

Earlier animal research has shown that the brain becomes hypersensitive to CRH; in fact, rats repeatedly injected with CRH eventually respond with seizures. That sensitization is also reflected in the natural history of depression, according to researcher Philip Gold at NIMH.

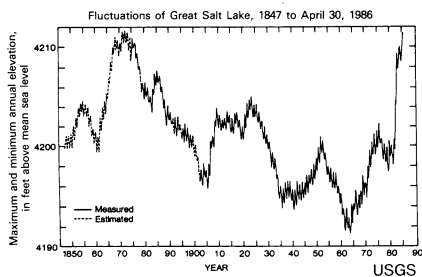
"The first episodes generally require emotional stress," says Gold, "but they progressively require less and less. CRH might be relevant there. . . . It represents a link between biological and psychological models of depression."

Next, the researchers plan to look for agents that suppress or block CRH, and to test them in animals. — *L. Davis*

Lake at record high

People in the six counties surrounding the Great Salt Lake in Utah collectively prayed on May 4 in hopes of stemming the lake's rising levels. But the lake has continued to swell, and on May 12 it topped, by 0.6 inches, its June 1873 historic record of 4,211.6 feet above sea level.

The U.S. Geological Survey (USGS) reports that the lake is 17 feet higher than its peak value last year and has risen 3.3 feet — two times the average seasonal rise — since its seasonal low on Oct. 16, 1985. USGS also notes that during the past four years the lake has risen 11.6 feet; it rose a similar amount before the 1873 high, but that increase took 12 years to occur.



Scientists expect that the lake will continue to swell for at least another month because most of the spring snowpack in the Wasatch Mountains has yet to melt, and northern Utah's rivers are already rushing with much more water than normal; the USGS predicts the waters will rise to 4,212.5 feet next month. According to the USGS the lake has already flooded about 770 square miles of shoreland, causing more than \$200 million in damage.

On May 14 the Utah legislature approved a \$71.7 million plan for pumping the flooding waters into the desert. However, it will be several months before pumping, which could drain the lake by as much as 16 inches in the first year, can begin. — *S. Weisburd*

Efficient WIMPs would rescue the sun

The sun emits only about a third of the neutrinos it ought to emit, according to theorists' "standard model" of the thermonuclear processes that go on in its center. However, adjustments to account for the neutrino observations tend not to predict properly the acoustic vibrations of the sun. Now, calculations by two groups show that putting WIMPs (weakly interacting massive particles) in the center of the sun would satisfy both criteria. It is the only theory that does so, John Faulkner of the Lick Observatory in Santa Cruz, Calif., told SCIENCE NEWS.

WIMPs (SN: 7/13/85, p. 23) would move energy out of the center of the sun, lowering the temperature, affecting both the thermonuclear processes and the acoustic properties, particularly the speed of sound. WIMPs and the speed of sound came to Faulkner's mind as he heard a description of the theory of the sun's p-wave vibrations by Douglas O. Gough of the Institute of Astronomy in Cambridge, England. To calculate theoretically the sequence of these waves and the differences in frequency from one wave to the next is extremely complicated, but Gough presented a simplification for cases where the differences fall a certain way. Cancellations in the mathematics then result in a very simple equation — "a simple integral," as Faulkner describes it

— on which the differences in these waves depend.

One of the things on which this integral depends is the sun's central temperature, so Gough's simplification yields a way of testing the effects of WIMPs on the acoustic pulsations. Faulkner, Gough and an Indian student, M.N. Vahia, did the calculation in a few days, using hand calculators, and found that the WIMP model predicted the observed differences between the vibration frequencies to within two significant figures.

Meanwhile another group had been at work. Ronald L. Gilliland of the High Altitude Observatory (HAO) in Boulder, Colo., W. Däppen of HAO and J. Christensen-Dalsgaard of Aarhus University in Denmark had been calculating descriptions of the p-waves according to the full theory using a high-speed computer — about the only practical way to do it from this full-dress approach. They had reached the same conclusion about the fitness of the WIMP theory. The two groups decided their approaches were complementary and agreed on simultaneous publication in the May 15 NATURE.

The results do not prove the existence of WIMPs, says Faulkner, but if WIMPs don't exist, something else in the sun has to be efficiently transferring energy out of the center. — *D. E. Thomsen*

Continuing the hunt for funds

Another university has joined the growing list of institutions seeking research and construction funds by going directly to Congress. Last week, the Senate appropriations committee voted to include \$25 million for a new science and engineering technology center at Arizona State University (ASU) in Tempe. According to an amendment to the "urgent supplemental appropriations" bill, the funds are to come out "of the amounts available to the Department of Defense" (DOD) for this fiscal year.

"A lot of universities are going this other way," says Brent Brown, ASU vice-president for university relations. The proposed building is part of a major effort to upgrade the university's engineering program, he says. "We're trying to make sure the effort we've started here is continued."

In the same bill, another amendment authorizes funding for nine more universities. Late last year, Congress passed legislation that granted \$55.6 million to these universities from DOD research and development funds (SN: 3/29/86, p. 196). However, DOD complained that granting these "set-asides" would violate other laws and regulations that require DOD to ensure that universities compete for research contracts. The Senate com-

mittee's action circumvents that problem.

Just two weeks before this vote, Defense Secretary Caspar W. Weinberger rejected a bid by seven senators to get DOD to release funds for the universities. In a letter to the senators, Weinberger stated, "Support of merit-based research is an important principle which we feel we must uphold." He added, "The . . . earmarking of research funds for specific universities, without merit competition, establishes a precedent that could jeopardize" the preeminence of U.S. universities.

"The Secretary of Defense took an enormous risk," says Robert M. Rosenzweig, president of the Association of American Universities (AAU) in Washington, D.C. "I was very pleased by his action."

The AAU and the National Association of State Universities and Land-Grant Colleges also tried to persuade the Senate committee to reject funding for specific universities. In a letter, the presidents of the two organizations, which represent many but not all of the nation's universities and colleges, stated, "If any of these . . . projects, or others that may be proposed, is funded, pressures on other institutions to seek direct funding for re-