Jaap Seidel 80

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Jaap Seidel 80

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The talk was announced as: “Career of a mathematician.” A very demanding title, which I will not make completely true: I mainly talk about the *beginning* of that career, connected with my personal memories. We have been friends since a very long time: 62 years.

Only recently I learned that Jaap and I had *almost* met even 69 years ago. We had been in the same warm nest, though not simultaneously.

1930. The Hague, Galvanistraat. Masterclass, formed by the better pupils of five or six schools. Intended as preparation for the entrance examinations of the harder variants of secondary education, the HBS and the Gymnasium. I remember the hard problems in applied arithmetic, about rowing boats in a flowing river. Mathematics of social interest, like our ministry of education now wants to introduce at the *end* of the secondary school curriculum, in order to have ‘social mathematics’ replacing so-called dry and formal mathematics.

I left that class and the school in 1930. Jaap attended it in 1930–1931.

It was a very scientific neighbourhood, at least as far as the names of the streets were concerned. Jaap lived at a street named after Ampère, the school was at Galvanistraat, and in order to get there we had to go by the Archimedesstraat. Unfortunately, we learned about Archimedes only that he was a rich man who could afford a full bath in his tub every day, and not as the man who did the Riemann integral two millennia before Riemann.

Our class room was situated at the back of the school, with an exit in a street named after Snellius. Snellius (1580–1626) was (from 1613 onwards) professor of Mathematics at Leiden University, a position that Jaap and I never reached! Contributions to trigonometry and optics. Snellius was scientific advisor to the army of Prince Maurits in the war against Spain. That war lasted 80 years, and we know today how long that is! Snellius counted Tycho Brahe and Kepler among his friends. Stimulating environment for our school.

There is one important thing that I vividly remember about the time I left elementary school in the summer of 1930. It was that the Wall Street crash, hardly half a year earlier, had made itself seriously felt in the Netherlands too. As a 12 year old boy I felt that we would not have much of a future.

Jaap lived in a slightly more protected area. Like so many other prominent Dutch scientists, he came from a family of teachers. Both his father and his mother were teachers. At birthday parties the young boy saw teachers all the time. He was educated in the idea that teaching was respectable.

My first real meeting with Jaap was in 1937, when he entered Leiden University. I was a year ahead of him (and had got quite a different kind of upbringing). Jaap at once became a member of the little club of Leiden mathematics students living in The Hague, gathering weekly, usually at my home.

At two occasions we appeared as a singing group at social nights of the Leiden science faculty. It was called The Epsilon Boys, epsilon being for us the true symbol for mathematics. We were always in tune, within an epsilon.

Jaap was much more social than the others, certainly much more social than I was, and it always remained like that. At an early age already, Jaap had experience in what is now called Networking.

Why did Jaap go to Leiden? Quite recently he asked: why not to Amsterdam, the Mecca of Mathematics, where the great Brouwer was?

Yet I think that in Leiden he was much better off. In Amsterdam he would have had hardly any contact with Brouwer, just with his assistant Freudenthal. Stimulating education anyway, in spite of the fact that it was not perfectly organized. But the main reason for preferring Leiden was, of course, that it was much cheaper. Times were hard. Living in the Hague, you could just stay with your parents, and travel up and down by train or tram, and if the weather was favorable even by a 90 minutes bike ride.

Leiden gave thorough, old-fashioned teaching by Van der Woude and Droste. For analysis this old-fashioned style was not bad at all: the standards were those introduced by Cauchy and Weierstrasz. For geometry it was definitely out of date.

But there was also the much younger Kloosterman, with an open eye for what happened in the world. Along with his standard courses, Kloosterman had an extra topic each year, not for the curriculum, just for scientific interest.

Around that time he gave "Abstract Algebra" (quite a novelty then), as well as "Hypercomplex Systems." A magnificent course was "Linear Operators in Hilbert Space." Linear algebra, Stieltjes integrals, spectral theory of self-adjoint operators. He did it for the needs of the theoretical physicists: quantum mechanics was a red-hot subject. Perfectly presented, producing everything from scratch.

Jaap never stops telling me that it was me who urged him to attend that course of Kloosterman on Linear Operators, right in Jaap's first year. It was linear algebra, both with finite and infinite dimension. And Linear Algebra would be a main theme of Jaap's mathematical work all through his life. Wherever anything could be expressed in terms of eigenvalues, he would be there to do it.

Leiden university was closed in 1940 by the German occupational authorities, because of the students' protest against the dismissal of Jewish professors. For a time it was unclear whether this would be temporary or not. Students did not quite know what to do. At that time I ran a small class for some of those students, training them in algebra and number theory. I think it was Jaap's initiative to organize this. Later it became obvious that Leiden would not reopen at all, and most mathematics students decided to move to Amsterdam's Free University, where they could go on until, a few years later, all Dutch universities had to close.

In Amsterdam Jaap came under the direct influence of Haantjes, very stimulating in many areas of modern geometry, much more so than Van der Woude in Leiden ever was. Jaap learned a lot from Haantjes. After the war, he got his PhD under Haantjes, who had moved meanwhile to Leiden. Unfortunately Haantjes died young, in 1956, at the age of 42.

Around the end of the war Jaap became a school teacher, at a prestigious school (Vossius Gymnasium). I believe he did very well there.

