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JAMES BURKE

interview with

DALE MYERS

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in Washington D.C.

Producer: STUART HARRIS
BBC TV
Kensington House,
Richmond Way,
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ENGLAND

INT When you joined Nth American first, what was your function, because the programme was already well on?

MYERS Well when I joined Nth American I joined in 1943, I ~~was~~ worked all the way through the war...

INT (Laughing)..I mean the project..

MYERS ..When I got in to Apollo the programme was already 3 yrs old, and I had been working on Missile programmes separately from Apollo so I really had no background on the programme at all, when I came into it.

INT Well then why did they ask you?

MYERS Well because I had had a v. good track record in managing big programmes, I had managed one of the very early missile programmes for North ~~X~~American Aviation, then I was in charge of a billion dollar cruise missile programme. When they had difficulty with their management ~~XXXX~~ with their momentum of the programme they asked me to transfer to that job.

INT What kind of problems were they having with momentum?

MYERS Well I think the difficulty was there was this massive start of the Apollo programme with a clear simple objective, of taking man safely to the moon and returning them safely, but really not quite knowing how to go about doing that, at the time they started. So when the programme started, the contract was given to North American for the command service module, and yet they really had not figured out whether they were going to go direct to the moon, or use a lunar module approach, and there was a lot of confusion in the detail of the programme, the early part of it, and the man that was running it at that time, a fellow named John ~~Park~~ did I think an outstanding job of kind of

PAUP

- MYERS gathering together of all the pieces there at Nth American, but he didn't have the major programme background to carry it through that massive undertaking once it got established what the objectives were. George Low and his people back in NASA ~~XXXX~~ with Sam Phillips and the others would establish the direct specific of duration by 1964, when I came on the programme, so then it was a matter of taking that whole assembly of sub-contractors and our prime contract activity in sorting out the direction to go from that point.
- INT (Cough..'scuse me)..When you talk about gathering things together, a number of yrs after the project had begun, what are you talking about, what kind of unique thing is that, in terms of doing the job?
- MYERS Well, we had underway almost all of the major sub-contracts, associated with the programme at that time, but not all of them, and some of these that had not yet been established were some of the most difficult. Elements of the fuel cells for example had not been defined well enough, and rocket engines which were under contract, but not specifically defined, and had to be trimmed and tuned to fit in to the overall assembly, so that there was a major amount of real systems engineering work to be accomplished yet, that had not yet been accomplished.
- INT Is that what we laymen call trial and error?
- MYERS No, no, it's a period of consolidation of details, to fit one piece of the jig saw puzzle into the other piece, so that it all finally makes a beautiful picture, and we were in that process at that time. The jig saw pieces were there, but they hadn't been fitted together.
- INT How did you handle, what must have been a tremendously complicated problem of passing down the line to the sub-contractors those immensely demanding (coughs) quality control aspects?

MYERS

That was one of the elements of management that er, took an immense amount of effort, er, we really have to talk about how the whole team worked first. We were dealing with about 300,000 people of the overall Apollo programme, and I think the Rockwell activity probably was well over 100,000. Within that were probably 150 to 200 major contracts and a massive amount of communication had to work, between us and those sub-contractors, not only in the technical requirements, but in this whole new spectrum of infinite quality control that we required in the programme.

About the time I came on the programme, there was a much better understanding, that that was going to be a difficult and important area, and NASA by that time was seeing the difficulty in terms of a kind of super quality we needed, and they began to recognize that in the form of some overall broad directives, in quality control, which then were interpreted by us as a prime contractor and by Grumman as a prime contractor, and by Boeing and so on, to pass on down to the sub-contractors; that led to a whole series of meetings, first with the sub-contractors, and then back with the NASA, to try to sort out and balance these various requirements.

Of course we might have a little different view of it than another company, and those would be consolidated by NASA and back into the system, and there was a continuous flow and of course a tremendous amount of travel involved, to go to the contractors, bring them to our place, get together with NASA and tie all those various aspects together. It was I think a key element in development ~~XXXXXXXXXXXX~~ the kind of team spirit that was involved in making Apollo happen, because it was a place where we were all learning together, how to apply this new super quality control, and reliability to the system.

