The Royal College of Physicians and Oxford Brookes University
Medical Sciences Video Archive MSVA 153

Sir Roy Calne FRS in interview with Dr Max Blythe
Trinity Hall, Cambridge, 12 December 1996
Interview Two, Part Two.

MB Roy, in our conversation earlier this evening, before supper, we got you to 1947 and Guy's Hospital Medical School. Perhaps we could begin this session by talking about that medical course?

RC Well, when I went up to Guy's there were only four of us straight from school, the rest were mainly ex-servicemen. The average age was twenty six and I was sixteen, and this was quite difficult. The majority of my colleagues had been through the war, many were decorated and had been injured. There were some who were well known heroes and we were just from school with nothing, and I think socially this was hard. Also, having now lived in Cambridge for thirty one years I have seen the way students are cared for and worried about by their tutors. At Guy's at that time we had lectures and practicals and demonstrations and then exams, and you passed the exams and went on to the next stage or you failed the exams because you were indolent or inappropriate for being a medical student and you were out. You might get another chance but only one. So that was a strong stimulus to work and the first three years, the pre-clinical years, two and a half years, were the worst of the medical training although we were taught well, but it was a fairly hard grind and you knew that you had to pass each exam. Then we went in to the wards and there was a complete change, that was really interesting because we were introduced to patients. We had our own patients. We called it to clerk them. We wrote up their history, their story and we examined them and we went along with them to their x-rays or any other investigations and to their operations. In fact, we used to take the patients. We were porters for the patients at Guy's. We used to wheel them on the trolleys to the very ancient, old lifts at Guy's to take them up to the operating theatres, assist at the operations and then wheel them back again. Sometimes we used to give them the anaesthetic under supervision, old-fashioned anaesthetics, dropping ether on a mask. And you got to know the patients very well and if things went well with the patient that was fine, and if they died you went to the P.M. and saw what had happened. I think this was a very traditional, apprentice type education but also a very good education, and under those circumstances I think there was a good mess life for the clinical students.

MB Roy, just before we take in those clinical years, lets stay with the years 1947-1950, the pre-clinical years. Were there any teachers at that time who were a major influence?

RC The anatomists were the editors of *Gray's Anatomy*. There was Johnson and Willis, and Spurrell was the physiologist who worked with Starling. I think, he'd been a student of Starling in Oxford. And the physicists were good. They were all very good people. I suppose for my later interests it was Peter Gorer who was the one that I ought to have been most interested in, but in fact I didn't think he was a very good lecturer. He was a fascinating character, a very generous and friendly man with a private income. He was one of the few non-clinicians who had a Rolls Royce. He also always had a cigarette hanging out of his mouth. And he lectured on what he was doing, his experiments in

immunology. I fear because of his method of delivery I didn't fully appreciate the importance of this work until many years afterwards when I realised he had done some of the most important fundamental work in an understanding of the tissue groups of the body.

MB He didn't get it across, though.

RC I didn't think so. I mean maybe it was me as a bad student. We really didn't enjoy his lectures although we very much enjoyed talking to him afterwards and socialising with him. Wright was a pathologist, and pathology was perhaps the subject I most enjoyed. I was interested in what went wrong with organs during disease, how diseases spread and what the process was. It seemed to me, again looking at the car analogy, it was very much like when a car, for instance, is pinking what is the cause of that, and so if somebody is coughing what might be the cause of that. It's rather similar to pinking. And I found that mechanistic analysis of disease, particularly when it was investigated at a microscopical level, to be fascinating.

MB So you got into some of the histology and were excited by this.

RC Yes, I worked at pathology and got the pathology prize at Guy's, but I never had any intention to become a pathologist.

MB I am trying to work out, Roy, whether you were a hard worker?

RC I think we all worked hard because there wasn't any moral tutor hanging around to find out if we were happy, if our parents loved us, if we had the right kind of girlfriend and if we had enough money, and all the things that tutors now are interested in in students. I mean you just came in and got on with it.

MB You mentioned girls, I just wonder whether they featured in your life by this time, Roy?

RC Very seldom, actually. Having been to a boy's public school, we had an attitude towards girls that they must be the most wonderful and marvellous things in the world, and one looked upon them as so perfect and unattainable that that attitude took a long time to change. It did change, but it took a long time.

MB You didn't start dating nurses quite early on, then?

RC No, not many.

MB Roy, staying with that leisure theme, you continued to play sport, you ran for the medical school?

RC Yes, but did badly because at Lancing it was a very slow course, it was up hills and through dykes, there were thirteen dykes you had to go through and being small and I suppose quite wiry, I was quite good around that kind of course. But in London, the course was very much road-racing, and I remember the United Hospitals hare and hounds. There was the inter-hospitals race, and we went to Chingford in Essex and a rather dynamic-looking character turned up with certain accolades around him and this turned out to be

Roger Bannister. And he set off like he was doing a hundred yards for a seven and a half mile race. I got lost, actually, in the dark. I started following the golf course flags and they were getting quite worried about me. We used to have a communal bath and it was cold and there was nobody in it except mud when I got back. So I didn't excel in running.

MB But you got quite involved in chess and captained the team there?

RC I got fascinated by chess. I got to a stage in chess where I felt that if I continued I was probably going to fail my exams, so I dropped it abruptly. But I did enjoy chess. I enjoyed the way in which different patterns of play were worked out and how you could foresee moves. And also then to start reading and how the experts in chess had previously worked out a certain set of moves, so there was a pattern that you could study in chess as well as your own pattern that you could work out, and that's when it became fascinating, but also dangerous in terms of time.

MB Let's move now to 1950. You go on to that clinical course, which you said was a revelation, especially working with patients.

