THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

ADCOM MINUTES 12/19/87

Location: W.R. Grace Building, 11th floor
43 W. 42nd Street, NYC 10036

1.0 Welcome and Introduction

The meeting was called to order by President Robbi at 10:25 AM

1.1 Attendance

There were 11 attendees as listed

Name	Position
A. Robbi	President - new phone (201) 596-3536-0
M. Benjamin	ADCOM
G. Rabow	Vice President
J.M. Osepchuk	Division IV Representative
A. Wald	Division X Representative
S. Unger	Past President
C. Barus	Awards Chairman
J. Jatlow	Membership and Nominations Chairman
V. Gardner	Chapters and PACE

2.0 Adoption of the Agenda

The proposed Agenda (Attachment 2.0) was adopted with the modifications as shown.

3.0 Minutes of the ADCOM Meeting of September 19, 1987

These minutes were approved, unaminously, with the following modifications:

Page 3, para 7.2.2; substitute "arranged for" for provided following Mal Benjamin. Page 5, para 9.1; add (following the action item) S. Unger, N. Balabanian and D. Mukhedkar were appointed by President Robbi as the SSIT Follow Committee.

4.0 Presidents Report — Robbi

At the November TAB meeting, Vivian Carr announced that the Engineering Management Society would grant $1,000 to SSIT in recognition of its present fiscal condition. Various IEEE societies are accumulating large surpluses while the IEEE General Fund is decreasing. Suggesting were solicited for a more balanced distribution.

The IEEE Magnetics Society's Journal of Translations of the Japanese Magnetics Society is another example of the need for intersocietal loans. It was not accepted for inclusion in the "All Transactions Package," and its losses amounted to $120,000. The IEEE Magnetics Society requested $60,000 from TAB in recognition of experience gained in the start-up process. Funds to be obtained from the Book Broker Fund which has a large surplus.

Another TAB item is the announcement of International Space Year during 1992-93, for which a conference is to be planned. Barus was given the detailed information for follow up.

There is a need for people to serve on TAB/USAB joint R & D committees: Aero Space, Defense and Engineering. Volunteers should contact President Robbi directly.

Reviewing SSIT conditions, Robbi reported that both membership and finances have improved slightly and things look positive for 1988.

5.0 Past President's Report — Unger

No report was given

6.0 Treasurer's Report — Robbi for Apter

Apter will serve for another year. He is still working on the 1988 budget, but it appears that the income from the "All Transactions Package" is understated by $10,000. Therefore SSIT is in better financial shape than it reported at the last ADCOM meeting. Multiple inquiries to the TAB Finance Committee have not yielded any written response concerning this understatement. A written report was provided and is included as Attachment 6.0 of these minutes.

6.5 Other Society Liasion — Robbi

President Robbi introduced Anthony Bianculli of ASME, who is the Publications Chairman of the ASME Technology and Society Division. This division, established in 1971, is funded from the general ASME treasury. It currently has 400 members who have expressed a primary interest (#1 of a total of 5 which are allowed each member) in T & S. A total of 3,000 members have chosen T & S as one of their 5 "interest areas." NOTE: No extra dues are assessed for activity within these specific "interest areas" which is a significant departure from the IEEE dues structure.

ASME T & S would like to increase its effectiveness by joining with similar oriented groups to share experiences and to achieve a "critical mass." With respect to the outside, non technical, world. Presently they publish a newsletter, but they are working towards a magazine. During this interval they were invited to contribute to IEEE T & S magazine.

[ACTION ITEM: Rabow to add Bianculli to the T & S mailing list.]

Robbi appointed Wald, Rabow, and Unger as a committee to establish a link with the ASME group by working with Mr. Bianculli.

6.7 Modification of the IEEE Ethics Code — Unger

Unger called the ADCOM's attention to the modified IEEE code of Ethics for Member Conduct, as described in the January 1988 issue of "The Institute." As a result of the ensuing discussion, the motion was made that; "the SSIT ADCOM go on record as expressing concern with respect to both the content of the proposed modifications and the procedure under which these were made." This was accepted unaminously and was followed by a second motion: Moved that the SSIT President prepare a letter to the IEEE Ethics Committee to explain the SSIT position with respect to the modifications and their method of adoption. This motion was also passed unaminously.

7.0 Standing Committee Reports

NOTE: The order of committee reports is not identical to that given in the agenda.

7.1 Awards — Barus

Steve Unger has been selected to receive the USAB Award for "Distinguished Contributions to Engineering Professionalism" in response to an SSIT nomination submitted by Carl Barus.

With respect to the SSIT Award for "Outstanding Service," a ~~request~~ revision has been made to the Constitution and Bylaws Committee (Lawrence) to widen ~~the description~~ to include all types of Public Service, not just "whistle blowing." incorporate in the bylaws a criterion

The nomination of Ben Linder for the IEEE/SSIT Award for "Outstanding Service in the Public Interest," (Attachment 7.1) was distributed and discussed. ~~Barus was asked~~ A motion was made to present 6 to 1 with 1 abstention for Barus to prepare a formal citation of Linder for Consideration and reviews by the SSIT ADCOM. In addition, he was asked to provide this draft to the ASME T &S Division (A. Bianculli) for their consideration for a possible joint award. This draft citation (is attached as Attachment 7.1.1.

7.2 T & S Magazine — Rabow

The December 1987 issue should be in the mail during late January. The March 1988 issue is about 90% complete and the June 1988 issue is being worked on.

