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Partner:	The Connected Histories of the BBC research project was led by the University of Sussex, 2017-2022, funded by the AHRC.
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Oral History of the BBC: Sir Francis McLean

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O R A L H I S T O R Y O F T H E B B C

SIR FRANCIS McCLEAN INTERVIEWED BY FRANK GILLARD C.B.E.

Recorded 25th October 1984

Formerly Director of Engineering and a Member of the Board of Management.

Recorded at Sir Francis's home in Newbury, Berkshire.

Corrected Script from McCLEAN 9 went to Frank Gillard 18/9/86

GILLARD: Now although you actually didn't join the BBC proper until the mid thirties or thereabouts you in fact saw something of it in much earlier days, so could you begin, you were a Western Electric man I believe, could you give us a little glimpse into the affairs of those massive companies which ultimately were obliged to come together to set up the British Broadcasting Company ?

McCLEAN: Well I hope so. When broadcasting started I was still at the university and I made myself a receiver, as most people did, and when after I graduated I decided that I'd take up a job in broadcasting. But I was still interested in developments, well at that time interested in the development side and I had quite an attractive offer at that time from the Western Electric Company. So I joined the Western Electric Company and they were one of the original companies that formed the British Broadcasting Company.
In the .. I think there were something like half a dozen firms, chiefly receiver firms who formed the BBC and two of them were sort of dominant, the Marconi Company and the Western Electric Company.

Marconi did the operations in London and Western Electric who at one time had a transmitter just off the Strand moved out of London and went down to Birmingham and set up the 5IT station. And immediately after I had joined the Western Electric Company as part of learning what's what I was sent back to Birmingham and went to the 5IT and spent a little time there, well just a few days and I met Percy Edgar and Jack Cooper who was the EiC of the studios and a few other people and Frankie Williams who was .. I am not quite sure what position he had but he was at the transmitter which was at the Summer Lane power station and I was interested the other day

to hear this flashback of the troubles at the new London station which is at the Lots Road power station and I thought here we are 50 years afterwards we're back putting aerials up power station chimneys.

Anyway I spent this time there and I was asked by Frankie Wiliiams whether I would like to join the BBC. But maybe foolishly or maybe wisely I wasn't attracted by the BBC at that time, it seemed to be purely an operating organisation whereas I wanted to do something on the design and development side so I said thank you very much and I stayed with Western Electric and I went into tranmitter development and design and worked in quite a few countries. I was working in France for a large part of the time but also Czeckoslovakia and Hungary and so on and the question of joining the BBC didn't come up for quite a few y e a r s .

GILLARD: While you were in Birmingham in the 5IT days, this must have been quite early in the 20s, 24/25 something like that ?

McCLEAN: Yes it was 1925.

GILLARD: Tell us a bit about Percy Edgar, tell us a bit about the studio.

McCLEAN: Well as a Birmingham man you see I had known Percy Edgar before the days of broadcasting and he was a performer at concert parties and I had actually been to quite a number of concert parties where he gave recitals and sang songs and I like him and he was very good. And when the Western Electric people went to Birmingham to set up the 5IT station, they looked round for somebody to handle the programme material for them and they got hold of Percy Edgar and he did a very good job. When I went there I spoke to him the studios were in New Street, and as I remember it was just a single room about twenty feet square, ten or twelve feet high or maybe a bit less than that,very

heavily draped all round with a piano and just two microphones; the control room was a little cubby hole and the .. studio equipment was very simple indeed there were no faders, the attenuators went up click by click in level and it wasn't possible then to switch from .. to fade from one microphone to another but it was just a plain switching job. And the pick-up from gramophone recrods, they were put on an ordinary gramophone and the microphone was placed in front of the gramophone horn and that was it.
Although I did see there that there was some experimentation being carried out there with a magnetic pick-up for gramophone records.
It was a very simple operation and as I said before the idea of spending my life doing this didn't appeal to me then.

GILLARD: But ten years later you came into the BBC, tell us about that how it happened.

McCLEAN: Well ten years later I had quite a contact, a number of contacts with the BBC, chiefly in respect of the Empire station at Daventry and I knew one of the men from the research department, Dr. Wilson was an old Western Electric man who I'd known when he was in Western Electric and on the Rugby job and he asked me if I would like to join the BBC in the Research Department which was much more in my line than joining O and M. So I said yes I would be quite interested and so he arranged for me to go and see Bishop. So I went to see Bishop and we talked about things.
He seemed to be favourably impressed and I had asked the BBC for the same salary that I was getting at Western Electric, or Standard Telephones at that time. But Bishop said that he didn't think he'd go that far and he offered me fifty pounds less.
Well I wasn't so keen to join the BBC as all that and I didn't like the idea of stepping back in salary, so I said thank you very much no I can't accept anything less. So that was over.
Then about a year later McCarthy, who ran the station

design installation department spoke to me and said would I like to join the BBC and I said I would consider it. And he arranged that I should see Ashbridge.
So this time I went and I saw Ashbridge and told him what I'd been doing and what I thought about things and I told him again the same salary that I was getting with Standard Telephones.

And Ashbridge said all right we'll make you a formal offer. So I came away feeling that was all right. And then I was surprised to get the formal offer from the BBC which was fifty pounds a year more than I had asked for. So I thought well this firm has got the right look-out. Afterwards I found of course that if I had come in at the salary I had asked I'd have been on the roof of grade b and by putting me up fifty pounds they had put me on the floor of grade a or a1 as it was in those days which was a much more satisfactory situation.

So I gave three months notice to Standard Telephones that I was leaving and I started with the BBC on 1st January 1937.

GILLARD: And what did you make of the BBC I'd like to know ?

McCLEAN: It was a great shock to me. I was depressed at the speed with which things were done, it was frightfully slow, approval had to be obtained from all sorts of people to spend minimum amounts of money. My department head was McClaherty and he had to get approval from the management to spend something less than 10% of the sum that I had been accustomed to spending on my own bat in S.T. & C. This slowed up things enormously. There seemed to be no, there was no broad definition of what we were trying to do for how much and stations were built and as people thought about we ought to have a so-and-so so money was requested for that and as far as I could make out

nobody ever said that we were going to say Start Point for instance which was one of the jobs that I did, that we were going to spend so much on building Start Point, we just sort of built it up gradually.

And the number of people that turned up from all sorts of departments to express an opinion .. we were just completely tied down and I got very depressed having been, had quite a fair amount of liberty to do as I wanted in S.T. & C.
So after just over a year I was very browned off with the BBC and S.T. & C. had been sorry to see me go and they were approaching me as to whether I would go back and I think I probably would have gone back had it not been for first of all Munich and then the outbreak of war.

Munich triggered things and things started to happen. At Daventry we started doing things much more actively and it was realised that quite a lot of things had to be done on the domestic service and it sort of revivified the thing and I felt I was doing something and so I stayed and then of course I had another approach during the war as to whether I'd go back to S.T. & C. to handle some wartime work that they were doing. Well it happened at the time that I was very busy with the big expansion of the short wave field so again I said no thankyou and after the war I suppose I was too old to think of a change and so I was left with the BBC.

But the pre-war BBC for somebody who wanted to get something done was depressing. The post-war BBC at times was a bit depressing but nothing like as much so.

GILLARD: The BBC was very extravagant with manpower wasn't it before the war ?

McCLEAN: Oh it was fantastic. In S.T. & C. immediately before the war we put into Switzerland a transmitter very similar to Start Point and the Swiss

operated this transmitter with four men total. And they operated it from six in the morning till midnight and mind you before the war the BBC didn't start up until I think it was ten thirty, and they did all this with four men. And the BBC at Start Point had twenty seven ! And people falling over each other and it wasn't clear who did what and demarkation things, the whole thing was chaotic. And that seemed to me the position throughout. The buildings were extravagant, they were laid out much bigger than they need have been, sort of distributed lay-out. More people were employed than need have been oh I was very depressed by the BBC. And before I joined the BBC we had designed some transmitters in Hungary that were completely unattended, they were remote controlled from forty miles away and nobody on the station at all.

I told the BBC people about this, first of all they didn't believe me but I said it was so, but it wouldn't do for the BBC we had to have these checks. There were two people checking the incoming programme quality and a man checking the outgoing programme quality, oh it was just fantastic. Anyway that was the way the BBC had sort of built itself up.

GILLARD: You were involved, were you not, in transmitter development and short wave transmitter development particularly in the late twenties ?

McCLEAN: Yes I first of all became involved in short wave development with S.T. & C. who supplied the transmitters. The original short wave transmitters of course were Marconi at G5SW at Chelmsford and then as a great feather in our cap we in S.T. & C. got the order for the Empire station at Daventry, we were very pleased about this and I was engaged in the design of those transmitters and the transmitters that followed them these were Senders 1 & 2 and then we had Senders 3 & 4 and so on. And I was very actively engaged in the design of these and in a way I was sorry to leave S.T. & C. on this design thing but part of the reason

why I joined the BBC was that S.T. & C. had a personal problem, they had two men, both of whom I admired very much, running pretty well in parallel. These men were only 4 years older than I was and I thought there's no future for me here, that finally they have got to amalgamate these two and have one man and one man will be top and the other man second and I will be way down the line. So I decided I would cut out of this design work for S.T. & C. and I joined the Transmitter Design for the BBC.
And the first station, as I have already mentioned was Start Point and then the short wave stations at Daventry which was the start of a very big expansion both from the transmitter point of view and from the aerial point of view.

The first at Daventry, the Empire Station, S.T. & C. had designed the transmitters and designed the aerial system and it was almost what these days would be called a turnkey project in that S.T. & C. had done the whole thing. But then the BBC took a hand and the Research Department started designing things and from then we went on and produced the complete design for a short wave transmitter.

GILLARD: And we come on now to the BBC's technical preparations for World War 11 which you were deeply involved in.

McCLEAN: Yes as far as I remember we hadn't done anything before Munich.
There had been talk that something ought to be done but I can't remember any positive action being taken. But after Munich things really did start happening and we started a synchronising scheme which was, went under the generic title of civil protection and we put in these very high precision oscillators to fix the wavelength of the stations and the country was divided up into groups and we had the various stations identified as to which groups they would go in. The intention was of course that with the synchronised

group and with the signals coming from a number of directions that enemy aeroplanes would no longer be able to use direction finding onto any given station and they would get a confused reading.

So on each of these channels we had I think about 5/6 transmitters and we had instead of the dozen or so channels which were in use throughtout the country before the war, we came down to I think it was four channels in use and all the stations were allocated one or other of these channels. And a means was set up so that if the enemy planes got too near then the whole of that group closed down.

And this worked remarkably well. We kept the broadcasting service going very well indeed. All the transmitters were set up on their new wavelength outside hours and the various settings of the coils, condensors and so on were all marked with paint so that when the time came we could have more or less instantaneous changeover on the peacetime operations to the wartime operations. And as I say this worked well. Quite a number of areas didn't get adequate coverage and the Group H scheme was set up to cover this.

GILLARD: What was the Group H scheme ?

McCLEAN: The Group H scheme was a number, it got to nearly a hundred and we started off with the first twenty and then like everything else it was found that there were other areas to be covered and these were all synchronised on a common wavelength and they could remain in operation, they were powers of about 100 watts and they could remain in operation until an enemy aircraft was virtually on top of them.

GILLARD: They were therefore very low powered stations?

McCLEAN: Yes about 100 watts.

GILLARD: Very local range ?

McCLEAN: Very local range I suppose the range was about ten miles or something like that and we had them in all sorts of places, they were right down on the south coast at Margate and Dover and inland and it was a very comprehensive network. To get these number of transmitters we had to get what we could of professionally made transmitters, though we made quite a number ourselves and got various firms in industry to make things and we improvised the whole thing on my office wall I had a big chart about five feet down and about eight feet wide, vertically we had these nearly hundred names of the stations and then horizontally there were about 30 columns of where the various bits and pieces were coming from and whether we had got them and so on and at a glance we could see how we were doing and what we were short of and what we had to get.

We did another thing that fortunately we didn't carry out and that was somebody got the idea that we ought to jam Russian, German transmissions and so we had a rush round trying to buy old spark transmitters or marine telegraph transmitters which could be set up as jamming stations.
And we located about ten of these things, they were very hard to find, and we just held them in store and then fortunately it was realised that this was a stupid thing to do and they were all scrapped, I don't know what happened to them.

GILLARD: Surely they would just jam us back?

McCLEAN: They would have just jammed us back and to jam a transmission puts a certificate of authenticity on it but they wouldn't jam this unless it was really saying something that I ought to hear. So that was abandoned.
But the war in these days before Munich did reveal a

terrific bottle neck that our communications systems all went through a number of fixed points like virtually everything in the country went through Birmingham or Bristol to reach other centres and there were no alternative routes so again we bought a number of low power short wave transmitters the kind of thing that amateurs use and I remember quite a struggle with the financial people to get some money in my pocket to go round to Webbs Radio who were near Soho Square to buy some amateur transmitters and they wanted cash and they weren't interested in the fact that the BBC might pay them some time in the future.
And finance division I think thought I might run off, it was only a few hundred pounds I think, three hundred pounds, but this was regarded as setting a dreadful precedent. But finally I got the money and I went round to Webbs and paid cash. I produced bills to show that I hadn't embezzled it.

Well anyway we got these shortwave transmitters and we put them in various locations up and down the country so that if the main communication networks did fail, Birmingham or Bristol got bombed out then we had at least got one circuit through the various key centres in the country. I don't think actually they were ever needed, they managed to get normal circuits through but this was part of a set up and the need for this wasn't realised until oh I should think a month before Munich so that we were very slow on most of these sorts of things.

GILLARD: These little low powered H group transmitters, they didn't require elaborate premises I suppose ?

McCLEAN: No we used what we could. Occasionally we found a building where we could use an existing building. We put one into the Hughes Biscuit Factory in Birmingham and the day after it went into operation the Birmingham was bombed and a bomb fell quite close

to this building that they had made available to us, it demolished the transmitter and the building and I think the Hughes Biscuit people felt that if they hadn't been so kind as to give us this base for the group H transmitter then they would never have been bombed.
I don't know about that but anyway I felt sympathy for them.

GILLARD: But normally it would only be a sort of garden shed thing wouldn't it ?

McCLEAN: Well a bit bigger than a garden shed. It was a hut or small building about fifteen feet by eight and we started off and the, I've almost got to say the Engineering Division proper, that is the electrical side of the Engineering Division got hold of a local builder and said could you put a building here fifteen feet by eight, no windows, use whatever bricks you have got, good solid door, concrete on the floor, reasonable roof and we got these things built for a few hundred pounds and in very short order.

But the building department and particularly the civil engineers were very upset about this non professional way of doing things and they wanted to do things properly and put up buildings that would be worthy of the BBC and so on. We carried on this argument, I think we got about 50 of the Group H stations done in this unprofessional way and then the building department said really this is not right and by that time the pressure on getting built the Group H stations built quickly was wearing off a bit and the building department therefore produced an epitome specification which was a usual building department thing with fine washed river sand and bricks of a certain hardness and wood free from knots and all this sort of thing.

And the result was that the Group H station buildings that we built up after we had the epitome

specification cost about five times as much for the building as they had before and we got into all sorts of delays. And when we started doing it in this unprofessional way, actually we went ahead and we never dreamed of approaching the local authorities or planning authority we just did it and nobody complained it was clearly a temporary building.

When the epitome specification came it was clear it was a more serious thing and we got some delays with local authorities wanting to be consulted and approve the design of the building, which was a great pity and it meant delay and expense and of course after the war the whole lot were demolished anyway.

Well the Group H did a very good job I think and most of them stayed on right through air raids.

GILLARD: Of course all this must have been known to a lot of people yet it didn't get out into the press did it ?

McCLEAN: No I think there was an embargo on any of this being got out to the press, we were all told that it was confidential and mustn't be discussed and on all our correspondence about these things we avoided mentioning station names and so on, we had station number 77 or something like that. Or on the shortwave field we had overseas extension which was No; 3 which was down at Ravensham which was always referred to as OAC 3 so there was a reasonable amount of security. And there was very good security on anything to do with the synchronisation of stations this was, I think it was well kept.

GILLARD: Let's go on to the External Services expansion which you were much involved in.

McCLEAN: Well I go back now to the time of Munich we had the original, on shortwaves we had the originasl

Empire Station Sender 1 & 2 at Daventry, and we had Senders 3,4,& 5 working at Daventry so that our total availability of transmitters at the outbreak of war was two low power and three high power and that was the lot.

After Munich we started what was called the foreign language broadcasts and smore transmitters were ordered for transmitters at Daventry 6,7, & 8 but by the outbreak of war these were not completed they were not working. So we found that at the outbreak of war that we were very short of transmitters, we were doing our best to expedite the things that were current but nothing like enough transmitters to cover the services that we wanted.

So we looked round to see what could be done and based on my previous transmitter experience of having designed the Start Point transmitter and knew what was in it, I thought we could convert the Start Point transmitter from medium wave operation to short wave operation. This mean taking out the medium wave componants and putting in short wave basically.
So we changed over Start Point to short wave operation. Now Start Point in any case had been closed down under the wartime arrangements, it was too high power a station and too near the coast for comfort in wartime and we did the same thing at Lisnagarvey and at Clevedon so we had three medium wave transmitters which were converted to shortwave for the duration and with reasonable, not very good but reasonable shortwave aerials. And this was all done at very great speed and I think we had the whole lot working by about October of 1939. And then we pressed ahead to get the transmitters for Daventry that had already been ordered and it was decided that we would start a big expansion service and a site was found for the trasnsmitters of Raversham which was called OSE3 and a site was found for more transmitters at Skelton which were OSE 4 & 5 and another building was put up at Daventry and that had extensions OSE 6 & 7 and at

Woferton was OSE 8 & 9 and we had an OSE 10 somewhere, I can't think where OSE 10 was.

Anyway all these were coded and nearly all of these were four high powered transmitters with about 12 aerials per transmitter, on average.
So it was an enormous amount of money and it had to be done with a comparitively small staff and it was done and the final one of this programme expansion went into service in November 1943 and in November 1944 I was seconded to SHAEF and left the BBC until after the end of the war and worked with SHAEF.

GILLARD: Is that the full story of the BBC's technical preparations for war? I am sure there's much more to it really.

McCLEAN: Well it would be hard to say anything is the full story it depends a bit on memory but there was one thing which I think was interesting.
About a year before the war we started doing pulse transmissions from Daventry for Sir Edward Appleton who was interested in investigating reflections from the Appleton Layer and was also interested in what used to be called ... R.D.F. reflected direction finding. And we put out on various frequencies from Daventry these pulses which were measured in various places with reflections coming from the ionosphere and we've found out also coming from aircraft.

So we did do quite a bit of experimental work before the people at Bawdsley Manor I think were really in operation. Then the main, of course we had nothing to do with the development of the measuring equipment for this RADAR but a place called Bawdsley Manor near Felixstowe was the main section.
And they got into trouble on the short wave aerials, how to match them, how to feed them, how to design them, and the Engineering Division did give some help to Bawdsley Manor on their aerials for the RADAR and we sent a man there two or three times to help them in

getting the whole thing lined up. So to a very minor extent the Engineering Division was concerned with setting up the RADAR network.

GILLARD: Very interesting indeed yes. Now the Cavendish Laboratories I think turned to you?

McCLEAN: Yes now that was a nice interesting job. This again was just before the war, maybe about a year before the war. The Cavendish Labs were working on splitting the atom and so on, and the device that they were using was called a Cyclotron (phonetic) and the Cyclotron had as one of its componants a radio frequency transmitter generating a power of about 20 Kw and operating in the same sort of wavelength that we used for shortwave broadcasting. And they got into trouble or had difficulties in getting the power from the transmitter into the place where it ought to be and generating the required voltage in the Cyclotron. So they appealed to the Engineering Division for advice and help on this. So I went to Cambridge two or three times to give what help and to help to get it going and I found it very interesting.

I had known virtually nothing about atom splitting and isotopes and all this sort of thing but they taught me quite a lot of what they were doing and then the whole of that team moved over to America to Los Alamos and following on from that Professor Chadwick, at Liverpool, was also setting up a Cyclotron for atom investigations so he heard what I'd done at Cambridge so he asked if I'd go to Liverpool. So I went to Liverpool and gave the same sort of advice. It was a very welcome change from broadcasting.

GILLARD: But interesting to think that the BBC was associated with the Cavendish and with Professor Chadwick and high level research on atomic matters ?

McCLEAN: Yes I think if you wanted to express the BBC's effort percentagewise it would be infinestimal.

But in fact the BBC Engineering Division was recognised as an authority on how to handle high frequency power.

GILLARD: If we could now come back to less exalted matters there was of course the problem which the Engineering Division had to face on equipping people like me, war correspondents out on the battle fronts.

McCLEAN: Yes and you came along fairly late in the day in that there wasn't much equipment available. And we hadn't much choice and by the time the request got to the Engineering Division the time available was very little too. We managed to find some transmitters, they were the 5Kw RCA which was a very heavy transmitter, we had to lighten it a bit and it was difficult to get it into a vehicle. And some other equipment we made up and I think in a matter of about three months or so we got these equipments in reasonable order. (sic) It was all done in our own workshops at Droitwich at that time and the .. they went off and as far as I was concerned I heard no more about them and thought this was all right. I'd have heard plenty about them if they hadn't worked.

GILLARD: Well they did work these were mobile transmitters and they went everywhere with us and very valuable they were. Of course they came late simply because the War Office wouldn't let us have them before.

McCLEAN: Oh well I didn't understand quite why this request came to us so late, I didn't know why it had been held up because we knew there was a war reporting unit, it had been in Africa and Burma and all sorts of places and everybody took it for granted that there would be a war reporting unit in Western Europe in France. But the request to provide equipment came along very late indeed and it was hard to find it.

Well I am afraid it was typical of the BBC in those

days, I mean it set up the reporters but it didn't provide them with the facilities and in N. Africa and Italy, those areas where I worked anyway, we could record the material but we had no means whatever of transmitting it back. Ah well that is another story and we can't go into that now.

Were there other major contributions from Engineering Division towards the war effort? Alexandra Palace for example was used a bit wasn't it?

McCLEAN: Oh yes. Alexandra Palace had closed down of course at the outbreak of war because the frequency used by television was absolutely ideal for direction finding, it would have enabled the Germans to locate their position very precisely indeed, so it was closed down for a few weeks I think it was before the outbreak of war. But then the Germans started using this so-called nickerbine (phonetic) system for location finding in the U.K.
This depended on the intersection of two beams and Alexandra Palace was used, I had nothing to do with this but it was done by an ex-BBC, well still a BBC man, Proctor Wilson who was in the R.A.F. Signals and they picked up the German, one of the German beams and changed its timing so that on the interaction between the two beams a quite false indication was given of the position, the pilot thought he was in a certain place and he wasn't there at all he was somewhere else. And this worked very successfully and as far as I know it was in use right till the ... virtually the bombing stopped.

GILLARD: The Alexandra Palace transmitter was used for this was it ?

McCLEAN: Yes the Alexandra Palace transmitter was used. (Yes)
Like all the defence services, the Germans the same as ours, everybody in the communications business is

short of frequencies so when you have got a new service you start looking round for frequencies and the Germans had closed down their domestic television service, although they kept the one going in France but they closed their domestic one and I suppose the Gman authorities like ours said well here's these television frequencies going begging we'll use them. So we were both in what became known as Band One and very little modification of the transmitter was required.

GILLARD: As the war went on or came towards its end were you involved in the post war planning of the BBC? Particularly of the domestic networks ?

McCLEAN: Yes I came back from SHAEF in the end of May in May '45 and then was immediately involved in the rehabilitation and replanning of the networks. It was largely to put it back as it was initially and then to find sufficient channels for a third programme. And this meant a bit of swapping the channels round and also preparing a case for the Copenhagen wavelength conference to get a better allocation so that the .. we could get a better coverage.

GILLARD: It must have been quite a problem though to create three networks before the war it was a strain even to create two wasn't it ?

McCLEAN: Yes. There had been a change in thinking I think. We had become a bit more venturesome after the war than before the war.
As I said before the war the hold on doing anything new was pretty strong. But after the war we got more venturesome when we saw what could be done and we put in more shares of channels, more directional aerials and I think did a better engineering job.

GILLARD: Yes.

McCLEAN: By that time I had left .. I had been up till then on the detailed transmitter design side but immediately after the war I left that and went onto the sort of planning side and was initially assistant Ashbridge and Bishop.

GILLARD: Were you involved then in planning the Broadcasting House extension, did that come under you at all?

McCLEAN: Oh yes. The, we had a technical committee to handle the electrical requirements, the equipment requirements and so on and there was a planning committee for the studios and of course the whole thing was supervised by the Civil Engineer, Marmaduke Tudsbury. And very few people could tell Marmaduke Tudsbury what to do. But the building was done and, oh another thing before the war, yes I'd forgotten this, to go back ..
We had what we called the Stronghold in the .. at the outbreak of war the Extension (of B.H.) was planned in broad outline and the old buildings had been taken down and there was a great big hole there. And we used this hole for various .. we put up some experimental transmission lines and did a bit of fieldwork from the engineering point of view in this big hole, which was very convenient, and then I mentioned earlier that communications were very dependent on very few links, and it was decided that we should have a secure place in London so in the one corner on the Broadcasting House extension area we put what was called The Stronghold which had walls about ten feet thick of concrete, a ceiling about ten feet thick and then on top of that it had concrete cubes which were lifted on, they were about six foot cubes, it was a fantastically strong place and we had six outlet conductors for getting aerials out and power out in the end and we put an engine there and this could have really survived any normal high explosive bomb of course in those days we didn't know about the Atom Bomb, any explosive bomb would have been quite

safe.

