Trip report E.W.Dijkstra, USA and Canada, 5th - 25th May 1974.

On Sundaymorning, two days after my return from Boldern, I flew to
Chicago where I arrived at four o'clock in the afternoon. O'Hare is a
frightening airport --once, when trying to fly to Purdue, I had very bad
experiences there-- and I was duly frightened. After an unsuccessful (!)
attempt at the KLM-desk to reconfirm my return flight and after having
discovered that, contrary to my expectations, there was no one to pick
me up, I suddenly became aware of the fact that I had lost my briefcase.
Thank goodness I could retrieve it --I had lost it in the custom's area--
so that I could at least look up the name of the hotel where I was expec-
ted to go. Instructions as to which coach to take were of an ambiguity
in the best of O'Hare's tradition and not quite sure whether I was doing
the right thing, I went on board of one of the coaches. (Everybody was
shouting and it was an utter chaos.) Suddenly I saw the experienced Horst
Hünke entering the same coach: at that moment I knew that I was in the
right coach and after a few minutes I was again relaxed. Chatting about this
and that we arrived at the Palmer House. In front of the reception desk
stood a huge crowd of pushing people, mixed with heavy luggage. When at
last my turn had come, I was told that I --a guest of honour-- should go
to the special desk for "Quick Registration"! In an effort to speed up
the adjustment to the time shift, I went to bed at normal local time, but
I woke up at (their!) four o'clock in the morning; on Tuesday morning it
was much better: five o'clock in the morning.

I have spent most of Monday and Tuesday it the National Computer
Conference, but have not attended many talks: in most lecture rooms it
was hot and crowded and most speakers were not very gifted. It is very sad
but most of all I remember the worst talk, because I was genuineky shocked:
a man grafting a parallel programming language --in order to cope with the
Goodyear machine-- on PL/I (of all programming languages! in the discussion
he justified his choice by explaining that he knew no others well...)
without even having considered the problems. It was all wrong. He was from
"Rome Air Development Center"; the USA had better try to stay away from
war for the next few years.... I spent most of my time in the "speakers'
lounge" where I talked with all sorts of (mostly young) people.

On Tuesday, at the Conference Luncheon, I received the AFIPS Harry
Goode Memorial Award 1974 in the form of a big bronze plaque, whereupon
I gave a brief --and very carefully prepared!-- acceptance speech, which
was well received. My feelings of excitement at getting this scientific
distinction --probably the highest I shall ever get-- were somewhat tempered
by the fact that I hardky fekt myself in a scientific environment.

After the lunch I was approached by Yeh and Good, who excerted new
pressure that I should present a tutorial at their reliability conference
next spring, but I may resist the temtation. When they assured me that it
would be "a big attraction" for the participants to see me and Hoare together,
I felt that they were trying to exploit me, like the 600-pound woman exhibited
at the circus. In the afternoon Bob Merrell and I flew to Detroit and we
had a late but pleasant dinner in a chinese restaurant near his home and
my hotel.

The next few days at the Corporate Engineering Headquarters were mainly
for my education --I don't remember whether I have given a lecture, maybe
I did-- and I was exposed to various groups. The most striking observation
was the enormous variation between those groups: some told me how great it

was what they had done and were going to do, others just plainly told me their problems. (My impression was that the latter were the better ones.) I particularly remember a discussion about a cheque sorter where dimension analysis enabled me to suggest what seemed a great simplification (but knowing nothing about "flimsy paper handling" but its name I doubt whether it will work). I remember this discussion because it enabled me to apply the kind of dimension analysis that I have lately applied to a completely different design, in a quite unexpected environment! This tickled me: even if it does not work I have had the intellectual satisfaction of an otherwise useless invention. The third day was spent in discussions with Bob Merrell and efforts to get my raincoat back, which I lost in Chicago. (They have succeeded! Delphine --Bob's secretary-- must be an absolute marvel: I had already done my utmost best in Palmer House, where I had lost it, but then they were most unco-operative, to put it mildly. My impression was that to get the Palmer House Security Man in action, at least a corpse in the bath-room would be needed, and I had only a lost raincoat to offer!) Late Friday afternoon I flew to Philadelphia, where Steve Schmidt expertle picked me up at the airport (for which I was very grateful to him).

The discussions scheduled for the weekend were not as successful as I had hoped: some underlyinh material was lacking and I guess that --it being the weekend-- we were tired, all of us. I had my birthday anyway.

We stayed in the "Valley Forge Hilton", a hilarious place where "The Bell Captain will be happy to direct you to a nearby house of worship.(Dial 4)". The television set had the name of the hotel carved in the cabinet, as a further incentive not to steal it, a little notice said that it was connected to their central theft alarm system. We looked at the co-ax cable connecting the antenna and also at the cord connecting the plug and they both looked quite normal. When 24 hours after total disconnection the alarm still had not come yet, we gave up and reconnected the equipment. But my laundry was returned in a box saying "Every Garment a Masterpiece!"....

