

Gulf War ills: No proof found so far

Thousands of veterans of the Persian Gulf War assert that they have been plagued by headaches, tiredness, joint pain, and forgetfulness since the 1991 conflict. In a much-publicized report to be released formally by year's end, a presidential advisory committee has concluded that many of the vets may have been exposed to poison gas from bomb-fractured weapons in an Iraqi munitions dump.

Yet two studies of veterans have found a conspicuous lack of deaths or hospitalizations resulting from such exposures. The findings of the studies, reported in the Nov. 14 *NEW ENGLAND JOURNAL OF MEDICINE* (NEJM), were based on analysis of vast amounts of data. Both studies compared records of Gulf War veterans with those of vets who did not serve in the conflict.

The first report, by Han K. Kang and Tim Bullman of the Department of Veterans Affairs in Washington, D.C., examined 1,769 deaths that occurred among Gulf War veterans within 28 months of the war's end. The team compared those deaths with 1,735 deaths during that period among veterans who had served elsewhere. The results were typical of past comparisons.

Twenty percent of the deceased Gulf War veterans died of known diseases, the study showed. The rest died of accidents, suicide, or homicide. Although 9 percent more Gulf War veterans than other veterans died, the excess deaths were caused by motor vehicle crashes and other accidents—not by disease.

The second study, by Gregory C. Gray of the Naval Health Research Center in San Diego and his colleagues, compared hospitalizations of 547,076 active-duty Gulf veterans for 25 months after the conflict with hospitalizations of 618,335 veterans who did not go to the Persian Gulf. The researchers found similar hospitalization rates in all respects but one: Gulf

War veterans entered hospitals more often for alcohol and drug abuse. This, doctors say, may explain the excess number of deaths from injuries among Gulf veterans.

"It is possible that there are some clusters of disease due to specific [toxic gas] exposures," says NEJM deputy editor Edward W. Campion in an editorial. He adds, however, that the new findings support those of five independent groups that failed to identify any such cluster.

Campion acknowledges that "many may disbelieve the conclusions of any government-funded study of the problem, including [the] two reports in this issue of the journal."

Two other recent studies, one funded by Texas billionaire H. Ross Perot, explored whether the syndrome could result from wartime exposure to the pesticides DEET and permethrin, which were used to protect troops from malaria and other insect-borne diseases, or an anti-nerve-gas agent called pyridostigmine bromide, which was widely used in the Gulf War.

The Perot-backed study, by Mohamed Abu-Donia and his colleagues at Duke University Medical Center in Durham, N.C., and doctors at the University of Texas Southwestern Medical Center at Dallas, focused on the chemicals' effects on hens, which are often used for such studies. The experiments found that, in combination, the chemicals caused nerve damage—leaving the animals weak, breathless, and unable to fly, according to the May *JOURNAL OF TOXICOLOGY AND ENVIRONMENTAL HEALTH*.

Department of Defense spokesman Bryan Whitman says a similar study by his agency found that the chemicals were more toxic to rats when given together than individually. It is not known whether this holds for humans. Whitman says follow-up studies are underway.

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to respect the legitimate boundaries of their theories contributes to the declining public acceptance of science.

John Day
Santa Barbara, Calif.

You give three broad hypotheses to answer the question. Where is everybody? but neglect to mention the fourth—that Earth has already been visited by an alien civilization with a will to homestead and colonize... and here we are.

J. Ramsaur
Olympia, Wash.

Why haven't ETs shown up yet? Perhaps they have. Exclusion of this possibility suggests that the reports of abductees are not even worthy of discussion.

Stephen Krashen
Malibu, Calif.

The most likely answer to the question, Where is everybody? is that they destroyed themselves with their own technology.

Robert J. Perkins
Brewer, Maine

With regard to the question, Where is everybody? you mention the "zoo hypothesis," in which aliens are presumed to have the capability of reaching us via interstellar travel but have chosen not to interfere with us. This brings to mind a quote attributed to Ronald Reagan in an article entitled "Our

alien idols" in the Sunday Telegraph (London) of July 28, 1996: "After a private screening of *ET*, President Reagan told [movie creator] Steven Spielberg: 'There are only about six people who know how true this really is....'" Perhaps the zoo hypothesis is closer to the mark than we know.

Anxiously watching the skies.

John R. Bruni
Foster City, Calif.

Bioluminescence and chronic disease

The ability to detect bioluminescent bacteria in living tissues ("Following the Inner Light," SN: 10/5/96, p. 220) could help to answer some old questions about the nature of chronic infections such as tuberculosis and tertiary syphilis.

Currently, a 5-year, multi-million-dollar clinical trial is underway to determine whether some Lyme disease patients are persistently infected with *Borrelia burgdorferi* and, if they are, how successfully they can be treated with antibiotics. Constructing light-emitting strains of *Borrelia* and using available primate and mouse models of chronic Lyme disease might provide those answers more quickly and cheaply.

Edward McSweeney
Bethesda, Md.

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