

THE WAR in Southeast Asia has gone on for more than 30 years, and during this period, the people of that area have been subjected to intense deprivation and suffering. In the last decade the United States, in its advisory and fighting roles, has not only greatly increased the immediate suffering, it has added a new and terrible dimension to warfare: as a result of strategy used deliberately to destroy the forest cover and enemy food crops and of other programs as well, we are producing devastating, long-term ecological damage. Long after first-hand memories of the war's horrors have faded, a crippled land will remain the legacy of our presence. This report attempts to evaluate the extent and the seriousness of this destruction.

In making this evaluation, it must be recognized that ignorance of tropical ecosystems is even greater than that of temperate-zone systems. However, ignorance must not be used as a license to plunder. In fact, lack of knowledge is rather a reason for caution with policies that affect the environment and human life. We do know enough to state unequivocally that the actions reported here will have serious long-term consequences and that significant damage has already occurred.

United States forces are engaged in two specific programs of environmental destruction. One is the defoliation program, nicknamed Operation Ranch Hand, in which chemical substances that remove leaves (defoliants) are sprayed onto plants from the air. Trees are often killed in the process, and in this case the chemicals act as herbicides. The other program employs aerially sprayed herbicides to destroy croplands in order to deny food to soldiers and civilians in areas controlled by the National Liberation Front (NLF). These and other acts of war of the U.S. military are justified in terms of saving the lives of American and South Vietnamese troops who are fighting for the sake of the people of South Vietnam. However, in view of the permanence of the environmental damage being produced by U.S. military operations in Southeast Asia, it is impossible to identify the benefit to the people living there or to their descendants.

Defoliation and crop destruction

Over five million acres, 12 percent of South Vietnam, have been sprayed with defoliating chemicals.¹ If used in low concentrations, these "defoliants" may indeed merely defoliate some plants. But because the application rate in Vietnam averages 13 times that recommended by the U.S. Department of Agriculture for domestic uses such

as weed killing,² the chemicals act as herbicides.

The three major herbicides used in South Vietnam are known by the names Orange, White, and Blue. Agent Orange, until recently the most widely used in Vietnam, is a mixture of 2,4-D (n-butyl-2,4-dichlorophenoxyacetate) and 2,4,5-T (n-butyl-2,3,4-trichlorophenoxyacetate); it is directed mainly against hardwood trees and other broad-leaved plants. Mangrove forest, an important plant association found along riverbanks, can be severely damaged; one application of Orange usually kills most of the trees. Areas of this kind sprayed as early as 1961 still have shown no significant recovery.³

Agent White is primarily used near populated areas because its low volatility makes it less likely to drift off the target. White is, however, soluble in water and as a result it is washed into adjacent croplands and forests by the heavy tropical rains. Picloram, a major component of White, has been called "the most active herbicide yet discovered".⁴ It is also the most persistent and has been likened to DDT because it does not break down into biologically inactive substances.³ Tropical test areas in Puerto Rico which were sprayed with White have remained essentially bare of leaves for more than two years.⁴ Of the Picloram applied to a California test area, 80 to 96 percent was found in the soil 15 months later.³ Thus the destruction caused by this herbicide will remain long after we have left Southeast Asia. The government has not licensed Picloram for use in the cultivation of a single American crop, apparently because its herbicidal activity varies with climate and soil so unpredictably that no reasonable margin of safety can be guaranteed.⁴ Nevertheless, White with Picloram has been used for years in Vietnam.

Agent Blue is more toxic to grasses than to

Philip Noel-Baker, 1959 winner of the Nobel Peace Prize, recalled a conversation with Henri Bonnet at the Geneva Conference of 1925. Bonnet said "Oh, yes; the form of words they've got is good. It prohibits every kind of chemical or bacterial weapon that anyone could possibly devise. And it has to. Perhaps someday a criminal lunatic might invent some devilish thing that would destroy animals and crops." Noel-Baker added that "in 1925 everyone at the Conference agreed with Henri Bonnet." (See Appendix I)

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