Kåre Berg

Personal Details

Name	Kåre Berg
Dates	1932 - 2009
Place of Birth	Norway
Main work places	Oslo
Principal field of work	Immunogenetics, Clinical Genetics
Short biography	See below

Interview

Recorded interview made	Yes
Interviewer	Peter Harper
Date of Interview	05/09/2005
Edited transcript available	See below

Personal Scientific Records

Significant Record set exists
Records catalogued
Permanent place of archive
Summary of archive

Biography

Kåre Berg was born and educated in Northern Norway and in 1951 came to Oslo University, where he qualified in medicine. In 1961 he took up forensic medicine, working on serum polymorphisms, which led to his discovery of the Lp lipoprotein system. After three years working at Rockefeller University, New York, he returned to Oslo in 1967 as Professor of Human Genetics, working particularly in the genetics of coronary heart disease but developing a broad medical genetics department.

INTERVIEW WITH PROFESSOR KÅRE BERG, 5th SEPTEMBER 2005

PSH. It's Monday 5 September 2005 and I am talking with Professor Kåre Berg in Oslo, Norway**.** If I can go back to the beginning, maybe since the topic came up, what year were you born?

KB. 1932.

PSH. Were you born here in Oslo?

KB. No, I was born way up north in Hammerfest but I had my young years in a place called Elverum which is 170 kilometres from here I think.

PSH. Did you come to university here in Oslo?

KB. Here in Oslo yes, in 1951.

PSH. And was there anything in your family background, was this very medical or scientific?

KB. No. There is absolutely no good reason why I went into medicine, other than that I was interested.

PSH. Well that's a good reason I think. So you went into the medical school. As you were going through the medical school and university, did you do any scientific or research work on the way through?

KB. No, what I did was, I had a wonderful time as a student, enjoyed the life very much. It was only after, I became so monomanic in respect to the area. I did work though. I was interested in psychiatry amazingly enough. So for three of the summer holidays I was at mental hospitals, pretending to be a doctor. You know you could substitute as a doctor and make it into a study. Earlier on, and onwards in fact, I did some sports medicine, which is equally incredible because I am not very sportsman-like. During my internship I started to become really seriously interested in things, so I had my first casuistic report when I was in internship in Porsgrunn.

PSH. Which place is that again?

KB. It is a city about 130 kilometres from here down south. That was one internal medicine hospital, and one surgical, and one had half a year in each of them

PSH. Did I get the name right?

KB. Porsgrunn. And my really first paper was in fact on Sheehan's syndrome and I was that interested, because rather than having an enormous bleeding during delivery, this lady had been transported by horse from a very outlandish place far away, and she was in her fourth month of pregnancy and was bleeding heavily, and actually bleeding enough to hurt her enlarged pituitary badly. So she was sitting near the oven being frozen all the time.

She had no eyebrows and very little axilla hair. So I wrote to Mr Sheehan and asked could this be your syndrome. He immediately wrote back, very, very nicely.

PSH. That's interesting. Very interesting. And did she just have a haemorrhage into her pituitary, or was there a tumour to have a haemorrhage into?

KB. No no no. The pituitary was just swollen, as they become during pregnancy, but that is when they get so sensitive to low blood pressure. So it was simply damaged from her almost bleeding to death.

PSH. I see.

KB. And Mr Sheehan, he agreed to that interpretation, so that was nice

PSH. But you didn't become an endocrinologist in the end.

KB. No.

PSH. Am I right then, at some point you went into forensic medicine?

KB. Yes, when I was through my internship I was one and a half year. Half a year in the district and then I was in internal medicine and a little bit in cancer, then on January 2nd I guess 1962, I started in forensic medicine, because that was a good place to make a thesis, they had a very successful, a small but very successful row of people who had been there.

PSH. Did you know already that you wanted to concentrate on medical research?

