Tripreport E.W.Dijkstra, Newcastle-London-Lancaster, 4 - 13 Sep. 1978.

It was an eight-day visit with a well-filled program. From Tuesday
through Friday I attended the 11th "Joint International Seminar on the
Teaching of Computing Science", held at and organized by the Computing
Laboratory of the University of Newcastle-upon-Tyne (and sponsored by IBM),
on Saturday and Sunday I had in London meetings with R.D.Merrell, now one
of the vice-presidents of Burroughs Corporation, on Monday --still in
London-- I met Roger A.Farrand of Academic Press and traveled by train
to Lancaster where I gave on Tuesday one of the invited speeches at the
Annual Colloquium of the IUCC (Inter Universities Computing Committee),
and the next day I traveled back, so as to be able to receive Professor
Andrei P.Ershov who, for a few days, would be our guest in Nuenen.

Because the air connection between Eindhoven and Amsterdam is only
operational on weekdays and this was one of the rare trips on which I did
not depart during the weekend, I flew from Eindhoven to Schiphol. It was
a bad connection in the sense that I had four hours to change flights. I
did not mind, as I had a lot of writing to do. What I did. (Regretfully
this absorbed me to such an extent that the bottle of tax-free sherry I
had bought for my Newcastle host got lost somewhere on the airport. Ab-
sentminded professors shouldn't be allowed to travel alone! When I dis-
covered my loss I felt like "an unattended major".....)

I arrived well in time for the "At Home", organized by Professor and
Mrs.Brian Randell, where I renewed many an old acquaintance and made a few
new ones (amongst others with Dr.J.van Leeuwen, who is now already for a
number of years at the University of Utrecht). At the end of the evening
I lent my by now traditional assistance to the washing up. (I had again
the privilege of staying in "Hotel Randell".)

The programs of these seminars always keep you almost fully occupied.
The professional part of the day extends from 9.15 to 17.30. On Tuesday
evening we had the Sherry Reception at the University (17-45 - 18.45), on
Wednesday evening a dinner with folk dancing (19.45 - 22.45), and on Thurs-
day evening the Closing Dinner (19.15 - 22.30). The last dinner taught
us that it is possible to sleep well after a good dinner, after we had learned
the night before that it is also possible to do so after a very bad one. A
very peaceful and pleasant meal with Brian Randell, Jim Eve and their wives
--just the five of us-- on Tuesday evening was a relief that was most welcome:
that day I had given a one-hour performance, and the next day I was schduled
for two hours in succession.

The theme for this year's seminar was "Distributed Computing Systems".
As the mathematical tools needed for their mastery are not yet common in-
tellectual property and the combination of their existence and relevance
should influence our "Teaching of Computer Science", I had very much to do
in those three hours. From a full semester's course I had selected what
seemed two representative highlights. The one-hour lecture on the first
day was very well timed, in the two-hour lecture the next day I needed for
the presentation five minutes more than planned; consequently, the time left
for the discussion was too short, and that evening I was very dissatisfied
with myself. Needlessly so, I am happy to add, for during the two slots
devoted to "General Discussion" on the next days I learned that my message
had come through very clearly indeed: it had taken the audience some time to
absorb it.

By pure coincidence --i.e. by being drawn into a conversation-- I missed both lectures by Dr.R.M.Needham from the University of Cambridge --all the others I attended-- . I regret having missed them, for later I heard that they had been instructive, something I could not say of all the others.

I found the three lectures given by Professor K.Nygaard of the Norwegian Computing Centre, Oslo, the most remarkable. Nygaard struck me as a gentleman whose knowledge, intelligence, and honesty were beyond all doubts, yet his presentations utterly failed to convince me. He described his involvements on the borderline between computing science and technology on the one hand and the Scandinavian "labour movement" on the other, involvements that were largely concerned with the mutual educational obligations. My unfamiliarity with Scandinavian industrial relations was, of course, one barrier on my way towards full appreciation of what he tried; I also found myself a little distressed by the observation that Nygaard seemed to have forgotten that once he has been, trained as a mathematician. Not only was the way in which he talked about "the surrounding reality" confusing, as a mathematician he should have remembered that it is also superfluous. My barrier was perhaps that I know only too well that one's perception of "the real world" is only one's own invention, and that I have learned to interpret one's talking about "the real world" as an invitation not to challenge his tacit assumptions. A nice gentleman! We usually lunched at the same little table and eventually agreed to differ.

