

Infectious AIDS

SIR—The letter from the Drs Fox (*Nature* 319, 8; 1986), and your leading article (319, 9; 1986), highlight the recent awareness that the virus known as LAV, HTLV-III, or ARV (hereafter called the AIDS (acquired immune deficiency syndrome) virus) often causes progressive encephalopathy, similar to that in the archetypal slow virus disease of sheep, maedi-visna. However, the generally accepted hypothesis that “the AIDS virus is plainly not particularly infectious” needs to be modified slightly. Under special circumstances the virus is highly infectious.

Infected people are persistently viraemic, and they intermittently shed infected lymphocytes in saliva, semen, bronchial secretions and tears. Serum contains up to 25,000 virions per ml (ref. 1), but virus is largely cell-associated in the other fluids, making them much less infectious than serum. However, AIDS virions remain highly infectious after seven days in water at room temperature, and retain some infectivity when dry for a week². A few AIDS virions injected hypodermically into chimpanzees invariably infects them, and within two weeks their serum becomes persistently infectious.

It is consequently unsurprising that the virus is spread rapidly by repeatedly re-used unsterilized hypodermics, and by sexual manoeuvres that damage the rectal mucosa of people who frequently change partners. Modern medical hypodermics are re-used in poor countries on a very large scale. For example, in four weeks in 1976, the blood-borne virus causing Ebola fever swept through the 120-bed mission hospital in Yambuku, Zaire, because only five needles and five syringes were used each day for all ward patients, and about 400 out-patients³. Injection was the preferred route for all medication. A pan of water was used to rinse the hypodermics, which were boiled less than once a day.

With similar practices widespread in Africa, Asia and South America, millions could be infected with the AIDS virus, brought to a continent by a single carrier, before anyone realized that it had arrived. The incubation period to illness lasts years, and early cases are lost amongst the diseases of abject poverty.

Once a critical mass of people have been infected rapidly by highly efficient means of transmitting the virus, then transmission by far less efficient means will inevitably occur increasingly often. These include blood transfusions, perinatal transmission, biologically normal sexual intercourse, needle-stick injuries, chance contact of sores or abrasions with contaminated blood, saliva or sputum, mechanical transmission by blood-sucking insects and flies and routine dental procedures. AIDS patients who have no known “risk factor”

form the third largest “risk group” for AIDS in the United States (6 per cent), the second largest group in Western Europe and the vast majority in Africa. Postulating clandestine homosexuality or heterosexual promiscuity to explain these cases is unnecessarily speculative, given the properties of the virus.

You mention some of the many similarities between the viruses causing AIDS and maedi-visna. If the long-term mortality of infection also turns out to be similar, the AIDS epidemic is more than “a serious problem of public health”; it is the start of a pandemic slow virus disease with the potential to decimate mankind within a couple of decades.

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1. Levy, J.A. *et al.* *Ann. intern. Med.* 103, 694–699 (1985).
2. Barre-Sinoussi, F., Nugeyre, M.T. & Chermann, J.C. *Lancet* ii, 721–722 (1985).
3. Report of International Commission *Bull. Wld Hlth Org.* 56, 271–293 (1978).

Complex forests

SIR—The erroneous idea is becoming widespread that the remarkable forests being destroyed and in danger of extinction round the tropics, subtropics and in a few temperate lands are rain forests, whereas they are often dry sclerophyll woods where the dead leaves crackle underfoot. The essential thing about them is not wetness; it is that they are all coherent communities which are complex multiple aggregations containing many quite different kinds of trees of all shapes and sizes dominated by lofty, often huge trees many centuries old, each bearing a large quantity of timber. Numerous different species of lianes, shrubs and flowering plants hang on the branches adorning the complexity.

The roof of this kind of standing forest is a billowing surface of greatly varied height and shape, frequently overtopped by the crowns of the scattered dominants. Such a kaleidoscopic vegetation takes many centuries to mature, millennia even, and can never be replanted once it is gone. It is surprising that these ancient complex forests have kept the same habits of growth, shape and structure in so many different countries, each with its own unique combination of species. The soil beneath is often poor and exhausted, and after the big trees are cut, the local microclimate changes, and if the surface does not erode and disappear, nothing but weedy scrub will cover its wounds.

Real rain forests blanket many square miles of the Southern Hemisphere among mountains where precipitation rates may reach 450 cm a year, where there is no dry season and everything is sodden. *Nothofagus* trees, all one species in any one place,

grow laced together to a uniform low to medium height, their twisted branches and exposed roots clad in a thick bryophytic wrapping. Many ferns, saplings, shrubs, seedlings and a few flowering plants grace the interior. Such rain forests form a smooth green surface spreading over the country like a carpet, in strong contrast to the bubbling canopies of a complex forest.

These two distinctly structured types of forest, both of which may cover a range of climatic conditions and may abut without ever mixing, are better called “complex” and “blanket”. Complex forests are always ancient and if destroyed cannot be reconstituted. Blanket forests in contrast, with a single tree species in any one area, are comparatively short-lived and may generate readily.

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Nature exploiters

SIR—Lord Ashby, in his review of the book *Pesticides and Nature Conservation* (*Nature* 318, 21; 1985), concludes that “there has to be a compromise between those who want to exploit the environment for profit (either by growing crops or making pesticides) and those who want to protect it”. He has, however, reversed the roles of the participants.

Those who have become bloated by exploiting the environment for profit are groups such as the Audubon Society, the Sierra Club and the Environmental Defense Fund. They have attained great political clout, huge staffs and bulky portfolios of stocks and bonds financed by the donations of frightened, misinformed citizens who were exposed to the false allegations of pseudoenvironmentalists. Humanity should be included as a part of the environment, and “those who want to protect it” are thus the groups involved in growing crops and preventing illness and death resulting from insect-borne pathogens.

Lord Ashby categorizes John Sheail’s book as “a record of missionary work by scientists” who have worked and lobbied on behalf of the environmental movement. Those “missionaries” paid scant heed to the hundreds of millions of human beings who were sacrificed as a result of their efforts, and it might be asked why they resorted to such unscientific methods as deliberately distorting or omitting all the data that refuted their allegations over, for example, the impact of DDT. Lord Ashby is certainly correct: “the story is not over yet”.

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