THE EFFECTS OF MODERN WEAPONS ON THE HUMAN ENVIRONMENT IN INDOCHINA

Documents presented at a hearing organized by the International Commission in cooperation with the Stockholm Conference on Vietnam and the Swedish Committee for Vietnam.

Stockholm, June 2—4, 1972

INTERNATIONAL COMMISSION OF ENQUIRY INTO U. S. CRIMES IN INDOCHINA

Secretariat: Kungsgatan 24, S-111 35 Stockholm, Sweden
Cable: Indocommission
Telephone: 08-20 05 50, 20 06 00
CONTENTS

Preface:    Gunnar Myrdal

Introduction:   Hans Göran Franck

1. The Environmental Disruption of Indochina
   Arthur H. Westing

2. War by Ecocide
   John H. E. Fried

   J. B. Neilands

4. Air War: The Third Indochina War
   Fred Branfman

5. Craterization and Impact on Land and Agriculture
   E. W. Pfeiffer

6. Leveling the Jungle
   Arthur H. Westing

7. The 7.5 ton Bomb
   Arthur H. Westing

8. Background Materials on Defoliation in Vietnam
   Matthew S. Meselson, Arthur H. Westing, John D. Constable and
   Robert E. Cook

9. The U.S. Food Destruction Program in South Vietnam
   Arthur H. Westing

10. Social Disruption
    Don Luce
PREFACE

by

Gunnar Myrdal
Chairman of the International Commission
of Enquiry into US Crimes in Indochina

What we witness today in Indochina is a disruption of the human environment, of a magnitude many of us thought impossible only a decade ago. A sophisticated technic in the hands of brutal militarists and politicians of no scruples has caused destruction, not only of human beings, but of entire societies. Future generations are threatened as well as those living today.

The world sees with horror how the U.S. government carries out its policy of destruction. But the world also sees with admiration how the Indochinese peoples successfully continues to resist this terrible aggression. And the resistance is carried out in a spirit that shows that human dignity can survive, in the midst of terror.

However, I and many with me, who react strongly against what we see in Indochina today, are old friends of the United States and its people. We have warm feelings for the American traditions from Jefferson, Washington and Lincoln. We remember the U.S. contribution to fighting down the fascist powers three decades ago. We know also that our views are shared by large sections of the American people.

The U.S. government's war in Indochina must immediately be brought
to an end, a peaceful end on terms guaranteeing the national rights of the Indochinese peoples.

It is our duty to protest against the U.S. government's policy in Indochina, till the last U.S. soldier is withdrawn, till all acts of aggression end, till the Indochinese peoples are granted the right to settle their own problems without foreign interference.

But so far the war goes on. Now president Nixon is escalating the war to a level unknown in the long history of aggression. Therefore our protest must be stronger.

These days here in Stockholm the U.N. Conference on Human Environment starts. Governmental delegations and experts have arrived to discuss some of the most serious and challenging problems of modern time. But the environmental destruction of Indochina, the most serious and most immediate of these problems, is not yet on the agenda.

Therefore we feel obliged to bring this matter before the world. Among us are distinguished American scientists, who have spent much time in Indochina and behind their working desks at home, examining the consequences of the U.S. war on the environment. Among us are also people from Vietnam who have suffered from the terrible destruction in their own country caused by the U.S. warfare.

Now we ask you all, to study our material and to support the voice of protest.

Indochina is today a testingground for all the terrible means of destruction at disposal by the U.S. government. When we protest against the destruction and the crimes, we do it for the peoples of Indochina who are the victims. But we also protest for the sake of ourselves, of our children and of future generations.
INTRODUCTION

by

Hans Göran Franck
Secretary General of the International
Commission of Enquiry into U.S. Crimes
in Indochina

In 1969 Richard Nixon became president of the United States of America. He inherited an American war that was morally abhorrent, criminal, politically lost and military impossible to win without the total destruction of three nations. He promised peace in Indochina but he never explained how it was to be attained.

Now we know that it was never President Nixon's intention to end the American war by peaceful means in accordance with the United Nations Charter. His formula was continued and intensified war at the cost of more suffering and death for the peoples of Indochina. This was the essence of his notorious "Vietnamization"-policy. The scheme was to force the Indochinese peoples to destroy themselves with the help of the American military machine.

During his term of office American forces have invaded Cambodia and attempted to invade Laos. He has resumed the terror bombings of the Democratic Republic of Vietnam. The overall bombing of Indochina has been escalated to dimensions unprecedented in history.
The record President Nixon can look back on is thus hardly that of a peacemaker.

