

Science for Nicaragua Newsletter

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January-February 1988

SfN's Second Year Ends: Three Reports

Timothy L. Brown

November 26, 1987

Saludos Compañeros:

I'm currently teaching something like a Real Analysis course to fourth year mathematics students at UNAN-Managua. This is my first semester with the department, and I've had to explore other means to make my stay more productive. So far, all I've been able to accomplish is the organizing of a talk by a computer analyst from the National Bank for the computer science students, a number of proposals for improving the department, and some soliciting abroad. I've also been guiding an inexperienced new instructor through his calculus course. Things promise to be more challenging in 1988.

First on the agenda is the "*práctica de producción*". Between terms, students are expected to do something of practical importance. The University of Rhode Island just came out with a new interactive calculus program, which I intend to obtain shortly for the fourth year students. They, in turn, will train the faculty in its use so that eventually the package can be integrated within the calculus curriculum.

Next, the "*monografía*". All students are expected to complete something like a thesis before the end of their fifth year. Since both the mathematics and statistics programs began in 1984, this promises to be a new experience for everyone. I'm in charge of the math students. My idea is a spinoff of the URI program; I'll keep you posted on how it goes.

Some notes on the situation at UNAN-Managua:

Supplies: Yes, we have PC's! The department currently has 6 IBM compatibles, and expects to receive 6 more (continued p. 2)

Carlos Suárez-Boulangger

Nicaragua Libre, 1987

Greetings from Nicaragua:

I arrived late in the first semester due to delays in the issue of my technical visa. As it so happened, I ended up taking over a class from one of the Nicaraguan instructors who had to undergo emergency surgery. I spent the rest of the time attending lectures given by other instructors and discussing different ways of upgrading the chemistry lab. The lectures allowed me to familiarize myself with the methods and style of my colleagues, and with the background of their students (soon to be my students). The ideas for improving the chemistry lab could not be implemented because the lab coordinator left the university and took up a better paying job in industry.

This semester I taught Biochemistry and Physiopathology. Our Faculty (Faculty of Agricultural Sciences), which is part of the Central American University (UCA), is divided into three Schools: Nutrition, Ecology, and Technical Zoology. Biochemistry is taught in all of them but with a different orientation according to need. I was responsible for that class in the Department of Ecology and Natural Resources and it included giving all the lectures, as well as designing and directing the lab exercises. Their program was rather ambitious but was limited by the short time allotted to it. For instance, the class outline is very similar to the program I received as an undergraduate back in the States, but the class I took was a year long and the labs were run independently. Here at UCA, Biochemistry is only one semester long. Furthermore, it is given as a second year class, so there is a need to review certain basic concepts.

The Physiopathology class was part of the School of Nutrition and I worked with third year students who were better prepared for this subject. My difficulties here had to do with their habit of taking dictation and my inability to remember that. My lecturing style is conversational, so they found it difficult to write down my every word. We reached a compromise: some dictation, some discussion.

Incidentally, I must say that, although the School of Nutrition maintains a small library, a number of the textbooks are in English, a language most students cannot read. Instructors cannot read them either. I have to agree with Jeff Woodside's report [*in Vol. 1, No. 4, Ed.*]: (continued p. 3)

Tom Jackson

October 20, 1987

Dear SfN:

Here is a letter outlining my work this semester.... Starting with work carried over from the first semester, I should mention our project for the *Jornada Científica* [national university science fair, ed.]. With two students in the fifth year, I developed an electrical analog model of ground water percolation through an earth dam. Using a boatload of 1/2-watt resistors I purchased in Panama, we built a grid of resistors that solves the finite difference equations used to model ground water flow in the general case of anisotropic soils (i.e., soils with different permeabilities in each direction and varying in space). Although computers are generally used for this, the method-ology is not without its problems and I suspect debugging a program would take considerably longer than the 20± hours we used to build and measure voltages in our grid. And of course one has to have a computer available. Additionally, I think it's a hell of a pedagogical tool. I was able to get these students literate in boundary conditions and solutions of sets of equations without getting lost in algorithms for loading a matrix and reiterating at free surface (moving) boundaries.