There was one thing that amused me at the time. Before we got to the Stronghold when we had realised that we were entirely dependent on very few Post Office lines and we must put in these radio link transmitters that I talked about, we decided to take the old echo room down in the basement of Broadcasting House and make that a communications centre. And then there was the question of getting equipment in there and it was fairly big equipment, and I looked into it and we just could not get the equipment in as I saw it without knocking down some walls in that corridor to get the equipment in, then we'd have to build them up.

So I reported this to Wynn who reported it to Bishop, who reported it to Ashbridge and they didn't believe me, they thought it could have been. So we all went down, Ashbridge, Bishop, Wynn and myself to this room and I explained why we couldn't possibly get the equipment in unless we knocked the wall down. And on the spot they agreed. So Ashbridge turned to Bishop and said all right then well you'd better arrange to have the wall knocked down. Bishop turned to Wynn and said well you'd better arrange to have the wall knocked down. And Wynn turned to me and said "Will you arrange to get the wall knocked down?" So I said yes and Ashbridge turned to me and said "It looks as though you've got to do it". LAUGHTER

But there's a lot to be said for putting things through channels at times it went a bit far. But ..

GILLARD: Yes. Let's go back to the Extension though. I mean were you concerned with the location of the Control Room and that sort of thing ?

McCLEAN: I was concerned in two respects. One I had to see that the stuff was installed and two I was concerned because I thought the wrong decision was being taken. At the outbreak of war the old Broadcasting House control room was on the top floor, very vulnerable indeed and with a grerat deal of

trouble and a great deal of difficulty we moved it down into the basement and it stayed there during the war. When the Broadcasting House extension was planned the control room again was to be up, not on the top but on the first floor with glass windows and very vulnerable.

And I said I thought this was really wrong for Lord knows what could happen and this building we were going to build would last for fifty years or so, oughtn't it to be down below ? But it was at the sort of euphoric stage and they said no the producers and continuity people don't like working down below.

TAPE FOUR

GILLARD: We were talking about the B.H. Extension and we'll just pick up the story again about the location of the Control Room. Where did you think it ought to be?

McCLEAN: Well I thought it ought to be once more below ground level.
At the outbreak of war we had had the control room up on the top floor of B.H. and then with great difficulty moved it down into the basement and I thought this was the right place for it. But there was a sort of euphoria about the place at that time, this isn't going to happen again, but I was arguing that well it's going to be at least fifty years that this building will stand and Lord knows what will happen in that time. But it went against the argument I was making and the Control Room was put on the first floor as you know, in an area which has lots of glass and highly vulnerable. Whether it has since been changed or not I don't know but somebody ought to be making some thoughts about changing it if they haven't already done it.

GILLARD: Yes what about the equipment, it was an opportunity to modernise the radio BBC equipment?

McCLEAN: It was and it was, perhaps it came at an unfortunate time.
The transistor, semiconductor, was already coming in in fair volume but the design was changing and a lot of people were sceptical as to whether it would really persist and wanted to put their faith in valves and we had to order some thousands of amplifiers and the question was should we take the risk of ordering this vast amount of equipment on something that some people said was untried, or should we stick to the old well-tried valves. And in the end the day went in favour of the old untried (sic) valve and of course

we've regretted it ever since. And I see now that it's all being changed to transistorised which of course is what it should have been in the first place.

GILLARD: These were the years too when recording systems were being modernised ?

McCLEAN: Yes. I came back to the BBC from SHAEF having seen magnetic recording in Germany and Luxembourg and so on and very impressed indeed with tape recording and there was the BBC still on .. on disc type machines.
I remember there was one proposal that we should order up another twenty of the type 'C' desks which was a frightfully expensive thing. Anyway I argued against that and I did succeed in postponing that order to make twenty of these desks for some time and then finally of course we cancelled it.

But a large volume of opinion in the Engineering Division was that we should encourage the introduction of tape. But as I saw it a lot of the opposition to it came from the programme side who said that on a disc the programme was spread out and it could be immediate accessed to any part and
there was bound to be a delay in tape. I said well it seemed odd that all the other broadcasting companies in Europe used disc, used tape and not disc and the Americans have gone over to tape and, but still they marked this.
And I remember I was given a demonstration in a news studio with Brian George and Philip Monser and a few other people there and they did some very impressive acrobatics cutting and changing from one disc to another and whipping one disc off and putting another one on, and in the course of one minute getting about ten different programmes sources tapped. It was very impressive, but I was still uncovinced but finally when it comes to the point the engineer division cannot say to the programme people, you will use this, we have to say... the programme people say what it is

they want to use.

GILLARD: Yes true. Of course it was the studio bound producers who wanted to hang on to this, the drama department particularly. Those of us who were involved in news and current affairs and documentary, and we were all for tape and longed for it and we were torn and I am afraid, the wrong people got there and got to you I am afraid.

McCLEAN: Yes well this is the case the situation gradually put itself right in the course of people with a bit of expertese can do everything on tape that is done on disc and do it much better.

GILLARD: Now what about the coming of VHF radio, or FM radio, whatever you like to call it?

McCLEAN: Well, other people called it FM, the BBC Called it VHF, because at the the start it was undecided whether these very high frequencies in the region of 100 MHz should be modulated with amptitude modulation, or with frequency modulation. And if we had called it FM of course that would have settled the question. And there was quite a volumne of opinion the country that the AM receiver was cheaper and easier to tune than an FM receiver. And there was some merit in this and that this ought to sway the question, and the BBC didn't want to take up any firm attitude so we started off and we transmitted on AM on VHF on AM and FM. The FM, of course, I think all the engineering opinion was the FM was miles ahead, it gave better quality, lower noise, and we should have wanted about four times as many transmitters to cover the country on AM, as we could cover the country on FM, so it would have been an even greater channel problem and the channel problem on VHF is very serious as you know.

It would have been even more serious had we been on AM and the cost would have been Oh, maybe four times as

much - very high indeed. So we carried on these tests on relative merits of AM and FM for about a year as far as I remember. With very little enthusiasm for them on the engineering side and then we made a prositive recommendation to the TAC, which was of course the Television Advisory Commission had the question of deciding on this, that we should go to FM. And FM it was. So that settled that question.

This settled the.. Then we had another question, as to what type of signal should be used for stereo. And as in colour television there are literally dozens of ways in which you can carry a stereo programme. Then is a question of which is the best and most convenient, gives the best results and so on.
And we carried out quite a lot of experiments on various systems and modulations to give stereo. And this was also being carried out in Europe and we had a CCIR Committee which was trying to get uniform standards for FF.. for stereo on a World-wide basis. And as they did later to try and get standards on colour television. Anyway we were all involved in this and one thing happened that made me wonder for a bit what I should do. It took time of course, and, but so that people directly implicated could judge what stereo was going to look like, or sound like, we put in experimental receivers in various homes that could receive whatever type of stereo we were transmitting. I had one in my home and we put one in Lindsey Wellington's home.
He was the director of sound broadcasting.

And then I had a bit.. these receivers were installed by a man from the receiver section, well known man named Hellier, and Hellier came to see me one day and said what should he do he had taken this receiver along to Mr. Lindsey Wellington's appartment and Mrs Wellington had refused to have two speakers in their living room and she had insisted on having one speaker in the living room and one in the kitchen which was no way to receive stereo. What should he do. So I

said well there is nothing you can do, its a pity but, you'll just have to leave it.

And about the next Board of Management meeting after that we were discussing the progress on FM stereo and Lindsey Wellington accused the engineering department of dragging its feet in the introduction of stereo, and with great self control I managed to avoid mentioning his little receiving problem at home. Anyway, finally this was the stereo problem was settled and the various variants were all sorted out and we did get a system for stereo for the whole of Europe, a common system. Which is something we didn't succeed in doing on the related problem with colour.

GILLARD: Am I right in remembering that initially there was stereo experiments involving two transmitters?

MCCLEAN: Oh yes, yes. The initial ones were two transmitters before we had got transmitters that could be modulated with the stereo signal. And these receivers that we put in the special receivers could either receive two transmissions, or one coded. The essense of the problem was how should we code the stereo signal, you see. Now various ways of doing it existed. By using two transmitters we sent out an uncoded stereo. So this was, if you like this would be the the optimum of the maximum quality that could be obtained for stereo and could we get a coded signal enabling a stereo signal to be put on the signal transmitter which would give quality comparable with two separate transmitters. Of course we could and this was what was finally done.

And then we started the expansion of stereo over the whole country and this lead to one great victory which was appreciable at the time and would become more significant later. When we came to expanding stereo over the country the Post Office could not give us

audio quality of adequate standard to meet the stereo requirements. So the Post Office with many forebodings and reservations, not to be a precedent and all this, that and the other, agreed that we should put in our own radio links to distribute stereo signals over the country.

We were very happy to do this and we had wanted to do it for a long time past and we made many proposals to the Post Office for programme distribution networks which we would operate which would have cost us far less and been better than the Post Office did. But the Post Office always stood by their monopoly. But finally on this stereo question we had got them in a position where they simply could not meet the requirements, so they had no option but to agree this, and of course this has been traded on since and now we have an arrangement with the Post Office that we can pretty-well transmit whatever we want. But before it was very difficult we used to get complaints from various parts of the country about the medium wave network, that the quality was poor and not hi-fi and not as good as the gramophone record and so on all of which was quite true. And it wasn't that our transmitters wouldn't transmit the quality it was the Post Office lines weren't good enough. But under the terms of the agreement with the Post Office we were never allowed to refer to performance of Post Office lines, we just had to take it on the chin ourselves and say we are sorry but we are putting in hand what steps we can to improve this quality. But it was beyond our power because of the Post Office.

GILLARD: Over these years, we are talking about the 50's particularly, television was becoming the dominant arm of broadcasting in the UK. Did you find a great desire on the part of your bright people to go away from the radio side onto the television side?

MCCLEAN: Oh, undoubtedly yes. In fact the television service of coure was started by some of the bright

people. But this is on the O&M side where bright people like Birkenshaw and Bridgwater and company, all went from radio over to television. And this is sort of one of the limitations of the situation, is that when they went from radio to television on the operating side they pretty-well cut their roots. But most of the problems, or many of the problems on the more technical side, on the developmental side were the same basic problem for radio and for television. Required the same kind of men and we had the people working on the two things so that in our specialist department for a long time the radio and television development were, went on by the same people, the requirements of designing a transmitter were just the same, and of course the audio requirements were the same, and many of the basic television problems were common.

So we didn't have to do this separation out into television or radio to anything like the same extent on the specialist departments that was necessary on the operational departments. Later of course television got more and more specialised and some particular things like television recording, went over to a separate thing. Although even there you see we've got the coming back, taking tape recording over to television meant being able to use very high definition, handling a band width of 10MHz and this sort of thing. And now this has come back onto sound because digital sound, of course, also uses the high band width. So that on the developmental side there is nothing like the separation between radio requirements and television requirements, that there is on the operational side. But on the operational side people went over and there was a lot of, in fact deliberate, chosing people and suggesting to people that they should go over.

GILLARD: We are on Tape 5 now - having changed batteries, and Sir Francis is going to talk to us about the development of external broadcasting.

Starting with the story of the relay station at Tobrau which rebroadcast London to large areas of the world.

MCCLEAN: Yes at the end of the war it was realised that the coverage of the far East from the UK had been very thin, and that something should be done to cover this most important area with something a bit more local. So a team was sent out by the Foreign Office very shortly after the Japanese surrender in 1945 and they put up a low power installation on the island of Singapore and Durong and some simple studios. But they were low power transmitters, as it turned out they were not being very efficiently operated, and the effectiveness of this station was virtually nil. So in the beginning of 1946, I was sent out with a dual mission. One to see whether I could do something to make the low power installation more effective, and to draw up plans for a high power station, a permanent station to serve the Far East. So I went out there and I went out in company with a young woman who had been sent down by the Foreign Office as a studio manager, and the Foreign Office had told us that we would be looked after everything would be provided, rations and accommodation, except blankets. I though I would get along without a blanket in Singapore, but this young woman had taken it seriously and she had two blankets with her and in those days it took about four days and a bit to get to Singapore, and at all the stops we got out and this young woman was afraid of having her blankets pinched so she trotted off holding two blankets and when we got to places like Karachi and so on it looked a bit odd to be carrying blankets around.

I was glad I hadn't brought any. Anyway we got to Singapore and I was able to do something with the low power transmitters, but of course they were still low power whatever I did. And then I looked into the possibility of a permanent high power station. The desirable thing of course was to put it on Singapore Island, and at the existing radio station at Durong.

But this was really ruled out by the RAF and the Admiralty restrictions on flying and they would permit only masts of a height which would have been quite unsuitable for a high power, long distance, short wave station. So I looked at other parts of the island, one site was near the Chengi goal, and another was up near the Admiralty place, that seemed to me they were reasonably out of the flight path of the aeroplanes, but the defence people just were quite stubborn about it and said "out of the question". So I started looking on the mainland, and I went to one place which was about 40 miles north of Singapore and then a few other places and finally found Tobrau. Which was a quite good site, reasonably level land, covered with rubber trees, and with a large number of dumps of Japanese bombs and the Japanese soldiers were busy collecting up these bombs and putting them on lorries and I felt a bit nervous walking past them, but it was all right.

And so I prepared a proposal in outline, which seemed to be satisfactory and the costs seemed to be satisfactory. Then we worked it out in full detail in London. And finally Bishop and I went out to finally OK the site in 19.. the end of 1946, and construction work on Tobrau started in early 1947 and it must have taken about a year and a half, or two years before it was operating.
And it was a great success it gave a good signal over a wide area, and it has been replaced now the 100kW transmitter has been replaced by 250kW transmitters and I hear there is even talk of putting in even higher power stations in the new station to replace Tobrau.

We started off, it was to be.. it was completely UK, all the senior posts were UK we'd sent out from London. But the Malayanisation started and gradually the number of UK people was reduced and Malayse were running the station. And doing it very efficiently. So that was Tobrau and for many years it was our only

serious relay station, apart from stations in Germany, like Nordon, and Ulm, and Schakale and such-like places. Then in the early 1950's when there was the start of the Cold War, we were asked to consider other places for relay stations and we looked at pretty-well anything that was in anyway practicable right from the North Pole to the South Pole, and identified places - Ascension Island - where of course we finally did build a station. The Island to the south of Ascension..

GILLARD: St. Helena.

MCCLEAN: St. Helena. And the Caribbean, which has since been built. Aldabra, off the west coast, off the East coast of Africa. Gan south of Sri Lanka. Borneo. We even considered putting a station on the summit of the Hong Kong mountain, which was finally turned down because the, it was thought the Chinese really wouldn't like it. And in any case to put a high power transmitter on a conical mountain is not easy to do. So we had all these proposals, there must have been a dozen of them costed out in some sort of detail and they came up from time to time.
Whenever they didn't know what to do the Foreign Office would ask the BBC to do a further technical investigation. We sent a forty man team out to Aldabra, complete with its own doctor, I have forgotten his name now, the BBC doctor, Dr. White wasn't it. He sort of joined the party, I wish I could have joined it. And they went out to Aldabra and had a high old time for about three weeks. And we sent investigators to Borneo. Gave a complete report about that. Then the Foreign Office were in difficulties about their relations with the Borneo authorities, so they asked we should make a further technical examination. Each time there was any difficulty about any of these things somebody asked for further technical examination as one way of postponing a decision. So this is the way things have gone.

GILLARD: What about frequencies?

MCCLEAN: Well the frequency situation wasn't too bad, the great congestion of frequencies was of course in transmissions terminating in the European area, or addressed to the European area. In the Far East the frequency situation was not quite so bad so we could use frequecies in the Far East that we already had in use in Europe without harm. Channel sharing basis without too much trouble. And we also had this position of the out of band frequencies which had been a long bone of contention between the BBC and the Post Office. The short wave bands are defined so much and so much in each of the various 31, 19 and so on meter bands. And towards the end of the war it became quite impossible to accommodate what we wanted to do from the UK in these bands. So as a very exceptional manner the Post Office authorised what were called "out of band frequencies".
Now this put the BBC's 100kW transmitter sharing channels with the normal commercial point to point people, with us using 100kW and most of the point to point people using about 5kW, so it was a very advantageous share from us, but this was accepted on a war-time basis. After the war the Post Office tried to close them down, and we resisted we had to stop such and such a service if we give up these out of band frequencies. Which were our most valuable frequencies for use both in Europe and in the Far East. And the Post Office got so concerned about it that they couldn't budge the BBC or the Foreign Office, that they set up a committee The "Out of Band Frequency" Committee under Sir Edward Appleton, who was then Vice Chancellor for Edinburgh University, the man who did the ionospheric work. So we all submitted information about the use of the "Out of Band Frequencies", and we proved our case and the Post Office had to admit that if we gave up the "Out of Band Frequencies" then the UK services would just stop. So the Post Office reluctantly agreed to

continue the Out of Band Frequencies and their use still continues. But it was one of the things that enabled us to start these external relay stations. The long and short of the matter is that at Atlantic City when the basic width of the shortwave band was fixed, short wave broadcasting occupied a reatively unimportant role in the world and the total spectrum space given to short wave broadcasting was small. After Atlantic City, which was in 1945, of course short wave broadcasting expanded enormously, but the allocation to short wave broadcasting didn't expand. Now there has been a slight.. the last radio conference there was a slight increase in the bands and I think this will go on.

GILLARD: You went to a number of conferences, didn't you - international conferences about the allocation of frequencies?

MCCLEAN: Oh yes I went to quite a number, and on the short wave band the most important one was in Florence, Rapallo. There had been a conference in Mexico City, which had started the thing and didn't get anywhere and that had been.. the UK delegation had been headed by a man from the Post Office with, L.W. Hayes the Chief BBC representative. And it simply did not get anywhere, they had to abandon it because they had run out of time and said that there would be a working party meeting in Paris and followed by a conference in Italy. And after this both the Foreign Office and the BBC said that this question of allocation of short wave frequencies is more than a technical problem it is a political problem, and indeed this is so. And the head of the delegation should therefore be somebody - a politician - and so we had the, a man Sir Thomas Rapp was the first head of the delegation, and he was recalled for something else and a man called Sir George Randell took over. From the BBC point of view this was an enormous improvement in that instead of trying to prove our case to a Post Office leader of the delegation that

really wasn't hardly prepared to listen and certainly not prepared to be convinced by what we said, we had an impartial Chairman and we could make our case, and we did make some headway. It was better than when we had Sir Thomas Rapp who was very bright and lively, not so good when we had Sir George Randell who was I suppose a politician of the old school.

GILLARD: And which was the conference at which the Russians walked out?

MCCLEAN: Oh this was at Florence, Rapallo. It started in Florence.
1950. And the Russians made it an occasion that it must be recogised by the conference that Latvia, Estonia and Lithuania were part of Russia, whereas under the ITU rules the pre-war rating, or assessment of these independent countries still held and it meant that the first thing the short wave conference had to do was to overrule the ruling of the main ITNT.. ITU conference, which of course the conference wasn't prepared to do and various delegations including the British Delegation were not at that time and I don't know whether they are not, prepared to admit that these Baltic countries are part of Russia. So with a dramatic air the Russians announced that they would not participate in the conference and they walked out. And then there was quite a feeling that we might as well abandon the conference, and I thought we might and go home and do something useful. I think quite a lot of the delegates enjoyed staying in Florence which was a very pleasant place. J.B. Clark was there and he and I stayed for a bit and then it went on and after a month it transferred over to Rapallo.
But J.B. Clark and I were only in Florence for about a week then we both went back to London to do whatever we had to do and then went out again to Rapallo when it reassembled in Rapallo.

Rapallo got down to work in a way, but there was a sort of unrealistic air about the whole thing, in that

we were planning and making some sort of nominal allocation to the Russians who were one of the biggest users of frequencies, with the absolute certainly that whatever we allocated the Russians they would say they would take no notice of it. But anyway the people concerned wanted to do that and we ploughed through mountaines of allocations and worked out protection ratios and put many long hours in working on this and we were getting some paper plans, whether they would be of any use is open to question. But then the Korean War broke out and with the Korean War broke out and Lord knows what was going to happen the idea of a short wave conference seemed to be absolutely futile and the conference was postponed indefinitely. And was taken up.. the question was taken up much later by bilateral discussions between the major users. We started bilateral discussions with the Americans to co-ordinate our use of frequencies with the American use of frequencies and we did it with a few of the minor users and we got some sort of modus vivendi, which actually still holds, and there is no official doccumentation which says that this frequency shall be used by this country, just that it always has been used and it fits in somebody else accommodates it and it is a sort of working agreement but not a regular conference.

GILLARD: Makes one wonder if these conferences were ever necessary?

MCCLEAN: I think they are for domestic. You see...

GILLARD: We are now on Tape Six, and Sir Francis McClean's contribution.
I am going to ask him now to tell us about his experiences with the European Broadcasting Union, the EBU, with which he was closely associated. Right, I suppose from the 30's onwards.?

MCCLEAN: Yes. Before the war there was the UIR, Union Internationale d'Radiophonique, which was in

Brussells, and which had members from the whole of Europe, the Russians and in particular it had Latvia, Esthonia, Lithuania as separate members. After the war there was a question of resucitating the UIR and a meeting was held at Strasar, to discuss whether or not this could be done. The BBC and all the other broadcasters there including the Russians, on the BBC side there was Sir Ian Jacob, Dick Marriott and myself. And we went to Strasar, we had a meeting almost the first item on the agenda at any rate in the first half day discussion was the status of these three Baltic states. The Russians said they no longer existed, and they were part of Russia, and were not entitled to separate representation. All the Western countries said they did exist, that their incorporation in Russia had not been agreed, and whereupon the Russians walked out and that was the end of a European-wide broadcasting association.

But the rest of us stayed on for another couple of days and we discussed setting up a new organisation to replace the UIR and the proposal for EBU was formed, and we had a general talk about the form it should take and it was agreed that we should have a conference take place in England to actually put it into operation. And this conference took place in February of, I think, 1951. I think it was 51, but thereabouts. And I remember we didn't like the idea we wanted to get out of London and I made the mistaken suggestion of going to Torquay to stay at the Imperial Hotel which I had enjoyed very much in the summer. But the Imperial Hotel in February with the wind blowing through the windows and the curtains standing out horizontal, was far from comfortable. Anyway we set up the EBU and we formed the rules very similar to those of the pre-war UIR, and it was left still open that other countries could join, and we got quite a number of new countries. People like Syria came too, and they joined the EBU.

We set up a number of committees, the usual finance

committee, administration committee, programme committee, and a technical committee of course. And I remember Sir Ian Jacob saying to me that of course we must have a technical committee, but the important thing is that the technical committee should almost never meet. And he wasn't very much in favour of it. And I think, today, he was right. Afterwards the EBU technical committee got a bit beyond a joke, it met too often and went into too many things. Anyway it was a very pleasant meeting we had a dinner at the, I think it was the Town Hall or somewhere in Toquay, ostensibly provided by the Corporation of Torquay but really paid for by the BBC and my chief memory of this, it was a very ordinary dinner, was the speech by the Mayor of Torquay who started off (Bad French)..

But after he'd done a few words like this, he went into English and then he was quite good. The French people made no comment about it.

I found it illuminating, all the Board of Governors were there, and I was sort of singled out by Lady Reading, who seemed to know what I did and where I fitted into the organisation and asked a number of very pertinent questions, which intrigued me no end that a lady of her emminence should know what I was doing. And in the light of further happenings I appreciated why, but at that time I was just intrigued by it.

And so the EBU got started and has gone from strength to strength, and activity and activity ever since.

GILLARD: Yes. I think we ought now to turn to television. We've dealt with radio, we've dealt with external we ought to come onto television.
Let's pick it up after the war. You had Alexandra Palace in a pretty disorganised condition, I imagine?

MCCLEAN: It was pretty disorganised but more from neglect than anything else. The equipment was

cleaned up and put in ship-shape order in really quite little time, and we started putting out what are called Art-Bars, Artificial bars, I think in August of 1945. These are artificially generated pictures, signals rather than pictures - Patterns. And cameras came a bit later. But it probably got going too quickly for the good of the UK and the good of Europe.

GILLARD: What makes you say that?

MCCLEAN: Because there was a great tendency towards nostalgia to get back to pre-war. So we started off with 405 lines. Now we were admitedly first with 405 lines, before the war, the Germans had 441 lines, the French had 441 lines, and of course French television was operating right until after the Normandy campaign started, and the French were doing experiments on 819 lines, 1050 lines. And.. I think our people, it was the Handkey Committee set up during the war that decided we should restart 405 lines it would have been better not to have started that, it prejudiced the position. And we had had warning of it during the war I got into Paris on the Friday that it was liberated and there was a, the Army signals got wires into Paris within two or three days of Paris being liberated and I think it was about the following Wednesday I was surprised to get a call or be told that Sir Noel Ashbridge wanted to speak to me from London, and could I be available at a certain time. So I was. And he said, I want a report about what's been happening in television in France, I hear rumours that they have had high definition.
So I said, yes they have I have seen it.
Well let me have a report.

So I wrote a report on the French 819 line television which was.. no 1050 at that time, 1050 line. And this was circulated, actually, it became a sort of best seller this report because anything that I did I had to show to my American colleagues, you know, it was this dual control. And my American colleagues in

SHAFE were very impressed with this and this report was copied and circulated to all the American networks and a copy of it even appeared in Variety, you know the American programme.

