INTERVIEW: Ernesto Vallerani

Aeritalia space chief: 'We could help LDCs'

Dr. Ernesto Vallerani is the Director of the Space Division of Aeritalia, a company in the state-owned group IRI of Italy, and a member of the Club of Life. He was interviewed in Italy on Jan. 24, 1983 by Giuseppe Filipponi.

Filipponi: The American Space Shuttle will carry the Spacelab into orbit at the end of September. What prospects does this technology open up for European and American industry?

Vallerani: With the Spacelab we are at a turning point: Sept. 30 is an arrival date for the newest experience that industrial and scientific research as ever had in Europe and which crowns ten years of involvement in the space sector, a sector where up to now the U.S.A. and U.S.S.R. were almost exclusively involved.

Projects, in terms of space systems, are principally of three types.

The first are those directed at vanguard technologies each of which, however, represent a branch in its own right, such as the Surveyor and so forth. The second are the systems utilized for communications, where the technology has already been set up and we are confronting more of a commercial problem: how to reduce costs and increase utilization.

The third are those that we could define as Great Projects, which require a big commitment, technological and financial. The Spacelab is one of these projects, as well as the U.S. Space Shuttle. On the one hand, these great projects tend to be affected by an upturn or downturn in the economic situation. But they will never be cancelled, because they are catalyzing projects, which perform an indispensable role, and around them in fact the long-term space enterprises mature. They are the reference point for developing technology.

Among these projects there is also Spacelab, a unique opportunity for the Europeans to remain hooked up to the development of aerospace technologies and to the prospects that such technologies already offer to industry and scientific research. With Spacelab we are getting into the subject of orbiting systems, and from this standpoint, we are not at an arrival point but a departure point.

Spacelab should represent for us the calling-card which guarantees the quality of our technology for international relations. First, the Europeans were in a sense shut out of the advanced development of aerospace technology; and now they have an important part—we will have to see to what extent Europe will succeed in playing it.

The manned space station is the prospect of the future, and it, too, represents a challenge for Europe. It would be absurd to delay now what has been the crowning of 10 years of work, and throw away everything—the prospects and the men.

To speak of a space station means to go to the heart of technological development at the highest level. If the Europeans do not understand this, the United States will inevitably remain the only Western power having such a technology, and they will hold tight to it, and they will be right to do so. We are seeking a mediation; space systems are destined to evolve very rapidly in the future, and the first steps are decisive. The modules of the space lab will be key to making these first steps. They are modules that we will build. The United States will take advantage of them because in that way the U.S.A. can concentrate on the development of other technologies. The United States finds this set-up very convenient and understandable.

Does it benefit the Europeans to do that? By itself, without U.S. technology, we could not do anything but maintain the hook-up with U.S. technology; to be involved is key. In this way we shall build the space station together.

Filipponi: In Europe there are more than 12 million unemployed, as in the U.S.A. The Third World is collapsing under poverty. In this situation, when the official policy of governments is budget cutting, with scientific research the first to go without even talking about the cuts that industries are carrying out, the approach you present is obviously against the grain. What types of responses have there been by industries and government agencies to the perspectives of scientific and technological research which the Spacelab offers starting next fall?

Vallerani: We are conscious of the gravity and reality of the ongoing economic crisis, and we are worried about the direction things are going. We are engineers and we do not want to give out speculative recipes. But we know that investments and research are languishing, and what we can say is that things cannot go on like this. The trend must be reversed. Whoever will have the courage and strength to do it will undoubtedly be the long-term winner.

The danger is that, already, people often cannot see something that goes beyond a few months or a year. But man has always embarked on undertakings that went beyond his own generation, within limits. Acting in this way, we are in line with the continuity of humanity. We must free ourselves from a simply utilitarian vision. The exploitation of space offers this possibility. It makes us renew the thrust toward great and complex enterprises.

When it comes to investment in space, we are asked: and when will the books balance? The problem cannot be posed in just that way. We have to let a portion of the investments

be made and not presume an immediate return; even NASA today is too tangled up in having to immediately give an accounting of the investments it makes. It ought to be left freer.