I leaned heavily on Redshaw's *Numerical and Analog Methods in Ground Water Modeling*; I translated the pertinent chapters for the students who will be basing their monographs for graduation on the work they started with me for the *Jornada*. I hope it wasn't too clear that I was about 20 pages ahead of them on the electric stuff...

I'm teaching *Obras Hidráulicas* to the 6th year night school students. It's interesting material but we've been burdened by losing maybe 3/8 of our classes to date: fiestas, meetings to discuss problems at the UNI, rain, power failures, and other course exams. I have scaled back my plans considerably. We have stressed basic problem solving abilities: recognition of uniform and critical flow conditions, basic designs of energy dissipators and measuring weirs, some percolation and canal design criteria. We are now working on dam design—sizing reservoirs (continued p. 4)

Overview of the Kovalevskaja Conference

by Ann and Neal Koblitz

The Central American Conference on Women in Science, Technology, and Medicine, held in Managua from August 24-28, 1987, brought together over 50 women from 11 countries to discuss common problems, experiences, and avenues of research. The foreign participants included: 17 women from the region (Costa Rica—5, Guatemala—4, Honduras—4, El Salvador—3, Mexico—1), 8 from outside the region (U.S., Canada, Great Britain), and 3 currently working in Nicaragua (one each from Italy, the Soviet Union, and the U.S.).

On Monday the conference started with opening remarks by representatives of CONAPRO (the Nicaraguan Federation of Professional Associations, which hosted the meeting), AMNLAE (the Nicaraguan Women's Association), and the Kovalevskaja Fund. Next, the 1987 Kovalevskaja Prizes for Nicaragua were conferred upon two medical researchers from UNAN-León: Dr. Ofelia Guadalupe Rojas and Lic. Teresa Rivera Bucardo.

Then the two prize-winners spoke to their assembled colleagues about their careers and research projects...articles on the prize-winners appeared on the front pages of both of Nicaragua's daily newspapers.

One of the high points of the conference was the appearance of Interior Minister Tomás Borge. Comandante Borge arrived on Wednesday with a large contingent of women officers from the Ministry of the Interior, who joined the scientists to listen to his presentation. Borge started his talk by stating in strong terms his unequivocal support for the Esquipulas peace accord signed in August [the Arias peace plan, Ed.]. He angrily refuted a *New York Times* article which had claimed that he was a leader of a "hard-line" faction of the Sandinista front which did not support the peace pact. Borge then proceeded to the main theme of his talk: a historical survey of attempts by theologians, psychiatrists, and others to rationalize and justify the subjugation of women. The speech was featured prominently in the Nicaraguan newspapers and television.

After three days of meetings and reports, Thursday and Friday were devoted to excursions to scientific centers in Managua and León: a mineralogical laboratory, a blood bank, the computer science facilities at the Engineering University, the medical school and pharmaceutical teaching and production facilities in León. Each visit included a frank and detailed report on the progress and difficulties of their work by one of the scientists responsible. In all cases the laboratory director and/or the majority of researchers and students were women.

One evening during the conference a Nicaraguan feminist lawyer came to speak about the legal problems of women. She showed a video of a "Face the People" session [a weekly public meeting with government leaders, cf. *SfN Newsletter*, Vol. I, No. 6] that had taken place during the discussions of the first draft of the new Nicaraguan constitution. It showed woman after woman standing up and angrily criticizing the constitution's failure to protect women adequately in such areas as paternal responsibilities, abortion rights, and child care. The Central American women were fascinated. Two women—one from Guatemala and one from Honduras—stayed after everyone else had left in order to play the video a second time. One woman later told us that she felt that she was seeing "the future," and she hoped that some day her country would attain the level of democracy, and the level of accountability of government officials, that had already been reached in Nicaragua. [The second draft of the constitution, adopted in 1986, addressed some of the concerns raised in this and other "Face the People" sessions, Ed.]

