LEAF ABSCISSION ?

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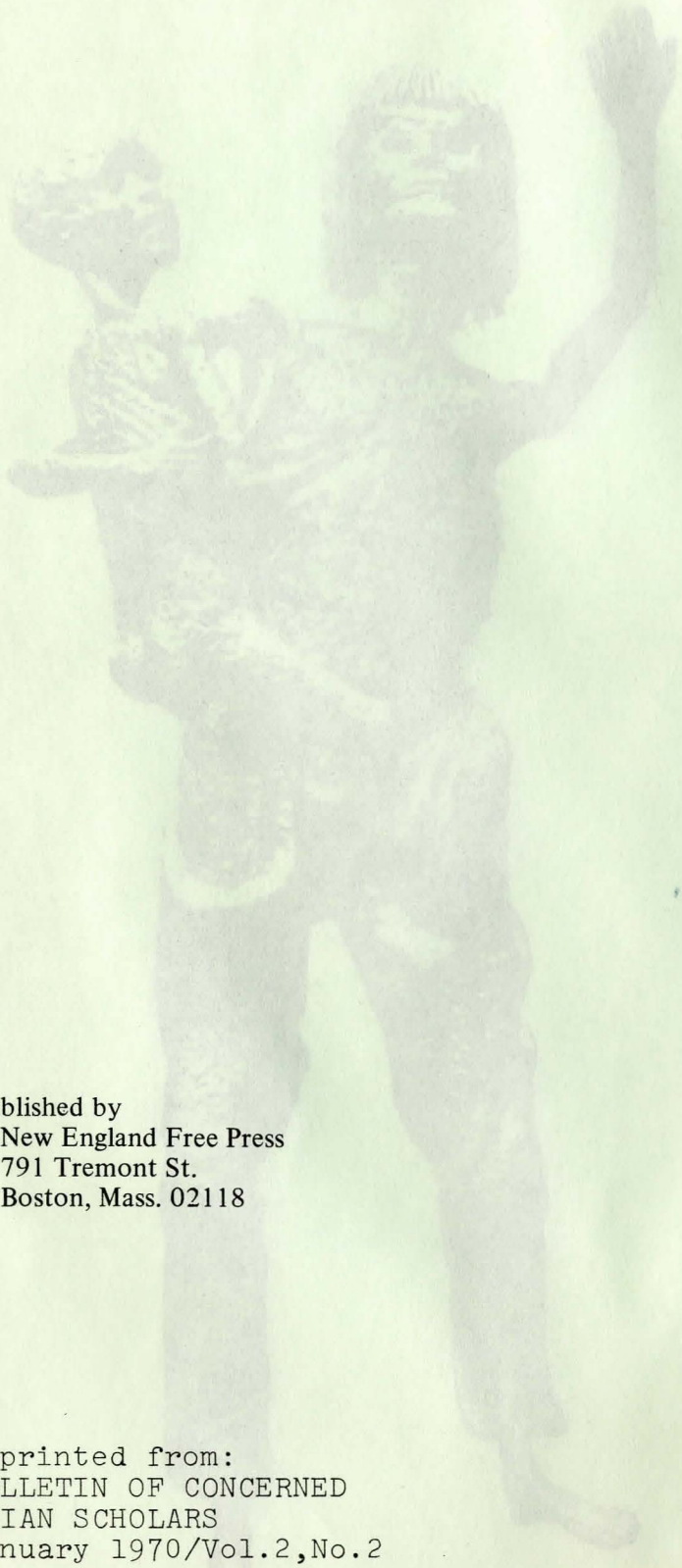


published by
New England Free Press
791 Tremont St.
Boston, Mass. 02118

Reprinted from:
BULLETIN OF CONCERNED
ASIAN SCHOLARS
January 1970/Vol.2,No.2

"Leaf Abscission"?

NGÔ VĨNH LONG

[This is a slightly revised version of an article from the English language edition of Thời Báo Gà (no.5, November, 1969), a monthly publication by a group of Vietnamese students in the United States. For more information about the publication, write to Thời Báo Gà, 76a Pleasant Street, Cambridge, Mass. 02139]

"Leaf abscission" is a term used by American military men to designate their chemical war in Viet Nam. The term, like its sister word "defoliation," is meant to suggest that the dumping of herbicides and other chemicals over a tiny piece of land that has also been the victim of the most intense bombing in world history[1] has helped to thin out a few troublesome trees and shrubs while causing no significant damage to anything else at all. On the contrary, the use of herbicides and other chemicals sprayed by the American military in Viet Nam has already caused untold misery to thousands of innocent civilians.