Now, proclaiming that America shall lead the world into a "decade of peace", he has brought the American war in Indochina to the brink of World War III through his desperate and unlawful attempts to strangle the Democratic Republic of Vietnam by denying it supplies from abroad.

The methods used by the American forces in Indochina have stunned the world.

The factual evidence of the warfare methods employed by the U.S. forces in Indochina, their nature, intensity and scope, and the legal conclusions to be drawn therefrom have been dealt with at length during the sessions of the International Commission in Stockholm and Oslo and in the numerous scientific and legal reports submitted to the Commission.

In addition to violating universally recognized international conventions such as those of the Hague, 1907, and those of Geneva of 1929 and 1949, the leaders of the United States have incurred responsibility under the principles embodied in the Charter and the judgment of the International Military Tribunal at Nuremberg for the commission of war crimes and crimes against humanity. Their responsibility under the Nuremberg principles cannot be dismissed by the American leaders. The United States took the lead in formulating those principles and in establishing the Nuremberg tribunals for their enforcement. Thousands of men and women have been tried under those principles and those found guilty have been punished. The Tribunal expressly stated that the standards of duty and responsibility which it applied to the defendants at that time would be equally applicable to the member states of the Tribunal. The principles have since been unanimously affirmed by the United Nations.
At its first session in Stockholm in 1970, the Commission stated its conviction that the American military policy in Indochina amounted to genocide - an international crime for which responsible persons are liable to punishment.

No change in this policy of destruction could be noted at the next session the following year in Oslo. On the contrary, there was firm evidence that the destructive policy was steadily escalating. Evidence was brought before the Commission with special emphasis on the "pacification" program and the air war in Laos. The new pattern of warfare which was emerging as a consequence of the Nixon Doctrine and which rested upon the substitution of American technology for American manpower in conjunction with mercenary forces and the forces of the client regimes, was called to the attention of the Commission. The serious effects of this new forms of automated warfare were dealt with during the second session in Oslo. However, the shocking implications of automated warfare were not fully realized at that time. Later further statistics and reports have made it possible to evaluate the grim reality of the American "withdrawal". All reports, also in this study, point in the same direction. The cost in human suffering has considerably increased since this new type of perverse strategy was adopted by the present U.S. Government.

A recent report from Cornell University, as well as some documents in this study, clearly shows that the indiscriminate nature of the U.S. warfare has been accentuated by mechanization and the automation of the war. The "advantages" of depersonalization of the war are that human beings who might have qualms about killing civilians are no longer required to make the immediate decisions. In the view of the Commission this must be perceived as a closer linkage of responsibility between the ultimate decision makers in the U.S. Government and the Pentagon and
the criminal acts committed against the peoples of Indochina.

In line with this development to make escape from death impossible are the new bomb that kills everything within an area of 50 hectares (about 124 acres), the anti-personnel phosphorous bomb and the bombs filled with plastic darts that cannot be located by X-rays.

The total destruction of the woodlands and the rural areas as a means to force the rural population into the cities will in many areas leave a permanent or long-enduring blight on the land.

The destruction has been so extensive that initiatives must now be taken to outlaw this form of environmental murder in explicit terms.

Furthermore, there must be explicit conventional agreement on the prohibition of the kind of massive destruction weapons, anti-personnel weapons as well as terror and area bombing that have been used against the civilian population in Indochina by the U.S. forces.

However urgent these measures may seem, they will be of no avail to the suffering peoples of Indochina today. Even the customary rules and conventions that do exist at present have so far offered the Indochinese peoples little protection against victimization at the hands of criminals for the mightiest military force in history.

There is today no machinery capable of enforcing the law under present conditions. This does not imply that might makes right. The possibility that those responsible for the U.S. crimes in Indochina will be tried by a competent tribunal is today very remote but they can never escape the moral verdict of mankind. This verdict can become a powerful sword for international law and justice if transformed into political action.

The spreading of information about the U.S. methods of warfare and
the content of the international conventions on dealing with warfare regulations is an important contribution to this end. Still more important, however, are the efforts to force the U.S. government to stop its military actions and its support to the client police regimes in Indochina.