RC It completely changed my whole attitude, I think, as soon I went into the wards and specially during the surgical/junior ward clerk it was called. We used to live in for a week, and at the end of the week of living in we had a party with the registrar and with the senior clerks, and the junior clerks did all the cooking and washing up. I don't know what the senior clerks did, I think they bought the drink, and the registrar drank the drink. It used to be a great party. I can remember the senior registrar in surgery taking us across to the medical block and he stopped us all and said to these raw students, 'You see that great imposing building over there', and we all looked up and he said, 'that is the medical block, that is an edifice dedicated to bull-shit.' I can remember that well now, and whenever I talk with physicians I still have vaguely in the back of my memory, 'Be careful of what they are saying, because is it based on verifiable facts.' In surgery it's different because you make a decision and then you act on it and it either works or it doesn't work and you know whether it is true or not.

MB Roy, you've mentioned that in the living-in periods at Guy's, you felt a special attachment to the hospital, but what we've not ascertained is just where you were living for the rest of the time.

RC I was living, when I wasn't on take, at home in Epsom. The family had moved to Epsom. In fact, one of the reasons for choosing Guy's, apart from my uncle being a dentist who trained there, was that Epsom Downs station went straight to London Bridge station, but that particularly important attraction for Guy's was not the one that was first on my mind to tell the interviewing committee when I went up for the interview there.

MB Had your father, by the way, gone back into the garage business?

RC Yes, he had. He had gone back first of all to his garage which was pretty much wrecked by the war, and developed it again. He was getting old by then, or older, and found it difficult to run on his own and sold it. Then he got a job managing another garage which wasn't his own.

MB While we're thinking about the family, perhaps you could tell me whether your brother was already thinking about medicine? He was still at Lancing, I presume?

RC No, he went to Epsom College which was down the road from where we lived.

MB With a strong tradition of training people for medical school.

RC With a strong medical tradition, yes.

MB Roy, keeping with the clinical course, I want to come back to the surgery, a time, I think, when you met Brock.

RC I met Brock. He was the most distinguished doctor at Guy's and I was on his firm as a senior medical student, that was just before qualifying. He was the best clinician I have ever come across. His ability to listen to a patient's story, examine the patient and then come to a diagnosis with minimal extra information of the kind that we get now from investigations, all our imaging techniques and so on. He had very little of that. He was always in conflict with the physicians and he would make a strong point when he was operating of saying, 'This is a patient. I've got my finger in the atrium and there's a jet of blood hitting my finger, which is regurgitation of blood from the ventricle. You can see in the notes that the physician said there was no regurgitation there, and yet I can feel it with my finger.' And that was kind of evidence that I thought was surgical evidence. There was no way of arguing against it and I think that was really a strong attraction to surgery, that way of thinking.

MB You admired him greatly but I remember, from an earlier conversation, you saying that he wasn't equipped with the greatest pair of hands you saw in surgery.

RC He was a good technician but he wasn't in the superclass class of technician that you put somebody like Denton Cooley in. He used to get very, very uptight when he was operating and he would be very harsh on his assistants. I remember as a medical student occasionally being allowed to scrub for him as third assistant and under those circumstances the job was to handle a sucker and to suck any blood that was obscuring the view. And he used to in derision call medical students, 'doctor'. He handed me the sucker and said, 'That, doctor, is a sucker,' and I was terrified, shaking and holding this, and he said, 'If you see any blood in there, you are to suck it out,' and some blood came and I sucked it out and he turned on me and said, 'Stop threatening me with that instrument.' I took it back shaking even more and blood started to appear and it came to a higher and higher level, and he swung on me again and said, 'What do you think you are, an ornament? Suck, suck boy.' I was learning quite a lot about surgery but also that surgeons who are really confident and technically good are usually much more relaxed unless the situation is in a desperate state. Brock once hurled a swab that had been contaminated with blood, he hurled it across the operating theatre in anger and it hit a junior nurse and she picked it up, threw it back at him, hit him in the face, and he apologised to her. He was generous and realised that he had been overwrought and should not have been throwing things around the operating theatre. Then seeing a surgeon like Cooley operate who had so much technical ability.

MB He was really special.

RC Very special. I think you'll find very few people who watched Cooley who don't speak with awe of the economy of his surgery and the way in which he seems to operate very slowly and yet is finished in quarter of the time most surgeons would take. I think that must to a large extent be a gift, although people who are not technically good can learn; people who are really bad in hand eye co-ordination, I don't think they should do surgery.

MB Just going back to Brock, he was the head of a thoracic surgery unit?

RC He was doing world-class cardiac surgery, breaking new ground.

MB That was a curious and fascinating time for cardiac surgery.

RC It was, and with terrible mortality too.

MB He was splitting valves with fingers and doing things like that at the time?

RC Yes. I got to be friends with Brock years later and I always respected him greatly as a clinician. I remember being up night and day for, I think, two or three days for a child who eventually died and being really upset to have to break the news to him. He said he realised that the child was dying and said 'Thank you very much for working so hard trying to save the child.' And again that is the kind of remark and attitude to a junior that one remembers with gratitude. So I think he was a kind man, Brock, shy and kind, a brilliant clinician.

MB You said he was always inventive, always looking for new paths.

RC New ways to do things, yes. When something went wrong he would look and analyse it. Why did it go wrong, can we make it go right next time?

MB I think in that period of clinical studies you also felt strongly attracted to some of the work you ran into in emergency care units. You found that particularly fulfilling.

RC Yes, I think the appreciation of the fact that time was often a very important dimension in surgery and you had to often make a decision on really very flimsy evidence and act on it. If you didn't make that decision and act on it, the patient's life was at stake or might be lost, so it was important to be non-hesitant and to realise you were taking risks but that it was better to take risks and make an action that might save a patient's life than to dither about and talk about it, which was what physicians tended to do we thought. By the time the patient had become moribund there was no point having gone through all this exercise.

MB So diagnosis at that kind of level was quite fulfilling?

RC Yes, and often diagnosis with limited amounts of information.

MB In those years you had one experience that had profound, ongoing vibrations. You talked of seeing a Bright's disease patient.

