

# **CHEMICAL POLITICS AND THE HAZARDS OF MODERN WARFARE AGENT ORANGE**

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As an issue that has persisted for more than forty years despite various attempts to define and resolve it through science and politics, ‘Agent Orange’ links local to global and bodies to nations across divides of class, gender, ethnicity and nationality, with meanings that slip from person to person and from context to context, and referents that range from the technical to the metaphoric. These few pages do not pretend to fully enumerate, let alone to settle, the controversies that surround this chemical; rather, they explore what might be added to those discussions by people as yet little heard from, people the Red Cross in 2001 designated as ‘the disabled poor, including those thought to be affected by Agent Orange.’<sup>i</sup>

This chapter is derived from a longer study that seeks to bring into dialogue public and private discourses about Agent Orange: discourses of science and politics with those of individual and community experience; discourses of nation-building and national security with the words of people whose bodies suffer the consequences of those processes. The first part of the chapter considers varied uses of the term. The second describes Agent Orange as a chemical. Next comes an introduction to some of the political controversies, public outcry, and scientific inquiry engendered in the United States by its use and the aftermath of that use. The last part treats Agent Orange as an

experience, in the language of people in Vietnam who believe they may be bearing the consequences of that use.

## AN EXCESS OF MEANING<sup>ii</sup>

Since the late 1960's, and especially since the mid 1970's, emotionally charged controversy has surrounded the topic of 'Agent Orange'. But what is Agent Orange? At times, it is a code name for a chemical, at times, a metonym for TCDD dioxin, or a generic for all the chemicals used during the war in Viet Nam, or a synecdoche for all the environmental damage that lingers from that war, or even more globally, for the consequences of war. At other times, it is the name of an illness: "My uncle's daughter is suffering from Agent Orange"; or, "I know a man who can cure Agent Orange". In some popular uses it seems to serve as a synonym for 'birth defect'. The disabilities associated with it are sometimes taken as a sign of the workings of the law of karma, or of the hand of fate [*Vietnam Courier*]. To the extent that illness in Viet Nam can be described as a matter of balance and integration of the personal and the natural worlds [Marr 1987: 167], 'Agent Orange' may be read as a metaphor for a world out of balance, dis-integrated.

In America, Agent Orange has been called "a symbol of deceit and betrayal" [*Vietnam: A Television History*]; "... a metaphor for everything that was wrong about the most unpopular war in American history" [MacPherson: 601]; and a marker for "a sea change in the way Americans think," for the deep embedding in American thought of a "profound suspicion of science, government, and technology"[Burkett: 551]. A Pulitzer Prize-winning journalist who has covered science, medicine, and the environment for some 30 years calls it "technology gone bad, Frankenstein, the best and the brightest,

civilization turned dark,” adding: “The opposite side of the coin is romanticism gone paranoid and luddite.” It is also, he continues, “a cover word for damages due, for the reparations no one can give as reparations, ... [a] cover that allows us to proceed without looking too closely at what happened and confronting where we are in history....” [Franklin].

Some call Agent Orange a diversion. One American physician could barely contain his frustration: “You have a war that has destroyed the health system, destroyed the infrastructure and created problems of pollution, hunger, malnutrition and their associated diseases—and you are going to sit around arguing over one small part of the total damage, pouring millions of dollars into research rather than helping people—for a fraction of the cost?” An American scientist, who has worked for decades on the effects of dioxin and is well aware both of its long-term health effects and of the possibility for overgeneralization, raises another caution about the potential for Agent Orange to serve as a diversion: “If we assume certain health consequences are from Agent Orange when they are not, we may not be focusing on causes we can prevent in the future.” [Schechter: 2002]

In March 2002, when representatives from the US and Viet Nam met in Hanoi for their first bilaterally government sponsored conference on the consequences of Agent Orange in Viet Nam,<sup>iii</sup> the American ambassador called Agent Orange “the one significant ghost” remaining from the war, while the Vietnamese Vice-Minister for Science, Technology, and the Environment called it chemical warfare.

‘Agent Orange’ is not only a marker of ghostly silences, silencings, and hauntings<sup>iv</sup> however, but also a vehicle that opens dialogue, expanding the ‘moral

community' [Morris], as American veterans, seeing the similarities between the illnesses that mark their own lives and those that mark the lives of Vietnamese thought to be affected by Agent Orange, call on the U.S. government and the chemical firms that sold it Agent Orange to fulfill their "moral duty" by compensating Vietnamese as well as Americans [Brunnstrom: 4 March 02].

For some people in both Viet Nam and the United States, 'Agent Orange' has become a possible way of understanding the complex of forces that have shaped their experience of life and suffering, a way that links personal lives to societal problems.<sup>v</sup>

#### AGENT ORANGE AS CHEMICAL<sup>vi</sup>

Strictly speaking, however, 'Agent Orange' was a nickname for one of the 16 main chemicals used tactically by US and Saigon forces from 1961-71,<sup>vii</sup> during the war in Viet Nam. It was one of a group of six chemicals rather euphemistically referred to as defoliants and herbicides, one of three that was contaminated by dioxin. Approximately 90% of these chemicals were used for defoliation, and 10% for crop destruction.

The term 'Herbicide Orange' was the US Defense Department code name given to a reddish-brown to tan liquid formulated to contain a 50:50 mixture of the *n*-butyl esters of 2,4,-dichloro-phenoxyacetic acid (2,4-D) and 2,4,5-trichloro-phenoxyacetic acid (2,4,5-T). It got its name from the orange stripe painted around the 55 gallon barrels in which it was stored, and its nickname 'Agent Orange' from the media. Agent Orange (and Agent Orange II) made up roughly 61% (44,953,560 liters) of the 72,740,400 liters of herbicides and defoliants deployed from 1961 to 1971.<sup>viii</sup> It was used in roughly 66% of the missions for forest defoliation, and 40% of those for crop destruction [Lewy: 257; Westing: 4, 7].

One part of the toxicity of Agent Orange comes from its 2,4,5-T, which the U.S. officially recognized as potentially teratogenic (causing malformations) in 1969, contributing to the April 1970 order to suspend its use in the war, and to restrict its domestic use in herbicides [Lewy: 263]. Another part of the toxicity of Agent Orange and the three other defoliants that contained 2,4,5-T (Agents Purple, Pink, and Green) was TCDD dioxin, an unwanted by-product generated during the manufacturing process. TCDD is both very persistent and exceptionally toxic, often being referred to as the most toxic man-made chemical [Young 11; Dai 35-39]. Discussion of 'Agent Orange' today is frequently more exactly a discussion of dioxin.

While Agent Orange and five of the other chemicals (Agents Purple, Pink, Green, White, and Blue) were generally referred to as herbicides and defoliants, they were used in concentrations and dosages higher than those recommended by their manufacturers. How much higher? Accounts vary. Uhl [144] says concentrations were 13 times higher, Westing [5] says dosages were 20 to 40 times higher, and a document prepared by the chairman of the Agent Orange/Dioxin Committee of the Vietnam Veterans of America puts the strength at 6 to 25 times those used for civilian purposes [Sutton: 3-4; see also Cecil: 225]. Given the thousands of individual sorties involved in the spraying (see Cecil), it seems reasonable to assume that concentrations and dosages varied, as did the number of sprayings applied in a given area.

Though Agents Purple, Pink, and Green were the first chemicals used in the war, Agents Orange, White, and Blue were the main chemicals used during the peak years of herbicide spraying, from 1967-69. Agents Orange and White (a 1:4 mixture of picloram and 2,4-D) killed plants by mimicking their hormones to interfere with normal

metabolism and were generally used for forest destruction. Agent Blue (active ingredient, cacodylic acid, an arsenic compound) was a desiccant that killed by preventing plants from retaining moisture, and was primarily used for crop destruction [Cecil: 225; Westing: 5].