Rabow was requested to expand the author identification data, as currently given in T & S, to include both IEEE and SSIT membership as applicable. He was also asked to include a list of IEEE fellows who belong to SSIT in upcoming issues of T & S as space is available.

7.3 Conferences — Robbi for Rubinstein

Jatlow described a request for SSIT participation in a first Annual Symposium on "Directions and Implications of Advanced Computing," to be held in August of 1988. Benjamin offered to follow up on this and to work with the sponsor, Computer Professionals for Social Responsibility (CPSR) toward a presentation at Electro in Boston in 1990.

7.4 Nominations and Elections — Jatlow

Nominations and elections were held for the 1988 SSIT ADCOM. Tony Robbi was nominated and unaminously elected as President for 1988. Norman Balabanian was unanimously elected as Vice President. He had previously indicated a willingness to serve if elected.

Jatlow also submitted a list of 5 candidates for the 1988 ADCOM election (Attachment 7.4). Ballots are currently in the mail to choose 3 persons from the 5 person slate.

7.5 Membership — Jatlow

Jatlow submitted a report (Attachment 7.5) which indicates that active membership has stabilized. There is still some actual member loss, but the rate has dropped considerably.

7.6 Chapters — Gardner

Gardner provided a written report (Attachment 7.6) which identifies four current chapters whose status is in question. New York poses a significant question with respect to viability. He is addressing this problem.

7.7 Fellows — Robbi for Mukhedkav

A letter soliciting Fellow nominations was prepared by Mukhedkav and distributed by Robbi (Attachment 7.7).

Motion: "SSIT ADCOM supports this activity." Passed: Unaminously

7.8 PACE — Gardner

A written report was provided by V. Gardner (Attachment 7.8)

7.9 Technology and Public Policy — Bogumil

No report

7.10 Publicity and Public Relations — Izaak

No report

7.11 Constitution and Bylaws — Lawrence

No report

8.0 Old Business - Liasion Reports — Robbi

Lubell reported that he has been acknowledged as a member of the Committee on Communications and Information Policy (CCIP). He will begin to serve at the next meeting in January, 1988.

9.0 New Business — Robbi

None

10.0 Next Meeting — Robbi

The next ADCOM will be February 27, 1988, at Empire State College, 330 West 42nd St., NYC, room 3 on the 2nd floor, starting at 10 AM. NOTE NEW LOCATION

11.0 Adjournment — Robbi

The meeting was adjourned at 4:15 PM

ATTACHMENT 2.0
Rec 12/1/87
Amended 12/19/87

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

AMENDED ~~PROPOSED~~ AGENDA FOR SSIT ADCOM MEETING

Saturday, December 19, 1987, 10:15 AM 4:00 PM
Location: WR Grace Building, W. 42nd Street
11th Floor

1. Welcome and Introduction	Robbi
2. Adoption of Agenda	Lubell
3. Approval of Minutes of 9/19/87	Lubell
4. Presidents Report	Robbi
5. Past Presidents Report	Unger
6. Treasurer's Report	Apter
7. Standing Committee Reports	
T&S Magazine	Rabow
Conferences	Rubenstein, Benjamin
Membership	Jatlow
Nominations, Elections	Jatlow
Chapters	Gardner
Students	Farkas
Awards	Baras
Pace	Gardner
Technology and Public Policy	Bogumil
Publicity and Public Relations	Izaak
Constitution and Bylaws	Lawrence
8. Old Business - Laision Reports	Robbi
9. New Business - ~~Elections~~	Robbi
10. Next Meeting Date	Robbi
11. Adjournment	Robbi
6.5 Other Society Liasion	Robbi
6.7 Modified IEEE Ethics Code	Unger

NOTE: During the lunch break we will view a video tape entitled "COMPUTERS IN CONTEXT: A NEW SCANDINAVIAN COMPUTER DESIGN PARADIYM."

ATTACHMENT 6.0

SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

Treasurer's Report of 19 Dec 1987

* The 10/31/87 Society cash balance was $36,900.

* Attached are copies of correspondence from me to IEEE Headquarters on our 1988 budget concerns.

* Projecting from the 10/31/87 financial statement from Headquarters, and taking in to consideration the late billing cycle of IEEE, we can keep going for some years yet, if we have no major expenses or losses of income.

* The financial viability of our Society is dependent on the number of dues paying members. Our 1985 budget was developed based on 2652, the 1986 budget on 2652, the 1987 budget on 2164, and the 1988 budget is based on 2175 regular members. Following are the actual figures for regular members since 1985:

12/31/84	2812
2/28/85	2088
4/30/85	2203
6/30/85	2328
8/31/85	2371
9/30/85	2358
10/31/85	2408
11/30/85	2471
12/31/85	2506
1/31/86	2224
4/30/86	1957
6/30/86	2110
8/31/86	2125
9/30/86	2175
10/31/86	2207
12/31/86	2319
1/31/87	2078
2/28/87	1822
4/30/87	1891
6/30/87	2014
7/31/87	2031
10/31/87	2136

* Overall, our membership figures for 1985 through 1987 have been:

	Active Members	Arrears Members	Total Members
12/31/84	3218	961	4179
2/28/85	2399	1065	3464
4/30/85	2525	889	3414
6/30/85	2629	862	3491
8/31/85	2659	856	3515
9/30/85	2671	863	3534
10/31/85	2749	860	3609
11/30/85	2854	854	3708
12/31/85	2930	849	3779
1/31/86	2611	997	3608
4/30/86	2352	779	3131
6/30/86	2455	736	3191
8/31/86	2469	749	3218
9/30/86	2479	743	3222
10/31/86	2554	742	3296
12/31/86	2773	735	3468
1/31/87	2457	876	3333
2/28/87	2150	805	2955
4/30/87	2241	689	2930
6/30/87	2335	657	2992
7/31/87	2361	646	3007
10/31/87	2506	651	3157