At the end of the conference, the Costa Rican delegation drafted a statement in support of peace in the region that was adopted unanimously by the conference. The document contained

two main points: strong support for the Esquipulas peace accord, and "vigorous opposition" to "the actions which the U.S. government is conducting to finance and maintain the war in Central America."

Plans were made to ensure that the effects of the conference would extend well beyond 1987. A committee of representatives from different countries has started discussing possibilities for future regional conferences of women scientists to be held at regular intervals. The next conference will probably take place in 1989 in Costa Rica. Within Nicaragua, the newly formed Women's Commission of CONAPRO intends to work closely with AMNLAE on activities designed to increase the participation and visibility of women professionals.

This report is excerpted from the November 1987 issue of the Kovalevskaja Fund Newsletter. Bilingual proceedings of the Managua conference, published by the Kovalevskaja Fund, will be available in March 1988. For more details, write Dr. Ann Hibner Koblitz, Director, Kovalevskaja Fund, 6547 17th Ave. N.E., Seattle, WA 98115.

BROWN, continued from p. 1

through a UNESCO grant early next year. Nevertheless, the number of computer science majors will double to 200 next year, so we still need hardware.

Personnel. The department needs instructors to teach regular courses in mathematics, statistics, and computer science in Spanish for one or more semesters, as well as guest lecturers to give short courses in English or Spanish to the faculty for two weeks or longer, on such topics as the use of a mathematical or statistical computer package, or special topics in applied mathematics, statistics, and computer science. None of these three majors has reached maturity, so they have both to replace instructors who leave and to attract qualified personnel to manage the new loads.

Next semester I am scheduled to teach the same Real Analysis course, Topology, and a special topics course for the fifth year students. If all goes well, by the end of the year the department will have its first math and statistics graduates since the revolution.

CHAO,
Timothy L. Brown

SfN invites Boston-area readers to an

OPEN HOUSE

with returned instructors

Tuesday, Feb. 23, 7:30 p.m.

Location to be announced:

Call SftP, (617)-547-0370

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SfN chapters:

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1627 Euclid St., Berkeley, CA 94709 (415)-549-1233;

c/o Miriam Struck, 9311 Sudbury Rd., Silver Spring, MD 20901

(for literature donations);

Puerto Rico chapter: see p. 4 of this issue

Letter from Director of UCA School of Sociology

The following article is extracted from a letter printed in the December 1987 issue of Footnotes, published by the American Sociological Association. The letter, dated July 30, 1986 and addressed to all intellectuals and progressives of North America, was translated by two North American sociologists, and was accompanied by a call for donations to support the UCA School of Sociology. Readers who would like to help with this effort are invited to write to Richard Dello Buono, Dept. of Sociology, Colgate University, Hamilton, NY 13346, or A.J. Gallese, Inst. for Human Relations, Box 12, Loyola University, New Orleans, LA 70118.

Although the letter is more than a year old, conditions have not changed in the UCA, and the description is valid, with minor modifications, for all Nicaraguan university departments. Incidentally, Gil McCann, an Sfn instructor currently at the UCA School of Sociology, has also emphasized the need for mimeographs and photocopiers. Can any of our readers donate a used mimeograph?

Thanks to George Vickers, of Brooklyn College, and Roberto Trippini, of Sfn, for bringing this article to our attention.

Dear Compañeros,

We feel compelled to write to you at this time to solicit all possible forms of aid in solidarity from inside the academic circles of progressive North Americans. Perhaps this is the first time in the entire history of our School that compañeros of the U.S.A., sensitive to the limitations and difficulties that underdevelopment imposes upon our universities in Nicaragua, are in a position to enthusiastically participate in the forms of deep and enduring cooperation...

The present conjuncture of military aggression and economic blockade that the North American government has imposed on our small country and its people has likewise created enormous obstacles upon the normal development of academic and administrative activities at the School of Sociology of UCA. It impedes our ability to perform the most indispensable tasks for lack of financial resources, library resources, paper and office equipment, etc.