INT

When people learn together they often learn how not to do things, did you ever do that,

INT were there ^{times when you} ever thought my God, this is
impossibly difficult?

MYERS Well I think we all had a few of those times
Infinite during this programme; the Apollo programme
was one which it took ~~impatient~~ ^{impatient} faith to be-
lieve that it could be done. Having been
in the guided missile business prior to
that time, and seeing many of our test
vehicles explode on the pad and learn over
a long period of time what kind of detailed
attention it took to make these systems work,
and to learn what I think George Low probably
expresses best, the absolute detailed under-
standing of every element of the system, to
where men within the organisation live so
intimately with their hardware, that they
understand its' personality completely, and
are able to communicate within the system,
to another level that can integrate their
knowledge with another, is really just an
immense undertaking and one which many times
I'm sure I did and I'm sure others wondered
whether it would all go together, and work
as well as it did.

INT 'Cos sometimes that kind of intimacy develops
tunnel vision?

MYERS Well I think you're absolutely right; there
was some tunnel vision involved in various
elements of the programme and er-but I think
it's a real tribute to the organisational
structure that there was generally a broad
enough base of understanding that we overcame
the tunnel vision that was involved.

INT Because I mean the Philips report wasn't
much of a commendation, was it?

MYERS *the* No, the Philips report of course dealt ~~with~~ with
fire, and er, the issues associated with the
fire are I think the kind of tunnel vision
that we had at that time.

INT I think--wasn't there one in '65?

MYERS (Nothing..)

INT That said there was general dissatisfaction

INT with what, er the--?

MYERS There may have been, I was thinking of the time period of the fire.

INT How did--one of the things somebody said to us, I forget who, said that before the fire, the contractor-NASA relationship had already become what was described as adversary. Do you think that's fair comment?

MYERS (Pause) There was adversarial activities involved before the fire, certainly there was a time period where budgets were tight, we had difficulties in balancing budgets and er, and there was some adversarial activity involved at that time. I remember specifically major contractual negotiation that was going on at that time, there was certainly always -- you get to an adversary activity in those y'know contractor negotiations.

INT How tough that kind of situation get?

MYERS Well it's I think every major contract activity is some place along the line develops adversary relationships, there certainly are in all those that I've dealt with, and yet, in the main, those are real team operations. I'd still say that with the adversary activity involved during that period, the Apollo programme was one of the greatest demonstrations of real teamwork, between contractors, and the govt., that I've ever seen, before, or since.

INT And absolutely no blood-baths?

MYERS Oh well, of course there were times when there were problems with major activities, I remember difficulties with the er--er-booster, where this pogo activity developed, major investigations, major activities, er--great arguments, but a solution came out of that, that was I think was kind of a milestone

MYERS in Dynamic Analysis. Those kind of things happen.

CUT.
Slate 192/1

INT In terms of your er--autonomy as a contractor, how did you feel about having those other contractors over your shoulder, like General Electric?

MYERS It was a strange experience when it started, because we weren't used to that kind of integrated activity, it created more detailed information systems than we were used to at that time, but of course, over a period of time, and particularly after I became head of Manned Space Flight, for NASA, I recognized-- they gave us a line of integration that we could never have developed otherwise. And it's interesting to see the perspective from the industry side and the Govt. side, that an element like that was really a very worthwhile activity, particularly as I mentioned earlier, during that formative stage of developing this whole new system of reliability analysis, and quality control, quality assurance systems, varying modes effects analysis, and all the more, the new complex systems of development of reliability that we were looking at at this time.

INT Was that easy to sell that idea to people, it was new at the time, it must have been..?

MYERS ..No, no, it was difficult, it was er, er, the industry coined the term called micro-management, where they looked at all this massive influx of people that Nasa had hired as just people that were bothering them getting into their way and causing difficulties, in getting the job done. I think it probably took literally years for the industry people to begin to sort out the various responsibilities and activities, of these

MYERS (flying) different contractors, to where then it became a clear, intimate team, where everybody recognized the job that each was doing. And I think that by the time we were (applying) the APOLLO programme, flying the launch vehicles, this system had sorted out. People were beginning to see this--that it broadened the innovation role, it er, limited the tunnel vision which you mentioned earlier, and gave us a broader view of the overall picture, where finally the system worked as it should, in a major project of that sort.