* The costs to publish the 1984 issues of T&S were:

	MAR	JUN	SEP	DEC
Fixed Costs	$2,586.07	$2,711.25	$2,279.02	$3,927.05
Variable Costs	$2,764.24	$2,765.70	$2,884.16	$3,346.80
Other Costs	$ 235.68	$ 238.03	$ 244.86	$ 576.70
Ed Services	$1,125.80	$ 987.03	$1,422.00	$1,422.00
Total	$6,711.79	$6,702.01	$6,830.04	$9,272.55

These figures reflect a cumulative cost per page of $170.05 versus our budget of $172.

* The costs to publish the 1985 issues of T&S were:

	MAR	JUN	SEP	DEC
Fixed Costs	$1,356.03	$2,818.47	$1,922.92	$2,846.26
Variable Costs	$3,040.85	$2,660.62	$2,863.44	$2,701.94
Other Costs	$ 208.65	$ 226.70	$ 188.98	$ 791.50
Ed Services	$1,782.00	$1,534.50	$1,740.75	$1,641.75
Total	$6,387.53	$7,240.29	$6,716.09	$7,981.45

These figures reflect a cumulative cost per page of $150.18 versus our budget of $172.

* The costs to publish the 1986 issues of T&S were:

	MAR	JUN	SEP	DEC
Fixed Costs	$3,163.09	$3,190.17	$1,904.49	$3,421.05
Variable Costs	$3,646.78	$2,639.15	$2,888.07	$2,464.99
Other Costs	$ 257.02	$ 199.81	$ 206.79	$ 809.41
Ed Services	$2,429.80	$2,001.60	$1,951.80	$2,051.40
Total	$9,496.69	$8,030.73	$6,951.15	$8,746.85

These figures reflect a cumulative cost per page of $163.10 versus our budget of $172.

* The costs to publish the 1987 issues of T&S were:

	MAR	JUN	SEP	DEC
Fixed Costs	$2,111.38	$x,xxx.xx	$x,xxx.xx	$x,xxx.xx
Variable Costs	$2,626.69	$x,xxx.xx	$x,xxx.xx	$x,xxx.xx
Other Costs	$ 224.81	$ xxx.xx	$ xxx.xx	$ xxx.xx
Ed Services	$2,177.49	$x,xxx.xx	$x,xxx.xx	$x,xxx.xx
Total	$7,140.37	$x,xxx.xx	$x,xxx.xx	$x,xxx.xx

These figures reflect a cumulative cost per page of $xxx.xx versus our budget of $172.

Respectfully submitted

M T Apter

M.T. Apter
Treasurer

THE INSTITUTE OF
ELECTRICAL AND
ELECTRONICS
ENGINEERS, INC.

SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

Marc T. Apter
Treasurer

PLEASE REPLY TO
3506 Wood Pile Ct
Alexandria, VA 22310

4 December 1987

Mel Bonaviso
TAB Finance Administrator
IEEE
345 East 47th Street
New York, NY 10017-2394

Dear Mel;

This is a follow-up to my letter of 21 September asking questions about SSIT's 1988 budget.

I received an unsatisfactory phone call from someone on your staff trying to explain what had happened. I told that person that a phone call was not acceptable, and that I wanted a written response to my letter.

Since I had received no written response to my 21 September letter by the Sections Congress in mid-October, I took that opportunity to talk to Jack Doyle, Dave Staiger and Eric Hertz about SSIT's problem. I was advised that the verbal reply was incorrect and that I should receive an official explanation.

I would very much like a written response to my letter of 21 September that has been cleared with Publishing Services.

Sincerely,

M.T. Apter

cc:
D. Staiger
E. Herz
V. Carr
A. Robbi

Marc T. Apter
Treasurer

3506 Wood Pile Ct
Alexandria, VA 22310

21 September 1987

Mel Bonaviso
TAB Finance Administrator
IEEE
345 East 47th Street
New York, NY 10017-2394

Dear Mel:

As a result of my Societies ADCOM meeting this past Saturday, I have been directed to write you on a number of issues.

Please close SSIT's account numbers 9300249, 9300881, and 9300886. We have had no charges to any of these lines in a few years and have active lines that could cover any charges if required.

A review of the SSIT budget for 1988, as provided in a report processed 8/3/87 run 4, shows major changes from the numbers provided in a report processed 3/30/87 run 1, and used to develop our budget for 1988 in accordance with your instructions. The major changes were an increase in the cost of publishing our magazine from $21.5K to $25.8K (account #9300241); an increase in index chgs from $0.3k to $0.4K (account #9300243); an increase in prior yr adjustment from $5.0K to $10.K (account #9300247), where our number was based on past experience; a decrease in the amount of income from the nonmem sub all tran from $22.8K to $14.4/15.5K (account #8300222); and a reduction in the amount of income from non-mem subs-indiv from your/my number of $3.5/4.1K to $2.9/3.5K (account #8300221).

We have received no explanation of these changes, which have caused serious budgetary problems. Please provide an explanation for each of the changes listed above as soon as possible.

