WINDS OF DEATH:
IRAQ'S USE OF POISON GAS
AGAINST ITS KURDISH POPULATION

Report of a Medical Mission
to Turkish Kurdistan
by
Physicians for Human Rights

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PHYSICIANS FOR HUMAN RIGHTS

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response from the governments of Iran and Iraq, PHR elected to send the team to Turkey without further delay. Turkish Embassy officials in Washington, DC, assured us in advance that Iraqi refugees in newly formed camps would be accessible.

We assembled in Boston and flew directly to Ankara. From Ankara, we proceeded to southeastern Turkey, using the city of Diyarbakir as our principal base for five days. A two-day side trip to Hakkari Province and daily trips to Mardin Province and other areas began from Diyarbakir.

Despite considerable difficulties, we believe that the mission was able to gather convincing evidence that lethal poison gas was used against the Kurds on August 25, 1988. Obtaining such evidence was the principal goal of the mission. We were not able, however, to visit all the refugee camps, although we attempted to do so. Neither were we able to meet with health professionals involved in treating the Kurds in the camps.

We succeeded in entering two refugee camps. One camp near the city of Mardin housed just over 5,100 residents, and another near Diyarbakir over 13,100. In both cases, there was a delay of several hours, while we obtained permission to enter, and we had to leave before 5:00 p.m. camp curfews. We therefore spent only four to five hours in each camp. We sought to enter three other camps near the towns of Silopi and Yuksekova, containing a total of 30,000 inhabitants, but we were denied access to these by regional officials of the Turkish government. We also briefly visited one hospital in Hakkari Province, but were unable to tour it or speak with physicians working there.

We wish to thank the J. Roderick MacArthur Foundation, which has generously supported PHR's work in the Middle East through a grant, as well as the PHR members and contributors who helped make our trip possible. Many experts familiar with chemical weapons and Middle East politics kindly assisted the authors in preparing this report. It was reviewed by the PHR editorial review committee and a group of outside experts (see Appendix A). We thank the reviewers and others who enhanced the effectiveness of the mission. We thank Gwynne Roberts for the title. We also wish to thank Vera Saeedpour of the Kurdish Center and Samande Siaband of the Kurdish Library. Because of the need to safeguard some individuals, many who helped us cannot be thanked. We take this opportunity to offer a general expression of gratitude for their assistance.

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As the final decade of the 20th Century approaches, the world faces critical choices in the effort to stem the proliferations of chemical weapons. Public revulsion at the use of chemical weapons in World War I led to the Geneva Protocol of 1925, which bans use of poison gases in war. The public reaction to poison gas warfare was due in large part to the indiscriminate nature of chemical warfare, its long-lasting medical effects, and the grotesque accounts of those directly exposed in the trenches. With a few exceptions, poison gas warfare on a large scale has been avoided since the end of World War I. Indeed, many countries have destroyed their stocks. Until recently, chemical weapons appeared to be a class of weapons whose use had been successfully contained by international agreements.

The Iran-Iraq war, however, reintroduced chemical warfare on a large scale, threatening to reopen this Pandora's box. Chemical weapons were used on many occasions in that conflict from 1983 through 1988. Iran and Iraq agreed to a cease-fire on July 18, 1988, to take effect a month later. There were some reports of chemical warfare in the Kurdish areas of Iraq in the period of August 3-6, 1988.

On August 25, 1988, several days after the cease-fire was implemented, Iraqi armed forces began a major military offensive against the Kurds in northern Iraq. Thus began a massive migration of more than 50,000 Kurds across the border into southeastern Turkey. The migration slowed on September 5, when Iraqi armed forces sealed the border.

Early press reports indicated that the Kurds had fled in the face of large-scale poison gas attacks. The Iraqi government denied using chemical weapons, just as they initially had denied using them in the conflict with Iran. Official statements by the Turkish government were equivocal, neither confirming nor denying that chemical weapons had been used. On September 12, the United States and twelve other countries asked the United Nations Secretary General to investigate the allegations. The Secretary General sought to send a team of experts to the region, but Iraq and Turkey denied the UN request.

Physicians for Human Rights (PHR) elected to send a mission to the region in light of uncertainty about whether poison gas had been used, the clear need for independent medical assessment, and the international significance of chemical warfare allegations. PHR did this out of its stated commitment to report the medical effects of human rights abuse, in this case focused on a government's alleged use of poison gas against its own people.

If Iraq did indeed use poison gas on Kurds living within its borders and under rule of its government, then the events of late August 1988 raise questions not only about whether the Geneva Protocol applies, but also whether a new and particularly odious form of human rights abuse -- poison gas attack by a government against its own citizens -- has been perpetrated for the first time.

A team of three doctors representing PHR went to Turkey from October 7-16, 1988. We designed a questionnaire specifically for this investigation. Twenty-seven residents of refugee camps, who reported being eyewitnesses to poison gas attacks while in northern Iraq, completed the 120-question forms. We also conducted physical examinations, videotaped in-depth interviews with over 20 camp residents, and spoke informally with hundreds of camp residents, government officials, journalists, diplomats, and other observers. The questionnaires took one-half to one hour to complete, and video interviews ranged from ten to thirty minutes in duration.

PHR initiated the investigation independently of any government or nongovernment organization, following consultation with specialists in chemical warfare, human rights, and Middle East studies. PHR requested permission from the government of Iraq to visit the sites of alleged attacks, and asked the governments of Iran and Turkey for permission to interview Iraqi refugees who fled the areas allegedly attacked. After waiting one month and receiving no
PRINCIPAL FINDINGS


   This conclusion is based on responses to a systematically administered questionnaire, videotaped eyewitness accounts, and findings on physical examination of those residing in refugee camps in southeastern Turkey at the time of the mission.

2. Poison gas bombs killed humans and animals nearby, and caused severe suffering among survivors.

   Refugees consistently reported that attacks were carried out by low-flying jets early in the morning of August 25, 1988. Bombing runs were followed by the appearance of yellowish clouds at the site of bomb bursts. Birds and domestic fowl near bomb bursts were killed within two to five minutes, followed closely by sheep, goats, cows, and mules. Larger mammals and people close to the point of detonation began to die soon afterwards. Their skin darkened and yellow, sometimes bloody, discharge drained from their noses and mouths. No survivor reported being closer than 50 meters to a bomb blast.

   Survivors reported a cluster of symptoms indicating severe inflammation of the eyes, respiratory, gastrointestinal, and urinary tracts, and blistering skin burns.

3. Survivors told consistent stories about the August 25 attacks, even when residing in separate camps with no opportunity to communicate.

   Statistical analysis of responses to the questionnaire demonstrated that refugees originating from the same village gave mutually consistent answers regarding the time of attack, weather conditions, number of attacking jets, and number of casualties in their village.

   Those stating they were close to the site of bomb bursts reported a more severe pattern of characteristic symptoms, suggesting a dose-dependent response to the offending agents.

4. Survivors showed medical findings consistent with exposure to poison gas.

   We examined a middle-aged man who was a casualty of poison gas attacks. He had several extensive lesions on his back and flank, consistent with chemical burns by a blistering poison gas such as mustard gas (ypertite). These were large expanses of hyperpigmented skin surrounding unpigmented new skin in a "geographic" pattern. According to the victim, the new skin had evolved from vesicles (blisters) filled with clear amber fluid that began to appear one-half to one after exposure to chemical attack. The burns were concentrated where he had been wearing tight-fitting clothes.

   Two children were also casualties, but had a different pattern of injury. They showed residual skin burns with areas of skin darkening and induration concentrated on surfaces they said had been directly exposed to poison gas (e.g., the back of hands, face, and upper chest). More than a dozen other refugees showed us skin lesions that had almost completely healed. Their pattern of distribution on face, hands, neck and other exposed skin surfaces was consistent with patients' histories of exposure to blistering chemical agents.
5. Eyewitness accounts, the pattern of symptoms reported, and physical evidence obtained by others point to the use of lethal poison gases including, but not restricted to, sulfur mustard (ypertite).

We could not determine the number of chemical munitions used, the scale of attacks, or the chemical composition of agents. The pattern of injury and time-course of symptoms are consistent with observations on victims of Iraqi chemical weapons made by UN investigatory teams from 1984 through 1988. They are also consistent with soil samples taken from Iraqi Kurdistan by British journalist Gwynne Roberts, which revealed degradation products of sulfur mustard. Eyewitness accounts of deaths beginning within minutes of exposure, however, cannot be explained by mustard gas alone. The sum of the evidence is most consistent with use of at least one agent in addition to sulfur mustard.
Soon after dawn on August 25, 1988, eight-year-old Aagiza was tending the family livestock a few hundred meters from her home in Ekmala, a mountain village in northern Iraq. She looked up when she heard two aircraft flying over the village, and watched them drop bombs, one of which hit near her home. Both her parents and her brother were standing near the house. Seconds later, it exploded with a "poof," not a loud explosion. She described the events to us.