Towards the late forties Jaap became instructor at Delft, where I happened to be a young professor. I caused a little revolution there by putting Analytical Geometry on the basis of Linear Algebra, and had a group of instructors to run the exercises. Jaap was one of them.

Linear algebra had to remain simple, and should certainly avoid complete abstract formulation. During a vacation trip to Switzerland in 1949 I visited the great Heinz Hopf in Zürich. I had heard that he had started courses in modern linear algebra too, and I wanted to know how he did it. He assured me that he did it even more simple than I wanted it to do. In later years people Bourbakized the subject and made it terribly hard. But in Delft we kept it simple, and close to applications. Jaap really enjoyed it.

In 1954 Jaap worked for some months in Rome, together with Van der Ven. Bottema (an influential mathematician at Delft, at that time rector of the university) had objected. I suppose that Bottema felt that someone below the rank of a professor should not have ideas of his own. But others helped Jaap to let him spend a term in Rome.

Much later Bottema changed his attitude to Jaap. I remember that in the middle sixties Bottema was the chairman of a national committee for the mathematics on the university level. Jaap had been quite active in such matters, but at a certain moment his term in the committee ended according to schedule. At the last meeting where Jaap took part, Bottema gave a short speech to thank Jaap for his contributions, and ended by standing up, walking to Jaap's place at the end of the room and shaking hands with him. It struck me as unusual and very moving. It was as if he had always underestimated Jaap and his young institute at Eindhoven, but that he now wanted to show that he considered Jaap his equal.

1954 had the International Congress of Mathematicians at Amsterdam. Jaap was leader of the entertainment committee. We got the idea to attach an Escher exhibition to the congress. It was a great success. A great thing for Escher too: having it in the prestigious Stedelijk Museum, it gave him a recognition that he did not have before. And it brought him into contact with scientists from all over the world. In particular with Coxeter and young Penrose. The effect on his work is easily seen: he had learned about the circle groups.

As I said, Haantjes died in Leiden in 1956.

After Haantjes' death Jaap was temporarily hired in Leiden to teach some of Haantjes' courses, in particular Linear Algebra, but before that, Jaap already acted as a stand-in for Kloosterman (on leave for a year), and taught the so-called HocusPocus course. Mainly analysis for non-mathematicians. How-to-do-it without fully understanding it.

I think it is very important that Jaap gave both courses. The HocusPocus was mainly analysis, which never was Jaap's topic in particular. But it may have been the root of Jaap's idea of having in Eindhoven an integrated course in mathematics, not split up into subjects (like analysis, analytic geometry, etc. etc.). And Jaap had seen everything at all levels: the student's level, the one of the instructors, and the one of the professors.

It all was a wonderful preparation for his start as the first man in mathematics at the new Technological University at Eindhoven. Jaap organized the mathematical department and the mathematical curricula all by himself. It was really a one-man-show. He was a wonderful organizer, knew to attract quite a good group of professors and instructors, and he let them do it the way he wanted it to do. One of the professors who had to follow Jaap's scheme called his course mockingly "His Master's Voice."

Everything at Eindhoven was much more modern than it had been in Delft, and Jaap made full use of it. He at once used the possibility to prepare printed material for courses and exercises, and turned the mathematics education in Eindhoven into a big smoothly running factory. It was extremely successful, certainly the best one in the Netherlands.

Eindhoven's mathematics department was outstanding, not only because of the quality of teaching, but also scientifically. Around 1970 we had 4 members in the Netherlands Academy of Science, where the total number of mathematicians was 10.

Jaap was a late starter, as far as his own scientific activities were concerned. For a long time most of his energy had gone into educational and organizational matters. It is really amazing that he picked up large scale research in 1966, at the age of 47, and that he became so productive in the years after that. It was of course connected with the fact that he resigned as head of the department: the machine was running so smoothly that he could leave the managing to others.

I think that 1966 was the first time that Jaap attended an international conference on combinatorics. It was at Varenna, in Northern Italy at the Lago di Como. A romantic place. Frank Harary was the organizer. We went together. I introduced Jaap to Harary, and Harary asked: Is he your student? I said at once: No he is my boss! That impressed Harary and changed his attitude.

By the way, Jaap and I went there with our wives. We usually traveled crammed in a small car, either our Volkswagen Beetle or their Renault 4, even smaller. We went to Paris that way in 1957, to the Edinburgh International Congress of Mathematicians in 1958, and let us not forget the pleasant sailing vacations with our full families in Friesland.

I mentioned Linear Algebra as a central theme in Jaap's life. But we should also stress Networks. In the mathematical sense: graphs, but also other kinds of networks. Connecting different branches of mathematics to each other. And getting people together and let them collaborate. The best example of a network in nature is a spider's web, so let us imagine Jaap as the spider sitting in a corner and abiding his time.

Now a few words about Ada. She was the one who made it possible for Jaap to maintain all his social relations. Writing over a hundred Christmas cards each year. Jaap hardly ever had to bother with trivialities that might interfere with his scientific work and with all his contacts. He depended on Ada in every respect. This is true in particular in recent times, now that life is getting less comfortable. Ada keeps taking care of everything.

At this occasion I think it is appropriate to honour her as well, as a sweet and brave woman.

Hurray for Ada, hurray for Jaap!