RC Yes. Bright was one of the heroes of Guy's in the early nineteenth century and he

described fatal kidney disease in young people. And a young person about my age came in, was my patient, a boy with Bright's disease, and the consultant physician, one of the older physicians at Guy's said, 'You've got to take care of him and keep him comfortable, he will be dead in two weeks.' And by this time I knew enough about pathology and Bright's disease to realise that the only organs that were diseased were the kidneys. Otherwise his body was in reasonable shape, although he was anaemic and somewhat wasted. And I asked if a graft of a kidney might be done to save him and was told 'no'. I then asked why not and was told because it can't be done. One of my colleagues whispered, 'Don't ask any more questions if you want to get a job at Guy's,' because the physician would be irritated by me. So I didn't ask any more questions, but we sat and had a coffee after that, the students, and we talked about this and I said, 'Well, why can't it be done?' And we tried to figure out the surgery and thought that though the surgery might be difficult it ought to be possible. The question of the biology, we just didn't know anything about. But, in fact, at that time which would have been about 1950 or '51, the early experiments on graft rejection had been done by Medawar and Gibson, or were being done.

MB In Glasgow.

RC In Glasgow. Also the first kidney transplants were being done with some success although there had been some sporadic early attempts.

MB In Denmark?

RC No, in Boston at the Peter Bent Brigham Hospital; in man, that is. But in animals some work on kidneys was also being done in England and in Denmark, by Dempster in England, and Simonsen in Denmark. But we didn't know about that and didn't read that kind of literature as medical students, though perhaps we should have done.

MB That was out of the orbit of medical students at that time, these were revolutionary things on the fringe.

RC It wasn't the treatment of Bright's disease or any other disease.

MB Roy, I'm tempted to think that that replacement idea for organs has its origins in watching your father replace carburettors in cars.

RC Very much so. If the carburettor is broken, put a new one in.

MB That's where you were coming from, and it didn't go away, that thought?

RC We talked about it for a bit, but didn't really get anywhere with our discussions. We had lots of things to learn for our final exams, so it didn't get pursued any further.

MB We've put one or two people like Brock on the map for these clinical years. Is there anybody else we should talk about before we move on to the house jobs?

RC I enjoyed all the clinical studies that I did, but the surgical ones certainly more than the medical ones. The general surgeon I worked for was Eckhoff, who was a very good

technical surgeon, also a plastic surgeon. He had been a very good rugby player. He was a very tall, strong man. I remember he came to one of our firm's parties and drove to the pub where we were having the party in a big Rolls Royce, without a chauffeur. He did have a chauffeur, but not that night, and the students all thought, 'We'll make the old man drunk.' So they poured him out drinks, I think it was neat whisky, and the students were drinking drink for drink with Eckhoff. And the students were collapsing on the ground and Eckhoff was smiling and giving gentle anecdotes and more students were coming up like soldiers and then being defeated. Then when almost the whole firm was in a state of delirium he said, 'Thank you gentlemen for a really splendid evening,' and drove back home in his Rolls Royce.

MB Roy, you mentioned rugger a moment or two ago. You had a pretty good XV.

RC The Guy's rugby team was fantastic at that time, it beat Cambridge University in 1947 or '48. Fourteen of the fifteen were South Africans and the fifteenth was captain of Wales. Of the South Africans there were several who were Springboks. Some of them were moderately competent doctors, others had no pretensions to be, but were good rugby players.

MB These are fascinating years and you clearly wanted, I believe, to stay at Guy's for your house jobs but you did apply elsewhere and I think that's a fascinating story.

RC I took the conjoint examinations, I think it was three or four months before the university exam, and qualified early, which quite a lot of us did in those days. And I wondered if some of my indiscretions would mean that I would not get a house job at Guy's.

MB You had been a bit bolshy?

RC Yes, not very, but I wondered. I did apply for a job at Addenbrooke's. Addenbrooke's was the only one which I was short-listed for, and I came up to the old Addenbrooke's and sat in the rather nice room there for the interview and then was informed that I was not selected for the job.

MB You were to remind them of this a little later.

RC I think it was many years later, in 1965, when I was appointed professor at Addenbrooke's. After the interview when I had been appointed, I said, 'I have once before applied for a job here as a houseman, but you didn't think I was good enough for that.' But I qualified then and did get the job. I got first a house physician's job at Guy's, assistant house physician it was called, and Butterfield was my registrar or the equivalent of a registrar in one of the firms I was associated with. He was playing county cricket at the time and said that, 'In the following weeks I will be at Sussex county ground, Lords,' wherever it was he was playing, and said 'I will let you know all the places I am if you need me, but I don't suppose you will need me very often.' So I was a junior qualified doctor but was able to do the registrar's job, and fortunately never had to call him and think he had a very good cricket season.

MB You went on, then, to do surgery with Brock?

RC No, I did surgery with Eckhoff as a general house surgeon and had quite an

interesting experience there. I was woken one night by the porter – we didn't have telephones in our rooms, the porter would come and knock on the door, I don't think there was any heating either except a little gas fire – and told me that I had to go and give an anaesthetic. And I said 'Why an anaesthetic?' and he said 'Because it's written in the ancient rules that if there is nobody suitable to give an anaesthetic in the district for a childbirth, the house surgeon must give it.' So I got out of bed and got dressed. It was freezing cold. And I went down to the liaison point with the rather formidable midwife who provided me with a bicycle and a box which had anaesthetic equipment in it. She had the rest of the midwife things. And we went out to a tenement house in the borough. In those days it was safe for a woman, for a nurse at Guy's, to walk in this rough area of the borough; provided she had a Guy's cape on, nobody would touch her. Things have changed an awful lot since then. But any rate, we cycled to this house and there was a fire burning, and this poor lady had an obstructed labour and it became apparent that she was going to need forceps and that I had to give the anaesthetic. I had always been trained that chloroform was an extremely dangerous anaesthetic because it was so powerful, but that ether was also a dangerous anaesthetic because if there was a fire it would explode. Anyway, I didn't even have to worry about this because the midwife told me that I couldn't use ether and would I get on with the chloroform quickly, boy. So I started sprinkling the chloroform and I was terrified because I knew it was so powerful. I had never used it before, and the patient went deeply unconscious and so I thought 'maybe, I have given too much and she won't survive' so I stopped it. But she woke up and vomited fish and chips all over the bed and so we started again. And the registrar in obstetrics came along to do the forceps and the child was born safely and everything was fine apart from the vomit and various other things that were around at the time. And I was terrified that I would have killed her with this anaesthetic, I had never, ever used it before. I was disappointed when the child, who was a boy, was named after the registrar with the forceps rather than the house surgeon with the chloroform.