Dr.P.M.Merlin of the Technion, Haifa, gave a survey lecture "Modelling and Validation of Communication Protocols", which I found instructive. He mentioned a problem worth thinking about --and I think I know how to think about it-- . He made quite clear in my mind what until that moment I had suspected only vaguely, viz. that communication protocols are best understood as only one aspect of distributed algorithms and that the latter are the real topic.

Mrs.G.Ringland devoted two hours to a political issue of typical British interest: "The Science Research Coucil's Co-ordinated Research Programme in Distrbuted Computing.". Because I knew little of that aspect of the policy of the SRC, I listened to her not without interest --not without irritation either: her mentioning that they had got something "all screwed up"... well. I know what it means, but would <u>never</u> use the expression in a public address and her using it struck me as feministic overcompensation-- . I suspect that the equipment she referred to as "research vehicles" will more often act as burden than as an aid (for only too often "driving the research vehicle" takes the place of thinking and choosing well). She spoke more as a (technical) organizer --probably a very good one-- than as a scientist.

Professor E.J.Neuhold, Universität Stuttgart, gave a one-hour lecture on "Data Distribution on Distributed Data Base Systems". If I remember correctly he had just spent a sabbatical year at IBM, San Jose. He seemed to have adopted the fashonable data base jargon rather uncritically --the "different views of data" etc.-- . The major part of his talk was devoted to a --clear!-- description of unsolved problems, but it wouldn't amaze me if they could be shown to be unsolvable as well.

Dr.D.W.Davies of the National Pysical Laboratory, Teddington, gave a clear talk under the title "The Use of Cryptography in Networks". I don't know the audience well enough to decide whether the talk was appropriate: if it was, the British professors of computer science, who constituted the audience,

must have attained a remarkable level of ignorance. I wouldn't dare to devote
almost half of my lecture to the Rivest method which has been published in full
in the Communications of the ACM! One would like to think that that method
had attracted enought attention not to have remained unnoticed. But perhaps
it was appropriate: British scientists have a strong tradition of insularity
and, lately, they seem no longer to communicate with each other either. (Ad 1:
In Lancaster I asked a speaker whether he could relate in a sentence or two
his work to that of Pat Goldberg, because she seemed to do the same thing as
he. I got a very unsatisfactory answer; later I learned that he was unaware
of her --well-published-- efforts. Ad 2: A major benefit of the SRC's "Co-
ordination" was, according to Mrs.Ringland, the increased awareness of what
one's countrymen were doing; because the SRC's funding included travel budgets
it now happened that a guy from this university would actually pay a visit to
that one! I was flabbergasted!) Are the older British professors of computer
science fully absorbed by the thankless task of managing their departments
with dwindling budgets, or cannot they keep up because an original background
in numberical analysis or electrical engineering is not the most appropriate
one?

Similar doubts were raised by the first two talks of Dr.R.E.Miller,
IBM, Yorktown Heights, on Graph Theoretic and Schemata Models for Parallel
Computation: a nice and clear presentation, but of efforts that were almost
ten years old. The fact that along those lines he could mention no significant
progress since 1970 confirmed my impression that most of these approaches have
shown not to be very fruitful. Again the audience was supposed to have hardly
heard of Petri Netss and Vector Addition Systems. His last talk was on more
recent efforts at formalization, but I was not impressed: I found the for-
malizations cumbersome and the results trivial. It was not the kind of
mathematics I like, which is a subtle balance between formal techniques (where
needed) and common sense (where sufficient).