KB. I became very interested about that time, I really did, but I had in the early beginning visualised I would be back in internal medicine, and the place I went to in forensic medicine, the professor there, whose name was Georg Waaler, he was the guy who actually first wrote properly about colour vision and showed there had to be two different loci. He didn't call it two different loci but he certainly identified those two different types of protan and deutan. So he was an interesting boss to have. But the one who really taught me immunology at that time of course was his second in command, a man called Lundervall.

PSH. Lundervall?

KB. Lundervall yes. And Waaler himself he had been a student of the person who later became Rector, Head of the University, that was Jan's [Mohr] uncle.

PSH. That was Otto Mohr.

KB. Otto Lous Mohr. And he had been in the fly room.

PSH. Yes I was hearing about that, which is interesting because it connects one right back to the origins of genetics.

KB. So if you looked at my pedigree in that sense, it would have been Lous Mohr who had been with Morgan, then Georg Waaler who was the boss of the forensic medicine, and of course the most practical man for me there was Lundevar.

PSH. Am I right at that point, when you started your immunology work, were you particularly interested in the genetic aspects or did that rather come later?

KB No, it came very early. At that time serum protein polymorphisms had become a fairly interesting topic, due to Grubb in Sweden and of course Smithies' haptoglobin and John Hirschfeld GC protein and in the fall of 61 a British man called Tony Allison and an American called Barry Blumberg reported the so-called Ag system, I think it was in the Lancet or Nature, I'm not sure, which they detected by means of an antiserum from a multi-transfused patient and I thought I should produce that antibody in rabbits, so I immunised with lipoproteins from many people and then absorbed the resulting anti-serum the serum from many individual people in order to find if that anti-serum had produced any individual specificity, and what I found of course was not Ag but Lp(a).

PSH. Yes

KB. And that was already in the spring of '62. I had beginner's luck I guess.

PSH. That was really the very beginning of the Lp(a) system and it grew out from trying to reproduce the AG?

KB. Yes, that was what I thought I should be able to do, but I don't think an Ag antibody has been found in any animal other than primates.

PSH. So after that, I've read that you did a lot of studies on the Lp(a) system. When did you first start using it as a genetic marker, rather than just as an immunological system?

KB. Well, I did a study in 74 or so 75, whatever, of families and found that I had standardised the system in a certain way. Later on, of course we understood that it was just a system to the top of the variation, and that top segregated as a dominant of course, so I did use it already in the very beginning. But it wasn't until '74 that we found that it was associated with coronary heart disease. And of course that era became really hot only after [Lawn] had cloned the gene and that was in '87.

PSH. Before we get to the coronary heart disease, can I ask, am I right that you collaborated with Jan Mohr on the genetics of the Lp(a)?

KB. Oh yes, yes.

PSH. Were you working, he was in Copenhagen then I think, was he?

KB. No, he went to Copenhagen I think in '64. I think summer of '64, so he was still the foreigner of my old Institute, a very humble place at that time.

PSH. And at that point had you moved away from forensic medicine?

KB. No, all that work was done in forensic medicine, but he had collected the families for his linkage interests, so he let me test all the families.

PSH. Right.

KB. And he did linkage analysis at that time, which I wasn't able to at that stage.

PSH. So when was it that you, so to speak, became more of a geneticist than a forensic scientist?

KB. Alec Bearn came and looked me up. I had a few months in Germany in Marburg, Gerd Uterman it was and his boss, and then Alec came by. He had seen me at a congress or something and asked if I would like to come to Rockefeller, so I went there in the fall of '64 and that was very much a genetic environment of course, and much more than forensic. There was no forensic medicine at that time anyway. So I guess I identified myself as a geneticist from then on.

PSH. Were you there for six months or a year?

KB. Three years almost

PSH. Oh three years?

KB. I came back to Norway to the Chair of Human Genetics in '67.

PSH. And am I right, now was this a new chair of human genetics or was it the one that. . .?

KB. It was the one that Jan had had, but at that time it was only an associate professorship, docent it was called at that time and then it was changed to a full professorship. I think the faculty had hoped to get Jan back by doing that, but he didn't want it, so he stayed on in Copenhagen and the new chair was announced in the Nordic countries. Hans Olav Åhesson, Albert de la Chapelle and Anton Brögge and I applied.