MB Roy, I know Brock fitted in somewhere during this internship period.

RC My next job was Brock's house surgeon and that's where I worked very hard and saw, as it were, the cutting edge of heart surgery, the new things that were being done. The first senior registrar I worked with was Milstein, who is now a neighbour of mine. He came to Cambridge. The second senior registrar was Donald Ross, the very distinguished cardiac surgeon who worked in London. This was at a time of great excitement and developments in cardiac surgery. In fact, Cooley, who I mentioned previously, came over as a visiting resident. And Cooley was trained in heart surgery, or had some training in heart surgery, but no training in chest surgery. He told me afterwards that he worked for Brock and didn't really enjoy it very much. He was told to do a bronchoscopy and had not done any chest surgery and had no experience with a bronchoscope. This is a rigid instrument to put inside a patient's windpipe. He was having great trouble and the patient was not enjoying it at all, and the porters were very upset by all this and one of the Cockney porters said, 'Look here Mr Cooley, this is a bronchoscope, you hold it absolutely still and we will put the patient on to the bronchoscope.' So that was Cooley's first bronchoscopy, holding it absolutely still while the experienced porters manipulated the patient on to it. You don't hear that type of story these days, there would be medico-legal implications, and politically incorrect.

MB It was a different world, but that world of thoracic surgery, as you say, was changing.

RC Very quickly.

MB You were beginning to cool patients down, you were at that phase.

RC That's right. Ross developed a venous cooling system, previously patients were put in a cold bath and then when their temperature had been reduced sufficiently they were operated on, but they usually died. The venous cooling also had its limitations, it was not terribly efficient. It was shortly after I did those jobs that the heart-lung machine was developed properly by Dennis Melrose in Britain and by Lillehei, Kirklin and others in America.

MB You say the patients usually died. What were they dying of?

RC I think the procedure, we didn't understand enough about it. What was permissible, what was not permissible, how quickly things should be done. It was a whole new area of interference with human metabolism and physiology that had to be worked out.

MB When you came to the end of those house jobs, you were then clutched by National Service.

RC Yes, everybody did National Service, unless they had some kind of disease. MB That was about 1953?

RC This was 1953, yes. I don't remember having any option except being told that I was going in to the RAMC [Royal Army Medical Corps]. I wasn't asked if I wanted to go in the Air Force or the Navy. I was sent to Crookham where we did a bit of drilling, which wasn't difficult for me having been in the Corps at school.

MB You were quite good at marching, you'd got that sorted out!

RC I was good enough, at any rate. At the end of the short training period, people were asked what they wanted to do, and all my intake wanted to stay in England. They wanted to go to various army hospitals in England to study for their exams of the next phase. I thought it would be very nice to go somewhere else, and there were some punishment postings, or so-called punishment postings – I remember Fayed in Egypt was considered to be one of the worst places to go because the army encampment there was surrounded by barbed wire and it was like going to prison because you weren't allowed out much to mix with the people in the town. And there were others that were not very nice. I said I would like to go to the East. I had always fancied the idea of travelling to the East. And the colonel, who I don't think knew me from any of the other applicants or if he did, he'd certainly heard nothing good about me, heard that it was me who wanted to go abroad and was so pleased that one of the people wanted to go abroad, that he gave me my posting, and then had, I am sure, a vicarious delight in posting all the other people to Egypt and other unpleasant places. So I did well out of that and found myself getting tropical kit, and we went down to a station [Goodge Street] near the Middlesex Hospital which was used as an air-raid shelter during the war – one of the underground railway stations – and then it was used as a marshalling yard, as it were, for people going overseas. And we waited there for several days waiting for a plane to go to Singapore, which was my posting, Singapore and Malaya. And we went off in a converted Lancaster bomber which was

an extremely unpleasant way of travelling, extremely noisy. It travelled at about ten thousand feet and got all the turbulence and was pretty slow, but it stopped in some interesting places, first in Rome and then in Bahrain and then in Karachi, where everybody got quite severe dysentery, then in Calcutta then in Bangkok and then in Singapore. It took about a week, nearly a week to get out. So that was the beginning of my army service, which turned out to be extremely interesting and rewarding.

MB You spent time with the Gurkhas, I believe?

RC I wasn't immediately with the Gurkhas. I was first in the big army hospital, BMH Singapore, where I did some surgery mainly for gunshot wounds from the war that was going on in Malaya at the time. Then I was posted to the Gurkhas in Hong Kong. I remember landing in Hong Kong, and again in one of those planes, a similar plane, and one of the young National Service officers came out to meet me, who was just about to leave. He'd been in Hong Kong for two years, and he was welcoming me and going to show me where to go. We were walking along the tarmac and the colonel in charge of the Hong Kong garrison, the RAMC part of it, came up and shook this fellow by the hand who had been there for two years and said, 'Welcome to Hong Kong.' He had Hong Kong flashes on, I had Singapore flashes. That was a fairly good representation of, at least, how we felt about the RAMC at the time.

MB Which didn't assist your impressions of top administration.