INT Do you think the system had not got to that stage when the fire happened?

MYERS No, I ^{don't} think it had, I remember so vividly at that time period, recognizing that we really had a hole in our systems analysis, er, we were doing at that time a massive amount of qualification of the various systems, we would qualify the rocket engine, to make sure that no matter what failed in it, we had a fail-safe situation and a way to get home, we would qualify the communications system, and heat it, and wet it, and do everything we could to it, to understand it completely, and we never did an integrated test of the flammable materials within the command module. We missed that point, in the--in the understanding of what we were dealing with, oxygen, a massive amount of flammable materials, and a spark possibility. We missed that point. And that was the point that at that time had been brought over from the Gemini programme, and had brought over from the other historical events of the programme, in a way that we'd carefully run individual strips in the laboratory, but we never put it all together as a system, and we took all other systems together as a system, and ran them.

And that was, to me, a major blind spot in the Apollo programme, and one which er, as a Programme Manager, I really can't see why we missed it, but we did. And in--and in--as the programme developed, these overlapping and

- MYERS interacting systems, like the GE system, like the Boeing Tie system, begin to look at the different facets of our programme, and close those gaps that we had, and I think became an important part of really making a total system responsive enough to take care of the problems that we had during flight.
- INT To the outsider ~~though~~ though, I mean, to the outsider it looks incredibly obvious ~~you~~ you should have done that?
- MYERS Yes, so simple and so obvious, and er, there isn't any answer to that. I've testified on it, I've thought about it a million times, and er, there is no answer to why we did not recognize those several things that boxed us in; you know the Geminis' hatch opening in the wrong direction in the water, caused the hatch of the Apollo to be designed to be opened inward, and culmination from thereon was a disaster waiting to occur, and er, it was y'know, when you look back at Systems Engineering and say that's what Systems engineering is all about to find the problems and solve those problems, through an analysis of the various elements that can occur. That should have happened-- should have found it, should have been an obvious kind of a thing involved in the design and development of the system, but it did not, and there isn't an answer to that.
- 'givens'
- INT It was a thing that came out of the history of Mercury, Gemini and Apollo with all the various elements of design features, that became sort of er, givens, in the design, and we at North American and NASA, their background of Gemini and Mercury didn't catch it.
- INT But in a system as complex as that, managerially, surely there was one man whose job it was to see that kind of thing?
- MYERS There was a requirement to limit the amount of Velco, inflammable materials within the system and there was a record keeping system, which,

MYERS as we look back got out of hand, because there was more Velcro~~er~~ in that command Module than should have been. And er, became a er, ^{pilot} ~~er~~'s option situation, to place velco where he thought it would help him with his duties, and that pilot's option escaped, as I remember it, the formal system of majoring and controlling the amount of velco that was in that command modub .

INT Do you think that's becous a pilot's had too much input anyway?

MYERS No, I've worked with experimental test pilots all my life, and they have to have major input, and I think there probably should have been more flags in that system, I think there should have been more awareness of the amount of Velcro~~er~~ going in. But I don't think the Velcro~~er~~ by itself was the cause; it was the combination, it was the system problem and yes, there was the closed door, the amount of flammables ~~XXXXXX~~ and the potential to spark.

INT And yet, though, I mean 1964 (coughs--) and yet in 1964 the Ross report for NASA said, yes, there should be an integrated test, and a man called Handell in Nth American wrote a report the same year, and said if you do this, with this much oxygen, at this pressure, you must test that situation in an integrated way. And why wasn't that done?

MYERS Well, it wasn't done, and er, whether that was considered ~~M~~ at senior levels here in the organisation I don't know, this was not brought to my attention, et that time.

INT Could it have been because you were going so hard?