While the image most often used to portray the defoliation is that of the low-flying C-123 transport planes of the “Ranch Hand Project”<sup>ix</sup> aerial spraying, the chemicals were also sprayed from riverboats, from trucks and other vehicles, and, around the perimeters of bases, by hand-held canisters.

Accounts of the extent of upland forests, saltwater forests and croplands that were sprayed vary somewhat and are at times incommensurable, though the total number of acres defoliated is frequently given in round figures as 5 million, with another 500,000 acres of crop destruction [See, for example, Harnly: vii]. More precisely, according to Lewy [258], who bases his account on figures from MACV Command History, 4,747,587 acres were defoliated, and 481,897 acres of crops destroyed. He gives the proportion of cropland sprayed as 3.2%<sup>x</sup>, while the Committee of Concerned Asian Scholars quotes Air Force statistics that report nearly 10% of all arable land had been sprayed by 1969 [113]. Work to check and complete the accuracy of these statistics continues to this date.<sup>xi</sup>

The official U.S. Air Force history estimates that 20% of the jungles of the south were sprayed [Buckingham: iii]. Harnly records 20% of the saltwater mangroves as having been destroyed, the Air Force history puts the figure at 36%, while the American Association for the Advancement of Science reported 20-50% of the mangrove forests ‘utterly destroyed’ [Neilands: 274].

Lewy claims 46.4% of the total forested area was sprayed more than once; Harnly gives a figure of 32% for repeated spraying of upland forests. Vo Quy, internationally respected director of the University of Hanoi's Centre for Natural Resources Management, adds napalm, saturation bombing (25 million bomb craters in an area roughly the size of New Mexico), and bulldozing to the effects of spraying, coming up with a figure of 22,000 square miles of forest and farmland, mostly in the south, destroyed by 30 years of warfare [Vo Quy: 13-16].

The long-term ecological impact of the spraying is still being studied. The effects in a given location varied with the kinds of vegetation sprayed, and the number of applications: according to one source, trees over seven years old were generally able to recover from a single spraying, but younger trees, certain mangroves, and other susceptible plants were not [Cecil: 226]. While great efforts at reforestation have reclaimed some areas, others remain covered in a tough, economically useless tall *imperator* grass that has been nicknamed "American grass", or by forests of low-grade bamboo [Vo Quy: 14]

Lewy [258] gives the proportion of the population living in sprayed areas as something under 4%; Stellman [2000] estimates that one million people lived in heavily exposed areas. Given the great population movements during the war—of soldiers, evacuees, and some two million internal refugees in the south—it should be asked whether these figures include the number of people who later lived in or passed through these regions. The effect of spray drift and contaminated water and soil movements also complicate the compilation of accurate statistics.

Vietnamese estimates of people affected are sometimes given as 30,000, sometimes 70,000, and sometimes one or two million. This range can be partially understood as a result of the difficulty of developing statistics when there is no commonly accepted set standard for conditions that are linked to Agent Orange exposure, coupled to factors such as the unknown number of people thought to have already died, and the number who continue to be born with what may be second or third generation effects. Statistics are further complicated by new exposure that continues in a limited number of specific locations where spills occurred, storage containers leaked, or a plane was shot down with a full load of chemicals, or in locations that were repeatedly and intensively sprayed at close range, such as the perimeter of bases [see Dwernychuk, and Schechter 2001].

#### AGENT ORANGE AS CONTROVERSY

The use of chemicals was controversial from the beginning, in both military and civilian circles. A full, balanced account of the histories of those controversies has yet to be written; here I can raise only a few points.<sup>xiii</sup> When experiments at a joint American-South Vietnamese Combat Development Test Center led, in November or December of 1961,<sup>xiii</sup> to requests that chemicals be used for a ‘crop warfare program’, the US at first declined, concerned about adverse political affects on the South Vietnamese, and about charges of chemical warfare that might be brought by the communists. In January of 1962, however, Kennedy authorized the first use of defoliants. The first crop destruction mission followed on November 21<sup>st</sup> of that year.<sup>xiv</sup>

Arguments within the military and the administration that the use of herbicides and defoliants was banned by the Geneva Protocol and that their use would expose the



U.S. to charges of barbarism were countered by arguments that the concept of chemical warfare applied to people and animals, not plants [Buckingham: iii; Cecil: 155]. Cecil recalls arguments that killing plants instead of people would blunt guerrilla activity without inflicting direct injury on enemy, ally, or innocent [179]. Another argument was that herbicides were “an economical and efficient means of stripping the Viet Cong of their jungle cover and food” [Buckingham: iii].

It was not the use of herbicides and defoliants, however, that first caused public alarm over the use of chemicals in Viet Nam. The use of various nauseating and asphyxiating gases, including apparently limited trials of the potentially lethal arsenic-containing DM [Neilands: 30-32; 47], drew a strong outcry at home and abroad in early 1965, before the beginning of the most intensive use of herbicides and defoliants. While President Johnson’s press secretary called the materials used ‘standard-type riot control’ agents, a foreign doctor in Viet Nam chronicled the casualties and fatalities he treated as a result of those gases [Neilands 102-113], and the *New York Times* editorialized “...ordinary people everywhere—have a strong psychological revulsion, if not horror, at the idea of any kind of poisonous gas....” [Lewy: 102-113].

Once the herbicides and defoliants were in full use, assessments of their effectiveness varied, particularly for the part of the program aimed at crop destruction. In 1967, for example, the Air Force noted success in achieving one of the objectives of the program, “to separate the VC from the people by forcing refugee movements into GVN [Government of Viet Nam—a reference to the government of the South] controlled areas”.<sup>xv</sup> A Rand Corporation study that same year concluded that the program was probably counterproductive. Estimating that 325,000 villagers had been affected by

spraying operations that destroyed their crops and produced food shortages, the Rand study found 80% of the villagers they interviewed blamed the US/GVN for the destruction of their crops, with 74% expressing ‘outright hatred’ [Lewy: 260]

### **Scientists raise the alarm**

Scientists were among the first to publicly question the use of chemicals.<sup>xvi</sup> A March 1964 statement of the Federation of American Scientists read in part: “...we are concerned with reports of the field use of chemical weapons in Vietnam. Allegations relating to the use of anti-crop agents under American supervision have been officially denied. However, reports that defoliating agents have been used to destroy protective cover have been confirmed by representatives of the Department of Defense. These charges give rise to the broader implication that the U.S. is using the Vietnamese battlefield as a proving ground for chemical and biological warfare. We... feel that such experimentation involving citizens of other countries compounds the moral liability of such actions.” The Pacific Division of the American Association for the Advancement of Science (AAAS) echoed these concerns in a June 1966 resolution, noting that the biological effect of the agents being used was not known, and that scientists had a special responsibility to be fully informed, since the products were the result of scientific research [Neilands 118].

In February 1967, five thousand independent scientists, including 17 Nobel Prize winners and 129 members of the National Academy of Sciences petitioned President Johnson to order a stop to the use of herbicides and recommended a review of US policy towards chemical and biological weapons. The Pentagon ordered a review of all published and unclassified literature “related to the ecological consequences of repeated

or extended use of herbicides”, which was carried out by the Midwest Research Institute, and reviewed by the National Academy of Sciences (NAS). The results spoke of the destruction of vegetation, the unlikelihood of human or animal fatality, and the inconclusiveness of data “with respect to chronic toxicity and many other issues”. In transmitting the results to the Pentagon, the NAS president cautioned that the study was only a “first step in investigating further the ecological consequences of the intensive use of herbicides” [Young 36-7, Neilands 118, Uhl 142-147].