From late 1959 till early 1963 the author of this article was involved in making detailed military maps (scale 1/25,000) of the whole of South Viet Nam, and thus had occasion to be, at one time or another, in virtually every hamlet and village in the country. It was also in 1959 that the Diem regime began putting into effect its "pacification" program. As for the Vietnamese majority living in the plains, by February, 1959, "relocation of families within communities had begun and, in contrast to land development and refugee activities, these relocations were often forced."[2] The restructured villages, surrounded by moats and barbed wire, were euphemistically known as "agrovilles." (In Vietnamese they were called khu trù mật, a term coined from Chinese roots and which was presumably supposed to carry a graceful connotation, although it literally means something like "compacted area" or "concentration zone.") People were taken from their plots of ground, where their houses, their ricefields, their ancestral tombs, etc., were located, and moved to totally unsuitable areas where they could be "protected."[3] As for the ethnic minorities living in the mountains (often referred to in Western writings as "montagnards"), the Diem regime forced them down into the lowlands and into concentration-camp-like compounds where they were to call themselves by the new name of Việt Nam Mới (or "New Vietnamese") and were to dress like the Vietnamese majority--a "cultural revolution" of sorts! In both cases, the houses and fields of those who had been relocated were burnt, in order to deny their use to the Viet Cong. (As early as 1956, Diem was already making extravagant use of the term "Viet Cong," which literally means "Vietnamese Communists," meaning anybody who opposed him.)

By 1961, when the American defoliation program had begun against jungle growth along highways, railways, and in places considered to be Viet Cong areas, the Diem regime was not long in finding new uses for the chemicals: Seymour M. Hersh, in an article entitled "Our Chemical War" published in the New York Review of Books on April 25, 1968, quoted Newsweek in saying that by the end of November, 1961, American special warfare troops had begun teaching Vietnamese fliers how to spray "Communist-held areas with a chemical that turns

the rice-fields yellow, killing any crop being grown in rebel strongholds." What Newsweek failed to say is that the Diem regime in fact began putting this training into practice before the end of the same year. The "rebel strongholds" referred to by Newsweek were more often than not, as the writer has witnessed personally, simply communities in sparsely populated areas isolated from effective government control. For this reason the Diem government felt it had to resort to killing their crops as a means of driving the population more quickly into the new and overly ambitious "strategic hamlets" (ấp chiến lược), which had replaced the abortive "agro-villes" early in the year. It was easier to order fliers to spray crops from the air than to send ground soldiers into the villages to force the people out by setting fire to their fields and houses. It had been discovered that government soldiers, on coming face to face with the misery and tearful entreaties of the dispossessed, were very often inclined to resist orders. The combined effects of regrouping the population in totally unsuitable areas and of killing their crops brought hunger and starvation to thousands of people.[4]

The misery inflicted upon thousands of people through the killing of their crops to force them into the "strategic hamlets" and the repression of Buddhists and students, among other factors, led to the downfall of the Diem regime. In an attempt to stabilize the situation, the U.S. government began sending its troops into South Viet Nam. But even before the collapse of the Diem government, the U.S. military had already taken over the task of spraying crops in what they referred to as "Viet Cong territory."[5] In September, 1963, Rufus Philipps reported to the President of the United States, "giving [him] the estimates of USOM Rural Affairs that the Delta was falling under Viet Cong control in areas where pacification was supposedly complete."[6] The Delta is the whole land mass south and southwest of Saigon where most of the crops in the country were planted. "Viet Cong territory," as defined by the Americans, therefore comprised a very sizable part of the food-producing area of the country!

