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FOLLOWING IS THE TEXT OF GARY CROCKER'S PAPER AT THE
MAY 21-23 CHEMICAL WARFARE CONGRESS IN GHEENT, BELGIUM.
PLS NOTE THAT CROCKER DID NOT READ OUT WHOLE TEXT, BUT
TEXT WAS CIRCULATED AS HIS PRESENTATION TO CONGRESS.
TITLE: THE EVIDENCE OF CHEMICAL AND TOXIN WEAPONS USE
IN SOUTHEAST ASIA AND AFGHANISTAN
MAY 22, 1984

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BEGIN TEXT:

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- THE UNITED STATES GOVERNMENT OFFICIALLY PRESENTED EVIDENCE ON THE VIETNAMESE AND LAO MILITARY FORCES USE OF LETHAL CHEMICAL AGENTS ON THE HMONG PEOPLE IN DECEMBER 1979 AT HEARINGS BEFORE THE HOUSE FOREIGN AFFAIRS COMMITTEE. INFORMATION ON CHEMICAL ATTACKS IN KAMPUCHEA AND AFGHANISTAN WAS PRESENTED TO THE SAME COMMITTEE IN JULY 1980. THE UNITED NATIONS ESTABLISHED AN INTERNATIONAL INVESTIGATIVE TEAM IN DECEMBER 1980. AN INTENSIVE EFFORT TO COLLECT INFORMATION BY THE UNITED STATES AND OTHER COUNTRIES LED TO THE PUBLICATION OF A REPORT BY SECRETARY OF STATE HAIG IN MARCH 1982 WHICH WAS BASED ON A CLASSIFIED NATIONAL INTELLIGENCE ESTIMATE. THAT REPORT STATED, WITH NO QUALIFICATIONS, THAT CHEMICAL AND TOXIN WEAPONS HAD BEEN USED IN LAOS, KAMPUCHEA AND AFGHANISTAN IN DIRECT VIOLATION OF TWO INTERNATIONAL TREATIES.

- IN NOVEMBER 1982, SECRETARY OF STATE SHULTZ SUBMITTED ANOTHER REPORT TO CONGRESS AND THE UNITED NATIONS, AGAIN BASED ON A NATIONAL INTELLIGENCE ESTIMATE, WHICH PROVIDED FURTHER EVIDENCE. THE UNITED NATIONS ACCEPTED AND RELEASED THE REPORT OF THE INVESTIGATIVE TEAM IN DECEMBER 1982. THE FINAL CONCLUSION WAS "WHILE THE GROUP COULD NOT DISREGARD THE CIRCUMSTANTIAL EVIDENCE SUGGESTIVE OF THE POSSIBLE USE OF SOME SORT OF TOXIC CHEMICAL SUBSTANCE IN SOME INSTANCES". DURING 1983, THE UNITED STATES PROVIDED ADDITIONAL EVIDENCE TO THE UNITED NATIONS, AND MOST RECENTLY, A REPORT WAS SUBMITTED TO THE UN WHICH POINTED OUT THAT

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THERE HAD BEEN NO CONFIRMED REPORTS OF CHEMICAL ATTACKS IN AFGHANISTAN FOR A YEAR AND A HALF. BUT REGRETTABLY REPORTS OF VIETNAMESE USE OF CHEMICAL WEAPONS CONTINUED TO BE RECEIVED FROM LAOS AND KAMPUCHEA.

- THE UNITED STATES GOVERNMENT DID NOT ORIGINATE THE CHARGES OF CHEMICAL WEAPONS USE. VICTIMS FROM ALL THREE COUNTRIES, AS WELL AS MILITARY AND POLITICAL DEFECTORS, TOLD THEIR STORIES TO

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REFUGEE CAMP OFFICIALS, PHYSICIANS, JOURNALISTS AND UN INVESTIGATORS. CANADA CONDUCTED AN INDEPENDENT INVESTIGATION AND PROVIDED SEVERAL DOCUMENTS TO THE UN. THAI OFFICIALS HAVE MADE STATEMENTS BASED ON THEIR OWN INVESTIGATIONS AND OBSERVATIONS, TO INCLUDE ATTACKS ON THAI TERRITORY WHICH DATE BACK TO AT LEAST 1980. OTHER GOVERNMENTS HAVE CONDUCTED INVESTIGATIONS WHICH CONTRIBUTED TO THE US ASSESSMENTS OVER A PERIOD OF SEVERAL YEARS. PRIVATE ORGANIZATIONS, PARTICULARLY IN THE SCIENTIFIC AND MEDICAL FIELDS, HAVE PROVIDED VALUABLE RESEARCH ON SPECIFIC ASPECTS OF THE ANALYTICAL PROBLEM OF DETERMINING WHAT AGENTS HAVE BEEN USED. LASTLY, NEWSPAPERS AND PERIODICALS FROM ALL OVER THE WORLD HAVE BEEN CARRYING STORIES ABOUT THE ILLEGAL USE OF CHEMICALS AND TOXINS IN THE THREE COUNTRIES FOR YEARS, IN MOST CASES BEFORE ANY GOVERNMENT STATEMENTS WERE MADE.

- CONSIDERING ALL THE EVIDENCE THAT HAS BEEN PRESENTED AND THE INTERNATIONAL ATTENTION THAT HAS BEEN FOCUSED ON THIS ISSUE, WHY ARE WE TODAY ENGAGED IN A SCIENTIFIC DEBATE OVER THE VALIDITY OF THE CHARGES AND THE EVIDENCE. THERE ARE A HOST OF POLITICAL AND MILITARY REASONS. SOME OBVIOUS UNCLASSIFIED UNCLASSIFIED

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AND SOME NOT SO OBVIOUS, THAT HAVE CAUSED GOVERNMENTS AND INDIVIDUALS TO EITHER BE CAUTIOUS IN ACCEPTING THE EVIDENCE OR TO ACTIVELY WORK TO DISPROVE THE EVIDENCE. IT IS NOT THE PURPOSE OF THIS PAPER TO EXAMINE THE MOTIVATIONS OF GOVERNMENTS AND INDIVIDUALS. RATHER, IT IS TO REVIEW THE EVIDENCE, MUCH OF WHICH AS BEEN FORGOTTEN OR TOSSED ASIDE BECAUSE OF THE PREOCCUPATION WITH WHAT IS POPULARLY KNOWN AS "YELLOW RAIN".

- THE TERM "YELLOW RAIN" ORIGINATED FROM DESCRIPTIONS BY HMONG REFUGEES OF A WET, STICKY SUBSTANCE WHICH WAS SPRAYED FROM AIRPLANES AND DROPPED ON THEIR VILLAGES. LIKE RAIN, THE SUBSTANCE WAS REPORTED TO HAVE CAUSED MANY DEATHS, ILLNESS, SKIN DISORDERS AS WELL AS KILLING LIVESTOCK AND CROPS. PEOPLE

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WHO CONSUMED CONTAMINATED WATER OR FOOD DIED OR BECAME SERIOUSLY ILL. THE SYMPTOMS REPORTED BY THE HMONG, AND LATER THE KAMPUCHEAN RESISTANCE, PUZZLED CHEMICAL WARFARE EXPERTS BECAUSE THEY DID NOT ACCORD WITH SYMPTOMS PRODUCED BY KNOWN CHEMICAL WARFARE AGENTS. SAMPLES OF VEGETATION AND OTHER MATERIALS LIKE BARK AND WATER WERE TESTED, BUT FOUND TO CONTAIN NO KNOWN CHEMICAL WARFARE AGENTS. IN THE FALL OF 1981, DR. CHESTER MIROCHA AT THE UNIVERSITY OF MINNESOTA MADE A BREAKTHROUGH FOR US GOVERNMENT ANALYSTS WHEN HE DISCOVERED HIGH LEVELS OF MYCOTOXINS IN A VEGETATION SAMPLE FROM KAMPUCHEA. SINCE THAT TIME, MANY SAMPLES OF VEGETATION, WATER, BLOOD, URINE, TISSUES AND EVEN THE YELLOW MATERIAL ITSELF HAVE BEEN ANALYZED AND FOUND TO CONTAIN TOXINS. IN ONE CASE THE US FOUND THE SAME TOXIN ON A CAPTURED UNCLASSIFIED UNCLASSIFIED

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SOVIET GAS MASK FROM AFGHANISTAN. ALL OF THE SAMPLE RESULTS ARE AVAILABLE TO THE PUBLIC FOR REVIEW. IN PART, THE SAMPLE RESULTS LED TO THE US CONCLUSION THAT TOXINS WERE BEING USED BY THE VIETNAMESE IN LAOS AND KAMPUCHEA. HOWEVER, IT SHOULD BE REMEMBERED THAT THE US GOVERNMENT WAS CONVINCED THAT A VARIETY OF CHEMICAL WARFARE AGENTS WERE BEING USED IN ALL THREE COUNTRIES BEFORE THE USE OF TOXINS WAS CONFIRMED BY SAMPLE ANALYSIS. MOREOVER, IN THE ABSENCE OF A SUCCESSFUL SAMPLE COLLECTION PROGRAM FOR AFGHANISTAN (COMPARED TO SOUTHEAST ASIA), THE US GOVERNMENT WAS CONFIDENT IN THE ASSESSMENT THAT TOXINS WERE USED BY THE SOVIETS ON THE AFGHAN RESISTANCE.