On Monday I visited two, on Tuesday one plant in the area. At all places I have done a lot of lecturing. It was a pleasure to see Frank Zurcher again, whom I had met at most once since we were introduce to each other in 1967 at Gatlinburg.

On Tuesday evening I went to Syracuse with something of a sigh of relief: seven days continuous exposure to the World of Industry is quite enough when one is not used to it and I was looking forward to the familiar and comfortable peace of the University Campus --which, of course, turned out to be another fata morgana. (After a few days I had heard already so much campus politics that with a faint nostalgia I looked to my sweet Detroit days where I could discuss cheque sorters!)

In Syracuse I stayed with an old friend who is there professor of chemistry: I slept in a room at the top floor of their house and on Wednesday morning they did not give me a wake-up call, a geste that was appreciated. As in Detroit I had to give in Syracuse as well a performance for the local chapter of the ACM. I had planned to give the same talk at both occasions, but in Detroit my local representative, when urged to give a title before he had heard from me, had invented a title for me himself. so there I ended up, giving the announced talk instead of the prepared one (which is kind of a challenge: I only made the discovery a few hours before count zero!) But in Syracuse I gave the prepared talk and I was very successful. As token of their gratitude the Syracuse Chapter gave me a great silver

tray with inscription; four days later I would discover that it did not fit in my suitcase.

On Thursday I was at the University of Syracuse as the guest of my colleague John C.Reynolds. In the morning I showed him a formal derivation --which involved inequalities between absolute values, so I nearly got lost in my algebra*)--, he showed me exercises with sorting that were quite nice. In the afternoon I gave a lecture, in the evening we had dinner in his home.

*) The critical formulae, not very well known but indispensable when you need them, are

$$(abs(a) < b) = (a < b \text{ and } -a < b) \qquad \text{and}$$

$$(a < abs(b)) = (a < b \text{ or } a < -b) \qquad .$$

On Friday I went by Greyhound to Ithaca --via the less exciting quarters of Syracuse, past "Simmon's School for Embalment and Mortuary Science"-- where I arrived at the end of the morning. David Gries picked me up and took me to Cornell University, where I lectured in the afternoon. In the evening we had dinner: we were joined by a lady from Washington who told that nowadays the Nixon's are so lonely: in the evenings they do not know where to go and nobody anymore pays them a visit. They are outcasts....

The next day, on Saturday afternoon, David Gries and Bob Constable drove me back to Syracuse where I had a peaceful weekend. On Monday morning I was back under the yoke again and flew via Buffalo to Toronto where Jim and Jane Horning and Rich Holt met me at the airport. That afternoon graduate students of Jim Horning's showed me what they were doing --a startling variety! That night I had dinner at the Hornings where we were joined by Derek and Barbara Corneil. On Tuesday I talked to students in the morning and gave the first of three lectures in the afternoon. I had dinner with David Wortman and a few others in a good French restaurant. (The Canadians have the best of two worlds: the French kitchen and Anglo-Saxon toilets!); in the evening a taxi took me to Waterloo where I stayed for one night in the Waterloo Motor Inn. The later part of that evening I was very sad....

Next morning I went by taxi to the University of Waterloo where I was picked up by Ashcroft, who failed to excite me. As it transpired he had just discovered the phenomenon of individual starvation (in 1974!). At lunch we were joined by Fisher and his wife, Don Cowan and a few others. Before my talk I had a discussion with two nice lads that were very eager not to repeat the mistakes made by others and pumped me vigoursly. Were they aware of Waterloo's professional isolation? My lecture went down very well: I had prepared it with extra care because the day before, in Toronto, I had had a black-out of at least 30 seconds. Besides that, the Waterloo auditorium was cooled. After diiner with Ashcroft and his wife and a very amusing Pole ($\pm$ Brozovski) --again in a French restaurant! Ashcroft was a gourmet-- I went back to Massey College in Toronto. The next two days in Toronto were very much like Tuesday: in the morning talking to groups of students about whatever subject they wanted to raise and in the afternoon my lecture. At Thursday evening I had dinner at Rich Holts place, on Friday afternoon, after my lecture, I was rescued by Derek Corneil who has a house quite ner to the airport. Barbara had prepared open sandwiches of which I had a few. And two glasses of milk and one glass of whiskey (or the other way round). At six o'clock I was at the airport because I hate missing planes: I was one of the first passengers at the gate. While waiting there the same thing happened to me that had happened to me in the Valley Forge

Hilton at supper: a young man comes up to me and asks "Excuse me, Sir, but are you professor Dijkstra?". In both cases they turned out to be computer scientists with an American M.Sc.-degree (Utah and Wisconsin respectively) of which the ink was still wet. Presumably I must get used to this; and then, later, I must again get used at no longer being recognized at airports and the like!

