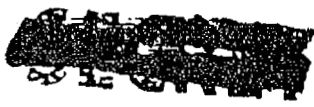


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 SOUTHEAST ASIAN HIGH LEVELS OF MYCOTOXINS FOUND IN VICTIM OF
 CHEMICAL WARFARE ATTACK (U) AN AUTOPSY PERFORMED ON THE VICTIM TENDS TO SUBSTANTIATE
 EARLIER CONCLUSIONS THAT LETHAL TOXINS ARE BEING USED IN
 CHEMICAL ATTACKS IN SOUTHEAST ASIA (U)
 1) SOUTHEAST ASIAN HIGH LEVELS OF MYCOTOXINS FOUND IN VICTIM OF
 CHEMICAL WARFARE ATTACK (U) AN AUTOPSY WAS CONDUCTED BY A WESTERN
 PHYSICIAN TRAINED IN FORENSIC PATHOLOGY ON A VICTIM OF A CHEMICAL
 ATTACK THAT OCCURRED IN FEBRUARY 1982 IN KAMPUCHEA. THE VICTIM DIED
 ONE MONTH AFTER EXPOSURE TO A YELLOW RAIN INCIDENT. THE VICTIM
 AND FOUR DEMOCRATIC KAMPUCHEAN SOLDIERS WHO SURVIVED THE ATTACK HAD
 HIGH LEVELS OF TRICHOPEGNE MYCOTOXINS IN BLOOD AND URINE SAMPLES
 DRAWN TWO WEEKS AFTER THE ATTACK. THE AUTOPSY SPECIMENS INCLUDED
 THE VICTIM'S HEART, ESOPHAGUS, STOMACH, LIVER, KIDNEY, LUNG, AND
 LARGE INTESTINE. THEY WERE SUBMITTED TO SEVERAL US LABORATORIES FOR
 CROSS, MICROSCOPIC, HISTOPATHOLOGICAL, AND CHEMICAL-TOXICOLOGICAL
 ANALYSES. (U)

THE PATHOLOGY FOUND INCLUDED: HEMORRHAGE INTO THE HEART TISSUE WITH
 EVIDENCE OF CELL DESTRUCTION AND INFLAMMATION, CIRRHOSIS OF THE

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 Date 31 AUG 1983

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 LIVER, HEAVY INFLAMMATION AND CELLULAR OBSTRUCTION OF KIDNEY TUBULES,
 EMPHYSEMA IN THE BRONCHI, AND CONGESTION AND DESTRUCTION OF THE
 LUNG.

A TRICHOHECENE TOXIN, T-2, OR ITS METABOLIC PRODUCT, MT-2, WAS
 FOUND IN ALL THE TISSUE SPECIMENS EXCEPT THE LIVER;
 DIACETOXYSCIRPENOL, ANOTHER TRICHOHECENE TOXIN WAS FOUND ONLY IN
 THE KIDNEY TISSUE. AFLATOXINS WERE FOUND IN THE STOMACH, LIVER,
 KIDNEY, AND INTESTINE SAMPLES.

CONTROL SAMPLES WERE NEGATIVE FOR TRICHOHECENE AND AFLATOXIN
 MYCOTOXINS AND THEIR METABOLIC PRODUCTS; EXAMINATION OF PREVIOUS
 YELLOW RAIN RESIDUE FROM A DIFFERENT ATTACK HAD SHOWN HIGH LEVELS OF
 TRICHOHECENES, BUT WAS NEGATIVE FOR AFLATOXINS.

COMMENT:

THE RESULTS OF THE AUTOPSY PROVIDE OBJECTIVE EVIDENCE THAT:

REPORTS FROM WITNESSES OF YELLOW RAIN ATTACKS ARE

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VALID AND THAT BLEEDING, SOMETIMES OCCURS IN THE
 LUNG, STOMACH, INTESTINE, AND KIDNEY OR BLADDER.

--PERSONS WHO ARE ALREADY DEBILITATED, BY MALARIA OR
 LIVER DISEASE FOR EXAMPLE, HAVE A GREATER RISK OF
 DEATH FROM TRICHOHECENE TOXICOSSIS.

