

into question the official justification for Sentinel, namely that it is orientated only against China. This follows from the fact that the relatively primitive strategic missile force of China in the early 1970's would be a credible deterrent only if it were entirely targeted against American cities rather than missile installations. As far as is known, the Soviet ABM system is designed to protect Moscow and possibly Leningrad and is not deployed around missile sites. The use of ABM's to harden missile sites would also be likely to stimulate the opponent to improve his offence and, hence, although stabilizing in one sense, would also cause some acceleration in the arms race. The most serious consequence of the American decision to deploy ABM's at ICBM sites is the threat to the success of the arms control negotiations produced by the introduction of a factor of uncertainty into the nuclear strategic balance.

Consequences of the development of new weapons. The development of new weapons, in particular MIRV's, could have even more serious long-term consequences than ABM systems. Both superpowers have recently tested ICBM's with multiple warheads. These weapons are the logical response to ABM deployment. MIRV's are potentially very destabilizing because, if their development continues, their accuracy will probably improve to a degree which will enable a superpower to destroy all or most of the other's strategic ICBM's by a first strike. Relatively invulnerable launching sites, such as submarines, would help to stabilize the strategic situation, but submarine-based missiles are an order of magnitude more expensive to maintain than land-based missiles. Another reason why MIRV's are destabilizing is that their deployment will introduce a large factor of uncertainty in that it will be extremely difficult for each superpower to calculate with any confidence the number of warheads the other has, for this number will no longer equal the number of launching sites. At the moment each superpower can estimate the balance of forces with reasonable certainty.

"Arguments from grand policy" show that the disadvantages of the deployment of ABM's, even so-called "thin systems", completely outweigh the advantages claimed by Herzfeld which, in comparison, are relatively trivial. As far as the argument about the necessity for an ABM system as a defence against China is concerned it should be noted that there is very little, if any, evidence that China has the aggressive intentions usually ascribed to her or that she will behave so irrationally as to launch a nuclear attack on the United States. It is difficult to see why the superpowers should not rely on a policy of deterrence rather than defence with respect to China, or in other words on the same policy that they adopt towards each other. The time may be politically ripe for negotiations leading to significant arms control and disarmament measures: both superpowers have urgent and serious internal problems and are under strong pressures from their populations to concentrate their energies and resources upon them; there is no reason to doubt that both powers are sincere in their stated desire for a system of arms control; there is a sufficient measure of détente between them; they seem to be prepared to accept the strategic situation which a measure of arms reduction would produce; there is at present a strategic balance between them; both superpowers wish to prevent the expansion of the nuclear club and know that the viability of the non-proliferation treaty depends on their limiting the arms race; and both wish to prevent a general nuclear war, the likelihood of which will increase during the periods of instability which will inevitably occur if the arms race continues.

Yours faithfully,

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University News

Professor A. W. Merrison, professor of experimental physics in the University of Liverpool, and director of the Daresbury Nuclear Physics Laboratory, has been appointed Vice-Chancellor of the **University of Bristol**.

Dr R. L. Wilson has been appointed the first professor of geophysics at the **University of Liverpool**.

Professor G. W. Beadle has been named the William E. Wrather distinguished service professor at the **University of Chicago**.

Dr R. A. Cowley, Atomic Energy of Canada Limited, has been appointed to an additional chair of physics at the **University of Edinburgh**.

Dr D. G. Freiman has been named Mallinckrodt professor of pathology at **Harvard University**.

Professor G. Birkhoff has been named the first George Putnam professor of pure and applied mathematics at **Harvard University**.

Professor A. Brown has been appointed to the chair of library studies at **University College, London**.

Professor Sir Brian Windeyer, Middlesex Hospital Medical School, has been elected Vice-Chancellor of the **University of London**.

The title of professor emeritus has been conferred on **Professor O. V. S. Heath**, professor of horticulture at the **University of Reading**.

Appointments

Dr J. L. Locke has been appointed assistant director of the radio and electrical engineering division of the **National Research Council of Canada**.

Announcements

The Journal of the Linnean Society—Zoology, the **Journal of the Linnean Society—Botany**, and the **Proceedings of the Linnean Society** will from January 1, 1970, be known as the **Zoological Journal of the Linnean Society**, the **Botanical Journal of the Linnean Society** and the **Biological Journal of the Linnean Society**.

The International Cell Research Organization, under the sponsorship of UNESCO and WHO, is holding an international training course on **Molecular Aspects of Antigenicity and Immunoglobulins** in Rehovot, Israel, from November 17–29. Applications should be sent to Professor M. Sela, Department of Chemical Immunology, Weizmann Institute of Science, Rehovot, Israel.

Dr J. A. Kirchner, Yale School of Medicine, has been presented with the **Newcomb Award** of the American Laryngological Association for his contribution to literature on the larynx.

The University of Wisconsin, Ohio State University Research Foundation and the **Johns Hopkins University** have been awarded subcontracts by the National Academy of Engineering to chart methods for solving the problems connected with the development of biomedical engineering. They will report their findings to the NAE's Committee on Interplay of Engineering with Biology and Medicine.

ERRATUM. In the article "Residues of Dieldrin (HEOD) on Complete Prepared Meals in Great Britain during 1967" by McGill *et al.* (221, 761; 1969), there was an error in the units of Table 1. The units should have read " $\mu\text{g/day}$ " not "p.p.m."

ERRATUM. In the note "Horse Doping—Pharmacology and the Punter" (222, 111; 1969), the quantity of heroin mentioned in the first sentence should have been "one and a half grains", not "grams".