The three lectures by Professor J.C.R.Licklider, MIT, Cambridge, Mass.,
I positively disliked. He began in a way that I also have sometimes found
useful, i.e. by presenting his credentials, but misjudged his audience: he
did it at such a length that it became almost painful and did it exclusively
in terms of "experience", presumably not knowing that at this side of the
Atlantic Ocean "experience" is less highly rated than at his side. The (in
our scale) more vital information that professionally he had been trained
as a psychologist was omitted. The major thrust of his message was that
computing science practice was not technology alone, but was always inter-
twined with and constrained by the political, cultural and social aspects etc.
of the environment. This is true, and no harm is done by reminding students
of this state of affairs. Making reservations about the relevance of science
and technology is fully in order; it should, however, not be done by a psycho-
logist, but by an unchallenged expert of the scientific or technological
field the relative significance of which is questioned. The remark:

> "The problem of academic research I think can be put reasonably bluntly.
> If you look at the problems that arise outside, in their own right,
> almost 20 per cent. of them are trivial and 80 per cent. or so are
> evidently insoluble, and it is the task of the academics to swim in
> that exceedingly narrow layer separating the trivial from the insoluble,
> that remarkably thin layer in which thought, skill and work can actually
> make a difference."

derives its weight from the scientific competence of Sir Hermann Bondi, who
made it. But even after accepting that we were addressed by a soft-scientist

--after all: that was not his fault but the fault of the organizers-- I re-
mained very doubtful. It was not only that he never referred to "people", but
always to "human beings" instead, it was also that he used one slide demon-
strating the significance of "policies" as a justification for embarking on
"politics" as if the two words meant the same thing! I was vigorously re-
minded of:

> "Our ways of evaluating policy options, and our ways of implementing
> policy choices, cannot rise above our ways of _talking_ about what is
> at stake and what is to be done."
> (Laurence Tribe, Corinne S.Schelling, and John Voss.)

He then embarked on a very parochial enumeration of which of the twelve
Washington (!) offices and agencies had to be courted in which stages of a
federally sponsored computing project in the USA. In a way it was very in-
structive; even distressingly so.

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Early Friday evening I flew to London in order to meet R.D.Merrell
at the Sheraton Heathrow. It turned out that I could have stayed another
night in Newcastle, as I went under the misapprehension that Merrell would
arrive on Friday the 8th of September; a short telephone call to his office
--when he had not arrived and had no room reservation for that night either--
taught me that he would leave Detroit on that evening. We met the next
day at 14.15.

The Sheraton Heathrow is not a hotel that I can recommend: the
presence of a TV set in your room implies that there is also one in the
room next to yours, and that one is more likely to be switched on than yours.
And all the money spent on external sound isolation has been saved on the'
internal one. Despite these disturbances I managed to do a lot of writing.

Both weekend days I talked for a couple of hours with Merrell. (On
Sunday less than we had expected: his departure to Brussels was at 15.00 and
not, as suggested before, at 5 p.m.: the usual mistake!) I very much appre-
ciated the oppportunity as several previous attempts to meet each other had
been aborted; I think that, on both sides, the hours we were together were
very well spent. I was again very much pleased with the rapidity with which
we could go down to essentials. After he had left, I went to my room and
wrote for the rest of the day.

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On Sunday evening I had arranged that I would meet Roger A.Farrand of
Academic Press the next day at 12.30 at the exit of the Camden Town Under-
ground Station. Having planned to use the 11 o'clock courtesy coach to the
city I felt very much at ease, and went to bed with the intention of having
the next morning a good bath and a leisurely breakfast. Nothing of the sort!
I was clearly more tired than I thought, for, left at my own devices, I woke
up at 10.15: no bath, only a shadow of a breakfast, packing, checking out,
and just in time for the 11 o'clock bus, that was to deliver me one hour
later at the Haymarket near Piccadilly Circus. The trip was terrible: the
hotel courtesy implied exposure to BBC2 and, inaddition, we got stuck in a
traffic jam. Once I was in the Underground my traveling again proceeded at
the predictable rate; but I could not avoid arriving ten minutes late at my
appointment, a lack of courtesy about which I was very annoyed.

