

## *A Sputnik Symposium*

*In this feature we publish three comments prompted by the launching of the first Russian satellites. N. W. Pirie, F.R.S., the eminent bio-chemist, in a provocative article which is re-printed from the journal of Indo-British friendship, ENVOY (January 1 February 1958), challenges the direction of scientific research and Government expenditure in the 20th Century. Tom Kaiser, Senior Lecturer in Physics at Sheffield University, and an active participant in the research programme of the International Geophysical Year, raises some points of disagreement. Finally, Claude Roy, outstanding French novelist and Communist "dissident," contrasts the propaganda surrounding the sputniks with the secrecy of the trial of Tibor Dery, the Hungarian novelist (now imprisoned) whose short story 'Odysseus' appears in this number. All comments were written before the launching of the American satellite.*

N. W. PIRIE, F.R.S. : *The Lunatic Fringe of Space.*

Traditionally, the moon unsettles men's minds. The impulse to make new moons is even more unsettling. This would be a harmless eccentricity if we were all reasonably well fed, housed, clothed, washed and cared for in ill-health. But we are not; conditions in most of the world are shocking. Hunger is the main challenge because it is a positively definable state. People, wherever they live, need much the same amounts of much the same types of food even although many of them have grown accustomed to finding these needs unsatisfied. In these circumstances what justifications can be found for the diversion of immense amounts of human skill and productive capacity into the launching of sputniks ?

Prestige, or we might say ostentation, is one. Surely that urge could be satisfied by feeding people. If, in a fit of compassion, some government tried to abolish world hunger, the difficulties would soon become apparent. In his story *The Butterfly that Stamped*, Kipling tells how Solomon decided to feed all the animals in the world. When the feast was ready an animal came out of the sea, scoffed the lot in three mouthfuls, and said he was the smallest of a family of 30,000. The family of man has an appetite beyond the resources of any government. Against the background of the world's real needs, satellites are rather insignificant. They are attempts to be ostentatious without doing anything unprecedentedly difficult and are the international equivalent of the antics of adolescents in sports cars.

Research, or we might say curiosity, is another justification. The problems of pushing sputniks into space are real and very exciting;

what happens next will tell us a great deal about the upper atmosphere, the distribution of meteors, the shape and composition of Earth and many other things. *Sub specie aeternitatis* all this is well worth knowing. But does our ignorance of these things really oppress the man with an empty belly? Is that what keeps him awake at night? We need twice as much food as we are producing now, and if medical services are reasonably spread out, the population, and so the need for food, will become greater still. Getting it raises problems vast and diverse enough to absorb all the ingenuity and research capacity that we have to spare. Mechanics and engineers would be needed for much of the work so that this aspect of it will compete directly with rocket and satellite programmes. There are already too few biologists. But people, especially when young, are plastic and we could get many more biologists if a serious attempt were made to divert students from the conventional study of chemistry and physics into more difficult but more immediately useful channels. There is therefore no need for scientists to fear unemployment if military research should be curtailed.

Defence, or we might say aggression, is probably the prime motive. As we rejoice at Man's extending dominion over Nature we should remember that, but for the incentive of war, we would not be hearing the bleep of little sputnik, the moon-calf. The Americans are franker than the rest of us about this and their present consternation is so comical as almost to justify the waste of talent on a frivolity. Sputnik gives a veneer of respectability to research on the design of rockets able to carry missiles up beyond the atmosphere and on devices for getting them down again without overheating. The first is militarily important because it makes a bomb nearly immune from detection and interception; the second is essential if the bomb is to explode properly on landing. Space travel is a worthy goal and these are aspects of it. But even the modest venture of a trip to the moon - and back - is excessively improbable for as long as chemical reactions similar to those in a firework, rather than nuclear processes, are the source of power. It is often said that Russian and American rocket research marks the Dawn of the Space Age; more accurately it marks the Twilight of Pyrotechnics.

The Spirit of the Age, or -we might say fashion, is the final reason we may consider for the generosity of governments towards excursions into space on the one hand and the nucleus on the other. Old-fashioned but useful activities like agricultural and medical research, or methods of mining coal and harnessing the tides, winds, and sunlight, would be revolutionised if they got the endowment lavished with apparent casualness on projects that seem more up to date. Electronics research, so largely devoted to giving us T.V. pro-

grammes whose banality the critics are united in condemning, is with us constantly. Aeronautical episodes like the R101 and the Brabazon are fresh in memory. And now we have Windscale. This, it is important to remember, is a plutonium plant built with the full resources of arms expenditure behind it. Presumably it incorporated every safety device that could be thought of, regardless of expense. The nuclear power stations have to compete economically with conventional stations. This is not likely to make them any the safer, so it is probably fortunate that they are being built in relatively isolated places.

In popular esteem the man who wears both (braces and a belt is a figure of fun. There are circumstances in which he is merely being prudent. The invention of braces was a fine thing but it did not necessarily solve all problems of suspension. So too with power. It will be a pity if any large (proportion of our resources goes immediately into nuclear power to the detriment of coal; we will certainly need both. There is less chance that the practicability of the sputnik will be used as an argument for stunting some more practically useful activity. On the contrary, some people argue that it is resources that would otherwise be used to make H-bombs that will be diverted. That, if it could be proved, would be a sufficient justification, but proof has not been given. There is danger in a line of argument that justifies any activity except the ultimate abomination, whatever that is, on the grounds that it diverts people from the abomination.

Every age has its own characteristic horrors and follies. We are appalled at the gladiatorial shows of Rome. We laugh at the elaborate dress of the 16th, 17th and 18th centuries. We are amazed at Victorian furniture, decoration and cast-iron railings. What will posterity single out as our characteristic folly? Surely it is waste? We complain that we are short of scientists and then squander them on rocketry; that there is going to be a power shortage and at the same time use power increasingly with thoughtless extravagance. Some writers even use the amount of power that each person in a community consumes as a measure of the level of civilisation of the community. What is called a 'Western' outlook goes with heavy consumption; 'Wild Western' might be a better term. This outlook assumes that incessant movement and consumption are essential for pleasure. But there are many communities, which seem as happy and cultivated as ours, and in which people can stay quietly in one place communing with Nature and their friends. Even in the 'Western' world, it is interesting to note, the more prosperous people often slip back to the pleasures we share with our Neolithic ancestors - sex, the chase, and eating and drinking. This generation has consumed more of the world's mineral resources than were consumed by all

earlier generations together. When our descendants find themselves short they may look critically at our wasteful habits.

Perhaps I have exaggerated the harm done by the sputniks; but I have not exaggerated the danger if competition in launching them becomes an obsession. Alexander the Great is said to have wept on learning that the Universe contained many worlds. Now that they may be becoming accessible to us we might emulate him, for we are still making a pretty poor job of handling this one and feeding its inhabitants.