"It made smoke, yellowish-white smoke. It had a bad smell like DDT, the powder they kill insects with. It had a bitter taste. After I smelled the gas, my nose began to run and my eyes became blurry and I could not see and my eyes started watering too. And I still have some of the effects like my blurry vision and I have these things [darkened skin blisters] over my chest. I saw my parents fall down with my brother after the attack, and they told me they were dead. I looked at their skin and it was black and they weren't moving. And I was scared and crying and I did not know what to do. I saw their skin turn dark and blood coming out from their mouths and from their noses. I wanted to touch them, but they stopped me and I started crying again."

She soon joined her grandmother, another brother, and three sisters to begin a trek over high mountain passes to southeastern Turkey. Her eyes watered, her skin burned, her nose ran, and she had difficulty breathing. She spoke to no one for over four weeks, and began to talk only a few days before the PHR team entered the refugee camp near Mardin.

At the time of the PHR investigation, the surviving members of this Kurdish family had been living in the tent camp for a month, and winter was approaching in the highlands. They had no idea where they would be in a week or thereafter.
IRAQI USE OF CHEMICAL WEAPONS IN KURDISTAN

BACKGROUND ON THE MISSION

On August 25, 1988, Iraqi armed forces dramatically escalated a military campaign against the Kurds in northern Iraq. From August 25 through September 5, 1988, more than 50,000 Kurds fled into Turkey [1], after which Iraqi forces sealed the border, thereby preventing further emigration. Initial press reports stated that the Kurds had left Iraq because of large-scale attacks by chemical weapons. Statements from Turkish military doctors examining the sick refugees noted that the wounds were compatible with mustard-gas poisoning [2]. On September 2, 1988, the Iraqi News Agency quoted Iraq's Foreign Minister "strongly denying the use of chemical weapons in northern Iraq" [3].

Subsequent reports were mixed about whether or not injuries of the Kurdish refugees were due to poison gas. Some reporters quoted Turkish doctors and nurses as saying that they were treating cases of chemical weapons injury [4], while others quoted doctors who attributed their findings to natural causes or endemic illnesses [5]. On September 9, 1988, the Turkish Foreign Ministry announced it had "no evidence" that Iraqi refugees were suffering from chemical weapons injuries [6]. An investigatory team of staff from the U.S. Senate Foreign Relations Committee visited the southeastern border region September 12-15, and on September 21 reported "overwhelming evidence" that Iraq had used poison gas [7]. The conclusion was based principally on eyewitness accounts and the absence of alternative explanations for the sudden mass exodus of Kurds. A week later, however, a widely read Op Ed piece by Milton Viorst in the Washington Post questioned whether Iraq had used lethal poison gas against the Kurds [8].

The Secretary General of the United Nations requested that a team of chemical weapons experts investigate the allegations of poison gas use against the Kurds, but the request was denied by the governments of Turkey and Iraq. The Turkish Foreign Ministry representative, in particular, asserted that Turkish medical experts had "found no trace or evidence of chemical weapons" and argued that a UN investigation was unwarranted because it would "create a wrong impression that Turkish medical experts are inadequate to make related research" [9].

Physicians for Human Rights (PHR) and many other human rights organizations were alerted early in September about the alleged use of lethal poison gas against the Kurds of northern Iraq. The ability of international groups to investigate the case was in doubt because the Kurds in question live within the borders of Iraq, and the Iraqi government had declared the matter "an internal issue," not subject to international inquiries [10]. PHR resolved to send a team of physicians to investigate the allegations of lethal poison gas and to assess the medical condition of the refugees in southeastern Turkey. Three of us departed for Turkey on October 6 and returned October 17, 1988.

Investigations of chemical warfare are ideally made by a team with immediate access to sites of alleged attacks, the ability to examine victims, special equipment to detect chemical agents, and means to gather physical evidence for analysis. We were well aware that an ideal investigation was not possible. We did not expect to find unexploded munitions, contaminated soil, or other direct physical evidence. We attempted as rigorous an analysis as possible given the circumstances, and we prepared a detailed questionnaire specifically for the mission [11].
Excerpt from a Video Interview in Mardin Camp:
70 year-old woman, Fanmya, Mylich Village

"It was early morning, we had not had our breakfast yet, around 6:00 or 6:30, the airplane came over and dropped some bombs and a blackish white smoke came out and all of a sudden my eyes became blurry, my nose started running, my skin started itching and I became short of breath and felt terribly weak. It had a very bad smell like garlic and my mouth became bitter. About two minutes later, I began to feel sick and after that my skin felt like it was burning. I saw a lot of animals die before I felt sick -- birds, chickens, hens, cattle, sheep, goats. And then I had difficulty breathing, my skin was burning, my eyes were burning, and my nose was running. There was water oozing from my skin -- my face and hands. The fluid was coming out yellowish, coming out from my skin which was severely burning and itching too.

"I was 300 to 500 meters away from the attack and there was no rain and it was sunny. For several days I could not eat because I was throwing up a yellow material. Before the attack, my village had 500 to 1,000 people, but only ten were there at the time of the attack. The others had left because they were afraid of an attack. We saw three people die in that attack. Their skin turned black and their clothes were stuck to their skin.

"They helped me, my fellows. They lifted me up, we went 50 feet. They put me down. They rested. We went another 50 feet and so on, because I was very weak. I could not walk. Mostly my son helped me out, while he was carrying me on his shoulder, the smell and fumes from my clothing made him sick and he got a runny nose and runny eyes and he became dizzy, as well as my daughter. When she washed my clothes and her father's clothes she became sick."
METHODS

We succeeded in gaining access to two refugee camps, one near the city of Mardin and another near Diyarbakir. We relied on two methods to gather the majority of data from eyewitnesses to alleged chemical attacks: videotaped interviews lasting from ten to thirty minutes, and the questionnaire survey.

We entered the camps after negotiating for access with local Turkish authorities. As we entered the camps, we were first greeted by a small group of men. We conversed with them and explained that we were attempting to assess the medical status of Kurdish refugees, particularly the reports of exposure to poison gas. In each camp, we quickly found several English-speaking camp residents, with whom we spoke about our mission. They later helped administer the questionnaire under our supervision. A Kurdish-speaking member of our team conducted the videotape interviews, translating questions into Kurdish for those interviewed and answers into English for the camera.

We asked those who claimed to be survivors of poison gas attacks to go to a central location in the camp, where they could fill out the questionnaire under our supervision. We also walked through the camp to conduct videotaped interviews of those claiming poison gas exposure. The interviewer asked refugees to describe the events preceding their migration from Iraq to Turkey. Follow-up questions elicited further details. When subjects reported severe symptoms or the death of animals, for example, they were asked for details about how long it took for symptoms to appear and the sequence in which animals and people died. We interviewed eyewitnesses of both sexes, and across the age spectrum. There was some overlap between those interviewed and those completing the questionnaire, but not all those interviewed answered the questionnaire, and many who filled out questionnaires were not interviewed on videotape.

The team explained the survey process and trained interview assistants before beginning to administer the questionnaire. We asked the English-speaking assistants and others gathered nearby to find camp residents from villages where chemical attacks were alleged to have occurred. We administered the first questionnaire while several camp residents watched and asked questions about the meaning of specific items. We trained several survey assistants in each camp this way.

The questionnaire itself consisted of 120 multiple choice and open questions on circumstances surrounding the attacks and medical effects on the respondent (see Appendix B). Questions elicited personal characteristics and the home village of the respondent; the conditions and timing of the alleged attack; the method of attack and characteristics of the munition; proximity of the respondent to the bomb-burst and description of casualties; and a long checklist of symptoms and effects (see Tables 1-5, Appendix C). In addition, we asked each respondent to describe events in his or her own words and to draw a diagram depicting the geography of the village, the location of the attack, wind direction, and other features of the attack.

We selected respondents from among the people assembled from towns on our list. The only sampling criterion was an emphasis on obtaining respondents across a full age range. We had no prior knowledge of the respondents’ histories, other than residence in one of the listed villages. Respondents were physically separated to ensure independent responses. Kurdish assistants who helped translate or clarify questions came from different villages than the respondents.

