

JAN 20 1971

16/1/71 NYC  
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Dear Dr. Meselson,

I have followed the press reports on the AAAS convention. I was happy to see that you were able to make progress in defining scientifically what some of the results of defoliation are. I was sorry to read that you were not able to confirm the ill effects of defoliation on the human population. I would appreciate copies of your reports and data for some of my own personal use. I am also trying to get copies of the reports and data presented at an international meeting of scientists which were meeting to study the effects of chemical warfare ( Paris, sometime in Dec. I believe), if you have access to these reports I would appreciate copies.

During Dec. I was privileged to travel to both South and North Vietnam. While in the South I was able to travel to central Vietnam where floods late last year killed hundreds of people and left thousands homeless. When in the area I spoke to refugaes and discovered that they are still using heavy defoliation in the mountain regions of central Vietnam. I was told that the floods were caused by the complete distruction of the folage and undergrowth in the highlands. I would be interested in knowing if you knew anything about the large floods and if you traveled by air over any of the mountain areas of cental Vietnam.

Enclosed are copies of pictures which I took personally of three children who were presented to our group as having been deformed because their mothers were exposed to defoliantis during early pregnancy. Also there are pictures of blood slides with chromosomes of two of the children pictured and charts of chromosome damage of various categories of people. These blood slides and charts pictures were taken from slides projected on a screen so they may not be as clear as desired, but I hope they are helpful. Also enclosed are notes which I took from the lecture which was given by Dr. Huyen at the time which we met the mothers and children. I think most of the material is selfexplanitory, but if there are questions feel free to write or call. I understand that you will be delivering an address at Columbia sometime in Feb. , perhaps we can get together then.

Sincerely,

*Douglas Hostetter*  
Douglas Hostetter

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Notes of presentation by Dr. Nguyen Xuan Huyen of the Benh Vien Hanoi Hospital, section devoted to southerners, 14 Dec., 1970.

Dr. Huyen treats South Vietnamese who come north, and he studies the toxic effects of chemicals on them.

Presentation arranged by the War Crimes Committee.

The U.S. has used herbicides in South Vietnam since 1961. Of the compounds used, 2,4,5-T has had especially bad effects on human beings in affected areas. In our hospital we have 903 patients from the south. 179 of these show effects of chemicals. Of these, 90 are men, 19 women, and 70 children. They have lived in affected zones for periods of from two months to five years, and some have been sprayed directly.

Defoliants are used at very high concentrations. Most often used is 2,4,5-T; next is 2-4-D. According to Jackie Verrett (check Senate Record, 91st Congress, 1970, "Effects of 2,4,5-T on Man and Environment," p. 104) 40 million lbs. have been spread over 5 million acres in 9 years. Some areas defoliated daily. Many of our victims have been hit several times within a month.

Report by Miller and Ferg: chemical spray in dosages from 0.025 lbs./acre to 8 lbs/acre will remain in soil 4 to 5 months. Water in wells and springs is poisoned.

In defoliated areas roots of trees decay, and cattle become ill.

First symptoms appear in 24 hours to a few days. These are irritation of the eyes and nose. After a time there is disturbance of the digestive system: vomiting and diarrhea. Those hit directly also have irritation of the skin and later swelling.

In addition to these symptoms, other symptoms appear later, some, perhaps, as complications of early effects, and some as direct but chronic effects. The most important of these are malaise and asthenia (general weakness). Treatment involves 5 - 6 months in bed. At first we couldn't diagnose the illness. Later we discovered changes in the chromosomes. Dow Chemical have said that they had to close a factory in Michigan because workers there suffered the same kind of weakness. R. F. H. (R.F.A.?) in West Germany had the same problem. Drill and Hiratzka's experiments with 2,4,5-T in dogs produced the same effects on muscles.

Another symptom is myopia, weakness on the eyes. Patients can read no more than 3 to 5 minutes. Ocular complications usually result in hyperocuityolesions affecting up to 24.6% of the eye. Experiments on eyes of rabbits produce the same lesions. The asthenia and the ocular complications together result in inability to work.