For me the meeting comprised too "firsts": a lunch in a Greek restau-
rant and being offered a lunch by one of my publishers. Both experiences were

very pleasant. We conducted business, at 15.00 I was on my way from Euston Station to Lancaster in a modern British train which was very good. My co-passengers in the compartment kept their mouths shut and I used the trip to prepare carefully my next day's performance. I arrived at Lancaster University at 18.45, just in time to check in before dinner.

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The IUCC Annual Colloquium had attracted about 225 participants. Some of them were old hands and still remembered how I had addressed the IUCC some five year ago, but the majority of the attendants were young. (The next day I learned that not only my ageing eyes found the names on our typewritten badges a little bit hard to decipher. I had skipped the last lecture preceding my own and sat outside the lecture hall, thinking and preparing. A young man opened the conversation "Do you know whether Dijkstra has arrived? There is a rumour that he did not show up." I could reassure him "Oh yes, he has arrived: I saw him yesterday evening.")

Neither in the dormitory where I was housed, nor in Lancaster University's social quarters I felt at ease. The new campus seemed to be geared to a form of University life that I hardly recognize as such: in the large Common Room about 90 low chairs were placed, but.... in eight rows facing a large TV set! And my room was really only a bedroom: I don't object to austerity for a study, but some minimal demands with respect to heating, furniture, and illumination are not unreasonable. I could only conclude that it wasn't meant to be used as a study; while in Lancaster I haven't written a single word.

My lecture went very smoothly. Because I expected to address a very mixed audience I had taken no risks: I showed the formal development of two programs, but for the sake of those who had seen me doing so before, I had chosen to very unusual examples. I was a little bit ashamed of my lack of courage to do something spectacular or to show something brand-new, and of the fact that I had showed instead a technique that should have become a standard curriculum component quite a few years ago. Professor Cole from ·St.Andrews, who had hear me in Newcastle, expressed later his regret that I had not repeated the first lecture I had given there. But what do you do? The next morning I was thanked by a lecturer who, while explaining a program on the previous evening, had applied the methods I had shown him that very morning. He wanted to thank me because now he felt that, for the first time in his life, he had been able to explain that program satisfactorily; he even mentioned that on that evening the program had emerged in a much nicer form than usual. So I can only conclude that, even if the gospel is by now a few years old, it is still worth preaching!

I had intended to stay for the whole colloquium, for from Canterbury, about five years ago, I remembered that the informal discussions at dinner and in the evenings had been at least as contributing as my scheduled lecture, but shortly before I left the Netherlands I decided that I should return home as quickly as possible, when I had heard that Professor Andrei P.Ershov from Novosibirsk would be in the Netherlands and had expressed his wish to visit me. The atmosphere in Lancaster was so different from the one I remembered from Canterbury that I regretted my early departure less than I had feared.

On Wednesday morning my host, J.A.Llewellyn, took me by car to the Preston railway station. Waiting on the platform for my train to Manchester I saw a local train arriving and disgorging its passengers: the exposure to such a cross section of the English population was a bit depressing, and some-

what sadly I traveled to Manchester where I took a --surprisingly expensive!--
taxi to the Airport.

The KLM plane to Amsterdam was dead on time. Llewellyn had wished me
"A good journey and no strikes!" When I entered the airport I saw a big notice
on which its autorities apologized for any inconveniences caused by "an indus-
trial relations problem" and for a moment my heart sank... But there was no
delay involved, only over a certain distance I had to carry my luggage myself.
At Schiphol Airport luggage handling was very fast, and I was met by Ershov
and Dr.Martin Rem, who had been so kind to collect us in Amsterdam. At 18.45
he delivered us in Nuenen, where Ershov stayed until Satruday morning, when
we drove him back to the Airport. Those two days were well-spent, I was
glad to get the opportunity of returning to him the hospitality he had given
to C.A.R.Hoare and me two years ago.

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