Sincerely,

M.T. Apter

cc:
J. Doyle
V. Carr
A. Robbi

ATTACHMENT 7.1

1884 · 1984
A CENTURY OF ELECTRICAL PROGRESS

IEEE SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

PLEASE REPLY TO:

Carl Barus
Swarthmore College

17 November 1987

Memorandum

To: SSIT Ad.Com

From: Carl Barus, Awards Chair CB

Re: Nomination of Ben Linder for IEEE/SSIT Award for Outstanding Service in the Public Interest

On behalf of the Awards and Recognition Committee (Apter, Barus, Benjamin, and Robbi, *ex officio)*, I am pleased to submit the nomination of Benjamin E. Linder for the Award for Outstanding Service in the Public Interest. It will be a posthumous award.

The Committee is unanimous in recommending this award, but with certain reservations which will be brought up at the December AdCom meeting.

Some documents pertaining to Linder's case were distributed at the September meeting. Others are attached hereto. I call your attention especially to Samuel Florman's column from MIT's Technology Review.

As Florman points out, Linder believed that through his engineering he could help improve the quality of poor people's lives. He was not a critic of technology nor a "whistle blower." And, as the University of Washington's student Daily headlined, "Politics wasn't his motivation; he wanted to help."

Attachments

SAMUEL C. FLORMAN

Engineering: An Ideal Profession for Idealists

IN the era of the yuppie, it is good to be reminded that youthful idealism still burns brightly. Although the goal of "helping others in difficulty" is deemed important by a lesser percentage of college freshmen today than in the 1960s, the total number of altruistically motivated young people is still reassuringly high, according to an annual poll by the Cooperative Institute Research Program at the University of California, Los Angeles.

I am disturbed, however, to encounter so many idealistic students who think they can best follow their star through a career of oversight and policing. Ralph Nader is their role model—or else a prosecuting attorney, an investigative reporter, or a crusading politician. These students seem to regard the control of evil as more useful and satisfying than the creation of good. And even where the objective is to help the needy rather than to punish the guilty, their dream is usually to become a social worker or a volunteer for Legal Aid. Very few think of becoming an engineer who might help the disadvantaged in a material way. Too many of our best young people are going to law schools or schools of social work, ignoring the fact that physical need still lies at the heart of most human misery.

Engineering schools compound this problem by preaching a message of pragmatism and steady employment. Thus they lose by default many large-hearted visionaries who, if they fortified their virtue with technical training, could be a tremendous force for good in the world.

With this thought in mind, I was deeply moved to read about the death of Benjamin Linder, the young American engineer who was killed during a battle in the Nicaraguan civil war. Whatever one's politics—and admittedly a good case can be made against the propriety of an American citizen giving aid to the Sandinistas—it is impossible not to have positive feelings about a young person from a well-to-do society assisting the people of a Third World nation. And this was a young person who chose to help not be waving placards in a demonstration, but by bringing his talents to bear against the oppression of poverty.

***More** of today's idealists could use technical ingenuity to help the disadvantaged.*

Linder was a 1983 mechanical-engineering graduate of the University of Washington. According to one of his professors, he entered the engineering program specifically to acquire skills that would help him to help others. A friend recalls that "his whole reason for going to engineering school was to go to Nicaragua so he could improve people's quality of life." Linder designed and helped build small hydroelectric plants, and the *Time* reporters who investigated the much-debated circumstances of his service and death concluded that "because of his efforts, the hamlet of El Cua now has electricity." The drama and controversy surrounding the death of this one young man in a remote jungle will have served a worthy purpose if it calls attention to the need and opportunity to blend idealism with technology.

Humanitarian Engineers

There are, to be sure, many engineers who contribute their talents, unheralded, to constructive work in poverty-stricken places, most notably by service in the Peace Corps. And every so often I read of *pro bono* enterprise that warms the heart: engineering students at Northern Arizona University bringing solar-generated electricity to a Navajo reservation near their campus; Purdue students rebuilding sidewalks in the low-income areas of Lafayette, Ind. The Red R (Register of Engineers for Disaster Relief), founded in Great Britain in 1980, maintains a register of British engineers willing to serve from three to six months in areas of urgent need. Its recruits have repaired cyclone damage in Swaziland, helped Vietnamese boat people build camps in Malaysia, and assisted drought victims in Ethiopia. Other assignments include disaster relief in Uganda, Kampuchea, and Sudan. Some of the participants are retired engineers who receive nominal salaries; others are subsidized by their employers or various relief agencies.

A comparable register of engineers was established in Canada in 1982. The American Society of Civil Engineers has established a Task Committee on Response to Disaster Situations; the committee is slated to make recommendations by year's end on how American engineers can contribute in similar ways.

Despite all the good being done, one cannot help but wish that more engineers were inspired by the ideal of humanitarian public service. Equally important, idealistic young people should come to see that many of their most fervent visions of justice can best be furthered through technological assistance to the disadvantaged. The sufferings of humanity cannot be alleviated solely, or even primarily, through politics and litigation. Wherever we look in the world we see material well-being as the essential precondition for democracy and justice. The great challenge for this generation's youth is to direct our technical ingenuity to humane purposes. Toward this end idealists will want to understand the rudiments of technology, and some of them, at least, will want to study engineering. □

SAMUEL C. FLORMAN, A CIVIL ENGINEER, IS THE AUTHOR OF ENGINEERING AND THE LIBERAL ARTS, THE EXISTENTIAL PLEASURES OF ENGINEERING, BLAMING TECHNOLOGY, *AND* THE CIVILIZED ENGINEER.

Engineer Slain by Contras Remembered

by Barbara Atkinson

Ben Linder graduated with a bachelor's degree in mechanical engineering from the University of Washington in 1983 and accepted a most unorthodox job offer. While many of his classmates were beginning their careers with defense contractors, he patiently and steadily was working out the details of making small-scale hydroelectric power work in Nicaragua.