We encoded the responses, entered the data into a computer database, and analyzed them using EPIINFO epidemiological and statistical packages [Centers for Disease Control, Atlanta, GA].
"Using your own words, can you please describe what happened?"
Response from case 18, Berjini Village

"It was about 6 o'clock in the morning when six airplanes appeared in the sky. They were turning around and two of them dropped some bombs which when they exploded had a very muffled sound. We were not used to that sound. After that, I looked around. I do not know how far it was, but I could see a cloud with a dark yellowish color spread into the village. I could see from far away the animals were dying, but I could not see anybody at that time standing up or walking around at the time the blast happened. But I could smell something like garlic and my mouth tasted bitter and it became difficult to breathe. After the cloud disappeared, we went down and saw that a lot of animals -- birds, goats, sheep, cats, mules -- were dead. And we saw a lot of people dead. I have their names. We counted fifteen people there: Hasansaleh, Hasanaskenda, his son Kurdahasan, his other son Akinhasan, Salahsan, Hewhasan, Anyliamohamd, Disahamed, Mashimos, Mohamed, Abdul Ahamed, Alymikal, Rumadomohamed, Afamismal, Rhisjoseph, and Asyrihasan. I knew all those people in the village and they were dead. When we looked at them, their skin was dark. We did not touch them. After that, we left the village. We thought this is a poison gas. We left them behind and we went into the mountains to start the trip to Turkey."
RESULTS

Videotaped Interviews

We videotaped approximately four hours of interviews on three tapes. One tape from the camp near Mardin contained interviews with nine primary respondents, twelve other family members who added details, and scenes from camp life. Five of the primary respondents were male, and four female. They ranged from eight to seventy years old. Another tape of interviews from the Diyarbakir camp was sent by special messenger as a precaution against confiscation or loss, but had not arrived as the report was prepared. The third tape was an interview of a physician's assistant, the only medic for the Pesh Merga (Kurdish fighters) we met in either camp. He was not a direct eyewitness to the August 25 attacks, but saw many of the Kurds as they reached the border, and reported a poison gas attack from the Zewashikan region in 1987. He stated the recent attacks caused upper respiratory irritation, redness in the eyes, difficulty breathing, nasal discharge, and blister formation. Some patients had dry coughs and many had small blisters filled with clear yellow fluid. He believed those within several hundred meters of detonations had worse symptoms, and those closest to bomb-bursts had died. He reported some cases of bloody diarrhea and bloody urine among those closer to the detonations, and said the blisters were larger.

Questionnaires

Thirteen residents in Mardin camp, and fourteen in Diyarbakir camp completed questionnaires. The length of time required to fill out each questionnaire and time limitations imposed by camp authorities precluded the completion of more questionnaires. One respondent who reported an attack on June 5, 1987 was excluded from comparative analysis. The remaining 26 respondents came from eight different villages (Table 6, Appendix C).

Characteristics of the Population Surveyed

Respondents ranged from six to seventy years old; most were 18 to 59 (Table 7, Appendix C), with a mean of 33.8 years. Two respondents were female. Respondents identified themselves as farmers, housewives, and students (n = 18, 69 percent) or Pesh Merga (Kurdish fighters; n = 8, 31 percent).

Circumstances of the Alleged Attacks

With the exception of the one respondent who referred to an attack in June 1987, all respondents reported that chemical attacks took place on the morning of August 25, 1988. A single respondent from Berzewrick said an attack was carried out shortly before dawn with rockets. The other 25 reported attacks in early morning by low-flying jets that dropped bombs. Bombs detonated on impact (rather than in the air) and released clouds of substances. An open question on the color and odor of the agents elicited a number of responses (Table 8, Appendix C). The most typical profile was an agent that appeared yellow and smelled of "rotten garlic."

Twenty-five respondents completed responses to question 7: "Using your own words, can you please describe what happened?" Several refugees were able to draw maps of the region of the alleged attacks. A sample map (below) shows the location of houses, nearby geographic markers, and locations of bomb explosions.
Analyses of reporting consistency focused on reports from the three villages with six or more residents: Blijan, Ekmala, and Hese. We checked the responses from these villages for consistency, using questions about the time of attack, number of planes involved, number of villagers killed, and number of villagers injured.

One of six villagers from Ekmala and one of seven from Hese were residing in Diyarbakir camp. We were therefore able to compare their answers to those from the same villages living in Mardin camp. There had been no opportunity for communication between the camps. For questions about the time of attack, number of deaths, and number of planes, the responses of the single Diyarbakir camp residents from Ekmala and Hese fell within the range of those recorded in Mardin camp. In the case of number of deaths and number of planes, the Diyarbakir camp residents' answers were the same as the single most common response (the mode) from Mardin camp. On the question of the number of villagers sick after the attack, the lone respondent's answer from Diyarbakir camp fell within range for Ekmala village, but the single Hese villager in Diyarbakir camp estimated fewer deaths than did the five interviewed in Mardin camp. The data are presented in Figure 1, Appendix C.

**Symptoms Reported**

Simple frequency analysis of responses to the checklist of symptoms revealed a preponderance of eye irritation, respiratory tract symptoms, skin blistering, headache, dizziness, nausea, and vomiting. Symptoms and their frequencies are shown in Table 9, and the ten most frequent symptoms in Table 10 of Appendix C.

One question asked respondents to estimate their distance from the nearest bomb-burst. This allowed us to assess a possible dose response, assuming that those closer to detonations would on average have received greater exposure to poison gas. Distances were divided into three categories: less than 250 meters, 251 to 500 meters, and over 500 meters to closest bomb-burst. Three respondents could not estimate their proximity, and were excluded from the analysis. One respondent was a Pesh Merga soldier who said he had obtained a gas mask from the body of a dead Iraqi soldier. He said he put on the mask as soon as a bomb burst nearby, and so he was also excluded from analysis. The remaining 22 respondents were distributed among distance categories as shown in Table 11, Appendix C.
A categorical variable was created to classify subjects according to severity of symptoms. "High severity" subjects were those who experienced at least the following combination of symptoms:

1. Eye pain or redness, or eyelid swelling
2. Shortness of breath or chest pain
3. Skin blistering
4. Vomiting

All other subjects were classified as "low severity."

The relationship between distance and severity of symptoms by these criteria is shown in Table 12, Appendix C. Statistical calculation of odds ratios and significance is precluded by the presence of a zero cell and the small counts. None of those more than 500 meters away reported high severity symptoms, while half of those within 250 meters and just under half of those between 250 and 500 meters did so. We do not have sufficient data to reach a statistically significant conclusion, but the responses do provide support for the hypothesis that more severe symptoms occurred in those closest to bomb-bursts, i.e., higher exposure levels caused more severe effects.

**DISCUSSION**

It is important to review some of the limitations of the study before interpreting its significance. We had no access to those who would have been most severely affected in poison gas attacks because they would either have died soon after the attack or would have been too disabled to make the difficult journey to Turkey. Refugees in the Turkish camps represented only those who could reach the border before it was sealed by Iraqi armed forces, and so came from only a narrow border region of northern Iraq. On this mission, we could only expect to have seen those mildly to moderately affected. In addition, the mission arrived at the refugee camps five weeks after the alleged attacks, sufficient time for minor injuries to have healed. Facilities for laboratory evaluation were unavailable.

We focused on gathering testimony systematically from eyewitnesses to the events. The credibility of testimony naturally then becomes central to the validity of our findings. In anticipation, we designed the investigation to select the relevant people and to elicit detailed information that would allow close analysis of the facts as reported by respondents in a form meaningful to physicians and other specialists. Without a questionnaire, testimony can be misleading and it may be impossible to assess its consistency, thereby calling into question the credibility of the witnesses.

**Consistency of Response and Nature of Agents Used**

Taken either separately or as a whole, the record of videotaped interviews and questionnaire responses paints a consistent picture of the circumstances of the alleged chemical attacks and their medical consequences. Analysis of questionnaire data on the timing of the attack, number of persons killed, and number of persons injured shows that the experiences of residents in the same village were similar, and distinct from those in other villages. There is close agreement on the nature of the attack itself, with descriptions conforming to those expected from attack by lethal poison gas, and inconsistent with conventional high explosive ordnance.

The pattern of symptoms described by refugees is consistent with exposure to lethal poison gas. Severe irritation of eyes, disturbance of the pulmonary, gastrointestinal, and urinary functions, skin blistering, and physical descriptions of the agents are suggestive of exposure to a lethal blistering agent such as mustard gas. Similar profiles are described by chemical weapon experts in several UN reports that document mustard gas use in the Iran-Iraq war (see
Appendix D). Use of sulfur mustard alone, however, would not explain the common and consistent reports of animals and people beginning to die within minutes of detonation. The latency of sulfur mustard is at least one-half hour, even with extremely high doses [12].

The degree of skin blistering and duration of respiratory tract symptoms are not consistent with harassing agents such as CS (a form of "tear gas"). CS and other agents would also fail to explain the frequent reports of rapid death of animals and people. Severe weakness, seizures, and difficulty moving were not frequently described, and this militates against the conclusion that nerve agents were used, although it does not rule them out.

We conclude that lethal poison gas was used, including but not confined to sulfur mustard. One expert in chemical warfare who reviewed PHR data concluded that the agent best explaining most of our findings is Lewisite [13]. Other experts who have reviewed the data suggest that a combination of nerve agents or arsenicals with sulfur mustard could explain the symptoms reported. The limitations of the interview method, the unavoidable delay in conducting physical examinations, and lack of direct site access preclude us from determining precisely which agent or agents were used in addition to sulfur mustard. But this uncertainty should not obscure the more important conclusion that lethal poison gas was indeed used.