To attend to our present enrollment of over 300 Sociology majors (under Somoza, we never exceeded 35), and to those approximately 700 students of other schools and specialties of UCA to whom we offer the basics of sociological analysis, we are endowed with a limited number of desks, a tiny library of social sciences (it doesn't have more than 500 books), two old, manual typewriters, and the enthusiastic labor force of four full-time professors and some 30 part-time professors.

Obligated to maximally rationalize the distribution of the scarce human, economic, and financial resources that presently exist in the country, our revolutionary government has not been able to give us all of the material resources that our School of Sociology requires.... In spite of this crisis period, the government has allocated some very capable professionals, including even the nation's vice-president, to the School so that they could offer classes to our students concerning our national reality.

It is in this dramatic crisis situation that we attach such importance to soliciting aid in solidarity that other peoples are able to offer us, particularly North American people. It is worth mentioning here that just recently, I had received word of the recent creation in Costa Rica of the "University Committee against the Blockage of Nicaragua," whose goal is to channel material and financial aid from Costa Rica, a poor and underdeveloped nation, to the Nicaraguan universities....

If from within the United States, you are able to create some type of association that solicits and channels material and economic assistance for the Universities of my country, we would greatly applaud these efforts and initiatives in every sense. It is

probable that outside of our country, one would not be able to imagine the limitations that we as a School of Sociology confront....

In order to function in fact of a scarcity of paper, books, etc., our students have had to learn to carefully rationalize their use of resources, studying in groups with the few books that we have, sharing the materials that we do possess, and soliciting donations of paper and supplies to reproduce the articles that we use in our classes. In the short term, the most serious problem that we face lies precisely in the basic reproduction of texts. We do not possess either a mimeo machine nor a photocopier or any other means by which to reproduce the articles and materials which our students continually require. Add on top of this problem, the shortage of paper and inks created by the blockade imposed by the United States.

Beginning this year, the School of Sociology has intensified the transformation of the existing curriculum. Professors, students, social scientists in diverse areas, university authorities, and the mass organizations have actively participated in this task. The challenge has consisted of putting the content of our classes in accord with the exigencies created by our popular revolution.... [T]he number of students that will enter the Sociology track beginning next year will grow even more....

It is for this reason, that we are asking progressives in the U.S. to redouble their efforts... to help us in the areas of financial aid, materials for printing and reproduction of texts, paper, inks, and books, etc. Moreover, if you are able to consider reproducing this letter in whatever means of publication that you are involved with, this would help raise the awareness of many professors, students, and intellectuals in North America as to the national reality which we currently face. In all of this, you can be sure that you enjoy the immense gratitude of the professors and students of the School of Sociology of UCA.

Fraternally,

Amalia Chamorro Z.

Director of the School of Sociology, UCA

SUAREZ, continued from p. 1

it would be better if we could send Spanish language textbooks. I have noticed that some of the instructors feel insulted by the donation of textbooks they cannot read. (I hope I am not belaboring the point.)

In addition to my teaching responsibilities I am also working on a cooperation project with the National Herbarium (also part of UCA). I am advising two students in research projects. The first one is studying the insecticide properties of the species *Nimn* and involves collaboration with agencies outside the university. The other one is studying the medicinal properties of the bark *Jiño-cuabo* (*Bursera Semarouba*). This work is very slow due to the lack of equipment, reagents, and time, and may extend into the following semester. Further, there is the idea of beginning next semester to design a physiology laboratory in cooperation with the anatomy instructor, with whom I maintain very pleasant working relations.

Next semester (March 1988) I will be teaching Chemistry and Physiology in the School of Nutrition.

One last note: I've participated in a few student festivals playing music with a couple of my students. All in all, it has been a rewarding year, and we are all getting ready to give Robert Sutcliffe and Jeffrey Woodside a well-deserved farewell party.

For a better world,

Carlos Suárez-Boulangier

Editor's note: although books in Spanish are certainly most useful, Sfn continues to receive requests from universities for specific reference materials in English and other languages. Lists of needed books can be found in Vol.1, No. 6; for further information please contact our DC Chapter (address on p. 2).

