

Enzyme activity traced to its genetic origin

Recognizing the biochemical individuality of higher organisms, particularly humans, is frontier research. Clinical pedigree studies, coupled with pharmacology-toxicology assays, have shown some genetic differences in drug metabolism ability. A few of the structural alterations in human enzymes, or proteins, involved in maverick drug reactions have been elucidated (SN: 6/26/71, p. 438). No one, however, had managed to link a variant drug-metabolizing enzyme with its genetic origin. Now three scientists from the National Institute of Child Health and Human Development claim to have done so. D. W. Nebert, F. M. Goujon and J. E. Gielen have found that the presence or absence of an enzyme crucial to pesticide breakdown—an aryl hydrocarbon hydroxylase—is expressed as a simple autosomal dominant trait. In other words, the genetic origin and control of the enzyme lies on a chromosome other than one of the two sex chromosomes, and the enzyme is inherited as a dominant rather than recessive characteristic. The researchers studied induction of the enzyme by polycyclic hydrocarbons in various tissues of the offspring between inbred and hybrid mice.

"To our knowledge," the Bethesda biochemists report, "this is the first example in mammalian genetics where the induction of enzyme activity is regulated by one chromosome and perhaps by genes at a single locus."

Linking the genetics and biochemistry of deviant enzymes should eventually have clinical implications, since any day-to-day fluctuations in their activities may influence the intensity and duration of pesticide and other drug action in the body. Metabolizing enzymes, in brief, are one of the body's main defenses against harmful chemicals from the environment as well as crucial for breaking down drugs that benefit the body. □

Toward better treatment of stomach ulcers

Robert Mason, chief surgeon at the University of Maryland Medical School, has found that three of the more common anesthetics used both on humans and in animal experiments drastically reduce stomach secretion. The work suggests that the anesthetics might curtail crucial stomach activity during gastrointestinal experiments on animals. Also, one of the anesthetics is a barbiturate, and this fact has implications for medical management of ulcers. For years physicians have pre-

scribed barbiturates for ulcer patients because they thought that the drugs relieved tension believed somehow to aggravate stomach secretions and in turn create an ulcerous condition. The Baltimore surgeon's work indicates that barbiturates can quiet stomach secretions directly as well.

An abstract of the work will be presented in May at the annual meeting of the American Gastroenterological Association in Dallas.

Mason's next thrust will be to better understand stomach ulcers and to perhaps arrive at better medical management of them. Three years ago Mason, with Thomas S. Nelsen of Stanford University School of Medicine, were not able to show any relationship between brain stimulation and gastric motility, or contraction. They concluded that the nerve control of stomach contractions may be at a lower level. Mason now hopes to find a lower level of nerve control, and possibly to manipulate stomach motility with a device such as an electronic pacemaker in patients with stomach ulcers. □

Malpractice commission: Findings delayed

Patient revenge on bumbling physicians is at least as old as Hippocrates. Used to be, if Doc botched up a leg, off came his own. Civilized demands of later centuries, however, alchemized patient revenge into the malpractice suit. Malpractice suits have reached epidemic proportions in the United States in the past several years. One of four physicians will be faced with a suit at some point in his or her career. The results are grave—not particularly because they cost, inconvenience and embarrass physicians, but because they erode the doctor-patient relationship and result in steadily rising malpractice insurance costs that are passed on to patients.

To grapple with the malpractice crisis, the Congress appropriated \$2 million last May for a Commission on Medical Malpractice. The 20-member commission, to be composed of physicians, lawyers, insurance representatives and the public, was appointed by Health, Education and Welfare Secretary Elliot L. Richardson. Commission findings, originally slated for this spring, have now been postponed to December.

Meanwhile an increasing number of physicians can be expected to continue practicing what Surgeon General Jesse L. Steinfeld calls "defensive medicine." Physicians order extra X-rays and diagnostic tests, extra consultations and extra days of hospitalization solely to insulate themselves against possible later claims of negligence. □

Limits to growth

The ethic that has led Americans to "march to the tune of 'produce or perish,'" may have to be altered, Russell Train, chairman of the President's Council on Environmental Quality said in a speech last week to the World Affairs Council.

"... As a people, we are beginning to question whether more is really better," said Train, in what amounted to a tentative endorsement of the conclusions of the Massachusetts Institute of Technology scholars who wrote the recent book, *The Limits to Growth* (SN: 3/25/72, p. 202).

"One need not accept the dire hypotheses and methods underlying some of the more extreme predictions to acknowledge the fundamental validity of the questions these various groups [such as the MIT scholars and the Club of Rome] are asking."

Train called for reflection and research in five areas: national population redistribution, world population stabilization, resource conservation, technology regulation and distribution of income. On the final factor, he said: "Here at home, as well as in foreign countries, the tensions that threaten to tear apart the social order would be considerably reduced if economic circumstances were more equitable." □

Venereal disease

The National Commission on Venereal Disease recommended to HEW this week that the Federal Government step up its efforts to stamp out venereal disease. The 80,000 cases of infectious syphilis and 2.2 million cases of gonorrhea in 1971 are considered to be epidemic. The commission says Federal funding for VD control should be increased from the present \$12.9 million to \$46.1 million next year. They also recommend that schools begin coeducational programs about VD no later than the 7th grade. □

Population TV program

The Commission on Population Growth and the American Future wanted to publicize its findings on prime-time television (SN: 3/25/72, p. 198). It had hoped to do so before the end of the school year so that students and teachers could discuss its meaning. The three major networks, however, have refused to sell the commission the time, stating that their policy is to air presentations on controversial issues only if the programs have been prepared by the networks' own news organizations. Negotiations are now in progress with the Public Broadcasting System. □