Anyway to get back, this was what happened, and the French put out feelers as to whether the UK would be prepared to abandon its 405 line, or slow up its 405 line while an investigation was undertaken to see whether there was any compromise between 405 - 441 - 1050. And I reported this back to Ashbridge and it was discussed at the TAC. But it was decided that the UK position was fixed, that we wanted to re-establish our dominance in this and we started on 405 lines. Which there was never any chance of any other nation accepting. It is not that 405 lines was noticably worse than anything else, but the very idea of asking other people to accept the lowest of the available standards was just politically not on. The whole trend was to take a medium value.
So we lost that opportunity for 405 lines, for getting an agreement in Europe on a standard, we continued on 405 lines, and of course we went and we got complete coverage on 405 lines. Which increased the difficulty when we did have to change from 405 to a new standard it meant that it was a more complex problem that it would have been if we had had been able to reach a compromise earlier. And the French made this suggestion several times. I reported, I have just said the first time, there was a meeting in London some years afterwards at which the French again made this offer in a discussion.. I had a three cornered discussion with the head of the French delegation, Hugh Greene who unfortunately didn't speak any French, and then they said was it possible to achieve an agreement, a bilateral agreement between France and the UK. And this was before the French agreed the noted cultural exchange with the Russians. So it was a question of lost opportunities. Anyway that is getting away from the point.
We did, it was decided to re-establish the 405 lines

and Alexandra Palace was got going very, very quickly. We had had before the war a fair number of 405 line receivers which had been carefully stored during the war but they had all gone, whatever, they were not worth doing, and we had to get new receivers made up. And the service got started and went very slowly at first. But then Richard Huggitt accelerated terrifically.

GILLARD: But why did it take so long to get television right round the UK?

MCCLEAN: Well you see you rather shock me because I thought we got it round the UK pretty quickly.

GILLARD: I reflected it was 1954 before it came to the South West or even to the South coast?

MCCLEAN: That's because of the peculiar self-centred interests of some of the inhabitants of the West of England. But I wil come onto that in a moment. No I think really we did quite well with the money available. We were dependent upon the Post Office for a extending the programme links, at this time you remember the Post Office wouldn't let us put in our own links, so we were depending on those. We had the position that from the time we had chosen a site it invariably took about a year before we got planning permission to build on this site, and then we were in a condition of shortage of supplies and shortage of everything.

GILLARD: There were also restrictions on capital expenditure?

MCCLEAN: Yes, sortage of money, we were short of everything. So maybe we were unduly self satisfied, but I had always thought that we got going quite well and we did expand. We would have expanded in the West of England but the position of the people living on Dartmoor, and particularly Lady Dorothy Sayers, was

completely un.. unrealistic, as I say. On the one hand everybody was saying why haven't we got television, what a crying scandal it is, and people like Lady Dorothy Sayers, and she wasn't the only one, saying that all right lets have television but we don't want any of those ugly masts and particularly not in view from my window. And they pushed it to such a point that we had to go to a public enquiry. And it took some months to set up the public enquiry, it sat for about a couple on months hearing evidence, and it was still three or four months before it gave a ruling so we just couldn't, we were anxious to do North Hessary Tor but we couldn't. We made a mistake as Gerald Beadle said, if only we'd had the sense to call the station Princeton, instead of North Hessary Tor, nobody would have thought twice about putting any excescence on Princeton. But it was the idea of putting this thing at North Hessary Tor that upset people. But this was the situation. And on the Isle of Wight Lord Mottestone, also was very anxious that television should come to the Isle of Wight, but not on his piece of land. And we had a long delay before we got a piece of land on the Isle of Wight. And yet this piece of land of Lord Mottestone's it had to be somewhere near the centre, it had to be on high ground.

When we came to Bath there was really only one attractive site for serving Bath down in the hollow, and this was on a piece of land that belonged to somebody whose name I can't remember, and he wanted first of all a fantastic price for it, because he said he wanted to put up an arboretum in honour of his father and this was his justification for asking about ten times the normal price.

And then there was planning permission in bath. So the West of England.. I was full of sympathy for it, but the obstacles were largely of West of England making. I am sorry to appear unsympathetic but this is what happened. And for the rest of the country we

got on very well, but we had a lot of complaints you see about Scotland. But the post office's plans for getting a television programme link into Scotland were way beyond, we had to put terrific pressure on the post office to get them to put the link into Scotland. If we could have only got the post office to agree that we had BBC programme links we'd have been in many places at least a year earlier. But taking all these things with the money available, and the staff available, I thought we did pretty well.

GILLARD: Did you ever consider a system of putting up the transmitter and then locally originated programming so that you didn't need networking?

MCCLEAN: That was considered but then that was going to mean a lot of money and it was hard to see that it would be sufficient programme. Everybody said that if we are going to have a service in an area first of all we must have the news and major national events, Coronations and this sort of thing. And we must have the major programmes. And these two at that time there wasn't a very convenient system for recording major programmes.

GILLARD: Tape Seven.
There were of course frequency problems, weren't there about the developing of the BBC televisio service across the UK?

MCCLEAN: Yes as indeed any service finally gets up against frequency problems and in television it was particularly acute. It was started off with the idea that each channel should be occupied by one high power station and one low power station, and that they should be well separated. As we had only five channels available this automatically put a limit of ten on the number of stations that could be done, and we started off on this basis and research department were very reluctant to go beyond this, we had to keep the pressure on them. And gradually get it admitted that it possible to insert stations, additional stations, admittedly of ever decreasing power, but quite appreciable power. And under the original frequency allocation plan unless we did this kind of sharing there was no channel available for East Anglia, and the Norwich area, nor one for West and Central Wales.

After a lot of argument we did agree that we could find channels for Plaid Clwd near Aberystwith, and for a station called Tackleston near Norwich, and we found that we could get an extra station on the south coast in Rowridge to act in synchronism with the Scottish station. And gradually we built up this and in the centre office we wore down the opposition of the die-hards in research department. So that finally we arrived at the position that instead of the original ten stations that were available in their view in band one, we had something like a couple of hundred stations. And now of course these are being replaced by others. But it took time to do this, and research department were always in the strong position that if anything had gone wrong they could say well we told you so. And I was pretty certain that I wasn't

wrong, but I had to think twice before I said well, whether you've done a test to try this or not we simply have to do it.

GILLARD: Or simply it was that as long as they were far enough apart, two transmitters could share the same frequencies?

MCCLEAN: Oh yes. And if you've got an existing service area then, and you put another station of the same power some distance away, then there will be some point at which you are getting equal signals from both stations, and the signals will interfere with each other. But if you put the distant stations of low power, and ever lower as you get nearer to the main station so you can insert others and I think finally we ended up in band one with about 250 stations. And nobody complained. They were quite satisfied.

GILLARD: Now in these, what appear now to us rather primitive days of television, black and white, 405 lines, band one transmitters, we nevertheless got across the channel did we not?

MCCLEAN: Yes, this was one of the triumphs of the early days. To get a radio link across the Channel of course wasn't difficult it was only 20 odd miles and we had a receiver on the cliffs of Dover and a transmitter on the cliffs of the, just outside Calais. But in those days, the television picture was locked in frequency to the mains, and the French mains frequency was slightly different to ours so in order to get this picture suitable for coming back we sent a sample of our, we transmitted by radio a sample of our 50 cycles to France, used that to lock the cameras in France onto our mains, so that when it came back the pictures could be shown on our mains and it all worked remarkably well. And this was the first sort of international exchange of programmes at all, but it was an unworkable arrangement as a permanency it was all right for special events. And we had already

been setting up means to, and of course the cameras in France had to work on 405 lines too, but that was arranged. But if we wanted a regular programme exchange we had to be able to take programmes on anybodys line standard and whether tied to the mains or not tied to the mains and convert it back to 405 lines tied to our mains, so we had already started on means of converting pictures, and shortly after this first transmission the research department made the first successful standards converter which actually consisted of a display the picture on one cathodray tube and having a camera looking at it with another standard and putting in certain circuits that smoothed over the differences between the two, and we got quite a good looking picture and we could take French pictures, or German pictures, or anything else and we did do so.
And we sold this design to EMI who made some half dozen or so of these standards converters that they sold in America and elsewhere, and it was afterwards replaced by the all electronic standards converter. But in its time it was a very good thing, and undoubtedly .. well it facilitated the international exchange of programmes.

GILLARD: Well then we come onto, of course, to the big television event of that period. The Coronation in which I know you were closely involved indeed, shortly afterwards you were awarded the CBE were you not?

MCCLEAN: Yes that was the only reason I could think I had got the CBE was because of that. And in fact the Queen said to me, what have you got it for? And I said I could only think it was for my part in colour television, ..in Coronation broadcasting, but maybe it was something else. No the Coronation of course, took us all by surprise. I suppose it did everybody. I can remember we were having a meeting in the Board Room at Broadcasting House the Engineering Division meeting, when Haley came in and told us that it had just been announced that King George Sixth had just

died, and I don't know about other people but I had no idea that he was ill. And so then it was clear there was going to be a Coronation and we were in no sort of position to handle a Coronation, we hadn't got the OB cameras, we hadn't got the equipment and such things, and we set up a special committee of which I was Chairman to co-ordinate what we wanted in the way of new equipment and how we were going to get it and how we were going to make it, and how, when it had to be ready and quite a large organisational exercise to get the whole of this lot.

I have forgotten the figures now but they were quite large quantities of stuff. I had nothing to do with the actual broadcast itself I wasn't at the Abbey or anywhere else I was back in Broadcasting House together with the head of the CBS and NBC networks looking at the pictures as they came over. And we had amongst other things to set up our film recording device, you know we were recording on film at that time and we were just bringing out a new model and we had to speed that up to get .. to get tele-cine pictures. And CBC brought over their latest telecine printing equipment and they had it installed on a plane and they took the film the unexposed .. the exposed film, developed in on the plane and when it landed in Canada they got it there. And we had also at that time been experimenting with what was called cablevision, which was where we took about 40 times as long to transmit a picture as in television, so to do one minute worth of programme took us 40 minutes. But it gave a result that was quite reasonable and we sent some of the essential pictures over to the States on Cablevision. So it was a period of great activity and got us all going.

GILLARD: It wasn't long after that the BBC lost its monopoly?

MCCLEAN: That was not unexpected and of course it actually threw a bombshell into things in various

ways. I don't know is this the time we would like to talk about relations with the IBA and what was done, or..?

GILLARD: I should think we might take that on later. But let us then deal with caravan transmitters which you were building at this time?

MCCLEAN: Yes, we'd taken a lesson out of the war-time experience of putting the equipment in caravans and realised that this was something we could do quickly by mounting the caravan on a central site, some we assembled on the Broadcasting House extension site that I mentioned earlier. And then trundle it down to the place where it was wanted so we got going very quickly.
And I think we put in about 4 or 5 television caravans immediately before the Coronation. And we put in Oh in the preceeding two years I should think 20 radio stations, small caravan radio stations.

GILLARD: Were these transmitters or studios or both.?

MCCLEAN: Only transmitters. No studio.. Oh except the radio stations had a primitive sort of studio type, but the television stations had a receiver to pick up the nearest main station and then a transmitter.

GILLARD: What would be the range then of a caravan transmitter?

MCCLEAN: Well it depended on the channel and location and so on but in the order of ten miles. We had one terrific pressure which caused us a lot of trouble in Brighton, where we were planning to put a fairly large transmitter in Brighton area but we had a terrific amount of amount of trouble with getting clearance of the site and we'd been discussing the site of the Brighton transmitter Oh for much more than the year before the Coronation came up and we seemed to be not

much nearer the solution of this problem, they just didn't want it anywhere where it could be seen, and you know this is very difficult to do with a television transmitter. Anyway we decided to put a caravan transmitter there to meet the pressing local demand and we put it much nearer to Brighton and along the cliffs, I can't remember the name of the place now. But to the West of Brighton. And we got it up about a week before the Coronation and then we got most enthusiastic reports from Brighton, and everybody was thankful and we thought at last we'd got some satisfied customers and then we proceeded to get .. we finally got approval for the station with the permanent station which was to use the same channel and so we announced the closing down of the caravan transmitter and transferring the channel up to Rowridge, no not Rowridge the one outside Brighton whose name I have forgotten. Oh and then there was a frightful row, in the industry all the people all the arials in Brighton were all centred on this transmitter along the coast all the arials will have to be reorieted to pick up the new transmitter and we said well we told you this when we put it in but you said you wanted it. And all of them with great dissatisfaction, and the MP joined in.

But finally we said, well we have to do it, we simply haven't another channel, either we stay with this temporary transmitter in the caravan and abandon the idea of a higher power station permanently or we transfer the channel. So finally the people concerned down there in the radio trade and other people said all right, but we don't like it. And then after we had changed over of course there were a lot of letters in the local paper about the service wasn't so good and the pictures weren't so good and the programmes even weren't so good. But we wore it down. But we got this very many times. And you get always this conflict. You put a station right in the heart of a .. a low power station, right in the heart of a reception area and people think its fine and then

you start to serve the whole of the contiguous area and the signal strength in the central area necessarily goes down, some people don't like it. But we just have to do it in the end. In the end it all dies down and everything is all right.
But the caravan transmitters were a great success.

GILLARD: Then on the studio side of course there were developments taking place the BBC was breaking out of Alexandra Palace. Were you involved in that at all?

MCCLEAN: Oh yes. I was sort of in charge of all the planning side of these things and we moved out of Alexandra Palace and then we got various temporary studios, and then.. Then we got Lime Grove. And Lime Grove was the first big installation that we made of studios.
They were made very much on the existing concept of things, magnetic recording was not then available. It was all on films. We put in metal recording systems and it carried on and about that time of course the Television Centre started and we had ...

GILLARD: You mean the construction of it?

MCCLEAN: I mean the concept of it and we had this famous sketch by Mr. Box was it no Cox, of the snail shell type thing on the back of an envelope that we all got sick of the sight of; and a committee was set up to plan the studios and to plan the equipment and shortly after that got started we acquired Riverside Studios and we decided that the Riverside Studios should be prototype, we'd try out new ideas and new equipment and see, get the basis towards planning the final television studios.
We measured things like maximum demand, how much power was likely to be required, how much we could regard power as being switched off
in one studio before we switched on another and so on.

TAPE EIGHT

GILLARD: Sir Francis you mentioned the acquisition of Lime Grove you've also told us about Riverside and how you used it as a test-bed, but I believe you ca~n remember Lime Grove as it actually was when the BBC acquired it. It came as a surprise to you that it was acquired at all I daresay, did it ?

MCCLEAN: Yes just how it was acquired I don't know but I was told by a well known character, Imlay Watts that he was having lunch with somebody in the film world who said they had a building to dispose of and Imlay snapped it up sort of thing. Anyway what happened there I don't know but I remember going with Sir Noel Ashbridge to look at Lime Grove and it was a dreadful looking place. The place was decrepit, the floors sort of corrugated, nothing had been decorated it looked as though very little worked and it was a desperate looking shell of a building, very different to what it looked like after we had spent several million pounds on it.

GILLARD: And it is still in use today.

MCCLEAN: Oh I think it's .. it's a good concept, the studios are quite close to each other, the control rooms are, there are romms for control rooms, room for all the facilities. I should think that although the demise of Lime Grove has been predicted many times it'll carry on for a long time yet.

GILLARD: Well now let's go on with the Centre then because you've described how this celebrated snail concept emerged for it and eventually that was realised wasn't it ?

MCCLEAN: Yes the basic concept was very closely realised and the planning of it there was a studio committee that formulated the studio requirements and

the famous building committee also took it under its wing although the building committee dealt with other things and I'd like to say a few things about the building committee later; and then on the technical side I had several committees who considered what should be put in, we had a camera committee deciding what type of camera to put in and we tried out various cameras for Lime Grove for Television Centre at Riverside and we tried out equipment generally. And very important things like the amount of power we required were based on measurements made at Riverside in a big concept like the Television Centre if everything is switched on at once then the amount of power taken is terrific and we have to assume that not everything will be switched on at once and the great thing to decide is how much of the total will be switched on at once and to decide what sensitivity of cameras we wanted. If we had been using or thought we would have to use cameras of the sensitivity which we had at Alexandra Palace then the amount of light required, the amount of power required the amount of light means power, would have been three or four times what we needed with the more sensitive cameras.

But of course the important point to decide was would these more sensitive cameras give us the required quality of picture. And from the tests at Riverside we decided that they would and we decided to go ahead with it on the basis of the so-called image orthicon camera. And we had to decide how many programmes were likely to be handled and decided that it would be not more than two so we had two chains. And well all the incidentals we provided initially for doing a large part of the work on film and for telecine and for film recording because when we started we didn't know that the magnetic recording would come and sweep all before it. And we had a few statements made which not exactly prejudiced the position but Gerald Beadle came out with one statement while the planning was in full swing that he prided himself that he would be running a live service with a minimum use of recording. Now even at that time, this was reproduced actually in the

Radio Times too, at that time we were already putting in quite a lot of film recording equipment and we guessed that magnetic recording wouldn't be too far away and of course now we' ve arrived at the stage when there's virtually nothing live from Television Centre, it's all recorded.
People shouldn't be too outspoken in predictions about what will happen.

GILLARD: Did you provide an alternative power supply a local power supply in case of breakdown from the mains?

MCCLEAN: No we didn't and this was a sort of weakness, there was a sort of division of responsibility between E Division and the Programme Division on these sorts of things. Certain things are E Division responsibilities, the kind of cameras we used, we'd say you use this camera and you'll get good pictures, this is undoubtedly E Division. But to say that the studio shall use five cameras or three cameras this is not E Division this is Programme Division, they must say how many they want. Well we were getting very tight in the budget on Television Centre and we came to recording facilities and by this time at this stage of the development we were on magnetic recording and I had put in in my proposal for Television Centre for this phase of it stand by engines which would be sufficient to keep the studios going and keep the recording macnes going and the telecines going there was no question of a stand by supply which would keep the whole studio going because it would have been too big. And this cost, as I remember, twenty five thousand pounds but anyway it was exactly the same as the cost of another magnetic recorder.
Kenneth Adam said he wouldn't have it, he wouldn't have a stand-by power supply he'd have an extra magnetic recorder, it was his responsibility so I agreed but I did write a memo to S.G. Williams who was running it at that time recommending that they should lay in a supply of candles.
And as it happened although we had got separate cables

from Television Centre right back to Battersea the failure occurred at Battersea.

GILLARD: Which failure?

MCCLEAN: The power failure.

GILLARD: Which power failure ?

MCCLEAN: On the night we opened BBC 2, the 625 line service.

GILLARD: Just start that again, just say on the night we opened .....

MCCLEAN: On the night we opened the 625 line service which was just after this, although we had got separate cables back to the power station in Battersea on that particular night there was a dreadful fire in Battersea which put both cables out of action and Television Centre was left with no power supply at all and I think they must, whether they used the candles that I recommended or whether they'd got them or not I don't know but they must have regretted their extra VTR instead of a generator. Now of course they have a generator.

GILLARD: Now let's get on then. You referred several times to recording, film recording, telecine recording and magnetic recording, tell us the VERA story. What does VERA mean anyway ?

MCCLEAN: VERA is the vision,electronic, recording apparatus.
Well what had happened, you see, before then, before we started on VERA everybody had been trying to achieve magnetic recording, it was clearly a desireable thing to do.

People in the States had done it, some had done it with 12 tracks running across a tape. RCA were doing

it, were trying it in a way equivalent to VERA. VERA split the signal into two, a high componant track, a high frequency componant track and a low frequency componant track.
And it got results that I thought were very poor. Bishop disagreed he thought they were good but I thought they were not good they had got fundamental disabilities which couldn't be put right and actually they gave a press release for VERA at which Bishop and Ian Jacob went. And I excused myself because I felt if I am there somebody's bound to ask me what do I think of it and I can't in all honesty say that I think it's workable or that it can be developed to be workable and I don't want to be there saying the other thing.

GILLARD: I must ask you VERA was developed by the BBC ?

MCCLEAN: By the BBC.

GILLARD: Well say that will you ?

MCCLEAN: VERA was the vision equipment vision electronic recording apparatus, that was it, vision equipment and electronic recording apparatus and it was suggested by the Research Dept of the BBC and divided the television signal into two tracks, one track of which took the low frequency componant and the other took the high frequency componant and it ran at a tape speed of 200 inches per second which uses up a fair amount of tape in an hours programme.

It gave pictures that I thought had fundamental weaknesses chiefly in the changeover from the high band to the low band. But it had other variations and cyclic variations and I came to the conclusion that VERA wasn't going to work. But Bishop thought that it would and Research Dept thought that it would and when they gave a press release of this I excused myself from going. Ian Jacob went and a great fuss was made of it. I didn't go because I thought I can't

in all honesty say that I think this system is workable and I can't possibly go there and tell the press or anybody else why I think it's of doubtful work, the diplomatic thing is to stay away so I stayed away and there was some comment as to why I wasn't there.
And I said I wasn't able to I had got something else on. But shortly after
that I went to the States and I was told by AMPEX that they had something interesting to show me. And Bishop was there too actually, the two of us were there ... something interesting.
So we went to San Francisco and went to AMPEX and they took us and they showed us a packing plant where they put the stuff in wooden boxes and they showed where they tested out their sound machines, and I was wondering what had they brought us all this way for you see. And then they said, now Mr. Charlie Ginsberg, Ginsberg that's the chaps name. Charlie Ginsberg is free and he will see you. So we went to see Charlie Ginsberg and he gave us a demonstration, and it was shattering, it was very good indeed.

GILLARD: What was it of?

McCLEAN: Of the AMPEX video tape. And then they explained how it was done, and they had the tape moving at 15 inches per second as compared with our 200 inches per second, and got the speed by transverse, a rotating head. And the actual scanning speed was 1500 inches per second of the head past the magnetic signal, so they had nearly eight times the velocity and this gives you about eight times the definition. And very economical use of tape and no change over in the middle of the frequency band, they recorded the whole frequency band in one go. So this was terrific. And so I said so and we more or less ordered one of these on the spot. We confirmed the order when we got back and after I had to sign for it that I would ensure that in no time did it get into Eastern European hands.

Anyway, afterwards we went back to New York and there I met the representative of CBS and I found that he had also been at the AMPEX on the same day and they were anxious to keep us apart, and a few days later I met the CBC man and he had been at AMPEX on the same day and they had been shuffling us round looking at the packing departments and so on while each of us saw this demonstration seperately. Then I had an illustration of the differences between the American approach and the British approach. The American engineer from CBS, who'd been to these demonstrations said he was putting every penny he could scrape into buying AMPEX shares. Well you know it was quite foreign to my idea of proprietry to see something like that to see it in confidence and to know that my own organisation is going to spend money and then try and cash in on it.

But he thought nothing of it and to know that my own organisation is going to spend money and then try and cash in on it but he thought nothing of it, and I imagine he did quite well. Well the AMPEX machine of course swept the board and there was no comparison between the quality of AMPEX and the quality of VERA, and VERA just died. It was something that ought to have been killed before it got as far as it did, but anyway there it is.

GILLARD: Fascinating story. What about the Crystal Palace transmitter this came along in the mid 50's at sometime didn't it. In London. Is there any story attached to that at all?

McCLEAN: Well yes, several stories attached to it. We found that the only really site to serve London was from the ridge of the Crystal Palace, and the only ground up on that ridge was actually in the Crystal Palace grounds. And then we had the familiar thing that the planning people didn't like it, the Air Ministry didn't like it, and the Air Ministry actually

fixed a ceiling on the height of the aerial that the tower of Crystal Palace is not as high as we would have liked to have made it, but it was the best deal we could get out of the Air Ministry, and even as it was it was much better than any other site.

TAPE NINE:

GILLARD: In the 50's the decision was taken wasn't it to improve the transmission of television in the London and the South East of England, and this involved the closing down of the Alexandra Palace transmitter?

McCLEAN: Yes it was necessary to do something. The Alexandra Palace transmitter was not a site suitable for high power transmitting was was fairly low power itself it needed something much greater power and we needed on the different geographical site. It was too far to the north of the main audience area, it was on comparatively low ground and we made a search for a site suitable for replacement station, and eventually found the Crystal Palace ridge. And the only ground that was available on that ridge was the, in the grounds of the palace itself. So we put in train the steps to get approval for this, we had a lot of opposition from the Air Ministry because Crystal Palace is on the flight path from the continent to Heathrow and they imposed a maximum height on the mast of, I think it was 640 feet, and which was less than we would liked to have had and, but on the Crystal Palace side even this height was much better than a higher mast on some other site. So we decided that we would go ahead with the Crystal Palace site, the planning authorities made a great to-do about the amenities, and we had to bury the transmitter.
How they squared the site of a building that could have been quite pleasing with the buildings round there that are not quite so pleasing and in any case the mast is 640 feet high, I don't know but anyway it didn't make an awful difference to the cost to bury it and we scooped up the hillside and out the transmitter in the hillside. But then of course, early in the planning stage we had got up against the familiary frequency question.

We had to use the same channel for programme one from Crystal Palace and as we had used at Alexandra Palace and this meant closing down Alexandra Palace which was giving a very strong signal in north London, and a signal that Crystal Palace couldn't hope to equal. In fact it was the Brighton situation but on a larger scale. And we had quite a number of the diehards saying that we ought to sacrifice some other area and find two frequencies for the London area. But I said no this is absolutely impossible, we are in trouble all over the country trying to make the frequencies go round, and although people will complain when they have to reorient their aerials from beamed on Alexandra Palace to being beamed onto Crystal Palace they will do it, and in any case in a few years time we are going to replace the 405 lines with 625 from Crystal Palace. So we did it and the station went into service and there was as predicted quite a volume of complaints that the service was nothing like as good as it had been from Alexandra Palace, but all these died down. And Crystal Palace gave very good reception over a very wide area and has been a very successful station.