PSH. Who was the first of those three? I missed the name.

KB. His name is Hans Olav Åhesson. He was only doing his thesis with Böök in Uppsala and then he went into psychiatry with his studies, working time there as a psychiatrist. He did quite a few interesting studies, mostly on chromosomes.

PSH. Right, so the year then you came back to Norway, 1967?

KB. '67. I started in my job June 1st '67.

PSH. Was the task you were given in this new post then purely to do research, or were you to develop human genetics on a broad scale?

KB. The faculty obviously wanted me to develop the area; it was announced however like any other chair, which is a fairly free position. Normally you are supposed to teach students, to help people get their theses and to do research. But you can choose your own research and so on. There is no sort of, normally at least, there is no sort of leading instructions like that. So we had for the first few years, the teaching burden was very easy. We had twenty hours per year in the first part of the study, so I started to have people who wanted to make their thesis fairly early and one of the first ones was of course Arvid.

PSH. Yes.

KB. And Henry Helge Boman

PSH. Was your chair initially in the Department of Medicine or was it a separate department from the very beginning?

KB. In the very early days, long before my time, there was an Institute of Genetics under the president of the University. It was not in one specific faculty then, and Jan was there at that time, and there was also a natural science person, and I don't know the details, why they changed. In '61 it was divided, so there was one Institute of Genetics in the Natural Science Faculty and the Institute of Medical Genetics in the Medical Faculty. Both were tiny structures at that time, but it was started in '61 and Jan was carrying it until I came. He visited Oslo regularly also after he had started in Copenhagen, so before I came he was here maybe one each (?) summer. Something like that.

PSH. Going back to the coronary heart disease, when did it become clear that your LP system was in some way connected with coronary heart disease?

KB. About '73, we reported the first article on that in '74 [----------] and myself.

PSH. I am very ignorant on this, because I had always assumed that some association with cholesterol was known many years before, but maybe not with the lipoproteins?

KB. There is of course a slight association with cholesterol if you have a lot of it, because there is cholesterol as you know in the particle itself. It's an Lp(a) particle which has this addition of long polypeptide. Now I am pretty sure that ours was the first direct evidence on coronary heart disease and we were lucky in a sense that we had some Finnish patients, and with all their coronaries they have, it was easy to have young patients. So we had a nice bunch of young coronaries and that is where you particularly find the association of course.

PSH. Who were your clinical collaborators? Were there particular people, either from cardiology or from medicine or epidemiology, who were involved in that side or did you develop that side also yourself?

KB. I think I would have to say that I pretty much developed it myself, but I had good collaborators in Sweden and in Finland, so most of the early clinical materials came from there, but then after a while some regional cardiologists became interested, so we had two large Norwegian cardiology centres at a place called Ahershus, that means Ahershus University Hospital, which is outside Oslo, and also of course Ullevaal University Hospital became interested after a while. But in the very early days there were not all that many people interested. So it had to be Finns and Swedes in the very early days.

PSH. How did it develop internationally, because now it is something which is very well established and known across the world, but how did it happen that other countries became interested?

KB. Well, let's see now, there was not a huge interest in the very early days I must say, and there has always been difficulties in standardising measurements, so that is one reason why it is not done in all the clinical laboratories, because they only want to do things that can be put into a machine. But in reality there is no problem because if you have a normal distribution, if you do one thousand or so on, you can give your answers in terms of multiples of the median, like one does for alphafetoprotein and so on, but for some reason that has not been done. The people have been making huge effort to try to standardise, and there is a standardised sample in Seattle which may be helpful, but in fact anybody can do it if you have a normal population, and of course it's specific anti-serum. They became fairly interested in Germany. Gert Uterman of course started it there at an early stage. In the US Scanu in Chicago became interested and did a fair amount of biochemical work.

PSH. What was his name?