RC No, it didn't at all. Then I was in the military hospital in Hong Kong on the Kowloon side. It was called the 33rd General Hospital and was in what had been a Catholic girls' school. I had been there for a short time and then posted to a Gurkha regiment, the 2nd Gurkhas. That was a complete change of life for me and very interesting. We were on the Chinese frontier, our regiment's duty was to keep the Chinese out for six hours while the important people left the island by plane. And I had an RAMC medical supplies box. The chap I was taking over from said 'That's the box, it's locked. Don't ever open it, it's absolutely correct. These are the instruments we use which have come from here and there.' The quartermaster had, apparently, been very fortunate because the year before there had been a typhoon and he had been able to write off all the things that were wrong on the various records of the quartermaster's stores, on the medical side and all sides. These were extra instruments so those were the ones we used. We never touched the ones that we signed for. He said, 'You will be bored out of your mind here, you will go mad. You can buy my ukulele and learn to play that, and that will give you some respite from the boredom.' In fact, it was really rather interesting because the Gurkhas had their families there, so I did a general practice for the families for the women and children first and then we had breakfast because we had been up early in the cool of the morning, and we had mulligatawny soup. We were woken up by a pint of tea with curry powder in it and that tasted revolting to begin with, but after about three months if you had tea without curry powder, it tasted like water. Then mulligatawny soup for breakfast which if it wasn't hot enough you put a little chilli and sherry in it to spice it up.

MB That sounds a pretty tough nutritional regime to get into.

RC The Gurkhas were marvellous people and I have never met anybody who worked with Gurkhas and didn't like them. They are the loyalist of troops and the

fiercest and most wonderful soldiers. Their interests, as far as we could tell, were limited to four things: the first was women, the second was drink, the third was gambling and the fourth was fighting. I don't recall anybody who had come upon a fifth but there may be one, there may be one Gurkha who had a fifth. Those characteristics, of course, made for marvellous troops and they were as tough as nails. They would invite the British officers to the mess, especially the young ones. They used to delight in giving them neat Indian rum and instead of biscuits, green chillies to chew. And if you didn't chew the chillies and drink the rum, that was a terrible loss of face, and if you did nobody could see your face because it was streaming with tears.

MB You lost either way.

RC That was quite a tough baptism.

MB Roy, you got into a kind of political scrape there about streptomycin.

RC The Gurkhas, when they came down from the Himalayan mountains were very susceptible to tuberculosis, and I had a young soldier who had developed fairly acute pulmonary tuberculosis and I wanted to prescribe streptomycin. I was told it wasn't allowed for foreign troops, only for the British troops and I, as you say, have always been a bit bolshy and revolutionary, and I wrote back to the administration to say 'I thought this a rather bad decision and that my Member of Parliament might be interested to hear about it,' and the streptomycin came the next day.

MB Solved.

RC That was solved. It's a sad thing that that is the way in which some things have to be decided.

MB What was life about as a medical officer to the Gurkhas, Roy?

RC Well, the work was not very great. The Gurkhas never complained of anything unless they were really sick. I remember in Singapore when there were riots in the street, all the Gurkhas reported because they wanted to quell the riots. Even a chap whose leg was in plaster right up to his thigh said he was fit to go on to service orders. And I said, 'But you can't, you can't walk,' and he said he would much rather do that than stay alone in the sick bay. So there was certainly no shirking amongst them. They were marvellous people to work for. Even years on, I think it must have been thirty five years on, I was examining in Hong Kong in the University and my old regiment was again stationed in Hong Kong and I phoned up and asked if I could come and visit and the British officer I spoke to was a bit off-hand and didn't seem to want to know. He said if I phoned again he would see if it was suitable, and then he apparently spoke to the Gurkha officer who had been a recruit that I had actually examined when he came in to the regiment, he was now a Gurkha major, and the tone of voice had changed completely. So I went back there and I was treated like royalty. I went to the Gurkha officers' mess, which was much more friendly towards me at any rate because they remembered me from the old days. There were two of them and they had pictures of where they had been on duty in Buckingham Palace and that was the greatest moment in their lives to have saluted the Queen directly.

MB Roy that particular period was ennobled by your marriage. We haven't taken in

that strand of the story but it takes us first back to Guy's and then we just have to come back and hear about the 'Violet Madonna'.

RC My wife, I first met as a nurse at Guy's when she had her appendix out and I was a house surgeon. We had been friendly for some time and when I went in the army, she also joined the army and was posted to Northern Ireland and I was posted to the East and we corresponded. We were not engaged but we corresponded and obviously kept up a fairly close relationship by letters. I don't think people write letters much these days.

MB It was pretty serious.

RC By the time that I had been with the Gurkhas nearly a year I got a sudden posting. This is, of course, what happens in the army, everything seems to be going fine and then you get a letter saying you're posted somewhere else. I was posted to Japan and I was meant to get on a troopship and go up to Japan. So I was not very pleased about this and there was no way in which you could appeal about it, you just did what you were told. So I packed all my things, and my friends at the hospital, the 33rd General Hospital, the medical friends had a farewell party for me. We had a super party, very enjoyable, very bucolic, and we sang many songs. We used to have a repertoire of two hundred odd songs.

MB You sang them all.

