

Desert Storm's Medical Quandary

Do Iraqi chemical and biological agents explain Gulf War syndrome?

By TINA ADLER

On a January morning during the Persian Gulf War, Fred Willoughby, a U.S. serviceman stationed near the Saudi Arabian port of Jubail, heard an explosion. Before he could reach the safety of a bunker, his lips and face began to feel numb. When Roy Morrow first left his bunker after the bang that morning in 1991, his skin felt as if it were on fire. He returned to the bunker, where he heard a radio call for a decontamination team.

Willoughby, Morrow, and other members of Naval Mobile Construction Battalion 24 were told by their officers that the explosion was just a "sonic boom" and that they should not discuss it. However, the men were issued new protective gear that same day. Furthermore, when Harold Jerome Edwards, the leader of a chemical detection team, tested the air after the explosion, he got a positive reading for a chemical blister agent.

A new report released by the Senate at a hearing on May 24 describes these and other stories of military personnel who believe they were exposed to Iraqi biological or chemical warfare agents. Thousands of these men and women, and some of their family members who never went near the Persian Gulf, suffer from many of the debilitating symptoms of what has become known as Gulf War syndrome: chronic headaches, diarrhea, aching joints, fatigue, sensitivity to chemicals, and other ailments. The Senate report makes the case that Iraqi poisons caused these as-yet-undiagnosed ills.

Many military and medical experts disagree with that contention, however, and a number of important issues remain unresolved in this acrimonious debate. For example, what compensation, if any, should these veterans receive? The Clinton administration last week endorsed a controversial bill that would guarantee them some benefits. Also unresolved is the question of what treatment or treatments will work best against Gulf War syndrome. Moreover, was and is the U.S. military adequately prepared to protect its troops from chemical and biological weapons?

The Department of Defense (DOD) says it has no proof that U.S. veterans were exposed to the special brews Iraq had become notorious for using during earlier wars. The department discounts the stories recounted in the Senate report as unsubstantiated. Like other government agencies investi-

gating the source of the syndrome, it points to a host of other possibilities as more likely causes.

"We have heard from people who are convinced that we will find the answer if we focus solely on parasitic diseases, or focus solely on Kuwaiti oil fire smoke, or industrial pollutants, or the effects of inoculations, or solely on stress, or multiple chemical sensitivity," the Pentagon's Edwin Dorn told the Senate Committee on Banking, Housing, and Urban Affairs, which issued the report.

But, Dorn adds, "we are exploring every plausible cause for these illnesses,

including the possibility of exposure to some kind of chemical agents." For example, the Veterans Affairs Medical Center in Birmingham, Ala., has a pilot study under way to see whether such poisons caused the veterans' ailments.

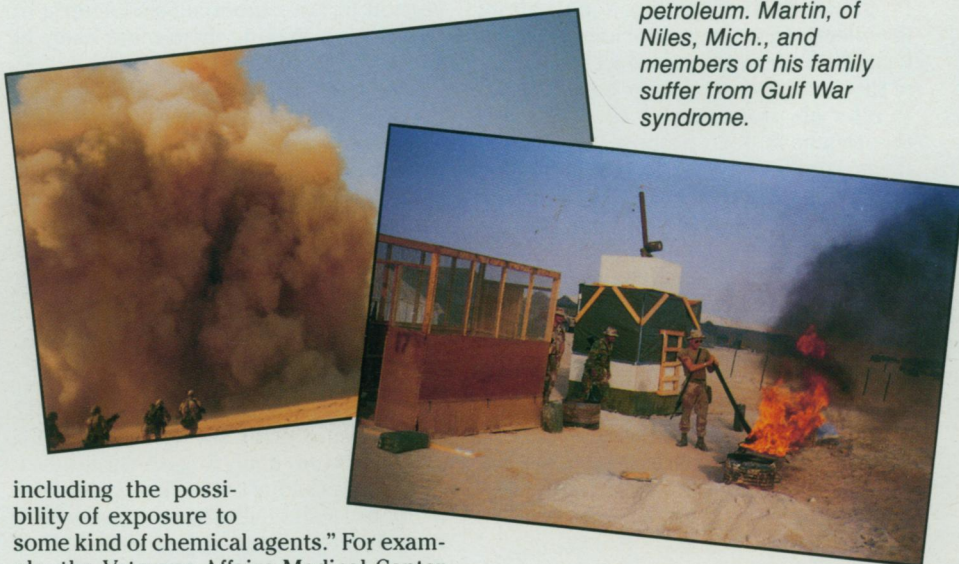
An advisory panel formed by the National Institutes of Health concluded in late April that Gulf War syndrome is multiple illnesses with overlapping symptoms and causes (SN: 5/7/94, p.294). But the group found many of the possible causes suggested by veterans and others, including chemical or biological warfare agents, unlikely.