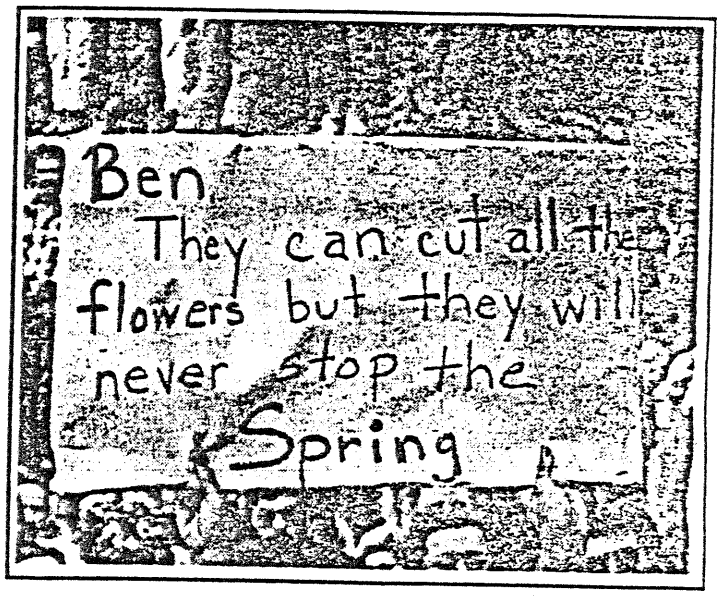
One of Benjamin's major assignments was the installation and operation of a small hydro plant in the town of El Cua in northern Nicaragua. He would often leave the capital city of Managua to make the arduous six-hour journey to the site, the last half on an ill-repaired mountainous dirt road.

El Cua, by Ben's description, is like a small 1830's western U.S. town in one of the poorest parts of Nicaragua. The region has been hard hit by the U.S.-backed contra war, and refugees from the surrounding areas have moved into the town in search of shelter and livelihood. One of the stated goals of the Nicaraguan government is to develop and protect the country's rural regions so that people can safely provide for themselves instead of flocking to the larger cities where there is less productive work.

Benjamin was enthusiastic about this focus, and especially about the challenge of providing electricity to the region. Small-scale hydropower is a perfect fit for the mountainous area with its network of rivers flowing toward the Caribbean to the east or toward two large lakes to the south. The use of hydro-electricity was appropriate for El Cua, which depended on intermittent truck deliveries of diesel or bottled propane gas. The health center had a diesel generator, but when it was broken, or when the fuel truck could not get through, no night treatment could be done, and medicines and vaccines needed throughout the region were lost for lack of refrigeration.

Installing a hydro plant in rural Nicaragua is not an easy task. Anyone who works there becomes quickly familiar with the chronic shortage of supplies, basic spare parts and repair facilities. In the spirit of self-reliance and innovation necessary for a developing country, Ben modified a cross-flow turbine design so that it could be manufactured in Nicaragua. He worked long hours and endured frustrating delays from lack of equipment.

When Ben and I were working together, we often talked about the process of international technical aid in Nicaragua. The country has worked since the revolution to overcome the shortage of technically trained people, a legacy of the Somoza regime under which development projects were primarily undertaken by foreign enterprises. Because of this, it was



extremely important to Benjamin to involve the Nicaraguans, including women, in the process.

The hydro plant went on line in January and was officially inaugurated on May Day, 1986. The health center then had a reliable source of power, allowing the installation of new laboratory equipment. Adult education classes could take place after sundown. A machine shop and training school were being constructed for mechanics and electricians. This need was so great that instruction had already begun before the completion of the shop.

Plans for the region include three more small hydroelectric plants. Their turbines will be made and tested in the new shop in El Cua. These new plants will also make possible more machine shops, carpentry shops and factories for construction materials. Power will be used to run coffee harvest equipment and a saw mill. This is all part of a regional plan, which includes health care, safe drinking water, wood conservation and reforestation, education and increased coffee production.

It is clear that Ben and the project he worked on were deliberately targetted. The contras had unsuccessfully attacked the hydro plant itself in March. Their aim is to slow down the harvests, to destroy the new infrastructure of health centers, schools and technical facilities, and to generally terrorize the population. A successful project bringing electricity to the area, and the engineer making it possible, are shameful, but not surprising, targets.

Ben knew that by working in the region he was taking more of a risk than many international workers. But he felt his work was important, and chose to stand with the Nicaraguans who have been bearing the risk from the time they began the long process of retaking control of their homeland. Let us carry on Benjamin Linder's determination that Nicaragua will have the right to use her resources to grow food, to build houses, to raise healthy children, to educate her people, to live in peace. Ben could leave no finer legacy.

Barbara Atkinson is a mechanical engineer and a graduate student at the University of California at Berkeley. She worked in Nicaragua as a volunteer in the Energy Conservation Office of the Nicaraguan Energy Utility with TecNICA, a U.S.-based technical support project to Nicaragua. This article first appeared in The Daily Californian, Berkeley.

OUR WORK

Bringing Light Where There Was Darkness by Ben Linder

(Ben Linder, a 26-year-old from Seattle, has been working for the Nicaraguan Institute of Energy (INE) on the design and implementation of mini-micro hydro-electric units designed to serve isolated communities outside the national power grid. The first such plant to be completed since the revolution went on line in January. The 100-kilowatt plant, located outside of El Cuá, Matagalpa, is now functioning on a test basis and will be officially opened on March 1 of this year. The plant will feed electricity along 7 km. of transmission lines to two coffee farms, residents and businesses in the town, a health center and a school.)

