

Trip report E.W. Dijkstra, USA, 23 April - 10 May 1984

UT (= University of Texas) had invited Ria and me to Austin for a press conference and a reception to celebrate my acceptance of the Schlumberger Centennial Chair in Computer Sciences. Burroughs had asked me whether I could pay a visit to the University of Nevada at Reno, and I decided to return via Pasadena.

On Monday the 2<sup>nd</sup> day of Easter we left. Our daughter Femke drove us to the airport where KL665 took off at 14.20 for Atlanta, where we would have four hours to catch our flight EA271 to Austin. That was a long wait, the more so because KL665 arrived half an hour early and customs and immigration were very fast. (At the crucial moment I forgot the advice to present myself as mathematician and said that I was a computer scientist; as a result the customs officer asked me whether I brought any software into the country and ordered me to open my briefcase.)

On Thursday 3 May we were to fly on DL1770 at 16:15 to Dallas and from there with flight AA 129 to Reno. This nervous traveller - who still had to return (for the first time unaided) his rented car - was very early at Austin Municipal Airport. This turned out to be very fortunate: at the Delta desk we heard that the flight was so much delayed that we would miss our connection in Dallas, but that we could just catch an earlier UA flight to

Dallas. And so we did. The last minutes of the flight to Reno were very bumpy. So were the first few minutes after take off the next day. (Must be the shape of the mountains near the Reno airport.) Flight UA 123g from Reno to Los Angeles was remarkable in that we left Reno half an hour late and arrived in time: I have timed it and at the intermediate stop at San Francisco we stood no longer than 13 minutes at the gate. We were impressed. At 20:42 we arrived rather hollow inside as we had expected to be served a meal during the flight.

On Wednesday 9 May we returned with KL 602 from Los Angeles to Amsterdam, where we arrived the next day at 17:25, which was 80 minutes late. Our suitcases were almost the first on the belt, Femke was with our car at the airport, and at 19:15 we were home (from which it can be deduced that Femke is not a slow driver).

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We had planned to start in Austin in a rented apartment but upon arrival we heard that house prices were rising at a rate of 25% a year and that we had better buy a house as soon as possible. And so we did, but as a result we spent in Austin 9 very busy days. The day after our arrival we walked with Bob Boyer for a couple of hours in the vicinity of the UT campus (as I had once written that it would be

nice to live, if possible, within walking distance of the University). But we were not attracted by what we saw: the houses were either too big or too shabby. On Thursday, house hunting started in real earnest, but it took the realtor that whole day to figure out what type of house we were looking for. (And even then the hunting was not very effective: the houses he showed were often as big a surprise for him as for us. As the days went by I got rather annoyed that he did not have floor plans. The problem was, of course, that we attached importance to other house characteristics than his average customer.) At the end of Monday morning we were shown the floor plan of a bungalow the construction of which had just started in Lakewood. It would be finished end of August. The floor plan could still be changed: by moving the kitchen and changing the shape and size of one of the bedrooms we got just what we were looking for. (The last night in Austin, Ria did not sleep, figuring out that she would prefer the kitchen entry in another wall. That meant another trip to the builder. The improvement will be implemented.) The rest of the time in Austin was spent to financing, signing contracts, selecting carpeting, doorbells, dish washers and what not. When we left for Reno, we were utterly exhausted.

On Wednesday afternoon, 25 April, I was interviewed by journalists of three papers. They were nice and evidently well-briefed. Among all the questions only one to which I had to answer "It would be rather unwise to answer to that one, wouldn't it?". It would have been much more efficient if I had received them simultaneously, but each paper wanted its own story, and I had to receive them in succession. I was then offered my reception in "the Littlefield House" which UT seems to use for rare occasions only: one of the guests told me that this was the first time in the 20 years he was at UT that he saw its inside. It was a pleasant surprise to be congratulated by Sandy Fraser; he is still with Bell Labs, but happened to be around.

The whole of Tuesday morning 1 May I was at the Austin Research Center of Burroughs. First I arranged my next trip to the USA with Larry Thomas, then I gave a lecture on the theorem I proved on 21 February. I had never given this lecture before and my ARC performance was a kind of dry run for Reno. It took 90 minutes. Bob Boyer and J Moore of UT were in the audience. Afterwards, by the look on their faces, I feared they had not liked it, but my fear was unjustified: "If proving in that degree of detail catches on, we'll soon be out of job!".

Twice we had dinner at Chandy's home, once with Bob Boyer and his wife, once with Pinkston

and his wife. Pinkston is the recently appointed chief scientist of MCC (= Microelectronics and Computer Technology Corporation). I was reminded once more of the fact that, in American, mathematics is not called a "science"; could it be called a "scientific discipline"?