Inconclusiveness of the data is a theme that runs through early studies of the effects of these chemicals on human health, as well. Wartime conditions were cited, along with inadequate health statistics. In 1969, E.W. Pfeiffer, a zoologist at the University of Montana, and Gordon H. Orians, a zoologist at the University of Washington, came home from a two-week field trip to Viet Nam speaking of great environmental destruction, but unable to confirm reports of human and animal abnormalities [Orians and Pfeiffer]. The 1970 AAAS study, while finding ‘no definite evidence’ of adverse health effects, did however find flaws in an earlier Army study that showed a downward trend for stillbirths, placental tumors and malformations coincident with the peak of spraying.<sup>xvii</sup> A study begun in 1970 by the National Academy of Science at the request of Congress and the Secretary of Defense, concluded in 1974 that ‘no evidence substantiating the occurrence of herbicide-induced defects was obtained. However,’ it continued, “the potentially most definitive aspect of this examination has not yet been completed.” [Young 35].

In the summer of 1969, a Bionetics Laboratory study that as early as 1965 had linked 2,4,5-T to malformations in test animals resurfaced, leading to further study and

the order to suspend the use of the chemical in Viet Nam and at home, pending yet further study [Lewy 263].<sup>xviii</sup> After several military units illegally continued using some of the 2.25 million gallons of Agent Orange stored in Viet Nam, Cecil reports, the remaining barrels were shipped to Johnston Island in the Pacific in April 1972. In the summer of 1977 they were taken out to sea by the Dutch ship *Vulcanus* and incinerated, along with 860,000 gallons from storage at the Naval Construction Battalion Center at Gulfport, Mississippi [Cecil: 165]. In the interval, over 250,000 pounds of Agent Orange had leaked into the soil of the island [Casper: 17-19].

### **U.S. Veterans**

In 1978 and 1979, a class of over 2.4 million U.S. veterans, their wives, and offspring brought suit against seven chemical companies for injuries they alleged they suffered as the result of exposure to Agent Orange. The case was settled out of court, with the companies agreeing to pay \$180 million, the largest award ever made to that date [see Young and Reggiani; Cecil; Shuck]. A lawyer who works with ongoing veterans' claims describes these early suits as "pre-mature", given what was then known about the effects of dioxin [Smoger]. It was not understood at the time, for instance, how dioxin could affect the workings of the body; the mechanism by which dioxin affects multiple cell functions, its binding to the Ah receptor, was only discovered in the 1990's. Once again, this is a story that deserves a full telling, but can only be mentioned in passing here, to mark the importance of the veterans' role in bringing the issue before the public and motivating scientific study. (Another major part of the story that exceeds the limits of this chapter but deserves full and careful study also surfaces in these few lines: the role of

the chemical companies, and the profit motive, both in the development and production of these chemicals, and in the handling of knowledge about their toxicity.)

By 1988 ten major epidemiological studies of Vietnam veterans, Agent Orange and TCDD exposure had been completed under various auspices: the U.S. Air Force, the Veterans Administration, the Centers for Disease Control, the National Institute for Occupational Safety and Health, and the National Cancer Institute. Five further “health surveillance” projects were ongoing: three by the Veterans Administration Agent Orange Projects Office, one with the cooperation of that office and the Environmental Protection Agency, and the fifth by the Armed Forces Institute of Pathology [Young: 59-61]. Cecil mentions 32 studies underway by 1982, and another 12 being planned [171].

Controversies, questions, and denials beset these early studies. Those who believed that Agent Orange had no harmful consequences apart from chloracne, a serious skin condition generally accepted as caused by exposure to dioxin, blamed the media for overblowing the evidence in response to veterans’ anger and their search for meaning in their lives and ailments [see, for example, Young: 300-304]. Those who believed it had greater effects than some of the studies showed, claimed a too-limited sample size [Cecil: 170], bias, or falsification of evidence [see AP for one example]. The Senior Counsel Assisting in the Australian Royal Commission study that found “no connection between unfavourable outcome and exposure to Agent Orange” writes about the clarity of the scientific evidence [Young: 304-305] with conviction equal to that of a member of the U.S. “Agent Orange Scientific Task Force” that determined there was enough scientific evidence of a link to grant compensation to veterans [Webster and Commoner, in

Schechter: 19], to give but one example of the difference of opinion resultant from exhaustive examination of the evidence.

### **Accumulating Evidence**

Amidst controversy and debate, however, the list has been growing of diseases and conditions for which the U.S. gives compensation due to their possible link to exposure to Agent Orange. Although there is as yet no internationally accepted definition of diseases and conditions related to Agent Orange, since 1996 the U.S. Institute of Medicine has listed 10 diseases—five cancers, two nervous disorders, two skin conditions, and one birth defect—as having ‘sufficient’ or ‘limited’ evidence of a link to exposure to Agent Orange [IOM: 7].<sup>xix</sup> Dr. Dai, long-time researcher and head of the Agent Orange Victims’ Fund of the Vietnamese Red Cross, believed there was enough evidence to add these conditions to the list as well: primary liver cancers, metabolic disorders (cerebro-arterial and coronary-arterial disorders); ‘unusual’ births (spontaneous abortions; premature births; stillbirths; molar pregnancy; chorio-carcinoma), and a variety of birth defects affecting the first and second generations [Le Cao Dai: 157-158].

Vietnamese research, though long hampered by war-time and post-war conditions and a lack of sophisticated equipment, has amassed a body of what Dr. Dai calls “suggestive” evidence. A Harvard researcher calls it “anecdotal”, adding that such evidence, “when there is enough of it, becomes quite persuasive” [Constable]. Dr. Dai spoke of research he had conducted in a district of Ha Bac province in the north that suggested that veterans who fought in the south had more children with birth defects than those who fought in the unsprayed north, and that the longer they stayed south, the more likely they were to have such children.. He spoke as well of ongoing cooperative

research near a former U.S. base in Bien Hoa where chemicals were both stored and dumped, showing dioxin in the blood of patients at many times the acceptable level set by the World Health Organization [Schechter et al, 2001: 435]<sup>xx</sup>

Yet again, a comprehensive study would be useful: a compilation of major Vietnamese research to date, translated into English, including the volumes of surveys and other research conducted by the “National Committee to Investigate the Results of Chemical Warfare in Viet Nam” (known as the 10-80 Committee), as well as other research that has focused on reproductive issues and pregnancy outcomes, neural disorders, digestive illnesses, skin diseases, cancers, and immune disorders [Dai: 138-154]. Such a translation must be done meticulously, with a goal of contributing to knowledge and clearing up misunderstanding, to prevent the distrust and disrespect that occur when words are used in a highly charged context in slightly different ways without recognition of their shifting nuances.

At the public health level, doctors at the Vietnamese Committee for Protection and Care of Children (CPCC) and the Red Cross have several answers in response to questions about why they think certain diseases may be linked to Agent Orange. The head of a provincial branch of the CPCC spoke of starting to suspect Agent Orange when he and a doctor from the Red Cross were looking for common factors in a certain clustering of unusual birth defects found in his province; they noticed that these children had at least one parent who had fought in sprayed areas in the south (Pham). A doctor working for the Agent Orange Victims Fund of the Vietnamese Red Cross gave as suggestive evidence the experiences of men who fathered children with birth defects with one wife, and then divorced that wife and remarried, only to again father children with

birth defects; he also spoke of men who fathered healthy children before they went to war, whose children born after the war suffered a variety of conditions. In addition, he pointed to the unusual distribution of the children born with these birth defects: normally, he explained, only one child in a family suffers birth defects, but in these cases, many children—sometimes all—were affected.

