

"Only We Can Prevent Forests"

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INTRODUCTION — With the catchy slogan "Only We Can Prevent Forests" the 12th Air Commando Squadron of the US Air Force began the largest herbicide warfare program ever conducted. Operation Ranch Hand, as it was called, began in November, 1961, with the goal of creating as much lifeless, barren landscape in South Viet Nam as possible.

During the years of direct US military intervention a total land area the size of Connecticut was sprayed with 17.6 million gallons of herbicides. South Viet Nam is about the size of Connecticut, Rhode Island, Maine, Vermont, New Hampshire, and Massachusetts.

The National Academy of Sciences study which this article reviews, is the most thorough study to date of the effects of herbicides in South Viet Nam.

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- (1) Vietnamese Studies No. 1, Ideological and Cultural Affairs, June 1974.
- (2) National Defence Bulletin, 33, March 1973, pp. 71-72. "What Thoughts Does It Suggest, What Is To Be Done?"
- (3) Demobilized, he has become a soldier.
- (4) Culture and Pseudo-Culture, *Bach Khoa*, August 15, 1973.
- (5) Vietnamese Studies No. 1, Ideological and Cultural Affairs, June 1974.

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Saigon, revealed that Rung Sat's Mangrove forests were among the most heavily sprayed areas in all of South Viet Nam — being sprayed at least seven and as many as fourteen times between 1965 and 1968. Before defoliation this Mangrove ecosystem was ill-suited to the breeding of malaria carrying mosquitoes *Anopheles sinensis* and *A. lesteri*. Malaria, according to the Report, is now "endemic in the communities in this region."

The NAS Committee also found that in the cleared areas "local farmers reported that the rat population has increased so enormously in recent years that rats are destroying half the rice crop. They attribute the increase in rat population to the grass and debris, suitable breeding habitats, which have replaced the mangrove forests." No effort has been made to determine if rat predators were among the indirect casualties of defoliation, losing their habitats when the forests were destroyed.

NAS and Anti-War Scientists

Anti-war activists, both in the US and elsewhere, were among the first to protest the use of herbicides in Viet Nam. In fact, it was the anti-war movement that caused Congress in 1970 to direct the Department of Defense to contract with the National Academy of Sciences, a distinct Federal agency, to conduct this study. The NAS, in turn, formed its Committee on the Effects of Herbicides in Viet Nam in late 1970.

International outrage over the use of herbicides in Viet Nam had reached such a level at that time that President Nixon was

forced to announce a "phasing out" of the American herbicide spraying program. But that did not bring an end to the spraying. Instead, defoliants and sprayer equipped aircraft were turned over to the Thieu regime which still uses them today, though on a very much reduced scale.

The NAS Committee was a carefully selected group of seventeen prominent scientists that conspicuously excluded outspoken scientific critics of the herbicide program. The exclusion of critics was difficult considering that the prestigious American Association for the Advancement of Science

with its 32,000 members had already taken a position condemning the program, and 125 scientists inside the NAS had sent a petition to President Johnson in February 1967, urging him to stop the spraying program.

In any event, the careful screening of Committee members did not have the intended effect of inhibiting controversy. Pham Hoang Ho, Professor of Botany at the University of Saigon, resigned from the Committee, only to return just before the release of the final report, so as

to file a dissenting report with his own conclusions. His statement of exception documents what he believes were sympathetic underestimates of the damage to Viet Nam's inland forests by other Committee members.

While the official committee estimate puts the loss of marketable timber between 1/2 and 2 million cubic meters, Prof. Ho cites evidence that the lowest value should be at least 21 million cubic meters. This is ten times larger than the Committee estimate.

One Critic on Review Panel

Following the standard practice in scientific work of submitting scientific studies to independent authorities for review, the NAS report was sent to a specially convened review panel. Among the members of this panel was Professor Matthew Meselson of Harvard, and outspoken anti-war critic of the herbicide spraying operations in Viet Nam.

Meselson has been actively involved in studying the effects of herbicides in Viet Nam and headed the group of US scientists which produced the first independent American study of these effects. This early study, issued in 1970, put the loss of marketable timber at close to 45 million cubic me-

ters, or twenty times larger than the NAS Committee estimate.

Meselson's presence on the panel reviewing the NAS Report so disturbed some NAS Committee members, that pressure was brought to force him off the panel. Following months of heated behind-the-scenes debate, the issue came to a head. A combination of the need to preserve NAS's image of objectivity and impartiality and threats of resignation by some top officers in NAS itself enabled Meselson to continue on the panel. Undoubtedly Meselson's presence on the panel forced the NAS Committee to be more thorough and forceful than it would have been with no critics on the review panel.

Birth Defects

Among all the damage caused by herbicide spraying in Viet Nam, none gathered more emotional attention in 1970 and 1971 than increases in the incidence of birth defects reported in populations exposed to herbicide spraying. Photographs of babies born with cleft palates as well as major deformities were associated in many people's minds with chemicals used in the herbicides. These chemicals were already known to be linked to induced deformities of a fetus when ingested by pregnant

women. To its credit, the NAS Committee treats this politically explosive issue with great care.

The bias of the report is mainly

Herbicides Won't Stay in Soil

One of the most important findings of the NAS Committee is that herbicide materials do not persist in the soil of the sprayed areas. In fact, only in the very heavily sprayed Rung Sat Special Zone near Saigon was there any

to question the validity of on the other hand, in serious reports of herbicide induced as the mineral balance content of the soil was substantially altered, undoubtedly report does correctly point to direct effect of the destructive foliage. In some areas at least will be required to properly study. Unfortunately, utilize the soil with appropriate of the areas and populations materials to make product South Viet Nam that were affecting possible.