The brutal and reckless disregard for the standards of military conduct displayed by the U.S. forces in Indochina must not conceal the fact that the war itself is illegal and criminal. The accusations of criminal methods of warfare are not to be interpreted as any departure from this position. Thus, it is not basically a question of whether the United States should employ more "decent" methods of warfare. The basic question is whether it has the right to wage any war at all in Indochina. It must clearly be stated that the United States has no such right. Aggressive war is still to be considered an international crime. Further, the United States is under obligation in the terms of the UN Charter not to use force in its international relations and to solve disputes with other countries by peaceful means.
THE ENVIRONMENTAL DISRUPTION OF INDOCHINA

by

Dr. Arthur H. Westing, Department of Biology, Windham College, Putney Vermont, USA.

Dr. Westing participates with several reports in this collection of studies on the environmental destruction in Indochina. In this introductory article he sums up the main aspects within this complex of problems. In his following reports he goes more detaily into a few main issues, less known to the public, but of highest significance for understanding the extensiveness of the environmental destruction in Indochina caused by the U.S. warfare.

The land and people of Indochina (744 thousand square kilometers in size and with 45 million inhabitants - and thus about the size of Scandinavia, but with four times the population of this other peninsula) have been under continuous, large-scale attack since 1965. The largely overlooked and presumably incidental impact of the Second Indochina War on the land and indigenous populations of that region has been of monumental proportions. It is thus unfortunate that the impact of warfare - with perhaps the most drastic ecological consequences of any of man's activities - is not on the agenda of the first United Nations Conference on Man's Impact on the Human Environment being held in Stockholm in June of this year.

One of the few available summaries of this disruption was prepared by the U.S. Library of Congress and published last year by the U.S. Senate Committee on Foreign Relations (under the title "Impact of the Vietnam
War"). From the data presented we can approximate that as a result of this war, one out of every 35 inhabitants of all Indochina has so far been killed, one in 15 wounded, and one in six made a refugee. The direct social disruption implied by these figures is difficult to grasp. I shall here simply indicate what the proportionate impact would be on the United States, with its population of 200 million: 5,700,000 killed, 13,300,000 wounded and 33 million displaced.

A War Against the Environment

However, the Second Indochina War has been a war against the land as much as against the people. The rural and the remote reaches of Indochina have been subjected to brutal punishment over the years. It is in the light of the intimate association with and direct dependence upon the resources of the land by largely agrarian peoples and in the further light of our new awareness of all mankind's dependence on his natural environment that a growing number of scientists throughout the world, have become appalled by the long-range ecological impact of so-called limited counterinsurgency warfare. A further major concern has been the renewed dependence by the United States in this frustrating conflict on various chemical weapons. This latter approach, with its serious public health and ecological implications, is a form of warfare which the civilized world had hoped was put to rest with the end of World War I.

Dr. E. W. Pfeiffer of the University of Montana (a wildlife zoologist) and I (a forest botanist) have made several brief inspection tours of Indochina during the past three years in an attempt to make preliminary assessments of the extent of ecological disruption caused by various of the weapons and techniques employed by the United States. We were limited in our studies by the obvious difficulties associated with working in an active theater of war and by the paucity of pertinent information that has been released by the U.S. government. What follows then is an attempt at conservatively summarizing what is known of the extent of environmental disruption caused by (1) the chemical warfare program with plant poisons (herbicides), (2) the landclearing program with Rome-plow equipped tractors, (3) the massive bombing and shelling program, and (4) the 6,800-kilogram landclearing bombs. This preliminary synopsis is based on a combination of personal observations, interviews, and
information released by the U.S. Department of Defense. I report the environmental impact with the realization that it is dwarfed by the direct impact of the war on the peoples of Indochina, but with the further realization that these two dimensions of the war are intertwined — and will continue to be long after the war will have finally ended.

The Herbicide Program

Chemical anti-plant warfare, restricted largely to South Vietnam, began on a small scale in November 1961, became a large-scale effort in 1966, and essentially ended in May 1971. In its cover denial program the United States aerially dispensed 64 million liters (49 million kilograms) of herbicides on 1.9 million hectares of forest lands. In its food denial program it similarly dispensed 8 million liters (3 million kilograms) on 0.3 million hectares of crop lands. Major herbicides used against forests were 2, 4-D (26 million kilograms), 2, 4, 5-T (22 million kilograms), and picloram (1.5 million kilograms); and against agricultural fields, dimethylarsinic acid (3 million kilograms). About 15% of South Vietnam’s forests have been sprayed once and an additional 4% multiply; about 8% of the nation’s crop lands (primarily those in the Central Highlands) have been sprayed. All told, one hectare in eight of South Vietnam was sprayed, thus representing an area more than half the size of Switzerland.