MYERS Well we were going hard, there wasn't any question about that, but I--in other elements of testing, I don't remember any case where we~~M~~ eliminated tests because of a lack of time, erm, we just somehow found ways to do those tests. We were going as hard as we

MYERS could go, there wasn't any question about that. And we might run tests and we were perhaps in peril with the mainstream, and maybe even get tested later than you would like to have it tested, but always got it tested before ~~XXXXX~~ launch. And er, but I don't remember that ever coming onto the system as a--as a er, objective, or as a proposed additional test, and there were many ways for that to reach top management, for discussion and review. It just didn't come to us as a--as a proposed test activity.

INT What kind of affect did it have? On moral?

MYERS Well, I think it had a much more powerful effect within NASA than it had at Rockwell. I don't want to sound hard about this, but I had worked with Test Pilots for many yrs before that, and I had lost good friends who were test pilots. I lost these three, and it was a massive tragedy for me to lose those three friends. But I think we, within industry, had had that happen to us before, and I think we picked ourselves up faster than NASA did, I really think there was more, perhaps because of the pressure of the public, and the pressure from the Congress, that they felt much more intimately than we did. Our job really was so focused that overcoming that problem, re-designing the hatch, re-designing the internal approach to the command module, taking care of the weight problems that we were obviously going to get into because of this increase of weight, due to the change in the configuration, we were so focused on doing that that I think we really didn't have time to listen to as much of that terrible criticism that came in from the ~~XXX~~ public, as NASA did, and er, yet within NASA there were a group of guys that were just you know, fully dedicated to supporting us, and er, and to getting in to fixing that problem, and getting on with the job.

INT (Pause there again..) ..

FILM RUN OUT..

CUT. (CONT'D. ROLL 48) END OF ROLL 47.

INT Was there at any time in your mind a real risk that you might lose the contract, because of that fire?

MYERS Not in mine; there was quite a lot of conversation about it, there were discussions between Mr Webb and our President, Lee Atwood at that time, and I was so well aware of the massive interaction between our programme and the others, and frankly my own er, confident feeling about the ability of our people and the sub-contractors who were working with me, that I couldn't see how in a practical sense, they could do that.

Er--you know, anything could be done, but I really had the feeling that by the time we began to hear that kind of talk, er--we had the whole team really dynamically galvanised to bring about the changes that were required in that spacecraft, we were right in the middle of a design by that time, and er, I frankly just didn't think that it could be done.

INT Well you had almost the entire team galvanised, didn't you?

MYERS Would you say that..I'm not er...? sure what you're--?

INT I'm wondering about Stormy Storms.

MYERS Well Stormy was er--he was in the background, at that time, that's true. We were--we had the whole team that was involved in Apollo programme going full blast, and er, I think there was a shock period, but there was a very quick response, in return to finding a solution to these problems, getting on with this system testing of the internal configuration, changing the hatch, changing the internal configuration to cover all the wiring, and make it like an aircraft, as far as protected wiring and we were on our way, and I think that as far as we and the Apollo programme, and the people in the system that were involved in making that happen, we were

MYERS moving out to make it happen.

INT It does though from the outside seem a little unfair that only Stormy got it in the neck?

MYERS I think that's er, you know, there has to be a man that goes in a situation like that, and Stormy did get it, that's right. I think the er--and there were problems on the other side too, within NASA, but er, I frankly just saw it as a case where somebody had to as you say, take it in the neck in a situation likethat, and Stormy was the one whom was chosen. He was the senior man in the organisation at that time.

INT When you left and joined NASA, you effectively changed from being a poacher to being a gamekeeper (MYERS: Laughs). What did it feel like, how did you see things differently?

MYERS Well I saw a broader picture, it's an interesting ~~experianceto~~ experience to go from industry to the government, particularly in that case, because we had worked out our relationships with NASA so closely that er, there really weren't any surprises to me, when I went to Government. I went to the what George Low called the change board meetings, where we literally discussed all the changes that we were going to make on the command module and listening to those changes that were being proposed for the lunar module. So I had a quite a strong working knowledge, of what was involved in the lunar module itself.