Going into El Cuá is a lot like going into a small town in the western United States in 1830. The main street is dusty, two bars, one hotel, a military command post that looks like it came right out of a western. A dusty road comes into town. The bar and the bank both have diesel generators so you can get yoru money out of the bank and buy a cold beer. El Cuá's health center, built in 1980, also has a generator, but when it breaks, it means there's no light, so no emergency treatment can be done at night. They have one gas refrigerator, but it is not enough for keeping all the medicine they need. Periodically they lose vaccines. Because it is a local center from which vaccines are shipped out, it stops the whole vaccination program in the area when the refrigerator is down.

El Cuá is in a valley of rolling hills 70 kilometers into the mountains northeast of Matagalpa, on a very bad dirt road. It takes three hours to go those 70 kilometers in a jeep. With 1,500 inhabitants, El Cuá qualifies as a principal population center for this remote area. Residents of El Cuá will soon be receiving electricity for the first time from the hydroelectric plant we just put in, about five kilometers from the center of town in the nearby mountains.

The stream that we're using is two sidewalks wide, and a foot deep. The pipe from the dam to the turbine has a vertical drop of 50 yards. The turbine fits under a typing table, the generator is about half the size of a desk. It's a small, inexpensive little plant.

This will not be the first hydro-power in the area. Small scale hydro—waterwheels and small turbines—is what developed northern Nicaragua during the coffee boom in the 1930s.

Bringing Electricity to the War Zone

One of INE's first realizations after the revolution was that we needed to find an alternative source of energy other than the expensive and rather hard to get diesel, which adds to the cost of transportation along mountainous roads. With the increasing contra attacks in '82 there was a slow-down in development, but also the realization that you can put in isolated plants in mountain villages, which means that even if the contra are ambushing and attacking along the roads there can still be electricity in town.

Up until mid-'85, El Cuá had been the last outpost of a strong military presence, so it is a guaranteed supply line. Now the town is the calmest it's been in the last two years. El Cuá has been directly attacked by the contra on two occasions, first on December 20, 1983, and then again on May 29, 1984, but it's an untakeable base.

During 1985, the most common attacks were against medical personnel –nurses and doctors–heading into the interior. The health center there has been used as a base for sending out the health brigades and other health services to the interior. Two nurses were killed in ambushes, one of them coming back with the director of one of the local resettlement centers. He was also killed.

There are still small groups of contra causing trouble. In October of last year, when the situation was beginning to get better, a sister of one of the workers, a 16-year-old, was kidnapped by the contra. After 16 days she escaped. One of the things they told her before she escaped was that her brother, another worker from the area, and the foreman were all on the contra's hit list. That's obviously a serious thing to say. It's something that everyone working in the area knows and accepts, and then decides to keep working or not. Many Nicaraguan engineers don't want to go out in the field. The contra isn't a major military presence anymore, but you still worry because it only takes one person to blow up a power line.

Getting Local People Involved.

During construction, the consistent policy has been hands-on experience for the workers. The two operators of the plant are peasants—one in from Estelí, the other is local –and they have worked on all stages of the project. They started out cutting grass with a machete, then they learned to work with concrete. Then they went into the mechanical work, where there is an emphasis on training the workers—simple things like how to use a wrench, how to grease a bearing.

From the Bulletin of US Citizens Living in Nicaragua, Spring 1986

cont. on p. 5

cont. from p. 4

It's amazing to us–being from the States –the lack of basic experience people have. While most men in the US and now more women have used a wrench, most people in El Cuá have never even seen one. There are probably four wrenches in the town, other than the set that comes with the plant.

Workers who showed interest in the first part of the construction were given attention. You'd see who's thinking while they're digging a ditch. They tend to be the worst ditch diggers, but may be able to pick up other skills. During installation, for example, if a part that had been designed and made in Managua would arrive, I'd put it halfway in. If it had four bolts I'd put in two and they'd put in the other two. I just keep making sure that they are doing everything fine.

The people who gained experience with tools on the job will serve as mechanics not only for the plant, but for the surrounding area as a whole. We'll take some of the people from this project and put them with new workers so we don't lose the experience and they keep getting better training. After another generation, in 20 years, there should be a marked increase in the technical ability in this area.

Development Plans Follow

The new plant will make a variety of development projects possible. Right now wood is cut in the hills around El Cuá, taken to Jinotega 2-1/2 hours away and cut into boards, and then brought back. By then the price is too high for any of the local construction needs. So we're putting in a saw mill.

To take care of the coffee harvest equipment and the saw mill, we're putting in a complete metal shop, and a carpentry shop; also facilities for making cement block, bricks and roof tiles. The problems are real, a forest area with a wood crisis. In the US this doesn't make sense. Cities were developed in lumber areas with cutting facilities. In northern Nicaragua, coffee was developed in the lumber areas, without wood processing facilities.

There are also plans to put in several small fish ponds as part of INPESCA's local fish breeding project, which would be good because there's a definite protein shortage in the area. The land is ideal for both basic grains and coffee, but there is a need to increase production. The hydro plant will make this much more feasible.

Sweden Supports Future Hydro Plans

The project was plagued by a variety of delays. It was begun in 1980 and initially scheduled for completion in July 1981, but it was stop and go, with more stop than go. The local people are excited, but some of them have also said, "Gee, it took you six years, Ben, how come it took you so long?" It's the first plant we've ever built of its kind, and mistakes were bound to happen. Now we have the experience of putting in a power plant in an isolated town, what tools we need, what construction equipment is good for the area, all that kind of thing.