Recent international research seems to support some of the observations made earlier by Vietnamese scientists.<sup>xxi</sup> In 1997 the International Agency for Research on Cancer (IARC) designated the form of dioxin found in Agent Orange (2,3,7,8-tetrachlorodibenzo-p-dioxin, known as TCDD) as a known human carcinogen, as did the U.S. Public Health Service's National Toxicology Program in 1999, and the U.S. Environmental Protection Agency (EPA) in its 3000+ page report, released in 2000 after 10 years of work. At the conference on "The Ecological and Health Effects of the Vietnam War," held at Yale University in September 2002, the director of the experimental toxicology division of the EPA named the following as findings of dioxin's effects on humans: "cardiovascular disease, diabetes, cancer, porphyria, endometriosis, decreased testosterone, chloracne," along with developmental effects on the "thyroid status, immune status, neurobehavior, cognition, dentition, [and an] altered sex ratio" [Birnbaum].

Today ongoing scientific debates are carried on in terms that include: the possibility of developing valid exposure assessments; dioxin levels in soil, human tissue (fat tissue, blood, and breast milk), and animal tissue samples;<sup>xxii</sup> the possibility of male-mediated birth defects that occur years after exposure [Erickson; Young 304]; the possibility for valid epidemiological study given the passage of time and the absence of



baseline data; whether TCDD is an initiator or promoter of damage, or a complete carcinogen; whether there is a threshold level (the shape of the dose-response curve); and the what should be the role of scientific uncertainty in regulatory policy ('proof of harm', 'acceptable risk', or 'precautionary principle') [Webster and Commoner, in Schecter: 15-16].

Though the research on Agent Orange and its contaminant dioxin is ongoing, the work that has been done is suggestive enough, and the political pressures have been strong enough,<sup>xxiii</sup> that the U.S., Australian, New Zealand, South Korean, and Vietnamese governments have all established plans to compensate veterans who were exposed to the chemical. For the purposes of this paper it is important to recognize, however, that this is a topic that takes us to the limits of what is currently known by science. Such recognition can help us raise questions that may lead to a better understanding of appropriate roles for science: both what it can do, and what it cannot. Recognizing that a consideration of Agent Orange exceeds the discipline of science opens the possibility of investigating the chemical as an intersection, a "dense site where history and subjectivity make social life" [Gordon: 8]. In this case: history, technology, and subjectivity.

This section has attempted to provide a brief introduction to some of the ways Agent Orange is spoken of as a subject of political controversy and an object of scientific study. The next section attempts to introduce some ways it is spoken of by people in Viet Nam for whom it has become a way of making sense of the suffering they and their families and communities have experienced.

## AGENT ORANGE AS EXPERIENCE<sup>xxiv</sup>

As a first step towards understanding how people in Viet Nam treat the question of Agent Orange,<sup>xxv</sup> I visited Dr. Nguyen Viet Nhan, a professor in the physiology department of Hue Medical School.<sup>xxvi</sup> Hue, a city of great beauty and great tragedy situated in the center of Viet Nam, was not directly sprayed itself, but lies just south of Quang Tri province, and downstream from the mountains traversed by the Ho Chi Minh Trail—two of the most heavily sprayed regions during the war.

“Before....” Dr. Nhan tells me, “I spent all my time reading and teaching. I didn’t know anything....” We are in his office at Hue Medical School, where he has spent the last several hours patiently explaining his research, a three-site study of the links between Agent Orange and birth defects. Dr. Nhan began the study as his doctoral thesis, working on the hypothesis that Agent Orange would have had an effect on the germ cell, causing mutations, and that the occurrence of disabled children would serve as an indicator. Working with local health workers in three areas (the city of Hue, the mountainous district of A Luoi, and the village of Cam Lo in Quang Tri province), he selected 600 children with disabilities out of an original pool of 10,000 children who were ‘normal and not,’ as he puts it. When we spoke, he had not yet finished analyzing his data.

“It is hard to measure the results,” he tells me. “We don’t have enough modern equipment to evaluate the presence of dioxin in the soil, water, leaves, etc.; we lack specialists in epidemiology; we don’t have enough money to organize a large investigation; and the length of time is a problem. Twenty-five years ago [as I write, it is now 30]—that’s too long to evaluate accurately.”

“But truly,” he continues, “we don’t need to know about the past. The war is behind us. We know a lot about dioxin already. What we need now is knowledge to help these children and their families.”

He concludes our conversation with an invitation. “This morning we have talked a lot,” he says, “but you will never understand anything if you just sit here with me. So this afternoon I plan to take you to visit some of the families.”

That day we paid visits. Three years later, with the help of the Committee for the Protection and Care of Children (CPCC) in Thai Binh, and the following year with the help of the Red Cross in Ha Nam, Thua Thien Hue, and Dong Nai, I conducted the interviews from which the following stories are drawn.<sup>xxvii</sup>

Following Dr. Nhan’s formulation of how we may come to “know something”, this section begins with stories of families the CPCC and the Red Cross have designated as “thought to have been affected by Agent Orange”. One story will be told in detail, to provide some understanding of the context. Fragments of a few other stories will be excerpted.

The first story is from an interview conducted with a family in a northern province of Viet Nam in the spring of 2000, where I was led by Tran Thi Lang, a friend who had worked for many years on malnutrition and maternal health issues. As a native of the province, her sympathy for those who suffered the consequences of Agent Orange there had been aroused both through her personal experience and through a collection of vignettes entitled *Di Hoa Chien Tranh* (The Disastrous Consequences of War) [Minh Chuyen].

### **Interview in a rice-farming village**

When we arrived at Mrs. Ha's home,<sup>xxviii</sup> she was cooking lunch over an open fire in the detached kitchen. They had expected us earlier, but we were late, so the family had gone back to work, thinking our plans had changed. Mrs. Ha's husband, Mr. Binh, had gone to the communal warehouse to get wine to sell in the village, and Mrs. Ha wanted to wait for his return to begin the interview. As we hesitated a moment in the courtyard, family and neighbors began to gather. An old man, giving me a sideways glance, tested my Vietnamese. "What is this in Vietnamese?" he asked. "*Mot ngoi nha*--a house," I answered. He nodded vigorously, and walked up the steps into the new cement house.

It turned out 'house' was indeed a significant word, symbolizing the care given by the extended family. Mrs. Ha's older brother pointed to a mud-walled, thatched-roofed house on a low-lying piece of land across the way. "You see, that house over there was their house. The relatives got together to loan them money to buy this house." It is a loan the relatives know cannot be repaid.<sup>xxix</sup>

"My sister and her husband are far too miserable," the brother continues. "I mean, in a year—in roughly 12 months—they had to go to the hospital 30 times, and each time there is only us to count on." I think of what it would take to get a sick person to the hospital from there: down the village lanes to the dike; a kilometer or so along the top of the dike to the small country road; through neighboring villages to the main provincial road, and then an hour or so by car to the provincial capital. But they would not go by car. Would they go by motorbike? I have only seen bicycles in the village. I think of the children left behind, the house to look after, and the crops to tend.

We went into the house and sat on plastic stools around a low table, where Mrs. Ha's brother poured us cups of tea. While we were waiting, Mrs. Ha spoke of her husband's many illnesses, recalling: "There was a time when the doctors at the hospital in town said 'That's all we can do; let him go home and wait for death. If he craves anything, let him have it.' His stomach was swollen like this, and his skin was completely swollen, and he couldn't go to the bathroom. Neighbors, and then other women, and then organizations gave a bit of rice, a few potatoes, and some kernels of corn, and then I had to beg for each nickel and dime.

"Then I had a dream about going into the forest to get medicine for my husband, so I 'dove through the mud' to get to the forest—all the way to Sa Pa—and there was the medicine to give my husband, folk medicine, and he took it and got better, and did not die."