THE LARGE BODY OF MULTI-SOURCE INFORMATION WHICH COMPLIMENTS THE EVIDENCE OBTAINED FROM SAMPLE ANALYSIS, CONTINUES TO BE IGNORED OR CAST ASIDE IN THE CURRENT DEBATE ABOUT THE ORIGIN OF "YELLOW RAIN". THAT BODY OF INFORMATION, IF CAREFULLY EXAMINED, CONTAINS THE ANSWERS TO MANY OF THE QUESTIONS ABOUT THE TYPE OF AGENTS THAT HAVE BEEN USED IN ALL THREE COUNTRIES. COMPARATIVE ANALYSIS OF THE DATA FROM THE THREE COUNTRIES, PLUS INFORMATION ACQUIRED FROM ATTACKS ON THAI TERRITORY, WILL CAST CONSIDERABLE DOUBT

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ON ALTERNATE HYPOTHESIS THAT CONTRADICT THE US GOVERNMENT CONCLUSIONS, MOREOVER, THE HISTORICAL RECORD OF EVIDENCE, WHICH HAS YET TO BE FULLY ANALYZED, SHOWS THAT TOXINS HAVE NOT ONLY BEEN DISSEMINATED AS A NET SPRAY (YELLOW RAIN), BUT BY OTHER MEANS. FURTHERMORE, OTHER LETHAL AND NON-LETHAL AGENTS HAVE BEEN USED WHICH CAUSE SYMPTOMS RANGING FROM SHORT PERIODS OF DISCOMFORT TO INSTANT DEATH.

SENSITIVE INTELLIGENCE INFORMATION PAR 6 AM

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IMPORTANT ROLE IN CONVINCING US OFFICIALS THAT CHEMICAL AND TOXIN WEAPONS WERE BEING USED AND THAT THE SCALF UNION PRODUCED AND PROVIDED THOSE WEAPONS USED IN SOUTHEAST ASIA. MUCH OF THE INFORMATION HAS BEEN USED IN THE OFFICIAL PUBLIC DOCUMENTS, BUT THE SPECIFIC SOURCES OF INFORMATION WERE PROTECTED. HOWEVER, THERE IS SUFFICIENT INFORMATION AVAILABLE IN THE PUBLIC DOMAIN TO MAKE A VERY CONVINCING ASSESSMENT IF RESEARCHERS TAKE THE TIME TO CORRELATE THE DATE, WHAT APPEARS TO BE MISSING IS DRAMATIC EVIDENCE THAT CAN BE USED ON TELEVISION NEWS. NO ONE HAS BEEN ABLE TO FILM A HITTING BEING HIT WITH CHEMICAL AGENT, ALTHOUGH SEVERAL FILMS ARE AVAILABLE OF HELICOPTERS DROPPING CHEMICALS AND FILMING WERE FILMED AFTERWARDS. NOR HAS ANYONE BEEN ABLE TO BRING OUT A SMOKE OR BOMB FILLED WITH CHEMICAL AGENT, IN THE ABSENCE OF SUCH DRAMATIC AND APPARENTLY EVIDENCE. EVIDENCE, IT IS NECESSARY TO OBTAIN PIECES HARD WAY: PAINSTAKING ANALYSIS OF THOUSANDS OF PIECES OF DATA. UNFORTUNATELY, THIS DOES NOT CAPTURE THE PUBLIC'S ATTENTION AND CRITICS CAN FOCUS ON SPECIFIC ASPECTS WHILE IGNORING A LARGE PERCENTAGE OF THE EVIDENCE.

IT IS NOT POSSIBLE HERE TO DESCRIBE ALL THE EVIDENCE OR EVEN LIST ALL OF THE ORGANIZATIONS AND INDIVIDUALS INVOLVED IN THE INVESTIGATION. BUT THE EVIDENCE CAN BE REDUCED TO ITS ESSENTIAL ELEMENTS FOR PURPOSES OF COMPARATIVE ANALYSIS.

CHEMICAL WEAPON DELIVERY SYSTEMS

MODES OF WEAPON DELIVERY OF CHEMICALS FOR DISSEMINATIONS

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CHEMICAL AND TOXIN AGENTS HAVE BEEN REPORTED BY
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REFUGEES, DEFECTORS, JOURNALISTS AND IN A FEW CASES THAI GOVERNMENT AND CIVILIAN OBSERVERS. ALTHOUGH SOME METHODS MAY SEEM UNORTHODOX OR EVEN BIZZARE, ALL ARE TECHNICALLY FEASIBLE AND MOST OF THE DELIVERY SYSTEMS ARE KNOWN TO BE PART OF THE SOVIET CHEMICAL WARFARE ARSENAL. SOME NEW TECHNIQUES FOR DELIVERING CHEMICAL AGENT WERE DISCOVERED DURING THE COURSE OF THE INVESTIGATION.

- LAOS

- CAPTURED US L-19 SINGLE WING LIGHT AIRCRAFT WERE USED BY THE LAO FORCES FROM THE MID TO LATE 70'S TO DELIVER ROCKETS. A LAO PILOT DESCRIBED THESE OPERATIONS IN DETAIL (MARCH 1982 HAIG REPORT).

- CAPTURED US T28/T41 TRAINER AIRCRAFT AND SOVIET AN-2 BIPLANES USED IN THE SOVIET UNION FOR CROP DUSTING. AFTER 1978 SOVIET MIG-17 AND MIG-21 JET AIRCRAFT WERE REPORTED FIRING ROCKETS AND DROPPING BOMBS. MORE FREQUENT USE OF HELICOPTERS WAS REPORTED AFTER 1979 USING SPRAY TANKS, ROCKETS AND CANNISTERS.

- THERE ARE ONLY A FEW REPORTS OF ARTILLERY BEING USED. ONE REPORT DESCRIBED SOVIET ADVISORS USING A HAND HELD WEAPON AND ANOTHER DESCRIBED THE USE OF A B-40 ROCKET.

- THERE ARE A FEW REPORTS OF POISONS BEING PUT IN FOOD AND WATER.

- YELLOW RAIN, THE WET, STICKY SUBSTANCE WAS ASSOCIATED WITH LIGHT AIRCRAFT AND HELICOPTERS, BUT IN SOME INSTANCES THE VICTIMS DID NOT SEE AN AIRCRAFT. THERE ARE AS MANY REPORTS OF YELLOW POWDER, CAUSED BY
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BOMBS WHICH EXPLODED WITH A DULL THUD, CREATING
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A DIRTY YELLOW CLOUD. SOME DEATH WAS ASSOCIATED WITH THIS SUBSTANCE, BUT MORE OFTEN PEOPLE WHO TOUCHED THE POWDER OR WERE IN THE VICINITY OF THE CLOUD BROKE OUT IN SMALL, HARD BLISTERS. HOLES IN LEAVES WERE ASSOCIATED WITH THIS TYPE OF ATTACK. SINCE 1976, THE HMONG HAVE CLAIMED THAT THE RED CLOUD WAS THE MOST LETHAL. HMONG HAVE ALSO DESCRIBED GREEN AND WHITE CLOUDS. IN SOME CASES COMBINATIONS OF YELLOW, RED, GREEN BLACK, GREY, OR WHITE WERE REPORTED.