Moving on into NASA headquarters, the only thing that was new to me, was the booster portion, and the launch operations, but I had worked on every launch, down on the launch site and then back to Houston and worked in the backroom at Houston, in supporting the flight operations, so I knew those people intimately, and the only thing that was really new and different was the booster portion, with John Brown, the launch elements of the backside launch elements with ~~Kirk Debus~~, and
Curt Debus

MYERS of course the congress and the ~~GMB~~, you know they deal with the issues of funding, which was a new and terrifying experience.

INT Going back to the business of having ~~XXXXXX~~ sorted out many of the problems because of the fire, some people have said to us in a way, it was a tragic boon, because it made people think just that bit tighter. And yet the voltage change on 13 happened. Why did that happen, that many years of expert management, later?

MYERS That's a good question (inaud.) Let me say I think the fire did help, I think perhaps more than any single event in Apollo I think that the fire tightened up the system sufficiently that we made that flight with Apollo 11 when we made it. The payoff in that whole system I think was the decision to go to Apollo 8, where we flew around the moon, because the lunar module was a little behind schedule, and really checked out the whole system, including all of the recovery systems and the deep space network. And that came I think from our ability to tie that system together v. closely, as a total system, prior to that operation.

Now, why did we miss something oxygen related in the in the er, in the oxygen tank of the command of the service module? I don't know the answer to that either. I think that the design, in this case, had been tested, had been qualified and the qualification did not include the option of fire, it just did not. But it had been shaken, vibrated, gone through all the elements of fast field, fast exhaust, everything that we could imagine at the time would be involved in that operation, and we imagined no case of an uninsulated wire that could cause a problem.

INT Yeh, but I'm thinking specifically of that very tiny point, that that switch was designed to take 28 volts, and it was given 65 on the launch pad..(ahmm..)that's..?

MYERS (O/V)..You're reaching back to something I-- now you remind me, I do remember that and I do not know er--because we did--we were getting v. good discipline in our operations and testing, and to have that happen at 13, after all the background of discipline that had been put into that operation and testing, is not clear to me, and er, I'll just have to pass on it.

You 41

INT XDBBIX forgive me for saying so, but that's what everybody's done, and as an outsider I find that very difficult to take.

MYERS Well of course it's been a long time; we went thru that in great detail at the time of the accident, and took the disciplinary steps that were involved in eliminating that potential, but I think it is er--I think it tells a little bit of the story about major very complex systems. That was the combination of the most complex systems that man could devise at that time, not just individually complex but as an integrated system, an extremely complex summary of all the elements that make up a system like that. Man does whatever he can do to overcome some problems that could develop, first from testing, and then from a design standpoint to have backup modes and come home modes and all the different ways you can save the crew in case of difficulties. Er--I can only look back and say we were successful, in that we brought them home. But it was done through a whole series of backup modes that were built into the system, the lunar module's rocket engine brought us home. And er--that means that the system was designed with a certain amount of forgiveness, that was an extremely difficult first launch for me, it was my first launch as head of Manned Space Flight, and er we had some very innovative ideas come up immediately and yet applied to that system to bring it home. I think it is the system of innovation, and of knowledge on the part of the individuals involved in NASA and the crews and the Flight operations guys that really brought us home on that one. But it was there,

MYERS when it was needed it was there, and we brought it home.

INT Do you think you know you were saying the thing is so complex that there are always things that you can't pre-plan, do you think that was part of the reason there was some thought that after that hazardous landing of 11, and it was hazardous, that the thing should have stopped right there?

MYERS Well I'm sure there were many who thought we'd done our job, let's stop right now. And the pressure that came really was from the Science community who wanted to get additional information, and here we had done this magnificent sort of er--er--test pilot's dream, now let's get some data out of the system, and that's why the continual pressures continued, so far as I could see, and, at the same time a growing awareness of the dangers on each flight; it was not a matter of a routine transportation kind of a system, er, going back and forth to the moon, it was a dangerous flight each time.

And I think Congress was beginning to get an awareness of that danger, and therefore recognized that a failure would be a disaster, to the American prestige to the programme, to the future in space and so on. And so it was a trade-off, each time by the Congress for each flight, and a whole series of negotiations that led to the cut-off at 17.

