

BIOMEDICINE

Climate and twins

There have been several reports of climate influencing the frequency of births of dizygotic twins (twins that develop from two separately fertilized eggs instead of one). A 1930 study reported a high twinning rate in northern countries and a low rate in tropical countries. A 1960 study observed an increase in twinning from a low level in the southwest of France to a high level in the northeast of France. And now another study underscores the influence of both climate and season on twinning. It is reported in the *BRITISH JOURNAL OF PREVENTIVE AND SOCIAL MEDICINE* (3:175) by Katsura Kamimura of Niigata University School of Medicine in Niigata, Japan.

Kamimura analyzed the twinning rate of Japan since the country is comprised of a long, narrow chain of islands covering the entire temperate zone. From 1955 to 1959, there were 58,570 twin deliveries out of 9,088,233 total deliveries, a frequency of 6.44 per 1,000. Twinning increased from a low level in the southwest of Japan to a high level in the northeast (the coldest area) of the country. This tendency was more obvious for dizygotic than monozygotic twins.

A seasonal variation in twinning was also observed in Niigata City from 1948 to 1955 and from 1956 to 1970. There were more twin births in intermediate mild seasons such as spring and autumn than in more extreme seasons such as summer and winter.

A quick route to sleep

Although many people use medications to help them get to sleep at night, there may be a cheaper and equally effective remedy—physical relaxation before sleep.

Until recently, there has been little research into the effects of prebedtime activities on sleep. Then Carl P. Browman and Donald I. Tepas of St. Louis University studied nine young adult males engaged in brief periods of progressive relaxation, light dynamic exercise or a boring monotonous task done right before bed on consecutive nights. Standard electrophysiological data were recorded during their 7.5 hours of sleep.

The time it took subjects to fall asleep was shortest after relaxation and longest after exercise, the researchers report in *PSYCHOPHYSIOLOGY* (13:536). None of the changes in time it took to fall asleep, however, had any substantial disturbance on the subjects' normal sleep pattern. The only minor difference was an increase in the time before REM (rapid eye movement) sleep after exercise.

Pain and anger

Past studies have suggested that certain patients who suffer from untreatable pain and who show little bodily cause for it are suffering more from anger than from anything else. Specifically, they seem to have a strong aggressive drive that is unfulfilled, and they atone for their anger at unfulfillment with pain.

Two psychiatric researchers at the Royal Adelaide Hospital in Australia, I. Pilowsky and N. D. Spence, attempted to further substantiate the role of anger in certain cases of intractable pain. One hundred intractable-pain patients with little somatic basis for their pain filled out an illness behavior questionnaire. Forty patients who were receiving relief from their pain filled out the same questionnaire.

As the researchers expected, patients from the former group reported significantly more angry feelings than did patients from the latter group—53 percent versus 33 percent. The findings are published in the *JOURNAL OF PSYCHOSOMATIC RESEARCH* (20:411).

TECHNOLOGY

Why Teton Dam failed

Early on the morning of last June 5, water seeping through the north canyon wall beside Idaho's Teton Dam began spurting against the structure's face. By midmorning a large crater had been worn away in the surface of the 300-foot-high earthen dam, and at 11:57 a.m., Teton Dam burst, killing 14 people and destroying property valued at up to a billion dollars. An independent investigating panel has now released its report on the causes of the failure, concluding that the U.S. Bureau of Reclamation simply took "less than conventional precautions" in designing and maintaining the dam.

The precautions that should have been taken center on the porosity of the volcanic rock surrounding the dam. Designers were aware that water rising in the reservoir could seep through the rock, and they tried to compensate by forcing a cement-based filler—called grouting—into fissures to seal the rocks. The panel concludes that "too much was expected of the grout curtain," and that the "design should have provided measures to render the inevitable leakage harmless."

But other factors were also involved. The panel found that the dam and its foundations were not adequately instrumented to warn of changing conditions. The clay-rich silts used for the core of the dam were too highly erodible. And the design of trenches "favored the development of cracks that would open channels through the erodible fill."

Concern is now being expressed over the adequacy of similar dams built in other parts of the country, and many questions still remain about why the Bureau of Reclamation did not take further precautions. Meanwhile, the Bureau has promised to obtain outside appraisal of future dam designs.

Brookings on proliferation

The Brookings Institution of Washington, D.C., has conducted a study of nuclear proliferation and concludes that international cooperation in development of peaceful atomic energy is more likely to forestall weapons proliferation than coercion and embargoes.

The study, "Setting National Priorities," rebuts the argument that the United States should adopt an isolationist policy on nuclear technology to keep reactors capable of producing fissionable material for bombs from falling into the wrong hands. To rely on such a policy, the study says, would prove "counterproductive" in the long run.

As for terrorism, the study concludes that the materials to be guarded are valuable enough that the cost of extra protection will be affordable. Also, the authors noted, nuclear facilities can be isolated and protected in ways not easily adapted to other terrorist targets—such as public figures.

Radar for cars

Radar devices for automobiles, with antennas mounted on the radiator and data processing by a minicomputer, may soon warn West German motorists of danger in the road ahead. The devices are being developed by the Federal Ministry of Research and Technology, working with two private companies—AEG-Telefunken and Bosch.

The object of the radar warning system is to maintain a "critical safety distance" between a car and an obstacle. The computer can determine whether the car in front is reducing speed so fast that it may cause a collision. It can also compute the reaction time of the following car's driver in time to warn him. Two test units are already on the road and the system is also being tried on trains to automate shunting of freight cars in railway yards.