KAMPUCHEA

- LIGHT FIXED WING AIRCRAFT AND HELICOPTERS HAVE BEEN ASSOCIATED WITH THE SPRAYING OF BOTH YELLOW AND WHITE MATERIAL IN DRY OR WET FORM. SOVIET JET FIGHTER AIRCRAFT HAVE OCCASIONALLY BEEN OBSERVED IN CHEMICAL ATTACKS WITH BOMBS AND ROCKETS. SEVERAL TIMES LARGE TRANSPORTS WERE ASSOCIATED WITH CHEMICAL SPRAYS. MOST COMMONLY TOXIC POWDERS WERE SPRAYED ALONG TRAILS AND THE THAI-KAMPUCHEAN BORDER WHERE RESISTANCE FORCES OPERATED. THAI OBSERVERS REPORTED SEEING THIS POWDER.

- VIETNAMESE FORCES USE MUCH MORE ARTILLERY IN KAMPUCHEA THAN THEY DO IN LAOS BECAUSE OF THE NATURE OF THE FIGHTING. CHEMICAL ROUNDS HAVE BEEN REPORTED FIRED FROM 60MM AND 120MM MORTARS, 100MM AND 160MM ARTILLERY, GRENADE LAUNCHERS AND HAND HELD WEAPONS DESCRIBED AS RPGS, DM-10 AS WELL AS B-40 ROCKETS. CHEMICAL GRENADES HAVE BEEN FREQUENTLY REPORTED. MINES, OR OTHER DEVICES, WHICH ARE TRIGGERED BY TRIP WIRES HAVE BEEN USED TO DISSEMINATE SOME FORM

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OF AERESOL IN JUNGLE AREAS.

- THE SPRAYED MATERIAL IS ALMOST ALWAYS WHITE OR YELLOW. THERE ARE SOME CASES, PARTICULARLY WITH ARTILLERY, WHERE THE GAS IS COLORLESS. IN SOME CASES THERE ARE REPORTS OF A YELLOW-BLACK COMBINATION.

- THE USE OF POISONS IS REPORTED MUCH MORE FREQUENTLY IN KAMPUCHEA THAN AFGHANISTAN AND LAOS. VIETNAMESE CARRY BATS TO POISON WATER HOLES. SEVERAL

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TIMES THE THAI HAVE CAUGHT VIETNAMESE AGENTS POISONING WELLS IN REFUGEE CAMPS. IN ONE CASE THE POISON WAS CYANIDE.

- POISON BULLETS HAVE ALSO BEEN REPORTED.

AFGHANISTAN

- HELICOPTERS, WHICH ARE WIDELY USED IN AFGHANISTAN, ARE THE MOST PREDOMINANT METHOD FOR DELIVERING CHEMICAL MUNITIONS. EYE WITNESSES HAVE DESCRIBED SPRAY BARS, ROCKETS, BOMBS AND VARIOUS TYPES OF CANNISTERS.

- JET FIGHTER AIRCRAFT, SOMETIMES WORKING WITH HELICOPTERS, HAVE USED BOMBS AND ROCKETS. A COMMON DESCRIPTION FROM SEVERAL AREAS OF THE COUNTRY IS A COMBINATION OF YELLOW AND BLACK SMOKE, IN SOME CASES THE AGENT WAS DESCRIBED AS COLORLESS.

- IL-28 BOMBERS WERE IDENTIFIED IN 1979, BEFORE THE SOVIET INVASION, DROPPING CHEMICAL BOMBS.

- CHEMICAL ARTILLERY SHELLS HAVE OFTEN BEEN REPORTED AND ASSOCIATED WITH A BLACK SMOKE.

- A SPECIAL SOVIET VEHICLE WITH A NOSE FOR

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PUMPING GAS INTO TUNNELS, CAVES AND OTHER ENCLOSURES HAS REPEATEDLY BEEN DESCRIBED BY RESISTANCE FIGHTERS AND REFUGEES.

- CHEMICAL GRENADES AND POISON BULLETS HAVE BEEN FREQUENTLY DESCRIBED.

- A DUTCH JOURNALIST FILMED A HELICOPTER DROPPING A BOMB WHICH EXPLODED WITH A DULL THUD, GIVING OFF A DIRTY YELLOW CLOUD. THE BOMB CANNISTER WAS ALSO FILMED ON THE GROUND. A BLACK CLOUD COULD BE SEEN IN THE BACKGROUND.

- A FILM TAKEN BY THE AFGHAN RESISTANCE SHOWS A HELICOPTER DROPPING CANNISTERS WHICH DISPERSE A WHITE CLOUD WHICH SLOWLY SETTLES IN A VALLEY.

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EYEWITNESSES HAVE REPORTED THAT NAPALM IS
SOMETIMES DROPPED ON AN AREA AFTER A CHEMICAL ATTACK,
OTHER TYPES OF INCENDIARY DEVICES HAVE FREQUENTLY BEEN
REPORTED, AND IN SOME CASES SAMPLES HAVE BEEN BROUGHT
OUT FOR ANALYSIS.

REFUGEES AND RESISTANCE SOURCES HAVE DESCRIBED
THE USE OF POISONS ON FOOD AND IN WATER SUPPLIES.

THERE ARE MORE REPORTS OF BLUE OR BROWN GREEN
FROM AFGHANISTAN THAN FROM SOUTHEAST ASIA.
DESCRIPTIONS OF DIRTY YELLOW GREEN, YELLOW GREEN,
AND YELLOW GRANULAR MATERIAL. SPAN THE PERIOD FROM
1979 THROUGH 1982.

THE CATEGORIES OF AGENTS

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THE EVIDENCE FROM ALL THREE COUNTRIES INDICATES
THAT IRRITANTS, INCAPACITANTS AND A VARIETY OF
LETHAL AGENTS HAVE ALL BEEN USED. SOMETIMES IN
COMBINATION. THERE HAS BEEN LITTLE SCIENTIFIC INTEREST
IN THE ALLEGATIONS THAT IRRITANTS HAVE BEEN USED. EVEN
THOUGH IDENTIFICATION HAS NOT BEEN MADE THROUGH
SAMPLE ANALYSIS. THE SYMPTOMOLOGY IS WELL KNOWN AND
THE USE OF IRRITANTS APPARENTLY CAUSES NO UNCLE
ALARM BECAUSE IT IS USED BY POLICE FORCES. INCAPACITANTS
ARE ANOTHER MATTER. THEY ARE NOT AVAILABLE
TO WESTERN MILITARY FORCES AND THEIR USE IS CONSIDERED
QUITE UNPREDICTABLE. USE OF INCAPACITANTS TO RENDER
RESISTANCE FORCES AND VILLAGERS UNCONSCIOUS HAS BEEN
REPORTED BY VICTIMS, DEFECTORS AND JOURNALISTS TO
OCCUR IN ALL THREE COUNTRIES. BUT ESPECIALLY IN
AFGHANISTAN IN 1980 WHEN MORE THAN A MILLION REFUGEES
FLED TO PAKISTAN. THERE SHOULD BE MORE VISIBLE
CONCERN THAT THE SOVIET UNION HAS A BZ TYPE AGENT
IN THEIR INVENTORY THAT WOULDN'T BE DETECTABLE BY
NATO FORCES ON THE BATTLEFIELD.

IN THE LETHAL CATEGORY. THE HUMAN SOURCE
MATERIAL INDICATES THE FOLLOWING TYPE OF AGENTS:

AGENTS THAT KILL

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- CRITICS OF THE US EVIDENCE OFTEN REFER TO THE LARGE BODY OF HUMAN TESTIMONY AS NOTHING MORE THAN UNSUBSTANTIATED "REFUGEE REPORTS". THESE "REFUGEES" HAVE BEEN DESCRIBED AS IGNORANT PEASANTS, MYSTIC TRIBAL PEOPLES OR BIASED MEMBERS OF A RESISTANCE FORCE. THE HMONG ARE TAGGED AS "FORMER MEMBERS OF THE CIA SECRET ARMY". KAMPUCHEANS HAVE BEEN STIGMATIZED BY POL POT'S BLOODY REGIME AND AFGHANS ARE THOUGHT OF AS FIERCE FIGHTERS WHO ALL EXAGGERATE AND LIE, BEING MOTIVATED BY EXTREME ANTI-SOVIET FEELINGS AND RELIGIOUS BELIEFS. A CAREFUL EXAMINATION OF THE RECORDED TESTIMONY THAT APPEARS IN US STATE DEPARTMENT DOCUMENTS, THE UN REPORT AND HUNDREDS OF NEWSPAPER ARTICLES FILED BY JOURNALISTS FROM MANY COUNTRIES REVEALS A MUCH DIFFERENT CHARACTER PROFILE OF THE "REFUGEES".