KB. Angelo Scanu. He is not a geneticist. He is in the Department of Medicine in the University of Chicago and his interest was biochemical. He didn't do any large series or anything. Let's see, there was somebody in Detroit, a nice geneticist called Norum who you may know from your US days

PSH. Who again?

KB. Norum.

PSH. Ah yes, I do remember him well.

KB. He was with McKusick, as yourself.

PSH. Yes. How about Arno Motulsky. Did you have much involvement with him at that point?

KB. Not specifically on Lp(a), but of course I met him at Congresses, we had a nice connection for all those years.

PSH. Yes.

KB. It was more or less sporadic, I would say. By chance in some labs in England, somebody called Derrington, he did some nice work, but apart from that I think the important breakthrough came in '87 when [----------] in Genentech cloned the gene, and from then on there has been a lot of interest in it.

PSH. Now while all of this was going on, how did you find it developing the wider aspects of human genetics and medical genetics?

KB. I thought what I had to do was recruit people who wanted to make theses, and of course we made considerable efforts to increase the amount of teaching for the students, and in 1971 Norway was I believe the first country in the world who made Medical Genetics a speciality, an official speciality, which was important because it had to do with prestige and identification of the area and so on.

PSH. That must have been quite difficult to get, or did you find that people in the medical faculty were very supportive of that?

KB. The medical faculty, I would say they were very supportive, but the speciality thing you know is run by the Physicians Association. That took some doing, to convince them.

PSH. I can imagine, yes.

KB. But at the annual meeting in '71 they accepted it.

PSH. It always surprises me that still there are a number of countries that have not accepted medical genetics as a full specialty. Am I right, Denmark still . . .?

KB. I think you are right that it is not an official speciality. Jan would be able to answer that I guess, but I think it is true as you say.

PSH. So over the years then, how did you find developing medical genetics? In a country like Norway it must have been very difficult, with such a scattered population.

KB. Yes, but there were some traditions after all, for example, phenylketonuria was detected here by Professor Følling, and that of course became a very famous case and also Refsum just before World War Two discovered Refsum's disease, and there are a few rare diseases that were discovered because of the in-breeding and so on. There is a skin disease named after Professor Niels Danbolt for example, and of course the LCAT deficiency was found here. How did I find it? It was very undramatic in the beginning, but then things became more heated in the mid 1970s. There was an enormous debate concerning the abortion law then, and the abortion law, which in fact was written by a psychiatrist, who is still alive, and a public health person who had been in obstetrics and gynaecology and myself in 1975, and there was an enormous debate about it. Later the Prime Minister Brundland was very, very much involved in it, and in 1975 self-determined abortion

became law. There were some minor changes made, so that the last time it was an issue in Parliament was in '78. And of course they are very powerful really, only a few people in the Christian Party, who today have the Prime Minister actually. They lost that fight. Before that they had been not negative to genetics at all, but a couple of years after that was final, they became very strong attackers of prenatal diagnosis, claiming that that was very wrong because it could end with abortion. They have been very opposed to that ever since. Time wise it really coincides very much with the aftermath of the loss of that important debate.

PSH. Do you think they then came to associate the rest of genetics also with prenatal diagnosis and abortion?

KB. I think so. They talk a lot about the. How do you say that in English. Should not fiddle with what God has created. That sort of language, rhetoric they tend to have.

PSH. Was it this field that brought you into the area of ethics in relation to medicine and genetics in particular?

KB. Yes, I had to find out what I should think myself.

PSH. Did you have contacts then in the philosophy and ethics field here in Norway or were these links mainly developed in other countries?

KB. In the very early stage I had a lot of contact with a Norwegian Professor of Philosophy called Knut Tranoy. He is still alive actually. He is an old man now, but I found him very sensible and of course since we agreed on so many things I guess that must have been. But then I read papers by John Fletcher in the New England Journal and that made me go to Washington and see him. So since the early eighties I had a lot of contact with him. As you probably know he is dead now.

