

# CORRESPONDENCE

## Insecticides

SIR.—Worthington (*Nature*, 234, 55; 1971) states positively that "the proposed banning of DDT in the USA will stimulate the search for better insecticides and integrated pest control . . ." and the "efforts in these directions remain at a relatively low ebb so long as the bludgeon of DDT and other persistent synthetics is readily available". His argument was somewhat damaged by your footnote. Also, his premise is the reverse of the obvious facts; the success of DDT was a great boost to the search for other and better insecticides, just as the success of the Ford car triggered competition in the automobile industry. Many millions of dollars were spent in insecticide research in the past two decades and the stimulus for the expenditure was reinforced by the onset of resistant strains. The WHO has tested more than 1,400 new insecticidal compounds since 1960 for suitability in vector control of malaria.

The use of pesticides has furnished bread, and now the attack on them provides circuses. Contrary to Worthington's reasoning, several large organizations that searched for new insecticides are weary of being pursued by environmental lions ("a public relations headache"), and are leaving the Colosseum (*Chem. Eng. News*, 16, 1971). For example, Standard Oil of New Jersey has put its pesticides research programme up for grabs. If new insecticides are needed for integrated control, how long would it take to "clear" one—five years? Almost any substance will produce tumours, or deformations in embryos, if enough is injected, and there is always the question of "long-term effects" which are too subtle to detect, but not too subtle to be used in arousing fear of the unknown.

Yours faithfully,

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## Arms Control

SIR.—Ralph Lapp ends his review of the "Impact of New Technologies on the Arms Race" (*Nature*, 234, 273; 1971): "The United States appears to be racing itself, not competing with the Soviet Union, as it seeks to exploit military technological opportunities."

He seems to be implying that the United States *alone* is arms racing (rather than that the form of US arms racing does not relate to the form of

Russian arms racing). The present situation surely is that while both superpowers continue to proliferate nuclear weapons, the Soviet Union has already substantially overtaken the United States in numbers of ICBMs, in megatonnage, and in underground tests of large nuclear devices; that the Soviet Union is approaching parity with the United States in missile launching submarines, has already flown a new supersonic long range bomber, has long since had an ABM system deployed and an Orbital Bombardment system, and now has a non-nuclear anti-satellite capability as well.

As one who believes, passionately, that arms control and disarmament are a necessary (though not sufficient) condition of human survival, my heart sinks every time an American dove proclaims his belief that today the United States alone is arms racing or exporting weapons or whatever. This was indeed virtually so when many of today's doves were working with the Kennedy administration, but it has not been the case for the last half decade or more: is it not time they recognized that today the Soviet Union is acquiring and proliferating weapons of all sorts at least as vigorously as the United States then did?

Yours faithfully,

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## Ocean Conservation

SIR.—The terrestrial environments of the Earth have been divided by ecologists into a series of "biomes", according to variations in climatic and geophysical factors. Within these biomes, a large variety of different types of habitat have been recognized, each with more or less distinct floral and faunal characteristics.

The oceans of the world, which cover 70.8% of the Earth's surface and contain 80% of known living organisms, can also be divided into distinct regions, according to climate and depth. These regions have distinct faunal and floral characteristics, as do the terrestrial biomes, although the distinction is considerably blurred by the activity of the ocean currents and mixing of separate water bodies.

Nearly all nations now have devoted thought and effort to conservation of their natural resources by the establishment of parks, reserves, sanctuaries

and so on, setting aside areas for research, education and recreation. A question now occurs to me. What steps are being taken to do the same for the marine habitats?

The Annual Report of the President to the Congress of the United States of America on Marine Resources and Engineering Development in April 1970 gives a brief but good summary of marine pollution. But throughout the report, the ocean is referred to in the singular. Further on, the same report mentions that many countries are taking steps to set up conservation areas in their coastal waters. Coastal environments are distinguished as estuaries, lagoons, beaches, wetlands and so on. Some countries have established underwater marine parks inside their territorial waters. Should not the open oceans be recognized as a series of environments, each worthy of some attempt at conservation?

With the fast developing technology of marine mining and underwater engineering, the declaration of protected areas in the ocean should not be left too late. Benthic faunas in particular would suffer in large scale dredging and boring operations. So far, open ocean conservation has consisted of the protection of single species from overexploitation. Terrestrial conservationists have found out that preservation and management of environment is a better approach.

There are tremendous problems associated with the setting-up of open ocean protected areas, different from those faced by terrestrial conservationists. A few spring to mind. (1) Which areas to choose? This is relatively simple, and can be solved by present surveying methods, if enough time is available. (2) Who would control the proposed areas? Because they would in most cases be outside territorial limits, the responsibility would fall to the UN. Costs should be shared by the member nations of the UN. (3) Management problems, such as counteracting pollution by contamination from outside, would arise. These are some problems, but it must be agreed that attempts must be made to set up these areas, and research into management methods must be worthy of attention.

Yours faithfully,

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