

LUNCHEON REMARKS

Dr. Joe Rice: The man I want to introduce to you now has promised me that he won't talk more than 30 seconds. He wasn't even scheduled to be on the program at all at the beginning, but we prevailed on him to give us a little time. He is the man who Victor gave the award to a minute ago, who is responsible for gathering and displaying all that art, the paintings, the graphics that you have been looking at from time to time throughout the day, and he wants to give credit to some of the people who have helped him with this display, which we think is a very nice one. Roy Magin, come on up here. Roy is Reproduction Services Manager for NASA's Manned Spacecraft Center, I don't need to remind you.

Roy Magin: Thank you, Joe. Ladies and gentlemen, I would like to extend my welcome to all of you and it is needless to say that we could never have put on such a fine exhibit unless we had such excellent artists in the area. This is an excellent representation of the technical competence of the illustrators available here in the Houston area. I would like to single out Mr. Fukal, who has been most cooperative and very helpful working with me on this exhibit. Mr. Fukal. Needless to say there were many others, and I would also like to identify the cooperation we got from Rice University from Mr. Estes and his staff. The technical art exhibit, we feel, is a fine representation of the technical art that is available here in Houston, and without any more ado, we would like to say, that those of you who haven't seen it, please take an opportunity to stop by and look at it. Thank you very much.

Dr. Joe Rice: The problem was getting through the crowds this morning to see it, and I think everybody was trying to see the exhibit. This brings us to our luncheon speaker and this is the man you have been waiting to hear. He has a Ph.D. in physics from Cal Tech, is a former F-86 pilot, a member of the Rice faculty, and since June 1965 he has been a scientist-astronaut. The title of his speech is "Today and Tomorrow." Dr. F. Curtis Michel.

"TODAY AND TOMORROW"

By Dr. F. Curtis Michel
Scientist-Astronaut
NASA Manned Spacecraft Center

Dr. Michel: When they needed a technical writer to address this luncheon, I unfortunately qualified in a sense; that is, I am a technical writer but I am afraid that the journal I write for most frequently, the "Journal of Geophysical Research," won't be found next to

the "Ladies' Home Journal" or any of the larger circulation magazines. In fact, probably I would guess that if it reaches the hands of say 10 000 people, that is a big circulation, and, of those people, perhaps 100 are interested in the subject you are writing about. That's a pretty good audience. And if of those, 10 people read the article, then you have really done a good job there. So, as far as mass media goes, I am a little out of my depth; I have tried on one occasion to write a popular article and so now I am back writing for JGR.

I have nothing but compliments to say about people who do write technical work for the public as a whole. Especially since ours every year becomes an increasingly technical society, and every year there are more difficult concepts to be gotten across to the public. Of course, some concepts like heart transplants are pretty easy to get across. I watch Channel 13 every Saturday night and they are always chopping up and putting people back together there and so that is easy to get across on the Late Weird Show. But to get something across like elementary particle physics, or plasmas in space, or something like this, this is very hard for somebody who is embroiled in it, because you want to be precise and you want to say everything exactly right. What you really want to do for popularizing this thing is to get the flavor of the idea and where it fits into the world as a whole. And that is very hard for someone who is embroiled in it.

Of course, on the other hand, I am also a part-time teacher. You can always tell the effectiveness of what you try to get across by asking questions or being asked questions. I must say, as far as the space program goes, John Glenn running down the beach has really gotten across, of all the things in the program that's really gotten across.

I get asked frequently by academic friends about my training program, and how much exercise I get out at MSC. I would like to say that the physical part of the training program is really very small. For most of us it consists of hand-ball instead of lunch a couple of times a week and that is just about it. There are exceptions and you can have a more elaborate program if you want. The men who have done extra-vehicular activity (EVA) and have EVA responsibilities, must train quite hard for the physical requirements, but for most of us it is not a big factor of our time.

Then, of course, we have a lot of academics. The Apollo Program is probably about an order of magnitude more complicated than the Gemini Program in both scope and systems involved, and this requires quite a bit of classroom time. And then we all fly, and even to get the 100 hours a year required by FAA requires a bit of our time. But most of our work (if you are not on the flight crew, of course) goes into what is called corollary duties, and in my case it is watching after the Apollo Telescope Mount, which is an astronomical project to be launched

in the Apollo Applications Program. And, of course, there are all the public appearances which take a little of our time. For us, as far as being a scientist or being a pilot, our activities are just the same, which is just what we want.

Now, within this program, as you know, the program has certain financial restrictions of late, and for example, it cancelled presently the follow-on lunar explorations, which I read about in the newspapers. I appreciate that. I thought I was just not very attentive. We were in Boulder, Colorado, the other day for an ATM meeting. I was there with Joe Engle reading the newspaper at lunch and I read where they had cancelled the X-15 program and Joe Engle already has his astronaut wings. We are going above 50 miles in the X-15, and he didn't know about that either, so he was happy for me to show him the newspaper. So we really depend on you guys that write and keep track of the space program for us. And, of course, they have cancelled 1-A (I got the jump on this, my office-mate works on 1-A), which would have been the first Apollo Applications Flight. So you see the program is being modified considerably for financial reasons, and this is painful to everybody involved.