In the areas sprayed there has been an alteration and simplification of the plant and animal communities, a loss of mineral nutrients, acceleration of erosion in hilly terrain and along the coastline, and reduction in ecosystem productivity. Restoration time in the once sprayed areas is expected to exceed one decade and in the multiply sprayed areas at least several decades. Approximately 1/2 million hectares have been utterly devastated by herbicides (two-thirds of these being upland forest, one-third coastal mangrove forest). It is estimated that food was intentionally destroyed over the years sufficient to supply the total diets for one full year of 894, 000 Vietnamese (largely civilian, primarily Montagnard); additional amounts were destroyed as a concomitant of forest spraying. The herbicides seem to have directly and indirectly resulted in medical and veterinary problems. Timber losses have been estimated to total 47 million cubic meters, sufficient to supply South Vietnam’s
timber needs for three decades.

The herbicide program seems to have ended, but its effects will long be felt, both in terms of the environment and in terms of the erosion of international arms control.

The Rome-plow Program

Land-clearing with tractors, a program restricted to South Vietnam, began on a small scale in 1965, became a large-scale effort in 1968, and is apparently continuing undiminished to this day. This little known operation, devoted at first to the clearing of roadsides and other lines of communication in order to discourage ambushes, has for the past several years now been used on a massive scale to literally obliterate forested areas of possible use to the other side. In its mission of denying cover and sanctuary the method appears to be without equal. The basic tool is an 18-thousand kilogram tractor fitted out with a 2-thousand kilogram "Rome plow" and 13 thousand kilograms of added armor. At least five companies of more than thirty tractors each are in continuous operation. As of last August about 304 thousand hectares of land of South Vietnam had been scraped bare by this means (an area larger than the size of Luxembourg); and clearing progresses at the rate of more than 405 hectares per day.

Plowing results in severe site degradation, weed invasion (often by the tenacious Imperata grass), utter destruction of wildlife habitat, and major erosion and exacerbated flood damage in hilly terrain. The South Vietnamese forest service has estimated as of last summer that more than 147 thousand cubic meters of readily accessible hardwood timber on 50 thousand hectares had been destroyed in this program; and French rubber officials have determined that at least 1 thousand hectares of rubber plantations (1% of the nation's total) had similarly fallen to the plow.

In short, "pacifying" an area with Rome plows rather than with herbicides seems at once more efficient militarily and more destructive environmentally.
Bombing and Shelling

Conventional bombing and shelling, the former throughout Indochina and the latter mostly in South Vietnam, have become the major means of "landscape management" in this war. The one lasting impression that remains after flying over the country is of an endless number of craters. A conservative estimate of the actual number of these giant pox on the landscape is over 26 million - currently being added to at the rate of many thousands per day.

Munitions expenditures during the seven-year period 1965-1971 were 12 billion kilograms, twice U.S. expenditures throughout World War II in all its theaters. During this time span the U.S. thus expended munitions in Indochina with an explosive energy equivalent to 450 Hiroshima bombs (i.e., the explosive equivalent of one Hiroshima drop every 5 1/2 days). In terms of the peoples of all Indochina, the seven-year total represents 265 kilograms per person; in terms of its land, 159 kilograms per hectare. In terms of frequency, this sum represents 54 kilograms per second throughout this entire seven-year period.

Estimating the average crater to be 9 meters in diameter and 4 1/2 meters deep, the combined surface area of holes alone created between 1965 and 1971 comes to almost 170 thousand hectares, and the earth displaced by the explosions to a staggering 2.6 billion cubic meters. In other words, earth has been displaced at a rate that would fill Notre Dame once every 4 3/4 hours during this entire seven-year period.

More than 90% of all bombing and shelling in Indochina have been harassing and interdiction missions, in effect directed against forests and fields. The bombs and shells have torn up countless trees; and the shrapnel has been propelled over some 13 million hectares, hitting additional endless trees and thereby inviting fungal infection and wood rot. The craters have also disrupted extensive agricultural areas, both directly and indirectly. Irrigation systems have been disrupted, and near the coast saltwater encroachment has resulted. The craters have exposed lateritic soil to the atmosphere permitting it to harden irreversibly. Millions of new breeding ponds have been created for mosquitoes carrying such diseases as malaria, dengue fever, and haemorrhagic fever. In hilly terrain, erosion
has been accelerated. Finally, since 1%-2% of the bombs and shells expended are duds, there are now one-quarter of a million of these scattered about, many of which are apt to explode if bumped into, for example during plowing.

