

office, says he wants to avoid the term entirely. "You probably wouldn't catch us using the term 'Richter magnitude' around here, even though this was the home of Richter."

Other seismologists note that while the public feels comfortable with the term, they often lack even a basic understanding of what it means. Several scientists tell tales of people asking to see the Richter scale.

"It seems to be a popular misconception that it's actually a piece of equipment, like a bathroom scale," says Roger Musson of the British Geological Survey in Edinburgh. "Things have come to such a pass in today's press that I had an inquiry recently from the Sunday Times, no less, asking for a picture of the Richter scale. I said this was a bit like asking for a picture of kilometers."

Others describe the wild rumors that circulate after an earthquake. In the case of the Jan. 17 Northridge, Calif., jolt, the reports of different earthquake magnitudes — M_s 6.6 versus M_w 6.7 — confused many Angelenos, prompting speculation that the USGS was underestimating the magnitude to save the federal government from spending disaster relief money.

"People thought we were lying on the magnitude," says an incredulous Heaton.

As journalists get more seismically sophisticated, they may head off some of the confusion. The Associated Press recently retired the term "Richter scale"

Quakes and their equivalents		
Magnitude	Energy Released (in millions of ergs)	Rough Equivalent
-2	630	100-watt lightbulb left on for a week
0	630,000	1-ton car going 25 miles per hour
2	630,000,000	Amount of energy in a lightning bolt
4	630,000,000,000	Seismic waves from 1 kiloton of explosives
6	630,000,000,000,000	Hiroshima atomic bomb
8	630,000,000,000,000,000	1980 eruption of Mount St. Helens Largest recorded quake, M_w 9.5, Chile, 1960
10	630,000,000,000,000,000,000,000	Annual U.S. energy consumption

in favor of the phrases "preliminary magnitude" and "moment magnitude." Unless further elaboration is required, SCIENCE NEWS will continue its tradition of using the generic word "magnitude," which in the case of recent earthquakes refers to a determination of moment magnitude.

But simply tidying the terminology will not, on its own, help people better understand the size of an earthquake. After all, how can one number convey the power

of something equivalent to a colossal nuclear explosion?

Even moment magnitude does not suffice, says its inventor. "The problem is everyone thinks that a single number determines everything. It's almost like asking how big you are," says Kanamori. "The question is whether you are asking height, weight, or width. Depending on how you measure a person, the answer can be very different. In the case of earthquakes, it's even more complex." □

Science & Society

Gulf War syndrome research boosted

In late September, President Clinton signed legislation providing a substantial increase in funding for research on the possible causes of and cures for Gulf War syndrome, the mysterious illness afflicting military personnel who served in the 1991 Gulf War and some of their family members.

Legislators are also debating how to provide compensation to the ill veterans.

The Department of Defense's fiscal year 1995 appropriation includes \$8.4 million for Gulf War syndrome research. Last year, lawmakers appropriated \$1.9 million for this work.

Most of the fiscal 1994 and over a third of the fiscal 1995 monies are earmarked for one Louisiana-based treatment study that DOD reviewers have yet to approve for funding.

So far, the odd array of symptoms associated with the syndrome, including debilitating fatigue, diarrhea, and sensitivity to chemicals, has defied diagnosis (SN: 6/18/94, p.94). Yet without a diagnosis for their illness, veterans do not qualify for medical compensation from the government.

The DOD bill allocates \$5 million for peer-reviewed research by nongovernment scientists, including epidemiological surveys of Gulf War military personnel and their families.

Legislators direct that the remaining \$3.4 million support ongoing research on an "antibacterial treatment method," which they describe in detail without naming the researcher doing the work. That researcher is physician Edward S. Hyman at the Touro Infirmary in New Orleans, congressional and DOD staff say.

Hyman testified last summer at a congressional hearing about his treatment for Gulf War syndrome. A panel of scientists is now reviewing a research proposal he submitted to

DOD, says Chuck Dasey, an agency spokesman. If the panel approves the proposal, Hyman would receive almost \$5 million, which includes funds held over from 1994.

Many sick veterans suffer from either superinfection with streptococci or infection with an unusual strain of these bacteria, Hyman told SCIENCE NEWS. Standard laboratory tests don't detect the bacteria's presence, but he uses a unique microscopic technique that reveals the organisms, he says.

He prescribes large doses of antibiotics to his patients and recommends that they take the drugs for at least a year after they feel better, he says.

Hyman has treated eight Gulf War veterans and six family members of ill veterans. "All have had beautiful responses," he says. Four patients relapsed, but two of those have since recovered. The other two are no longer under his care.

While the House, Senate, and Clinton administration support the need to compensate ailing Gulf War military personnel, as of last week they had yet to agree on how to provide such funds.

A Senate bill calls on the Department of Veterans Affairs (VA) to change its rules so that veterans with Gulf War syndrome would be eligible for compensation, a move the VA opposes. A bill in the House, supported by the administration, would authorize payments to ill veterans without the VA rule change.

The Senate legislation would also require the VA to analyze the health of children and spouses of ill Gulf War personnel. Normally, the VA neither monitors nor treats family members.

In July, the VA provided more than \$1.5 million to three of its research centers to study the possible health effects of environmental contaminants present during the Gulf War.