Beginning in 1965, the American military initiated still another version of "pacification" by sending the Marines to "secure villages" and to root out "Viet Cong infrastructures."[7] After two years of continuous effort, a New York Times report of August 7, 1967, cited official United States data on the loyalties of the hamlets, stating that the number of hamlets under total Saigon government control was a mere 168, while the number of those totally controlled by the Viet Cong was 3978. The rest of the hamlets were listed as "contested." To win the contest, or as the new name for the pacification program put it: to be successful in "The War to Win the Hearts and Minds of the People," the U.S. military was finding new ways to "pacify" the villages. One way was to send out American troops with bulldozers and bombers to raze the villages to the ground, and subsequently to transport the inhabitants to the so-called "camps for refugees fleeing from Communism" in and around the larger towns and cities where they could be "protected." (See two excellent books on this subject by Jonathan Schell: The Village of Ben Suc, and The Military Half). Another way was the intensified use of chemicals, much in the same way Diem had used them before. In his article cited above, Seymour M. Hersh writes:

> But by early 1967, Presidential advisers had a different reason for using herbicides, one that wasn't directly linked to cutting off Viet Cong food supplies. The rationale was presented to a group of scientists who met in February with Donald Hornig, President Johnson's chief scientific adviser, to protest the use of anticrop chemicals. According to one scientist who attended the session, Hornig explained that the

> anticrop program was aimed chiefly at moving the people. The source quoted Hornig as explaining that when the United States found a Viet-Cong supporting area, it was faced with the alternatives of either bombing, bulldozing, and attacking it or dropping leaflets telling the people to move because the herbicides were coming. As Hornig expressed it, "it's all geared to moving people."

Mr. Hersh further states that the Pentagon used 60 million dollars' worth of defoliants and herbicides, or 12 million gallons, in Viet Nam in 1967, which was enough to cover "nearly half of the arable land in South Viet Nam." He also writes that, since Pentagon officials were arguing that the herbicides were more effective in killing crops than in stripping foliage,

> ...by the end of 1966 more than half of the C-123 missions were admittedly directed at crops, and it is probable that any effort at a trebling of capability in 1967 was aimed not at the jungles of South Viet Nam but at its arable crop land.

In a study of American anticrop and defoliation methods, Yōichi Fukushima, head of the Agronomy Section of the Japan Science Council, claims that American chemical attacks by 1967 had ruined more than 3.8 million acres (or one-half) of the arable land in South Viet Nam, and were a direct cause of death for nearly 1000 peasants and more than 13,000 head of livestock. The impact of the US anticrop program upon those peasants who escaped being taken to the "camps for refugees fleeing from Communism" is not known. As for the "refugees," their situation was (and is) so bad that the editorial staffs of Saigon newspapers, in spite of the harsh government censorship, felt compelled to run long articles on the misery endured by these people. For in Viet Nam people say that "you can't cover an elephant's mouth with a basket." Certain facts are so well known that they simply cannot be hidden from view. Thus, even Sống (a Saigon daily newspaper which was specifically created to justify the "pacification" program [of which the defoliation program is a part] and whose editor and staff were members and leaders of the Rural Development Cadre Teams sponsored by the joint cooperation of the CIA and the USOM) had this to say on December 10, 1967, in a long article entitled "Looking at the Faces of the Two Quảng Provinces in War, Hunger, Misery, and Corruption":

> This is a free area--free for depravity, corruption, irresponsibility, cowardice, obsequiousness, and loss of human dignity. What the devil is dignity when people sit there waiting to be thrown a few hundred piasters and allotted a few dozen kilos of rice a month?...I believe that even if a certain Communist had in his pockets several dozen "open-arms program" passes, after seeing the kind of humiliated life in a refugee camp he would run away without daring to look back.
>
> But we seem to like this, and the Americans also like us to perform these kinds of activities so that they can have a lot of big statistics to present to both their houses of Congress. The Americans like to count, count people's heads, count square and cubic meters, and count the money they throw out. They think that the more they can count, the better is the proof of their success, the proof of their humanitarianism, and the proof of their legitimacy in this war.... How high a figure has the number of refugees who have to suffer and

> stay hungry reached? Many stastistics proudly present the number two million. [emphasis added]

If the number two million only referred to the situation in 1967, then how many more people have been victimized since then?

In an article entitled "Military Uses of Herbicides in Vietnam" published in the British journal New Scientist on June 13, 1968, Arthur Galston, Professor of Biology at Yale University and President of the Botanical Society of America, wrote:

> The Air Force is preparing to spray about ten million gallons of herbicides over South Vietnam in the year beginning July 1968....It is estimated that this will be enough to treat almost four million acres, of which about one-third will be crop land.