All in all, the effects of the truly massive bombing and shelling may well prove to be the least recognized and most permanently disruptive legacy of this war.

The Commando Vault Bomb

The 6,800-kilogram BLU-82/B "Commando Vault" bomb can be dropped into dense, triple-canopy jungle to create an instant helicopter landing zone which averages 1.3 hectares in size. This bizarre item of ordnance became operational in 1970, although experimental drops may have begun as early as 1967. By rough estimate about 200 have been expended, and now seem to be dropped at the rate of several per week. The Commando Vault, a concussion bomb filled with a slurry of ammonium nitrate and aluminium powder, is detonated just above the ground and leaves no crater; much of its blast is directed in the horizontal direction. The tremendous blast wave required to shear off large trees and blow them 65 meters or more away in every direction from the epicenter continues outward for about 400 meters (according to a recent Pentagon release) with a sufficient overpressure to kill or injure all exposed humans and wildlife. The average casualty zone per bomb is thus almost 50 hectares and perhaps greater. The Commando Vault bomb is a totally indiscriminate, wide-area weapon which results in the complete local ecological disruption of the strike area.

Conclusion

It thus becomes clear that, by one means or another, it is the fields and forests of Indochina that are bearing a major share of the brunt of the U.S. war against Indochina. Whether this largely anti-environmental impact is by design or accident is difficult to establish. Although the U.S. government does not admit to a consciously planned strategy of systematic destruction of the natural resource base of Indochina, the fact remains that this is the outcome of its lavishly capital-intensive methods of counterinsurgency warfare. This is a distressing aspect of
the war in view of a rapidly degrading world environment. It is a particularly distressing aspect in view of the direct and immediate dependence of Indochina's peasantry on its land resource.

Literature

The following selection of articles of mine published elsewhere elaborate on one or another aspect of the material I have summarized above:


6. "Leveling the Jungle." Environment (St. Louis) 13(9):8-12; November 1971.


All living things depend upon each other and on their environment. This is called the ecological balance. The ecological balance depends, in particular, on the ecological components of nature which are a "scarce resource". If the environment is greatly disturbed or destroyed, the ecological balance cannot be maintained, and the interdependent existence of living things --- humans, animals and plants --- itself is endangered (ecocide).

"Ecocide", then, refers to large-scale, intentional measures to disturb or destroy the ecological balance. It consists, for example, not only in the destruction of food or crops, but prevents the growth of food in the future (anti-food warfare); not only in the destruction of timber and other non-edible plants, but prevents their growth in the future (antifoliage warfare).

The fact that such measures have been carried out systematically and on a large scale in Indochina is by now common knowledge. The systematic
nature of the program is indicated by

a) the size and intensity of research into the development of chemical
weapons (herbicides and defoliants), in particular the so-called
2, 4-D (2, 4-dichlorophenoxyacetic acid); 2, 4, 5-T (2, 4, 5-trichloro-
phenoxyacetic acid); Cacodylic acid, picloram; and various mixtures
of them, also known as "Agent Orange", "Agent Blue" and "Agent
White".

b) the large-scale systematic use of those chemicals;

c) the large-scale systematic use of other methods (in addition to the
chemical methods) to cause ecological damage;

d) the combination of ecological warfare with other methods of warfare
not directly intended to cause ecological damage --- for example,
creation of vast masses of refugees, and indiscriminate bombing of
"free fire zones" --- which intensifies and compounds the adverse
effects of ecological warfare.

The term "ecocide" has not, as yet, been adopted by international law. What
are the legal consequences of this fact?

The combination of military strategies summarized by the concept or
term "ecocide" is so new and unique that it is unknown to the codifications
of the laws of war. The situation is comparable to the evolution of the con-
cept of genocide.

It required protracted deliberations until, long after Hitler's demise, a
legal definition of "genocide" was agreed upon in 1949 in a formal inter-
national Convention for the prevention and punishment of Genocide. Since
the term was not part of official legal language at the time of the Nuremberg
trials, no defendant was indicted for "genocide" under this term. If, as
happened, some war crimes tribunals occasionally referred to "genocide".
they used the term as shorthand expression for a variety of measures which had in common that they aimed against the existence and structure of entire human groups (genus). The definitions eventually written into the Genocide Convention clarified and extended the concept of prohibited behavior against groups; but the genocidal measures for which Hitler Germany and individual defendants were blamed consisted of crimes (murder, torture, kidnapping, starvation) which had long before been incontrovertibly prohibited if committed on a small scale and without hostile intention against the victim's group. To put it succinctly: if the Genocide Convention had not been concluded, virtually all of the acts proscribed by the Convention would nevertheless be incontrovertibly forbidden by the pre-existing law and morality of mankind. This, however, does not make the concept of the term "genocide" useless. To create a special term of concept to express the special condemnation of the international community against certain behavior, is psychologically and morally, but also legally, significant: the new word becomes a new tool and expression of the world's abhorrence. It can therefore by itself hope­fully become a deterrent.