- LAOS: REFUGEES FROM LAOS WHO HAVE DESCRIBED CHEMICAL ATTACKS FOR EIGHT YEARS AND BOTH HMONG AND LAOS MEN, WOMEN AND CHILDREN; PROFESSIONALS AND FARMERS; SOLDIERS AND CIVILIANS. FEW CAN BE CHARACTERIZED AS FORMER MEMBERS OF "CIA'S ARMY". FURTHERMORE, CONCERNED PHYSICIANS, DIPLOMATS AND JOURNALISTS PUBLICIZED THE PLIGHT OF THE HMONG, NOT A WELL-ORGANIZED HMONG PROPAGANDA NETWORK (WHICH DOESN'T EXIST). THE EARLIEST REPORTING ON CW USE IN LAOS WAS BASED ON INTERVIEWS WITH TWO FRENCH DOCTORS IN 1977 WHO WERE TREATING THE HMONG. AT LEAST THREE FORMER LAO PILOTS PROVIDED DETAILED INFORMATION ON HOW CHEMICAL WEAPONS WERE STORED, MOVED AND USED. THE FORMER LAO HEALTH MINISTER, WHO DEFECTED TO CHINA, CHARGED THAT THE VIETNAMESE HAD KILLED THOUSANDS WITH CHEMICAL WEAPONS. REFUGEE TESTIMONY WAS QUESTIONABLE, EVEN TO US INTELLIGENCE ANALYSTS, IN THE PERIOD 1978-1979, BUT BY THE END OF 1979 THERE WAS SUFFICIENT SUPPORTING EVIDENCE
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TO CROSS-CHECK THE EYEWITNESS ACCOUNTS OF CHEMICAL

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THAILAND: THAI MILITARY AND CIVILIAN OBSERVERS, AND IN SOME CASES VICTIMS, CAN IN NO WAY BE CHARACTERIZED AS REFUGEES, MEMBERS OF A RESISTANCE OR ANY OF THE OTHER DEROGATORY LABELS PUT ON THE VICTIMS FROM LAOS AND KAMPUCHEA. SINCE AT LEAST 1980, THAI MILITARY OFFICIALS HAVE REPORTED CHEMICAL ATTACKS ACROSS THE BORDER IN THAILAND. A VIETNAMESE DEFECTOR STATED THAT TOXIC POWDERS SPREAD ALONG TRAILS CAUSED PROLONGED ILLNESS AND WERE USED AS AN AREA DENIAL WEAPON. SOMETIMES THESE POWDERS BLEW INTO THAILAND AND IN SEVERAL CASES THAI CIVILIANS WERE AFFECTED. THE MOST WELL-KNOWN INCIDENT OCCURED ON FEBRUARY 19, 1982, WHEN PLANES WERE REPORTED BY THAI VILLAGERS TO HAVE SPRAYED A YELLOW MATERIAL OVER THREE VILLAGES. A DETAILED ACCOUNT OF THIS EVENT APPEARS IN THE UN REPORT. A CANADIAN MEDICAL TEAM WAS ON HAND TO CONDUCT A THOROUGH MEDICAL SURVEY. SAMPLES OF THE YELLOW MATERIAL WERE FOUND TO CONTAIN LOW LEVELS OF MYCOTOXINS (US STATE DEPARTMENT REPORT, NOVEMBER 1982). IN ANOTHER CASE, THE THAI CAPTURED A VIETNAMESE AGENT IN THE ACT OF POISONING WATER BELLS IN A REFUGEE CAMP WITH CYANIDE. THAI MILITARY OFFICIALS HAVE STATED PUBLICLY ON NUMEROUS OCCASIONS THAT THEIR INVESTIGATIONS SHOW CONCLUSIVELY THAT CHEMICAL WEAPONS HAVE BEEN USED IN LAOS AND KAMPUCHEA.

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AFGHANISTAN: THE BACKGROUND PROFILE OF THE VICTIMS AND OBSERVERS OF CW USE IN AFGHANISTAN IS EVEN MORE VARIED THAN FOR LAOS AND KAMPUCHEA. A SAMPLING OF THE HUMAN TESTIMONY IS CONTAINED IN THE TWO STATE DEPARTMENT REPORTS AND THE UN REPORT, BUT THERE ARE MANY MORE ACCOUNTS THAT HAVE NEVER BEEN PUBLISHED. IN GENERAL, THERE IS TESTIMONY FROM MEN, WOMEN AND CHILDREN FROM THE DIFFERENT TRIBAL AREAS WHO SPEAK SEVERAL LANGUAGES AND ADHERE TO DIVERSE POLITICAL AND CULTURAL BELIEFS. REFUGEES SPAN THE SPECTRUM OF AFGHAN SOCIETY: POLITICAL, MILITARY, PROFESSIONAL, FARMER, PEASANT AND BUSINESS. NOT ALL EYEWITNESS ACCOUNTS COME FROM MEMBERS OF THE RESISTANCE. INVESTIGATORS HAVE HAD TO WORK HARD TO GAIN INFORMATION ABOUT CHEMICAL ATTACKS BECAUSE THE ISSUE HAS NOT BEEN A MAJOR FEATURE OF THE PUBLIC APPEAL FOR ASSISTANCE AGAINST THE SOVIET OCCUPATION

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AND AFGHANISTAN. SOURCES IN THE US, EUROPE AND ASIA HAVE PROVIDED FIRST-HAND OR SUPPORTING TESTIMONY. CUBAN, SOVIET, AFGHAN, VIETNAMESE, CHINESE AND MIDDLE EASTERN SOURCES HAVE BEEN DEBRIEFED IN OTHER REGIONS ON THEIR KNOWLEDGE OF CHEMICAL WEAPONS USE OR THEIR FAMILIARITY WITH SOVIET TRAINING ON CHEMICAL WEAPONS. FOR EXAMPLE, THE US GOVERNMENT CONCLUDED ON THE BASIS OF INFORMATION FROM CUBAN, SOVIET, AFGHAN, VIETNAMESE, EUROPEAN AND CHINESE SOURCES THAT THE SOVIETS HAVE DEVELOPED A CHEMICAL MINE WHICH CONTAINS YOLIN IN AEROSOL FORM. SUCH A MINE HAS BEEN USED IN CAMPUCHEA. UNCLASSIFIED

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AND IN ONE CASE, BLOOD DRAWN FROM A VICTIM EXPOSED TO THE AGENT FROM A MINE WAS FOUND TO CONTAIN YOLIN.

DEFECTOR REPORTING

THE TESTIMONY OF DEFECTORS TENDS TO BE CHECKED AND DOES NOT RECEIVE THE SAME ATTENTION AS THE REFUGEE REPORTS. US ANALYSTS FOUND STRIKING SIMILARITIES WHEN COMPARING THE INFORMATION PROVIDED BY DEFECTORS AS WELL AS THE CORRELATION BETWEEN THE DEFECTOR REPORTS AND THE OTHER EVIDENCE THAT WAS AVAILABLE.

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THE US DEPARTMENT OF DEFENSE MEDICAL TEAM THAT INTERVIEWED AMONG VICTIMS IN 1979 CONCLUDED THAT THREE CLASSES OF AGENT HAD BEEN USED:

- - - IRRITANT OR RIOT CONTROL AGENTS
- - - NERVE GAS
- - - UNKNOWN AGENT OR COMBINATION OF AGENTS THAT CAUSED A VARIETY OF UNFAMILIAR SYMPTOMS THAT COULD NOT BE ASSOCIATED WITH KNOWN AGENTS.

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IN 1979, TOXINS HAD NOT BEEN IDENTIFIED AS THE CAUSE OF THE UNUSUAL SYMPTOMS. HOWEVER, THE IDENTIFICATION OF THREE CLASSES OF AGENTS WAS A PERCEPTIVE ASSESSMENT IN LIGHT OF THE DATA AVAILABLE TODAY. MOREOVER, THE WIDE-RANGE OF MEDICAL SIGNS AND SYMPTOMS IS NOW KNOWN TO RESULT FROM THE LEVEL AND ROUTE OF EXPOSURE. DEFECTORS ADDED INFORMATION THAT COULD NOT BE OBTAINED BY INTERVIEWS WITH VICTIMS. MEDICAL EXAMS AND

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SAMPLE ANALYSIS.