RC We got through them all and at the end of this jolly evening, I had an old Sunbeam Talbot, a drophead Sunbeam Talbot, a marvellous car, I drove off and on the outskirts of Kowloon was stopped by a policeman. I suppose these days you would be breathalised but in those days he wanted a lift to his village which was just next to my camp. So I took him to his village and said 'Goodnight.' He was a Chinese policeman. The next day I got all my things together and was taken by jeep to the troopship. I was given my state room, which was quite a nice room, and I was thinking how sad it was to leave the Gurkhas. And the ship was within an hour or two of disembarking and suddenly the door burst open with two military police and a colonel – an officer had to be arrested by another officer – and I was arrested but could not understand why on earth this should happen to me. They said, 'You are arrested for defiling the statue in the 33rd General Hospital.' I said, 'What statue?' and they said, 'The statue of the Virgin in the front forecourt of the hospital.' I wasn't really aware that there had been a statue there except maybe subconsciously that there was something under the hospital. Anyway, I protested my innocence but nobody believed me and I was up before the colonel in charge of medicine at the NMS, with legal experts, and told I was going to be tried and court-martialled for defiling this statue. And I said that I had nothing to do with it and they said, 'We know you did it.' So I said, 'How do you know I did it?' They said, 'You had a party,' and I said 'Yes,' 'So you must have done it.' So I said, 'Why was it me?' They said, 'We know your attitude to the army.' I said 'I am sorry about that, but I didn't have anything to do with the statue.' Then I remembered the policeman and I said, 'There's a policeman who lives in such and such a village who I gave a lift to his home, and I gave a lift to his home at a time when the statue was known not to be painted.' They didn't believe this but they did have the grace to follow up the policeman, and the policeman came forward and was extremely grateful for this lift that he had been given and extremely accurate in the time that he was picked up and went back to his wife in the village. So they realised that they had made a mistake and dropped it and by this time the ship had arrived in Japan and I went back to the Gurkhas. A couple of weeks later my

future wife arrived by plane in Hong Kong. So it is amazing how one's life is changed. The statue had been covered in gentian violet which, of course, was another reason why I was suspected because this was a dye used in histology laboratories, but I wasn't working in a histology laboratory. And a few months later – one of the duties of all the medical officers, once a month, I think, was, to see the ships off to make sure that there was no infection coming or going. I saw a troopship off and as this troopship was going and all the ribbons were breaking of the loved ones holding each end of them, there was a voice coming from one of the windows, and one of the technicians from the histology lab said, 'Hi there, it was me that painted the statue.'

MB A great incident that made it possible quite soon after for you and Patsy to get married.

RC Very soon after, I suppose maybe two or three months after.

MB And she had to leave the Nursing Corps.

RC When we were married she was a QARANC [Queen Alexandra's Royal Army Nursing Corps] and they were automatically excluded from the army as official nurses but she got a job as a civilian nurse then. The day after we were married, the regiment sailed to Malaya on a beautiful Dutch boat called 'The Tjwangi', and so we had a marriage in Kowloon and the night after the marriage we embarked on this boat, which was a marvellous honeymoon on the China Seas.

MB But when you get to Malaya it is not all sweetness and light?

RC Well, I don't think life ever is. I remember there was a regimental band that said goodbye to the boat and another one that welcomed us, and the army had some style, which I can remember with pleasure. Although I look back at the time I spent in the army as if it was a marvellous two years, I came across some letters I had written to my mother at the time expressing my views of the army from close quarters, and they are very different from the way I look back on it now.

MB You were stationed in the middle of Malaya.

RC The regiment was in Kuala Pilah which is a little village near Seremban which is bang in the middle of Negeri Sembilan, the state in the middle of Malaya, it was called then. And my wife was in Seremban with another army wife and I would visit her from time to time and otherwise be with the regiment in this jungle village, which was not a very nice place. It was full of mosquitoes, malaria and people who wanted to shoot you, although the Gurkhas seemed to enjoy it very much.

MB That was just in their line, Roy. When you finished that service in Malaya, you were put on a ship and returned home, is that what happened?

RC Yes, but the Suez crisis blew up just at the time we were going back. We had been promised that one of the RAF planes returning would take Patsy home for a nominal fee but they were all requisitioned and had to go because of Suez and there was no possibility of her going on that. I was posted to be a medical officer to a troopship which, in fact, was a Norwegian liner hired by the British army. We packed up our little,

meagre apartment in Singapore and I had to go out and meet this ship with the pilot boat. At that time, there was no known way by which I could get my wife back. I had no money to do so and the army wouldn't bring her back. So I left her crying on top of the tin trunk, to go and meet this ship, but I said I would do my best to find a place for her on the boat. I got out to the boat which was skippered by Norwegian captain and there was a German doctor, and I had to look over the medical side of things. The German doctor when he heard my story, just couldn't believe it, Germans being so full of humanity, and he told the skipper and the Norwegian skipper also couldn't believe it. He said, 'I will hire your wife as ship's nurse and pay her one Norwegian crown a day and that will ensure her a passage. So when I got back and told my poor sobbing wife that I had arranged a passage, she was more than a little pleased. The best thing about going back was because I was an official ship's doctor and she was an official ship's nurse we were given one of the best berths, and some of the bureaucrats that had refused to help in any way, although they were senior in rank, were given worse berths. We were pleased about that.

MB So you floated home in rare style.

RC We had to work quite hard. It was a six week trip around the Cape and the first stop was, in fact, Cape Town and we had the marvellous pleasure of sailing through the South Indian seas, the Indian Ocean, with several albatrosses following. And we used to watch these birds following the boat, like the 'Ancient Mariner'. You saw these birds without any apparent action in their wings. We reached Cape Town after three days without any beer and the troops were near to mutiny. The first thing they had to do was to send out a beer boat before the boat had docked.

MB To ease the tempers.

RC I think there were four or five hundred troops on this boat. We stayed one day in Cape Town and then a day in Tenerife, so it was a long trip.

MB When you get back to England there is no job and you have to start looking for one. Was that easy?

RC No, nobody wanted me. I wanted to do a job in anatomy, to take my fellowship and do an anatomy teaching job. I hadn't many credentials to do an anatomy teaching job although I had done a little teaching of anatomy in Singapore. I didn't know very much anatomy and I wasn't very well-qualified to teach it. I first of all tried Guy's, and they had had enough of me. I tried all the other hospitals in London and nobody seemed to have a job available. My brother was an undergraduate at Oxford studying medicine at the time and was actually doing anatomy then, and said, 'Why don't you come and see the professor of anatomy, Le Gros Clark, who is a very nice person and I am sure will speak to you, if he has got a job.' I went up to Oxford and it just so happened that somebody had decided to go to America and stay there instead of coming back and teaching, so he gave me a job as a departmental demonstrator in anatomy at £250 per year, which wasn't much even in those days and it had no college affiliations. So it was only a kind of a half-baked job but at least it was a job, and at least I could teach anatomy. That was the job I got when I got back.

