



disorders new to Vietnam. One is rickets, from living without sunlight."<sup>29</sup>

### *Fire and shrapnel*

Fires, some deliberately set and others touched off by artillery and bombing, are a major cause of forest destruction in Vietnam. More than 40 percent of the pine plantations and an undetermined amount of hardwood forest have been recently destroyed.<sup>2</sup>

Shrapnel is imbedded in trees, both during fighting and when the forests are strafed and bombed immediately before defoliation (to suppress possible sniper fire). Already, sawmills lose from one to three hours each day repairing saw blades damaged by shrapnel in the logs.<sup>2</sup> The economically important lumber industry will be affected by shrapnel-laden logs until these forests are regrown.

### *Social destruction*

Although this report is primarily concerned with ecological damage in Southeast Asia and the effect of this damage on the people living there, we feel that it is important to point out that other

effects of the American presence will also result in permanent damage to this part of the world. The policies of the U.S. military are destroying the Vietnamese culture and social organization. The military is transforming a basically rural agrarian society into an urban nightmare which is economically dependent on the continued presence of the U.S. America and its allies have forcibly transported people from hamlets into refugee camps located in and near cities, and have driven many more off their ancestral lands by bombing and defoliation.<sup>28</sup> Conditions in these camps are often miserable.<sup>28</sup> In the past ten years Saigon has grown from a city of 250,000<sup>2</sup> to become one of the world's largest. It now has 3,000,000 people<sup>2</sup> and is the world's most densely populated city with an average density of 148 persons per acre (Tokyo has 63 per acre).<sup>23</sup> The extremely rapid influx into the cities and surrounding camps has created massive problems in housing, feeding and providing medical care for the refugees. This "urbanization" has been caused in part by the inevitable destruction of war, but more by our policy of moving people off the land and into urban areas where they can be effectively under the control of the military.<sup>28</sup>

### *The long-term ecological effects*

Tropical forests and soils are very different from those in the temperate zone. Thus to understand the long-term effects of the war in Southeast Asia it is necessary to describe certain characteristics of tropical forests and soils.

One such feature is the intricate interdependence of the plants and animals. For instance, the trees of tropical forests depend entirely upon insects, birds, and bats (rather than wind) for pollination. Birds, bats, and ground-dwelling mammals are responsible for dispersing seeds from the parent plants to new clearings. These complex plant-animal relations have reached their greatest intricacy in tropical forests because of the mild and predictable climate. Animals can be active the year around because many flowering and fruiting trees provide food continuously. Massive defoliation means an end to this reliable

Ralph Dresser, the head of "Ranch Hand," reports that the motto of the Aerial Spray Flight of the 309th Aerial Commando Squadron is, "Only We Can Prevent Forests."

S. M. Hersh, *Chemical and Biological Warfare*, 1968.