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- VIETNAMESE SOLDIERS WHO WERE FAMILIAR WITH SOVIET SUPPLIED CHEMICAL WEAPONS, AND USED THEM IN SOME CASES, DESCRIBED AGENTS THAT IRRITATE, INCAPACITATE (CAUSE UNCONSCIOUSNESS), CREATE ILLNESS AND SKIN DISORDERS, OR THAT KILL IN SEVERAL DIFFERENT WAYS. A VIETNAMESE PRIVATE TOLD OF SOVIET ADVISORS FIRING A CHEMICAL AGENTS FROM A HAND HELD WEAPON (DM-10) WHICH PRODUCED A GREYISH, WHITE AND GREEN CLOUD THAT KILLED QUICKLY. THIS EVENT OCCURED IN KAMPUCHEA, BUT AN ACCOUNT FROM LAOS DESCRIBED A SOVIET ADVISOR FIRING THE SAME TYPE OF WEAPON, WITH THE SAME LETHAL RESULT. ANOTHER VIETNAMESE SOLDIER USED A SHOULDER FIRED WEAPON TO SPREAD A GAS THAT RENDERED KAMPUCHEAN SOLDIERS UNCONSCIOUS SO THEY COULD BE CAPTURED. YET ANOTHER DESCRIBED BLACK SMOKE FROM ARTILLERY SHELLS WHICH PRODUCED ITCHY SKIN, WEAKNESS, SKIN LESIONS AND DECAYING SKIN, OFTEN RESULTING IN DEATH FROM INTERNAL BLEEDING.

- AFGHAN AND SOVIET MILITARY DEFECTORS DESCRIBE CLASSES OF AGENTS SIMILAR TO THE VIETNAMESE. IN SOME CASES THE DESCRIPTIONS OF THE DELIVERY SYSTEMS, COLOR OF SMOKE, ASSOCIATED ODOOR AND THE MEDICAL SIGNS AND SYMPTOMS ARE TOO SIMILAR TO BE REGARDED AS COINCIDENCE.

- -- A FORMER AFGHAN HELICOPTER PILOT TOLD OF DROPPING CANNISTERS TO TOXIC SMOKE, TEAR GAS AND AN ANTI-RESPIRATORY GAS THAT MAKES THE SKIN VERY SOFT AFTER DEATH.

- -- AN AFGHAN OFFICER IN 1981 SAID THE SOVIETS SUPPLIED FOUR AGENTS: ONE WAS AN INCAPACITANT AND THE OTHERS WERE LETHAL, IN SOME CASES TURNING THE SKIN A DARK COLOR AFTER DEATH.

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- -- A RESISTANCE LEADER, FAMILIAR WITH SOVIET CHEMICAL WEAPONS BY VIRTUE OF HIS TRAINING IN THE ARMY, SAID THAT BESIDES IRRITANTS AND HALLUCINOGENIC GAS, A LETHAL SUBSTANCE IN THE FORM OF A WHITE POWDER WAS DELIVERED BY HELICOPTER.

- -- YRIY POYARNITSYN, A SOVIET CO SPECIALIST WHO DEFECTED, DESCRIBED CLEAN-UP OPERATIONS IN AFGHANISTAN AFTER CHEMICAL ATTACKS, INCLUDING HIS FINDING OF INTERNAL BLEEDING IN AFGHANS WHEN HE PERFORMED AUTOPSIES IN THE FIELD.

- -- AN AFGHAN PATHOLOGIST DESCRIBED HOW HE COLLECTED SOIL SAMPLES AFTER A SOVIET CHEMICAL ATTACK TO DETERMINE THE LEVEL OF CONTAMINATION.

- -- ONE AFGHAN DEFECTOR IDENTIFIED WHERE THE SOVIET FORCES STORED PHOSGENE, DIPHOXIGENE AND THE NERVE AGENTS SABIN AND SOMAN. HE ALSO LISTED WHERE AND WHEN THE SPECIFIC AGENTS HAD BEEN USED. (THIS INFORMATION MATCHED EYE-WITNESS ACCOUNTS OF CHEMICAL ATTACKS AND INTELLIGENCE INFORMATION ON SOVIET OPERATIONS.)

- -- A SOVIET SOLDIER WHO DEFECTED TO THE AFGHANS DESCRIBED HOW CONTAINERS OF LETHAL CHEMICALS WERE DROPPED FROM HELICOPTERS.

- -- ANATOLY ZAKHAROV, A SOVIET SOLDIER INTERVIEWED BY A BRITISH JOURNALIST IN 1982, REVEALED THAT AT HIS BASE THE SOVIETS HAD A "100 PERCENT" LETHAL AGENT THAT WAS DELIVERED BY ROCKETS. THIS AGENT CAUSED THE SKIN TO BECOME VERY SOFT AFTER DEATH.

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HE ALSO SAID THAT SOVIET FORCES AT HIS BASE HAD STORES OF "PICRIC ACID" AND AN INCAPACITATING AGENT, WHICH WERE SOMETIMES USED TOGETHER.

- -- AN AFGHAN AIRPORT OFFICIAL WHO LEFT THE COUNTRY DISCOVERED THAT CANNISTERS STORED AT THE GANDAHAR AIRFIELD CONTAINED THREE AGENTS: INCAPACITANTS, BLISTERING AND ONE THAT SUFFOCATES. ONE GAVE OFF A YELLOW SMOKE

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- -- AN AFGHAN PHYSICIAN WHO ESCAPED TO PAKISTAN HAD TREATED 19 AFGHAN VICTIMS OF A CHEMICAL ATTACK BROUGHT TO KABUL BY AFGHAN GOVERNMENT FORCES. THEY ALL HAD RED LESIONS ON THEIR SKIN.

- -- A FORMER AFGHAN OFFICER LISTED FOUR AGENTS PROVIDED TO THE AFGHAN MILITARY: IRRITANTS, INCAPACITANTS, A BLISTER AGENT AND A LETHAL AGENT THAT CAUSED SEVERE SYMPTOMS BEFORE DEATH.

- -- BRIG. GENERAL BATAY, CHIEF OF THE CHEMICAL DEPARTMENT OF THE 99TH AFGHAN ROCKET REGIMENT, SAID THAT THE SOVIETS STARTED USING CHEMICAL WEAPONS IN APRIL 1979. IN AN INTERVIEW WITH A WRITER FROM JANE'S WEAPONS OF THE WORLD, HE CLAIMED THAT THE SOVIETS WERE TESTING NEW GASES IN AFGHANISTAN THAT WERE UNKNOWN IN THE WEST. ACCORDING TO HIS ACCOUNT, THE SOVIETS USE PHOSPHOROUS AND SULPHUR IN LIQUID AND GAS FORM WHICH CAUSES SUFFOCATION, BURNS, NERVOUS DISORDERS AND IRRITATION OF THE SKIN.

- SUFFICE IT TO SAY THAT US ANALYSTS, WHO HAD ACCESS TO THE CIRCUMSTANCES SURROUNDING THE DEBRIEFING OF THESE DEFECTORS AND THE ABILITY TO CROSS-CHECK THEIR STORIES, BECAME CONVINCED THAT THE SOVIETS HAD BROUGHT A VARIETY OF CHEMICAL AGENTS INTO AFGHANISTAN AND HAD USED THEM ON A SELECTIVE BASIS FROM 1979 THROUGH 1982.

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1982. IT IS UNDERSTANDABLE THAT PEOPLE WHO DO NOT HAVE ACCESS TO THE OFFICIAL DEBRIEFINGS OF DEFECTORS, OR CANNOT REINTERVIEW THEM, WILL BE SKEPTICAL ABOUT THE SOURCE'S CREDIBILITY. IN SOME CASES, HOWEVER, DEFECTORS WERE NOT RELUCTANT TO BE NAMED AND THEY HAVE BEEN REINTERVIEWED BY NON-US REPORTERS AND OFFICIALS. REGARDLESS, THIS BRIEF DESCRIPTION OF DEFECTOR INFORMATION WAS INCLUDED TO POINT OUT THAT HUMAN TESTIMONY USED BY THE US CAME FROM NOT ONLY "REFUGEES", BUT INDIVIDUALS WHO HAD FIRST HAND INFORMATION ON WHEN AND HOW CHEMICAL WEAPONS WERE EMPLOYED IN ALL THREE COUNTRIES.