Professor Galston went on to say:

> ...With respect to the deliberate killing of crops in order to deprive the Viet Cong military of food, it can only be remarked that whenever starvation is used as a weapon against an entire civilian population, the main sufferers are inevitably the aged, the infirm, pregnant women, and children under five years old. The fighting man almost always gets enough food to sustain himself. Thus in using hunger as a weapon we are attacking the part of South Vietnamese society which is least involved in military operations and whom we would least wish to injure.

In the June 29, 1966 issue of Christian Century, two Harvard physicians, Dr. Jean Mayer, Professor of Nutrition, and Dr. Victor W. Sidel, warned that the US anticrop program in Vietnam, like that of every food blockade or like some of the famines that they have witnessed, would create a process which begins with the death from starvation of small children first, then older children, and then the elderly. In the case of South Vietnam, as rightly noted in a report by the Boston-based Physicians for Social Responsibility, dated January 1967, malnutrition, even before the anticrop program, was already a serious problem, and beri-beri, night blindness, anemia, decayed or poor teeth, endemic goiter and other nutritional diseases were found to be widespread in the country. How high is the percentage of people affected by the above diseases now, after the US military has effectively destroyed perhaps half or more of the arable land in South Vietnam? Nobody knows the exact figure.

Besides hunger and starvation and their accompanying effects, have the chemicals used by the American military in Vietnam caused any direct harm, immediate or eventual, either to animal or human life? At least three basic types of chemicals have been in use: 1) Agent Orange, a 50-50 mixture of two defoliants, 2,4,5-T (trichlorophenoxyacetic acid) and 2,4-D (dichlorophenoxyacetic acid); 2) Agent Blue, a neutralized cacodylic acid; and 3) Agent White, also known as Tordon 101, a weaker mixture of "unknown chemicals."[8]

First of all, according to a report of the National Institute of Environmental Health Science, September 1969, which contains data collected by the Bionetics Research Laboratory of Litton Industries (under contract for the National Cancer Institute) during the period 1965-1968 on the effects of pesticides, both 2,4,5-T and 2,4-D have been shown in tests on mice to produce significant increases in the incidence of malformation in fetuses and also in the incidence of cancer. The worst of the two is 2,4,5-T, which repeatedly produced test results of 100% in the proportion of abnormal litters.

In Vietnam there has for a long time been talk linking an apparent alarming rise in the incidence of birth deformities to the chemicals sprayed by the Americans there. The Americans and the Saigon regime have repeatedly denied that the chemicals they use could cause any harm whatever to animal or human life. Last summer, several Saigon newspapers, in defiance of the strict censorship and the possibility of having their offices closed down, printed stories and pictures of horribly deformed babies born in villages that had been "defoliated." For example, Tin Sáng, in its June 26, 1969 issue, printed an interview with an old woman who reported that her newly pregnant daughter was caught in a chemical strike, and fainted, with blood coming out of her mouth and nostrils, and later from the vulva. She was taken to a hospital where she was later delivered of a deformed fetus. Đồng Nai, another Saigon newspaper, printed on the same day a long article entitled "The Disease of Women Producing Stillborn Fetuses," which they said was a new phenomenon which was causing the "noisiest discussion" in the country. Next to the article is a photograph of a dead deformed baby with a face like that of a duck and the section around the stomach shrunken and twisted. The same newspaper, on the following day, reported a case of a woman giving birth, in Long An Hospital in Tan An District, to a deformed baby with two heads, three arms and 20 fingers. Just above the article, the paper carries a picture of another deformed baby with a head that resembles that of a poodle or a sheep. Still another Saigon newspaper, Tia Sáng, on June 26, 1969, printed a picture of a baby with three legs, a head squeezed in close to the legs, and two arms wrapped around a big bag that replaced the lower section of the face. Under the picture there is a separate report of the deformed baby mentioned above with two heads, three arms, and 20 fingers.