Looking at the process of gradual legal formalization of the concept of "genocide", we find, then, two phases: at first, during World War II, the term was coined a) to provide a succinct one-word designation for a variety of war policies of horror, dehumanization and extermination; and b) to arouse, by this word, world public opinion against those policies. In this sense, the term "genocide" served as a weapon, an instrument of ultimate indignation. The second, postwar, phase consisted in the gradual evolution, through formal conference under United Nations auspices, of a precise definition of genocide, and new designs for the prevention of genocide in the future.

It can be said that the term or concept "ecocide" is in the first phase:
although not legally defined, its essential meaning is well-understood; it
denotes various measures of devastation and destruction which have in
common that they aim at damaging or destroying the ecology of geographic
areas to the detriment of human life, animal life, and plant life. It is as
yet uncertain whether the nations of the world will see fit to reach the
second phase --- a formal outlawing, by specific treaty, of ecocide ---
and what precise definition of ecocide such treaty would contain.

The question, then, is not whether "ecocide" is forbidden by international
law under the term "ecocide". In a purely formalistic sense, the world
legal order has, because of the very enormity and novelty of the phenomenon,
not yet included it in its vocabulary. But to conclude from this that, there­
fore, the phenomena which it describes are beyond the pale of international
law, or are therefore legal, would be as impermissible as to claim that
Hitler's extermination camps were not illegal because the name of genocide
was at that time not part of international law.

PRINCIPAL METHODS OF ECOLOGICAL ("ECOCIDAL") DEVASTATION

A. Devastation through Chemical Warfare

Systematic destruction of plants and plant life in Indochina is widely identi­
fied with the spraying of chemicals. U. S. Congressman Richard D. McCarthy,
M. C. in his book The Ultimate Folly: War by Pestilence, Asphyxiation and
Defoliation points out that "The United States' anti-food and anti-foliage
campaign (through chemicals) ... started modestly... in 1961" but grew enor­
mously. According to estimates furnished him by the U. S. Air Force, only
4,960 acres were defoliated and 741 acres were crop-destroyed in 1962, yet
by "the end of March 1969 we had sprayed an area of 7,271 square miles,
more than 10 percent of the whole of South Vietnam and the equivalent of
more than half of the arable land... at a cost of $ 96.4 million." And
Congressman McCarthy considers this Air Force estimate too "low both
in acres and dollars" because a) published figures, quoted by him, indicate higher Air Force expenditures than the Air Force figure of $96.4 million should, even at commercial prices which are higher than those paid by the Air Force, have purchased chemicals to spray 5,790,000 acres, and not, as the Air Force estimated, approx. 4,600,000 acres (precisely: 4,119,960 acres defoliated and 468,559 acres crop-destroyed). 4) After considering the scientific analyses of the effects of these chemical sprayings, Mr McCarthy concludes (writing in mid-1969):

"I consider the use of herbicides and defoliants -- the new chemical weapons -- on the scale that we have used them in Vietnam without knowing what the long-range consequences will be, to be irresponsible ... (and) abhorrent to civilized people ... I also find an anti-food campaign contraty to all principles of humanity ...... I also believe that it is one short step from the use of chemicals as an anti-vegetation or anti-crop weapon to the use of biological weapons for the same purpose. A rice blight or a plant blight, both biological agents, would ... not substantially differ in result from the use of chemicals ..." (l.c., p. 88).

For an analysis of the legality or illegality of this type of chemical warfare, the following considerations are also pertinent:

a) The chemical warfare was kept secret for several years. The carefully prepared collection of newspaper reports about the Vietnar war, published by the interdenominational group, Clergy and Laymen Concerned About Vietnam, in the volume In the Name of America (1967), would show that the first intimation of chemical defoliants appeared as late as in the NEW YORK TIMES of 10 June 1964, reporting from South Vietnam that "defoliation through burning has been tried and found almost useless... Chemical defoliants spread from low flying planes have been more successful...". Only on 28 March 1965 did
the NEW YORK TIMES report that "Defoliation operations have been carried out in South Vietnam since 1961" with "U.S. military forces ... participating in most of the defoliation efforts." 5)