THE ROLE OF JOURNALISTS AND WRITERS

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JOURNALISTS AND WRITERS ARE SINGLED OUT IN THIS DISCUSSION OF HUMAN TESTIMONY BECAUSE THEY HAVE NOT ONLY REPORTED THE STORIES ABOUT CHEMICAL WARFARE, THEY HAVE ALSO BECOME SOURCES OF FIRST-HAND INFORMATION. THEY DESERVE MUCH OF THE CREDIT FOR BRINGING THE CHEMICAL WEAPONS USE ISSUE TO THE ATTENTION OF GOVERNMENTS AND THE PUBLIC AS WELL AS KEEPING THE ISSUE ALIVE IN THE FACE OF REPEATED ATTEMPTS TO DOWNPLAY ITS IMPORTANCE OR SHELF IT ALTOGETHER. THERE IS YET ANOTHER REASON TO SINGLE THE JOURNALISTS AND WRITERS FROM MANY COUNTRIES WHO HAVE OFTEN RISKED THEIR LIVES TO OBTAIN INFORMATION FROM DENIED AREAS. VERY FEW OF THESE INDIVIDUALS COULD BE CHARACTERIZED AS BEING FOR THE DEVELOPMENT OF CHEMICAL WEAPONS IN THE US, NOR IN MANY CASES COULD THEY BE IDENTIFIED WITH THE POLICIES OF THE US ADMINISTRATION IN POWER AT THE TIME THEY WERE WRITING. THE MAJORITY OF THE PRESS ARTICLES ON

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CW USE IN SOUTHEAST ASIA AND AFGHANISTAN CRITICIZED THE US GOVERNMENT'S HANDLING OF THE ISSUE. HOWEVER, THERE HAS BEEN A UNIVERSAL CONDEMNATION OF THE SOVIET UNION AND THE VIETNAMESE FOR USING CHEMICAL AND TOXIN WEAPONS BY JOURNALISTS FROM ALL OVER THE WORLD IN PAPERS AND MAGAZINES THAT SPAN THE POLITICAL SPECTRUM FROM LEFT TO RIGHT. THEREFORE, IT IS REASONABLE TO ASSUME THAT MANY OF THESE WRITERS HAVE EXPRESSED VIEWS BASED ON THEIR OWN ASSESSMENT AND EVIDENCE, INDEPENDENT OF THE US GOVERNMENT.

STERLING SEAGRAVES, AUTHOR OF THE BOOK YELLOW RAIN: A JOURNEY THROUGH THE TERROR OF CHEMICAL WARFARE, DEVOTED AS MUCH TIME IN HIS BOOK TO THE INEPTNESS OF THE US ARMY CHEMICAL CORPS AND THE NEED TO STOP THE PRODUCTION OF CHEMICAL WEAPONS AS HE DID ON HIS INVESTIGATION OF CHEMICAL WARFARE IN SOUTHEAST ASIA AND AFGHANISTAN. NEVERTHELESS, SEAGRAVES WAS ONE OF THE FIRST TO RECOGNIZE THAT TOXINS WERE WHAT HAD BEEN CAUSING THE MYSTERIOUS SYMPTOMS IN LAOS. HIS INTERVIEWS IN PAKISTAN AND THAILAND ALSO REVEALED THE STRIKING RESEMBLANCE OF THE DESCRIPTIONS

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OF DELIVERY SYSTEMS AND MEDICAL SYMPTOMS BY PEOPLE FROM TWO SEPARATE REGIONS IN THE SAME TIME FRAME.

JANE HAMILTON-HERRITT SPENT MANY YEARS WORKING WITH THE HMONG AND URGED THE US GOVERNMENT TO CONDUCT AN INVESTIGATION. HER ARTICLE IN READER'S DIGEST, OCTOBER 1980, "GASS WARFARE IN LAOS: COMMUNISM'S DRIVE TO ANNIHILATE A PEOPLE", DESCRIBED HER PERSONAL EXPERIENCES IN INTERVIEWING GAS VICTIMS. THERE IS A STRIKING COMPARISON BETWEEN THE SYMPTOMS OF HER FRIEND, NHIA YANG YANG, WHO HAD CHANGED FROM A VIGOROUS MAN OF 40 YEARS TO A "SKELETON" WITH RECURRENT CHEST PAINS, DIFFICULTY IN BREATHING AND

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LOSS OF APPETITE TO THE SYMPTOMS OF A MIDDLE-AGED AFGHAN LEADER EXAMINED BY DR. ZILNIA IN PAKISTAN WHO LOOKED LIKE A WITHERED, OLD MAN IN A FILM TAKEN OF THE EXAMINATION.

DUTCH JOURNALIST, BERND DEBRUIN, FILMED A SOVIET HELICOPTER DROPPING A CANNISTER WHICH BURST INTO A YELLOW CLOUD DURING HIS TREK WITH THE AFGHAN RESISTANCE IN AUGUST 1980. HE TOOK PICTURES OF VICTIMS OF THE ATTACK AS WELL AS SKIN LESIONS ON MEN AND CHILDREN WHO WALKED THROUGH A YELLOWISH POWDER ON THE GROUND. BLISTERS BROKE OUT ON HIS HANDS FROM EXPOSURE TO THE YELLOW CLOUD AND HE WAS ILL FOR ABOUT SIX MONTHS ACCORDING TO GERMAN PHYSICIANS WHO EXAMINED HIM LATER. HIS STORY WAS PUBLISHED IN THE EUROPEAN MAGAZINE NEWSWEEK. ONE MONTH BEFORE DEBRUIN SAW THE CHEMICAL ATTACK, NINETEEN HMONG DESCRIBED HOW THEIR VILLAGE WAS HIT WITH AN EXPLODING BOMB THAT PRODUCED A YELLOW CLOUD OF POWDER. SOME DIED IN HOURS, SOME THE NEXT DAY, WHILE OTHERS BECAME ILL AND HAD BLISTERS ON THEIR SKIN. COMPLETE MEDICAL EXAMS, INCLUDING X-RAYS AND BLOOD ANALYSIS, RULED OUT KNOWN NATURAL DISEASES LIKE TB TO EXPLAIN THE DAMAGE TO THE LUNGS. THEIR BLISTERS WERE SMALL AND HARD LIKE THOSE ON DEBRUIN'S HANDS. LIKE DEBRUIN, THEY REMAINED ILL FOR A LONG PERIOD. LIKEWISE, DEBRUIN'S PICTURE OF THE BOMB AND HIS DESCRIPTION OF A DUSTY THUD, RATHER THAN A BLOOD

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EXPLOSION, WAS STRIKINGLY SIMILAR TO THE HONGKONG ACCOUNT, DEBRUIN'S ACCOUNT WAS SLIGHTLY DISMISSED BY JM INVESTIGATORS, BUT NOT BY US AND EUROPEAN ANALYSTS WHO CAREFULLY COMPARED THE DATA FROM UNCLASSIFIED UNCLASSIFIED

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LAOS, KAMPUCHEA AND AFGHANISTAN, FINDING MANY SUCH STRIKING SIMILARITIES.

- ROBERT L. BARTLEY AND WILLIAM P. KENNEDY OF THE WALL STREET JOURNAL, A NEWSPAPER THAT HAS CONSISTENTLY KEPT THE EVIDENCE ON CHEMICAL WEAPONS USE BEFORE THE PUBLIC, WROTE A LENGTHY ASSESSMENT IN THE SPRING 1983 ISSUE OF FOREIGN AFFAIRS, TITLED "YELLOW RAIN AND THE FUTURE OF ARMS AGREEMENTS."

- LUCIO LANI, AN ITALIAN JOURNALIST, HAS WRITTEN A SERIES OF ARTICLES IN MILAN'S "IL SIGNALE NUOVO" BASED ON HIS INTERVIEWS IN THAILAND WITH VICTIMS AND DEFECTORS. THE ARTICLES INCLUDE THE LENGTHY TRANSCRIPTS OF THE INTERVIEWS PROVIDING CONSIDERABLE DETAIL, PARTICULARLY FROM VIETNAMESE CAPTAIN NGUYEN QUAN WHO DESCRIBES THE SOVIET SUPPORTED CHEMICAL WARFARE ORGANIZATION AND AGENTS IN LAOS AND KAMPUCHEA. HIS ARTICLES ALSO SEVERELY CRITICIZE US AND EUROPEAN GOVERNMENTS AND THE PRESS FOR NOT PRESSING THE ISSUE.