(I'd like to stop youthere--out film?)..CUT.

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INT Why do you think the 1970 cuts happened?

MYERS Well I think we were--we had done the first objective, that was the big major objective of the Apollo programme, many of the congressmen I think thought that was the objective, and the cuts began to come because of this er--worry about how many flights there should be, how many risks we should take as a trade-off for the science and prestige we were getting from the flights. And er, at least

- MYERS that was my view that er--a certain powerful Congressmen ~~MYERS~~ were beginning to see that there had to be some trade where there was going to be a failure and we'd lose somebody, and if that were to happen, that would be a v. difficult thing, not only for their view of where the Space Programme should go, but for the whole national picture of success in space. So that began to happen, there was a continued pressure from there on that reduced the budget each year as a matter of fact until the fourth year that I was there.
- I don't think it was just because I was there.
- INT Did you have to fight the scientific community v. hard to accept those cuts?
- MYERS Oh yes--there was a great swell of interest growing up towards Apollo 11, and of course planning already set up for several vehicles beyond Apollo 11, and so when we began to talk about cutbacks we began to talk v. seriously about shifts to the Skylab programme, and the increases in science activity in Skylab. And by the way did that pretty dramatically at the, at sort of the last hours, before Skylab was launched.
- INT But the lunar geologists must not have loved you?
- MYERS No, they were--the lunar geologists particularly were very anxious to get on with it, and of course the idea of getting a scientist a geologist onto the moon became quite an important factor, and seriously important, but became part of a strain within the Astronaut corp, in which I was involved to the point of insisting that we get a geologist on the moon before we drop the Apollo programme, and I think 17 just finally became the last possible flight in which we had to get a geologist on the moon on that flight or we weren't going to make it.
- INT How did that strain manifest itself?

MYERS

Well of course the background historically had gone in the direction of test pilots being the type of folks who had all the intimate knowledge of the machinery and could respond most quickly to emergencies and so on, and in fact, having been through flight tests operations myself there's a certain amount of factual information associated with that.

On the other hand we have trained our astronauts, er, scientists to fly, we had put them through all the same kind of grilling put them in the position where they could make quick response decisions, and er, as you know we worried v. much about those people being able to be the men that saved the situation in case of a failure in equipment, and so we really paid attention to picking men that we thought could respond in emergency situations.

I still didn't see why a Scientist couldn't be trained at the same level of responsiveness as a test pilot, and down at Houston there had been a pattern of development of the crews, I'm sure you've interviewed people that talked about that, where there were back up crews behind the prime crews, and backups behind them, that helped them on each mission and then on each following mission, they moved up one step and so on, it was sort of a pre-ordained situation, as to who was going to be the Commander and the crew for each of the vehicles, and I think the whole system began to recognize that we had to get a geologist into the system, and that's when the er--the er--idea developed and when changes were made that brought Jack Schmitt into a position for a flight.

INT

But why did it take so long?

MYERS

I think because of the same major drive on the part of the management system for safety, safety over all other things, and er, and safety manifested itself into people with a background of test flying, like myself, Bob Gilruth, Chris Kraft, the people in the system were choosing the astronauts background

INT Why?

MYERS I think we all felt that we were moving to the place where additional flights ~~W&X~~ were a point of diminishing returns. We had covered the major -- at least the sort of very definitely major areas of geology of the moon, as much as we could within the tight limitations of the Apollo, couldn't go to the back side, and couldn't go to the very northern extremes, but then in areas we had covered we had gotten a very good sample of the moon, and I think that we have left a tremendous heritage for the science community for--from information, we set up a series of ground based experiments on the moon, that lasted ~~XX~~ longer than any of ~~XX~~ us had expected, we got more data there than we had expected, and I just think its been a bonanza of science information, and it was time to get on with Skylab.

INT Would it be mean-minded of me to say that it might even look as if it had been some kind of compromise, in order to ensure the continued existence of manned space flight at all, to back off the Apollo project like that?

MYERS No, I didn't see any of that.