#### 2,4,5-T and Congenital Abnormalities

Of the 19 women we treated 4 were pregnant. One delivered in S.V.N.; the others in the north. One child was normal. The other three were abnormal. One child was one month premature. All the

mothers had been in defoliated areas at least during the 6th through the 8th weeks of pregnancy (see below). The mothers were all normal, had not taken any medicine during pregnancy, and none had ever been x-rayed. There were no abnormalities in any of their families for 3 generations. One of the abnormal children was a typical trisomie 21, another trisomie 21 plus microcephalia, and the third case had many abnormalities. Trisomie 21 usually occurs in older women, but these ranged in age from 23 to 37. For three of the women it was their first child. For the fourth it was her third.

Child I: Hoang thi Thu Thi, 3 years old. Mother: Le thi Nhu Mai.  
Province: Quang Nam. Village: Phuoc Son.

Mother lived 4 yrs. in defoliated zone but was never directly hit by defoliant spray. She drank water and ate food from the area. Child typical trisomie 21. Eye lids have the wrinkle typical of mongoloid, and there is only one cross line on the palm. When the child laughs, her mouth forms the shape of an inverted V. Feet and hands can both be bent back in the wrong direction, and her heel can easily be made to touch her ear. Child cannot walk or talk except to say "mama." Chromosome change typical of trisomie 21.

Child II: Nguyen thi Th., one year old. Mother: Tran thi Cuc.  
Province: Quang Tri. Village: Trieu Phong.

Mother lived two months in defoliated zone. When 7 weeks pregnant, she was hit directly with defoliation chemicals. She went to the north when 4 months pregnant, and the child was born there. This was her first child.

This child also has only one cross line on the palm. She has a small head and shows symptoms of having no brain (no cerebrum?). The child convulses with the legs crossed and head tilted backwards. The hard pallet is much higher than normal. Lesions in respiratory system. When she breathes, the neck immediately above the chest collapses inward. The child can only eat, defecate, and urinate. Although from the clinical point of view there are few indications of trisomie 21, the chromosomal changes, both in quantity and quality, indicate this condition.

Child III: Hoang thi H., 18 months. Mother: Hoang thi Ly, 38 years.  
Province: Quang Tri. Village: Cam Lo.

Mother had two previous children, 15 and 17 years old, both normal. Mother hit directly with chemical spray when 7 weeks pregnant. Child born in N.V.N.

Child's head is flat behind with prominent forehead. Index finger is flat. Three toes are abnormally long, and left foot has six toes (see picture). Tear ducts run down into nose, causing eyes to be perpetually infected. Child can neither stand nor walk, has very low intelligence, can cry but not talk. Changes in chromosomes.

Percent of abnormalities is rather high.

Bionetics Research Laboratories have confirmed these effects in rats and mice.

Many miscarriages caused by these chemicals in both human beings and animals; after a spraying with 2,4,5-T even oxen and water buffalo miscarry, and hens can't lay.

Molar pregnancies (?)

Levels of 2,4,5-T (Whiteside): If a 40 kilogram woman drinks two liters of water per day from a sprayed area, she would ingest 120 mg. of defoliant, or 3 mg. per kilogram of body weight. At this level she will likely have a deformed child. The claim is that 2,4,5-T is dangerous because of a contaminant, dioxin, which the U.S. claims to have removed. This is untrue. Our research shows that 2,4,5-T causes deformities, and that dioxin increases them. Toxic effects occur at 64 times the exposure level needed to produce deformities (in people? lab animals?).

The pictures of chromosomes are taken from blood slides. The researchers studying the chromosomes did not know the backgrounds of the patients.

Categories:

- I - Control group, North Vietnam.
- II - Control group, South Vietnam.
- III - Patients receiving one or a few exposures to defoliants. These had few symptoms and no after effects.
- IV - Patients from areas of heavy defoliation. These had serious after-effects.
- V - Children born of mothers from defoliated areas. (These are the children described above and in the pictures.)

Additional chromosomes generally in group 21 (trisomie 21). There were also qualitative changes in chromosome structure. In child II, Nguyen thi Th. the two top branches of Chromosome 15 are missing. 50% of the victims have these changes. Bicentric chromosomes, broken or missing arms of chromosomes are also common. Percent of structural change in last three categories is very high. Overall rate of occurrence of structural change in chromosomes of these people is six times higher than in victims of Hiroshima. According to Bloom, the percent of broken chromosomes in Hiroshima victims is 0.055%, whereas the rate for our patients is 3.33%

*E. P. ...*