

Trip report E.W. Dijkstra, Brasil & USA, 17 Oct. - 6 Nov. 1983

Ria had not had much of a holiday this year - to put it mildly - and joined me on this trip, hoping that she would have recovered well enough to endure the hardship of long flights. I am happy to report that her hope was justified.

Our departure was not without commotion: 6 hours before we had to be at the Airport, we learned by accident that the Dutch public transportation system was on strike. The problem was solved by our neighbour's offer to drive our car to Schiphol and back. We made the trip without encountering traffic jams and were at the Airport well in time. Via Lisbon and Rio de Janeiro we travelled to São Paulo in a mostly filled DC10 of the KLM. In view of Ria's back, I had asked - more than a month earlier - for seats with extra leg room. We got our special seats, that is: just in front of us a separation instead of another row of chairs. Where to leave our feet was not quite clear; by the time we arrived, our ankles were swollen. On the KLM coach from the Airport Viracopos to the centre of São Paulo we encountered Brazilian corruption for the first time: paying the fare in US dollars we were charged far too much and the collector tried not to give us a receipt. At 12:45 we arrived at the terminal where our niece would collect us, but she was nowhere in sight and it rained cats and dogs.

At 13:30 she found us; she had been waiting at the other side of the terminal. The rest of that day was devoted to recovery of the journey.

The reason for my visit to São Paulo was "Informática 83", a one-week combination of an exhibition and a conference; at the latter I gave a talk at Burroughs's request (IBM had sent Ralph E. Gomory, but he spoke on the day of my arrival and, regrettably, I just missed him). On Wednesday I met Mr. Valdir Gomes of Burroughs, Brasil, who, for the next few days, most gracefully acted as my host, guide, and guardian angel. That day he took me to the Exhibition, where we made the final arrangements of my performance the next day at the Conference and my visit to the University of São Paulo on Friday.

On Thursday I gave at the Conference a very good talk, though under strange and miserable circumstances. I had a very nice topic, viz. the distributed snapshot algorithm of Chandy and Lamport which, thanks to our work in September, I could explain effectively. But the circumstances were strange and miserable. I turned out not to speak under the auspices of Burroughs (which has the privilege of paying my ticket) but of Digibras, a state-owned computer company located in Brasilia. The latter company had failed to provide the promised blackboard, failed to announce my talk properly, etc.. It was a

good thing I could visit the University of São Paulo the next day, for had that talk been the sole purpose of my visit, it would have cost a dollar per second.

At the University I presented Yossi Shiloach's algorithm, which is always a nice topic for a technical talk of slightly more than an hour. I had a lively audience that understood my English. I spent an interesting day in a cosmopolitan atmosphere. The people were very aware of being in a developing nation. They discussed with me a winter school in computing science they organized every two years for, about, 500 participants; its most important contribution, however, was that the syllabuses were used to build up a series of computing science textbooks in Portuguese. The department struck me by its strong component of combinatorics, its ties with Schutzenberger, etc. One would not think that the most urgent part, but it was evidently needed - or had been needed in the near past - to make computing science academically respectable.

The weekend we stayed with our nephew and niece. The day before our arrival it had been very warm - so warm, in fact, that the computers at the IBM stand broke down - during our stay it was mostly wet and cool: for Ria none of the promised sunbathing in the garden. On Sunday evening we left and flew via Rio de Janeiro, Miami, and Dallas to Austin,

Texas, where we arrived around noon the next day. The rest of that Monday was used for recovery.

In Austin I had a very heavy schedule since UT (= University of Texas) wanted to show to me most of their Computing Science department and a lot more. Tuesday was primarily devoted to concurrency and data base research, Wednesday I met the mathematicians, and Thursday I was given a bird's eye view of automatic theorem proving. (The bird flew at high speed and at low altitude.) Late that afternoon I gave a lecture on avoiding case analyses. It was a first performance and it was well-received. I gave it in a large physics auditorium in which the sound amplification system was out of order, and in which I could use only one of the blackboards. On Friday I repeated the talk on the Chandy/Lamport algorithm at Burroughs ARC. Our social schedule was heavy as well: on Tuesday, Thursday, and Friday we had dinner with people from UT (Chandy, Dale, and Boyer respectively), on Wednesday evening Ham and Joanne Richards, with whom we stayed, had invited a number of people from Burroughs. In addition, I was subjected to "business lunches" at UT, where I was introduced to all sorts of people (including the physicist who knew all about computing; you know the type; this specimen had never heard that the goto-statement had

been a subject of discussion.') I have not sorted out my impressions yet.