I think one of the most unfortunate things about having to cancel parts of the program is that it breaks up highly trained teams, for example, the team that made the Lunar Orbital vehicles. There are no more Lunar Orbiters so that's the end of that and there are no more jobs. So that is pretty much the end of that team. And, it is too bad to see highly successful and well trained and accomplished teams be dissolved. The same goes for Surveyor and Huntsville, who, of course, have been marvelously successful in building boosters and there are no more boosters to be built.

Ultimately, I think these projects and requirements will be reinstated, but it will be difficult, I think, to get good men back to work on what will have proven in the past to be part-time jobs. Now, that's not a policy statement. I am not qualified in any way to weigh the administrative difficulties and problems; if you don't have enough money, you just can't do anything about it. But one is permitted I think, to analyze the effect of such cuts. I think again, in this business, it is going to lead us pretty much to a certain gap in the space program, probably shortly following a landing on the moon. In fact, we will probably be in somewhat an ironic position of landing on the moon and pretty much eliminating manned space exploration at just about the same time, at least for a few years. The reason for this is a desperate need for planning and this is where Today and Tomorrow enters (actually, I could have said yesterday, but I am not much of a historian). Yesterday is when you have to do the planning, Today is when you build the spacecraft, and Tomorrow is when you fly it. And, when I speak of one day, that's just sort of a literary way of putting it. It's years and years. Say, some-

thing like five years to develop the spacecraft, and depending, of course, on what the spacecraft does, that may be conservative.

And, we don't have very much on the drawing boards today in proposed Apollo hardware, and yet we are going to the moon tomorrow, so to speak, in any way, in about a year. In scientific payloads for my interest, of course, the big thing about exploring space, when you talk about putting up scientific payloads like 10 to 20 tons, is a lot of science and that's a lot of equipment and even if it were just TV sets latched together, that would be quite a bit of money. To have them all developed and scratched takes time, a lot of thought, and a lot of effort. I think we will have a reasonable gap. What we do have is ATM which I have worked on, Apollo Telescope Mount, (that is the alphabet habit in the government) and I have been working on that ever since I got in the program, about three years ago, and it will be at least another two years before that gets launched. And we have high expectations that this will be a very scientifically productive program.

Now, as far as I am concerned, and I think it is true that space is here to stay, I would expect that we will develop a stable ongoing program. I think this will come about really when the hiatus becomes more clearly defined, the fact that we are not really progressing as much as we are going to need to in the program. And, particularly I think the scientists have been bad in sort of taking the program for granted. I have just recently noticed that Van Allen has started taking a positive role in complaining and worrying about the lack of space activities. I think, if nothing else, the scientific requirements are going to keep rising and having an accelerated effect on the program. We have learned so much that we didn't expect to learn. A couple of years ago if you had asked an astronomer what they thought about Mars or the Moon or Venus, they would have said, "Well, it's round and not very interesting and very far away." In absolute ignorance, of course, you can be content to stay that way, but now things are starting to be known about these planets, that Venus rotates the wrong way, whatever that means, the way nobody expected, and it has a much hotter atmosphere than anybody expected. It has a much more interesting and curious body than anybody expected. Mars isn't a giant irrigation project apparently, but it looks much like the Moon. Of course, we are still not sure what we will find on the Moon itself, which is an excellent reason for going there.

I am sure, just like so many things have been learned about Mars and Venus without even going there, that when we finally get a man on the Moon, we will find exciting and tantalizing things. I think the tantalizing aspect is what is going to keep people from stopping, from losing interest, because it is going to be a constant force. There is always going to be the next little step. What's the next question? What's the next answer? Science and people as a whole have never been content to be given part truth and then go home and forget about it.

They have always insisted on knowing the next answer, asking the next question, and getting the next answer.

In closing, I want to emphasize and make clear to you that we are only thinking of you people, not of ourselves, but of you people because we want you to have plenty to write about. Thank you.

Mr. Ehrlich: Many of you have seen this morning, frantically setting up signs and I just made it in time, about three minutes before nine. All of the signs are up, some of them belatedly. I think I will say something now, make another announcement although belatedly, just about the last moment. I would like to recognize the hard work and the cooperation of three of our members in the society without whose diligence this seminar couldn't have been successful, in fact it could not have been done at all. First of all, my thanks and appreciation goes to John Colby. Please stand up John. John has prepared and has produced the assistance of Esso Production Research and his attractive editor Lynne Muller who is also a member in our society chapter. I think the people would like to see you too. Lynne, why don't you stand up? She produced the program guide which was used for the initial contact for you people. Without this program guide, you wouldn't have known about the meeting, and without this program guide, your employer wouldn't have decided on financing your way, many of you, many of the members had an opportunity to put this in on your expense accounts, so your employer wouldn't have been able to decide whether the seminar was worthwhile enough to finance the reimbursement for it. And then Marx Isaacs who was very effective in putting this announcement through the newspapers, radio and television channels to the general public. Marx works for Fluor Corporation as a technical writer and has been a very effective publicity man in our chapter. Marx. And then, last but not least, Dr. Christine Brannan, who has been working hard to take care of your advance registrations and was instrumental in setting up the registration lines here in the morning. You will remember her; please stand up Dr. Brannan. With these concluding remarks, I want to thank you again for your appearance and hope that the afternoon sessions will be enjoyable again. Thank you very much.