Behavior

Psychology vs the liberal education

Hamlet had an Oedipal complex. Napoleon had an inferiority complex. And so it goes. Increasingly, English literature and world history are being explained in the light of a growing science—psychology. But this is only natural. A better understanding of human behavior has been one of the general aims of a liberal education, and psychology, with its reliance on the scientific methods, attempts to explain behavior in a more systematic way than do traditional liberal arts courses. In fact, says Samuel Feldman, chairman of New York University's department of psychology, "Psychology is fast replacing history and English as the basis for a liberal education."

In 1958, at NYU, psychology majors were outnumbered almost two to one by history majors. Last year, psychology majors outnumbered history majors almost three to one. With 30 subjects available for majors last year, 12 percent of the undergraduates chose psychology while only 5 percent selected English and 3 percent history. Our society has become more and more service-oriented, says Feldman, and to best help people, you must know and understand them. This necessarily makes the field of psychology an important area of study. But helping people includes helping one's self, and job availability may have something to do with increased interest in psychology. The growing number of drug treatment programs, half-way houses and community mental health centers have opened up many opportunities for psychologists. According to the APA MONITOR, 95 percent of last year's doctoral graduates in psychology are appropriately employed.

Diluting the intellectual environment

First-born children seem to be special. Historically, extraordinary degrees of creativity and intelligence have been seen in such first borns as Galileo, Pascal and Newton. Intelligence tests confirm the fact that many first borns are different, but no theory has offered a complete explanation as to why. One of the most extensive investigations of the relationship between birth order and intelligence was conducted in the Netherlands (SN: 1/5/74, p. 13). First borns did do better on the I.Q. tests, but family size also showed up as an important factor in intelligence. The brightest children came from the smallest families, and within a given family size, the brightest children were those who were born soonest. Robert B. Zajonc of the University of Michigan explains the effects of birth order and family size in the January PSYCHOLOGY TODAY.

A first born, says Zajonc, enters and learns from an intellectual environment consisting of two adults. The second child in that family receives intellectual inputs from two adults and one child. The sixth child in a family enters an environment that is almost completely dominated by children—their thoughts, behaviors and language. Parental intelligence and child-rearing attitudes are important to the intellectual stimulation of children. But, says Zajonc, "children from large families, who spend more time in a world of small-sized minds, should develop more slowly and therefore attain lower I.Q.'s than children from small families, who have more contacts with grown-up minds."

Zajonc's theory might help explain what some researchers claim to be the genetic inferiority of blacks who do poorly on many I.Q. tests. Only two percent of white families have six or more children. More than three times as many black families are that large.

Physical Sciences

From our reporter at the meeting of the American Physical Society in Anaheim, California

Charge invariance upheld

One of the basic principles of modern particle physics is that the universe is symmetrical with respect to matter and antimatter, or putting it another way, positive and negative electric charge. This principle of charge symmetry or charge invariance has come under question in recent years because of the violation of related symmetry principles of space and time in certain processes.

The latest test, which shows no discrepancy and is reportedly 100 times as sensitive as previous ones, was described by Arthur Rich of the University of Michigan. His work, done with Kenneth Marko, involves the decay or annihilation of positronium. Positronium is a quasi-atom, a structure in which an electron and its antiparticle, a positron, are bound together fleetingly in an atomlike state before they meet and annihilate each other. Out of such an annihilation comes photons, and if charge invariance holds, their number should be odd. The experiment looked for even numbers, events in which four photons came out (there are other reasons why two should never occur). They found only four such events in a million positronium decays, and believe they can explain those four on other grounds. Thus the experiment upholds the principle of charge invariance.

The speed of light and the meter

The speed of light is one of the most fundamental constants in physics. In the 300 years since Ole Roemer first measured it, the accuracy of its determination has increased fantastically. Lasers that permit direct measurements of frequency in the near infrared part of the spectrum have brought the accuracy of its determination to four parts in a billion. (The established figure is 299,792,458 meters per second.)

K. M. Evenson of the National Bureau of Standards in Boulder, Colo., now proposes that the meter be redefined in terms of the speed of light. This would fix the value of a fundamental constant absolutely, which physicists like, and define the standard for length measurement in terms of the constant, which physicists also like because it relates measurement to nature's standard rather than arbitrary human ones. The redefinition would make the meter the distance light travels in an appropriate fraction of a second. That would permit the use of a laser to establish the length of a meter, a more accurate method than the present one, which uses krypton lamps.

Emissions from black holes

According to the original ideas about them, black holes are not supposed to emit any matter or radiation. That indeed was why they were called black. But later consideration sometimes modifies theories quite radically, and lately one of the most prominent black-hole theorists, Stephen W. Hawking, has proposed that they can emit particles. Now Don N. Page of the California Institute of Technology has devised a way to calculate the power that such emission would remove. The amount would be inversely proportional to the square of the mass of the black hole. Eighty-one percent comes as neutrinos, 17 percent as photons and 2 percent as gravitons, the particles that theoretically embody gravitational forces.