los Angeles will soon be mailing out a brochure requesting suggested subjects for sessions within the professional program and subjects for tutorials. These brochures will be sent to previous participants in Wescon. If you are not a previous participant, or do not receive your brochure, a copy will be forwarded to you by calling Le Schinneller at the Wescon office on toll-free 800-262-4208.

Target dates for submitting proposals for sessions is March 4, and March 11 for tutorials.

SCV/Magnetics

Magnetometry in Space Subject of March Talk

Mario Acuna, PhD, a Magnetics Society Distinguished Lecturer, will be the featured speaker at the March 11 meeting of the Santa Clara Valley Magnetics Society. His talk will center on the development and integration of spacecraft borne magnetometers used in programs operated by NASA, Goddard Space Flight Center. He says the development and integration of these instruments aboard a scientific spacecraft represents a formidable engineering challenge. Typical engineering and scientific tradeoffs in the development and implementation of magnetic field investigation will be presented, together with significant scientific results obtained from space magnetometers.

See the calendar of events for details.

SCV/AES

Spread Spectrum Systems Subject For March Meeting

Spread Spectrum (SS) techniques are finding wider acceptance in both military and civilian applications. This is due to maturing technologies which are catching up with the relatively stringent SS synchronization and processing requirements. Members of the Santa Clara Valley Aerospace & Electronic Systems Society will hear a presentation on SS by Dr. Francis Natali of Stanford Telecommunications, Inc. The meeting will be held on March 21. His talk will discuss the types of SS systems which one may expect to be operational through the rest of this decade, and the role of existing and emerging technologies.

Meeting details are contained in the calendar of events.

SCV/APS Short Course

Computer Modelling in Electromagnetics

The Santa Clara Valley Antennas & Propagation Society will present a half-day short course on Saturday morning, February 23. The subject is computer modelling in electromagnetics and the following areas will be covered:

1. A brief introduction to computer modelling.
2. An overview of the Numerical Electromagnetic Code (NEC).
3. Antennas in free space.
4. Antennas near the Earth.
5. A demonstration of interactive NEC.
6. Guidelines, limitations and conclusions.

The course will be introductory and will emphasize the basics in computer modelling in electromagnetics. The NEC is a well developed general computer code which can model a wide variety of antennas, and which has been used by many government agencies and companies on many different computers.

The course will be given by Dr. E.K. Miller of Lawrence Livermore National Laboratory and Prof. R. Adler of the Naval Postgraduate School, and their associates.

Fee for the course is $10. Please register early. See the calendar of events for details.

SCV/EMC

Mechanical Approach to EMI Gasketing

Michael D. Austin, general manager of EMC Shielding, Inc., will be the featured speaker at the February 12 meeting of the Santa Clara Valley Electromagnetic Compatibility Society. His presentation will address considerations of enclosure designs for potential use of EMI gaskets.

Included in the presentation are subjects EMC engineers should consider during the product design phase, such as: Do I really need an EMI gasket?; Why use an EMI gasket and can it be avoided?; How is the correct gasket selected and where does it go?; A thin gasket or a thick gasket?; What gasket material?

See the calendar of events for dinner and meeting information.

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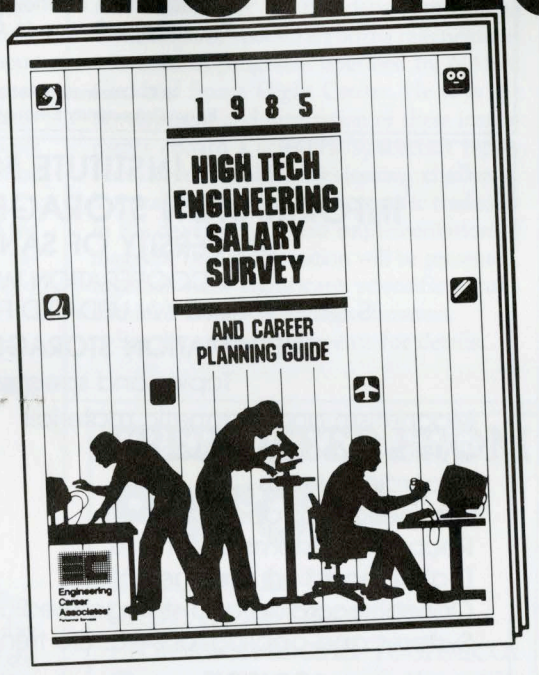

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