We had one lack of success the ITA had, when we were at Cry.. at Alexandra Palace, put up their transmitter at Croydon not very far away and they resisted like we had made space on the Crystal Palace mast for ITA transmissions but they made all sorts of reasons that they couldn't take it, they must continue with Croydon. And they were very obstinate with the Post Office, the Post Office tried to persuade them but they just refused in fact the relations with the ITA and the other people very much like Arthur Scargill and the Coal Board. No concessions from the ITA, although later in other directions they did make concessions, but not on Crystal Palace.

GILLARD: But you had soon after, well some years after this a much larger transmitter project in mind, namely the whole shift from VHF to UHF, that must have been a

tremendous job?

McCLEAN: Yes well that of course had been, that was the major job of the post war I think more than anything else. It was quite clear that if we were to get out of 405 lines, if we were to do colour if we were to get into conformity with Europe, we simply had to get away from 405 lines, and this meant getting away from band one VHF. And there were two questions to be answered, or three actually. First was could we on UHF give a service which would replace the service given on VHF. The propogation characteristics of the two bands are very different. It was clear we should need very many more UHF stations to cover the area than did VHF stations, but the problem was how many more and even if we had a very large number could we do it. Our situation here was completely different than in Europe where UHF in Europe, Continental Europe is used to fill in holes in the VHF service. And it is quite different to that in the States, where the UHF service is a fill-in service and most of the important networks are carried on on VHF. But we had to get a UHF service so good that we could in fact close down the VHF service and to do this we started work on this problem in the early 50's. We put in small transmitters, transmitting test type of signals, we had one at Moreside Edge, one was in the research department, and another one was in East Anglia. And we made, put in listening measuring points for these receivers at various points including some in Holland.

We got the co-operation of the Dutch PTT and they operated receivers for us because at that time nobody knew what was the characteristic of UHF transmitting across water, we had lots of information about VHF across water, but not UHF across the water. And this of course affects the channel sharing and channel sharing comes back onto how complete can a coverage be made with a limited number of channels.

So this was all going on in parallel. The first transmitter we put in at Crystal Palace when the new mast was ready was an experimental UHF transmitter which we used for verifying how complete was the coverage of the London area, how many fill in transmitters we would have to put in the London area, and we also used it for testing the coverage of various types of colour television signal. This derives from the fact that in colour television for the compete picture you have got to receive two signals one if the black and white information and the other is the colour information and they must bear a fixed relation one to the other, and if the - and they are quite appreciably different in frequency - and if the system produces distribution of signal strength over the area, then you will get distorted colour values in various areas, and this can vary between one colour system and another. Very little difference between the systems when it comes to NTSC and PAL, but appreciable difference when it comes to SECAM. Anyway this programme of work started in the early 50's and carried on until .. well until 1962 or 1963 before we felt absolutely certain that we could faithfully go ahead with this, and plan on one day closing down the 405 line service. In those days I used to say we will close down the 405 line service in 1984, which seemed to be a very appropriate date.

Now 1984 is almost gone and the service is not closed down yet but I am told it will be closed down. When it is closed down there is bound to be a howl from people still with 405 line receivers and it will be continued for a bit but it will be closed down.
Anyway, this was a programme of experimental work going on and while all this was going on the question was being discussed in the TAC and in particular the question of what should be the colour television standards and how should we get BBC 1 and ITA 1 onto colour. So we had to find space for this it was tied up with the question of standards we failed to get European agreement and certainly world agreement on a

colour standard and in spite of trying we had different standards and we have to convert one to the other.

But we have got a system that is workable and it works well and pretty well anywhere in the country now you can get a satisfactory signal on UHF and with colour. In the planning we had optimistically put forward that when 625 lines replaced 405 band one and band three frequencies would provide more television channels, but of course the Government had seen put to that and now bands one and three are due to be lost to television and go into communications. Which I think is in a way a good thing. The band one signal the UHF signal is much better than the band one, or band three signal in many ways the noise is less and the trouble with reflections is less and I think it gives a better picture than ever we could get on VHF.

GILLARD: Did you have to do a lot of demonstrations and so forth, to convince people to go over to 625 lines?

McCLEAN: Yes. And quite a lot of people said that we shouldn't do it that 405 lines was quite good. Hugh Greene for example said that he couldn't see anything wrong with 405 lines and that why didn't we do it and we had demonstrated colour on 405 lines and he said why don't we start colour immediately on 405 lines. So I said well we can't cover the whole country with colour because of the interferrence problem, and the interferrence problem will be that much more serious if we are on 405 lines while the rest of Europe will be some other standard. So reluctantly Hugh agreed it, but he kept on referring to it, we could have been started you see. And he'd got somewhat of an ally in Jules Thorn. Did you ever meet Jules Thorn?

GILLARD: I knew him well yes. I knew him well.

McCLEAN: And I was present at a number of ...

GILLARD: THORN Electrical.

McCLEAN: Yes .. of interviews in Hugh Greene's office and THORN this size and standing up to Hugh's size arguing the toss and actually at one meeting Hugh Greene and THORN were agreeing that it would be a good thing to start colour on 405 and I was making the counter proposal, so I was out of favour with both. Usually at these meetings I was either in favour with Greene and out of favour with THORN or vice versa, but on this meeting I was out of favour with both of them.

GILLARD: You did a colour demonstration did you, or 625 line demonstration to the Pilkington Committee ?

McCLEAN: Yes that was very interesting. At that time the situation was quite unsettled and the Pilkington Committee said that they would like to see what it was and express their opinions so we gave a demonstration down at Kingswood Warren of pictures on 405 and 625 lines. And we had two complete chains, camera plus cathode ray tubes showing the two pictures. And in order that both should be equal instead of taking one photograph and then copying it which gives a slight loss of definition in the copy we took the same view twice and showed the two pictures and one picture that we saw in particular was of a garden scene with a shrub of very fine tracery of twigs. This was to bring out the higher definition of the 625 line system. And the 625 line system was markedly better than the 405 and we all agreed this and Joyce Grenfell who was there piped up and said:
"I can see that this picture on the right is clearer than the one on there but what I can't understand is the one on the right has got a bird on the twig and the one on the left hasn't"
And this was between taking the one picture and the other the bird had perched. So afterwards at lunch I congratulated Joyce Grenfell on the sharpness of her eyes and I gave her credit. She said "Well it wasn't

me actually it was Miss Bridger of the Post Office who noticed and pointed out to me and she was too shy to make the statement but I am never shy so I made it". But she was very good. It was a very cold day and we had been standing around watching these demonstrations and then we went in for a typical BBC lunch starting off with tomato soup and Joyce Grenfell said: "Oh What lovely soup I should love to put my feet in it" LAUGHTER.

But she was very good and bright. But one thing that didn't ...
I never had much opinion of footballers but there was a footballer on the Pilkington Committee, I think his name was Billy Walker or something, forgotten his name (Billy Wright ?) anyway I was sitting next to him at lunch and I was very impressed with the grasp that he had got of the problems of sitting on the Pilkington Committee, he was very very sensible. It sounds patronising but I thought a footballer's skill was all in their feet, but it wasn't, in this case it was in his head too.

GILLARD: Well we must go on to tie in 625 lines with colour but we're at the end of this tape virtually so I think we'll stop there.

C U T

TAPE TEN

GILLARD: Tied in with the 625 line system was the whole introduction of colour which I suppose was the great technical achievment of your reign was it, would you say ?

McCLEAN: I am not sure, I think possibly so but solving the UHF problem was either more difficult or more fundamental. The difference is that frequency problems and transmitter problems once you have made a decision it is very difficult to change and the frequency useage or location of transmitters you have got to be right, it's very difficult.

If on colour you have picked the wrong apparatus you can change it, you put in some better apparatus and indeed we've been changing colour apparatus eversince the colour system started. So I think the use of VHF, UHF was more fundamental than the choice of the colour system. But the choice of the colour system was very important too.
Serious work started on colour round about 1950 in the BBC there had been various attempts at sort of half-baked colour systems before then but round about 1950 they started work on colour analysis as to what really were the requirements of colour, how much colour, how faithful the colour had to be,how we would measure the faithfulness of colour, how we would accommodate it in the bandwidth available. An easy way to do colour of course would be to,for colour television basically you need three separate signals a red, green and a blue signal and the simple way to do it would be to use three channels, one red, one green, one blue. But that takes up three times as many channels as we have got available so this was ruled out and we had to find means of getting all the information into a single channel which was already pretty well full with the black and white information. Now this was handled in America, CBS started and used

sequential colour. They had red, green and blue pictures following one another in rapid sequence too quick for the eye to see. But it was a cumbersome system, it meant a mechanical device in the reproducer which always give trouble, we wanted an electronic device and so we were, although CBS was very keen on their sequential system when it started, in the bbc we ruled out sequential system as a nonstarter, we had to find something that would be single channel systems which would give a black and white picture which would be, the phrase was compatible.

And when we started of course we thought that for a long time the black and white audience would be the important audience that the colour audience would be very small in numbers, of course now it had completely changed and it is the colour audience which is large and virtually there is no black and white audience. But anyway to start we had to be sure that nothing we did would give, would degenerate the picture received by the black and white audience for the sake of the colour which only the very few would have.
So this started on various proposals to do this and it was being carried out in all countries and the basic proposal, solution to the problem was the NTSC solution. All the systems, CECAM and PAL, and NTSC are basically all the same as NTSC, they are basic in the way that they separate out the black and white component of the picture into the colour component of the picture, and that whereas the black and white picture has to be highly detailed, the colour picture, the colour component need be less detailed. It is something like putting a colour wash on a photograph. You can put a colour wash on a photograph and make it look good and the definition in the colour wash is very poor. It has to be better than that. But broadly speaking the definition on the colour component is something like a quarter of the definition on the black and white component. So this was common ground to all the systems, and we said it was a great pity if we couldn't have if not a

worldwide system, at least a common system in Europe. We would have liked a worldwide system, but that meant that in this country we would have to accept 60 pictures per second which is different to the main supply frequency of 50. 60 pictures per second is in use in America and in use in Japan, and is basically better than 50 pictures, you get less flicker effect, you can get a steadier looking picture.

But the industry here was dead against it, they said it would put up the cost of the receiver, I don't think they were right that but this is what they said. So another perameter was fixed that we were going to stick with 50 pictures per second.

Then we developed a sort of European equivalent of the NTSC system, which unfortunately we didn't have the wit to give a name to, if we had called it the Kingswood Warren system or something like that it would have been all right, but it went round with the NTSC label and trying to get the Russians to accept a system which was called the National Television System when everybody knew it meant National meant USA, was that the psychological error which we made. The Russians.. The Americans made it to and afterwards they tried to correct it by calling it the Quadriture Modulation System but by then the harm was done. Well then the French got a system called SECAM, that used a delay line, long delay line. And this had some advantage in simplicity but as it was first developed it gave awful pictures on anything except a very strong signal. So they changed that and from being a simple system it became a very complex system, but the French still persisted in plugging this system.

Now the Germans were largely in favour of NTSC in the German industry, but the Telefunken Company had invented PAL, which is almost the same as NTSC, there is very little difference between NTSC and PAL, and Telefunken kept plugging away at the PAL system, and Telefunken Company who are a very good company and very skilled in demonstrations. And a key position

in all this was taken by the Russians, and we collaborated if that is the right word, with the Russians, we gave them demonstrations here, we sent pictures by line to Moscow. I went to Russia four times on the matter, taking with me Nevil Watson and Darrel.. Oh dear..

GILLARD: Never mind..

McCLEAN: How dreadful.. And on the last visit Tim Radman came and we were getting on quite well with the Russians and I think proving the point that we were making and the head of the Russian Laboratories in Moscow said that he was in favour of NTSC system, and we thought we were doing well. Then we had the meeting in Vienna and the Americans sent along a demonstration of NTSC that was simply appalling, they were very bad pictures indeed and this sort of undid all the good work that we had been doing, people forgot about the good pictures and we had Telefunken, we didn't demonstrate in Vienna because we had already demonstrated in London. We had Telefunken giving an excellent demonstrations of picture quality because of their demonstration expertise. And these American pictures that looked awful, and in the middle of it all the, this cultural accord between France and Russia took place and the Russians announced that they were supporting the French system. And although Novakosky the head of the Moscow laboratories had said he was in favour of NTSC, it was sort of overnight thrown over and the Germans said that they would have to withdraw their support from the NTSC system because they, in the light of the French agreement with the Russians they could no longer agree.. they could no longer go against the French in supporting in a European view in supporting an American system and they would have to support their own system.
And then here there was mixed feelings, I thought the PAL system was good but I didn't think the improvement was worth the cost, that we were paying too high a price for it. I couldn't say the PAL system wouldn't

work it undboutedly does and it was a good system but I didn't think the performance was that much better than NTSC and in fact some respects it was worse. But the industry then who had been, who had published a booklet saying why didn't we start NTSC immediately withdrew all that and transferred their supprt to PAL and the TAC supported that.

Howard Steele the Director of Engineering at the ITA agreed with me that we ought to be on NTSC but we were over-ruled by the.. by the industry who made this claim that they thought they could sell receivers in Europe if we were on the same system, on the PAL system. Of course they haven't and it was never very likely that they would. But this was the way it went so that finally we were in the position that the UK was supporting PAL and we had this division three ways, part of the world is on NTSC, part of the world is on PAL and part of the world is on SECAM which is a problem that can be dealt with we've got other types of converters.

I mentioned earlier the simple standards converter of a camera looking at a television tube. This was replaced some years later by a digital type of all electronic things and the semi conductor and the microchip approach to all these problems has made things that used to take literally thousands of valves replaced by a few microchips that take up no space and cost very little so that convertin is no longer a problem. But it is one more stage to be done and it would have been better to be avoided and it would be nice, now we come back to what we were talking about before, if this sort of situation could be avoided when we come to broadcasting from satellites. Whether we shall get that far I don't know but it would be a good thing to do.

The situation went a stage further. I was goiing to say something about this when we get onto the post office, but I'll mention it now.

The post office were always very reluctant to let anybody, the BBC or ITA, or anybody else see the brief from conference they think this is something for the

head of the delegation and all they they will do is to say that the factors made by various people like BBC and ITA have been taken into account in preparation of the brief. When you get to the conference the head of the delegation says it is confidential to government officials.

But they pulled a particularly fast one over Howard Steele and myself in this colour question, in that the question was still open as to whether we were prepared to give support to PAL and .. but if this wasn't widespread to transfer it to NTSC should have been the logical thing to do and we had one meeting at which this was said and then the next meeting when the brief was under discussion again the post office said that the Minister had been due to go on holiday and he had insisted on having the brief for the Oslo meeting and so they had submitted it to him and it had been approved as it stood which we would support PAL only. This was sheer trickery I think. But anyway they got away with it. And in the event, of course, the entire situation was very acceptable, I am not decrying the system. Althought quite a number of people have told me since that I was very right and we should have stuck out for NTSC and we'd have had a simpler system. But that's the way these things go. But I'll say some more about relations between the BBC and the Post Office later.

GILLARD: Was there much effort equired in the way of training people for colour and that sort of thing, or adaptation of equipment, studios, OB gear and that sort of thing?

MCCLEAN: No it was new equipment, as far as new equipment was concerned it was largely new equipment but all the new designs of 625 lines equipment had all been made to accept the colour signals so the distribution amplifiers and the like would take either black and white or colour. We wanted new cameras.

Training we set up quite a training department at Wood Norton, we pout up special colour training, we had

training instructors sent to Lime Grove and TVC to do training and we set up a scheme with industry whereby they would train the servicemen who had got to deal with this so we put out special transmissions and we made a special film about lining up a receiver for colour transmission and the industry got out a list of apparatus that the servicemen ought to have. I've never yet found a serviceman who had it. When I have a serviceman here he hasn't got much more equipment than I have got and seems to find faults by replacing componants until the set comes good.

ORAL HISTORY OF THE BBC

SIR FRANCIS McCLEAN

ROLL ELEVEN

SIR FRANCIS: Yes we called together a number of people, perhaps it's not right to call it a committee but I was very concerned that we might get into the same trouble with colour in the UK that the Americans had got into in that nobody was prepared really over the country to deal with the problems of colour and so we had all these stories about green bananas and green butter and so on. And a large part of the work clearly had to be done by radio service people. And these had to be trained and provided with equipment.

Now I talked to various people in the RTRA and BREMA and they all said they were prepared to do it but they were not sure wherhe they were going to get adequate support from their bosses and the big manufacturers. And whether money would be available.

So I organised a lunch in Broadcasting House at which we had Jules Thorn, Arnold Weinstock, Lockwood of EMI Allchurch of BREMA, 2/3 other people and 3/4 BBC people. And it was a very pleasent lunch. It was noticeable Weinstock & Thorn had quarrelled about something or other and they wouldn't speak to each other and if one of them said something the other said something quite contrary it was very obvious the disagreement between them. Anyway they all agreed that we had to make colour successful and that test equipment and money to get people trained was essential and that they would play their part. And to a certain extent they did but not as fully as they might have done and colour went pretty smoothly but it might have gone even better if they had done all that they promised to do at that lunch.

Anyway we had a very pleasent lunch and we were going to have another lunch and discussion in a month's time but when it came round to trying to fix it they had all had got other engagements except Allchurch who was willing to come for lunch and actually did but the other people

all found reasons why they shouldn't come.

GILLARD: I suppose though that the transistorisation of receivers had reached such a point by then that servicing of colour sets was not as complicated a business as it might have been under a valve system ?

SIR FRANCIS: Oh it was much simpler, much simpler. The transistorised device could be put on a wafer and plugged in and of course valve from the time you first switch it on its emission starts going down its performance gets steadily worse from the first moment you switch on. Whereas the transistor doesn't change it's invarying in its performance so you get stability. So it in every way was better and of course it reduced the heat dissipation and heat is a great problem in any electronic equipment.

GILLARD: But all that the service engineer seems to do is to pull out a tray of one part of one segment of the receiver and slide in a replacement.

SIR FRANCIS: Yes and he keeps doing that until he has found whichever one does it and then he bills you for the cost of the whole lot.

GILLARD: Never mind that is simple servicing isn't it ? It's effective.

SIR FRANCIS: It's effective yes.

GILLARD: Well we'll leave it there for today thank you very much.

GILLARD: And we are coming on now to talk about leading BBC personalities over the years with whom Sir Francis had contact, sometimes very close contact, sometimes not so close. Your oersonal contact with Lord Reith wasn't very direct, but you've got one good story that we must hear from you?

SIR FRANCIS: Yes this was before I joined the BBC when I was still in S.T. & C.

GILLARD: What is S.T. &C.

SIR FRANCIS: Standard Telephones & Cables. And up to that time virtually the whole of the BBC's orders for transmitter equipment had been placed with the Marconi Company, and we got an order for a transmitter, actually the one to go at Red Moss in Aberdeen, near Aberdeen, and we were very pleased that we had broken the Marconi monopoly. But the actual official order that we got from the BBC arrived on note paper with a quarter inch black edge all round it, a real piece of Victoriana, and this aparently was in recognition of the fact that I had, I believe it was the Chairman of the Board of the BBC, had just died and all correspondence at the time went out with these black edges. We were quite impressed.

GILLARD: And you think that was attributable to Reith?

SIR FRANCIS: I can only think... none of the people that I had dealt with in the BBC on the engineering side were of the mentality that would have specified quarter inch black edging. I put, rightly or wrongly, I put that down to Reith.

GILLARD: I am sure you are right.
The next name is a very shadowy figure in terms of the archive, we have very little about him, but you met him once. I'm talking about Reith's successor, Sir Frederick

Ogilvie.

SIR FRANCIS: Yes my acquaintance with Ogilvie is very thin, very thin indeed. But at the beginning of the war, or maybe just before the war, I was at Daventry where I spent a large part of my time and Ogilvie came up to Daventry to see what a shortwave transmitter looked like. And I took him round and explained what it was, what we were doing, what were the various equipments and so on. And I got the impression he wasn't really very interested he didn't appear to be listening intently or to try and understand what I meant and I got the impression that he hadn't wanted to come but that somebody had told him he ought to come. And I am afraid that was about my only contact with Ogilvie.

GILLARD: Then he didn't impress you as a strong leader?

SIR FRANCIS: Certainly, Oh the very antithesis of a strong leader, and I got the impression he was a bit of a diletante who wasn't prepared to take the trouble, he wasn't really prepared to take the trouble to listen to me to what I was saying. Maybe what I was saying wasn't worthwhile, but anyway he shouldn't perhaps have shown it.

GILLARD: Now another name, Sir Gerald Beadle, Beadle who was controller in Bristol for 19 years I believe, and then became Director of Television.

SIR FRANCIS: Yes, I first met Gerald Beadle at the opening of the Start Point Transmitter in 1938 I think it was... 39 was it? And I was staying at (Kirkcalts Hotel) and Gerald Beadle and family came there and made quite an excusion of it. The opening went very well indeed. And then I met Beadle occasionally, during the war on various activities but nothing of any great significance. And I didn't really have much contact with him until he became D.Tel. He was D. Tel at the time of the big expansion when we were planing what was to be done and how to do it and how much we wanted and so on and I was impressed. He'd got enthusiasm and he was prepared to listen

I was very much impressed with him, and he was decisive. I remember one occasion we had a committee was set up to consider the attitude of the BBC to pay-TV, either over the air with coded signals, or with wire. And the Chairman of this Committee was Cecil McGivern. And we were having ameeting at Lime Grove one morning and not very late in the morning, at 11 o'clock actually, and we were all waiting except Cecil McGivern, and Gerald Beadle came in and said, 'I can't get a word out of Cecil, he's gone'. And he turned to me and he said, 'you'd better take over the Chair'. So I took over the chair, and we produced, finally produced a report which was then rewritten by Maurice Farquaharson and presented to the Pilkington Committee.

GILLARD: Now somebody I know you thought very highly of, Sir Berrisford Clark, J.B. Clark.

SIR FRANCIS: Oh J.B. was a wonderful man. I had the greatest admiration for him. He had a terrific memory, a terrific ability. He was interested in everything, he was interested in the programmes, he was interested in the technical side of things. And he worked enormously hard. He had his.. I was going to say: prejudices, he found it very difficult to accept any estimate from the building department without a vast deal of supplimentary information and explanation. But it was all taken in good part and when we had got it settled he didn't raise the matter again. He was, I think, an absolutely superb man, I enjoyed working with him.

GILLARD: Was he interested in the technicalities of shortwave broadcasting?

SIR FRANCIS: Oh yes he could talk about frequencies and NUF, and LUF's and signal to noise ratios, and frequencies and in fact together we spent quite an appreciable amount of time at the Florence, Rappalo Short Wave Conference. And he was very active indeed in that.

GILLARD: As director of External Services he was a big figure wasn't he? He, in world-wide broadcasting. At Conferences and things like that.

SIR FRANCIS: Oh yes and he was very much listened to. At that time the Russians had I think something like 800 hours of broadcasting and the BBC had 700, and then everybody else was way down, even the Americans were way down in the broadcasting activities. So that what the BBC said, and what J.B. Clark said, was extremely influential. And I think his influence was also very aparent in things like the Commonwealth Broadcasting Conferences where he was a very influential figure.

GILLARD: Now what about Sir George Barns, a very different man, he was Controller Third Programme, he was Director of Spoken Word, then he became the first D. Tel.

SIR FRANCIS: Yes. I have mixed feelings about George Barnes. The first time I met him he was Director of the Spoken Word, and for some reason he'd got it into his head that facsimilie transmission was going to be the thing of the future, and that the Spoken Word and to a certain extent television would be replaced by facsimilie printers. He wanted to know how it could be done, what it could be done, what the difficulties were, and I did my best to explain that and said that from my point of view I visualised facsimilie transmission as an absolutely unreadable flood of paper coming out of a machine, and I doubted it. But he said he thought it would come. Well it didn't of course. Then he became Director of Television and I think he was not very effective in that. I couldn't find that he really took an interest in what the problems were in television. He took a prejudice to some people, he made an adverse report on Martin Pulling.

GILLARD: Who was?

SIR FRANCIS: Who was then Superintendent Engineer of Television. I think it was quite unjustified and it seemed to me that he was really rather at sea and it was a mistake to have a man of George Barnes academic, and if you like, scholarly, I suppose, outlook into such a rough and tumble job as Director of Television.

GILLARD: It's a well known fact, of course, that his great ambition was to be D.G. and he was heartbroken when

Jacob got it. What do you think he would have made of the job of D.G.?

SIR FRANCIS: I think he would have been less successful as D.G. than he was in Television. That the rough and tumble of the D.G. has to deal with is another order compared with television. No I don't know why he should have thought that, but I think he would have been impossible.

GILLARD: Now let's turn to somebody else, a very different sort of man. Thomas Lockhead. Who was he?

SIR FRANCIS: Thomas Lockhead was Controller Finance and was one of the pillars of the BBC. All.. I was goingto say a large proportion of the 'high-ups' did a certain amount of waffling when any question was put to them. And I probably did myself. But Thomas Lockhead stuck to facts, he'd got a superb memory of, for financial matters he was very sensible, very quick in the up-take, I enjoyed meetings with him, with Thomas Lockhead, and felt I'd gained enormously from his acquaintence.