Ria and I spent the little time left "window shopping" in order to discover what we should take with us because it was either unavailable or much more expensive. (We observed, for instance, to our surprise that, whereas the price of blank audio cassettes is in general the same - why not? it is mostly Japanese import anyhow - the high-quality XLI-S of Maxell is suddenly twice as expensive.)

Like at our previous visit, we stayed with Ham and Joanne Richards, and that was very pleasant. Besides that they gave us all sorts of useful advice: Ham recommended a ridge vent, Joanne joined us when we had to select tiles etc.

There was a flu in Austin. Just before we arrived, K. Mani Chandy had lost his voice - our arrival had rendered him speechless - , Ria lost hers several days later. Fortunately I could give my lectures without any problem. Both of us had some unpleasant physical reactions to the climate - heat or pollen - , but I did not contract the conjunctivitis I had feared.

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Upon arrival in Reno we were picked up by a man from Burroughs who saw us to our hotel. Having to absorb a time shift of another two hours, we went to bed almost immediately.

Most of Friday I spent at the University. In the morning we had a general discussion about computing science and its teaching. There were about two dozen people present, and most questions posed to me made excellent sense. They have no Ph.D. program in mathematics or computing science and felt themselves more geared to vocational training. I have repeated my warning that the scientific/intellectual needs of industry should not be underestimated. Before lunch I was joined by Ria. The lunch was a grandiose affair with about three dozen people (should I say "dignitaries"?) and the food was excellent. As it was just before my performance, I did not eat too much of it. I had an audience of about 170 people, the lecture took this time 100 minutes; I had a good blackboard, but the chalk made lines that were a bit too thin. Afterwards we had a quiet chat with Dr. Warren Fox (Vice Chancellor for Academic Affairs) before he took us to the airport. It was a nice day and I was glad that I had accepted the invitation.

At LAX we were collected by Alain J. Martin and Jan L.A. van de Snepscheut. We stayed with Alain & Marianne, on Saturday evening we had

dinner with Jan & Trees, who were quite content with their house (which we had more or less selected on our previous visit to Pasadena).

We spent the weekend in peace and quiet. I wrote a few letters and a lot in my diary. (While in Austin I had lacked the time.) On Sunday afternoon, we went to see the desert plants in the Huntington Gardens. (A "must"!) )

On Monday I took over Alain's lectures. The title of his course was "Communication and Synchronization" and I showed -once more!- the Chandy/Lamport Snapshot Algorithm, for which I needed the full 75 minutes. It was instructive for me to see their difficulties: they have very much an engineering mentality and I was obviously straining their powers of abstraction and of separation of concerns. (I had coloured machines and messages and in the second phase of the development I assumed that "by magic" no red message would arrive at a white machine. I had announced quite explicitly that I would eliminate the magic in the third phase of the development, yet it worried them all through the second phase.)

On Tuesday I gave my lecture a third time. This was clearly a lecture during term time: I had an audience of about 70 people, including Carver Mead, Chuck Seitz and Dick Feinman, to whom I had been introduced earlier that

afternoon. (Becoming acquainted with Feinman was a privilege: here was a man that enjoyed his professorship! A refreshing and inspiring example.) The performance took 85 minutes and pleased me most of all. This time my introduction was beautifully smooth and I am looking forward to repeating that performance next week in Zürich (at the ETH: again at an institute of engineering!).

One day, when I came to CalTech, Jan had just discovered that expressions can be evaluated using a queue instead of the familiar stack! The lovely thing was that he needed only five lines to describe his solution. Another day, Alain showed me a new beauty: a very simple solution of J.M. Morris's problem, viz. fair implementation of mutual exclusion using weak semaphores. Sjefke's original solution was very ingenious, but so complicated that I could never remember it. This one, which Alain designed together with Jerry Burch, is so elegant that I immediately showed it last Tuesday at my (last) lecture in Eindhoven. The moral is clear: never assume that something complicated cannot be replaced by something elegant. In short: the visit to Pasadena was highly rewarding.

Wednesday morning we did some shopping, wednesday afternoon I composed a letter of recommendation, and then it was time to go to LAX. After having checked in we offered



our hosts a dinner in the renewed airport restaurant. Since our flight was somewhat delayed — we saw our plane coming in during our appetizer — this was a nice way to spend the time.

We had a smooth flight back. First I wrote for a few hours, then I studied in C. Hemerik's Ph.D. thesis. (The full-size copie was too big to be read in an airline seat and in the middle of the night I woke Ria up by kicking a non-empty beer can on her pants. Her first reaction was not to be amused, her second one was more forgiving.)

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17 May 1984  
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