

BEHAVIOR

Sleeping at low tide

J. X., a 28-year-old biostatistics student at a major university, has been blind since birth. For the last several years he has noticed that, for two to three weeks at a time, insomnia and excessive daytime sleepiness severely interfered with his work and leisure activities. Cyclical administration of hypnotic and stimulant drugs failed to coordinate his bodily rhythms with conventional societal norms.

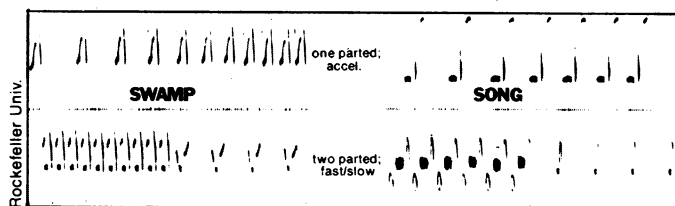
After 26 days of hospital study, Stanford University researchers report in the Oct. 28 *SCIENCE* that J. X. had circadian rhythms of 24.9 hours—"indistinguishable from the period of the lunar day." The investigations showed that the man's body temperature, alertness, performance, cortisol secretion, and urinary electrolyte excretion were all "desynchronized from the 24-hour societal schedule. Furthermore," say the researchers, throughout the study "there was a remarkable coincidence between his sleep onset and a local low tide."

In a 10-day experiment, the researchers attempted to force J. X.'s body functions into a 24-hour rhythm by designating strict, specific periods of sleep and wakefulness. On this regime, "his nocturnal sleep became progressively disrupted and his daytime became progressively invaded by sleepiness and deteriorating performance," according to L.E.M. Miles, D.M. Raynal and M.A. Wilson of Stanford's Department of Medicine and Sleep Research Center and the Palo Alto Veterans Administration Hospital.

Other experiments have shown that normal subjects isolated from all time cues revert to circadian rhythms of around 25 hours. And a Stanford survey of 50 people with varying degrees of blindness revealed that 38 of them complained of significant sleep-wake disorder.

"The syndrome suffered by J. X. is not necessarily restricted to the blind," say the researchers. "The disorder might not be uncommon," they suggest, "and the social and economic impact of even minor symptoms might be substantial."

'Name that tune,' sparrow-style



Recent studies indicate that infants exercise selective learning in their language development. It now appears as though such selectivity is exercised even by sparrows.

In a series of experiments by Rockefeller University researchers Peter Marler and Susan Peters, infant male swamp sparrows were reared in acoustically shielded chambers and exposed to tape recordings of confusingly spliced combinations of swamp sparrow and song sparrow song patterns.

The swamp sparrows learned only those songs made of swamp sparrow syllables, Marler and Peters report in the Nov. 4 *SCIENCE*. Swamp sparrow-like song patterns included sequences of identical syllables at various steady rates. Song sparrow-like patterns included variable intervals between syllables and a two-part structure.

"Such perceptual predispositions are valuable as biological constraints on the vocal learning process, serving to focus the young organism's attention on an appropriate set of sounds and on particular features that they exhibit," the researchers suggest. "The birds are guided to a set of conspecific models, thus reducing the hazards of learning the songs of another species."

BIOMEDICINE

Promising contraceptive available

Although oral contraceptives and intrauterine devices are the most effective forms of birth control for women today, they are also being linked with an increasing number of complications, such as stroke, high blood pressure, perforation of the uterus and inflammation of the Fallopian tubes. Now a contraceptive that appears to be both highly effective and totally safe has become commercially available in the United States. It is a spermicide called Encore Oval, distributed by Eaton-Merz Laboratories and manufactured by Norwich Pharmaceutical Company.

Encore Oval, a small, white, oval-shaped medication, can be bought without a prescription and is easily inserted into the vagina. There, it melts and effervesces, forming a barrier over the cervical canal. The barrier contains a spermicide called nonoxynol-9 that immobilizes and kills sperm on contact. Tests have shown that the contraceptive, which remains active for two hours, is not only highly effective in preventing conception, but is also free of hormonal or other side effects.

Not safe to fool Mother Nature

Since World War II, the fast pace of urban society, hard-sell formula makers and modest mothers have contributed to an unnatural truth: The number of mothers breast-feeding their babies dropped from 38 percent in 1946 to 18 percent in 1966.

New evidence, however, supports what "natural nursing" proponents have been saying all along. Homo sapiens did not evolve in symbiosis with Jersey cows. Denying a baby its mother's milk may be denying it nutrients vital to proper development and good health, write E. F. Patrice Jelliffe and Derrick B. Jelliffe in the Oct. 27 *NEW ENGLAND JOURNAL OF MEDICINE*.

The Jellifes cite chemical analyses showing that, except for water and lactose, human and cow milk have little in common. Even the "technological tinkering" to make formulas congruent with the real thing does not go far enough. Human milk still has much higher levels of taurine and cystine. (High levels of taurine are absorbed into the infant brain, and may play a crucial role in neural development.)

In the last few years human milk has also been shown to be rich in a wide range of humoral "host resistance factors"; previous evidence that breastfed babies have fewer intestinal infections is not just due, then, to the lack of "middle-man" contaminants.

Nursing also puts the baby in a much more direct and intimate biologic relation with the mother. Severing this rapport and denying "somatosensory, olfactory and auditory stimulation" may factor into "the rising tide of psychosocial emotional abnormalities," the Jellifes write.

Machismo hazardous to health?

Males are more frequently afflicted with chronic disease—and likely to die sooner—than women. There is growing evidence this "health gap" results from sex roles and "learned health care behavior," Charles E. and Mary Ann Lewis write in the Oct. 20 *NEW ENGLAND JOURNAL OF MEDICINE*.

The Lewises cite evidence that men "are reluctant to seek care or adopt behaviors that would diminish these risks By six years of age, males perceive themselves to be less vulnerable or susceptible than females of the same age." Other studies show women perceive health care to have greater benefits. They make 1.5 times more visits to physicians, are hospitalized (in short-term facilities), operated on and have drugs prescribed to them more often than men. "Men could benefit enormously if their sex-role changes carried with them some of the protective effects associated with a diminished 'macho' stance," the Lewises write.