Lang turned the conversation to strains these illnesses have put on the marriage. "Do you ever get angry or think of leaving?" she asks. "Sometimes I refrain from speaking," Mrs. Ha replies, "and sometimes I argue a sentence or two. Then I reflect, and pity him, and cry, not knowing what to do. He is so thin, his skin is so dark. He is now reaching the time of old age and weakness. His life is like the wind."

She turns to speak to the family and neighbors who fill the house, listening to our interview. "When you are happy, do you think you can stay that way forever? We can't be miserable forever, uncles and aunts, grandfathers—can we? That's right—I have to encourage my husband."

When Mr. Binh comes in, he tells us that in 1972, before the Paris Agreements, he was a special forces soldier in reconnaissance in Tay Ninh, a heavily sprayed region in

the south. Where he was stationed the trees were denuded of leaves; he lived in tunnels, “bare-headed, bare-footed, bare-chested”—“camouflaged by spreading mud on his body”, interjects another man. “We saw 200 liter barrels with yellow stripes,” Mr. Binh tells me, “they had three yellow stripes. We had only been through high school, so we could only read the word ‘Dio xin’, or ‘zio xin’, or something like that. At that time, we thought whoever died, died at once, and whoever lived, lived whole”.<sup>xxx</sup> Mr. Binh came home with many diseases: diseases of the skin, of the nervous system, of the circulatory system, of the digestive system.

“The very regrettable after-effects of that war you see in the first fetus my wife gave birth to,” he tells us. “My wife, right here. It was like a monster, a monster in a fairy tale. You know, it didn’t have a human shape. And a few minutes after it was born, it died. Very, very hard. And my very own wife has many illnesses, most of them women’s illnesses. Women also bear the consequences of this war.”

The couple’s second child was slow witted. He “doesn’t know anything”, they explain; he just turns from side to side. Their third child, a daughter, was born epileptic and blind, with no pupils. Their fourth child was 16 at the time of the interview, and enrolled in school.

After her daughter was born, Mrs. Ha said to herself, “Enough!” She didn’t know if it was because of the war or because of fate, she says, but she went to be sterilized. The procedure, which involved inserting medicine into the fallopian tubes, led to many complications, much loss of blood, and repeated operations. As we spoke she was in pain, with one half of her stomach swollen.

“I only believe in science,” she explains. “As for the traditional village healer, I don’t dare believe, because my child’s brain and eye are very very important. Therefore, I totally and completely only believe in science. Science says she can’t be cured. Then we must bear it, helplessly. What can we do? We can’t do a thing.”

“This all started from giving birth to children like this, and voluntarily going to be sterilized. Then I was unlucky and the consequence of sterilization was much illness. That made us spend a lot of money, money that a poor family doesn’t have... very hard, very desperate. But it’s all for my husband, all for my children, so I try to overcome the difficulties. Such a hard situation, but I still have to look after my husband, after my children. I know that my life is deeply entwined with his. I link my whole life with my husband and with my children, to ‘carry the rivers and the mountains’ to my last breath, and only because of war.”

Mrs. Ha’s brother says he wants to ask me just one more question. “In your country,” he begins, “are there children like this?” He gestures around the room. I do not understand his implication, and cannot answer. “Children this strong, this tall, this big—or smaller?” One of the women sitting on the bed laughs and says “I’ve seen on T.V.—they are big. Vietnamese are the smallest.” Mrs. Ha’s brother continues: “Our life here should be like that of our international friends. But because the war lasted far too long—all our lives—we lost the chance to study, because at 18 we left school and took up the gun. When the enemy was gone, we came back... back to feed our children, but there was not enough, so they are sickly and puny like this. You see?”

“These are the consequences of war,” Mr. Binh explains. “What he is saying is that the consequences of war are very great....”

Earlier Mrs. Ha has thanked me, and the American government, for paying attention to them and trying to help. When Mr. Binh again thanks me as a representative of the American government, I explain that I do not represent the government, that I do not know if the government will help, but that I believe ordinary people will. Mrs. Ha's brother replies, "Because everything comes from the people, doesn't it?" When he sees I am again not fully following his meaning, he explains: "Because if the people have sincere hearts and make demands on their government, most governments must execute those policies, because the government is for the people, isn't it?"

Mr. Binh has a request: "I want to ask you to say this to the American people. An unavoidable war broke out between our two countries. In reality, nobody wanted it. Now both sides understand each other, and the two countries are friends, and trade business. Close the past and open the future. The two countries circulate goods. They've exchanged ambassadors already. But what happened before—that is, the consequences of the bombs and bullets, and of the chemicals, outrages the Vietnamese people. Yes, because the result is not to kill a person at once, but the result waits for the children, and for the grandchildren.

"So I really hope the American people, together with the Vietnamese people, will demand that the American government not produce those chemicals any longer. Don't take them to make war with any other country. What is banned by international law should not be used. So stop using them. Yes... not just I myself in particular, or just the Vietnamese people in particular, but the whole world in general opposes these chemicals."



After saying good-bye to the family, we walk back along the dike. A stony silence I dare not break separates me from my friend. In the car, the man I take to be from security softly marvels, “That place was truly ‘far away and remote’.”<sup>xxxii</sup>

A year later, when I come across Gordon’s words, the image of this family comes to mind. She writes: “...those who live in the most dire circumstances possess a complex and oftentimes contradictory humanity and subjectivity that is never adequately glimpsed by viewing them as victims or, on the other hand, as superhuman agents.” [4]

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The stories told by Mrs. Ha and Mr. Binh are not meant as representative, but as samples. As a colleague from the local Red Cross in another province observed, with a shake of his head and a sigh at the end of our eleventh interview there: “Every family—its own set of circumstances.”

#### SCIENCE, POLITICS, AND MORAL RESPONSIBILITY

If politics asks these families for patience until the scientific verdict is in, and science asks them for samples of blood, breast milk, and fatty tissue, what do these families ask of science and politics?

“Responsibility,” as one interviewee put it. “The word in Vietnamese is responsibility.”

One question is how these families’ illnesses are related to Agent Orange. To that question, neither the families nor the scientists can reply with absolute certainty. A pharmacist with two severely paralyzed sons put it this way: “I am the only one in my family with this problem, and the only one who was a soldier. I supplied medicines—also insecticides—but friends who worked with me weren’t affected. Professors expert in this

field must research more—I can only say this much. Quite a few friends in my same unit also have similar problems—continual miscarriages, for example.”

Like many of the people I spoke with, the pharmacist muses about the link between fate and Agent Orange as he searches to make sense of his life. “That is my situation,” he says. “I see the fate of the Vietnamese people. Why is my fate so unjust, so severe? When I review my own life, I see that there are no faults worth mentioning—from childhood to now, I’ve generally lived compassionately with my friends, behaved carefully and properly, kindly...didn’t fight, or play rough. I was naughty, but I never fought anyone. When I went into the army I was lucky—I didn’t have to carry a gun to fight anyone directly. My duty was to take care of the medical supplies for the soldiers.”

Other people spoke of making offerings, praying, and visiting fortune-tellers, physiognomists, and geomancers, looking in vain for an explanation. “I was told there was nothing wrong with the graves,”<sup>xxxii</sup> said a woman who had fought in the south, “and nothing wrong with the way my family lived. Our parents on both sides were very gentle, good people...three generations were landless laborers, five generations were revolutionaries.” What she would like, she said, is recognition, official recognition that she and her family had made a contribution to the nation, so that people would know that their suffering was not because they were bad people. As an afterthought she added that 100,000 (\$7) would be useful.