GILLARD: Did you have any clashes with him over financial matters?

SIR FRANCIS: No. He would always explain why the money wasn't available and in such a way that I really couldn't argue with it. We had no clashes. And I spoke to him as to how things ought to be presented, for example there was the question of how much was the 625-line UHF network going to cost. And I told him the difficuly of estimating it, but he said he appreciated that and I gave him what I thought were the probable expenditures over ten years. I think my number, my estimate of the number of equipments turned out to be remarkably accurate. The estimate of the money wasn't quite so accurate because I hadn't anticipated the way that inflation would go on. But it was a pleasure to work with Thomas Lockhead, and indeed with his assistant Jack Francis a similar sort of type.

GILLARD: Now we come to one of the really big figures in the BBC, Sir William Haley. Director General

Sir FRANCIS: Direct contact with William Haley was very little but I was impressed with what I saw, the way he could address a meeting, the way he could state a situation and summarise things without any notes. I was impressed with the system he set up that we could only have additional staff if we made some economy and we accumulated sort of credit notes in manpower to use up in new staff, this seemed to me an excellent idea. And he tightened up the financial controls very much indeed. I think the BBC really became a working organisation, I mean working in the sense that it was economically viable under Hailey.

As far as it affects me is concerned, the only thing that possibly affected me was when Ashbridge was retiring I heard that he had recommended that I should be offered the job of Director of Engineering and I had had various interviews with governors on subjects and I didn't know why they wanted my opinion but I found out that clearly they wanted to have a word with me. And I was told afterwards that actually all the governors wanted to offer the job to me but Hailey stood out and said it should be offered to Bishop, which I think was quite right and if it had been offered to me I don't know what I would have done. I think Hailey certainly thought the right thing to do was to offer it to Bishop.

GILLARD: He used to be described as the man with two glass eyes, because he was a cold fish. Did you find that ?

SIR FRANCIS: No the few occasions that I spoke to him he was, he wasn't a hail fellow, well met, but he got down to brass tacks and talked sensibly. I wouldn't consider he had two glass eyes at all.

GILLARD: But what about his successor, Jacob, Sir Ian Jacob ?

SIR FRANCIS: Ah now he was a different man, he was a very impressive man indeed, very quick, very active, prepared to take trouble in finding out what was being suggested or what should be done. But I thought a shade impulsive. It used sometimes to get to me that he would ask me to describe some chap as a good chap or not a good chap. Well some of the chaps I could say without reservation were undoubtedly good and some I could say were not good. But Jacob didn't seem to be prepared to listen to anything that so and so was very good in this respect but had his limitations in others. He wanted a simple go-no-go answer. And I suppose this is maybe the army way of doing things and can you trust a man in an emergency. Anyway this was done.
And he sometimes took decisions that I thought he might have referred. We had a long dispute with the ITA as to who was to get the top position on the Crystal Palace mast and I thought we had a very good case, technically speaking, for it. The top position is much the most desireable. That we had a good technical case for having this top position was pursuing the argument with the ITA and the Post Office on this basis. Sir Robert Fraser came to see Ian Jacob and Ian Jacob was convinced by Sir Robert Fraser's arguments and said that he would agree that they should have it at the top position.
And that was without reference to me. Afterwards we succeeded in getting it changed. But anyway this was.....
And then we were the first organisation in the world to develop a device that would change from American television standards to European television standards and we spent a lot of money on this and then I .. the EBU wanted to use it and I said yes we would do it but I thought that they ought to pay some contribution towards the cost.
Maybe I was unreasonable about this.
Anyway George Hanson of the EBU went to see Ian Jacob and just agreed that the BBC wouldn't .. wouldn't make any charge. And again I heard of that from George Hanson not Sir Ian Jacob which I thought was wrong.

But there was one other thing that I remember now with Ian Jacob. He had quite a wide collection of people who used to get in touch with him on various things and sometimes I was called in. On one occasion I was called in Sir Michael Balcon the film man had asked Jacob for an opinion about pay TV and this sort of thing. So Michael Balcon came to see Ian Jacob and I was called in and then I talked about pay-TV and coding and decoding and so on and explained that if you wanted to be absolutely safe that nobody would break the code you have to go to a complexity which would cost a lot of money and likely to go wrong. If you had a simple coding system, maybe a certain proportion of people would break the code, maybe it was better you had to draw the balance as to how, how tight the code. I went on and I thought that I did this quite well, I felt that I had given a good explanation. When I had finished Michael Balcon said to me, "Well thankyou but how much money does the coin box hold ?" LAUGHTER I thought Michael Balcon had really brought me down to what is the important matter.

GILLARD: What they call 'the bottom line'.

SIR FRANCIS: Oh I had lots of contacts with Jacob and with the EBU in his contacts with the EBU and I found him always very pleasent to deal with. At times, as I say, I had difficulty in avoiding that he shouldn't take a decision until he had heard the facts. But he wasn't the only DG who suffered that way.

GILLARD: And the next one I think, Hugh Greene, was one in that category wasn't he ?

SIR FRANCIS: Yes Hugh Greene was very much in that category. I quite enjoyed working with Hugh Greene I had quite an admiration for him. I didn't regard him as one of the outstanding directors general. He certainly got a certain amount of freedom on programmes and the

introduction of four letter words without closing the place down. I didn't agree with him, he used to go on about Mary Whitehead (sic) quite often I sympathised with Mary Whitehead more than with Hugh Greene. But I think he was very good on the programme side and it needed some relaxation, maybe he went too far I don't know.

As far as I was concerned I quite enjoyed working with him. I remember once I presented a paper on something, I don't remember what it was but I did it in a normal engineering fashion, that the problem is so and so, the facts in the case were so and so and the recommendations were actually so and so. And I took this paper to Hugh Greene in his office and he looked at it and he said: "You've got this all wrong". I said oh well I've done my best how is it wrong ? He said: "You should start off with your recommendations, it is recommended that the following should be done; the reasons for these recommendations are so and so and so and so" he aid "very few people will read your reasons, I won't for one". Which I think was quite true.

Well this was actually quite a lesson to me and in submissions to the Board of Management and suchlike I then kept to the Jacob, to the Hugh Greene rules of putting the conclusions first. And although inside engineering circles I adhered to the regular way of putting the problem, the factors and then the conclusions, it seemed to me conclusions by definition ought to be at the end.

GILLARD: Did you find him farsighted ?

SIR FRANCIS: No. I don't... I..I think I thought that he was generally too much concerned with the day's problem and he wouldn't .. he would take no interest in wavelength problems and this question of direct broadcasting from satellites, this started well over 20 years ago the consideration of it and it was quite clear it was going to have an enormous impact on a BBC type of operation. And I prepared a paper for Hugh Greene saying that nobody knew what might happen but it would make a large number of

channels available, it would spread broadcasting beyond national boundaries and could have, make a terrific difference. And he said to me, he said: "Is this coming in this year ?" I said no. He said "Is this coming in next year ?" I said no. He said then we won't talk about it. Now this I thought was really quite wrong because I talked to him at that time, when he said will it come in this year or next year I said it certainly won't come in for ten years, I thought then it might come in in ten years, I was wrong it has taken more than ten years. I thought this was the sort of question that should be dealt with. But he had the newspaperman's attitude.
And another thing that used to rather get me was that his .. at the Board of Management on Mondays everything was told to George Campey, quite openly.

GILLARD: The Head of Publicity.

SIR FRANCIS: The Head of Publicity, yes. And there was some questions that I had been told I shouldn't mention to junior staff, even my immediate juniors because it was highly confidential. And then I heard this all being told to George Campey who was maybe the soul of discretion I don't know, but it seemed to me this was very dubious. But again it was the newspaperman's outlook.

GILLARD: What did you think of Hugh Greene as Chairman of Board of Management ?

SIR FRANCIS: I thought he wasn't as good a chairman as he ought to have been. He persued his own particular interests without too much regard for what other people said, which I suppose any chairman is likely to do but I thought he rather overdid it. And the thing that really used to annoy me was the minutes of the Board of Management which usually came out late on the Friday afternoon and quite often quite different to what had been said in the Board of Management. And sometimes I would tell my people

after the Board of Management, well so and so had been said and we're going to do so and so and then I would find that the minutes were quite different and I had to back-pedal on it. And I thought writing minutes with the benefit of hindsight was wrong. It should have been recorded the situation as it was on the Monday.

GILLARD: So well lets leave Hugh Greene after all that barrage, did you want to say more of him ?

SIR FRANCIS: Well I was only thinking about when he, when Lord Hill was appointed.

GILLARD: Ah yes you were there we'll come to that. Let's take Curran. Sir Charles Curran who was Greene's successor as DG.

SIR FRANCIS: Well again Curran was one of them en that I admired very much. I first met him when he was the BBC Representative in Canada. I liked him then, everybody spoke highly of him and when he came to external services I had quite a lot to do with him. He succeeded S.G. Williams and we were having various things with who had the responsibility for running Singapore, was it entirely an external service or had E. Division got it. On these sort of questions he was entirely reasonable and we got a very good settlement. He was very interested in the technical side and prepared to take a lot of trouble to get himself informed about what the situation was. He was, I thought, a real worker and a sympathetic worker. I never had the slightest trouble with him and I always felt that what I had to say was .. he was fully sympathising and he had appreciated and if I said something that he didn't understand he asked me. He showed every sign that he was following what I was saying. I was very impressed with him. I was impressed with his skill in languages, that he spoke very good french and would give a speech with a sentence or so in english followed by an immediate translation in french. Oh he was a first rate man and I enjoyed working with him.

GILLARD: Now we're going to change gear a little bit and instead of talking about staff we're going to talk about chairmen of the board for a little bit because you saw the comings and goings of quite a number of them in the course of your career and sometimes you were closer to them than at other times. But for instance you did actually know the controversial Lord Simon didn't you ?

SIR FRANCIS: Yes oh yes. I .. of course meetings between staff and the chairmen of the board were rather discouraged by the DG of the day but I had several meetings with Simon and discussions with him. I met him when the first meeting of the EBU down at Torquay and talked to him there and some of the planning things that he wanted to talk about and I was called to see him once or twice. And then I saw him .. he said he wanted to discuss frequencies with me which was a broad subject, I went to see him and this was at the time when afterwards it became clear that this was a put-up discussion because he was, they were considering me for possible successor to Ashbridge. And also at that time I was invited one evening round to his appartment in Marsham Street where we went into another discussion about various things. And I think that was, I suppose I must have impressed him because I was told afterwards that he was in favour of me being offered the job after Ashbridge.
But I liked him and I got the impression he was a very sound man, that he went into things in appreciable detail before he would commit himself and I think he had a sort of sympathy with the engineering point of view. Again I'd give him high marks.

GILLARD: But he drove the programme people and the DG absolutely mad, you know that ?

SIR FRANCIS: Yeah, I can appreciate this because a question on an engineering matter or scientific matter or anything like that .. the answer can be a logical answer and he would take that and follow it up. I must be careful what I say about programmes but sometimes the

answers on programme matters are not entirely logical they are based on instinct.

GILLARD: Yes that's true. Then there is another chairman who has rather faded into the background but was a big man in his day and important in the perspective of history and this is Sir Arthur fforde.

SIR FRANCIS: Yes he was always very... yes I had several meetings with him. He was always very pleasent and I once went down to Wales, we were having one of our periodic difficulties with Wales, how to give them a welsh service and explaining about there wasn't a channel and it was very expensive and we were spending all that we had on putting out the english programmes and Wales came back. And I attended with him a meeting of the Welsh Council and I thought he put the case very well. I.... I suppose in his own literary field he was highly rated. I wasn't particularly struck with his ability to present a case. It didn't seem to me that he was.. did it as well as Jacob would have done it or Lord Simon for that matter.

GILLARD: Yes we all felt he was very obscure, has come clean about it.

SIR FRANCIS: Yes and he was always very pleasent and he said yes and one didn't know whether he said yes meaning I heard what you said or yes I agree with what you said. I remember one occasion he would, there was a sort of press conference or something in Brist.... in Cardiff and we were standing in front of, we were standing in the room there and a photographer came up and wanted to take our photographs. And Arthur fforde said to me well all right you say something. I thought actually it should be he but .. that said something but anyway we happened to be standing in front of a large photograph of the Swansea Town Hall. Maybe it was Swansea we were in. Anyway I turned to Sir Arthur fforde and said now I've got this fine edifice for disposal would you be prepared to make me an offer for it ? And then he laughed and we got a very good photograph that way.

GILLARD: Yes, yes you had to break the ice with him.

SIR FRANCIS: I had to break the ice and I had to initiate things which you know as a poor dumb engineer I thought the other man should have done it first.

GILLARD: Harold MacMillam who appointed him described him as the fifth most clever man in England, because MacMillam thought of himself as the first. I don't know who the others, I don't know who 2,3, & 4 were but Arthur fforde was supposed to be the fifth. Did you feel that he was all that clever ?

SIR FRANCIS: I had heard this and I couldn't distinguish it. I didn't know whether it was in reading ancient greek or what it was that he was distinguished but in the subject that I was conversant with I didn't get this impression.

GILLARD: But he was extremely agreeable ?

SIR FRANCIS: Oh more than agreeable, delightful chap, delightful chap.

GILLARD: And the BBC was happy because of the relationship he had with Hugh Greene, I mean that was a great partnership ?

SIR FRANCIS: Yes it was indeed yes. Oh it was back to halcyon days as far as that sort of thing is concerned.

GILLARD: And his successor was Normanbrook, Lord Normanbrook ?

SIR FRANCIS: Yes well he was a very good and intelligent man. I may sound a bit patronising but I really mean it. He would take again, terrific trouble to understand what was said in a document put before him and I had to discuss a few things with him and I got the impression that no sloppiness would be allowed to go through and the faile argument was found out. He was very good indeed and there was another light on Normanbrook on, with a number of highups in the BBC, the BBC Receiver Section looked after

their interests and sometimes, I said if there's any trouble I'd like to know about it because I was afraid of it coming back through the Board of Governors. And occasionally I did have trouble reported back to me. But conversely of course the receiver people Hellyer would say how much .. what they thought of people and they repeatedly said to me what a joy it was to go to Lord Normanbrook's house, they sometimes hoped that his equipment would break down so that they could go again because they enjoyed talking to Lord Normanbrook. I think this was a real tribute.

GILLARD: Lady Normanbrook too I'm sure.

SIR FRANCIS: And Lady Normanbrook too, yes.

ORAL HISTORY OF THE BBC TAPE THIRTEEN

SIR FRANCIS McLEAN

GILLARD: Now we were talking about chairmen and so forth and we come to somebody who was barely a chairman he was acting chairman for a time but vice chairman for a longer period. This is Sir Robert Lusty.

SIR FRANCIS: I liked Sir Robert Lusty and with one exception I admired what he did and was very sympathetic to him. It seemed to me that he had the right idea of how to run the Corporation and .. when I say .. I admired him I had quite a number of meetings with him on various things which are not sufficiently interesting to go into details.. the thing that upset me about Robert Lusty was after he had left the BBC and I had left the BBC when he wrote a book called BOUND TO BE READ in which he gave one version, or his version of the HILL/GREENE affair and in which he said that the situation took a farcical turn when I was brought into the thing. I thought, I had thought and I still think that not everybody behaved on that occasion in an adult way but I thought that I did and I rather resented and still resent, that my efforts were called farcical.

GILLARD: I endorse that absolutely. It was a grave insult I think and you know we must one day take it up together with Bob Lusty, he shouldn't have said that, ridiculous. Did you feel that he was too much a Greene puppet, I mean Hugh Greene seemed to have him in his pocket all the time ?

SIR FRANCIS: This was the impression that .. in his pocket is maybe too strong but I sensed that there was a collaboration or community of view between the two which didn't normally exist between the DG and the Chairman where circumstances normally tended, as far as I could see, to tend to lead to friction between the two and I saw no signs of friction with, between Lusty and Greene.

GILLARD: No.

GILLARD: Well now we come to the great...

SIR FRANCIS: I should, one thing I would like to add about Lusty in that he did something that none of the other chairmen ever did and he spoke to me one day and he said he'd like to know more about the technical side of things. He had had a number of meetings with programme people he'd like a meeting with technical people. So I very much welcomed this and said that we would arrange it and I discussed it with him and I said that I thought that the right thing to do was we'd have a meeting with the specialist departments, the basic research and investigations and then later a meeting on the operational side a little. So he said this was fine. So he came to my office and I had got half a dozen people and I told them now we've got to be very careful in this we must have no blinding with science, it's got to be put in simple language that everybody can understand and never mind if in simplifying it you to a certain extent distort it, we just have to accept that.
Everybody accepted it and we had what I thought was quite a good presentation. Bob Lusty sat there and I'd had expected him to ask questions to say I didn't quite understand that or whatever it was, but not a word did he say. And then they went away and Bob Lusty stayed with me and he said it had been very enjoyable it had given him a lot to think about and he'd be getting in touch with me for the proposed second meeting.
But of course it never happened.
But this was... he tried. And no other chairman in my day ever thought about trying to follow what the engineering division did. I was impressed with him to that extent.

GILLARD: Also we must add that he was very deaf and it was awfully hard for him to take in a lot of things that were said.

SIR FRANCIS: Yes I had known this and I told people they must speak up clearly and whether he took it in or not I don't know. But anyway he tried.

GILLARD: Now we come to Lord Hill. Now let's deal first with the circumstances of Hill's appointment before we go on to assess Hill as Chairman. Now you tell your story of Hill's appointment.

SIR FRANCIS: Well I had on various occasions met Lord Hill quite a number of times at various does and things in the broadcasting world and I had liked him and and I thought he was basically a sincere man, a very straightforward man and I was impressed with him. Then one day in the summer of.. I've forgotten which year now, but anyway it was about 5 o'clock on a Friday afternoon. I got a telephone call from a man in the Post Office, a man named Lillicrap, who said would I be prepared to, this was about a month after Lord Hill had been appointed, and would I be prepared to talk to Lord Hill who wanted to talk about his position in the BBC. So I said well I wasn't sure I'd have to think about it, and I would call him back. So then I tried to phone Hugh Greene, he was on his way back to Suffolk and I tried one or two other directors that I might discuss with but they had all gone off for the weekend and so I phoned up Lillicrap and said well I didn't know what I could do or what Lord Hill wanted but I would talk to him and he was to call me at home. And that I would be at home sometime after seven.
So he said well that would be good.
So then about just after seven Lord Hill phoned me and said that he was very disturbed, he didn't know what the BBC had got against him and that he had been appointed for a month and he'd had no word from the BBC, no invitation to come round, what had the BBC got against him ?
And I said well I thought the BBC hadn't really got anything against him but it did seem a little odd that it went straight over from the ITA, the competition, and come into the BBC.
And he said he would like something to be done and he thought something ought to be done to get them together.

So I explained to him that Hugh Greene had gone home when I got this message but I would try and get in touch with Hugh Greene and I would call him back.
So Lord Hill was at home of course. And then I got through to Hill, to Greene in Suffolk oh and I had a dreadful telephone conversation. It was impossible. He ranted at me and I said I had no option I had to do something, I had to talk to Lillicrap and Lillicrap said it was important and I felt that I had to talk to Lord Hill because nobody in the BBC would talk to him you see.
And then he went on, he said "The man is a prostitute, he is doing it for money, he is changing over from our deadly competitors to us and it means no good to the BBC".
And I said well what shall I say to Lord Hill ?
And then he started off again and he went on and on.
And finally I had to keep coming back, I said I've phoned Lord Hill and whatever can I say ?
"Well you'd better tell him that if he wants to, we'll give him a cup of tea but before you do that get in touch with Bob Lusty".
I had tried to get Bob Lusty first also and he was on his way down to Brighton. Fortunately by the time I'd finished with Hugh Greene I was able to get onto Brighton and speak to Bob Lusty who was quite reasonable and he said well he had thought that the first approach ought to come from the Chairman. And I said well I don't know. It has in a way it has come indirectly. And then I told him what Hugh Greene had said. So he said well I suppose that's all right. I think only Greene should see him. So I said well that's nothing to do with me but I promised to phone Lord Hill back.
So I phoned Lord Hill and by this time it was about an hour and a half from the time he had phoned me.
And I apologised and I didn't like to tell him I'd been 45 minutes on the phone with Hugh Greene. I said I'd had awful trouble getting hold of the people but I had finally got them and that the BBC would like to give him a cup of tea if he would regard that as all right. He said he'd be glad to have anything with the BBC. And I said could I tell Hugh Greene that he invites you to have a cup of tea

one afternoon that you will accept ?
And he said yes. So then I phoned back Hugh Greene and told him this and he ranted a bit again but finally said he would accept. And that he would do this would Hugh Greene but he wouldn't do it till Monday, he wasn't going to .... I have him Hugh Greene's... Hill's home telephone number, no it was a thing for the office he'd do it on Monday. And I presumed he did.
And I must say that it didn't reflect very well on either man that Hill was standing on his dignity that he had to be invited to the BBC and the BBC were standing on their dignity that the chairman should break the ice first.
And afterwards I had a suspicion that Hugh Greene regarded me as an aide to Lord Hill which I wasn't, I remained on good terms with Lord Hill but I certainly didn't go out of my way to do things for Lord Hill that I wouldn't have done for anybody.

GILLARD: It was an extraordinary business wasn't it ? Do you remember the special meeting of the Board of Management that was called and we were informed of Hill's appointment (yes) tell that story.

SIR FRANCIS: Yes again I Think it was fairly late in the evening wasn't it that the, I got a call from Hugh Greene's secretary that he wanted an immediate meeting of the Board of Management. And I said to he what about because we're all meeting in about an hour's time at this management dinner ? She said I don't know but he seems very upset.
And then of course we went in and then we were told that Lord Hill had been appointed and Hugh Greene was talking about resigning on the spot and a number of us said he shouldn't do that and then we went along to the management dinner, the only thing we were prepared to talk about was Lord Hill and the management of the BBC.

GILLARD: But we had a guest from outside.

SIR FRANCIS: Yes Tony Barber and what he thought about it I don't know but it was an extraordinary dinner.

GILLARD: Tony Barber was Chancellor of the Exchequer wasn't he ?

SIR FRANCIS : Yes.

GILLARD: Now what did you make of Hill ?

SIR FRANCIS: I thought he was good and the people in the ITA thought he was a good man too. As I say I had met him a number of times and I remember on one occasion at dinner I was sitting on Lord Hill's right and on my right was Robert Fraser, the DG of the ITA. And during the course of the dinner Robert Fraser said to me he said: "Do you know, Mac, what are the duties of the DG of the ITA ?" So I said, no what are they. He said "It's to do anything that the chairman wasn't to do himself, didn't want to do himself". And of course it was this Hill.. virtually over-ran the ITA. Everything was, had to be agreed with him. He spoke to me, he had a man named Bevan who was the chief engineer who was a very good man but an absolutely impossible man for working in an organisation, he was always late and didn't do things when he ... and Hill said to me that he had really reached the end of his tether with Bevan, Bevan had to go and could I recommend anybody to take Bevan's job.
So I said well it's very difficult to .. the good men in the BBC I wouldn't want to lose, if you wanted a caretaker I could think of one or two retired men who might do the job, I said Martin Pullin would do it. No he didn't want a retired man he wanted an active man. I said well you have got it in the organisation, not in the ITA but in the programme companies, a very active man Howard Steele who was absolutely first class. So then he asked me to tell him about Howard Steele, which I did, and Howard Steele of course was offered the job and did it. Another thing I remember with Lord Hill was at the time of Hugh Greene's divorce and I was sitting next to Lord Hill and as it happened that day I had been told of the McKinsey investigation into the BBC and my mind was very

much occupied with what McKinsey was going to do to the BBC and the Engineering Division in particular.
And Lord Hill turned to me during the dinner and said: "We've got a big threat hanging over us".
As I say I could only think of McKinsey. So I brightly said oh I don't think it will be too bad after all they have investigated the Post Office and nothing seems to have changed in the Post Office. And Lord Hill looked at me and he said: "If you don't know what I'm talking about I am not going to tell you".
So I said "Oh!"
I said "Does it affect a senior man precisely ?"
And I said well I don't think it'll be ... I said if it's a spicey sort of divorce case then maybe it'll affect it but if it's a normal divorce case, incompatibility or something like that I don't think anybody in the BBC will notice.
"I hope you're right, I fear you're not".
I said well we'll see and of course it turned out that nobody was ....(no) .. I think as far as I was concerned Lord Hill had a good effect on the BBC. He was more lively and seemed to take more interest in what was happening on the technical side than previous chairmen of the board and of course he had a very wholesome effect on salaries. When, I had only the benefit of about 4 months of Lord Hill, within a week or so of him coming in my salary went up from £9000 to £10,000 and a month or so later it went up from £10,000 to £12,500, which was a big increase. Of course it didn't do me much good because it only came a month before I left. But anyway he had got the right idea and the squeezing up of the salaries in the top bracket were, which had been a feature of the other thing, I was getting only 3% more than my second in command. And Hill said this is wrong and put it right. So from that maybe narrow-minded viewpoint Hill did some good work.

GILLARD: Did you feel that he tried to be an executive chairman ?

SIR FRANCIS: Oh very much so. Very much so and the fact that he refused to sit in the rather pokey little office

that other chairmen had been happy in was an indication of that and that he wanted copies of things.
And he set up this committee to investigate financial matters before it came to the board of governors meeting, this was a good move too. I think he was, I thought, a good influence on the BBC and it was a pity that he and Hugh Greene didn't hit it off.