The Saigon government's counter-argument was that the birth defects were caused by what it called "Okinawa bacteria." But many Vietnamese and American scientists who have seen the kinds of birth deformities in Viet Nam either in person or in pictures disagree with this argument. They say that venereal diseases can only cause warps in the bones and skin boils on new-born infants, and not such complete change in bodily structures. Even in an interview reported in the Saigon Army Newspaper, Tiền Tuyến, Dr. Pham Tu Chính, director of the Hùng Vương Government Obstetrics Clinic, asserted that the cases of birth deformities that were causing concern in the country definitely could not have been caused by venereal diseases.[9]

In the rural areas, where most such known cases of deformed fetuses have occurred, there is an extreme shortage of trained medical personnel or of professional obstetric services, at least in those areas not held by the NLF. Thus it is difficult to compile accurate statistics concerning this phenomenon.

When the report of the National Institute of Environmental Health Sciences and the news of birth deformities in Viet Nam came to the attention of some American scientists, they went to Washington to try to persuade the U.S. Government to curb the use of the harmful chemicals. On October 31, 1969, the Washington Post, in an article entitled "New Curbs Won't Affect Defoliation in Viet Nam," reported:

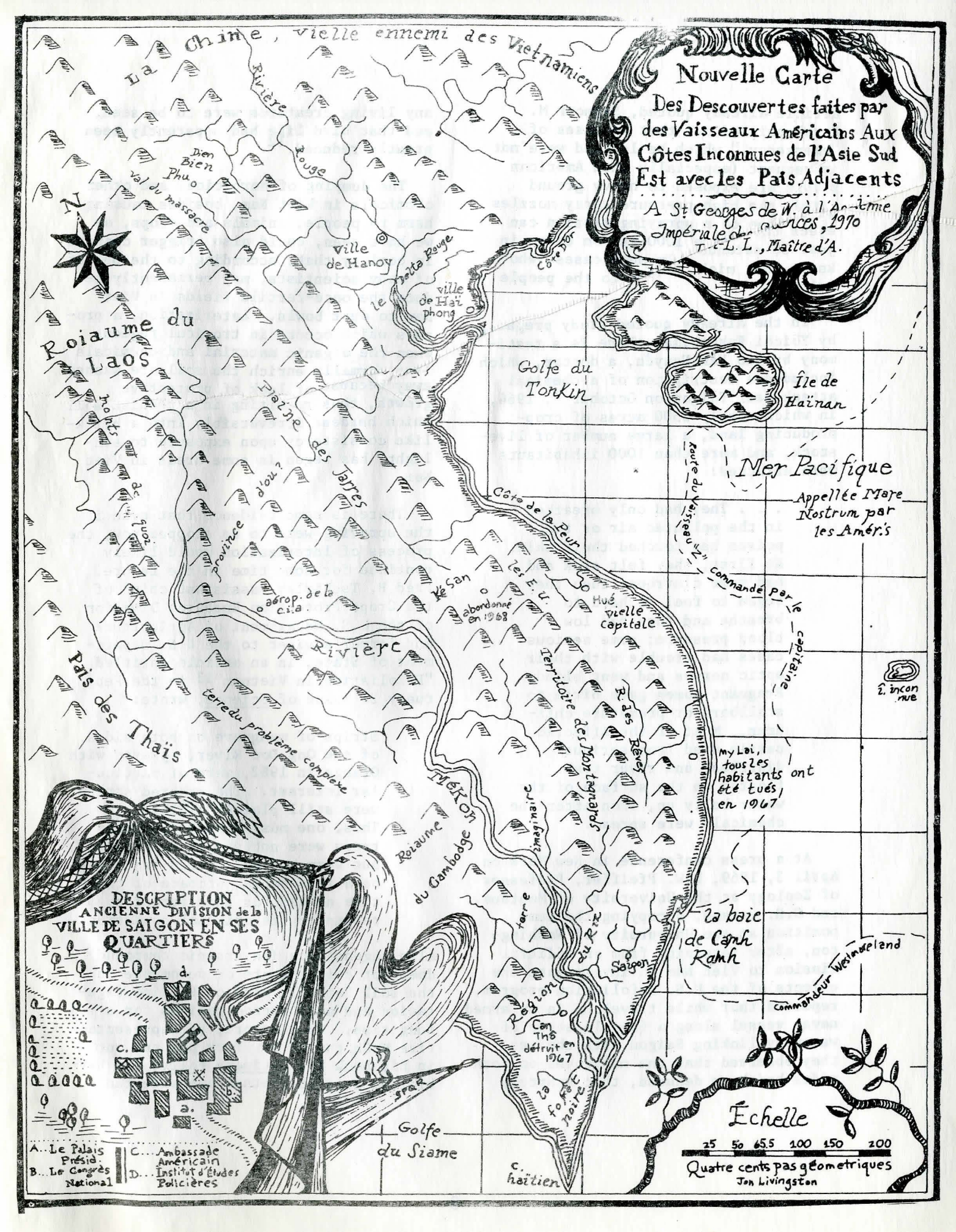
> New White House restricitons on the use of a powerful herbicide will not affect its military usefulness in Vietnam, the Defense Department said yesterday.
>
> The Pentagon statement said no change would be made in policy governing military use of the defoliant 2,4,5-T because the Defense Department feels its present policy conforms to the new presidential directive.