The most compelling evidence that poison gas was used comes from analysis of questionnaire responses. The four symptoms required to meet our criteria for "high severity" are those of ocular inflammation, pulmonary irritation, skin burns, and marked gastrointestinal distress -- effects on 4 different organ systems. The presence of pulmonary or gastrointestinal symptoms alone might not cause surprise in this population, although unexplained skin burns would certainly require some special explanation. The simultaneous expression of injury to all four organ systems, however, is highly unusual. Simultaneous presence of this symptom complex in such a high proportion of our sample (8 of 22 for whom there is complete information) is even more difficult to explain other than as a result of poison gas exposure. None of these symptoms would be expected at anywhere near this frequency. The increased likelihood of severe symptoms with greater exposure levels further supports a causal association.
OTHER LINES OF EVIDENCE

Physical Evidence Gathered by British Journalist

Evidence from a variety of other sources supports our findings and conclusions. Gwynne Roberts, a free-lance journalist on assignment to the Middle East for Independent Television News and Channel 4 in London, undertook a clandestine trip into northern Iraq twelve weeks after the alleged attacks [14]. He was accompanied by a London-based Kurd and a group of Pesh Merga (Kurdish fighters) attached to the Kurdish Democratic Party. Mr. Roberts obtained seven soil samples and exploded bomb fragments from the regions allegedly attacked. Clayton, Bostock, Hill & Rigby, Limited, a British firm that does chemical analysis, identified three compounds from one of the samples taken near an exploded bomb fragment. The British Chemical Defense Establishment at Porton Down also analyzed multiple samples. The private laboratory found 1,4-dithiane, 1,4-oxathiane, and 1,1-thiobis-ethene -- sulfur mustard thermal degradation products -- by mass spectrometry; the government laboratory found soil "relatively heavily contaminated" with sulfur mustard and also detected nine degradation products [15]. No nerve gas or other agents were directly detected, although further analysis for arsenical compounds is still pending.

Eyewitness Accounts Reported by Other Groups Visiting the Region

Eyewitness accounts of chemical warfare were reported by dozens of journalists and other observers. Amnesty International (AI) had a four-person team investigating the human rights situation of the Kurdish refugees in southeastern Turkey at the same time as PHR. The AI team related multiple eyewitness reports of chemical weapon use [16]. The British television group that discovered the physical evidence of mustard gas contamination also videotaped numerous eyewitness accounts of the chemical attacks, taken from persons not in refugee camps (and therefore constituting a separate sample from PHR interviews). Those interviews reported attacks as late as August 29, 1988 [17]. Four Members of Parliament from southeastern Turkey who visited their districts in early September also reported to us that they saw many refugees with large amber-colored blisters who said they had been attacked with poison gas bombs.

Massive Migration from Northern Iraq

Over 50,000 Kurds left Iraq in the week from August 28 to September 5, 1988 [1]. It is undisputed that this mass migration was precipitated by an Iraqi military campaign in northern Iraq which dramatically escalated on August 25. The indigenous population had sustained many attacks by conventional weapons over the past three decades, with intermittent fighting during the Iran-Iraq war (including attacks in mid-1987), yet this time they fled. Those directly interviewed said that they left Iraq to escape further attacks by chemical weapons.

Iraqi Troops Seen Using Gas Masks

More than a week after the alleged attacks, the Iraqi government arranged a tour of parts of northern Iraq for journalists. The tour did not visit areas of most intense combat, helicopters were not allowed to land at village sites, and dozens of videotapes were confiscated afterwards [18]. Nonetheless, the journalists described seeing Iraqi troops wearing gas masks [19]. Chemical defense masks and special clothing are cumbersome and diminish troop efficiency, and it is difficult to explain why Iraqi commanders would require troops to wear such equipment without cause.

Pesh Merga soldiers gave several gas masks and antidote kits (containing atropine and oxime, used to treat nerve gas attack victims) to the British journalist who surreptitiously entered northern Iraq. The Pesh Merga soldiers stated the kits and masks were taken from Iraqi soldiers killed in battle; the instructions were in Arabic (spoken in Iraq, as opposed to Farsi used by Iranians, or Kurdish used by Kurds) [20].
Iraq Refused a United Nations Investigation Despite Having Permitted Such Investigations Before

Iraq rejected a request from the United Nations (UN) to investigate the sites of alleged chemical bombings of late August. The Iraqi government failed to respond to a PHR request for site access. Iraq thus obstructed site access despite having three times permitted UN war zone investigations the year before, during the war with Iran. The reason offered by the Iraqi Foreign Minister was that "the Kurds are Iraqis and it is an internal matter" [21].

Iraq Possessed Chemical Weapons and Had Used Them Against Iran

Finally, Iraq is known to have possessed and used chemical weapons in the war with Iran. This has been documented repeatedly in seven UN missions (see appendix D). The first mission, in 1984, found physical evidence of mustard gas (yperite) in shells and soil samples and also found an unexploded bomb containing the nerve gas Tabun [22]. UN missions since that time have repeatedly examined survivors of poison gas attacks and found physical evidence of mustard gas use. The UN reports show a progressive escalation from use against soldiers to attacks against civilian targets (see appendix D). Thousands of civilians were killed in an Iraqi poison gas attack on the town of Halabja in mid-March 1988 [23]. The northern Iraqi town was held at the time by Iranian forces.

Summary of Evidence

In summary, Iraq possessed chemical weapons and had used them before. A massive migration of Kurds began on August 25, and was finally stopped when Iraq sealed its border to prevent further exit. Kurds in two separate Turkish refugee camps described poison gas attacks convincingly. They reported symptoms consistent with chemical injury, and there was agreement on details of the events, despite there having been no communication between refugee camps. Healing burn wounds were apparent on physical examination. Soil samples taken from Iraqi Kurdistan revealed thermal degradation products of sulfur mustard, and Iraqi troops in the region after the attack were seen wearing gas masks. Iraq thwarted UN investigation despite having previously permitted such investigations in its territory.

Incentives for Chemical Weapons Proliferation

Barring action by the world community, the Iraqi chemical bombings of late August 1988 could prove a landmark in the spread of chemical weapons. These attacks are distinctive in several respects: (1) they represent use of chemical weapons against an indigenous population by its own government, (2) descriptions of the attacks include both civilian targets (villages) and the Pesh Merga (Kurdish-fighters), (3) the attacks precipitated a mass emigration, (4) the UN sought, but was rebuffed in pursuing, an investigation of chemical weapons use, and (5) Iraq has escaped any significant penalties for its use of lethal poison gas.

The Iraqi attacks are most worrisome because they appear to have been successful and were conducted with impunity, which may well tempt other countries to acquire chemical weapons. The Kurds have intermittently fought Iraq for decades in an attempt to gain political autonomy. With chemical bombing, Iraq succeeded in dislodging the entrenched population in one week. The targets included both civilian villages and outposts of the Pesh Merga.

The lack of demonstrated effectiveness and logistical difficulties in making and delivering chemical weapons were important factors constraining their use. Threat of retaliation in kind and improved protective measures have limited incentives to use poison gas. In World War I, chemical defense soon caught up to offense, and neither side gained a sustained advantage by using chemical arms [24]. Iraq, however, appeared to successfully employ poison gas against opponents unable to take protective measures or to retaliate in kind.
VIOLATIONS OF INTERNATIONAL LAW

Iraq's use of chemical weapons against the Kurds highlights several weaknesses in the international agreements that limit use of chemical weapons. Effective international agreements seeking to prevent chemical weapons proliferation must fill these gaps. International law shows a longstanding effort to prohibit the use of particular weapons. The theme of international law, first voiced at the Hague Conference of 1899, is that needless suffering should be avoided. At that time, sixteen nations declared a ban on the use of armed munitions for the distribution of asphyxiating gas.

The Geneva Gas Protocol of 1925 was more specific, but was still couched in broad language. It prohibited "the use in war of asphyxiating, poisonous, or other gases, and of all analogous liquids, materials and devices," and also banned use of bacteriological weapons. Iraq signed the Geneva Protocol.

Iraq clearly broke the Geneva Protocol in its war with Iran. Whether it did so in chemical bombings of the Kurds is less clear. The Kurdish conflict falls within Iraq's border, and the Protocol's referent for "use in war" is not clear. This could be taken to mean only in declared wars, although by convention it has been taken to apply to internal conflicts as well [25]. The Geneva Protocol, moreover, only prohibits use in war, but modern conflicts may never be officially declared wars even as thousands are killed.

Events in Kurdistan illustrate both the ambiguity of what is banned and the absence of verification measures under the Geneva Protocol. Only use of chemical weapons is banned, not possession. In 1972, the United Nations General Assembly adopted the Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction. This prohibits possession, production, and use of biological and toxin weapons. Turkey has ratified this convention, and Iraq has signed but not ratified it. Under terms of the Convention, alleged violations are to be taken to the United Nations Security Council for its investigation and report. In the case of the late August bombings in Kurdistan, Iraq was successful in blocking the UN General Secretary's request for an investigation. One could argue that chemical weapons, as opposed to biological and toxin weapons, fall outside the Convention.