GILLARD: Certainly was. I know that you have mentioned Sir Robert Fraser, is there more you'd like to say about Fraser, he was the DG of the ITA, or IBA ?

SIR FRANCIS: Yes he was a very lively director, and still is I imagine I haven't heard anything to the contrary. And he was, I thought quite sensible about relations between the BBC and the ITA. I thought the BBC's attitude at the start of the ITA was unrealistic and rather foolish. Sir Robert Fraser of course had every reason to encourage co-operation with the BBC because he was expecting to gain from it. But I thought we ought to have been more responsive to Sir Robert Fraser.
He took on a terrific job, he got it organised very well indeed and he again went into .. realised that fundamentally if the technical side wasn't right then the rest of the people were wasting their time. And he put a lot of effort into the technical side and got some good people together.

GILLARD: Now let's turn to some of your own immediate colleagues in the engineering division. Let's start at the beginning and that means starting with Peter Eckersley, the first Chief Engineer ?

SIR FRANCIS: Peter Eckersley, I think, was delightful. He was a good engineer. A brilliant man, very inventive, anxious to do things, glad to take risks. He didn't see himself with gravitas. And Reith of course was the essence of gravitas and here was the first... he had a long background of having started broadcasting in Writtle and when the BBC came he was the mainspring of that.

He thought up the regional system and the duplicate transmitters and was a first class man. He didn't, it's impossible to think of Eckersley and Reith hitting it off over a long period of time. But I liked him. He had a wonderful set of stories. He was thrown out for what would now be regarded as a mild pecadillo, in fact it's almost got to the stage where there's anybody who doesn't indulge in such things is slightly suspect, being not quite normal. But I liked him and again it was a tragedy that after he left he did one or two jobs that were really not worthy of him and seemed to be in quite some difficulty. He was a great loss.

GILLARD: What about his successor then, Ashbridge Noel Ashbridge, Sir Noel ?

SIR FRANCIS: Well Ashbridge hadn't got the personality of Eckersley but he had got a nice quick sense of humour and not too much gravitas. He could debunk a situation and didn't regard himself as too, too serious a man. And of course he took the responsibility for some of the big steps forward in the BBC. He took the responsibility for getting the External Services started and above all for getting the Television Service started. If television had been a flop then the man who would have taken the whole of the responsibility was Ashbridge. He was influenced or guided by a man named Kirk who was head of research and Kirk and Ashbridge were remarkably close together, as indeed everybody who had the privilege of working for Kirk, I had the greatest admiration for him. Ashbridge and I think, I think we got on well together. I had quite a lot to do with Ashbridge and quite often I had to go and see him directly without going through all the chain of command. And just after the war, about 1948 or so or '49 I had been during the war in close contact with Canadians in the Canadian Westinghouse Company. And I was surprised to get literally a three page telex from Canada at about this time offering me a job with the Westinghouse Company and listing all the advantages and what I would do and so on, everything, it

must have cost them a firtune. And I was quite tempted by this because it, my prospects in the BBC there were long long ways to go before I could get anywhere, so I was thinking about it and so I told McClaherty, as I thought I was considering this offer and I hadn't reached any decision and it went straight up to Ashbridge and the next thing I was asked to see Ashbridge who wanted to know if I was disatisfied. And I said no no I was quite enjoying my work at the BBC but this is a chance to get into a new company and offered to me that I could do better and maybe in Canada I'd have a better future than in this country since I think probably I had made a mistake in not going, I should have gone to Canada. But anyway Ashbridge said well you should stay here you wouldn't like it in Canada, the Westinghouse Company hires and fires and so on. So in the end I told Ashbridge I wouldn't persue it.
But I mention this because at that time I was Grade A1 and one of oh I don't know 50 people on A1. But Ashbridge still took an interest in people down the line and I think took a long term view of getting people, getting a succession of people lined up which doesn't always happen you find so often that people haven't made this provision. So as he took a good view of me I took a very good view of Ashbridge.

GILLARD: Very good. Now what about Bishop, Sir Harold ?

SIR FRANCIS: Well now he was again very different. I mentioned gravitas before, Bishop was the esssence of gravitas. He did an excellent job. He was very keen on the paperwork. He was meticulous in keeping the paperwork in order and I learnt a lot from him about this importance. I had been rather sketchy about keeping the paperwork in order being perhaps more concerned with the technical or scientific aspects of things but under Bishop I realised that money was important too and to keep things running smoothly. He had a terrific memory of things. He was not interested in the technical side of things really at all and had very little technical

knowledge and wouldn't express an opinion or go into things of a technical matter whether A was better than B and so on. He left this entirely to his subordinates and used to leave a lot of it to me. I worked as an assistant to Bishop from 1946 until I succeeded him in 1963. So it was a long spell that I had ahead.
He was at time pernickety. I remember I prepared a draft for him on something or other and in this draft I said we shall start off by doing so and so and eventually we shall do so and so. Bishop corrected this, we shall start off with doing so and so and in due course we shall do so and so. Well that was all right. So a little time after that I had to prepare another draft on another subject and again the argument was the same and I started off, we shall start off with doing so and so and to get it right this time I put in due course we shall do so and so.
But I'd got it wrong again he corrected it to eventually.
But he would always, he used to upset a number of people this way.
L.W. Hayes that you probably remember used to say if he went into Bishop with a paper or anything Bishop's instantaneous reaction on seeing him was to streatch out his hand for a pen ready to amend the draft. And he had got this bad habit of starting to amend a draft, sentence by sentence and it maybe that the argument, the point that he had in mind occurred in para 111 but it occurred to him and he started amending para 1 then when he got to para 111 he had to amend it again. But he was a good man to work for, the soul of honesty, a shade lacking in moral courage I think at times.
For instance, when finally he became Director of Engineering Wynn was Deputy Director and I was Assistant Director. Bishop told me that he regarded me as reporting directly to him which in point of fact most times I did but he did tell this to Wynn...

GILLARD: He did not ?

SIR FRANCIS: He did not, and Wynn thought that everything had to go through channels. So I often had to explain to Wynn that Bishop was very anxious to have this and so I'd

done it without going through him or sometimes I sent him a copy. But if he'd told Wynn he would have known, Wynn wouldn't have liked it because Wynn wanted to be second, but he was lacking this courage to do that.

GILLARD: Was he an inspiring leader, that's the point ?

SIR FRANCIS: I don't think really that he was. He was more than cautious and if he didn't understand something he was very reluctant to say all right you know if I said it was all right he was very reluctant to do it. And sometimes he would get something and he would say with a, what I thought was a cast iron case, not knowing what to say he'd say, well you maybe right but we'll see. You know this postponed decisions again. He was a good man absolutely the soul of integrity and if he said something he would stick by it but it was difficult to get him to say anything.

GILLARD: What about Wynn ?

Sir Francis: Oh he was a different kettle of fish. He was mercurial, voluble, got an opinion on every subject, and again he was a very limited technical knowledge, very limited indeed, worse than Bishop. But he was a good operational man and of course he got on well with all the programme people and provided that it wasn't too complex a subject things were all right with Wynn but if it was something that was complex he tended to flannel a bit and made it difficult, but as it turned out virtually operational matters were dealt with by Wynn and all technical matters were dealt with by me.

GILLARD: What about Kirk ?

SIR FRANCIS: Kirk was an exceptional man again, I keep finding myself saying exceptional man and I think broadcasting did get together on the engineering side possibly on the other side too, some quite exceptional men Kirk was really brilliant. He had considerable technical

ability, very good knowledge, very quick on the uptake, and he also seemed to have an instinct for things.

ORAL HISTORY OF THE BBC

SIR FRANCIS McLEAN

TAPE FOURTEEN.

GILLARD: You were talking about Kirk I think on the end of the last tape ? H.L. Kirk wasn't it ?

SIR FRANCIS: Yes H.L. Kirk, he was normally called Peter, why he was called Peter Kirk I don't know. I think from the latter part of the Eckersley period until he finally had his stroke, the great weight of any technical decision at the BBC was carried by Kirk. He was head of research department and he did the experimental work and he took the responsibility that what he recommended would work. And it all turned out remarkably well. He was very sound, as I said he seemed to have a gift for taking the right decisions. I have seen him doing experimental work and he went to the right approach to get the right answer in an instinctive sort of way, I was filled with admiration for what he did.
Towards the end he was however taken out of research dept. at Kingswood Warren and brought up to Broadcasting House in about 1946 to act as, to continue to act as sort of general technical adviser to Ashbridge and Bishop and I think that he was just a little bit out of water in this sort of surroundings. And he missed the direct contact with his experiemental and scientific work which he had in Research Dept. And then somewhere round about 1950 I suppose it was he had a stroke and couldn't talk, he could listen to things and for quite a time I used to go down to his house at Wimbledon about once a month and tell him what was happening and he would nod and he clearly took it in but he couldn't say anything. At that time I had virtually taken over the job that he was doing and I was then sort of general technical dogsbody to Ashbridge and Bishop. But he was quite remarkable, it was a bit distressing to talk to Kirk and to see from his eyes that he followed all that I was saying and yet he couldn't say anything back.

We tried with pencil and paper but he couldn't manage that. We tried him with a typewriter to see whether he could manage that but there was no way in which he seemed to be able to give expression to what he was clearly thinking. And you could see, he would make noises sometimes, expressive of the, you could see he wanted to say something but he couldn't. And he carried on like that for about 2 or maybe 3 years and then in a way I suppose it was fortunate he had another stroke and died. (oh yes). But he was a memorable man I shall never forget him.

GILLARD: Is that bit out of the mainstream, the head of research down at Kingswood Warren ?

SIR FRANCIS: In a way yes, the executive responsibility certainly it's out of the mainstream. But in creative thinking it is very much in the mainstream. And no director of engineering does anything of serious import without discussing it with the appropriate people in research department.

GILLARD: But this is not recognised really within the BBC at large is it ? I mean if you talk to engineering division people about Kirk they know who you are speaking of, but outside engineering division he is almost an unknown person.

SIR FRANCIS: I think this is so and it applies to the present head of research department and indeed probably to the head of any department, there are very few people in the engineering division who are known outside. They are all very well known inside.
I suppose the converse is true, the engineers don't know very many people who produce the programmes.

GILLARD: Well let's talk about one or two other people. What for instance would you like to tell us about Leslie Hayes, he's a great name from the past ?

SIR FRANCIS: Well I seem to spend my time saying what outstanding people there were. Leslie Hayes was again outstanding, a most pleasent chap, versatile a long experience, prodigious memory and he handled all the BBC's international business for many years. He knew everybody in the broadcasting world, in this country and in Europe and was on good terms with all of them and it was a pleasure to work with him.
I first of all came into close contact with L.W. Hayes as I did with J.B. Clarke in roundabout 1940/41, I'd met Hayes when I was still in Standard Telephones but to work with him it was about 1940/41 when we started on the design of the aerial system and the transmitter system for Rampisham which was built about 41/42.
And then all the other stations, Skelton, Otteringham, the place .. over near Ludlow, Daventry and so on, on all of these we worked these out and this was an occasion too on which J.B. Clarke came very much into discussing what was the desireable aerial in which direction, what power, and what we should do in various places.
And what it amounted to we had discussions with J.B. Clarke and L.W. Hayes as to what could be done, I did the drawings and whatever calculations were required for it and then we had another meeting to discuss how that would work out and so on. But it was always a pleasure to work with Hayes. And it was a pity for the BBC really when he got this job of vice director of the CCIR.
But that was another thing I found peculiar about Bishop. I went to the CCIR meeting in Stockholm in 1948 at which Hayes was to be a candidate for the being vice director of the CCIR and I went there with a rather glimmering of an idea that this was so, but Bishop hadn't told me that this question was coming up or what the BBC thought that it was a good thing that Hayes should go or whether the BBC felt he shouldn't go, I found this very odd.

GILLARD: Well what about McLaherty then, another big figure ?

SIR FRANCIS: Another big figure and one that influenced me very much indeed. McLaherty suffered in a way all his life in the BBC at least, he had started with Eckersley, Ashbridge & Co at Bristol. And then he was the young boy, the general run around and doing everything. And he felt and I think to a certain extent Ashbridge and Eckersley always looked on McLaherty as the young boy to do any sort of job and .....

GILLARD: You mean he was a dogsbody ?

SIR FRANCIS: Yes. And Ashbridge, I don't think as far as I could see, ever realised that McLaherty had grown up. And that McLaherty left the BBC I think was partly a reflection of this attitude of the BBC management. And he was enormously influenced, I mentioned earlier that it is very rare for anybody in the engineering division to have a senior man from another division give him the honour of a call at his office.
I could tell you on the fingers of one hand the number of senior people that called at my office. And it was the same with McLaherty. And then Lord Nelson who was the head of the English Electric Company that owned the Marconi Company actually came round to see McLaherty at his office. McLaherty was frightfully bucked about this that here was recognition. And so he left the BBC and went to the Marconi Company which I think was a mistake. He would have done better had he stayed in the BBC. But the job that he went to in Marconi was a good job, he wasn't happy there and he didn't get on well with the commercial people there and I think would like to have come back to the BBC.
When there was a dinner at the Guildhall, I forgotten what it was it was the 50th anniversary of something or other, anyway the guest list was drawn out and a number of people like myself and Pulling and so on were reasonably near the top table, we weren't at the top table but we were reasonably near and McLaherty was put in a position on not exactly the bottom table but

diagonally as far away as possible and McLaherty was so upset by it that he left the building said he wasn't go to stay which was a very great pity.

GILLARD: What was his job in the BBC what was his chief role ?

SIR FRANCIS: He was head of the planning and installation department, that initially did the planning and installation of transmitters only and then took over the installation and planning of the studios as well so it was quite an important job and he did it very well. But he always felt that he wasn't being sufficiently appreciated and was anxious to go somewhere where he could and I think to a certain extent was his undoing.

GILLARD: Now then let's turn to somebody quite different. This is Marmaduke Tudsbury Tudsbury, Civil Engineer his title was wasn't it ?

SIR FRANCIS: Yes I am almost bereft of words in talking about Marmaduke Tudsbury-Tudsbury. He was a character if ever there was one. He had been brought into the BBC by Ashbridge because both he and Ashbridge had been apprentices or something or other in Jarrows Yard in Glasgow and Ashbridge wanted somebody to look after the design of masts and structures generally and brought in Tudsbury and then Tudsbury went onto to look after structures and civil engineering. And he was a man of terrific ambition and I think he realised that in basically in electronic division that the weight of the top job was in the electronic chain and not the civil engineering chain and the civil engineering had to be subservient to the electronic chain.
So in no way did he try to become part of the engineering division. It was always the engineering division plus the civil engineer although to all intents and purposes decisions were taken in the engineering division and buildings and civil engineering was part of it. But it was the slightly anomalous situation that there was the head of

the building division, but there was the building department that consisted of all the architects and engineers and so on working on building projects and the head of the building department wasn't head of building department but was a civil engineer. And he was very concious of his dignity, there was a frightful row in the old department, this was shortly after I joined where we used to get some componants for transmitting stations made in the civil engineers workshop, the woodshop and some of them had been not as good as they should be and had to be redone and a man named MacNamara, whom you may have heard of, wrote a letter to the civil engineers asking the civil engineers, MacNamara wrote the letter when he did he clearly meant the model shop foreman, the job shop foreman but it was addressed to the civil engineer and he said you, if you would please co-operate more closely with Mr. So and So. So the civil engineer was frightfully upset he got upset and complained to McLaherty, McLaherty was upset that MacNamara had upset the Civil Engineer so we all had to, from that time for quite a long time, all letters to Building Department had to be signed by McLaherty personally and this meant a delay.
Anyway this is perhaps rather overmuch on the limitations of Tudsbury on his positive side he did remarkable work his buildings were very sound. He encouraged new designs he encouraged the design of the Television Centre, not everybody agreed that it was a good design but it was certainly something new and he set the highest standards. With Tudsbury the possibility was of getting something good but certainly not something cheap.
And of course it was quite slow. Now Tudsbury absolutely refused to listen to any criticism or discuss criticism. But at the outbreak of the war we took over from Standard Telephones they had made some equipment to go out to Lithuania and then because of the war they couldn't deliver it so we bought the whole lot, including the water cooling plant and so on and we took over Standard Telephones contract. And we found that the Standard Telephones contract and its water cooling plant was about

one fifth, one fifth of what we had been paying the civil engineering department for similar water cooling plants at other stations.
So I wrote a note to the civil engineers saying this was so and I wondered if anything could be done to reduce the cost and the civil engineer wrote back to me, through McLaherty and said there was simply no contract, no ....no comparison between the water cooling plant priced by Messers so and so and so and so for so much and the plant put in by him by Russell & Russell and there was no point in discussing this further.
And he got away with this sort of thing regularly by just...after I took over from Bishop whenever I spoke to building department about anything I knew that for an hour after I had spoken to him it was no good trying to get hold of Howell, head of building department, because he would be in Tudsbury's office telling Tudsbury all that had happened. So Tudsbury was on the side, generally helpful but generally putting a brake on things, and certainly costing the BBC both in time and in money an enormous amount.

GILLARD: He was obviously a man with some delusions of grandeur because he was stuck in a job with no prospects wasn't he, he was never going to go any further than whatever he was, civil engineer ?

SIR FRANCIS: No I think this was the basic situation. But he succeeded in proving to people that he was important. When he died I was asked by the Times to write the obituary for him which I did and then about a year after Bishop died and the same man in the Times came along and said would I write an obituary for Bishop and I said I would be honoured and he said, how important was Bishop in the BBC ? So I said oh very important. Was he as important as Mr. Tudsbury ? Oh I said oh no far more than Tudsbury, Mr. Tudsbury was important in one small sector of a wide field that Bishop covered. But Tudsbury had, you know he'd got this aura about him.

GILLARD: Yes. Let's... I'd like to ask you about the 3 'B's of television, the three big Bs. Birkinshaw, Baker, Bridgewater, big names in early television.

SIR FRANCIS: And the C was Campbell.

GILLARD: Campbell yes.

SIR FRANCIS: Well they did an enormous lot for television but sometimes I think it's been over-estimated what they did in that these three, Birkinshaw, Bridgewater Baker & Campbell were on the operational side. The responsibilities as to whether it worked at all as to whether the EMI system was better than the Baird system they had really nothing to do with that. The whole responsibility for that was taken by Ashbridge aided by the research department and various other specialist engineers.
What these people did was to set up an operating routine which they did very well and Birkinshaw wrote this famous black book which was very good but I hope I am not wronging him, as far as I can remember Birkinshaw didn't contribute a single new idea to television. He wrote up other peoples ideas and he wrote this very good black book and he wrote this series of books published by Iliffe on television which were also very good. But it was writing not creative work and Bridgewater who had of course started his .. with Baird and then came over to the BBC, Baker who was a shortwave man and Campbell who came from I don't know where on lighting and so on all operated strictly in the "here's the apparatus, what's the best use we can make of it" and this they did very well. But if the thing had collapsed or if it had gone badly wrong they would have been the clear. The people who would have been in trouble were the people who made the basic decisions, that is Ashbridge Kirk & Co.

GILLARD: You as D.E. clearly put the operational people second to the really creative people ?

SIR FRANCIS: Oh absolutely, absolutely.

GILLARD: Tell me about Pulling because he had a foot in both camps didn't he ?

SIR FRANCIS: Yes Pulling .. well he had a foot in both camps but chiefly on the operational side. He was never in any of the specialist departments and had really very little to do with them. When I became D.E. Pulling was in charge of all the operational side and I hope I am not decrying the operational side but ... they can ruin an enterprise if it's badly operated. (yes) But an enterprise can be ruined before it starts if the wrong basic decisions have been taken.
Pulling was and still is an extremely pleasent, very able, gets on well with people, just occasionally upsets people is I think a bit lazy in getting down to details but a pleasure to work with. Definitely a pleasure to work with and my life would have been more difficult without Pulling than with him.

GILLARD: He came into your cabinet, as it were, in the end didn't he ? (yes) What was he assistant director?

SIR FRANCIS: He was deputy director. He came into sort of prominence during the recording days when recording was in a mess and Pulling was put into try and sort it out. Pulling in that followed the same principle that he did later of trying to divide up an activity into a number of sub activities and he set up special sections for dealing with most of our recording, fixed recording and so on and when he came to television he tended to do that too which in some ways made things difficult because we tended to get groups of people who became specialists in their limited field instead of trying to get people of a more general nature. But he was a good man. After the war roundabout the time of George Barnes or maybe before then, anyway there was a lot of disatisfaction with the way Birkinshaw was running things and Birkishaw was a man of really astounding

obstinacy. I use that word advisedly. And he was at cross purposes with the television service and they wanted him to be superceded and they asked me if I would go and do it. Well at that time partly I wasn't very keen on going into the television service and partly I recognised and said that Birkinshaw knew so much more about television operations than I did that for me to take on television operations was a miscasting I should be quite wrong. And Rowley Wynn argued and argued and kept coming back to it and I said no I really can't do it I don't think I am the right man for it, and it would be worse than with Birkinshaw.
Then Pulling was put into take over from Birkinshaw which of course upset Birkinshaw very much. And it was a pity because Birkinshaw was a man of, as I said he wasn't very creative but he had a very large fund of technical knowledge and he was being superceded by a man who hadn't this and I think at the end of his days Pulling had only the haziest ideas as to how television worked.
But this was the way of things and undoubtedly under Pulling the television service as a whole moved more smoothly than ever it did under Birkinshaw.
Birkinshaw for a long time was very unhappy doing nothing and then I took him over as special assistant to the Director of Engineering and got him in running after some general help to me and running things like the deferred facilities and all that sort of operation. But...

GILLARD: Pulling was succeeded by Redmond who in the end succeeded you, what have you got to say about Jimmy Redmond, Sir James ?

SIR FRANCIS: Well I'd like to do one or two other things first (okay) we were on Bridgewater (yes) now Bridgewater again was very good but even in my days was a bit past it, he wasn't as active mentally as he should have been. We had various troubles. The only time I ever had a protest from the staff was during when

Bridgewater was head of television engineering and I got a round robin from about a hundred people protesting about the way they were treated and so on. I went down to a meeting at the television centre and they said they never saw Bridgewater on the floor of the studios, they didn't see him from one year's end to another and they hadn't got this, they hadn't got that, they were not told so and so and all of which were quite reasonable. So we had a discussion and said something had to be done. And something was done and that was the end of that. But Kenneth Adam was also disturbed about Bridgewater and he kept asking me when are you going to move Bridgewater, when are you going to find him a new job, I can't put up with this much longer. And I defended Bridgewater for a long time and then this business of the round robin made me think well maybe there was perhaps more to what Kenneth Adam had said than I had thought.
So as it happened we had a vacancy, the engineering establishment officer retired or resigned or was helped to resign. So I thought it would be a good thing to move Bridgewater into this job and then we could put Redmond as head of the television operation and it was quite clear that Redmond had to be brought on and his experience widened, then he was just doing recording. So I got Bridgewater up and as nicely as I could I said I thought it was a good thing to encourage the flow of new ideas and to get some new people in and he was due to retire in a few years anyway and all this sort of thing, if he moved out of television service and took over the engineering establishment job. And the reaction was dreadful. He was literally in tears about it. He had never thought that this would be done to him and if it were offered to him he thought he'd be most unsuitable and it was a poor reward for all that he had done and so on. So I said well this is the way it looks but you think it over and we'll have another talk. And this was one afternoon.

The next morning Kenneth Adam phoned me up and said I have had Bridgewater in here in tears and he's asked me to take back the movement from the television service. And he said as far as I am concerned I agreed. And I said well you know part of my motive for doing this was the fact that for more than a year you have been asking me to move Bridgewater but if you now have agreed that he should stay well I can't do it. So I got Bridgewater back and told him we'd had another think and thought it was best to continue as we would but I was still hoping for a means to bring Redmond forward a bit more to get Redmond a bit more activity on a wider field than he was. But Bridgewater has never forgiven me for that even now he, I know he thinks that I tried to move him out of the television service that he had done so much.

GILLARD: Tragic but it's bound to happen to some people sometimes.

SIR FRANCIS: But it was Kenneth Adam you see who had been for oh at least a year been saying when are you going to move him when are you going to do something about it you see. Then when finally I did something, I told before what I was going to do, then he then went back on it.

GILLARD: Let you down.

SIR FRANCIS: Well that brings me to Redmond that you mentioned. Redmond is another very fine chap and very bright and very quick in the uptake and run rings round most people when it comes to quickness of thinking.
And he had done lots of jobs in the planning and installation dept., which is one of the depts which is where you learn what's going on, and then had seen that the future was probably rosier in the operations dept than in planning and applied to go to television, went into recording and did a very good job in recording and then it was quite clear that everybody liked him, that he got on with people and I started thinking that he certainly was one of the

contenders if not the most promising contender for the job when I go and tried to think of ways of moving him. And this was one of them but it didn't work out but we were able to move him shortly afterwards.
Now when Pulling went and then we got him and I told Redmond that he ought to do something about finding out about the transmitter network, he'd been wholly on the studio side and he started doing something like that and did very well indeed and took to it like a duck to water.
And I've often told the story, I was in Australia as you know and I was talking to Duncan Sands is it you know the BBC Representative in Australia (Gillard off mike) Sands and he said Jimmy Redmond is doing a fine job for the Director of Engineering, I said yes, and he said he's a fine fellow, I said indeed he is, and he said he's really much too nice a chap to be doing that job. Then I didn't know what to say. It seemed to reflect a bit on previous ...holders of the job.
He is a nice chap and when I came formally to hand over to Jimmy Redmond I said you'll have no trouble at all with the board of management, you'll have everybody eating out of your hand they're a nice lot of chaps, they will give you no trouble with the possible exception of John Arkell.
Well he'd already had a few troubles with John Arkell before and he had quite a lot of trouble, in fact he had more trouble with Arkell than I did maybe he wasn't so used to dealing with Arkell. But he is a very good chap and did the job very well for years, a most likeable chap and as I say very quick on the uptake but quick to adapt himself.