These families ask questions about morality, questions of meaning, and questions of ultimate significance, questions science and politics cannot answer. Taken together with critiques raised by medical anthropology, various environmental sciences, and science and technology studies, these questions draw attention to the ways, as Keyes puts

it, “modern societies organized around secular institutions, science, and rationalized action have not only failed to provide people with adequate means to address [...] suffering, but [...] have also generated new forms of social suffering.”

Looking at ‘Agent Orange’ as both an artifact of the chemical age and as a marker of social suffering expands the conversation to include the multiple layers of meaning distilled into the term, enabling us to take its moral dimensions seriously, and to ask accountability of the social, economic, and political forces that led to the creation and war-time use of chemicals. Such a treatment brings together questions that have been “sealed off into incommensurable problems,” to use Latour’s phrasing, “.....questions that cannot be solved separately but rather must be tackled all at once.” [310] These questions entail a careful look not only at the relationships between knowledge, politics, economics, and ethics, but also at where we have come as a nation, at whether we intend to be here, and at how we might redirect our energies towards creating a world that is safer and healthier for us all.

“We know we sprayed Agent Orange,” mused a toxicologist at a preparatory meeting for the first official talks between U.S. and Vietnamese scientists. “We know Agent Orange contains dioxin,” he continued, “and we know a lot about the effects of dioxin already. What is it that we need to know?”

How do we know when we know enough? And in the meantime, in the midst of our uncertainty, how do we respond to human suffering? The question, then, is only partly who these families are in relation to Agent Orange. Equally important are questions of who we are in relation to our own humanity, and of how we may dispel the ghosts of our past that still haunt our relations with the world.

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i “Can the subaltern speak?” post-colonial critic Gayatri Spivak queries in a widely-quoted article by that name (1988). “The subaltern is always speaking,” Indonesian scholar Laurie Sears replies in *Shadows of Empire* (1996). “The problem for post-colonial intellectuals—whether they have inherited the subject position of the colonizer or the colonized—is how to listen when the subaltern speaks.” This paper is intended as an attempt to listen. Underlying its approach are theoretical matters currently debated in languages particular to the social sciences: problematizations and deconstructions of the uses and languages of power, along with attention to social constructions of reality, to the power of discourse, to agency, and to engagement with issues of local and global, of bodies and nations. But since the goal of my work is to broaden discussion, not restrict it, I here heed the call from Edward Said’s first address as head of the MLA, to avoid the elitism of terms with special meanings and speak in a common language, acknowledging as I do so the limitations of a seeming transparency. (For discussion, see, among others, Abu Lughod, Trinh, Patai, Visweswaran.)

ii The term is a paraphrase of Paul Ricoeur, who writes of a “surplus” of meaning.

ii The conference drew 280 scientists from Viet Nam, and 120 from the U.S., Australia, Canada, the U.K., France, Germany, Italy, Japan, the Republic of Korea, Laos, New Zealand, the Netherlands, Norway, Russia, Singapore, Switzerland, Sweden, and Taiwan. Roughly 100 studies were presented. The conference was jointly coordinated by the U.S. National Institute of Environmental Health Studies and the Vietnamese Ministry of Science, Technology, and the Environment. The first officially recognized joint research between the U.S. and Vietnam, soil sampling near Da Nang, was begun.

iii See Gordon, who speaks of the need to “follow the ghosts and spells of power” in order to understand social life, “in order to tame [the] sorcerer and conjure otherwise” [7, 28].

<sup>v</sup> See Kleinman, Das, and Lock, *Social Suffering*, introduction and *passim*.

<sup>vi</sup> For a history of the development of the use of herbicides in war, and plans to use them in the second world war, see Cecil, Galston, Neilands, Westing. A definitive history tracing the interweavings of politics in science in the development and use of these chemicals has yet to be written.

<sup>vii</sup> Testing of herbicides and defoliants began in 1961 in Vietnam, though their use in warfare did not begin until January, 1962. Agent Orange itself was in use from 1965-1971, accounting for roughly 61% of the 72,740,400 liters of defoliants and herbicides sprayed between 1961 and 1971. The US stopped its own use of defoliants and herbicides in 1971; in 1972 it took the remaining barrels of Agent Orange to be stored on Johnston Island in the Pacific, where they were destroyed in 1977. However, the US continued to supply other chemicals to the Saigon regime until the end of the war in 1975 (Young: 13; Dai: 22).

vii Based on statistics from a 1974 National Academy of Science review of a herbicide applications log kept by the US Military Assistance Command, Vietnam, and on a 1985 review of Viet Nam era records by a joint group of military records specialists (Young: 13).

<sup>ix</sup> For a history of the evolution of this Air Force unit, see Cecil. The motto of the group was “Only You Can Prevent Forests”; the radio call signal was first “Cowboy”, and then, “Hades”.

<sup>x</sup> The head of the Japan Science Council, Yoichi Fukushima, set the figure at half the arable land (Committee of Concerned Asian Scholars: 113).

x See, notably, the work of Dr. Jeanne Stellman, Professor of Clinical Public Health at Columbia University.

<sup>xii</sup> See Young, Nielands, Cecil, and Westing for the beginnings of fuller sketches.

<sup>xiii</sup> Accounts vary.

<sup>xiv</sup> Lewy: 257-8. See Cecil (155) for reference to Kennedy’s desire to experiment with the counterinsurgency potential of the chemicals. While Dai speaks of the use of herbicides as a matter of U.S. initiative with South Vietnamese (Ngo Dinh Diem) assistance (12), Lewy says the American Military Assistance Advisory Group (MAAG) brought the proposal for herbicide use to Washington from the South Vietnamese (257), and Buckingham writes that Ngo Dinh Diem asked the U.S. to conduct the spraying (iii).

<sup>xv</sup> US Department of the Air Force, cited by Lewy: 259.

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<sup>xvi</sup> Two of the first scientists to rally other scientists to research were the internationally recognized liver specialist, Ton That Tung, of Vietnam, and Harvard professor Matthew Messelson, who was head of the Herbicide Assessment Commission of the American Academy for the Advancement of Science.

<sup>xvii</sup> While pointing out that subtracting the figures for Saigon, which was less affected by the spraying, the Army figures showed an increase in all three defects in the rest of the country, though it would be ‘totally incorrect’, they said, to take this as proof of the effect of herbicides, since other factors might also be responsible. In heavily sprayed Tay Ninh province, the AAAS study, based on more complete hospital records than those used by the Army, also found evidence of a stillbirth rate more than double that for the country as a whole. The Saigon Children’s Hospital showed a ‘disproportionate increase’ in pure cleft palates and spina bifida for the years 1967-68. Again, the team stressed that the affects could not safely be attributed to herbicides, and called for further study (Neilands 282).

<sup>xviii</sup> Lewy relates that the study was ‘accidentally found’; Uhl claims it was leaked to Nader’s Raiders by a source at the Food and Drug Administration (146). Regianni, observing merely that the results ‘became known’, sets the date the study became public knowledge as the birth date of Agent Orange as a matter of public concern, noting that later analysis revealed that the cause of the toxicity was a contaminant, not 2,4,5-T itself (Young 33-34).

<sup>xix</sup> The four listed as having sufficient evidence are Hodgkins disease, non-Hodgkins lymphoma, soft tissue sarcomas, and chloracne. The six listed with limited evidence are respiratory cancers (lung, larynx, trachea, bronchial), prostate cancer, multiple myeloma, peripheral neuropathy, porphyria cutanea tarda, and spina bifida.

<sup>xviii</sup> Nineteen of the 20 blood samples taken in 1999 from this heavily exposed southern city showed elevated levels of TCDD dioxin (a marker for Agent Orange and other dioxin-contaminated herbicides), compared both to samples taken from the unsprayed north, and to World Health Organization standards for acceptable body burden (10 parts per trillion). The average in the north was 2.2 parts per trillion (ppt), while the samples in the south ranged up to 271 ppt, with 13 of the samples higher than 55 ppt, and five of the samples over 100 ppt.