We left Hotel Richards the next morning at 6:45; Ham kindly saw us to the Airport. We were 50 minutes late in taking off as the plane got fogged in while already on the runway. With half an hour delay we arrived at Burbank, where the whole family Martin was waiting for us. The next week we stayed in Pasadena, but for the fact that I took a "red eye flight" to Detroit and returned the next afternoon, so that I could have a discussion with Dr. W. Lee Shevel of Burroughs. (He had tried to contact me while I was in Austin, but eventually it turned out that both our schedules were too crammed.) In Pasadena I gave a talk at CalTech on Tuesday afternoon, and on Wednesday I took over Alain Martin's lectures. Alain and I have discussed the presentation of one of his designs; one evening Chuck Seitz came and we talked about what direction the department should take.

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I had been amazed to see the Concise Oxford Dictionary define mathematics as "Abstract science of space & number". That struck me as particularly old-fashioned and inadequate: I would have expected something like the scientific discipline of effective reasoning. We checked it and Le petit Robert and Webster's New Collegiate Dictionary

gave essentially the same definition as the COD. On this trip I learned that we cannot blame the dictionaries for being out of date. Many mathematicians are very knowledge-oriented, and think about learning mathematics primarily in terms of acquiring factual knowledge rather than being able to do things such as disentangling an argument and reducing it to its bare essentials. It already began at the University of São Paulo - where I was shown a volume of Rota's Encyclopedia (sic) of Mathematics - , it continued at UT and CalTech: typically the question asked is which "mathematical prerequisites" I think most important for computing scientists. And then they want a very specific answer, such as: numerical analysis is more important - or less important, as the case may be - than algebra or combinatorics. I have not figured out yet how to explain politely but convincingly that the question does not strike me as very relevant, and that economy of thought, whatever the topic, seems to me to be of greater importance. One of computing science's major challenges - if not the major one - is how to avoid the mess of unmastered complexity - again: regardless of the specific application; for we are dealing with truly "general purpose" equipment. One would expect this to hold for mathematics in general, but evidently the traditional mathema-

tician of today has different priorities.

People seem in general to be more concerned about acquiring knowledge pertinent to their specific area than about mathematical methodology in general; consequently they hardly contribute to the latter. The fact that "users" - and here I include the numerical analysts, the physicists, and the artificial intelligentsia - have contributed so little to computing science is probably the same phenomenon.

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In Austin, Ria had had quite a program too; São Paulo and Pasadena was holiday for her, and so was Pasadena a bit for me: one afternoon we went to the Huntington Gardens, one afternoon to the Mount Wilson Observatory. The whole family Martin joined us on Saturday afternoon on our trip to LAX. The place is still quite confusing: the trip from Pasadena to LAX took by car 40 minutes, finding the KLM desk took us another 20. Flight KL602 to Amsterdam was (for a change!) not crowded and we both slept for more than half of the flight. In the Netherlands, public transport was still on strike, but our elder son Marcus was with our car at the Airport. At 17:00 we were home. (I more or less expected that our house would strike us as small, but it did not.) We phoned our mothers, and at 18:00 I was sorting the mail.

It was a trip of crime and pollution. In São Paulo my nephew had rented a house in which its owner did not dare to live any longer - she had moved to an apartment - . One evening we were invited for dinner; with five neighbours our host employed a private, armed guard. In Austin, crime was less conspicuous though female students were advised to avoid the campus alone at night. The day after our arrival in Pasadena, thieves broke into the neighbour's house in the middle of the afternoon. São Paulo's air suffers from industrial pollution - it is a town of 12 to 14 million inhabitants with the world's poorest drinking water - , Austin had its pollen and Pasadena its smog. It made my eyes itch.

Here it is already cold: we have a sunny day with a cloudless sky, the air is crisp and the autumn leaves have the most wonderful colours. I hear my piano being tuned downstairs.

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