- MANY MORE JOURNALISTS FROM THE UK, AUSTRALIA, JAPAN, FRANCE AND OTHER COUNTRIES HAVE TRAVELED INTO THE DENIED AREAS AND REPORTED ON CHEMICAL WARFARE. THEY HAVE ALSO BROUGHT OUT SAMPLES OF CONTAMINATED MATERIAL FOR ANALYSIS IN A NUMBER OF COUNTRIES. OF COURSE THERE ARE JOURNALISTS WHO SERIOUSLY SOUGHT EVIDENCE AND COULDN'T FIND ANY, WHICH IS UNDERSTANDABLE WHEN ONE EXAMINES THE TIMING AND LOCATION OF CHEMICAL ATTACKS. THERE ARE ALSO JOURNALISTS AND WRITERS WHO HAVE WORKED HARD TO DISPROVE THE US EVIDENCE. SOME OF THESE WRITERS HAVE CLAIMED THAT THE CIA HAS FABRICATED THE WHOLE ISSUE, BUT THAT NOTION HAS NOT GAINED MANY FOLLOWERS.

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- GOVERNMENT OFFICIALS HAVE ALSO WRITTEN ARTICLES SUPPORTING THE US EVIDENCE. REPUBLICAN CONGRESSMAN JIM LEACH URGED THE US GOVERNMENT TO INTENSIFY ITS INVESTIGATION AND PERSONALLY INVOLVED HIMSELF IN THE INVESTIGATION. LIKEWISE, DEMOCRATIC CONGRESSMAN STEPHEN SOLARZ HAS WRITTEN ARTICLES DEFENDING THE US EVIDENCE. OTHER CONGRESSMEN, SENATORS AND GOVERNORS HAVE WRITTEN ARTICLES OR SUBMITTED TESTIMONY IN THE CONGRESSIONAL RECORD. EUROPEAN PARLIAMENTARIANS AND GOVERNMENT OFFICIALS, INCLUDING HEADS OF STATE AND FOREIGN MINISTERS HAVE CONDEMNED THE USE OF CHEMICAL WEAPONS. NATO ISSUED A COMMUNIQUE ON BEHALF OF ALL COUNTRIES, EXPRESSING CONCERN THAT CHEMICAL WEAPONS CONTINUE TO BE USED. LASTLY, THE LAW ASIA SOCIETY, MADE UP OF LAWYERS AND JURISTS FROM TWELVE ASIAN COUNTRIES, CONDUCTED AN INVESTIGATION IN THAILAND AND ISSUED THE FOLLOWING STATEMENT: "ON THE ISSUE OF ALLEGED USE OF CHEMICAL WEAPONS, THE CONSENSUS OF THE INQUIRY COMMITTEE WAS THAT CIRCUMSTANCES EXISTED WHICH WOULD BE SUFFICIENT TO CONVINCE A REASONABLE PERSON THAT THERE HAD BEEN WIDESPREAD, BUT SELECTIVE EMPLOYMENT OF SOME FORM OF CHEMICAL WEAPONS IN LAOS AND KAMPUCHEA."

THE ROLE OF PHYSICIANS

- DURING A HEATED DEBATE ON THE MEDICAL EVIDENCE, A PROFESSOR REMARKED THAT MEDICINE IS NOT A "HARD SCIENCE" AND DOCTORS' CLINICAL OBSERVATIONS COULD NOT BE USED AS PROOF THAT CHEMICAL WEAPONS HAD BEEN USED. PERHAPS THE PHYSICIANS THAT HAVE MADE SUCH A VALUABLE CONTRIBUTION TO THE INVESTIGATION WOULD CONCEDE THAT

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SOME OF THE SIGNS AND SYMPTOMS ARE PUZZLING, BUT THEY WOULD ALSO STATE THAT THEY ARE CAPABLE OF POSITIVELY IDENTIFYING CERTAIN DISEASES AND CAN ACCURATELY DESCRIBE THE SYMPTOMS THEY OBSERVE. THUS, PHYSICIANS FROM SEVERAL COUNTRIES WITH DIFFERENT SPECIALTIES HAVE BEEN ABLE TO STATE WITH CONFIDENCE WHAT DISEASES

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THE HMONG, KAMPUCHEANS AND AFGHANS WERE NOT SUFFERING FROM AND THEY CAN LIMIT THE RANGE OF POSSIBILITIES TO BE EXAMINED.

- -- TWO FRENCH DOCTORS WORKING IN LAOS, WITH CONSIDERABLE EXPERIENCE ON THE LOCAL DISEASES, WERE ABLE TO STATE IN 1978 THAT IT APPEARED THAT CHEMICAL WEAPONS WERE BEING USED ON THE HMONG.

- -- THE US DEPARTMENT OF DEFENSE MEDICAL TEAM, HEADED BY COL. CHARLES LEWIS, CHIEF OF DERMATOLOGY AT BROOKE ARMY MEDICAL CENTER, FORT SAN HOUSTON, TEXAS, LEFT WASHINGTON D.C. IN 1979 WITH SOME SKEPTICISM AND RETURNED CONVINCED THAT ONLY SEVERAL TYPES OF CHEMICAL WEAPONS WOULD EXPLAIN THE MEDICAL SYMPTOMS THEY OBSERVED IN THE REFUGEE CAMPS IN THAILAND.

- -- DR. AMOS TOWNSEND OF THE INTERNATIONAL RESCUE COMMITTEE, SPENT YEARS EXAMINING THE HMONG AND KAMPUCHEAN CIVILIAN VICTIMS. HE ALSO COLLECTED PHYSICAL AND BIOMEDICAL SAMPLES, INCLUDING CONTROL SAMPLES, TO ASSIST THE US AND OTHER COUNTRIES IN IDENTIFYING THE AGENTS BEING USED. SEVERAL NURSES HE WORKED WITH IN THE FIELD HOSPITALS EVENTUALLY WERE CONVINCED THAT CHEMICAL WEAPONS CAUSED THE UNUSUAL SYMPTOMS THEY HAD TREATED OVER A PERIOD OF YEARS. THE UN REPORT CONTAINS THEIR WRITTEN TESTIMONY.

- DR. BERNARD WAGNER, A PROFESSOR OF MEDICAL PATHOLOGY AT COLUMBIA UNIVERSITY, CONDUCTED A FACT-FINDING VISIT TO THAILAND IN 1983 AND CONCLUDED THAT TOXINS WERE BEING USED AS WEAPONS.

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- -- DR. B.A. ZIKRIA, A PROFESSOR OF SURGERY AT COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, FOUND THAT AFGHANS WHO HAD ESCAPED TO PAKISTAN WERE SUFFERING FROM A VARIETY OF SYMPTOMS HE COULD NOT EXPLAIN AS A PULMONARY SPECIALIST ON SMOKE INHALATION. HIS CLINICAL EXAMINATION WAS RECORDED ON FILM AND HE TESTIFIED BEFORE THE US CONGRESS THAT HE WAS CONVINCED THAT CHEMICAL WEAPONS WERE BEING USED ON THE AFGHANS.

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WEAPONS WHICH CAUSE SEVERE DETERIORATION OF THE BODY HAVE BEEN USED ON THE AFGHANS.

- DR. RICHARD HARRUFF EXAMINED AMONG REFUGEES IN 1980 AND CONCLUDED THERE WAS A LOW INCIDENCE OF TUBERCULOSIS, DISPELLING YET ANOTHER ALTERNATE EXPLANATION THAT WAS OFFERED FOR THE UNUSUAL LUNG PROBLEMS FOUND IN REFUGEES WHO CLAIMED TO HAVE BEEN IN A CHEMICAL ATTACK. IN HIS ARTICLE "CHEMICAL AND BIOLOGICAL WARFARE IN ASIA", THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, JULY 1983, HARRUFF STATED THAT HIS CONCLUSIONS HAD BEEN SUBSTANTIATED BY OTHER INVESTIGATORS, BUT HE WAS AMAZED AT THE LACK OF INTEREST SHOWN BY THE MEDICAL AND SCIENTIFIC COMMUNITY ON THE PLIGHT OF THE AMONG PEOPLE.

