Rx for depression: A wake-up call

Perhaps as baffling as endogenous depression — a chronic depression that appears to result primarily from biochemical, rather than environmental, causes — are the reasons why the condition is often helped by antidepressant drugs. Some psychiatrists believe, however, that therapeutic drug action may somehow be linked to abnormalities in the chronic depressive's sleep cycle — a finding reported by a growing number of researchers (SN: 11/25/78, p. 367).

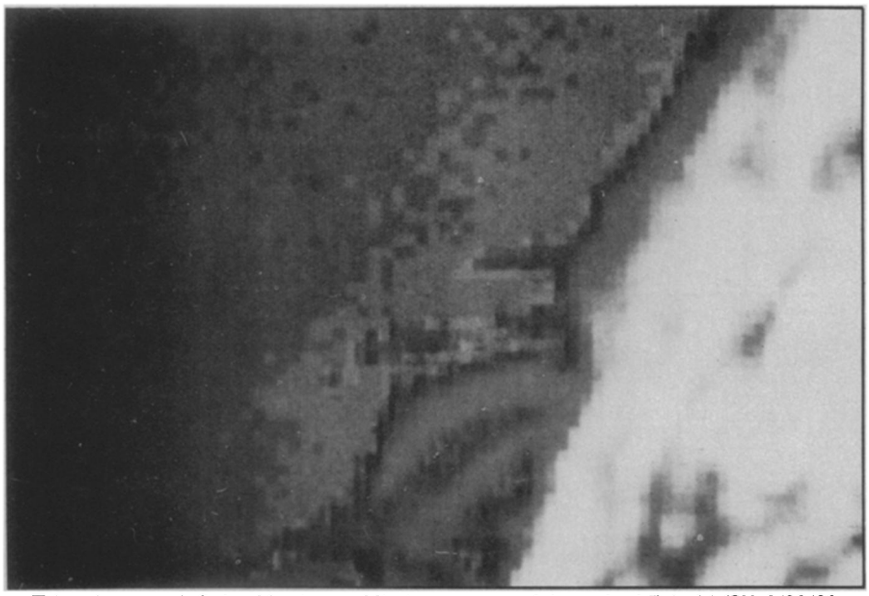
Lending considerable support to that theory are two studies reported in the March ARCHIVES OF GENERAL PSYCHIATRY. In the first, an Emory University team headed by psychiatrist Gerald W. Vogel compared the effects of rapid eye movement (REM) sleep deprivation among 14 chronic depressives and 14 non-depressed persons with insomnia. Previous studies had indicated that antidepressants somehow inhibit REM sleep, when dreaming is believed to occur.

In the first stage of the experiment, Vogel and his colleagues found that compared with the control group, depressed patients had a higher frequency and lower latency period of REM sleep, and "a new finding — an abnormal temporal distribution of REM sleep."

After depriving the subjects of REM by waking them briefly when a REM period would approach (as indicated by EEG brain wave measurements), the scientists observed improvement in the symptoms of depressed patients. Other measurements indicated that the improvement could be traced to the physiological effect of the brief awakenings: Deprivation appeared at least temporarily to repair the "damaged" sleep cycle by stimulating the inborn sleep "oscillator" to operate on a relatively normal schedule. Moreover, depressed patients unresponsive to sleep deprivation were also unresponsive to the antidepressant imipramine, and significant improvement with REM deprivation occurred after about three weeks of treatment — the same period it usually takes for antidepressant drugs to become effective. The study implies some common mechanisms in "depression improvement by REM sleep deprivation and by antidepressant drugs," say the researchers.

In the second study, by university psychiatrists in Muenster, West Germany, partial sleep deprivation "significantly reduced depression symptoms" by a mean of 30 percent. The researchers reported at least some improvement in three-fourths of the 30 chronically depressed patients studied. They suggest — as does Vogel — that the process seems to involve the brain catecholamine system of neurotransmitters, which antidepressant drugs are believed to alter. □

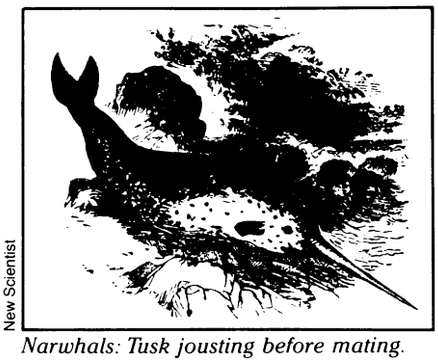
The sun's prominent image



NASA

Taken by NASA's Solar Maximum Mission spacecraft launched Feb. 14 (SN: 2/23/80, p. 116), this ultraviolet photograph is the first high-resolution image returned by the mission of a solar prominence. While the study of solar flares is actually SMM's main goal, the detection of the 25,000-mile-high prominence is nevertheless an indication to NASA scientists that all is well with the UV polarimeter. A solar prominence, which is an arcing eruption of hot gases from the sun's surface, is not characterized by the high energy and violence of a solar flare — a brief, local increase in luminosity — although both are associated with disturbances in the sun's magnetic field. Since detecting this prominence, says NASA scientist Ken Frost, the various spectral characteristics of at least five solar flares have been recorded simultaneously by the spacecraft's UV and X-ray instruments.

Narwhals show toothsome behavior



New Scientist

Narwhals: Tusk jousting before mating.

The narwhal is unique among its relatives — porpoises, dolphins, pilot whales and sperm whales — for its spiraled tusk. Actually the left of two teeth in the upper jaw, the tusk erupts in males at puberty and grows up to eight and a half feet long. This unusual dentition has earned the animal the moniker "unicorn of the sea" and was once so highly prized that Kaiser Karl V of Austria is said to have paid off a large national debt with two narwhal tusks.

But its exact function — to root food from the sea bottom, to impale prey, to make breathing holes in the ice, as a cooling mechanism, as a weapon or as a sound transmitter — has remained unclear. Now, in the March 6 NATURE, two Canadian researchers have presented evidence to confirm one prevailing theory — that it is used during the mating season in fights between males.

Helen B. Silverman and M. J. Dunbar of McGill University in Montreal observed narwhals on Baffin Island in the Canadian Arctic from June to October of 1976 to 1978. They noticed, as had other observers, that males cross their tusks both above and below the water. "A great deal of social behavior," though few actual fights, accompanies tusk crossing, they say. They interpret the activity as part of the mating sequence and suggest that, because the observation periods were not during mating season, such off-season behavior is training for juveniles. The researchers cite indirect evidence for their proposal: Adult males have more scars on their faces and heads than do adult females or juvenile males. More adult males than juveniles have broken tusks and at least one male had a broken piece of tusk embedded in its lip. Rapid tusk growth occurs at sexual maturity.

The explanation satisfies several problems such as why female narwhals should lack the distinctive tooth. The evidence, they say, while indirect "strongly indicate[s] that the tusk is used in intraspecific aggression, most probably during the mating season when male-male competition is expected to be most intense." □