The plant's generator comes from the United States, part of a UN donation. The turbine itself was made here in Nicaragua and the governor, which controls the speed of the turbine, is a 1929 governor that was part of a Swedish donation. There are currently five plants planned for Region VI and all are scheduled to be ready in 1986-87. The first to be constructed will be another plant in El Cuá, because with the development there is going to be a definite need for more electricity in the valley. There is another plant which we'll be putting in further towards the interior, at San José de Bocay, and several planned for the coffee farms back towards Matagalpa from El Cuá, where they have been using diesel.

So, the idea is not just to put electricity into a town, that's easy and can happen anywhere. The important thing is to also deal with the social –technical problems that go with it. This involves a series of steps that could only be done with the good cooperation of professionals, including basic construction workers, all working with the community. For example, the traditional stream for washing clothes from one of the coffee farms is always short of water during the dry season, so we're going to put in a good washing area, with actual washboards and sinks. Putting in sinks not only solves the immediate problem of where to wash the clothes, but the person is no longer standing knee-deep bending over for hours and hours. Back problems will be eliminated. Another part of the plan is to conduct an energy conservation program when we hook up the houses. Most people in the town have never had electricity in their house, so we have the opportunity of promoting energy consciousness from day one. The idea is to use the project to promote a whole series of small solutions that come with good planning. And we'll find our mistakes, and on the next plant we'll avoid them.

ATTACHMENT 7.1.1

1/15/88
Final Draft

Citation of Benjamin E. Linder (1959-1987) for

IEEE/SSIT AWARD FOR OUTSTANDING SERVICE IN THE PUBLIC INTEREST

Benjamin E. Linder chose a career in engineering with a distinct purpose in mind: to bring needed technology to the rural poor of the Third World. Pursuit of that goal took him to northern Nicaragua where he led a team of volunteers and local people in developing small hydro-electric stations to supply peasant villages. This activity exposed him to great personal danger, and he was killed while carrying out one of his projects.

Linder's courageous and altruistic efforts to create human good by applying his technical abilities have brought credit not only to himself but to the engineering profession. His work has set a high moral standard of professional conduct and will inspire others to follow his idealism.

ATTACHMENT 7.4

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

PLEASE REPLY TO:

Jack L. Jatlow
166 East 61st St. bx 135
New York, N.Y. 10021

Dec. 19, 1987

Nominations and Apoointments

The following candidates have been nominated for position on the SSIT Adcom.Each candidate has agreed to serve if elected.

Robert Brook

Dr. E.S. Cassidy

Edward Farkas

Martin Isaacs

Michael Whitelaw

Incidentally Michael Whitelaw was just Elected as VicePresident Of RAB. This is a significant honor and deserves congratulations from our Society.

Jack L Jatlow

ATTACHMENT 7-5

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

PLEASE REPLY TO:
Jack L. Jatlow
166 East 61st St. bx 135
New York, N.Y. 10021

Membership Report to SSIT Adcom. Dec. 19, 1987

The SSIT active membership has stABILIZED AS SHOWN BY THE FOLLOWING TABLE. The large total in monthly variations is due to the method of reporting membership by IEEE Headquarters.

Month	1987	1986	% 87/86
AUG.	2377	2479	96
Sept.	2406	2479	97
Oct.	2506	2554	98.1
Nov.	2591	2624	98.7

As a result of letter welcoming new members, we are receiving inquiries from new members of how to become active in SSIT. They range from Alaska, California, Massacheusetts, to China. All inquiries have been answered, Information for forming a Chapter was sent to the Univresity of Fairbanks in Alaska.

I again stress the importance of having a list of Chapters and Chapter Chairmen included in the T&S Magazine.

Jack L Jatlow

ATTACHMENT 7.6

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY
CHAPTERS COMMITTEE

6624 Kirby Court,
Falls Church, Va.
22043
Dec. 19, 1987

Anthony D. Robbi,
President, SSIT,
RD 1, Box 143,
Hopewell, NJ
08525

Subject: Report of the SSIT Chapters Committee

1. The Committee has been in touch with the following Sections regarding the current status of their SSIT Chapters:
   Santa Clara Valley by letter dated Oct. 29, 1987.
   Twin Cities by letter dated Oct. 29, 1987.
   Pittsburgh by letter dated Oct. 15, 1987.

2. The Committee has had no recent contacts with the following Chapters:
   Japan
   Los Angeles
   Portland
   New York (in question).

3. The Committee has been in touch with the following IEEE Sections relative to their interest in organizing Chapters of SSIT:
   Philadelphia by letter of May 19, 1987.
   Denver by letter of July 28, 1987.
   Chicago by letter of Sep. 23, 1987.
   Birmingham, NY, by letter of Nov. 26, 1987.
   Except for the acknowledgement from Philadelphia the Committee has received no encouragement.

4. The Committee wishes to submit the following summary of recent meetings by SSIT Chapters:

   Boston: Sep. 29, 1987: Chernobyl and Challenger: Examples of Failures in Engineering, Management, or Ethics? Roundtable discussion.

   Oct. 13, 1987: Investing in American Competence - Robert B. Reich.

   Nov. 23, 1987: Careers in Technology and Policy - Richard de Neufville.

   Dec. 9, 1987: Computers in Context - Patrick Krolak and Frank Emspak.

   Dec. 15, 1987: ASME Winter Meeting. Technology and Society Division Sessions.

 (continued)

Northern Virginia/Baltimore/Washington:

Sep. 30, 1987: Mismanagement, Waste and Fraud in the Department of Defense - John D. Heibusch.