PSH. I saw that yes. Also I saw Dorothy Wertz…

KB. She also died.

PSH. Yes, which is a shame.

KB. Yes, it is. That was actually during one of the HUGO ethics committee meetings. She went scuba diving alone.

PSH. Oh dear.

I've been asking everybody who I talk with two things, Kåre, and one of them is, is there one particular person that stands out in terms of being an influence on how your career or thinking in genetics developed?

KB. I think I got a lot from Alec Bearn. I think he was a very good person to meet and work with at an early stage.

PSH. He is still living, is he?

KB. Yes, but he is not very well.

PSH. Is he still in New York.

KB. Oh no, he moved to Philadelphia. He actually became the administrator of the American Philosophical Society.

PSH. It's many years since I have seen him. It would be important probably I made some contact with him. I think the American Philosophical Society has been involved in the preservation of many of the historical records in genetics.

KB. He invited me to their annual meeting three or four years ago. That was a very interesting experience and I had him here three years ago as a guest lecturer. He couldn't walk for very long. He had a terrible dyspnoea.

PSH. Is he well enough do you think for correspondence or not?

KB. I am very bad at that. Occasionally we exchange Christmas cards and so on, but I really must call him. I'm glad you reminded me, but it's a long time since I did. I don't think he is able to travel too much any more.

PSH. But maybe if I had some questions I could write to him?

KB. Oh absolutely.

PSH. I think I must do that. The other question I have been asking to everybody and in some cases the answer is very obvious, in others not so obvious. But I have asked everybody, is there one particular piece of work or discovery, or some area that you feel particularly is your contribution, and that if you were only allowed to just have this piece of work remembered, you would like this one remembered?

KB. Well of course I have to admit that I am rather pleased with the Lp study. Since you ask.

PSH. I thought you would say this, but still I preferred to ask it and not to assume it.

KB. That is true.

PSH. That's natural. Kåre, are there other areas or particular things you feel you would like to talk about, because I wasn't planning for this to be anything very lengthy, but if there are areas which you feel I should have brought up and asked about which I have neglected or omitted . . .?

KB. Well I think we have a lot of responsibility in, say, educating the public, because I do think that a lot of the negative things which we have experienced in this country have to do with shortage of knowledge. I mean I have experienced so many times that after having talked for some hours to some persons, they changed their attitude, and have come up and said "oh that's the way it is. I didn't know that" so we have a huge responsibility, but it's not

so easy to solve because media in this country, they prefer sensations and negative things. I don't think it's like that in the UK.

PSH. Oh it is like that, unfortunately, it's exactly like that.

KB. I don't think it is in the States. The New York Times I thought had a lot of good scientific stuff.

PSH. I think you're right.

KB. And they seem to be rather open minded.

PSH. I think you're right, especially science writing in America, there is a high standard. We have very little, and when it comes to television and mass media, sadly it's the sensational that almost always they want.

KB. And there are very strict rules concerning biobanks in this country for example. I have been involved in a fair amount of giving advice to politicians and so on. But still there's a lot more to do there.

PSH. Do you feel that living and working in a small country like Norway, it is easier to develop links and get information across to politicians than it is in some very big countries?

KB. I could imagine that it is. I mean I have had very close contact with the Chairman of the Parliamentary Committee on Health and Social Issues but I have been asked to give him opinions about many many things for almost ten years. So yes, it has been easy to go to him and to certain others. Not everybody of course. They tend to specialise those who are in the Health Committee are more interested of course than others. And I also know very well the head of the secretariat in the Parliament of the Social Democrat Party (i.e. Labour), our largest party. He used to be up there in the hospital in the old days. I know him very well and he can also talk very easily. I'm sure it must be more difficult for a given professor of genetics in America to get to talk to with whoever he should talk to.

PSH. Especially now.

KB. Especially now.

PSH. Kåre, thank you so much for sparing the time and as I said, if there is anything else you want to talk about later we can do that, but I'll switch off the machine now. Thank you so much.

KB. Thank you.