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THE DIRECTOR OF
CENTRAL INTELLIGENCE

National Intelligence Council

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24 February 1982

25 MAR 1982

MEMORANDUM FOR: Director of Central Intelligence

FROM : Hans Heymann, Jr.
National Intelligence Officer
at Large

SUBJECT : Evidence on Use of Chemical
Agents

The attached paper responds to your request.

Hans

Hans Heymann, Jr.

Attachment

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Evidence of Use of Chemical Agents in Southeast Asia and Afghanistan

Four types of evidence were adduced to arrive at our conclusion that a variety of lethal and non-lethal chemical agents were used in Southeast Asia and Afghanistan:

- Signs and symptoms (medical-toxicological)
- Environmental samples from known attack sites.
- Blood samples from and examinations of victims
- Collateral and special intelligence

1. Signs and Symptoms

Study by medical-toxicological experts of symptoms exhibited by individuals exposed to toxic agents has provided a good indication of the general class of chemical agent used, e.g., the range of clinical manifestations from chemical agents as reported by a US Army investigative team resulted in the determination that nerve agents, irritants such as CS, and a highly toxic hemorrhaging chemical or mixture of chemicals were used in Laos. Other medical-toxicological personnel arrived at the same determination and further indicated that toxins such as the trichothecenes were a probable cause of the lethal hemorrhaging effect seen in Kampuchea as well as Laos. Symptoms reported by the DK in Kampuchea and the Mujahedin in Afghanistan were in many cases similar to those reported by the H'Mong in Laos. In addition, symptoms reported from Afghanistan and Kampuchea indicated that a highly potent, rapid-acting incapacitant "knockout" chemical also was being used. Mujahedin victims and witnesses to chemical attacks reported other unusual symptoms, including a blackening of the skin, severe skin irritation with multiple small blisters and severe itching, severe eye irritations, and difficulty in breathing -- suggesting that phosgene oxime or a similar substance was used.

With respect to "Yellow Rain" specifically, the attached table shows a comparison of effects as reported by victims, observers and medical personnel with medically known effects of tricothecene poisoning.

2. Environmental Samples

Samples have been collected from Southeast Asia since mid-1979 and from Afghanistan since May 1980. To date about 50 individual samples -- of greatly varying types of usefulness for analytical purposes -- have been collected and analyzed for the presence of traditional CW agents, none of which have been detected. On the basis of recommendations by medical and toxicological experts and of findings by the CSL, many of the samples have been analyzed for the trichothecene group of mycotoxins. Four samples, two from Kampuchea and two from Laos, were found to contain high levels of trichothecene toxins. In the most important cases, control samples taken in the immediately adjacent area of the attack were negative.

Comparison of Reported "Yellow Rain" Effects With Known Trichothecene Effects

Yellow Rain Reports*	Effects of Trichothecenes
1. Nausea, vomiting--severe, immediate	1. Nausea, vomiting--severe, immediate
2. "Falling down, world turning"	2. Dizziness
3. "Burning of skin" . . . small blisters	3. Generalized erythema with a burning sensation of skin
4. "Shaking all over, flopping like fish out of water"	4. Ataxia (failure of muscular coordination), occasional tremors and convulsions
5. "Bleeding eyes"	5. Congestion of the sclera (white outer coat of eyeball) and blood in tears
6. "Pounding" chest, rapid heartbeat, weakness	6. Hypotension (abnormally low blood pressure) with secondary rise in heart rate
7. Severe pain in center of chest	7. Angina (substernal chest pain)
8. Sleepiness, "not able to talk"	8. Somnolence, central nervous system symptoms
9. Bleeding gums	9. Stomatitis (inflammation of oral mucous membranes) and ptyalism (excessive salivation)
10. "Can't breathe"	10. Shortness of breath
11. "Skin and body hot with cold"	11. Fever and chills
12. Diarrhea with blood	12. Diarrhea with blood
13. Loss of appetite, inability to eat	13. Anorexia
14. Bleeding into skin and fingernails	14. Thrombocytopenia (decrease in number of platelets, white blood cells involved in clotting of blood) and purpura (skin discoloration caused by hemorrhage into tissues)
15. Drop in white blood cell count	15. Leukopenia and anemia
16. "Rotten esophagus, stomach, intestines; soft spleen and liver"	16. Rapid necrosis of linings of gastro-intestinal tract; lymphoid necrosis in spleen and liver
17. Swelling of all organs	17. Congestion of all organs

* Effects are immediate at levels near to or above a rough estimate of 500 to 1,000 mg total body burden for an adult. Athough inhalation data are pending, the levels are consistent with reported lethal and sublethal doses. Trichothecenes in combination, when directly ingested or inhaled, or in purified form, are more toxic in lower concentrations and the order of signs and symptoms and timing varies.

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We should note that, because of the low persistency of CW agents, sample collections should ideally be made within minutes or hours of an attack. Under the circumstances of Southeast Asia and Afghanistan this has simply not been possible. While numerous samples were collected, few of them held any realistic prospect of yielding positive results. It is fortunate that trichothecenes are sufficiently persistent to allow detection several months after the attack. Regarding Afghanistan, where access is relatively better, a new collection effort is underway to obtain samples in such an accelerated manner.

3. Blood Samples and Direct Medical Examinations

A number of blood samples taken from victims of recent attacks showed results strongly supporting poisoning by trichothecenes. This evidence included the presence of trichothecene metabolite, as well as other changes in blood count and enzyme studies that are entirely consistent. Control samples from non-exposed members of the same population were negative.

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No single piece of evidence of any category taken alone proves our case in any scientific sense. But so far, ~~everyone~~ none exposed to all of the evidence combined has questioned its compelling nature.