Some authorities argue, however, that since 1975, when the Convention on the Prohibition on the Stockpiling of Toxin Weapons entered into force, the use of chemical and biological weapons are prohibited. Von Glahn notes that "In view of the fact that 128 countries are now bound by the Protocol, most writers today agree that the Geneva instrument is binding on all states through the general rule of customary international law springing from the provisions of the Protocol" [26]. Use of poison gas is banned by the cumulative authority of (1) the Geneva Protocol, (2) the 1972 UN Convention, and (3) customary international law dating back at least to 1899.

The "rolling text" draft of the Chemical Weapons Convention being negotiated in Geneva would plug many of the holes in existing international law. As currently formulated, this convention would prevent the development, production, acquisition, transfer, or use of chemical weapons, or preparations for use. It would ban possession of specified supertoxic lethal chemicals, other lethal and harmful chemicals, precursors, key components of binary or multi-component chemical weapons systems, and enhancement chemicals (those intended to increase the longevity or effectiveness of other agents). It would also ban devices designed to deliver chemical weapons and facilities for production of chemical weapons or devices to deliver them. Some chemicals specified in "schedules" (lists) would be subject to special controls. Verification would include demand inspections. Negotiators are focusing currently on the specifics of which agents to include for special protections, how to differentiate different categories of scrutiny, and how to ensure verification. What triggers an investigation and how to pay for personnel and activities to carry out the terms of the convention are also being negotiated [27].
Even if Iraq did not violate international law on use of poison gases in the late August campaign against the Kurds, it clearly violated the International Covenant on Civil and Political Rights. That Covenant states in Article 6(1) that "Every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life." Iraq ratified this Covenant on January 25, 1971.

Bombing of civilian Kurdish villages with poison gases that kill and maim indiscriminately is a clear violation of this Covenant. This makes the matter international in character. It legitimates international investigation and justifies collective actions, such as economic or political sanctions, to prevent further abuses [28].

A NOTE ON THE ROLE OF TURKISH DOCTORS

We attempted to meet with doctors in the Hakkari Province who had treated the first wave of Kurdish refugees. We were not able to do so (see Appendix E), and attempted to piece together the role of Turkish physicians from secondary sources. The role of Turkish physicians is important because they became the single most important source of information about a premeditated public health disaster. Several journalists and other observers told us that in the days following the influx of Iraqi Kurds, they spoke with Turkish doctors who ascribed the burn injuries they were seeing to poison gas attacks. Those same journalists and diplomats noted that the doctors' stories changed after the Turkish Foreign Ministry made its official statement that there was "no evidence" chemical weapons were used. The Turkish doctors involved had no previous experience with chemical weapon injuries [29].

The Amnesty International delegation met with eight Turkish doctors whom officials said had examined refugees allegedly exposed to chemical attacks. The doctors told the AI delegation that in the absence of visible signs of the use of chemical weapons, no laboratory tests (even of blood or urine) had been carried out on the nine victims examined. The doctors had neither visited the camps nor examined other refugees for traces of chemical agents [16].

Four Members of Parliament from the Social Democratic Populist Party, representing southeastern Turkey, told us that six doctors from the Hakkari Province wrote a report concluding chemical weapons were used, including analysis of blood tests, histories, and physical findings. One European doctor reported to us after we returned to the United States. He interviewed Turkish physicians that he had interviewed the doctors responsible for investigating chemical weapons use for the Turkish government. They told him that the doctor heading the treatment team declared that further investigation, including blood and urinary tests, was not necessary. They admitted "we did not do a thorough investigation" [30].

Diplomatic sources reported that at least two, and as many as six, autopsies were performed in Diyarbakir by Turkish doctors on those injured in the attacks. The autopsy reports have not been made available, despite their obvious international significance.

Doctors, quoted in press coverage of the Kurdish refugees, hedged on the crucial question of whether or not chemical weapons had been used. Ahmet Azboy, a Turkish doctor treating refugees in the camp near Silopi, confirmed that he was treating first-degree burns, but declined to speculate on their cause [31]. Sinan Seyfioglu, a doctor in Diyarbakir, was quoted as saying that doctors could not determine the cause of the many deaths among refugees, and he could not confirm or deny the use of chemical weapons. He went on to say "These people have been on the road for days. They suffer from exhaustion and various infections, including eye infections....This does not mean Iraq did not use poison gas, but if these people had been exposed, I don't believe they could have made it over here" [31]. Mustafa Yildez, a doctor with Turkish Red Crescent (the equivalent of Red Cross in Islamic nations) who treated refugees in the camp near Diyarbakir, was quoted saying "I don't see in this population signs of chemical bombs" [32].
The Interior Minister of Turkey, Mustafa Kelemli, is a physician. He asserted that "Turkey has nothing to hide," and assured reporters that "Turkey would let the facts be known" if there were medical evidence of poison gas use. He said that a special team of doctors was sent to the border region to investigate claims that many refugees were suffering the effects of chemical gas attacks, but "no one case proving the use of chemical weapons has been brought to the attention of our ministry."  

The role that physicians played in investigation of poison gas attacks is not clear. Their ethical obligations to pursue such investigations, to report their results to international authorities, or to refer the matter for investigation by an international body are also ambiguous. Physicians were obligated to treat patients brought to them. Such treatment would have required the most specific diagnosis possible. It is unfortunate that blood, urine, and tissue samples were not taken for analysis. The international community now knows that lethal poison gas was used, but does not know which specific agents were used in addition to sulfur mustard. 

If conclusive investigations were undertaken but not reported, then this raises the question of whether doctors have an obligation to report violations of international law to national and international authorities. The World Medical Association Regulation in Time of Armed Conflict states that "In emergencies, the physician must always give the required care impartially and without consideration of sex, race, nationality, religion, political affiliation or other similar criterion. Such medical assistance must be continued for as long as necessary and practicable." Codes of ethics for physicians are silent, however, on a duty to report abuses of human rights. Not even the Declaration of Tokyo (a World Medical Association document dealing with physicians and torture) includes a duty to report abuses [35]. The International Council of Nurses does explicitly require that "nurses having knowledge of physical or mental ill-treatment of detainees and prisoners take appropriate action including reporting the matter to appropriate national and/or international bodies" [36] in caring for detainees or prisoners. The ambiguity of physician obligations in the case of chemical weapons use in Kurdistan will apply to other situations in the future, when physicians become the arbiters of knowledge crucial to deciding about violations of international law.
RECOMMENDATIONS

1. All governments, particularly the Iraqi government, should abide by existing international law prohibiting use of chemical weapons.

2. International law should be amended to explicitly prohibit use of chemical weapons in internal conflicts carried out by armed forces.

3. Pursuit of the Chemical Weapons Convention should be vigorously pursued, and an agreement signed soon.

   Any new convention for control of chemical weapons should prohibit the development, production, and use or lethal poison gases and other forms of chemical weapons as well as munitions designed to deliver them. Although no agreement can be perfectly verifiable, the world community is clearly better off with some further restraint to chemical weapons proliferation, rather than without it. Sanctions against use of poison gas must be clarified and strengthened. Only international agreement and collective actions can accomplish this. In the case of the Iran-Iraq war, Iraq used poison gas with impunity. In a May 1987 report documenting the use of mustard gas in the Iran-Iraq conflict, a group of UN experts expressed their frustration, noting that:

   While we are fully aware that all weapons are lethal and destructive, we wish to emphasize that chemical weapons are inhuman, indiscriminate in their action, and cause long-term disabilities and suffering. It is vital to realize that the continued use of chemical weapons in the present [Iran-Iraq] conflict increases the risk of their use in future conflicts. We all believe that at the specialist level, we have done all that we can do to identify the types of chemicals and chemical weapons being used in the Iran-Iraq conflict...technically there is little more that we can do...In our view, only concerted efforts at the political level can be effective in ensuring that all the signatories of the Geneva Protocol of 1925 abide by their obligations.

   Consequences of violating a chemical weapons convention must be serious enough to make the agreement an effective deterrent.

4. National and international health professional organizations should encourage physicians to report human rights abuse, should act to protect those reporting abuses, and should clarify the ethical obligations of physicians not only to treat but also to report human rights abuse and other violations of international law.

   Physicians have a special role because they so often become gatekeepers to critically important information. The role of Turkish physicians in investigating or failing to investigate the cause of the burns they were treating highlights the importance of clarifying the moral obligations of physicians, and points to a role for professional groups -- such as PHR and other organizations -- to investigate violations of international law and abuse of human rights. Regarding allegations of poison gas bombings in northern Iraq, the UN was successfully prevented from mounting an investigation, and other international health organizations failed to act. Turkish physicians failed either to investigate events of obvious importance or to report the results of such an investigation to any internationally recognized body. International organizations such as the World Medical Association should encourage physicians to report systematic abuses of human rights, devise ways to facilitate this process, provide protection for physicians risking their lives or careers, and explicitly articulate the duties of individual physicians learning of human rights abuse through exercise of their professional skills.
REFERENCES


13. Yves Alarie, Professor and Chairman, Department of Industrial Environmental Health Sciences, Graduate School of Public Health, University of Pittsburgh, letter to PHR dated 23 December 1988.