Four days later, in an article entitled

"Spray Earth Policy" in the New York Post, November 4, 1969, Frank Mankiewicz and Tom Braden had this to say:

> Those who are concerned over a possible massacre -- even of women and children -- in South Vietnam when U.S. troops depart might consider the fact that we now spray throughout South Vietnam enormous amounts of an anticrop chemical which has been known for three years to cause deformed births in test animals -- at a rate of 100 per cent.
>
> At least four newspapers in South Vietnam printed stories -- and pictures -- last summer of deformed babies born in villages sprayed with the chemical (called 2,4,5T), and the newspapers were promptly closed down by the Thieu government for "interfering with the war effort."
>
> Use of the chemical, described by our government as "probably dangerous," is now banned in "populated areas" and on or near food products in the United States, but the Pentagon announced last week that it would continue to use it in Vietnam, where Army Service Manuals set forth its appropriate use against food supplies.
>
> In addition, it is widely used in areas where the population captures its drinking water from rain, by the use of roof gutters and barrels, and where wells are sunk into soil saturated with the chemical.
>
> Just how high an "offensive potential" this chemical warfare had was not really known until 1966 when, for the first time, the National Institute of Health commissioned tests on pregnant animals. The study showed that severe malformation of offspring occurred in rats at the rate of 39 per cent[10]. . . when they were given a small dose [of 2,4,5T]. When this dose was increased to the level a Vietnamese woman might consume in a few days in her drinking water, the percentage of of fetal malformation rose to 90 and beyond.
>
> Whether the rate of human malformation from contact with this chemical is greater or less than with rats is, of course, unknown.
>
> It was this that prompted the finding that 2,4,5T was seriously hazardous and "probably dangerous" and caused its removal from the domestic market in the United States. The President's science adviser, Dr. Lee du Bridge, perhaps adumbrating the Pentagon's refusal to cut down its use against Asians, said only that the rate of fetal malformation was "greater than expected."[11]
>
> . . . Not since the Romans salted the land after destroying Carthage has a nation taken pains to visit the war on future generations.

As for Agent Blue, the Merck Index of Chemicals and Drugs says that it is an organic arsenical acid composed of 54.29 percent arsenic. Arthur W. Galston, the Yale biologist mentioned earlier, in an article in the August-September, 1967, issue of Science and Citizen, wrote that the lethal dose of the above compound in dogs is one gram per kilogram body weight, when administered beneath the skin. He added that if the same toxicity held for man, then about 70 grams, or slightly over two ounces, would kill the average 150-pound man. In the


Nouvelle Carte
Des Descouvertes faites par des Vaisseaux Américains Aux Côtes Inconnues de l'Asie Sud Est avec les Pais Adjacents
A St Georges de W. à l'Académie Impériale des Sciences, 1970
T.-L.L., Maître d'A.
la Chine, vielle ennemi des Vietnamiens
Rivière Rouge
Dien Bien Phuo
Val du massacre
Ville de Hanoy
le Delta Rouge
Côte d'Or
ville de Haï phong
Roiaume du Laos
Golfe du Tonkin
Île de Haïnan
Mer Pacifique
Appellée Mare Nostrum par les Amér.s
Côte de la Peur
Route du Vaisseau "Z"
Commandé par le Capitaine
Plaine des Jarres
province
aérop. de la c.i.a.
Ke San
les E.U. abandonné en 1968
Hué vielle capitale
Rivière
Territoire des Montagnards
R. des Rêves
I. inconnue
My Lai, tous les habitants ont été tués, en 1967
Pais des Thaïs
terre du problème complexe
MÉKON
Roiaume du Cambodge
imaginaire
terre
la baie de Cam Ranh
Commandeur Westmoreland
Saigon
Région du Riz
Can Thô détruit en 1967
la forêt noire
Golfe du Siame
c. haïtien
DESCRIPTION ANCIENNE DIVISION de la VILLE DE SAIGON EN SES QUARTIERS
A...Le Palais Présid.
B...Le Congrès National
C...Ambassade Américain
D...Institut d'Études Policières
Échelle
25 50 65.5 100 150 200
Quatre cents pas géometriques
Jon Livingston