MB This was '56.

RC This was ’56, yes.

MB And you started to pour into the anatomy books, keeping ahead of all the students.

RC No, the students were ahead of me to begin with but I didn’t like that very much so I had to get ahead of them, yes.

MB You and Patsy got a nice little apartment there.

RC It was very little. I don’t know about it being nice. It was very noisy and the people upstairs kept us awake at night, and the people downstairs, we kept them awake at night. We had unfriendly neighbours above and below.

MB I think you mentioned that on one occasion while you were there you were able to give a curry supper to the Le Gros Clarks.

RC Well Le Gros Clark had worked in Borneo as a youngster and liked Eastern food and we invited them to supper and my wife cooked, I think, a very good curry with the meagre amount of money that we had. When we were finishing it Lady Le Gros Clark said, ‘How sensible of you to have a curry, I always use the left-overs...’ And before she could finish the sentence, she screamed because he had kicked her under the table. The next morning he called me to his office and said, ‘Your wife is very thin, and I don’t seem to be paying you very much so I am going to put your salary up by £150.’ So that was a very good meal that we gave them.

MB How did you enjoy getting into that anatomy teaching?

RC I liked teaching and I was interested in anatomy, I knew I had to study anatomy, I worked very hard at it. The primary fellowship I had to pass. I was not going to get another chance because we had no money. My mother used to bring us up parcels of food with cakes she had cooked. We had no car, and rather old bicycles. My wife was working as a nurse and being paid very little at the Radcliffe. So it was a hard time and there was no option but to work hard and get the exam and I was very lucky because I came top in the exam and got the Hallett prize. My wife was working first at the Radcliffe and then for a dentist, because she had also done some dental nursing, and I remember he gave us half a bottle of champagne to celebrate on that occasion, which was something rather special. The prize itself wasn’t worth much, it was worth £10.

MB That was the primary (FRCS), and the actual fellowship soon followed, I think.

RC Yes, about a year later.

MB So you got that out of the way. This period was marked, I believe, by an interesting visit to Oxford by Peter Medawar.

RC Yes, Peter Medawar, he was Professor Medawar at the time at University College in London, and he gave a talk to the medical students and graduates. He was the most wonderful lecturer. He was tall, good-looking, extremely articulate. If he went into a room all the girls swooned, and the men would be asking him questions and feeling

wonderful if he noticed them and replied to them. At any rate, he gave this talk on the grafting experiments he'd done, particularly on immunological tolerance in which he had been able to fool the immune system by injecting into embryos, cells from a potential donor. Then if the embryos became adults they would accepts skin grafts from that donor. He showed pictures of white mice with black skin grafts and black chickens with white feathers, when they had joined the eggs together. At the end of the lecture one of the students asked him a question, 'Is there any possibility that your work can be used for the treatment of patients by transplantation or grafting?' And he thought for a moment and said two words, 'Absolutely none.' I was shocked by this, and my brother was with me in the lecture and we went to a pub in Oxford and were arguing until the pub closed. I said 'There must be, you saw those pictures.' Anyway, he ended up by saying 'Professor Medawar is the world expert in this subject, and he says there is nothing, so you might just as well go to bed and forget about it.' The next day I went and saw Le Gros Clark, my professor of anatomy, who I knew was a friend of Medawar's and I said, 'When I finish this, I would like to go and work with Medawar, would you write him a letter of introduction.' And he said, 'Medawar is a very busy man, you go and learn to do hernias.' So it was a lot of encouragement I had. First of all it couldn't be done, don't ask any more questions. Then there's absolutely no chance and don't ask any more questions, go and learn hernias. So it was a good stimulus to get into transplantation.

MB I am pushed at this point to ask, Roy, whether since the time you had seen the Bright's disease patient at Guy's and pressed questions about the possibility of transplantation, right up to this point of Medawar's visit, whether transplant surgery had really crossed your mind.

RC No, because having been told by the physician at Guy's many years before that it couldn't be done, I thought that it could be done, but the expert who had led me into thinking this didn't think that it could. It was interesting, exciting, but also, in a way, disappointing.

MB How did it progress from there?

RC I went to learn how to do hernias! I got the fellowship shortly after that, the final fellowship (FRCS), and looked again for a job but had great difficulty. I went to all medical schools, I was on the dole for a short time because I couldn't get a job, and eventually got a job at the Royal Free Hospital. And one of the consultants there, who was my boss, John Hopewell, said, 'I hope you are going to do some research.' And I said, 'I would love to do some research.' So he said, 'What do you want to do?', and I said, 'I want to work on transplantation.' He said, That's not a bad idea. How are you going to do it?' I said, 'I have read a bit about it now,' and it wasn't much to read about, 'I'd like to irradiate animals and do transplants.' 'How are you going to pay for this?' There was no department of surgery, no academic department at the Royal Free then. I didn't have any money. Hopewell was doing research at the Buckston Browne Farm, which is part of the College of Surgeons, and he introduced me to Professor David Slome, who was professor of physiology at the College of Surgeons, and David Slome listened to my story and said, 'I am interested in transplantation too. I'll tell you what, I'll let you try and learn to do kidney grafts in rats,' because there was no technique described then, there was no literature, nobody to learn from. So I worked hard at this and succeeded with only very minor surgical success of kidney transplantation, only for a short period of time. I remember once taking a rat home in the fog to keep warm by the fire overnight. Any rate,

Slome came one night, when I was working, to the laboratory and said, 'You are not having much success, but you are keen and I'll let you do one kidney transplant on a dog.' So I went to the Buckston Browne Farm and did one kidney transplant on a dog, and although I had never seen it done before and had only read the rudiments of it, the dog survived. This was an autotransplant, taking it out and putting it back. And he was very impressed with this and, actually, I was quite impressed, especially looking back at it when the next six or seven experiments failed. But he let me, with no official funds, go on and do some experiments with irradiation.