b) After the defoliations had thus been kept secret, the news that began to appear in 1965 revealed official awareness of international condemnation of the policy. For example, on 25 March 1965, the ST. LOUIS POST-DISPATCH quoted from the Congressional Record-Senate, p. 6556: "...Operation Ranch Hand (refers to) the use of chemical defoliation sprays by 4 special U.S. Air Force planes. American authorities have de-emphasized this program because of world objection to destroying food, and because of Communist propaganda that the sprays harm human beings.... Crop destruction is understood to be the more important purpose... but emphasis is usually given to the jungle defoliation in public mention of the program..." (In the Name of America, p. 284). On the same day, 25 March 1965, a major news service reported from Saigon that U.S. officials in Vietnam (rather than making any statements themselves) "left it to Washington (spokesmen) to answer international repercussions of the disclosure that nonlethal gases were used in the war against the Viet Cong." (ibid., p. 284/5).

c) The triple meaning of the term "defoliation" -- namely, to kill vegetation, to denude the landscape and to destroy food, was thus expressed by BUSINESS WEEK on 5 March 1966: "Defoliating agents are being used to kill vegetation and expose jungle trails, and to destroy rice crops in enemy territory..." (ibid., p. 287).

d) On 26 March 1966, CHEMICAL WEEK included "primitive hospitals" among the areas being denied to the Viet Cong through "herbicides and riot control gases..." For the herbicide-resistant jungle rain forests, "Defense Secretary McNamara...wants more powerful...
or longer lasting herbicides from commercial chemical researchers ...

" ..." (ibid. p. 289).

e) A Saigon dispatch in the NEW YORK TIMES of 26 Dec. 1965 showed, even at that time, the interconnection between this type of chemical warfare and the use of napalm and other terror weapons, when villages defended themselves against the sprays: "The Vietcong, and anyone else in the neighborhood (!) usually suffer when they do hit the spray planes. This morning 3 Supersaberjets struck the village of Xomthy with 750 lbs. bombs, napalm and 20 mm cannon fire when fire came from the village..." (ibid., p. 287).

f) U.S. control of the policy has been faulty. For example, the magazine SCIENCE reported (issue of 20 Jan. 1967) that the Pentagon furnished it with statistical data about the acreage which had been "treated with herbicides"; but since the use of those "riot control agents" has passed to the initiative of local commanders, the Pentagon told SCIENCE that it (the Pentagon) no longer knows how many times and for what purposes they (the 'riot control chemicals') have been employed." (ibid., p. 292). Congressman McCarthy was told by the Pentagon and by Professors Orians och Pfeiffer after their inspection tour in Vietnam in 1969, "that it is now (1969) the policy of the U.S. Army to have all defoliation missions initiated by the South Vietnamese Army with the U.S. Ambassador giving the final authorization for each mission. (However) U.S., A.I.D. (U.S. Agency of International Development) and State Department officials who have observed South Vietnamese province chiefs handle requests for spraying operations were sharply critical of the way in which they exercised this responsibility... Also, those familiar with the approval process at the embassy say that it has been reduced to a routine function." (McCarthy, l.c., p. 81).
The prohibitions of the Geneva Protocol of 1925 are binding upon all States, including the United States.

The rules for the international behavior of States are contained in a) treaties and b) customs. In principle, if rules are laid down in a treaty, only those States that specifically ratify (or otherwise accede to) the treaty are bound by them. If, however, the rules contained in a treaty are very widely accepted and become "generally recognized" by consensus of the international community, these treaty rules become customary rules. They thereupon also obligate those States that have not ratified (or otherwise acceded to) that treaty.

The 1925 Protocol is such a treaty. It has become part of the world's conscience, and hence of the world's customary law. In fact, the wording of the Protocol shows clearly that its signatories considered its prohibition of gas warfare not as something new even in 1925, but as a solemn Declaration reconfirming the condemnation of gas warfare. This is seen from the opening statement of the 1925 Geneva Protocol:

"Whereas the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices, has been justly condemned by the general opinion of the civilized world; ... .

(The undersigned plenipotentiaries)

"DECLARE:

That the High Contracting Parties, so far as they are not already Parties to Treaties prohibiting such use, accept this prohibition, agree to extend this prohibition to the use of bacteriological methods of warfare, and agree to be bound as between themselves according to the terms of this declaration."