article already quoted, Seymour M. Hersh pointed out that in cases of "emergency," which he learned were not infrequent (especially when American pilots are exposed to heavy ground fire), the high-pressure spray nozzles of a plane on a spraying mission can eject the entire 1000-gallon cargo in just 30 seconds. In such cases, who knows what might happen to the people below!

In the already quoted study prepared by Yōichi Fukushima, there is a testimony by Cao Văn Nguyên, a doctor, which included a description of a chemical attack near Saigon on October 3, 1964, in which nearly 2500 acres of crop-producing land, a large number of livestock, and more than 1000 inhabitants were affected:

> . . . They had only breathed in the polluted air or the poison had touched their skin. At first, they felt sick and had some diarrhea; then they began to feel it hard to breathe and they had low blood pressure; some serious cases had trouble with their optic nerves and went blind. Pregnant women gave birth to stillborn or premature children. Most of the affected cattle died from serious diarrhea, and river fish floated on the surface of the water belly up, soon after the chemicals were spread.

At a press conference in New York on April 3, 1969, E.W. Pfeiffer, Professor of Zoology at the University of Montana, and G.H. Orians, occupying the same position at the University of Washington, after returning from an official mission to Viet Nam to investigate the effects of the U.S. defoliation program, reported that while traveling in an armed naval vessel along a 65-mile strip of waterway linking Saigon with the sea, they observed that the mangroves on both sides had been denuded, that scarcely any living creatures were to be seen, and that bird life had apparently been greatly reduced.[12]

The dumping of herbicides and other chemicals in Viet Nam, besides causing harm to people, animals and crops, as we have seen, could also trigger changes in ecology that, according to the belief of many scientists, may permanently reduce the once-fertile fields in Viet Nam to dust bowls. Laterization, a process which occurs in tropical regions when the organic material and chemicals that normally enrich the soil are washed away because of lack of protective growth, thus resulting in a reddish soil which hardens irreversibly into a brick-like consistency upon exposure to sunlight, has begun in some areas in Viet Nam.

There is some evidence that even if the spraying were to be stopped now, the process of laterization would likely continue for some time in the future. Fred H. Tschirley, assistant chief of the Crops Protection Research Division of the U.S. Department of Agriculture and former adviser to the U.S. Department of State, in an article entitled "Defoliation in Vietnam"[13] in the February 21 issue of Science, wrote:

> Strips of mangrove on both sides of the Ong Doc River, sprayed with Orange in 1962, were of particular interest. The treated strips were still plainly visible. Thus, one must assume that the trees were not simply defoliated, but were killed. . . 20 years may be a reasonable estimate of the time needed for this forest to return to its original condition.

Also, agent Blue (an arsenic compound) does not disintegrate or decompose in the soil but will keep on killing vegetation and soil microorganisms for a long time. Furthermore, as Representative McCarthy of New York pointed out in his book The Ultimate Folly, the herbicides used in Vietnam are made ten

times more potent than their normal dose, while the spray nozzles used to administer them have not been altered, resulting in a heavy overdose for the trees and vegetation sprayed.

As if all the above were not enough, some in the American military would "escalate" the anticrop war to new proportions. Professor Arthur W. Galston, in his article "Military Uses of Herbicides in Viet Nam" already cited, reported that some U.S. military men and their advisers would very much like to spread an especially virulent strain of the rice-blast fungus developed at Fort Detrick, Maryland, "in the Vietnam theatre of war."

The U.S. government has again and again tried to tell the American people that it is in Viet Nam to protect freedom, democracy, and the right of self-determination for the Vietnamese. But the Vietnamese people understand very well what the U.S. government is in Viet Nam for.