Nov. 18, 1987: The Politics of Nuclear Waste Disposal - Dr. Thomas Cotton.

Dec. 14, 1987: Social Implications of Genetic Screening - Dr. Robert Baumiller.

Switzerland: Several meetings; specifics not known at this time. By letter dated Oct. 3, 1987 the Chapters Committee contacted the Switzerland Chapter concerning superconductivity.

5. By letter dated Nov. 11, 1987 the Committee wrote to Frank Farinella, Society Chapters Coordinator, requesting an up-to-date list of the names and addresses of the current Chairmen of the SSIT Chapters. One of the uses to which this list will be put is to submit the names and addresses to the Editor of the IEEE Technology and Society Magazine.

Respectfully submitted,

Vernon E. Gardner

Vernon E. (Veg) Gardner,
Chairman,
Chapters Committee, SSIT.

cc: Peter Lubell,
Secretary, SSIT,
101 Hilldale St.,
Albertson, NY
11507

and

Michael J. Whitelaw,
IEEE Director, Region 1,
556 Maple Hill Ave.,
Newington, CT
06111

ATTACHMENT 7-7

The Institute of Electrical & Electronics Engineers

The Society on Social Implications of Technology

Fellowship committee

Dinkar Mukhedkar
Norman Balabanian
Steve Unger

ACTION PLAN

We have to look for outstanding candidates amongst IEEE members from other IEEE societies. They may be qualified to be supported by our society.

Case Examples

1. Engineering in Medicine & Biology society.

   1.1 Cost/benefit ratio of high tech medicine.
   1.2 Professional ethics.
   1.3 Legal implications of electronics instruments.

2. The Computer Society.

   2.1 Individual privacy.

3. Standards of different IEEE societies which has a direct bearing on society.

This list is by no means complete.

After reviewing, if the SSIT gives me a mandate, I will be working closely with other society Fellow committees.

I presume it will take me at least a year to report to the society of my work.

Respectfully submitted

Dinkar Mukhedkar

ATTACHMENT 7-8

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY
PROFESSIONAL ACTIVITIES COUNCIL FOR ENGINEERS

6624 Kirby Court,
Falls Church, Va.
22043
Dec. 19, 1987

Anthony D. Robbi,
President, SSIT,
RD 1, Box 143,
Hopewell, NJ
08525

Subject: [redacted]

L. As stated in my report to the SSIT AdCom at its meeting on Sept. 19, 1987 there was established at the National PACE Conference in Kansas City ofer the Labor Day week end a "Task Force on Divisional/Societal Professional Activities." On Set. 20 a subgroup consisting of the following members met in Crystal City, Arlington, Va.

Robert P. Nobrini, NY, PACE Chairman of the Power Engineering Society, Chairman of the meeting.
Charles P. Rubenstein, Massapequa, NY, PACE Vice Chairman, Engineering Management Society.
Robert A. Moore, Arnold, MD, PACE Chairman, Microwave Theory and Techniques Society.
James F. Strother, Alexandria, VA, Division VII PACE Coordinator.
William D. Whipkey, Westminster, CO, Division III PACE Coordinator.

After discussing the potential for getting USAB information to IEEE members through their Societies and the ability of Societies to undertake professional activities, they subgroup developed a draft charter, a draft work plan for the following months, and a draft budget. The subgroup presented its report to George R. Dean, Chairman of the Professional Activities Council for Engineers, who introduced the concept to the OpCom at its meeting in Sacramento, CA, on Oct. 3.

2. On Dec. 12, 1987 the following members of the PACE Divisional Activities Task Force met at the IEEE Washington, D.C., office:

Robert P. Nobrini, Chairman.
Charles P. Rubenstein.
James F. Strother.
William D. Whipkey,
Helmut E. Shrank, Cockeysville, MD, Division IV PACE Coordinator.
Vernon E. Gardner, Falls Church, Va., PACE Chairman, Society on Social Implications of Technology.

Ann C. Hartfiel, IEEE Washington, D.C. office, served as the Secretary.
George R. Dean made his appearance for a lunch period consultation.

3. Mr. Dean reported the reaction at the Oct. 3 meeting of the OpCom to have been disappointing. Accordingly, it was suggested that we continue as an AdHoc committee in 1988 and not request another review of our draft charter. Considerable discussion took place as to how we can give our support to existing committees. Future meetings are scheduled on the following Saturdays: (all in Washington, D.C.)
   March 5.
   June 4.
   Sept. 2.
   Dec. 10.

4. The following is not a PACE matter strictly speaking but, I believe, worth mentioning: I spent most of Monday, Sept. 28 attending the EXCom meeting of the American Society of Mechanical E ngineers Technology and Society Division in Washington, D.C. A total of fourteen attended the meeting. Following this meeting letters, dated Oct. 7, 1987, by our SSIT President were sent to A. Robert Sadlowe, Chairman of the ASME Technology and Society Division, Oak Ridge, TN, and Janice Hamrin, Chair of the AAAS Section X, Societal Impacts of Science and Engineering, proposing that we establish a regular interchange of information. I am pleased that T. Paul Torda, Chairman of the ASME T&S Division Education Committee attended the Nov. 18 meeting of the NV/B/W Chapter on The Politics of Nuclear Waste Disposal.

Respectfully submitted,

Vernon E. Gardner

Vernon E. (Veg) Gardner,
PACE Chairman, SSIT
(703) 533-0999

cc:
Peter Lubell,
Secretary, SSIT,
101 Hilldale St.,
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