

medical sciences

A 'Jack the Giant' killer

One of the most active areas of hormone research these days involves the hypothalamus of the brain. The hypothalamus releases various chemicals that control pituitary hormones that in turn control hormones throughout the body. In recent months endocrine investigators have isolated, characterized and synthesized a hypothalamic factor that releases growth hormone. This factor should eventually prove valuable in treating children who fail to grow (SN: 5/6/72, p. 302). Now Paul Brazeau and his team at the Salk Institute in La Jolla, Calif., report in the Jan. 5 *SCIENCE* that they have isolated, characterized and synthesized a hypothalamic factor that appears to turn off growth hormone.

Although their work has been mostly in animals, the investigators believe that the factor may also be active in humans and hold value for treating youngsters who grow too much. In one of their experiments, the synthetic factor inhibited the secretion of growth hormone by cells taken from the pituitary gland of a patient with acromegaly (hyperpituitarism marked by enlargement of hands, feet and face).

Ineffective popular sedative

Nonprescription, daytime sedatives may offer no more relief than a placebo (an inert sugar pill), yet set off as many side effects as a prescription tranquilizer, University of Pennsylvania scientists Karl Rickels and Peter T. Hesbacher have found.

They report in the Jan. 1 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* that aspirin and the nonprescription sedative Compoz were found to be no more effective than a placebo in combating anxiety and tension. The prescription sedative Librium was found to be effective, however. At the same time patients using Compoz reported as many side effects as those on Librium. The effects included drowsiness, dizziness, confusion, dry mouth and nausea.

The investigators chose to study Compoz because mass media ads claim Compoz to be "the largest-selling nonprescription sedative for temporary relief of simple nervous tension." More studies of this type are needed to protect the public, the authors believe.

Immune response to warts

Human warts are benign skin tumors that usually affect young adults or children. The age association suggests the development of some protective mechanism among older people. During the past few years researchers have determined that warts are probably caused by viruses. They have also found that antibodies form against warts. In the Dec. 23 *LANCET*, Seppo Pyrhönen and Kari Penttinen of the University of Helsinki shed further light on the immunology of wart disease.

They studied 182 patients with warts and found that 57 percent of them had wart-virus antibodies in their bloodstreams. The longer the warts persisted or the more warts there were, the lower were levels of the virus-antibodies in the patients' blood. Twelve percent of the patients had IgG antibodies, and those with that kind of antibody had a good chance of healing.

The Finnish virologists conclude that since IgG antibodies appear to indicate wart remission, vaccinating with IgG antibodies might help rid patients of warts.

earth sciences

More on the Red (hot) Sea

Nobody knows from whence they came, but the Red Sea bottom contains pools of unusually hot, salty water. Three such brine pools, or deeps, have been known (SN: 6/5/71, p. 388). Now recent investigations reveal 13 new ones and suggest how they might form.

H. Backer and M. Schoell of the Federal Institute for Soil Research in Hannover, Germany, report that there is a "remarkable variety" in the physical characteristics of the pools. In some, the transition between the highly saline water at bottom and the "normal" seawater above is in layers; in others there is a small undifferentiated transition zone. The chemical composition of the water varies greatly between some of the pools, but others are so similar that the researchers suspect a subsurface connection.

The two also found that evaporites (sedimentary rocks evaporated from saline solutions), including large quantities of rock salt, may underlie much of the Red Sea. These evaporites are covered in many places by only a thin layer of clay. Finally, they write in the Dec. 18 *NATURE PHYSICAL SCIENCE*, there is new proof of extensive volcanic and tectonic activity throughout the region. All this suggests that the brine pools may form when tectonic activity exposes the Red Sea's water to the evaporites beneath.

The proper salt bed for storage

One of the most frequently mentioned possibilities for storage of radioactive wastes is in salt beds such as those near Lyons, Kan. (SN: 3/6/71, p. 161). Many geologists insist that not enough is known about the behavior of salt beds.

To help close the gap in knowledge, Ferruccio Gera of the Federal Repository Project at Oak Ridge National Laboratory in Tennessee reviewed the processes by which salt beds deform. Rock salt is geologically quite mobile because it can deform under relatively low stress. The question is how much a given salt bed could become deformed before the radioactive wastes stored in it had deteriorated.

Gera concludes, in the December *GEOLOGICAL SOCIETY OF AMERICAN BULLETIN*, that risk of excessive deformation could be kept "acceptably low" if the salt bed is located in a geologically stable area, is horizontal, is subjected to little differential loading, and is 100 to 300 meters thick and 300 to 700 meters deep.

Mud and the moon

A popular scientific endeavor is to seek correlations between geophysical phenomena such as earthquakes and the positions of the sun and moon. Now G. P. Tamrazyan of the Soviet Union proposes such a correlation for eruptions of mud volcanoes.

Mud volcanoes, which may be quite as impressive as their magmatic counterparts, spew mud breccia instead of molten lava. Tamrazyan plotted the eruptions of several mud volcanoes against positions of the moon for the period 1948 to 1970. Eighty percent of the eruptions occurred when the apse line (the imaginary line connecting the perigee and apogee of the lunar orbit) was close to the imaginary line running through the earth, moon and sun—in other words, when the three bodies were aligned.