But can it be objected that the Protocol, in spite of its initial reference to the general condemnation of poison warfare, still prohibits only Parties
to the Protocol (i.e., States that ratified or otherwise adhered to the Protocol) from waging gas warfare and bacteriological warfare, so that the USA (having never adhered to it) is entitled to wage gas and bacteriological war against any other State, and vice versa any State may wage poison or bacteriological war against the USA? This cannot be maintained because, as said before, the prohibitions of the Protocol have become customary "generally recognized rules of international law", obligatory upon all States.

This has been stated repeatedly and unmistakeably, in the most authoritative form possible, namely, by the U.N. General Assembly. Soon after the use of chemical herbicides and defoliants became known, the Assembly, in Res. 2162B (XXI) of 5 Dec. 1966, called for "strict observance by all States of the principles and objectives" of the 1925 Geneva Protocol "and condemn(ed) all actions contrary to those objectives."

Referring to the fact that this demand had been adopted by the Assembly in 1966 "without any dissenting vote", and because of other extremely weighty considerations 7, the General Assembly on 16 Dec. 1969, by a vote of 80 in favour, 3 (Australia, Portugal, USA) against, with 36 abstentions, adopted Resolution 2603A (XXIV), which recognizes

"that the Geneva Protocol embodies the generally recognized rules of international law prohibiting the use in international armed conflicts of all biological and chemical methods of warfare, regardless of any technological developments" and

"declares as contrary to the generally recognized rules of international law, as embodied in the (1925) Protocol, the use in international conflicts of:

a) Any chemical agents of warfare -- chemical substances, whether gaseous, liquid or solid -- which might be employed because of their direct toxic effects on man, animals or plants;

b) Any biological agents of warfare..."
In a companion Resolution of the same day (2603B of 16 Dec. 1969, adopted by a vote of 120 in favour, none against, with 1 abstention), the General Assembly underscored "the need to maintain inviolate the Geneva Protocol and to ensure its universal applicability", "emphasize(d) the urgency of the need for achieving the earliest elimination of chemical and bacteriological (biological) weapons", and in reaffirmation of its Res. 2162B (XXI) of 5 Dec. 1966, "call(ed) anew for strict observance by all States of the principles and objectives of the Protocol...".

Further Significant U.N. General Assembly Resolutions against Chemical Warfare.

For years, and in fact largely in reaction to U.S. warfare in Indochina world public opinion has demanded much more than non-use of chemical and bacteriological weapons of any sort: it has increasingly insisted on prohibiting their further manufacture, "perfection" and stockpiling; and demanded the destruction of any such existing weapons. So far, these pressures have led only to the draft "Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction", but not of chemical weapons.

However, international indignation about chemical warfare in any form was so great that even the next draft Convention, while primarily concerned with bacteriological weapons, makes all States parties to it (and not only those that have formally acceded to the 1925 Protocol!): "reaffirm(s) ... their adherence to the principles and objectives of that Protocol..."; expresses the Parties' conviction "of the importance and urgency of eliminating" also "such dangerous weapons of mass destruction as those using chemical ... agents"; and considers the prohibition of bacteriological weapons "a first
2:11

possible step towards... also... prohibition of the development, production and stockpiling of chemical weapons..."

Especially significant in the present context is that in the Preamble all States Parties to the Convention "recall... that the General Assembly of the U.N. has repeatedly condemned all actions contrary to the principles and objectives of the Geneva Protocol of 17 June 1925". In other words, the Convention solemnly reconfirms those condemnations.

When this limited draft Convention was debated in the U.N. General Assembly, the disappointment about its failure to cover also chemical weapons became very clear, and is shown in the two Resolutions it adopted on 15 Dec. 1971 by the unanimous vote of 110 to none, with 1 abstention (Resolutions 2826 and 2827A (XXVI). The first Resolution pointedly re-emphasizes all the just-mentioned statements in the bacteriological Convention about chemical weapons.

In the second Resolution, the General Assembly goes on record as having no less than three times -- in 1968, 1969 and 1970 -- demanded "to end" the development, production and stockpiling also of chemical agents for purposes of war, and to destroy them; and had commended that "both chemical and bacteriological (biological) weapons should be dealt with together" toward these goals. It "notes with satisfaction" that the new Convention

"contains an affirmation to the recognized objective of effective prohibition of chemical weapons"

and by its whole tenor shows the urgent and impatient demand of the international community that chemical weapons should be neither perfected nor manufactured, and that existing stockpiles should be destroyed.

All this is highly relevant to answer the question whether the use of chemical defoliants and herbicides in war should be considered as permitted by