15. Clayton, Bostock, Hill & Rigby, Limited, accession code RJB/CH R22194-22198, 28 November 1988; Chemical Defense Establishment, Porton Down, United Kingdom, "Analysis of Samples Provided by Mr. Gwynne Roberts", Paragraphs 4 and 14, Table 1, and Figure 1 (mass spectrometric scan of Sample 4B), telefaxed by Gwynne Roberts on 31 January 1989.


30. Source's name withheld upon request.
37. UN Document S/18852, 6 May 1987, pp. 5 and 6.
APPENDIX A: LIST OF REVIEWERS

The authors and Physicians for Human Rights, as an organization, gratefully acknowledge the contributions of those on the list below, who read and commented on drafts of this report. The reviewers have greatly improved the quality of the report. The reviewers and others who helped are not responsible for our findings and conclusions, however, and their appearance on this list does not imply agreement with all points in the document.

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Department of Social Medicine
Montefiore Medical Center

Scott Weiss
Department of Medicine
Harvard Medical School
1. Administrative

1. Interview number: __________  2. Date: __/__/____  3. Interviewer: __________________________

4. Interpreter: __________________________  5. Language used: __________________________

6. Interpreter's occupation, position: __________________________

II. Background and Personal History of Respondent

1. Respondent's name (optional): __________________________

2. Current place of residence: __________________________

3. Last place of residence (if 2 is temporary): __________________________


7. Before the attack, how would you describe your physical condition (health) compared to other persons of your age? Would you say your physical condition was: __________________________

8. During the year before the attack, what illnesses were you treated for? About how long ago was this? __________________________

Illness, description of symptoms time (no, months since it began)

9. Before the alleged attack, please put check mark beside any disease you had:

   - ear disease: __________
   - eye disease: __________
   - fever: __________
   - nose or throat disease: __________
   - chest disease: __________
   - stomach (GI tract) disease: __________
   - urinary tract disease: __________
   - skin disease: __________
   - other disease: __________

10. We would like to ask more questions about your health problems you had before the attack. Have you had the following for several weeks or longer:

   - a skin rash/moles that didn't heal __________

9/27/88 QUESTIONNAIRE PHYSICIANS FOR HUMAN RIGHTS CHEMICAL WEAPONS
- itchy skin
- a fever
- dizziness
- any blood in your stools
- loose stools
- pain in your abdomen
- recurrent vomiting
- blood in your vomit
- recurrent discomfort or pain in the chest
- difficulty breathing when lying down
- your chest sometimes beat very fast even when not exerting yourself
- continuous cough
- coughed up blood
- coughed up a greenish slime
- coughed or took a deep breath that gave you a pain in the chest
- sudden attacks of coughing
- headaches
- pains in your eyes
- yellowness in the white of the eyes
- blurred or double vision
- sores in the corners of your mouth
- white, tender patches in your mouth
- blood in your stools
- pains in one or both legs
- stiff joints
- swollen or painful joints
- difficulty sleeping
- loss of appetite

III. Events of alleged chemical attack

1. were you present at the time of an attack? yes---1 (go to question 3)
   no --- 2

2. If not, how long after the attack was it before you visited the site?
   - same day—- 00
   - 1 day after---- 01
   - 2 days after---- 02
   - 3 days after---- 03
   - 4 days after---- 04
   - 5 days after---- 05
   - 7 days after---- 07
   - 8-14 days after-- 08
   - 15-21 days after-- 09
   - 22-28 days after-- 10
   - 29 or more days after-- 11
   - never at site---- 12
1. Have you been present during an attack on more than one occasion?
   a) yes
   b) no

2. If yes, specify the locations and dates of the attack. (List the most recent attacks first)
<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
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3. Where did the attack under review occur?
   ____________________________________________________________

4. Approximately how many people lived in the village/town then?
   ____________________________________________________________

5. What was the date and time of the attack? date: _______ / _______ / _______ time of day: _______

6. Using your own words, can you please describe what happened.
   ____________________________________________________________

7. What was the weather like at the time of the attack?
   ____________________________________________________________
   (lightning - 1, cloudy - 2, rainy - 3, snowy - 4, other: _______

8. If possible, draw a map of village/town, where you were situated at the time of the attack, where the chemical bomb/weapon landed, wind direction, and where it rose, windrose, and windrose tables.

9. Approximately how many people died in this attack?
   ____________________________________________________________

10. Approximately how many people became sick (but did not die) in this attack?
    ____________________________________________________________

11. What was the weather like at the time of the attack?
    ____________________________________________________________
    bright, sunny = 1, cloudy = 2, rainy = 3, snow = 4, other: _______

12. Other (specify): _______
12. What were you doing at the time of the attack?

13. Where were you at the time of attack?

14. What method was used to deliver the attack? (Check all that apply)

15. Estimate how far away you were from the actual site of detonation or spraying in meters:

16. If an aircraft was involved in the attack, do you know what type of aircraft it was? (If no aircraft involved, go to question 19).

17. Numbers of aircraft involved:

18. How many times did the aircraft attack?

19. Did the bomb/rocket/shell explode in mid-air, or on the ground?

20. Did the bomb/rocket/shells that exploded produce any clouds?

21. If yes, what color was the cloud/spray?

22. Did the cloud/spray have an odor or taste?

23. Did any of the cloud/spray fall on you or did you touch any of the substance?
24. How did the substance feel when it touched your skin? (Circle all that apply).

- sticky
- hot/burning
- wet
- cool
- dry
- itchy
- allergic

25. Check symptoms of pain or suffering brought on by the attack:

- eye pain
- redness in eyes
- swelling of eyes/eye lids
- double vision
- tearing of eyes
- whites of eyes turned yellow
- burning eyes
- temporarily blinded
-vision of eyes lost
- dry throat/mouth
- taste left in mouth
- nose runny
- itching nose
- yellow discharge
- red discharge
- pain in ear
- nose pain
- blistering of ears
- loss of hearing
- loss of appetite
- loss of voice
- shortness of breath
- choking feeling
- dry cough
- coughing
- fever
- sweating
- tightness of throat
- sore throat
- burning of throat
- hoarseness of throat
- swollen lips
- mouth ulcers
- blisters around mouth
- bleeding from mouth
- increased salivation
- taste in mouth
- mouth ulcers
- swelling sensation in chest
- loss of appetite
- fever
- dry cough
- sweating
25. Symptoms (continued)
- cough with sputum
- blood in sputum
- stomach/abdominal pain
- swelling of abdomen
- nausea
- vomiting
- blood in vomit
- diarrhea
- blood in diarrhea
- blood from rectum
- pain during urinating
- dizziness
- loss of consciousness
- difficulty walking
- disoriented
- convulsions
- drowsiness
- insomnia
- visual acuity
- myalgia
- myelosis
- others:

26. Did you receive any help or medical treatment? yes--1 no--2

27. If yes, how many days after attack: where:

28. Are you still suffering from the effects of this attack? yes--1 no--2

29. Tribal/Ethnic group:

30. Principal language spoken:

31. Current status:
- refugee
- guerrilla fighter
- soldier
- other:

32. Occupation: years of education:

33. Has any member of your family died within the last 12 months? yes--1 no--2 (specify relationship):

34. Are you currently separated or living apart from members of your family? yes--1 no--2 comments, if necessary:

35. Current status: 1. refugee (circle as many apply) 2. guerrilla fighter 3. soldier 4. person living in area of attack, not displaced 5. other:
V. OPTIONAL QUESTIONS

Based on whether further inquiry is desired to document source of poisoning, or verify that chemical attack also evident in animals and plants.

(A) Water source: 1. Identify source of drinking water: __________________________
2. Did subject drink this water after attack?
   If yes, how many days after attack? __________________________
3. Record symptoms, time of onset after drinking water:
   __________________________
4. Did water have strange color? If yes, what? __________________________
5. Strange odor? If yes, what? __________________________

(B) Animals: 1. Identify animals present at site of attack:
   __________________________
2. Describe how they were affected by attack, including timing of symptoms, whether they drank water, whether they died, etc.
   __________________________

(C) Plants: 1. Did subject see anything on plants? If so, describe: __________________________
   (Including color)
2. Effect on plant: __________________________

(TO BE ATTACHED TO QUESTIONNAIRE BY INTERVIEWER AFTER INTERVIEW)

VI. Assessment of Respondent

1. How confident are you that the interpreter accurately translated the meaning of all questions?
   confident not confident
   1 2 3 4 5 6 7 8 9 10

2. How certain or uncertain would you say the respondent was in providing testimony on:
   description of attack 1 2 3 4 5 6 7 8 9 10
   description of agent 1 2 3 4 5 6 7 8 9 10
   his/her medical history 1 2 3 4 5 6 7 8 9 10
   description of signs and sx 1 2 3 4 5 6 7 8 9 10
   animal evidence 1 2 3 4 5 6 7 8 9 10
   plant evidence 1 2 3 4 5 6 7 8 9 10

3. Overall, how reliable is the information given by this respondent?
   reliable unreliable
   1 2 3 4 5 6 7 8 9 10
APPENDIX C: FIGURE AND TABLES