GILLARD: He seems even now to be a very young sort of man doesn't he for a retired character with a knighthood ?

SIR FRANCIS: Indeed I saw him last week at the birthday lunch, it was his birthday on the same day actually and he said he was 66 but he didn't look it.

GILLARD: No he doesn't, remarkable. What about one or two other people who were close to you Denny Weighall, Todd

those people, have you anything to say about them?

SIR FRANCIS: Yes, Weighall is a very fine chap indeed. A man of completest integrity and a good, a very good basic engineering knowledge, a good scientific knowledge. A little inclined to be slow to make up his mind and to get anything done. Completely honest.

GILLARD: Tape Fourteen, we were talking about Mr. Dennis Weighall.

SIR FRANCIS: As I was saying Mr Dennis Weighall is a remarkably honest man and naive. As part of the rearrangement when I was trying to get to broaden experience and to get more experience for Redmond and for Weighall for that matter, and to get Redmond into the Head Office and have his place taken by Weighall or some other job taken by Weighall. So I persuaded Weighall to apply for the job of the Head of the Recording in Television Service on the assumption that Redmond was going to move. And there was a board at which present were Kenneth Adam, and S.D. Williams, and myself and I think there was the three of us and somebody from the Establishment. And we were getting on all right, and asking the usual questions and then Kenneth Adam said to Dennis, to Denny Weighall, what is your favourite television programme? And Weighall astonished us all by saying, well actually I never look at any of them. LAUGHTER. Now I thought this was a degree of naivety but it was absolutely true, but a degree of naivity applying for a job, well it astonished me and after he had gone Kenneth Adam said well I think we can cross him off can't we ? I had to say yes.
But he was a, Weighall still is a man of wide interests, he is very musical, his wife is musical, they run a sort of country culture centre out at Berkhamsted, quite a big place, they put on concerts and theatricals and all this sort of thing, he is a very fine chap indeed. But was a doubtful starter as DE in any case although he was one of the candidates.

GILLARD: Said to have been very disappointed that he wasn't appointed ?

SIR FRANCIS: I think probably he was. But he had, his health wasn't too good. He had told me that he thought he would probably be retiring at 60 because of his health, he didn't know if he could stand the racket. And then it finally came down to either Denny Weighall or Redmond. And I discussed it and told Hugh Greene what I thought about it and Hugh Greene said he thought the right thing to do was the .. Board of Governors was going to make this appointment, that I should be interviewed by the Board of Governors immediately prior to these two. So I went over and was interviewed by the Board of Governors as to what I'd done and what I thought ought to be done and the personality of the... and I said that I thought there was a case to be made for Weighall doing the job as a fill in for one or two years because Redmond was extremely good, very wide experience on everything to do with the studio side but had no experience on the transmitter side where Weighall had. But that if we were talking about an appointment for five years or so there was no doubt it was Redmond was the only one. And it really came down to was it attractive to have a caretaker appointment for two years followed by Redmond or would it be better to put in Redmond now. And I didn't express an opinion although my own opinion was that it was better to put in Redmond now but the other was a possibility.
And of course the Board decided that they would do this. So Redmond was appointed and Weighall was to a certain extent disappointed. But I doubt whether he can really have expected that he would get the job. He was too narrow.

GILLARD: And of the three top posts in the engineering directorate, the director, the deputy and the assistant, how did you reckon to divide those up in terms of the specialist interest within your directorate ?

SIR FRANCIS: Well we have really two kinds of interest, one is the specialist department, new developments, design

construction and all that and the other is the operational side. And what I worked on for a number of years was these three top posts. It would be wrong to have three, all of one one kind, either three specialists or three operational and we ought to have two of one and one of the other. And for a long time it used to be two specilaists and one operational but the emphasis was changing a bit and probably the right thing in the future was to have two operational and one specialist. And this in fact was what was done. Jimmy Redmond was operational, McCrirrick is operational, Todd was specialist. And the jobs get divided between them we had, I think, a fairly efficient system of direction meetings. We had a main direction meeting of all heads of departments once a month and twice a month we had what was called the engineering direction sub committee. Actually it was the executive committee and this was just half a dozen people.

And at this committee we really decided what ought to be done and what investigation should be done, should be carried out and that the main direction meeting was given the recommendations of the sub committee and usually accepted, sometimes they raised a point if we had to take it further.

But overall we pretty well kept in touch with everything that was going and as directior of engineering I had the right to intervene in anything that came to my notice. But in point of fact I should think that 80% of my time was dealing with long term planning and specialist matters and maybe 20% with operational matters except when the operational things were showing signs of trouble.

ORAL HISTORY OF THE BBC

SIR FRANCIS McCLEAN.

ROLL 15. (No introduction but recording break shown)

GILLARD: Well now let's leave personalities for a time, at any rate, and go back to more general considerations about BBC engineering.
You've already referred to Kingswood Warren, the Research Centre in in passing but perhaps you would like to say a little more definite about the place ?

SIR FRANCIS: I think it's a fairly true generalisation to say there's nothing to do with the engineering division of the BBC that somehow or other isn't dependent or hasn't been dependent on the research dept. It's an absolutely kep position in anything to do with developments or new systems, utilising old systems and so on.
It's the tool we use to evaluate and decide how to do things and all decisions in principle finally have to be, research dept., has to be able to express an opinion. We don't always accept it, sometimes we override the position taken by research dept. Sometimes we found it too difficult to get anything out of the research dept and had to take a decision in the absence but we certainly never did that inadvertantly and if some decision was taken without reference to research dept., then I had to be very sure of my ground before I took it. It was a very good body of men, a lot of them very brilliant and with an outstanding reputation in the broadcasting world. The BBC for many years and indeed almost the case now was the only broadcasting organisation that ran a sizeable research dept., or a specialist engineering dept for that matter. People like the American networks, NBC and CBS and so on had no research dept., nor ABC nor CBC. In Germany they have a very good research dept., but the number of organisations to have a research dept., is very small. The people at research are very interested in their work and in a way this tells against their interests and against the interests of the BBC. They are extremely comfortable there. They fixed up a very good deal with

the organisation and methods people as to what their grades of pay should be so their grades of pay tend to be higher than people working in London.
So that people in research dept., work in pleasent surroundings, most of them within quarter of an hour's drive and no cost to work and get a slightly higher slary so it has always been very difficult to persuade people to leave research dept., and to come into the rest of the engineering division.
This has been a great limitation and I am sure it has told against some of the research dept., people and against the BBC. We tried todo something about it but the staff association backed up the opinion of reasearch workers and there they are so a man joins the research dept., and he is 90% sure that he'll end his days in research dept. This is very different from the post office where the post office research department, they tell Mr. Smith that as from monday next you're working in head office and that's that. But this is a power we didn't have in the BBC and I think it's regretable.

GILLARD: Yes, fine. Let's move on Mac to relations with government departments and this is something you must have been bothered with a great deal especially the post office of course in your case, let's start with the post office, later the Ministry of Posts & Telecommunications I suppose.

SIR FRANCIS: Yes when I refer to post office a lof these functions have now been transferred to the Home Office and now to the Ministry of Telecommunications but the characters are still the same and I think their outlook is still the same. Now I inherited the situation of sort of mutual distrust between the post office and the BBC that had started back in Eckersley's days. I think the post office in those days regarded the BBC as a newcomer. It was only one user of the spectrum compared with all the others, the services and so on and it ought to stand cap in hand to the post office in order to get a suitable allocation of frequencies. And people like Reith and Eckersley were not the people to stand cap in hand.

And I don't know of many of the other subsequent people were either but this was .. so the BBC has always been resentful of the attitude of the post office and at international conventions for a lon time the post office refused to accept the BBC as other than observers, we were not delegates. So we had no right to vote. We still haven't a right to vote because it's restricted to administrations. But the post office used to do minor prickles against the BBC in their turn as delegates at foreign conferences could use the local ambassador to control duty free liquor and also delegates at foreign conferences get the right to one free telephone call a week back home, private. As observers the BBC members didn't get this so this was.. this has now been changed it was changed some years back but this was the attitude. And it is sometimes said that the BBC uses a lot of people for a job but the number of people that we had on planning, frequency planning, channelling and that sort of thing was only a fraction of what the post office had and they had this enormous organisation that if they wanted some more men they just called them up and there seemed to be an inexaustible supply of men.

So the BBC views were, tended to be flooded by the post office. And at international conferences the important thing is the brief which says the delegates will do so and so. The post office for a long time refused to let us participate in drawing up the brief as to what our objectives were and wouldn't let us see the brief when we were at the conference. I applied several times what does the brief say about this and the post office leader of the delegation would say it was so and so and I had to take his word for it, I wasn't allowed to see it.

And so the BBC was constantly being put in an inferior position, that we couldn't be expected to be treated better than the ITA this we were prepared to accept but they treated the ITA and everybody else in this way too. And they did the same thing, there were a number of permanent committees on frequency allocations that operated things in the UK, at the top of the list was the Cabinet Frequency

Committee to which we were invited occasionally and there we discussed really serious questions. One of them was that the top of the UHF band, band 5 had been taken by these scatter services above 822 mghz and I was trying to find out why it should be and whether it was in perpetuity and I just couldn't get any progress at all. And they wouldn't let me see the minutes of the Cabinet Frequency Committee. These were top secret. So I was going to the Cabinet Frequency Committee saying things, the post office not agreeing and whether my views ever got into the minutes or were taken any further I don't know.

Then there was the Frequency Advisory Committee which was one step down. Again the post office ran this, this represented all users, BBC, mobile radio, ambulances, Home Office and so on. And again the post office took the minutes of the meeting and 3/4 months after a meeting we would get minutes which seemed to bear little relationship to what was said. And quite often I had said something that I regarded as important and it just wasn't there at all. And on one occasion I had to insist that the Post Office circulated a statement I wished to report that I had said so and so because I thought it was something fundamental. But the post office didn't like it.

And then there was the British Joint Communications Board BJCB. This was another one, chiefly services, but again at the post office and all the time they were keeping things restricted and not telling us what was happening or the reason that something couldn't be adopted.

So it made a feeling that we were struggling the whole time to make our viewpoint known.

The post office people, some of them were good chaps, to use Ian Jacobs's words; some of them were quite the other.

But I remember one thing that I found very upsetting. Now the post office and myself had been at various conferences in various countries and had very good meals provided as part of the celebration. We had a meeting with the French people here in London and we had it at the headquarters building. And we had lunch at the

HQ Building. It was dreadful but I thought well you know this is the standard of cooking. But the thing that I found was quite inexcuseable that the post office served a lunch to french people spanish chabilis and you know an absolute insult. But they were people of such insensitiveness that they just didn't see it. So the, it was one long struggle with the post office people to get things .. get things right. I think we made some improvement over the years, they got a little more co-operative and they did allow us in my time the latter to see drafts of the brief but not the final brief and I remember we were having a frightful argiebargie with them before the Oslo Conference about colour television about the actual wording and Howard Steele and I were agreed on what we thought the wording ought to be and had put in a joint statement on this and the post office said well they were sorry but it wasn't possible to consider it because before the letter came in the Postmaster had asked for the brief because he was going on holiday and he had to approve the brief so they had to send the brief in as it was and it wasn't possible to include our paragraph. And I and Howard Steele said well couldn't it be put in as an addendum ? No we can't do that we can't go back to the Minister on a question he has already decided.
So we had this one thing or another blocking off the approach to the post office. So it was not a happy situation.

GILLARD: Was the post office at all progressive or was it clinging all the time to the status quo, I mean in terms of development, in terms of 625 lines adoption in this country, in terms of colour and so on, in terms of VHF radio ?

SIR FRANCIS: In a way they were quite progressive as far as 625 lines is concerned but again not right. I was at a conference in Paris, this was about 1948 and the French people approached me, partly because of the BBC and partly because I speak french fairly well and said they were very worried. They had 441 lines and the BBC at that time had 405 and they had this experimental

1050 lines. And they said they would be prepared to work with the BBC on some standard intermediate between 405 and 1050 and it would help finally if we could agree. I thought this seemed to be quite right. So I went to Faulkener who headed the post office delegation and reported this conversation to him. He said no our brief is quite clear we are to support the European wide 405 line system.
And I said to him this actually is asking Europe to agree to accept the lowest standard of all those on offer. We had everything from 405, 441,625,525,1050,819 and God knows what. But this asking Europe to accept the lowest of all these and it's sort of uncompromising and I don't think ...
Well he said I can't help that our brief says we are to support by all means the adoption of 405 lines which was a dead duck. The post office kept its hat, head in the sand about that and we could have got an agreement on something that could have fitted in better with our 405 lines system than the 625 if we had been more flexible but the post office said no that's what the brief says that's what we do. So nothing came of it.

GILLARD: It's very illuminating to me as I always understood that BBC engineers and post office engineers were in league against me but you evidently were not.

SIR FRANCIS: No indeed not we would shed our last drop of blood for the sake of the programme people. (Good) But not the first drop.

GILLARD: You must have had also, quite apart from the functionaries you must have had a lot of relations with members of Parliament and parliamentarians generally ?

SIR FRANCIS: Yes indeed at various times I had quite a lot, sort of chronologically the first one that I can call to mind before he was an MP was Patrick Gordon Walker who I was in SHAEF at the time and we were running the Luxembourg station and Patrick Gordon Walker came out

with a number of other people, Poston and Noel Newsome and a few others whose names I've forgotten and was putting on programmes for Radio Luxembourg and the Americans were too. And the BBC contingent arrived with the their rather noses in the air attitude that we know all there is about broadcasting to Europe and that you Americans are newcomers to the game which didn't go down very well with the Americans, especially as they thought that they had liberated the station and not the British. And there was a certain amount of friction there. I wasn't directly involved in the friction but the Americans seemed to tell it to me that I ought to do something about it which of course I couldn't. I did say to one or two of the programme people in Luxembourg that so and so had not gone down awfully well with the Americans but they rebuked me that it was no concern of mine sort of thing.

And then I think I met Patrick Gordon Walker and one or two BBC functions after that and then I met him when he was Commonwealth Affairs I think it was when he, we had a meeting, J.B. Clarke was there and I was there we're talking about Radio SEAC that is the forces station in S.E. Asia in Ceylon where I had been on my way to Singapore a little while before. And Patrick Gordon Walker said that he had decided to make a present of Radio SEAC to the Ceylon Government. And I said something about it being a very munificent present.

Oh he said it's not very much it's just 2/3 rooms, a studio and a microphone and a few playbacks.

I said but there's a great big transmitter network.

He said what's that, I said a big transmitter network, I said the present is maybe £5M. Oh I had no idea I thought it was only the studios.

Well this was the sort of general attitude amongst a lot of people, they see what is in the studios and don't realise what there is behind it.

Anyway he said it's all over and done with now and we can't do anything about it, they've got it. Of course they did have it.

An MP that I didn't meet was Edward Heath but we got a reaction. This was in about 19.. late 50s or early 60s we were talking at one of the continual discussions about the best use of the wavelengths. And I put forward a plan to use the 647kc then on the Third Programme at Dodford, to use it on the, what the Home Service which would give a much better coverage and the Third Programme should be carried only on VHF which gave the high quality that the programme was trying to ... that was turned down at the Board of Management and Edward Heath had spoken to somebody and said he absolutely relied on the Third Programme on 647kc for his reception of the Third Programme so whatever we did in the way of rearranging the wavelengths we mustn't upset Mr. Heath's reception of the Third Programme. And we didn't of course.

I met a number of others. Two I remember particularly. One was a man named Mackeson, I had all sorts of correspondence about poor reception and news services and so on, sometimes coming through the regional controllers sometimes coming direct or they'd spoken to the publicity man George Campey. Anyway a man named Mackeson who was the MP for Folkestone got onto me about the poor reception in Fokestone and I offered to go round to the Houses of Parliament and discuss it or I'd be very happy to see him in the office - no he couldn't fit it in he would like me to come down to Folkestone.

So I went down one friday night, I went down to Folkestone and got there, I met him in an hotel in Folkestone and he asked me the question that I had already, he had already asked me and which I had replied in a letter and nothing more and then he said goodbye, didn't even offer me a drink and I got a slow train back to London and finally got home at about 11 o'clock at night not feeling too pleased. A few days after that I was sent a cutting from a local paper in Folkestone saying that Mr. Mackeson had the Chief Engineer of the BBC down in

Folkestone to discuss reception problems in Folkestone. So I felt I had been used.
More pleasent was Robert Maxwell. Now I don't agree with many things that Maxwell does but I have great admiration for some of the things. I was in a long correspondence with him about television reception in Bedfordshire, in Sandy. And I had explained why we couldn't do anything and said I could make it more clear if he could spare the time to look at the coverage maps and the diagrams. And he said he would like to, I said I could bring it all round to the Houses of Parliament but if you could come here it would be more convenient because I could produce all the maps and maps of other stations affected by this and any possible change.
So he said certainly I'll come round. So he came round to my office and I got out all the maps of his area and the maps of the other areas that we changed if we put in a co-channel station and he said yes I see absolutely what the situation is there's really nothing you can do. I heard not another word from him. Now he sized it up accurately and he had the good sense to realise when a case was made so I was very impressed with Robert Maxwell.

GILLARD: Yes, pit more of them don't do it.
Did you have to appear before parliamentary committees ?

SIR FRANCIS: Yes I appeared before the Drogheda Committee and one or two of these select committees and answered questions and usually they were not very difficult questions.

GILLARD: Were they on reception matters is that the sort of thing they would ask you about ?

SIR FRANCIS: Reception matters and the cost of doing something.

GILLARD: Was this overseas or at home ?

SIR FRANCIS: Sometimes on home questions more often on overseas when it was overseas it was usually J.B. Clarke and myself who went.

GILLARD: But there's nothing special about them, I mean they .....?

SIR FRANCIS: I don't think so, they were the same sort of questions, why does it cost so much, why can't you do more and why can't you get more frequencies and so on.

GILLARD: Yes and then you had to appear I suppose before the committee of enquiry into broadcasting, the Pilkington Committee for example.

SIR FRANCIS: Yes that was very interesting indeed. We put in a large number of papers on various aspects of what could be done and what couldn't be done and how it should .. and I have already referred to the paper on PAY TV which was put in. And both Bishop and I appeared at a number of meetings to answer questions. They were a bright lot of people but I remember particularly we had a meeting with the whole committee down at Kingswood Warren to show the difference between 405 & 625 lines and we showed a slide on a cathode ray tube and alongside 625 and in order to make sure there was no difference between the slides in quality we didn't copy one from the other but we took two successive shots. And the shot we took was looking at a garden scene with a very fine tracery shrub to show the fine detail. And the 625 was clearly much sharper and better than 405 which was only to be expected. So we looked at this and agreed it was and then Joyce Grenfell piped up and said I can quite understand that the 625 line makes a sharper picture but I look at this one and I see the 625 line has got a bird in it and there's no bird in the 405. And what had happened was between taking the two subsequent shots a bird had alighted. So I explained that but I gave Joyce Grenfell full marks because when I congratulated her on her perception which none of us had seen we'd all been looking at the fine twigs, she said actually it wasn't me that saw it, Miss Bridger noticed it and she told me, she was too nervous to say it herself so I said it. And I thought it was very good of her.

But of course the post office people simply couldn't stand him, he talked to people down the line, then he thought that the nearer he got to the shop floor the greater was the truth which isn't necessarily so.

GILLARD: Did you have any dealings with his successor, Sir Edward Short as Postmaster General ?

SIR FRANCIS: Yes and I had a very good impression. I had several discussions with Edward Short. And again he was very sound, got the principles and things like stereo and talking to him about the stereo situation I found that he was listening only on medium waves he hadn't got a VHF FM receiver so I thought this was pretty bad and a man who was in a position of finally having to okay a decision on stereo shouldn't be .... so I offered to lend him a BBC receiver. Oh he said that wouldn't be right, wouldn't be right that I accepted any favour from the BBC. I said well I'm sorry, then I had a word with the post office and I said do you realise that your minister sitting in stereo hadn't got a stereo receiver ? And the man in the post office in the engineering side said well I don't know what I can do about it, we haven't got any receivers that he can have but I'll pass it on to somebody on the admin side. So whether Short got his receiver, whether he had to buy one or do without one or what happened I don't know. But I thought it showed a nice sense of rectitude that he was not going to accept any kind of favour from the BBC or I presume from anybody else either.

GILLARD: He is well advised not to.

SIR FRANCIS: I think probably he was.

GILLARD: Mac, one important area of your command was Wood Norton, perhaps you would like to say a word about Wood Norton ?

SIR FRANCIS: Well Wood Norton was the house built for the Duke of Orleans after he was thrown out

of France. And it was a remarkable structure in the form of french cum english manorial style and it was taken over at the beginning of the war as a listening centre for the BBC Monitoring service and as emergency studios. And then during the war the listening service was a .. a bit of a rumpus went on at Caversh... at Wood Norton and it was decided that the whole of the monitoring service should be moved from Wood Norton to Caversham and I was in charge of that move, that was in about 1942 I think it was.

So after that Wood Norton became vacant and around about the same time the engineering training that had been carried on at Maida Vale and various other places in London was moved to Wood Norton and a start was made to set up a training school. And it went on very rapidly from there. The advent of television at all meant a very great increase for the training facilities required and of course the short wave transmitters, the FM transmitters, the whole new generation of stuff, tape recording and everything else, all meant a lot of training.

So we set up what was I think the first broadcast engineering training organisation anywhere in the world. And we set it up with facilities for training about 200 students at one time, residential, it was a 6/12 week course depending on what they were doing at the end of the course they got a certificate saying that they had passed what was called a grade c examination and then were free for promotion upwards.

A man named Sterley was brought in charge just after the war and he did a remarkable job in building up the reputation of this organisation.

The ITA people for a time only recruited people who had got a grade c pass from Wood Norton and it was a very flourishing organisation and still is.

GILLARD: One of the perennial problems in the BBC and in lots of other broadcasting organisations

is the status of the technical operators in the studios. Are they to be engineering staff or are they to be programme staff. Now you ran into this problem I believe quite early on ?

SIR FRANCIS: Yes, again this was in the early 50s I think when this question which had been boiling up all the time came up and the Mennell Committee was set up. Mr. Mennell was a retired civil servant, looked to me to be very old, I don't know how old he was but he was certainly much older than the rest of us. And he was assisted by two assessors, Tom Chalmers and myself. And we were supposed to help interpret what the various witnesses said. And we had witnesses from all the people interested, most of the witnesses gave horribly biased accounts of what their responsibilities were, verging from the .. some of the programme managers saying that it was all a question of artisitic temprament and somebody didn't need to know anything at all about the technical aspects of the matter to people like Rowley Wynn who tended to say that artistic temprament be blowed, it's purely a technical problem and that the people concerned should know all about the design of an amplifier and what Rowley particularly overstated was the value of the thing.

And we went on at this, oh I think we went on for about three months and we had Palantype girls taking down every word and then we got a transcript of it. The first few hearings I religiously read through the transcript and tried to get corrections incorporated where it seemed to be necessary. But after a bit nobody took any notice of that and I got so that finally these Palantype transcripts just piled up and up and I just didn't look at them, I don't suppose anybody else did. Then Mr. Mennell produced his report. And he produced his report without reference to the assessors, neither Tom Chalmers nor I had seen the report. There were some things I didn't like, his report of course was that they should be outside the engineering division. And I thought it overlooked somethings and unless some safeguards

were brought in there was likely to be a degradation of the standard of broadcasting, and that the report didn't say whether this should be done.
So I put an addendum to the report, Tom Chalmers thought it was all right so he didn't want an addendum so the report went in with my addendum. Nobody paid any attention to my addendum all they wanted was to get out .. get the people out of the engineering division.
And they went and I think to a certain extent the... broadcasting has lost by it in that there are now more substandard broadcasts than there used to be, the quality of timing now is poor. It maybe it would even be poor if E division were even running these services but it has certainly gone down. But it was remarkable the difference between the opportunity for musicians, Stuart... what was his name...

GILLARD: Stuart Wilson ..?

SIR FRANCIS: Stuart Wilson...

GILLARD: Sir Stuart yes.

SIR FRANCIS: Sir Stuart Wilson, couldn't really, didn't seem to grasp why we had any studio managers at all, everything was set by the band playing out there and the rest of it took care of itself.
Rowley terribly over emphasised the engineering viewpoint Bishop was more reasonable, we had Hay you know what is his name, not John Hay the ...

GILLARD: David Hay ?

SIR FRANCIS: David Hay, we had David Hay along as a witness.

GILLARD: He was the O & M specialist.

SIR FRANCIS: Yes and he woffled that it could have been either this or could be that and there were arguments put forward in both in both views.