There are some other features: NAS Committee report that time of their field visits to Viet Nam in 1972. Thus the NAS Committee found it impossible to compile an accurate inventory of the number of deformities.

Also, official Air Force records show that there were no herbicide live births. Previous studies have been based only on births in the rich agricultural region Mekong Delta. Rather, mention of births in South Viet Nam destruction missions were

Similarly, data on stillbirths could not be collected by the Committee, again because of Spring 1972 offensive by the liberation forces. Because its report is so inconclusive on this issue, the NAS Committee has initiated a pilot study which hopefully will provide some fresh and more complete data on stillbirths and birth defects in both non-sprayed and certain sprayed areas.

The importance of this study would come to the city, even greater now that Baughnace, come under control by and Meselson have found concentrations of toxic impurities in the herbicides appearing in fish and shellfish of Viet Nam. With the appearance of these materials in the Vietnamese chain, though still at non-dangerous levels, there is the possibility of long term and widespread poisoning of the foods upon which the Vietnamese population depends so heavily.

Herbicides: Part



question the validity of reports of herbicide industry defects. Nevertheless, the report does correctly point out that enough evidence is available to warrant a full scale scientific study. Unfortunately, the areas and populations in Viet Nam that were affected in this way were totally inaccessible to Committee members at the time of their field visits to Viet Nam in 1972. Thus the NAS Committee found it impossible to compile an accurate inventory of the number of deformities or birth defects per thousand births. Previous studies based only on births in the rich agricultural region of the Mekong Delta. Rather, most destruction missions were directed at regions under undisputed control of the liberation forces. The same is true of the 1972 offensive by the liberation forces. Because its report is inconclusive on this issue, the NAS Committee has initiated a study which hopefully will provide some fresh and more reliable data on stillbirths and defects in both non-sprayed and sprayed areas.

On the other hand, in some cases the mineral balance and content of the soil was substantially altered, undoubtedly an indirect effect of the destruction of foliage. In some areas at least, it will be required to properly fertilize the soil with appropriate materials to make productive farming possible. There are some other features of the NAS Committee report that are of special interest. First, the report reveals that the first military application of herbicides occurred not in Vietnam but in another liberation struggle of South Asia: the Malayan "emergency" of the 1950s. This is much earlier than generally thought and gives some sense of how Vietnam became a proving ground for technologies developed to deal with national liberation "problems." clear regret that while the herbicide missions had the effect of driving people into the cities, the city populations were generally more angered than the rural population by these spraying operations. According to the report, "In the urban centers strongly held feelings developed in which herbicides came to be an emotionally charged symbol that stands for many apprehensions and distresses, but especially those for which the Americans are blamed." By 1970, the spraying had become a significant political liability in all areas of Vietnam as well as in the US.

Herbicides: Part of Forced Urbanization

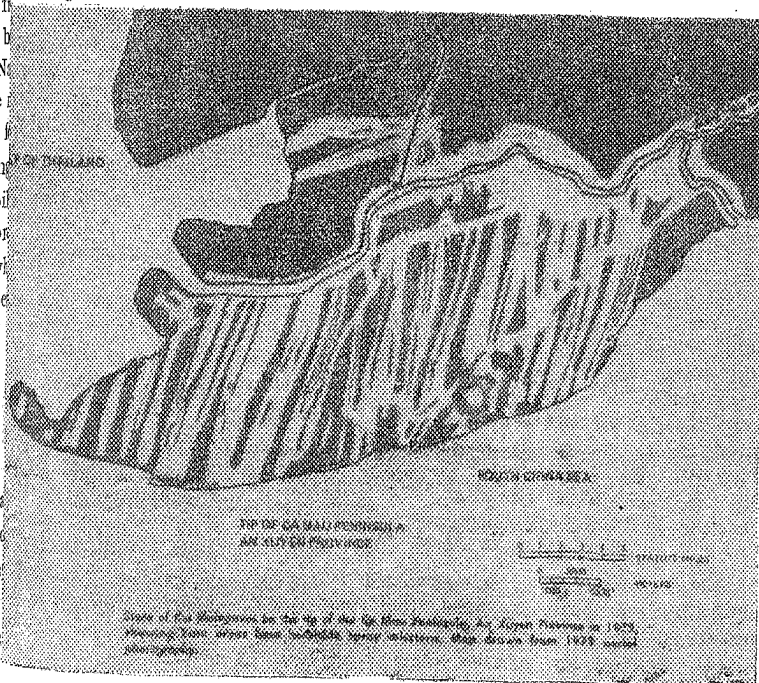
gon. With this purpose in mind the NAS Committee notes with

NAS Report: Missed Opportunity

While the NAS study is the most thorough to date, it remains a typical example of establishment science. It is filled with overcautious statements and deliberately avoids major questions. For example, no effort was made to study the possible impact of chemical defoliation on animal life in Vietnam. The NAS Committee argued that no pre-war study had been done and that it would be difficult to separate herbicide effects from the impact of the war as a whole.

But the real tragedy is the missed opportunity to construct a program which could contribute to healing the wounds of this chemical war. The report ends not with a detailed program for planting seedlings, eliminating mosquito breeding grounds, creating forests and reclaiming land, but with Chairman Anton Lang, meticulously counting dead trees trying to disprove the dissenting view of Vietnamese botanist Pham Hoang Ho.

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*Mangrove forests in the Ca Mau peninsula destroyed by US defoliants.
(Aerial photo taken in 1972)*

ray in Soil

ence of levels of defoliation might produce herbicidal symptoms. All other spraying that could be visited by the committee showed no evidence of herbicides still in the soil.