behavioral sciences

Personality profiles of correctional officers

A recent Rhode Island state law requires that all persons seeking employment in adult or juvenile correctional institutions be psychologically evaluated to determine their suitability for the job. At present, however, there is little data on which characteristics are desirable or undesirable in correctional officers. Allan Berman of the University of Rhode Island has therefore attempted to generate data that can be used in follow-up studies to determine characteristics related to job performance.

Berman analyzed MMPI profiles of 100 men who were ready to be employed as officers at a state correctional institution. These results were compared with MMPI data from a group of 50 inmates. Berman found that officer candidates and inmates were about equal in feelings of aggressiveness, hostility, resentment, suspicion and the desire to act out assaultively. The MMPI results did not, however, explain why the inmates had acted on their impulses (and been caught) and the officers had not. Berman's results, along with similar research on the selection of police officers, will be published in URBAN POLICE IN TRANSITION, edited by John R. and Homa M. Snibbe (Charles C. Thomas, Nov. 1972).

Behavioral measurement of depression

Proper treatment of depressed patients depends on proper diagnosis and classification of the depression. The severity and depth of a depression are gauged by both self-rating and physician-rated scales. Self rating, however, is notoriously unreliable and physician rating depends on the skill of the interviewer. In the September ARCHIVES OF GENERAL PSYCHIATRY James G. Williams, David H. Barlow and W. Stewart Agras of the University of Mississippi Medical Center say that an objective measurement of overt, observable behavior may be more accurate than self- or physician-reported methods.

Ten severely depressed patients were studied. Depth of depression was measured every third day by psychiatric interviews and self-rating tests. Observations of behavior (talking, smiling, motor activity, time out of room) were recorded 16 times a day, every day. After two months the researchers found a significant correlation between observed behavior and other methods of monitoring depression. In addition to accuracy, the behavioral observations provided a record of the patients' daily progress and response to treatment.

Predicting mental retardation

If a low level of intellectual functioning can be predicted in a preschool child, remedial steps can sometimes be taken. Sarah H. Broman and Paul L. Nichols of the National Institute of Neurological Diseases and Stroke and Wallace A. Kennedy of Florida State University used data collected in the past from almost 30,000 four-year-old children in an attempt to identify variables associated with low I.Q.

At best, the researchers were able to correctly classify only 47 percent of the children who turned out to be mentally retarded. They admit that they did not come up with a useful level of prediction. But, they say, they did identify the factors most highly associated with mental retardation. These were: delayed motor development at age one, years of maternal education and conditions associated with neurological impairment.

natural sciences

Sex-changes among the fish

Sex changes among *Homo sapiens* require surgery, but they are a common natural occurrence to *Labroides dimidiatus*.

Females of this species of coral reef fish far outnumber the males; what males there are are derived from females that have undergone a sex reversal. Sex reversals, according to D. R. Robertson of the University of Queensland, Australia, are socially controlled.

At an island on Australia's Great Barrier Reef, Robertson observed 11 groups of these fish for over two years. The basic social unit among the species is a male with a harem of three to six females. Within the group there is a strict hierarchy: The male dominates the females and the larger females dominate the smaller females. When the male dies, neighboring males try to take over his harem. If the dominant female succeeds in resisting the advances of these males, she changes sex and takes over as the dominant male.

Robertson explains in the Sept. 15 SCIENCE that each fish has both male and female organs, and probably all females could become males. But males suppress females' tendency to change sex by actively dominating them.

How a flea flees

The flea's remarkable jumping ability has always excited wonder among naturalists and consternation among everyone else.

A detailed study of the exoskeleton and musculature of the oriental rat flea, aided by high-speed movies of jumping fleas, has at last enabled a team of British and Israeli scientists to explain how a flea can jump so far so fast. The key, they report in the Sept. 1 NATURE, is a helmet-shaped mass of resilin in the third pair of legs (the pair used in jumping). This highly elastic protein material is compressed by muscle contractions and held by a series of "catches." When the muscles holding the catches in place relax, the energy stored in the compressed resilin is released, catapulting the insect into the air with an acceleration of 140 g's.

Resilin is also found in the wing-hinge ligament of flying insects. Though fleas have lost the ability to fly, they have retained several features associated with flight and have adapted them to jumping.

Fast-growing lobsters

"There may be a lobster farm in the future." This is the conclusion of John T. Hughes, John J. Sullivan of the Massachusetts Department of Natural Resources and Robert Shleser of the University of California at Davis. It has been thought for some time that lobsters could not achieve normal growth rates in captivity. These three researchers found that, on the contrary, lobsters raised in captivity can be made to grow even faster than normal. In their experiments, lobsters raised in warm seawater grew to maturity (a weight of about 454 grams) in less than two years. Lobsters grown in the cooler waters of Martha's Vineyard reach maturity in five and a half years, while those in the still colder Canadian waters take eight years. By selecting fast-growing lobsters a further reduction in growing time was achieved. The three scientists conclude in the Sept. 22 SCIENCE that "it may be possible to produce lobsters of marketable size in about 18 months."