An open letter of September 23, 1967 to President Johnson from the Student Unions of Cần Thơ University, Vạn Hạnh University, Saigon University, and Dalat University (representing most of the university students in the country) begins with these words:

> The American intervention in the Vietnamese internal situation since after the Geneva Accord in 1954 has made the Vietnamese people regard the United States as replacing the French colonizers. The American policy, instead of helping the Vietnamese people, only pushes them into a destructive and bloody war. . .

At the beginning of this year, Professor Lý Chánh Trung of the University of Saigon, an ardent Catholic intellectual, was compelled to say the following words in a speech entitled "Why Do I Want Peace," delivered before the Saigon Student Union:

> Being a Vietnamese I can no longer stand the sight of foreigners arrogantly destroying my country through the use of the most modern and most terrible means, and through the use of the slogan "In protecting the Freedom" of the South Vietnamese population, a kind of freedom that the South Vietnamese population has had to throw up and vomit continuously during the last ten years or so without being able to swallow it successfully.

Apart from the "vocal minority," many other Vietnamese, perhaps finding it difficult to make public their views in so many words, choose to express themselves by continuing to fight.

Already, the war in Viet Nam has been the longest war in United States history, except perhaps, depending on just how one marks its duration, America's own War of Independence.

FOOTNOTES

1. According to an article entitled "Ravaging Vietnam," which appeared in The Nation, April 21, 1969, B-52 bombing had by 1968 produced an estimated 2.6 million craters of approximately 30 feet in depth and 45 feet in diameter. Filled with water, these are said to be ideal breeding grounds for malarial mosquitoes.

2. W. A. Nighswonger, Rural Pacification in Viet Nam, Praeger, New York, 1966, p. 46.

3. Nguyễn Khắc Nhân, "Policy of Key Rural Agrovilles," in Asian Culture, Vol. 3, July-December 1961, No. 3-4, p. 32; also Nighswonger, loc. cit.

4. During my map surveying expedition, I witnessed countless heart-breaking incidents. Here are but a few: In a village of central Viet Nam one day I saw a group of children chasing after one another toward an open fire which the corvee laborers (who had been recruited to build the fence and the moats around the village) had made from uprooted grass. One boy threw a handful of something into the fire; the rest waited. As I was approaching them out of curiosity, one boy used a stick to get the things out of the fire and the rest swarmed over him, snatching them up. The "things" were baby rats! In near frenzy, the children began to pursue one another again, some tossed the hot rats between their two hands, others gulped them down whole. Another time, as I was approaching a village I saw a woman working in a rice-field with a small baby tied to her back by a piece of cloth, and a boy about four years old standing in the glaring sun at the border of the field and yelling out to her (his mother, I guessed). The baby cried. The woman switched the baby around to let it suck at her breast. The baby sucked as hard as it could but was not able to draw any milk and began crying again. The woman looked around as if to see whether I was watching. When I pretended that I was looking in the direction of the boy, she spat into the mouth of the child in an attempt to silence it.

Hunger struck most of the strategic hamlets I visited. In the village of Karom in central Viet Nam, 200 persons, mostly children, died in a singly month. Many people had not eaten anything decent in months, and as a result, their anal muscles had become so dilated that every time thay ate or drank something, it would pass right through them in not more than a few minutes.

5. Seymour M. Hersh, "Our Chemical War," The New York Review of Books, April 25, 1968, pp. 1-2 of the article.

6. Nighwonger, op. cit., p. 64.

7. Ibid., pp. 114-115.

8. Hersh, loc. cit.

9. Tiền Tuyến, July 4, 1969.

10. This was the proportion of abnormal fetuses per litter when the dosage of 2,4,5-T given was 113 mg. per kg. of body weight, administered subcutaneously in a solution of dimethylsulfoxide. When the same dosages were given the mice orally in a honey solution, the proportion of abnormal fetuses per litter was an even higher 54 per cent.

11. In the recent controversy over the use of cyclamates as food additives in the United States, it is to be noted that the Food and Drug Administration deemed the compound to be harmful to humans when maximum concentrations which might be consumed were only 1/50 those concentrations which showed negative results in experiments with laboratory test animals.

12. The Nation, April 21, 1969.

"DOCUMENTARY" Welded Wire Sculpture and photo by Homer J. Hurst, Jr. (Republic of Vietnam- Class of 1966)