- MANY OTHER INDIVIDUALS IN THE MEDICAL PROFESSION HAVE MADE SIGNIFICANT CONTRIBUTIONS. DR. STAFFORD BURKE AND DR. BIRD, AT THEIR OWN INITIATIVE, CONDUCTED EXAMINATIONS OF ALLEGED GAS VICTIMS AT THEIR SCHOOL VISION HOSPITAL IN VAN HAI REFUGEE CAMP WITH AN UNCLASSIFIED UNCLASSIFIED

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EFFICIENCY DIFFICULT TO ACHIEVE GIVEN THE FACILITIES AND NUMBER OF PATIENTS. THEIR TESTIMONY APPEARS IN THE JM REPORT. LIKEWISE, THE CANADIAN EPIDEMIOLOGICAL SURVEY, SUBMITTED TO THE JM, PROVIDED A USEFUL GUIDELINE FOR FUTURE MEDICAL SURVEYS IN THAILAND AND ELSEWHERE. MUCH WORK NEEDS TO BE DONE BY QUALIFIED MEDICAL PERSONNEL TO CORRELATE THE SIGNS AND SYMPTOMS OF VICTIMS FROM THE THREE COUNTRIES IN ORDER TO DISTINGUISH VICTIMS OF NATURAL DISEASE FROM THOSE EXPOSED TO CHEMICAL WEAPONS. PERHAPS THE RECENT EXPERIENCE OF SWEDISH, AUSTRIAN, SWISS AND BRITISH PHYSICIANS IN TREATING THE IRANIAN CHEMICAL WARFARE VICTIMS WILL STIR MORE INTEREST IN THIS PROBLEM. THE BUDGET FOR THE US ARMY PROGRAM ON MEDICAL INTELLIGENCE WAS ALMOST CUT YEARS AGO UNTIL IT WAS POINTED OUT TO THE CONGRESS WHAT A VALUABLE SERVICE THESE MEDICAL SPECIALISTS ON CHEMICAL WARFARE PROVIDE.

THE ROLE OF THE SCIENTISTS
- SCIENTISTS FROM MANY DISCIPLINES HAVE TACKLED UNCLASSIFIED

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WHAT IS THE MOST DIFFICULT TASK IN THE INVESTIGATION:
THE ATTEMPT TO DISCOVER WHAT SPECIFIC AGENTS HAVE
OR HAVE NOT BEEN USED. MANY SCIENTISTS HAVE
ESTABLISHED A DEMANDING SET OF CRITERIA TO BE USED
IN DETERMINING WHETHER SPECIFIC CHEMICAL AGENTS
WERE EMPLOYED AT A GIVEN TIME. SOME OF THE SPECIALISTS
WILL NOT BE CONVINCED UNLESS THEY PERSONALLY CAN
COLLECT CONTAMINATED SAMPLES AND ANALYZE THEM IN THEIR
OWN LABORATORIES. WHILE THE DISCOVERY OF AGENTS
IN ENVIRONMENTAL AND BIOLOGICAL SAMPLES WAS SOME
RELATIVELY UNCHALLENGED, SCIENTISTS HAVE QUESTIONED
THE ORIGIN AND CREDIBILITY OF THE SAMPLES AS WELL AS
THE CAUSE FOR THE PRESENCE OF TOXINS. MOREOVER, THERE
HAS BEEN A CONSISTENT CALL FOR MORE TESTS OF COMPLEX
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SAMPLES TO DETERMINE THE NATURAL OCCURRENCE OF SPECIFIC
TOXINS IN THE ENVIRONMENT WHERE THEY WERE COLLECTED.

WHETHER IT IS POSSIBLE TO ESTABLISH A SCIENTIFIC
PROOF THAT SPECIFIC CHEMICAL WEAPONS
HAVE BEEN USED IN AREAS DENIED TO INVESTIGATORS IS
A DEBATABLE SUBJECT. EVEN WHEN INITIATIONS WERE
TAKEN FROM THE IRANIAN BATTLES BY THE US TEAM AND
THE AGENTS USED IDENTIFIED AS MUSTARD AND NERVE GAS,
THERE WAS NOT ABSOLUTE PROOF THAT THE IRAQI FORCES HAD
FIRED THE SHELLS OR DROPPED THE BOMBS. THEREFORE,
PRODUCING A MUNITION FILLED WITH AN AGENT DOES NOT
MEET THE SCIENTIFIC REQUIREMENTS TO IDENTIFY THE
GUILTY PARTY. CALCONNETT THE MUNITION TO THE SYMPTOMS
OF THE ALLEGED VICTIMS. THEREFORE, WE ARE FACED
WITH A SITUATION WHERE THE SCIENTIFIC INFORMATION
(SAMPLE ANALYSIS) MUST BE CORRELATED WITH EVIDENCE
PROVIDED BY EYEWITNESSES, DEFECTORS, PHYSICIANS,
INTELLIGENCE SOURCES AND HISTORICAL RECORDS ON
CHEMICAL WARFARE. THIS WAS THE APPROACH TAKEN
BY THE US GOVERNMENT THAT LED TO THE CHARGES THAT
CHEMICAL WEAPONS HAD BEEN USED IN SOUTH EAST ASIA
AND AFGHANISTAN. SCIENTISTS INSIDE AND OUT OF THE
GOVERNMENT HAVE WORKED FOR YEARS TO POSITIVELY
IDENTIFY THE AGENTS THAT HAVE BEEN USED.

DR. CHESTER PIROCHA, UNIVERSITY OF MINNESOTA,
DEVELOPED NEW TECHNIQUES WITH THE GAS CHROMATOGRAPH/MASS

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SPECTROMETER AND USED A FULL MASS SPECTRAL SCAN TO COMPARE SAMPLE FINDINGS WITH KNOWN STANDARDS. MIROCHA CONCLUDED, AFTER COMPLETING HIS ASSESSMENT OF SAMPLES FURNISHED BY THE US GOVERNMENT, THAT THE HIGH LEVELS OF DIFFERENT TOXINS FOUND ON VEGETATION AND IN BIOMEDICAL

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MATERIAL COULD NOT HAVE OCCURRED AS A RESULT OF NATURAL CONTAMINATION. DETAILS OF THE EXPERIMENTAL PROCEDURES USED WERE PRESENTED AT THE SOCIETY OF TOXICOLOGY MEETINGS IN LOUISVILLE, KENTUCKY, ON AUGUST 16, 1982; AT AN INTERNATIONAL MYCOTOXIN SYMPOSIUM IN VIENNA, ON SEPTEMBER 1, 1982; AND AT THE ASSOCIATION OF ANALYTICAL CHEMISTRY MEETING IN WASHINGTON, DC, ON OCTOBER 28, 1982.

DR. MIROCHA FOUND TRICHOHECENE TOXINS IN SAMPLES FROM LAOS, KAMPUCHEA, THAILAND AND AFGHANISTAN.

--DR. SHARON WATSON, US ARMY (NOW DEFENSE DEPARTMENT) MEDICAL INTELLIGENCE AND INFORMATION AGENCY, FT. DIETRICK, MARYLAND, WAS RESPONSIBLE FOR PREPARING POSITIVE, CONTROL AND NEGATIVE SAMPLES BEFORE THEY WERE SENT TO LABORATORIES FOR ANALYSIS. SHE ALSO WROTE SCIENTIFIC RESEARCH PAPERS ON TRICHOHECENE TOXINS WHICH WERE INVALUABLE IN THIS FIELD THAT FEW, EVEN IN THE SCIENTIFIC COMMUNITY, UNDERSTOOD.

--WILLIAM SARTER, US ARMY CHEMICAL SYSTEMS LABORATORY, OVERSAW THE TESTING OF SAMPLES FOR TRADITIONAL AGENTS AND THE BUILDING OF A GC/MS ANALYTICAL CAPABILITY WITHIN THE ARMY. RESULTS OF TESTS IN HIS LABORATORY WERE CHECKED BY THE FOOD AND DRUG ADMINISTRATION AND PRIVATE LABORATORIES.

--DR. JOSEPH ROSEN, RUTGERS UNIVERSITY, ANALYZED SAMPLES FROM SOUTHEAST ASIA FOR THE US GOVERNMENT AS WELL AS FOR ABC TV NEWS. HE NOT ONLY FOUND LEVELS OF TRICHOHECENE TOXIN COMPARABLE WITH WHAT DR. MIROCHA FOUND, BUT HE ALSO FOUND A SYNTHETIC SUBSTANCE, POLYETHYLENE GLYCOL, WHICH HE CAN DEMONSTRATE WAS IN THE SAMPLE MATERIAL, NOT A CONTAMINANT FROM THE CONTAINER AS SOME HAVE SUGGESTED. RUTGERS HAS PUBLISHED HIS PAPER, WRITTEN WITH ROBERT ROSEN, 'PRESENCE OF FOUR FUSARIUM MYCOTOXINS AND SYNTHETIC MATERIAL IN 'YELLOW RAIN'', 1982.

--SURVEYS OF THE TOXIGENIC FUNGI AND MYCOTOXINS
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