We have undertaken to feel the pulse of Italian industry, to check out its availability to use the Spacelab for technological research. Relative to what we were expecting, we are satisfied. Various persons, research centers, and agencies are interested—all people who understand the possibilities opening up.

This new phase starts on Sept. 30. Man can remain in space for long periods. This has already been proven. Spacelab is the testing-ground for so many industrial and technological adventures, to prepare new products and new instruments that will improve living conditions on earth. But this is only the tip of the iceberg.

Once the results from the first experiments begin to be seen and the advantages that chemistry, physics, medicine, and so forth will derive from it become visible, then the cost-effectiveness can begin to be established. It is enough for there to be one new product decisive for the improvement of one or more productive sectors in the economy, for a new line of production to be immediately unleashed. A space shop can be installed, and that way there will be a true verification of the possibilities on the horizon, and then everything can develop.

Right now, the complete proof is not far off, even from the standpoint of economic cost-effectiveness. Soon we will be able to look at space through the entrepreneur's lens. We just need the various modules of the Spacelab to be put together, and to stay a long time in space in such a way as to be regularly visited, and then the experiments broadened. Skylab was the first laboratory put into orbit, in 1973; but then nothing further was done. There has been a vacuum on the U.S. side and the traditional absence of Europe and Japan for more than 10 years. The Russians, meanwhile, with their various Salyuts, have increased their space presence. We have to take up the Skylab line again with a long-term project. If this line had been followed, we would now be 10 years ahead.

But to get from here to doing something concrete, is a long road. Now we are moving a bit with the CNR [Centro Nazionale di Ricerche, the Italian government R&D agency] to see to what extent it is possible to support a series of selected projects. Under the apparent indifference, there is interest; perhaps there is a lack of information.

Even U.S. industry is moving, unfortunately, very slowly, initially above all in the chemical and pharmacuetical industries. Johnson & Johnson and McDonnell Douglas have already agreed on a mission; the movement is slow but steady. Given the American pragmatic mentality, very much affected by events, I think that the response to using space will go in waves; this is my idea. But I think that as soon as a product is made in space which is also adequate from the economic point of view, the race will start. There are about 60 firms that are starting to go toward this path, and in Italy there are four or five interested firms. We have even found some bewilderment: to whom, we were asked, will the ownership of the new technology of the product made in this way go? This is unjustified, [since] NASA does not make any such demands of a share in ownership, but only guarantees the security of the flight.

Filipponi: How is it possible for countries in the developing sector, in such grave economic conditions, to use these new technologies for the purpose of development? Do you already have contacts, and are there proposals?

Vallerani: Space products are sophisticated and very advanced, and the emerging sector is in difficulty because of the lack of basic technology. But we have spoken with the foreign minister about proposing to African and Middle Eastern countries that are close to Italy, if they were interested in using the Spacelab, to get them into the project. Despite our efforts, I must say that this contact has not taken place. We have practically no relations with governments or institutions of developing countries in envisioning the exploitation of Spacelab's potential at this time, even though this would be important, either as a simple matter of knowledge, or because through this, one could see how to choose a series of key experiments and experiences together.

The next 10 years will still be for research and preparation, after which there will be full exploitation. We have to furnish this possibility to the developing countries. We would like a component of the developing sector to tell us what they need, and what plans they have.

For the moment, Spacelab can be used to amplify the possibilities of knowledge of resources of these countries, to focus and better evaluate the possibilities for development such as for making a constant analysis of the moisture of the soil, which is key information to make certain choices in agriculture and so forth. And on the subject of agriculture, following up from simple observation, we could pass to the development of capacities of large-scale intervention from space to modify and improve the climatic situation in vast areas of the earth, thus obtaining revolutionary changes.

Right now, we have to do the first phase of information-gathering and studying of the atmospheric phenomena and their relations with the activity of the sun, to then intervene correctly on a large scale from space. Once these phenomena are understood, we can increase the temperature of certain key areas of the developing countries on certain selected days, which would multiply the productivity of the harvests, and that kind of thing. This is what space can offer, opening perspectives unthought-of today. Space in a certain sense is like the ocean, of which we exploit only a tiny part near the surface but nothing of the rest. Right now we only use space for communications, but in reality the possibilities of exploiting space are unlimited.