--MICROSCOPIC EXAMINATION SHOWS TISSUE DAMAGE OCCURS
 IN HUMANS AFTER HEAVY-TO-MODERATE EXPOSURE TO
 TRICHOHECENES. THE DAMAGE IS SIMILAR TO THAT
 FOUND IN EXPERIMENTAL ANIMALS.

--MICROSCOPIC DAMAGE PERSISTS OVER A PERIOD OF ONE
 MONTH OR LONGER.

--TRICHOHECENES ARE KNOWN TO CAUSE LONG-TERM DAMAGE
 TO RAPIDLY DIVIDING TISSUE. THESE TOXINS
 ACCUMULATE AND PERSIST AT LEAST IN THE ORGANS THAT
 WERE EXAMINED.

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--AFLATOXIN FOUND IN THE TISSUES MAY BE A FOOD-BORNE
 ILLNESS AND IS NOT NECESSARILY A COMPONENT OF THE
 YELLOW RAIN SUBSTANCE. HOWEVER, AFLATOXINS AND
 TRICHOHECENE TOXINS ACT SYNERGISTICALLY.

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IN GENERAL, THE DATA SUPPORT THE EVENTS REPORTED AT THE ATTACK SITE. THE SOLDIERS WERE SURPRISED BUT WELL COVERED BY CLOTHING, WHICH REDUCED THE EFFECTS OF THE ATTACK ON THEIR SKIN. SOME OF THEM WERE INCAPACITATED QUICKLY DUE TO IRRITATION EFFECTS RATHER THAN BLISTERING OF THEIR EXPOSED SKIN, AND THE MOST SERIOUS MEDICAL PROBLEMS WERE FOUND IN PERSONS WHO INGESTED CONTAMINATED MATERIALS. CLINICAL FINDINGS PRIOR TO DEATH INCLUDED BLOOD IN THE VICTIM'S URINE, KIDNEY FAILURE, FEVER, JAUNDICE, NAUSEA, VOMITING, AND PROBLEMS IN THE CENTRAL NERVOUS SYSTEM. CLINICAL FINDINGS ALSO POSSIBLY INCLUDED PALCIPARUM MALARIA. SURVIVORS HAD SIMILAR, BUT MUCH LESS SEVERE, SIGNS AND SYMPTOMS BOTH SHORTLY FOLLOWING THE EXPOSURE TO THE CHEMICAL AND IN THE ENSUING MONTH. (S)

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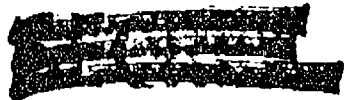
IN THIS INCIDENT, THE CHEMICAL WAS DISSEMINATED FROM A DEVICE TRIGGERED BY A TRIP WIRE THAT HAD BEEN PLACED ALONG THE PATHS LEADING FROM THE BATTLE SITE. THE VICTIM AND SEVERAL OTHERS HAD BECOME INCAPACITATED AND FALLEN INTO A SMALL BODY OF WATER, WHICH ALSO HAD BEEN CONTAMINATED. THE VICTIM REPORTEDLY HAD SWALLOWED A GOOD AMOUNT OF THE WATER, AND WAS THE ONLY DEATH RESULTING FROM THE INCIDENT. (S)

THESE FINDINGS STRONGLY SUPPORT OUR EARLIER CONCLUSIONS BASED ON SUBJECTIVE MEDICAL DATA, PHYSICAL SAMPLE ANALYSES, AND REPORTS FROM SURVIVORS OF CHEMICAL ATTACKS. WE CONTINUE TO BELIEVE THAT OTHER CHEMICALS, INCLUDING OTHER LETHAL ONES, HAVE BEEN USED IN OTHER ATTACKS. WE ALSO BELIEVE THE YELLOW RAIN SUBSTANCE INCLUDES OTHER, AS YET UNIDENTIFIED, MAN-MADE SUBSTANCE POSSIBLY INCLUDING LONG SURFACTANTS, SKIN-BARRIER PENETRANTS, AND INCAPACITANTS. THESE VIEWS ARE SUPPORTED BY LABORATORY DATA FROM TWO OR THREE SAMPLES ONLY. (S)

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RUEANAT/NASA
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