<sup>xxi</sup> A comparative study of the development of U.S. and Vietnamese scientific knowledge on this issue should yield insights both for the study of science and for the study of cultures.

<sup>xxii</sup> See the work of the Canadian Hatfield group in general, and in particular, Dwernychuk. See also the work of Schecter, Dai, Constable, et al.

<sup>xxiii</sup> See Westing, Schecter, Cecil, Young and Reggiani, among others.

<sup>xxiv</sup> See Arthur Kleinman, *The Illness Narratives*.

<sup>xxv</sup> The question had been drawn to my attention by a whack on my shoulder from a shopkeeper in Hue. “Why hasn’t your government done anything to help those people it hurt during the war?” she demanded. She was thinking especially about the people in surrounding villages “suffering from Agent Orange”, she said. It was 1997. I was in my seventh year of half-time living in Viet Nam, where I worked as a teacher and journalist; that year I was leading a small study-abroad pilot project, and writing occasional features for *Viet Nam News*.

<sup>xxiv</sup> By 2001, he was dean of the department, and head of a center he had created, the “Office of Genetic Counseling and Disabled Children.”

<sup>xxv</sup> In 2000 and 2001, I conducted 38 open-ended interviews in a dozen villages and three towns in the north, center, and south of Viet Nam. The people interviewed came from many parts of the political spectrum: some fought for the revolution; some joined the Advanced Youth Brigades; some were wives or children of soldiers who fought for the Saigon regime; some cleared land in New Economic Zones; and some helped rebuild homes in towns and villages that were razed and abandoned for years during the war. Thirty-one now live in villages, and the other seven in provincial capitals.

Thirty of the interviews were made possible by the Vietnamese and International Red Cross organizations, during preparations for a program to assist those the agency awkwardly but accurately labels ‘the disabled poor, including those thought to be affected by Agent Orange’. The first eight interviews were conducted thanks to the help of the Committee for Protection and Care of Children (CPCC), in a northern province a few hours drive from Hanoi.

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Interviews included five open-ended topics, developed together with the CPCC and Red Cross over the course of the initial interviews: description of a family's current health and economic situation; exposure of a family member to chemicals during the war; help they have received; help that they would find useful; and comments they would like to have transmitted to a larger audience, including Americans. This last question grew out of a question posed by a Japanese visitor on yet another visit organized by the Vietnamese Red Cross. The man was a member of a citizens' delegation from Sapporo, investigating damage caused by the Japanese occupation during WWII, and by Japan's support for America during the Viet Nam war. At a home for disabled veterans he asked a man who had lost both legs, "Is there anything you would like to ask America?" On a subsequent visit, the question was picked up by a representative of the Red Cross who had been present. It became a standard question, which was sometimes greeted with a sad shake of the head, or a gentle dismissal: "Oh, that was a long time ago..."; other times, it opened the doors to deep feeling. The length of our discussions depended on my reading of the family's eagerness to talk, and on time constraints.

I was at first hesitant to do the work, not wanting to stir up painful memories or raise false hopes. The Vietnamese doctors and social workers I met told me most people would be eager to talk longer than we had time to listen. It turned out they were right: over and again I was thanked for my visits, and told, when I apologized for having only small gifts to share, that the recognition and attention I gave were 'precious delicacies for the spirit.' I came to think of my hesitation as misplaced, or even a tool that helped keep in place the distances between our worlds, helping to mask uncomfortable imbalances of power and privilege. The families lived with their situations every day; they were not forgetting. They were for the most part articulate, and grateful to be heard.

xxvi For that morning, 'we' were my friend, a representative of the CPCC, a man I took to be from public security, and myself. The names used are pseudonyms, following American academic convention. However, a writer friend in Viet Nam tells me it is more honest, and more respectful, to use the real name, especially since the stories were being told in a setting where many others observed and participated in the interviews, and since the families I have quoted asked that their words be conveyed.

xxvii The communities which have supported these families for decades are themselves struggling with the consequences of war, whether that be residual chemicals, bomb craters, unexploded ordnance and mines, or several of these at once, and more—to speak only of damage to the land. In Ha Nam, the provincial capital had been completely razed by bombing except for the skeleton of a church, a Red Cross doctor told me. In Thua Thien Hue, the village I visited had been a no man's land for four or five years; returning villagers were charged with filling in the bomb craters on their own land. How did they even know what land was theirs, I asked. The river was still there, I was told, and the stubble of clumps of bamboo, or sometimes the roots of trees. A grandfather spoke of returning from a 'strategic hamlet' to find his shelter full of the bones of people he did not know. Large parts of Dong Nai were laid waste by defoliants, or contaminated by chemical runoff from the base; villagers moved from place to place "in circles", as a doctor from the Red Cross put it, looking for shelter from the bombs.

xxx While this is not an exact description of a barrel of the dioxin-contaminated mix of 2,4,-D and 2,4,5-T that was, strictly speaking, code named Agent Orange, barrels of a variety of chemicals are still being uncovered today, and causing deaths. It is unlikely, however, that the barrel mentioned dioxin. Could it be a mis-reading of the English "Do not....", or perhaps "Danger"?

xxix 'Vung xa vung sau,' an expression much in use at the time to indicate pockets of poverty in the distant hinterlands.

xxxii It is commonly held that trouble may be caused by neglect of the ancestors' graves.

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## References

- Abu-Lughod, Lila. 1991. "Writing Against Culture." in Richard G. Fox, ed. *Recapturing Anthropology*. Santa Fe: School of American Research Press.
- Associated Press. Nov. 1, 1998. "Agent Orange reports withheld, altered, paper says". Report on six-month study by San Diego Union-Tribune.
- Asad, Talal. 1986. "The Concept of Cultural Translation in British Social Anthropology" in James Clifford and George E Marcus, *Writing Culture*. University of California Press.
- Birnbaum, Linda S. 2002. "Health and Environmental Effects of Dioxins." Paper prepared for presentation to the *Yale Vietnam Conference 2002: The Ecological and Health Effects of the Vietnam War*. New Haven, Ct. September 13-15.
- Bourdieu, Pierre. 1990. "Structures, *Habitus*, Practices" in *The Logic of Practice*. Stanford University Press.
- Brunnstrom, David. March 4, 2002. "Vets say Vietnam dioxin victims should be helped". Reuters.
- \_\_\_\_\_. March 6, 2002. "Vietnam insists on Agent Orange damage repair plan". Reuters.
- \_\_\_\_\_. March 9, 2002. "U.S., Hanoi don't finalize dioxin plan, to talk more". Reuters.
- Buckingham, William A. Jr. 1982. *Operation Ranch Hand: The Air Force and Herbicides in Southeast Asia 1961-1971*. Washington, D.C.: Office of Air Force History, United States Air Force.
- Burkett, B.G. and Glenna Whitely. 1998. *Stolen Valor: How the Vietnam Generation was Robbed of its Heroes and Its History*. Dallas: Verity Press.
- Casper, Monica. 2002. "Chemical Weapons: Incineration Island." *Bulletin of Atomic Scientists*. 58 (2). March/April. pp 17-19.
- Cecil, Paul Frederick. 1986. *Herbicide Warfare: the Ranch Hand Project in Viet Nam*. New York, London, Westport (Connecticut): Praeger.
- Committee for Concerned Asian Scholars. 1970. *The Indochina Story: A Fully Documented Account*. Pantheon.
- Constable, John. 2002. Personal communication at the Stockholm Conference on the

---

Long-Term Environmental Consequences of War.

