French, Mexicans, and Russians. If government-sponsored flights (perhaps by military transports) could be arranged, they could carry, in addition to each contingent's supplies, a power generator for all, medical personnel, and even security guards. NSF would be responsible for the site selections (possibly the place of disembarkation) and for determining the length of stay. For most expeditions, arrival near the central line a week before the eclipse would seem reasonable. If government planning were begun soon, there would be ample time for participants to develop plans and equipment to comply with regulations.

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Political Discussions at Gordon Conference

At the Gordon Conference on Biological Regulatory Mechanisms last July, three sessions organized by the participants were held on topics of a political nature. In the first of these Mark Ptashne talked informally about his recent trip to Hanoi, Saigon, and Vientiane. The second session included films, produced by The Newsreel, on the People's Park at Berkeley and on the Black Panther Party; a discussion of political repression and of the newly formed Scientific and Medical Workers Committee to Support the Panthers; and a discussion of attitudes and values in science (pressures reinforcing destructive aspects of competition, lack of cooperation in science, exploitation of graduate students, scientific ethics, and so forth). In the third session René Thomas showed slides of his 1964 trip to the People's Republic of China.

These sessions were held at times that did not conflict with the scientific presentations. Over half those at the conference attended each one, and most of them actively participated in the discussions. The discussions, although quite serious, were relaxed and free of tension. Thus, these sessions did not hamper the main scientific business of the conference. Rather, we believe that they complemented it by helping to establish a climate of mutual concern and increased communication.

A similar session, with a similar degree of interest, was held at the Cold Spring Harbor Symposium. We hope that discussions of these and related issues will be organized regularly at scientific conferences and elsewhere.

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Manned Space Exploration

A person who deeply believes that man's explorations of the wonders of nature, using the procedures of science, rank high among the great triumphs of the human mind and the human spirit may be judged almost a traitor to that philosophy if he is opposed, as I am, to the space program of the United States and is especially opposed to manned space exploration. I could easily state the bases for my opposition. But I am willing to rest my case by calling attention to the nature of the arguments of those who favor manned exploration.

In a letter "Case for Apollo" (4 Dec.) A. W. England, of the Astronaut Office of the NASA Manned Spacecraft Center, argues that the U.S. space program has provided "a great challenge to our aerospace industries" and has given an unequaled boost to our economy and technology. Indeed the aerospace industry has been stimulated to such growth that it now "needs new projects to remain viable." We have created a monster and, it would seem, are now stuck with feeding it.

England scorns unmanned flights (they have been estimated by the Russians to cost only 5 percent as much as manned flights), largely because of the flexibility which can be achieved in manned flights. He says that the astronaut on the moon "walks over many miles of rugged lunar surface gathering interesting samples." Just when, incidentally, did these many miles of wandering occur!

England's defense of the space program, however, is by no means the most damaging one that has been offered. On a Channel 13 program in New York City broadcast in July 1966 the then Vice President of the United States said, according to an official transcript: "We have made more discoveries in space medicine that has relieved human misery in the last five years, than we made in medicine in the preceding fifty."

On request, the Vice President's office sent me an 11-page list of 31 examples supporting this statement. There were a few reasonable (but not very impressive) examples of vestibular research, cardiovascular research on concentrated synthetic diets, on low-residue diets, and studies of the processing of human waste products, and of the effects of low temperatures on living systems. None of these examples seem to me to constitute the slightest justification for the original claim. And the list also contained numerous entries of minor gadgetry (a switch actuated by voluntary movements of the eyes, a temperature transducer, respiration and blood pressure monitoring equipment, an automatic syringe, and so forth). In terms of the tremendous advances of medicine in the "preceding fifty years," the list is pathetic and ridiculous.

It has become very clear that the space program is not, in essence, a scientific program. It is a program of the military-industrial complex, which they frantically attempt to wrap up in the mantle of science in order to gain prestige and assure support. This is emphasized by the fact that, over the past year, numerous men engaged as scientists by NASA have resigned because of their disillusionment.

If we wish, as a nation, to give a great boost to our economy and our technology (to use England's own phrase), why does our government not, for a period of a few years, make a billion dollars a year available for research and development on a pollution-free engine for automobiles? If we wish to justify the surprising claim for medical advance that Vice President Humphrey made in 1966, why do we not allocate a billion dollars a year for a few years to assure that every qualified cancer research scientist in the United States is adequately financed?

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