INT Well Shuttle wasn't approved for what--until ~~Z~~?

MYERS Well yes, that's my point, I don't think there was any interaction between the two: I didn't see that, no, I saw a genuine question as to how far we should go with Apollo, a clear drive within the budget limitations that we had that we needed to ~~mae~~ on with Skylab to be able to support that programme properly, and Shuttle was an entirely separate issue.

INT And do you think you could and should have gone on to Mars?

MYERS Oh, I was one of those who felt that we were

MYERS not ready at that time to go to Mars. I thought that was too long and too risky ~~XXX~~ a mission at that time, I was much more willing to wait for a considerable base line of--of er un-manned vehicles to even give us an idea as to whether we should go to Mars.

INT How long do you think you're going to have to wait?

MYERS I er--I said then that I think we needed a new propulsion system to be able to make it a shorter trip, before we would go, and we haven't come up with that propulsion system yet.

INT Yes, you still haven't said how long you think you're going to wait? (ha ha).. Do you have any idea at all?

MYERS I really don't--I do believe that it's a matter of reducing the flight time, putting yourself in the position where the machinery doesn't have to last so long, and a man doesn't have to last so long--you know it was a 2-yr round trip at that time.

INT Yes, but I mean..just a figure, 10 yrs, 50 yrs a hundred years?

MYERS (O/V)..Well I just don't have a feel for it, it has to be a combination of new propulsion systems, and the will of the people of the United States, or the world, to go do it, and we really are out of the mode of exploration right now. This country at least is not interested in exploration, and er, until they are, there will be no deep space flights for men.

INT Thank you sir.

CUT.
(CONT'D.ROLL 49 over)..195/1

INT Did you ever hear talk of the possibility of cancelling the scientific..(sorry)..

Did you ever hear talk of the possibility of cancelling the so-called scientific missions after 14?

MYERS Er, I have some recollection that not a very strong one--I think there was some discussion about it, with the idea that er, let's quit early, again this question of safety the questions of how much risk we should take for the science we were going to continue to get, but it didn't reach my office very strongly. And that means to me that it probably didn't get into the specific recommendation to the White House, or, from the White House, to us or anyone of that sort.

INT That must have taken somebody fairly high up to do a neat blocking move?

MYERS Well it could have been--certainly there was by that time of course massive interest by the, not only the Lunar geologists, but by the whole science community in what we were doing, becos each of the missions was getting more and more science on to the moon, and more and more science from the service module for er, activities in space, and so it was a trade that had to be made, and was made I think properly on a national basis at the time it was made.

INT So you don't think it even came close to being decided?

MYERS Er, let me put it this way: I wasnot involved in any major actions that was leading to a decision on that sort. Now, perhaps Jim Fletcher or one of the other people who were involved, might have been involved in something of that nature. But I'm not aware of it.

INT Do you--do you feel that Kennedy's original

INT decision was still politically valid, in 1969?
In terms of international politics?

MYERS

Yes...I do. I think the er, the--the objective that he called out in that speech was a major rallying point for the nation all the way thru that time period, it brought us with er, massive additional actions within our country, in terms of educational programmes, new science, initiatives, er--the development of the whole broad spectrum of technical capability we never would have otherwise had, and I think it was in the main supported by the American people, I think it was an initiative that was imaginative and fantastically important to the country.

NT Thank you sor..sir.

(CUT.) (END OF MYERS INTERVIEW)

Buzz track..

197/1 called (XXX marked for transcription)

(Cutaways)..

JAMES Yes, but when people learn together they often learn to make mistakes, did that ever happen to you, did you ever say, this is impossibly difficult?

(CUT))(Do again)

INT Yes but when people learn together they often learn to make mistakes. Did you ever think this is impossibly difficult?

INT Sometimes that intimacy--(stops).
Sometimes though that kind of intimacy can develop tunnel vision?

INT Somebody said that before the fire the relationship between NASA and the contractor was already adversary.

INT To the outsider it looks--(stops).
To the outsider it looks incredibly obvious that you should have done that.

INT Could it have been because you were going too hard?