- Dwernychuk, Wayne, Hoang Dinh Cau, et al. 2002. "Dioxin reservoirs in southern Viet Nam—A Legacy of Agent Orange". *Chemosphere* 47. 117-137.
- Erickson, J. David et al. 1984. *Vietnam Veterans' Risks for Fathering Children with Birth Defects*. Atlanta: U.S. Dept. of Health and Human Services (The Center for Environmental Health).
- Farmer, Paul. 1997. "On Suffering and Structural Violence: A View from Below." in Kleinman *et al. Social Suffering*. University of California Press.
- Florida, Nancy. 1995. *Writing the Past, Inscribing the Future: History as Prophecy in Colonial Java*. Durham and London: Duke University Press.
- Foucault, Michel. 1970. "The Order of Discourse" Inaugural lecture at the *College de France*.
- Franklin, Jon. September 10, 2000. E-mail.
- Galston, Arthur W. 1972. "Science and Social Responsibility: A Case History." *Annals of the New York Academy of Sciences*. Vol 196, Article 4, p 223-235. June 7.
- Gordon, Avery F. 1997. *Ghostly Matters: Haunting and the Sociological Imagination*. Minneapolis and London: University of Minnesota Press.
- Harnly, Caroline D. 1988. *Agent Orange and Vietnam: An Annotated Bibliography*. Metuchen NJ and London: Scarecrow Press.
- Hatfield Group website: [www.hatfieldgroup.com](http://www.hatfieldgroup.com)
- Huu Ngoc. March 4, 2002. "The First Modern Scientist of Viet Nam" *Viet Nam News*.
- Institute of Medicine. 1999. *Veterans and Agent Orange: Update 1998*. Washington, D.C.: National Academy Press.
- Jamieson, Neal. 1993. *Understanding Viet Nam*. University of California Press.
- Keyes, Charles F. 2002. Abstract for "Abortions, Agent Orange, and AIDS: Social Suffering in Vietnam and Thailand." Panel presentation at annual conference for the Association of Asian Studies, Washington, D.C.
- Kleinman, Arthur. 1988. *The Illness Narratives*. Basic Books.
- \_\_\_\_\_, Veena Das and Margaret Lock. 1997. *Social Suffering*. University of California Press.



- 
- Latour, Bruno. 1999. *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, Ma., and London: Harvard University Press.
- Le Cao Dai. 2000. *Agent Orange in the Viet Nam War, History and Consequences*. Hanoi: Vietnam Red Cross Society.
- \_\_\_\_\_. 2000, 2001. personal communication.
- Lewy, Guenter. 1978. *America in Vietnam*. New York: Oxford University Press.
- MacPherson, Myra. 1984. *Long Time Passing: Vietnam and the Haunted Generation*. New York: Doubleday.
- Marr, David. 1981. *Vietnamese Tradition on Trial, 1920-1945*. University of California Press.
- \_\_\_\_\_. 1987. "Vietnamese Attitudes Regarding Illness and Healing," in Norman G. Owen, *Death and Disease in Southeast Asia*. Singapore: Oxford University Press. (Asian Studies Association of Australia)
- Minh Chuyen. 1997. *Di Hoa Chien Tranh*. Hanoi: *Nha Xuat Ban Van Hoc*.
- Morris, David B. 1997. "About Suffering: Voice, Genre, and Moral Community." in Kleinman *et al*, *Social Suffering*. University of California Press.
- Neilands, J.B., Gordon H. Orians, E.W. Pfeiffer, Alje Vennema, Arthur H. Westing. 1972. *Harvest of Death: Chemical Warfare in Vietnam and Cambodia*. New York: The Free Press; London: Collier-Macmillan Limited.
- Orians, G.H., and Pfeiffer, E.W. 1970. "Ecological Effects of the War in Vietnam." *Science*, Washington, 168:544-554.
- Pham Minh Tam, Director of the Committee for the Protection and Care of Children for Thai Binh Province. 2000. Interview.
- Schechter, Arnold, ed. 1994. *Dioxins and Health*. New York and London: Plenum Press.
- \_\_\_\_\_, with Le Cao Dai, Olaf Papke, Joelle Prange, John D. Constable, Muneaki Matsuda, Vu Duc Thao, and Amanda Piskac. 2001. "Recent Dioxin Contamination From Agent Orange in Residents of a Southern Vietnam City." *Journal of Occupational Environmental Medicine*, vol. 43 no. 5:435-443. May 2001.
- Sears, Laurie J. 1996. *Shadows of Empire*. Durham and London: Duke University Press.
- Shuck, Peter H. 1986. *Agent Orange on Trial*. Belknap Press (a division of Harvard University Press).

- 
- Spivak, Gayatri Chakravorty. 1988. "Can the Subaltern Speak?" in Cary Nelson and Lawrence Grossberg, eds. *Marxism and the Interpretation of Culture*. University of Illinois Press.
- Smoger, Gerson. 2002. Presentation at the "Yale Vietnam Conference 2002: The Ecological and Health Effects of the Vietnam War." New Haven, Ct. September 13-15.
- Stellman, Dr. Jeanne, Professor of Clinical Public Health, Columbia University. 2000. Presentation to the "Ad Hoc Panel Convened to Assist the NIEHS with Developing a Preliminary Research Strategy Relating to Health and Environmental Aspects of Exposure to Dioxin and Related Compounds in Vietnam". Monterey, California. August 18<sup>th</sup>.  
Presentation at the "Yale Vietnam Conference 2002: The Ecological and Health Effects of the Vietnam War." New Haven, Ct. September 13-15.
- Stewart, Kathleen. 1996. *A Space on the Side of the Road: Cultural Poetics in an 'Other' America*. Princeton: Princeton University Press.
- Sutton, Paul L. 2002. "The History of Agent Orange Use in Vietnam—An Historical Overview from the Veteran's Perspective". Prepared for the United States-Vietnam Scientific Conference on Human Health and Environmental Effects of Agent Orange/Dioxins. Hanoi, March 2002.
- Tran, Tini. March 3, 2002. "Unprecedented Agent Orange conference tackles 'ghost' of Vietnam War". Associated Press.
- Tran Van Thuy. 1980's. *Chuyen Tu Te (The Story of Kindness, or Decency, or How to Behave)* Hanoi: *Trung Tam Phim Tai Lieu va Khoa Hoc*.
- Trinh T. Minh Ha. 1989. *Woman, Native, Other: Writing Postcoloniality and Feminism*. Bloomington: Indiana University Press.
- Uhl, Michael, and Ensign, Tod. 1980. *GI Guinea Pigs*. Playboy Press.
- Vietnam News Agency. 1998. *Vietnam Courier*: Oct 4-10, 18-24; Nov 22-28, 29-Dec 5; Dec 6-12.
- Visweswaran, Kamala. 1944. *Fictions of Feminist Ethnography*. Minneapolis: University of Minnesota Press.
- Vo Quy. 1992. "The Wounds of War: Viet Nam struggles to erase the scars of 30 violent years." *Ceres (the FAO Review)*. 24:13-16. (March/April).

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Webster, Thomas, and Barry Commoner. 1994. "Overview", in *Dioxins and Health*, Arnold Schecter, ed. New York and London: Plenum Press.

Westing, Arthur H., ed. 1984. *Herbicides in War: the Long-term Ecological and Human Consequences*. London and Philadelphia: Taylor & Francis. (Stockholm International Peace Research Institute).

Young, A.L. and G.M. Reggiani. 1988. *Agent Orange and its associated dioxin: assessment of a controversy*. Amsterdam, New York, Oxford: Elsevier.

(in *Chemical Politics and the Hazards of Modern Life*, Monica J. Casper, ed. New York and London: Routledge. 2003.)

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