behavioral sciences

Despairing monkeys

The creation of abnormal mental states in animals can lead to a better understanding of the causes and cures of such states in humans. Researchers at the University of Wisconsin in Madison have been conducting such experiments with infant rhesus monkeys. But they believe that the work must be interpreted cautiously until more data are available on monkeys of varying ages. Therefore, William T. McKinney Jr., Stephen J. Suomi and Harry F. Harlow (SN: 7/17/71, p. 40) have started studying more mature monkeys.

They report in the March ARCHIVES OF GENERAL PSYCHIATRY that eight three-year-old monkeys were kept in individual vertical chambers of stainless steel for 10 weeks. This simulated "the depths of despair" by restricting locomotion and visually isolating the animals. A state of despair characterized by excessive clinging between animals and a decrease in locomotion followed removal from the chamber. Changes in biochemistry will be examined and analogous procedures will be applied to animals of varying ages with different social histories.

Population control opinion

The Commission on Population Growth and the American Future has found that 65 percent of the American public feels population growth is a serious problem, and 56 percent feels the Government should do something about it. The poll, conducted by Opinion Research Corporation of Princeton, N.J., finds that 74 percent of the public wants the Government to make birth control information and supplies available to all who want them. Further, 50 percent of all Americans believe abortion should be a matter decided solely between individual couples and their doctors. Only 6 percent flatly oppose abortion under any circumstances.

Social characteristics of alcoholics

Self-reports, cirrhosis mortality, alcoholism treatment rates and public intoxication arrest rates have been used to define the alcoholic. But these measures involve problems of subjective bias or indirect measurement. A more objective method would be the measurement of blood alcohol concentration (BAC) by the Breathalizer test, say researchers at The Medical Foundation in Boston.

Henry Wechsler, Denise Thum, Harold W. Demone and Joanne Dwinnell report in the March QUARTERLY JOURNAL OF STUDIES ON ALCOHOL on a study of 6,266 patients admitted to an emergency hospital service (for all reasons) during a one-year period. Blood alcohol levels were tested and found to be significantly related to sex, age, marital status and religious-ethnic background, but not to social class. For example, 22 percent of the men and 11 percent of the women had positive BAC's. In each sex, the highest BAC's were found in the 45- to 65-age group. Divorced and separated persons had alcohol in their blood more often than did single or married persons. Jewish and Italian Catholics groups had the lowest alcohol readings (8 and 13 percent), while Irish, native-born and Canadian Catholics had the highest (30, 28 and 27 percent respectively). The overall analysis of social class and alcohol level, the researchers found, was not statistically significant.

environment

Aerated sewage lagoons

Growing urban sewage and stricter rules for effluent cleanliness make necessary approaches to treatment that are less demanding of other resources, especially land. Sewage lagoons ordinarily depend on wave action and algae for oxygen. To be properly aerated, they can be only three of four feet deep; thus they occupy considerable space.

Richard A. Kormanik of Rex Chainbelt Inc. of Milwaukee, writes in the January-February POLLUTION ENGINEERING that artificial aeration allows lagoons to be as deep as 18 feet. It also provides other advantages.

Mechanical surface aeration is used. The technique not only keeps oxygen levels high but also mixes organic wastes with the lagoon's bacteria more efficiently. This reduces the time required for biodegradation and produces a more uniform final product. Also, the deep lagoons are less susceptible to poisoning of bacteria by toxic wastes.

Disadvantages include the cost of the power source for the surface agitation and inability to remove volatile suspended solids. The latter disadvantage then has to be corrected with filtration of effluent or a second-stage lagoon of a different type.

The clamor of computers

Edith L. R. Corliss and Raymond D. Berendt of the National Bureau of Standards investigated computer laboratories to determine if high noise levels contributed to the simple and recurrent errors made by programmers. They report in the January-February POLLUTION ENGINEERING that the problem is more serious; noise levels may be high enough to cause hearing loss.

A problem in measuring the noise levels was that noise meters don't respond as fast as the human ear to the "impulsive" sounds of jerking cards into a reader, printing out the results, making new punched cards, etc. Thus meters tended to level out the peaks, so other equipment was used as a second check.

Noise levels when computer equipment was working ranged from 85 to 90 dBA (see p. 189 for explanation). High-powered peaks added as much as 6 dB to the general level.

"The noise level is so high that persons in the room are in danger of losing their hearing," say the researchers.

Mercury levels similar to 100 years ago

Mercury levels in fish and wildlife in local situations have sometimes reached dangerous heights, but scientists have been much less certain about whether a worldwide ocean contamination problem exists. One scientist estimated, for instance, that all the mercury processed by man since 1900 would add only a negligible amount if thoroughly mixed in the oceans.

Further evidence that mercury is not a worldwide problem comes from scientists at the University of California at Irvine, reporting in the March 10 SCIENCE. Instrumental thermal-neutron activation analysis of mercury in fish preserved in museums and dating back to 1878 show, the scientists say, that levels are "in the same range" as found in recently caught fish. The scientists are G. E. Miller, P. M. Grant, R. Kishore, F. J. Steinkruger, F. S. Rowland and V. P. Guinn.