In Waterloo I heard a story about the University of Chicago, a story that, of course, happens all over the world, but seldomly in such naked, cruel clarity. As the student enrollment for mathematics was declining, the overstaffed Dept. of Mathematics managed to get itself merged with the flourishin Dept. of Computer Science. As the latter department was not understaffed, a simple calculation will tell you that the union of the two departments was still overstaffed, whereupon the mathematicians to get a number of the original computer science faculty members fired, thus, as my spokesman added "killing the subject at the University of Chicago". The story has an all too familiar ring! In Albuquerque, last January, I heard a similar story about Berkeley hinted at, but ptobably one must be outside the country if one wants to hear the details.

Of the departments of computing science visited, Ithaca (Cornell) was clearly better than Syracuse, Toronto was clearly better than Waterloo. Syracuse is really small: they have Robinson --of resolution fame, but he seems a bit fed up with it-- and Reynolds --of Scottery fame, but he seems a bit fed up with it--. A complication for Syracuse is that a con-siderable amount of their research contracts are with aforementioned Rome Air Development Center and, boy, that must be a miserable place! (John Reynolds told me that he had heard that someone in Oxford tried to cope with non-determinacy, but that all arms and legs of Scottery had to be twisted rather seriously. If I can get that rumour confirmed, it will reinforce my attitude towards Scottery.) Cornell, as a University, seems more independent, the Dept. of Computing Scienceas a whole, however, feels less secure: they feel ashamed because they still teach FORTRAN to the Great Unwashed. (While I was there Constable was totally absorbed by the organi-zation of a multiple-choice (!) examination on FORTRAN idiosyncrasies: the poor boy was so miserable and felt so foolish. It was, of course, his bad luck that I had to arrive exactly at that moment.) And the defense was the usual one: the X-engineers want it and if we don't give it, they will do it themselves, thereby making us superfluous. In the latter respect Toronto was refreshing: there the Department of Computer Science refused to teach that junk, and if X-engineers wnated to inflict that upon their own students, well, that was their business! Knowing the scene I know that such an attitude takes courage: the courage was well rewarded.

Waterloo was bad: it was really two worlds and never the twain shall meet. The pragmatists were appallingly pragmatic, the theorists were appalingly theoretic. Both parties were conceited and seemed to live in an atmosphere of mutual contempt that does not seem to be concucive to healthy university life. In this respect Toronto was a surprisingly pleasant exception: faculty members spoke with respect about their students and about their colleagues. (This in contrast to MIT, where respect for students was always combined with nasty remarks about colleagues; but that place is poisoned by competition.)

From the grapevine I picked up two indications that IBM has some problems with its research facilities. The one indication came from a man from Yorktown Heights, a man I know as a knowledgeable person. They were clearly losing a battle concerning IBM's next product. His nerves were very tense, he apologized for not being able to give me any further details

and his comments ended in "inaudibles" from which I still picked up ex-
pressions like "terrible mistakes" and "unbelievable stupidity". It was
frightening to witness. The other indication was from the Vienna Laboratory
and much more specific: while that group is coming to grips with the
problem of proving the correctness of compilers, high quarters exert
too strong a pressure to focus upon the specific problem of proving the
correctness of PL/I compilers, much to the dismay of the people in the
Vienna Laboratory: the high quarters seem to kill the hen that could lay
the golden eggs. It is all not very comforting.....

Furthermore I got the impression that the False Religion of Multi-
disciplinary Research is still making all sorts of victims. In principle
there is, of course, nothing wrong with multidisciplinary research if you
know how to organize it; but the preachers of the False Religion make in
their sermons (uni-disciplinary) competence suspect on account of the
mere competence. The preachers I can fight, the victims I can only pity
when the only result is that they have lost the confidence and self-respect
to which --to my taste at least-- they are entitled. Some doubts are the
incentive for further probing that reveals, other doubts only paralyze.

3rd June 1974   prof.dr.Edsger W.Dijkstra
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PS. An influential Californian software institute had the feeling of being
able to construct an abadile. Because said institute was very influential
the design, development and implementation of an abadile became an official
ARPA project. When the research project named "abadile" was announced, the
said software institute was, if not the only, at least the lowest tender
and it got the million-dollar contract as was intended and therefore only
to be expected.
        The said software institute had the idea that they could make an abadile
on the following grounds. As in the nearby Pacific Ocean abalones are abun-
dant, they felt that they only needed to import a few crocodiles and cross-
fertilize them. And although they passed the deadline by 50 percent, they
indeed managed to cross-fertilize abalones with crocodiles; the result,
alas, was a crocolone.....

        I was present when the above story was told to Bob Balzer, who duly
laughed about the pun, but the funniest thing of all was, that he seemed
not to recognize the truth of the story!
                                                            EWD.