FIGURE: Plots of Responses by Residents Living in Diyarbakir and Mardin Camps

TABLE 1: Personal Characteristics and Village
TABLE 2: Conditions and Timing of Attack
TABLE 3: Attack Characteristics
TABLE 4: Proximity to Explosions and Casualties
TABLE 5: Symptoms
TABLE 6: Respondents' Home Villages in Northern Iraq
TABLE 7: Ages of Respondents
TABLE 8: Characteristics of Agents
TABLE 9: Percent of Respondents Reporting a Symptom
TABLE 10: Ten Most Frequently Reported Symptoms
TABLE 11: Estimated Distance from Nearest Bomb-Burst
TABLE 12: Association between Distance from Bomb-Burst and Severity of Symptoms
FIGURE

+ = response of resident currently living in Diyarbakir camp
* = response of resident currently living in Mardin camp

A. Time of Attack

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Village of Origin

B. Number of Planes

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<td>+</td>
</tr>
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<td>6</td>
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<tr>
<td>7</td>
<td>*</td>
<td>+</td>
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</table>

Village of Origin
C. Number of Deaths

<table>
<thead>
<tr>
<th></th>
<th>Ekmala</th>
<th>Hese</th>
<th>Blijan</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>8</td>
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<tr>
<td>7</td>
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<td></td>
</tr>
<tr>
<td>6</td>
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<td></td>
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<td>5</td>
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</tbody>
</table>

Village of Origin

D. Number Sick

<table>
<thead>
<tr>
<th></th>
<th>Ekmala</th>
<th>Hese</th>
<th>Blijan</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Village of Origin
TABLE 1: Personal Characteristics and Village

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Previous state of health</th>
<th>Refugee camp</th>
<th>Home village</th>
<th>Usual population of village</th>
</tr>
</thead>
</table>

TABLE 2: Conditions and Timing of Attack

<table>
<thead>
<tr>
<th>Date</th>
<th>Time of day</th>
<th>Location of detonations</th>
<th>Weather and wind conditions</th>
<th>Population of village at time of attack</th>
</tr>
</thead>
</table>

TABLE 3: Attack Characteristics

<table>
<thead>
<tr>
<th>Weapon used:</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>aircraft bomb</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aircraft spray</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rocket</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>artillery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mortar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>uncertain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If aircraft, what type:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>helicopter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>jet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>propeller-driven</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>other</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>uncertain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If aircraft, number involved in attack

<table>
<thead>
<tr>
<th>Number of attacks</th>
<th>Location of explosions</th>
<th>Production of clouds</th>
<th>cloud color</th>
<th>cloud odor</th>
</tr>
</thead>
</table>

TABLE 4: Proximity to Explosions and Casualties

<table>
<thead>
<tr>
<th>Estimated distance to nearest explosion</th>
<th>Estimated number of deaths personally observed in village</th>
<th>Estimated number of injuries in village</th>
<th>Effect on nearby animals</th>
</tr>
</thead>
</table>

32
<table>
<thead>
<tr>
<th>TABLE 5: Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EYES</strong></td>
</tr>
<tr>
<td>pain</td>
</tr>
<tr>
<td>redness</td>
</tr>
<tr>
<td>swelling of eyelids</td>
</tr>
<tr>
<td>double vision</td>
</tr>
<tr>
<td>tearing</td>
</tr>
<tr>
<td>discoloration of whites of eyes</td>
</tr>
<tr>
<td>burning sensation</td>
</tr>
<tr>
<td>temporary blindness</td>
</tr>
<tr>
<td>loss of visual acuity</td>
</tr>
<tr>
<td>avoidance of bright light (photophobia)</td>
</tr>
<tr>
<td><strong>UPPER RESPIRATORY TRACT</strong></td>
</tr>
<tr>
<td>dry throat or mouth</td>
</tr>
<tr>
<td>taste in mouth</td>
</tr>
<tr>
<td>sore throat</td>
</tr>
<tr>
<td>burning throat</td>
</tr>
<tr>
<td>hoarseness</td>
</tr>
<tr>
<td>tightness of throat</td>
</tr>
<tr>
<td>nose itching</td>
</tr>
<tr>
<td>nose burning</td>
</tr>
<tr>
<td>dry nose</td>
</tr>
<tr>
<td>nosebleed</td>
</tr>
<tr>
<td>nasal secretions/discharge</td>
</tr>
<tr>
<td>mouth ulcers</td>
</tr>
<tr>
<td>mouth blisters</td>
</tr>
<tr>
<td>bleeding from mouth</td>
</tr>
<tr>
<td>swollen tongue</td>
</tr>
<tr>
<td>increased salivation</td>
</tr>
<tr>
<td><strong>LOWER RESPIRATORY TRACT</strong></td>
</tr>
<tr>
<td>difficulty breathing</td>
</tr>
<tr>
<td>chest tightness</td>
</tr>
<tr>
<td>wheezing</td>
</tr>
<tr>
<td>chest pain</td>
</tr>
<tr>
<td>chest burning</td>
</tr>
<tr>
<td>choking feeling</td>
</tr>
<tr>
<td>dry cough</td>
</tr>
<tr>
<td>cough with sputum</td>
</tr>
<tr>
<td>cough with blood (hemoptysis)</td>
</tr>
<tr>
<td><strong>MUSCULOSKELETAL</strong></td>
</tr>
<tr>
<td>stiff neck</td>
</tr>
<tr>
<td>neck swelling</td>
</tr>
<tr>
<td>joint swelling</td>
</tr>
<tr>
<td>joint pain</td>
</tr>
<tr>
<td><strong>SKIN</strong></td>
</tr>
<tr>
<td>itching</td>
</tr>
<tr>
<td>burning sensation</td>
</tr>
<tr>
<td>blistering</td>
</tr>
<tr>
<td>discoloration</td>
</tr>
<tr>
<td><strong>NERVOUS SYSTEM</strong></td>
</tr>
<tr>
<td>muscle tremors</td>
</tr>
<tr>
<td>generalized tension</td>
</tr>
<tr>
<td>loss of appetite</td>
</tr>
<tr>
<td>dizziness</td>
</tr>
<tr>
<td>headache</td>
</tr>
<tr>
<td>loss of consciousness</td>
</tr>
<tr>
<td>difficulty walking</td>
</tr>
<tr>
<td>disorientation</td>
</tr>
<tr>
<td>convulsions</td>
</tr>
<tr>
<td>drowsiness</td>
</tr>
<tr>
<td>insomnia</td>
</tr>
<tr>
<td><strong>GASTROINTESTINAL TRACT</strong></td>
</tr>
<tr>
<td>abdominal pain</td>
</tr>
<tr>
<td>abdominal swelling</td>
</tr>
<tr>
<td>nausea</td>
</tr>
<tr>
<td>vomiting</td>
</tr>
<tr>
<td>blood in vomit</td>
</tr>
<tr>
<td>diarrhea</td>
</tr>
<tr>
<td>rectal bleeding</td>
</tr>
<tr>
<td><strong>URINARY TRACT</strong></td>
</tr>
<tr>
<td>painful urination</td>
</tr>
<tr>
<td>bloody urine</td>
</tr>
<tr>
<td><strong>GENERAL</strong></td>
</tr>
<tr>
<td>fever</td>
</tr>
<tr>
<td>sweating</td>
</tr>
</tbody>
</table>
TABLE 6: Respondents’ Home Villages in Northern Iraq

<table>
<thead>
<tr>
<th>Village</th>
<th>Number responding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blijan</td>
<td>6</td>
</tr>
<tr>
<td>Ekmala</td>
<td>6</td>
</tr>
<tr>
<td>Hese</td>
<td>7</td>
</tr>
<tr>
<td>Korka</td>
<td>1</td>
</tr>
<tr>
<td>Berzewrick</td>
<td>1</td>
</tr>
<tr>
<td>Birjini</td>
<td>1</td>
</tr>
<tr>
<td>Warmyl</td>
<td>1</td>
</tr>
<tr>
<td>Tika</td>
<td>1</td>
</tr>
<tr>
<td>Kharab</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

TABLE 7: Ages of Respondents

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-17</td>
<td>4</td>
</tr>
<tr>
<td>18-59</td>
<td>18</td>
</tr>
<tr>
<td>60-70</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

TABLE 8: Characteristics of Agents

**COLOR**

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>dark yellow</td>
<td>14</td>
<td>54%</td>
</tr>
<tr>
<td>pale yellow</td>
<td>8</td>
<td>31%</td>
</tr>
<tr>
<td>bluish</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>unable to say</td>
<td>3</td>
<td>12%</td>
</tr>
</tbody>
</table>