N.E. Biolabs to Fund Video Project

SfN founding member Víctor López-Tosado has just reported from Puerto Rico: "New England Biolabs will be willing to proceed, on a limited scale, with our educational video technology project to assist instruction in Nicaragua [cf. *SfN Newsletter*, Vol. I, No. 3]. As you remember, this was intended to supplement teaching especially in those areas where there is difficulty in finding teachers and, secondly, to start building a library of filmed material in science and technology that can be used at any time by different professors in different universities. It was also proposed to equip a laboratory at UNAN-Managua with proper equipment for them to learn how to develop their own films and to provide necessary training.

"As informed by Martine Keller, in a letter dated 10/20/87, N.E. Biolabs will support our project in the following:

(1) To prepare a catalogue of existing videos and films in Spanish in the fields of interest. Also, to catalogue tapes in English that will be appropriate for the Nicaraguan needs. The catalogue will be submitted to the Nicaraguan universities, which will select material of interest to them;

(2) N.E. Biolabs will buy and deliver to the universities those films readily available in Spanish which were selected by them from the prepared catalogue;

(3) N.E. Biolabs will negotiate with companies regarding useful English-language videos, to arrange for dubbing into Spanish (N.E. Biolabs will keep the copyright); and

(4) N.E. Biolabs will purchase the films and needed equipment and forward them to Nicaragua.

"For the time being I plan to continue coordinating the project."

SfN Opens in Puerto Rico

After many years in Boston, Víctor returned to Puerto Rico in August to take a position coordinating a program in science education. He is currently exploring ways to build a chapter of SfN at the University of Puerto Rico. In the meantime, Víctor is providing information on SfN to Puerto Rican scientists. Here's our address in Puerto Rico:

Ciencia para el Pueblo: CONIPCT
c/o Prof. Víctor E. López-Tosado
De Diego 444, Apt. 1402
Rio Piedras, Puerto Rico 00923

(CONIPCT is the acronym for "Comité Nicaragua-Puertorriqueño de Ciencia y Tecnología.")

Science Resource Center
897 Main Street
Cambridge, MA 02139



Cooperation in Scientific Education
with Nicaragua

JACKSON, *continued from p. 1*

and spillway calculations. It has been much more difficult without the resources to xerox graphs and design aids. I have handed out graph paper (I could use more 10 grid/cm green paper) and had them draw their own graphs. Maybe that's even better except we've lost lots of hours transcribing basic data that could easily be included in our proposed engineering manual. I have assembled a lot of material and have obtained permission to print something using UNI's name with SftP on the cover. I hope there's some possibility of getting an offset of this.

I'm teaching a graduate course too, called Special Topics in the Hydraulics of Water Supply and Sewage Disposal. This is quite a grueling schedule, meeting three hours each session, three times a week. I don't know who's more tired, they or I. But they are very interested and we have covered a lot of material. This course has money and we had a mimeographed text prepared by my predecessor, a Russian hydraulician. I spent a few weeks tearing my hair out trying to figure out how they handle friction calculations in the USSR but I finally got the hang of their methods. Some of their stuff I don't like but I felt that having their own text made it worth teaching the methods although I annotated it heavily.

We've discussed pipe flow and network analysis, open channel flow, and pump design. Next week water hammer and then I turn the course over to another engineer for three weeks of design seminars and field visits. I think it has been very useful so far and there has been a good retention rate—20 people, more or less, have been there each time. These are practicing engineers and are highly motivated. I'm hoping to have a few weeks to recuperate from this course but I've heard a rumor that I'm supposed to take over the Environmental Engineering school's hydraulics course because the professor is out of the country.

The 18 boxes of books [from Books for Peace, Ed.] arrived. A box went to Civil Engineering, four to Computer Sci., a box or two to the UNAN's math people, a few to physics, biochemistry, and nutrition. Three boxes went to IRENA [Institute on Natural Resources and the Environment, Ed.]. Very well received but I must say that more Spanish texts are needed and fewer in English.

That's enough for now. I hope to be in touch with you about the text/design manual. From here it looks like the U.S. is going crazy.

In Solidarity,
T. Jackson

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