The NIH panel noted, however, that the Department of Veterans Affairs (VA) and DOD have failed to conduct studies that might link the veterans' ailments to the war. The panel members reached their conclusions after listening to 2½ days of testimony from military and health experts and from Gulf War veterans.

One federal researcher, Stephen E. Straus, has discovered evidence that the mysterious illness is not new. As long ago as the Civil War, similar undiagnosed symptoms felled military personnel.

Desert Shield and Desert Storm made for nasty living in the Persian Gulf area. Military personnel breathed soot- and sand-filled air, washed in water contaminated with diesel fuel, burned gasoline and diesel fuel in unvented heaters, saturated their clothes in insecticides, and fought off rodents and hordes of insects, veterans say. The constant stress the men and women ex-

U.S. soldiers blow up an Iraqi tank blockade at left; photographer Brian Martin, back at his base and tending to the "home fires" — burning human waste with a mixture of diesel fuel and petroleum. Martin, of Niles, Mich., and members of his family suffer from Gulf War syndrome.



perienced may have weakened their immune systems and made them more vulnerable to contaminants, several researchers told the NIH panel.

With all of these health hazards to accuse, why do Senate committee chairman Donald W. Riegle Jr. (D-Mich.) and member Alfonse M. D'Amato (R-N.Y.) finger chemical or biological agents?

For one thing, Iraq harbored a vast chemical arsenal. The Central Intelligence Agency's Gordon C. Oehler testified at the Senate hearing that United Nations inspectors found 5,000 tons of stockpiled chemical agents and more than 46,000 filled munitions, including 30 missile warheads, bombs filled with mustard gas, and nerve gas containers.

Furthermore, U.N. inspectors uncovered evidence of an Iraqi advanced biological warfare research program. European, and to a lesser extent U.S., firms provided some of the ingredients and technology used by Iraq to create its

poisonous weapons, he added.

But did the troops come into contact with those agents?

No, Dorn said. In fact, "no chemical or biological weapons were found in the Kuwait Theater of Operations," he testified. The Pentagon later acknowledged that investigators did find chemicals that the Iraqis put in such weapons close to where U.S. troops were stationed.

Riegle and D'Amato argue that Iraq may have used some of its vast supply of toxic weapons against U.S. troops or that poisons may have been released into the air and wafted over to U.S. forces after planes bombed bunkers storing toxic agents.

A Czechoslovakian team several times spotted "borderline life-threatening concentrations of the chemical agents" in areas where U.S. troops were stationed, according to a Czech document quoted in the Senate report. The chemicals were "probably the result of the Allies' air attacks on the [Iraqi] storage facilities of

the unit may have tested an alarm and failed to notify others, Prociv told the Senate committee. Also, a host of other compounds, including diesel fuel, can trigger them. When DOD chose to use the sensor, it was looking for something that went off instantly in the presence of chemicals, Prociv said.

"We couldn't find something [both] quick and accurate," Prociv told SCIENCE NEWS. Developing a better alarm for chemical agents is a top DOD priority, the agency's Mitchel Wallerstein testified.

But why did verification kits also reveal the presence of chemicals? The veterans may have misread the kits, Prociv stated.

Riegle asked why the men and women's protective gear was replaced after the so-called sonic boom and other, similar events. Such gear needs replacing every 5 days, and it could well be coincidence that the incidents and the change of suits occurred on the same day, DOD's John T.

agency knows of no evidence, "classified or unclassified," of such exposure.

The ailing U.S. veterans are not alone. Canadian, British, and Australian troops who served during the Gulf War have told Riegle's staff and U.S. veterans' groups that they, too, suffer from Gulf War syndrome. Nor are these veterans unique in medical history, says Straus, of the National Institute of Allergy and Infectious Diseases. "There is a spectrum of this kind of illness that is seen with all military adventures," he says.