**ODOR**

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;rotten garlic&quot;</td>
<td>8</td>
<td>31%</td>
</tr>
<tr>
<td>&quot;bitter&quot;</td>
<td>6</td>
<td>23%</td>
</tr>
<tr>
<td>&quot;dead bodies&quot;</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>&quot;cooking gas&quot;</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>&quot;DDT&quot;</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>unable to say</td>
<td>6</td>
<td>23%</td>
</tr>
<tr>
<td>Symptom</td>
<td>Percent of Respondents Reporting</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------</td>
<td></td>
</tr>
<tr>
<td>eye pain</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>eye redness</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>eyelid swelling</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>double vision</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>tearing</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>temporary blindness</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>dry throat</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>dry nose</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>nose bleed</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>increased nasal secretions</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>ear pain</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>hearing loss</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>neck stiffness</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>throat burning</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>swollen lips</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>mouth blisters</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>swollen tongue</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>increased salivation</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>shortness of breath</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>wheezing</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>chest pain</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>chest burning</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>cough</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>neck swelling</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>itchy skin</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>skin burning</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>blistering</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>skin discoloration</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>joint swelling</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>joint pain</td>
<td>12</td>
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<tr>
<td>tremor</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>appetite loss</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>sputum production</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>hemoptysis</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>abdominal pain</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>nausea</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>vomiting</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>diarrhea</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>bloody diarrhea</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>dysuria</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>dizziness</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>loss of consciousness</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>seizures</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>drowsiness</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>insomnia</td>
<td>35</td>
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</tr>
<tr>
<td>visual disturbance</td>
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</tr>
<tr>
<td>weakness</td>
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</tr>
<tr>
<td>fever</td>
<td>35</td>
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</tr>
<tr>
<td>sweating</td>
<td>65</td>
<td></td>
</tr>
</tbody>
</table>
TABLE 10: Ten Most Frequently Reported Symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Percent reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redness of eyes</td>
<td>89</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>85</td>
</tr>
<tr>
<td>Throat burning</td>
<td>73</td>
</tr>
<tr>
<td>Eye pain</td>
<td>73</td>
</tr>
<tr>
<td>Dizziness</td>
<td>73</td>
</tr>
<tr>
<td>Chest pain</td>
<td>69</td>
</tr>
<tr>
<td>Nausea</td>
<td>69</td>
</tr>
<tr>
<td>Vomiting</td>
<td>69</td>
</tr>
<tr>
<td>Headache</td>
<td>69</td>
</tr>
<tr>
<td>Increased nasal secretions</td>
<td>66</td>
</tr>
</tbody>
</table>

TABLE 11: Estimated Distance from Nearest Bomb-Burst

<table>
<thead>
<tr>
<th>Estimated Distance from Nearest Bomb-Burst</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 250 meters</td>
<td>8</td>
</tr>
<tr>
<td>251 to 500 meters</td>
<td>9</td>
</tr>
<tr>
<td>More than 500 meters</td>
<td>5</td>
</tr>
</tbody>
</table>

TABLE 12: Association between Distance from Bomb-Burst and Severity of Symptoms

<table>
<thead>
<tr>
<th>Distance from Closest Bomb</th>
<th>SEVERITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Less than 250 meters</td>
<td>4</td>
</tr>
<tr>
<td>251 to 500 meters</td>
<td>4</td>
</tr>
<tr>
<td>More than 500 meters</td>
<td>0</td>
</tr>
</tbody>
</table>

TOTAL 8 14 22
APPENDIX D: SUMMARY OF UN DOCUMENTS ON USE OF CHEMICAL WEAPONS IN THE IRAN-IRAQ CONFLICT

The General Secretary of the United Nations has repeatedly called for nations to abide by the Geneva Protocol of 1925 and other international agreements. The UN has now sent seven missions to investigate allegations of chemical weapons use in the Iran-Iraq conflict, and the Secretary General requested a mission to northern Iraq in the wake of the events in late August, but the governments of Turkey and Iraq refused permission for such an investigation.

UN staff and chemical weapons specialists from around the world have participated in the UN investigations, which resulted in a series of reports. A recent compilation of UN documents on chemical warfare in the Iran-Iraq war included 252 documents. The core documents are reports of the missions and related appendices. The first of the missions took place from 20 May to 2 June 1983 (S/15834). A second mission, 13-19 March 1984, reported finding unexploded munitions and exploded fragments. Analysis of samples taken by the second mission revealed sulfur mustard, and one unexploded munition contained the nerve gas Tabun (S/16433 and appendices, 26 March 1984).

In a report to the General Assembly, UN experts recognized several situations that might arise when attempting to investigate allegations that chemical weapons had been used. They noted the need for expert assessment, the importance of site access, and the value of medical records of alleged victims (A/39/488, 2 October 1984, pp. 22-28). This document prepared a framework for future investigations.

There were then five more missions to Iran and Iraq. A report of 12 March 1986 again noted evidence of sulfur mustard use (S/17911 with Add. 1 and 2, and Corr. 1). The report from 8 May 1987, reporting on trips to Iran and Iraq from April and May of that year, for the first time noted many civilian casualties. That report concluded that Iranian positions had been attacked by Iraqi forces with sulfur mustard and probably nerve agents, and that military and civilian personnel had been injured by mustard gas. Iraqi forces were also noted to have been affected by mustard gas and perhaps also by a pulmonary irritant (such as phosgene), but the mission team did not determine whether these were caused by Iranian or inadvertent Iraqi attacks (S/18852; see also its appendix S/18852/Add. 1, 18 May 1987). In this report, the technical experts first sounded a note of intense frustration that chemical weapons continued to be used despite thorough documentation of prior use. This same theme recurred in all subsequent reports. The April-May 1987 UN mission was the first investigation on Iraqi soil.

In April 1988, the UN mission again investigated allegations in both Iran and Iraq. In Iran, many of the victims were civilians, and the agent used was sulfur mustard and most likely a nerve agent as well. In Iraq, all those affected were military, and the report did not reach a conclusion on the origin of the attack causing the injuries (S/19823, 25 April 1988, and Add. 1, 10 May 1988).

Another UN report is based on an investigation in Iraq from 9-11 July 1988. The investigators concluded that nine Iraqi soldiers from regions near Sulaymaniyah and Basra were injured by mustard gas. The UN team was shown fragments and unexploded 81-mm. mortar shells that contained sulfur mustard, and other munitions claimed to have been captured from Iranian forces. The team did not reach a conclusion that the attacks causing the injuries had come from Iranian forces, however, and noted that the 81-mm. shells could be fired with 82-mm. mortars such as those used by Iraqi armed forces. The number of casualties and extent of injuries was significantly less than in previous UN investigations (S/20063, 25 July 1988 and Add. 1, 2 August 1988).
The most recent UN mission went to Iran from 12–14 August 1988. The report of that mission documented civilian injuries from mustard gas and found residues of sulfur mustard in soil samples. Munitions used in the attack were similar to those seen in 1984, 1986, 1987, and 1988. This corroborated eyewitness accounts, and the investigators concluded the injuries resulted from Iraqi air attack (S/20134, 19 August 1988).
APPENDIX E: CHRONOLOGY OF THE TRIP


10/7/88 Frankfurt to Ankara.

10/8/88 Ankara to Diyarbakir.

10/9/88 Enter Gecici barinma merkesi, Kiziltepe/Mardin (refugee camp near Mardin). Attempted to visit Diyarbakir camp, closed due to incident two nights before. Attempted to meet with Hayri Kozakcioglu, governor of the eastern Turkey region; planned meeting with his deputy for Monday (10/10) a.m.

10/10/88 Waited for meeting with deputy regional governor; given permission to enter Diyarbakir refugee camp; entered camp from 11:00 a.m. to 3:30 p.m. Returned to Diyarbakir city to meet with deputy governor, 5:00 to 6:30. Refused permission for further visits, unless directed by Ministry of Interior.

10/11/88 Traveled to Hakkari Province. Attempted to go on road to Yuksekova. Denied permission by military guards, who referred team to Hakkari governor.

10/12/88 Attempted to meet with Hakkari provincial governor at 8:30 a.m. Rescheduled to 1:30 p.m. At that meeting, he said he would like to let us see camps near Yuksekova but did not have authority without written permission (later changed to telephone or cable notification) from regional governor's office (Diyarbakir). Obtained permission to visit Hakkari Hospital. Went to Hakkari Hospital, entered emergency room, shown to director's office. Asked to tour hospital and speak with doctors. Director (not a physician) called regional governor's office to ask permission to do this. No reply to his call in 45 minutes. Had to leave for Diyarbakir to avoid difficulties of clearing road checkpoints at night. Returned to Diyarbakir.

10/13/88 Attempted to enter refugee camp near Silopi, Mardin Province. Met with Mardin provincial governor, who spoke with deputy regional governor (Diyarbakir), then denied permission to enter. Reason given was that for ten days refugees would be filling out forms designating where they wished to reside in the future. One team member returned to Ankara; other two attempted repeatedly (four times) to meet with regional governor or deputy governor in Diyarbakir. Report outlined.

10/14/88 Meetings with news services and diplomatic corps of several countries. Team reunited in Ankara.

10/15/88 Meetings with news services and members of parliament from southeastern Turkey region: one member of ruling Motherland Party, and four members of opposition Social Democratic Populist Party.

10/16/88 Ankara to United States.
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