Anyway it went on, the only concrete thing which came out of this thing, we used to sometimes meet, sometimes at the Wesleyan meeting hall down in Marylebone Road and occasionally in my office and Mennell didn't like meeting in my office I think because it wasn't neutral but it happened to be that sometimes the Wesleyan Hall was booked and Mennell used to tuen up with a battered old attache case, you know what I mean by an attache case, a leather case where the hinges had gone and the handle was broken and he had this thing tied up with string to replace the hinges and another piece of string between the hooks and it used to take him several minutes sitting with this to open it before he got it open and several mintues to do it up.
So one time we were having a meeting in my office and I said would you like it if I got the engineering workshop to see if they could do anything to your case. "Could they ?" I said well they can try anyway.
So I got Bottle along and said it's a bit out of your normal run but do you think you could do anything with these locks and if you can't do anything else rivet them or screw on a bit of leather between this loop and this. So he took it away and about a couple of hours later brought it back in with the locks working and the handle .. Mr. Mennell was impressed but not sufficiently impressed to give a ruling in favour of engineering division.

GILLARD: Mennell was a very welathy man too, extraordinary. (Was he ?) Yes Rolls Royce owner and all that sort of thing.
In general terms is the Engineering division of the BBC a corporation within a corporation ? Is it a world apart, does it really see itself as belonging to the BBC ? Or is it a great engineering institution worthy of great acclaim, I mean it certainly is but you know not particularly though any allegiance to the body corporate ?

SIR FRANCIS: Oh no it's definitely part of the BBC if you want to put it in single terms I would say it's the backbone of the BBC, that without the engineering division few things would work and that it represents a continuity. I think one factor in the thing is that most of the people in the engineering division decided at an early age when theywere at school or shortly afterwards or at university, but certainly at the university, that they wanted to be engineers and they wanted to go into broadcasting. So they'd got a long standing purpose and this keeps them going. And they see that on the technical side there'd be terrific developments much more on the technical side than on the programme side, the programme side is dishing up some basic ideas in more attractive presentations but the basic human frailties, weaknesses which is what programmes consist of largely apart from music, are still the same. So I think the engineering division doesn't regard itself as separate it regards itself as very much .. and in fact if you ask engineers you'd find a high proportion of them would feel that they would be quite competant to take on the programme side but not many of the programme side would take on the engineering side.

GILLARD: Not qualified of course.

SIR FRANCIS: No they haven't got the knowledge. And from my experience in the BBC there were more people with linguistic ability on the engineering side than in the programme side and it is that the engineering people can take an interest in history and the arts as well as doing their own jobs. And so they are interested in programmes. And those that bother to think about it realise that the money comes from the programmes, that to produce the finest pictures that have ever been produced will win applause but it won't make people pay money. And it's paying money that finally counts. So I don't think there's any spirit of separation between

the engineering division and the rest.

GILLARD: What then is the view, candid, honest view of the average engineer of programme people, do they despise them, do they admire them, do they, I mean after all let's face it, it's the programme people who get all the glamour and get all the praise and all the publicity and I absolutely agree with you that everything they do is built upon the foundation that the engineering division provides which is quite indispensible. So don't the engineers feel bitter about this ?

SIR FRANCIS: Occasionally they feel a bit narked that you know this has been a terrific effort and a terrific risk on somebody's part, when it comes off somebody else gets the credit. But they're more or less habituated to that and they don't particularly resent it.
It's difficult to talk on what does the average person think. I think if you're talking about averages it's much easier to envisage an average engineer than it is an average programme man, except one or two duds, absolute duds among the engineers they are all fairly good, plus or minus, some are very good and some are not quite so good but there's a certain medium.
On the programme side as I said there's a much wider spread there are some who are really brilliant, some who are dull, some who are less than dull or more than dull whichever way you express it.

GILLARD: Run of the mill.

SIR FRANCIS: Run of the mill, but it's very hard to say that he's an average, well you'd know this better than me that to me it's seems hard to say that the average programme man is so and so where I think I could define an average engineer.

GILLARD: Yes I take this point.
Did you feel that the attitude of the Board, of the

Chairman of the Board towards the Engineering Division was equal to the attitude of the Board of the Engineering Division towards the programme side ? What were your relations with the Board and the Chairmen, did they exist ....?

SIR FRANCIS: Well they were very restricted. There was a discouragement from the .. from the engineers of getting too close to any member of the board, we used to get fairly close to regional members particularly, the members for Scotland were always on about something or other, rather than the people from N. Ireland and more than anything else the people from Wales.
But it was hard to judge how they viewed the engineering division as compared to the way they viewed the programme division. I don't think I ever heard a serious criticism of the engineering division from the board.
My own appearences to the Board were very much when some particular question, maybe the stereo question or the colour question or UHF or 625 lines against 405 this sort of thing, when I was summoned to the Board, said my piece, answered the questions of the Board on that piece and then I left. And my reception was always very sympathetic they listened to what I had to say and I heard no suggestion of criticism.
The board member for Wales would argue very strongly for better facilities in Wales but he didn't say that what I said, why they couldn't be was rubbish or anything he just argued for it. So I think I would be right to say that virtually no criticism of the Engineering Division by the Board, not that I was aware of.

GILLARD: No good to hear that.
What did you think of the Board of Management system and the Board of Management itself and the way it was conducted and the members come to that, there were only half a dozen of us and you can be as frank as you like including about me.

SIR FRANCIS: I thought the Board of

Management was an excellent concept and it would be very difficult to see how to run large organisations such as the BBC without them without something like the Board of Management.

There are very few locations where all the people concerned can talk about everything concerned and as they all have a common meeting point in money and finally what we are all making a pitch for is our share of the total kitty the Board of Management was the only place where that could be really explored.

I used to wish that we didn't spend quite so much time at the Board of Management on public relations matters that we started off with George Campey and what the newspapers said and we went on for a long, long time about the Corporation's image in the papers where sometimes it seemed to me this didn't change from one week to another and that we could more profitably spend our time on discussing more serious things. The development of satellite broadcasting for instance. But I thought most of the people did a very good job and spoke very soundly and there were one or two that I would be more critical of.

Harmon Grisewood whenever I was speaking seemed to dissociate himself from the Board. This can't possibly affect me and he would close his eyes, whether he was listening or having a nap I had no idea but he never made any comment on anything that I said and I got the impression that he was completely disinterested. And I think he and some other members of the board rather took the view that when the engineer is speaking I don't know what on earth he is talking about and therefore when I am speaking the engineer doesn't understand what I am talking about. And somewhat a disdainful view.

I used to take a somewhat dim view of the board because the only books they ever discussed at the board was the latest whodunnits. Now I never read whodunnits but I read quite a lot of other books. But more serious books than whodunnits didn't seem to come up.

So I thought the literary standard, either they really read it in secret and keep it quiet to themselves or they don't do very much.

GILLARD: Are you saying that the intellectual capacity of the board was pretty low ?

SIR FRANCIS: That's pushing me into broad definitions. I'd say it could have been higher.

GILLARD: Of course you must remember that the DG's hobby was detective fiction.

SIR FRANCIS: Yes I know it was. And good luck to him for that. But there are other books written that possibly could have been discussed in an historical situation.

GILLARD: This was lunch table discussion rather than board discussion wasn't it ?

SIR FRANCIS: No because they used to come up at board discussion too. For some reason we found ourselves talking about whodunnits at the board when I ... and .. I think I was often disappointed in the board that there were no sort of brilliant ideas there was not much sparkle to it and people didn't sort of toss an idea of bring it up with the idea it would provoke a discussion. At times it looked as though some of the directors brought things up because they had to, but hoped to God they wouldn't be discussed. And I don't know whether I am wrong I had the impression that Kenneth Adam rarely read anything at all, maybe I've got that quite wrong but this was the impression that he gave me.

GILLARD: Well I think he read his wife's books and I think he read the New Statesman and a few others.

SIR FRANCIS: Yes but I am talking about literature. What thing that used to get me I was often upset by John Arkell, the one thing that used to

particularly upset me about John Arkell whenever anybody did say something bright at the board John Arkell would pipe up, I was just about to make the same observation myself. You know and he did it consistently. And I always felt that it just wasn't so. Anyway to come back I think the engineering division would certainly have lost very appreciably had there been no board of management. I used to see on Tuesday morning, see my two immediate juniors Redmond & Pulling and then Redmond & Weighall and tell them what had happened at the Board of Management and then to my chagrin the Friday minutes often said it was something other than that. But these are minor points. By and large I think it's an excellent system.

GILLARD: Have you anything to say more about Building Dept. You've talked about it in connection of course with Tudsbury, I wondered whether you had anything very strong in the way of feelings about it or anything to say about it ?

SIR FRANCIS: Well the Building Dept caused me more trouble than any other dept. Partly because every member of the Board of Management who had ever painted the kitchen regarded himself as an authority on how much it ought to cost to do decoration and so on. So we were eternally in trouble with costs sometimes building dept were very high and I told Howell so and he would go off and have long discussions, sometimes making a reduction, they were very bad at keeping dates and particularly bad at informing people of the dates that we .... Building Dept although they were repeatedly requested to keep everybody informed as soon as a delay occurred always seemed to think that maybe this delay would pass away and something would happen and they would catch up. And of course it didn't and then the job was late and we didn't hear it was late until it was too late now and it would blow up.

Powell would say well I told them to do it and they didn't tell me and we'd get into these things.
And we had one particular thing that was rather amusing in a way, that was when the Broadcasting House extension was put up. Arkell wanted to have this roof garden you know above the restaurant on the ..
so this was planned and Arkell also wanted to give the order for the.. normally we would order the plants and bedding and so on through the builder who would then have got 10% or whatever it was on it and that would have been done. But Arkell had got some reason that he wanted to give it to some pal of his who was a nursery man out at Marlow.
So he placed the order directly for £1500 worth of shrubs and plants to be delivered. And the Building Dept gave a date for this to be ready and the date came, the roof of the extension wasn't finished, the nurserymen arrived with £1500 worth of shrubs and there was a hell of a row. Arkell made an awful fuss about it, I thought it was a poor do but it could have been avoided if Arkell hadn't wanted to give it to his own pall.
And the, although this man was such a pal of Arkell's he insisted that having been taken up and brought to BH all the shrubs were a write-off so the BBC had to pay £1500. Arkell went on about that for a year or so.
And well these are the .... Building Dept is in a difficulty in an organisation that is not basically interested in building, you know neither the engineering side nor the programme side is interested in the building as long as it's there at the appropriate size at the time wanted. And very few people are interested in the architectural qualities and such like. So they have a hard role and like the civil engineer there is no hope of promotion for anybody in Building Dept at the top of the tree, it's just a little side activity.

GILLARD: Yes. A word about the licensing of designs to industry ?

SIR FRANCIS: Oh yes, this was something we started about .. oh nearly 30 years ago and we found that quite a number of our ideas were design equipment very useful to industry and so we set up a system whereby we would advise all the people concerned of what we had and we had a uniform royalty charge which at one time was 7½% what it is now I don't know but it started at 7½% And we started off with getting a revenue of some £20/30,000 a year which was quite unexpected and quite good. And dow I believe it's over £1M a year that we get from this work. And it has a double advantage, it gives us some revenue and it also tends to keep the design work of the big people like Marconi and so on in step with what we're doing so that the fact that if they incorporate some of our designs or equipment in what they're selling they find it easier to sell abroad because they can say this is used by the BBC even if they don't get quite as far as saying originated by the BBC. But we do ask that BBC patent numbers are quoted on anything that is done.

GILLARD: This is something of an incentive to the staff too ?

SIR FRANCIS: Yes we started off with a dreadful idea, this was an idea of Rowley Williams Rowley Wynn that we should give a percentage to the staff and then we found that we got some people who made quite footling suggestions were getting a small percentage on a terrific turnover and coining money which upset .. this was operational people, it upset the specialist people because they were supposed to produce bright ideas as part of their pay. So we had to drop that and now there's a suggestion fund an ex gratia payment is made on a judgement that this thing is worth so much. While I was there we gave Ranger, who suggested the basis of the conversion from American standards to UK standards £500.00,which in those days was quite a lot of money and he was very pleased to have it and the £500 just was I thought £500 was reasonable, £1000 would have been too much and a hundred not enough. So it's quite arbitrary.

But people seem to be satisfied with it and the system works well.

GILLARD: It's really in the form of a bonus in that case ?

SIR FRANCIS: It's a bonus yes.

GILLARD: For special work ?

SIR FRANCIS: Yes for a long time the BBC had given a bonus to anybody who took out a patent and it used to be £30 I took out a number of patents, had a number of £30 and I suppose that still goes whether it's still £30 I think is very doubtful.

ORAL HISTORY OF THE BBC

SIR FRANCIS McCLEAN

ROLL 17

GILLARD: We think this is the last tape now and you're going to tell us about your Granada lecture ?

SIR FRANCIS: Yes sometime I think the early 1960s I was invited to give a lecture to a conference at the University of Sussex on developments in communication techniques and the like which I did and very enjoyable and the audience seemed to like it. And apparently in my audience was a man from Granada TV and shortly after that I was surprised to get a letter from Granada TV inviting me to give the Granada lecture on a subject of my choosing covering the same ground as the lecture at the University of Sussex. So I was quite intreagued by this, it was at a time when co-operation between the BBC and the ITA was limited to say the least.
So I raised it at Board of Management, was it acceptable that I should do this. So there was a terrific discussion and some people said we oughtn't to help the ITA in any respect whatsoever and some people said it would reflect on the BBC if the ITA, that Granada had finally come to the BBC for a lecture and not one of their ITA people.
In the end it was agreed that I should do this.
So I wrote back to the Granada and I said I am very happy to say that I could do this and looked forward to it and so on.
Then I got a letter from Granada with a formal contract saying that.. which I had to sign saying that I indemnified the Granada Company if there was anything defamatory, libel or any damage or anything could be chargeable to Granada for the reason of my activities.
I couldn't think that there was anything that I could say that I would cause this trouble but the idea of me guaranteeing that Granada was a bit overpowering so I raised it again at the Board of Management, would the BBC, I told the BBC what it would be, there would be nothing

defamatory but would they back me if I did get into trouble. Then that started the discussion again, but finally it was agreed it was in the BBC's interests.
So I signed this form for Granada and off it went.
In the end of course I had, I didn't say anything defamatory and nothing of that happened.
And then the lecture was .. was a very pleasent experience we had dinner beforehand in the Guildhall in the Crypt of the Guildhall and a very pleasent dinner it was but I was put off it a bit by the thought of the lecture I had to give. Then I gave the lecture and it seemed to go down very well and after it was published and that was all very pleasent.

GILLARD: What about relations with ITV generally, I mean if programme people didn't talk to each other, did engineers, the BBC & ITV, ITA talk to each other ?

SIR FRANCIS: Yes of course they had to. At every point you see we met the ITA. We had to meet wi them on frequency useage. We had to agree the order in which stations were permissioned and we had to agree how they should be permissioned. And it was nonsensical to think that we shouldn't talk.
I think the BBC's interdiction of collaboration with the ITA that we wouldn't help them in any way was very short-sighted. At one time I was arguing that if only we said that we would run the transmitters for the ITA there would have been no reason for the ITA to set up their complete transmitter network to control the whole thing. But Bishop was against it and other people against it and it was turned down. And I think we missed quite an opportunity in that.
We then got beyond that stage and when it came to detailed planning of course we had regular meetings and sometimes I went to the ITA and sometimes they came to me and we all met on equal standing at the post office frequency discussions and between us we worked out this so-called

landlord and tenant arrangement whereby it was agreed we had to share masts, that we would divide up the stations and for station A the BBC would be landlord and would provide the mast, the building, the water supply, the electricity supply and all the services and the ITA would provide their own aerial to mount on the BBC mast and their own transmitter to feed into it and so on and at station B which would be an ITA station where they were the landlord and we were the tenant the converse would take place. And this worked very well and saved a terrific amount of difficulty there would have been had we been each running completely independent operations on the same site when we should have had continuing arguments as to who was going to pay for the painting of the mast and all this sort of thing. So we finally got a way of working that worked out quite well and virtually it was never necessary to tell the Board of Management what we were doing, we just got on and did it.

GILLARD: And at these shared sites the engineers, BBC & ITA engineers mingled happily did they ?

SIR FRANCIS: Oh quite happily yes. Mind you there weren't very many of them you see because by this time they were all automatic stations but say at Hannington the one near here, there's a BBC man who is the engineer in charge of the station, if the gate wants to be painted he paints the gate or arranges to have it painted. At another station it'll be the ITA man and it works perfectly happily and as far as the top management of the BBC is concerned we just don't hear anything it just goes on working.

GILLARD: Yes, what was the other point you wanted to make, Russian co-operation was it ? No, you said just now there were two...OFF MIKE....

GILLARD: We want to continue on this theme of BBC/ITA relations.

SIR FRANCIS: Yes when we got away from the controversial side of it and moreorless got a modus vivendi to work to, then we got on very well with Sendall who was the Secretary of the ITA and with Bevan and with Robert Fraser and we had quite a lot of meetings, they were on non political grounds and we were just talking about technical problems or financial problems that had to be settled. And by this time Jack Francis had replaced Lockhead as Controller Finance and he came into it and everything was as smoothas could be. (that's good) and I always felt that if only things had been handled differently at the start a lot of this trouble could have been avoided.

GILLARD: In all our long discussion we haven't really touched on engineering division finance. How did the money come to you and how much discretion had you in the spending of it ?

SIR FRANCIS: How did the money come ? We had certain commitments that were accepted as continuing commitments such as the cost of the specialist dept., the transmitter networks, power, light, heat and all that sort of thing, that was carried over from year to year with the approrpriate increase for extra transmitters and so on. And about that there was never any, never any argument. It was the money to provide new facilities where there was an argument and I would put forward what I thought was the thing we would like to do both from the possibility of getting the equipment and getting the buildings and everything else in time and to provide the service and then there was this argument about the budget that used to go on for 3/4 months until finally we'd got an agreed budget commitment. And when we had the agreed budget commitment then as far as things outside the studio was concerned the engineering division just went right ahead and controlled its own expenditure and did the best it could to finish within the money available and the time available.

As far as studios equipment was concerned then the engineering

division estimate of what should be provided for this studio and how much it would cost and how long it would take was approved by the director, the engineering division finance meeting and then went to the programme directors finance meeting who either agreed with it or said it's not enough or too much or whatever it was and if it was a small point would agree it subject to further discussion about so and so or if there was a major decision, disagreement sent back to the engineering division and it had to be looked at again.
And this worked all right I think, I think I ought to mention about the breakdown at Television Centre where we had no power supply.

GILLARD: I think you've already done that.

SIR FRANCIS: Well this was the sort of thing. And from the engineering viewpoint whether the broadcasting had 50 tape recorders or five tape recorders was immaterial, they just said what they wanted.
We had one request for more type D recorders which I opposed strongly because I was absolutely certain that disc recording was going out and that tape was coming in and it was a waste of money to buy to make more of these type D recorders and I had a terrific argument with Monson and Brian George and all of whom said I didn't understand and it was quite wrong but I just stuck and in the end I agreed, I'm sure I was quite right about that.
And Peter Dimmock wanted to make 20 of these roving eye vehicles at about £55,000 each which was a lot of money in those days and I thought it was ridiculous and I said how difficult it was to make it and how long it would take and argued it out and finally it came down we were to make five. And then it was agreed we would make them one at a time which was all we'd got facilities for anyway and actually finally we made two.
And of course the whole idea of the roving eye was cock-eyed with the kind of cameras we had in those days.

Now you've got the portable camera it's, it has come into its own, but these bloody great vehicles with a big camera up on a turrett on the roof were just a stupid idea.
But again you see we didn't argue with the principle that it was for the programme people to say what the facilities were that they wanted. It's our job if the programme people ask for something which is impossible or ridiculous tell them so but if they finally say that in spite of it being impossible and ridiculous we want you to do it then we do it.
The programme people in studio one at TVC had got the idea of doing Esther Williams type programmes and wanted to have a sunken bath in studio one with portholes all round and to get bathing beauties and so on and to have a floor at the bottom of the bathing pool that would raise up you see so that it could be used.
It was a crazy idea and .. but they kept on talking about it and I said well we'll have to evaluate it.
So we evaluated it in terms of what it would cost which was terrific and what it would mean in delay as compared with doing a straightforward job on studio one.
The Television Service then shut up about it.
And of course they haven't missed it. I am sure it would never have been used, it was somebody's bright idea.
But this is it but if we want to put in a 50kw or 500 kw transmitter nobody says a word the engineering division makes up its own mind about that.

GILLARD: But the money has got to come from somewhere.

SIR FRANCIS: Yes but it's in our budget. We've put the budget forward you see that we want so much money for BBC 2 transmitters, so much money for FM broadcasters, so much for small medium wave stations and so much to provide facilities for instructing in colour at Wood Norton and those are in, they're argued about as to whether we should have them.

Now we say you want colour at Wood Norton, we think it's £100,000 worth of equipment to do it, if we don't get the £100,000 we get very poor training at Wood Norton and you get less good pictures. And usually they agree to that.

Sometimes they say well not this year but maybe next year but anyway we have this argument. Once it's agreed that the engineering division is spending so much for activities within its own control then it's up to the engineering division to get on and do it. But if we're providing something for the programme side we say the way it should be done and a reasonable number of devices is this, it should be done, but the programme people can also say this is not reasonable or we want twice as many devices or we want different sorts of devices or whatever.

And this works out and generally speaking gets on quite well. In my day we had a discounting factor of 10% that it turned out that if we said we were going to do so much work in a year because of delays for various things, getting the building clearance or the planning permission or something, we did this and it turned out about 10% so we get all the things they add up to so much and we knock off a discount of 10% and then we have £15M to spend. So it works out all right.

GILLARD: Of course in your day you were before the Managing Director system came in. (yes) Do you think that makes much difference ?

SIR FRANCIS: I don't think so. I was talking to Redmond & McCrirrick last week and I said how does it work out because in my day of course all the engineers I was the head of establishment for the whole lot, now the managing director is, and they said well it hasn't really made any difference all the engineers even those reporting to the managing director look for their avenue of promotion within the engineering division and that no senior engineering appointment

are made without the concurrence of the director of engineering.

GILLARD: Oh absolutely, okay thanks very much.

RECORDING FINISHES AT THIS POINT.

Oral History of the BBC: Sir Francis McLean CBE

Proposed synopsis: Second draft.

1. Your contacts with the BBC in the early 20s.
   The Westenh Electric/Marconi/BBC relationship.
   The black-edged notepaper story.

2. Your recollections of 5IT in Birmingham.
   Percy Edgar.
   The premises and studios; how records were played.
   Why you found the ppssibility of a BBC post unattractive.

3. Circumstances of your appointment to the BBC in 1936.
   Your candid impression of the BBC then, seen from inside.
   Manpower extravagance; inadequate budget systems, etc.

4. Designing shortwave transmitters for the Empire Service.

5. BBC preparations for war - the C.P. cover story.
   How transmitter synchronisation enabled broadcasting to continue.
   The Group H transmitters, and the 'epitome' buildings for them.

6. The immense wartime expansion of external broadcasting.
   The large number of additional transmitters required.
   Problems of obtaining and locating them.

7. The technical demands of war reporting for Radio.
   Building MCO, MBN, MCP, and sending them off to the battle areas.

8. BBC Engineering's contribution to the wider war effort.
   Use of Alexandra Palace transmitter for spoiling.
   The 'pulse' operations.

9. The technical planning for postwar BBC Radio.
   The options available with the limited supply of frequencies.
   The Home/Light/Third/Regions system.

10. Planning the B.H.Extension.
    Location of the control room.
    Transistors versus valves.

11. Development of Sound recording: BBC's resistance to tape.

12. Introduction of VHF Radio; the AM/FM arguments.

13. Introduction of Stereo Radio; the choice of system.
    Lindsay Wellington's complaint.
    DBC providing its own transmitter links.

14. The Tebrau story.
    Shortwave frequency allocation conferences; Russians walk out.

15. Rehabilitation of TV equipment for re-opening of A.P.
    The slow spread of TV coverage over Britain.
    BBC's reluctance to duplicate use of frequencies.
    Special problems - e.g. North Hessary Tor, and Rowridge.

16. Programme achievements -
    How the first live transmission from France was achieved.
    The Coronation, and the technical demands involved (your CBE).

17. The coming of competition. Relations with ITV.
    Problems created; BBC measures to retain key staff.

18. The opening up of further studio centres for TV -
    Lime Grove
    Shepherds Bush Empire
    Riverside
    TV Centre.
    How the opening night fiasco of BBC 2 could have been avoided.

19. Television recording: the VERA story.

20. The Crystal Palace transmitter.
    The pressure to keep the AP transmitter in operation.

21. The arguments and problems over the move to UHF.
    The 625 line experiments. Joyce Grenfell story.

22. The introduction of colour: the politics and controversies.
    Problems of converting all the studios and equipment.

23. Comments on people:

Keith	Jacob	Eckersley	Burkinshaw
Ogilvie	Greene	Ashbridge	Bridgewater
Beadle	Curran	Bishop	Baker
Clark	Simon	Wynn	Howell
Barnes	Lusty	Florence	Williams
Lockhoad	Hill*	Hayes	P.Wilson
Haley	Fraser	Kirke	Pulling
		MacLarty	Redmond
		Mogg	Weigall
		Tudsbery	Todd
			Gouriet
			Monson

*including the story of Hill's appointment, and arrival the the BBC.

24. Overall standards of BBC Engineering over the decades.

25. The work of Kingswood Warren.

26. Relations with the Post Office (Home Office).

27. The Pilkington Committee.

28. The McKinsey enquiry.

29. Engineering Directorate - a Corp. within a Corp.
    How it views the rest of the BBC.

30. D.E.'s relations with Chairman and Board.
    Relations with DG.
    Board of Management - a useful body?
    Comments on your BoM colleagues.

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