In 1871, J.M. Da Costa, a physician,

Scenes from Carol Picou's base during the Persian Gulf War. From left to right:

Picou, second from left, loading sand-

bags to build bunkers; smoke from

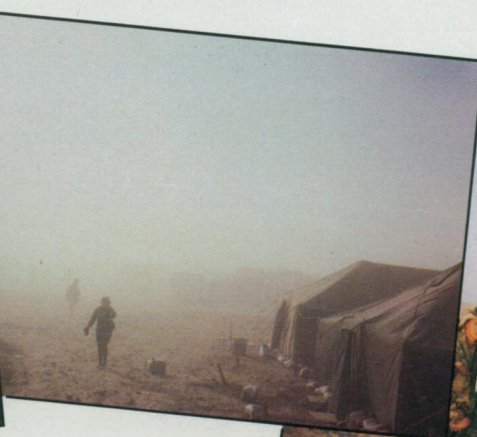
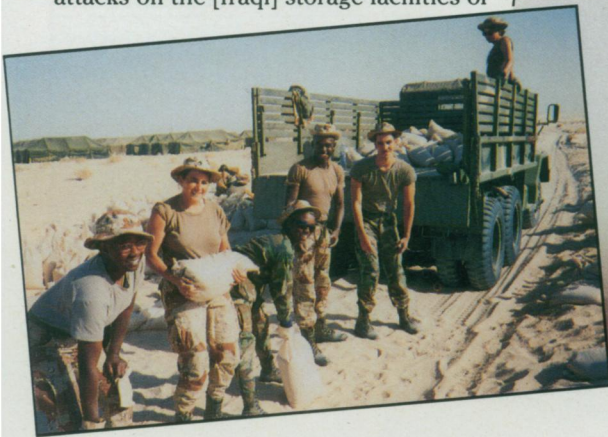
burning oil wells filling

the sky; Picou with her

colleagues. A nurse from

Universal City, Texas, Picou

has Gulf War syndrome.



chemical ammunition," the Czechs wrote.

"We have ... accepted those [Czech] detections as likely valid detections," Dorn said.

The more than 14,000 chemical sensors that the U.S. military used in the Gulf War frequently sounded alarms. Moreover, those alarms are not sensitive enough to detect dangerous concentrations in the air, the Senate report claims. They sound only when the chemical nerve agent sarin reaches concentrations 1,000 times higher than the Army considers hazardous. The sensors fail completely at sniffing out blister agents.

Some veterans say that when they used Army-issued kits to verify the presence of chemicals after their alarms sounded, they got positive readings.

The safety levels for sarin referred to in the committee's analysis apply to workers exposed to such chemicals during a normal workweek, DOD's Theodore Prociv told SCIENCE NEWS. "War is not conducted to OSHA [Occupational Safety and Health Administration] standards," he argued. Instead, the alarms are intended to warn troops before the buildup of "incapacitating levels of chemical warfare agents."

If these were false alarms, why did so many sound? In some cases, someone in

Kriese testified.

This brings up another point. The expiration date on many suits and masks had passed when the military issued them to the troops, the General Accounting Office concluded in an April 1992 report. In fact, "DOD was not adequately prepared for chemical warfare [in the Gulf]," it stated. Had the conflict lasted longer, supplies of protective gear might have run out.

The Senate document alleges that Iraqi biological warfare agents may have made the veterans sick. U.S. military personnel in the Gulf were immunized against such toxins, but troops did not have equipment to warn them of biological dangers, the Pentagon acknowledges.

The United States and other countries looked for, but failed to detect, biological warfare poisons in the air and soil, says DOD. What's more, those agents kill people within a matter of days, and no one died from such toxins, DOD asserts.

In November 1993, the Senate report stated, then-Undersecretary of Defense John Deutch said that DOD possessed classified information on the exposure of U.S. forces to biological materials. "Dr. Deutch's comment has been misrepresented," DOD countered, adding that the

studied 300 Civil War veterans who had undiagnosable symptoms, including fatigue, breathlessness, chest pains, and gastrointestinal problems. Some 60,000 British troops suffered from a mysterious "effort syndrome" after World War I. The British built hospitals for the study of these individuals and later used the same facilities for World War II veterans with the disorder. The U.S. military funded research on the mysterious disease afflicting its World War II troops as well.

Straus believes the veterans' ills resemble chronic fatigue syndrome (CFS). But CFS remains a "diagnosis of exclusion," one that physicians make only after ruling out all other options, he says. The Gulf personnel have yet to receive the medical examinations they need to be accurately diagnosed, he adds.

"These kinds of [physical] responses are natural to the human condition. . . it's to be expected from such great trauma," he says. "The body reverberates from the stress of war." □