MB All your attempts to stop rejection were by...

RC X-rays.

MB X-radiation of the bones.

RC Of the whole body. We used to use the cobalt machine of the Marsden Hospital which was out in Surrey. When all the patients had finished with their irradiation for the day, I was allowed to come in and do my experiments. My wife helped me and the experiments went on all night. When you think of all the x-ray protection and regulations that there are now, a technician just said to me, This is where the irradiation comes from, this is the button you press to make it start and that is the button you press to make it stop.'

MB And be out by seven-thirty in the morning.

RC And be out by seven-thirty in the morning! And these experiments were very unhappy experiments because they didn't work. They were very toxic, the irradiation, and it didn't stop rejection. So I was quite convinced there was no future in irradiation as far as organ grafts were concerned, maybe for bone marrow but not for organ grafts.

MB But people were using this method with patients?

RC They started using it, there were not many that had been done then, but they were started. They were led astray by the fact that there were two successes in very close relatives, non-identical twins, and because of those successes it was suspected that you could use it and get success with non-twin transplants. But there were no other successes.

MB One hundred percent failure.

RC One hundred percent failure. And I thought maybe we could use some kind of drug to stop rejection which would be less toxic.

MB That was a new idea that you put into the field, Roy?

RC I think a fairly new idea because I don't think anybody else had tried drugs at that stage. But, of course, drugs were used for treating leukaemia and one of the anti-leukaemia drugs was 6-mercaptopurine, which I heard about it through a rather round about way, because in the literature the only person who had used drugs that I had seen was Dr Kendrick Porter, a junior pathologist at the St. Mary's Hospital. He had worked with an anti-cancer drug called thiotepa and had found slight prolongation of skin graft survival in

rabbits using that drug. He wasn't very happy about it because it was only a slight prolongation. I phoned him up and he was extremely friendly and said, 'Come round and have some tea.' I went to St. Mary's and we started talking about it and he said, 'You know I am glad you came today because look at *Nature* this week.' And in *Nature* that week was a paper by a haematologist in Boston called Schwartz, working in a very prestigious department, Damashek's department at Tufts University. And he had used the anti-leukaemia drug, 6-mercaptopurine, to stop rabbits producing antibodies against human protein, and it was very effective and it lasted even after stopping the treatment. We both read this very carefully over our tea and, since Porter was skilled in skin-grafting and, I wouldn't say was I skilled, but I could do kidney transplants, we decided we would each work with 6-mercaptopurine. He would work with skin-grafts. I would study the drug in kidney-grafts. And I went off to the Buckston Browne, did some kidney grafts, treated the animals with 6-mercaptopurine and they didn't reject the kidneys at the time they were expected to. Some of them lasted quite a long time and the technician there [Frank Watson] had worked with Dempster, who no longer worked there, but had done kidney grafts at the Buckston Browne farm and the kidney grafts had always failed at five to ten days. I had some dogs with kidney grafts working at a month and so the technician was really excited about this and said that he had never seen anything like it before. I was excited about it too and Professor Slome was excited about it. I phoned up Ken Porter and I said, 'You remember those...' Before I could tell him my results he said, 'You remember those 6-MP experiments that we were talking about, don't try it because I have tried it in skin and it doesn't prolong skin grafts.' So I said, 'It's lucky we had the summer holiday and we didn't speak earlier because I have tried it in kidney grafts and it prolongs them very significantly.' One talks about how valuable it is to have communication between scientists and how this interaction is so important in getting work done, but it was the lack of communication that was of value in this particular case! I published that article on the subject in the *Lancet* in January 1960 with much support from Slome. And Slome was the most wonderful man who was passionately interested in physiology, but particularly in transplantation biology, and he died last year, nearly ninety, preparing a lecture, still teaching students. He was a born teacher and he told me shortly before he died, at a dinner he attended, that he had borrowed from his department one hundred pounds to allow me to do those experiments and forty years later paid back one thousand and ten pounds which was the money that he had borrowed from his department plus the interest, in order to let me do the experiments. A man of amazing integrity. I don't think he was appreciated at the College of Surgeons because when he was forced to retire from the College of Surgeons, he continued to teach and all the students went to him rather than to the college lectures because he was such a good teacher.

MB Roy, it was in this period that you began to have thoughts of a full-time research appointment, an idea that, I believe, you discussed with Medawar?

RC Yes, I decided it was time to speak to Medawar because I did want to go and do research without interference of other duties. I phoned up his secretary with some trepidation having been told about what a busy man he was, and she said, 'I'll put you through to him.' I said, 'No don't, he's a very busy man,' but she said, 'No, I am sure he would like to talk to you.' And she put him straight through to me and he was absolutely charming, and said, 'I've read your paper in *The Lancet*, come over next week, we are having a colloquium and we are going to talk about transplantation and I would like you to talk about your work.' So that was really one of the most important meetings I ever went to, this little meeting with Medawar. He was fascinated by the work and full of

encouragement.

MB And made arrangements for you to go to Boston?

RC He agreed that I ought to go and do research for at least a year and he gave me a lot of suggestions. And I said, 'Look, I really want to be a surgeon, I don't want to be an immunologist, it would be better if I went into a surgical department that is interested in this.' So I thought that Doctor Francis Moore's department was the right department to go to at the Peter Bent Brigham Hospital in Boston, part of Harvard Medical School, where Doctor Murray had done the identical twin transplants, and I got a Harkness Fellowship to go and do that, which was very fortunate.

MB Roy, at that point we are coming towards the end of a reel and a fairly long day, so let's wind down and take up the conversation tomorrow.