New clues to the stimulant 'paradox'

A paradox of hyperactivity is that it is frequently controlled or helped by amphetamines...drugs that act as stimulants with most adults, but for some reason work to calm and slow down some hyperactive youngsters. This happens, it has been speculated, because hyperactives are somehow physiologically different from most other adults and children and, therefore, react differently to the drug.

Now, however, a study by a group of National Institute of Mental Health and National Institute of Neurological and Communicative Disorders scientists indicates that the reaction is common to all children, and not just to hyperactives. In a controlled study of 14 10-year-old boys, the researchers found that a single dose of dextroamphetamine produced "marked decrease in motor activity and reaction time and improved performance on cognitive tests." The study, reported in the Feb. 3 SCIENCE, "casts doubt" on physiological models of hyperactivity and minimal brain dysfunction (learning disability) that assume that only such children have a "paradoxical" response to stimulants. □

Chinese satellite

A Chinese satellite designated China 8 was sent into orbit around the earth on Jan. 26, and returned a controlled-reentry module to earth four days later. Estimated to weigh from 3 to 5 tons, the satellite is believed to be connected with the development of an orbital reconnaissance capability. The two previous Chinese satellites believed to have conducted planned reentries were China 4, launched Nov. 26, 1975, and China 7, Dec. 7, 1976. □

Radiation-dose limits

To still believe there is a threshold to radiation exposure below which cancer risk is near zero is to ignore the large body of data showing "a statistically significant increase" in cancer incidence following exposure to low doses of ionizing radiation, said Karl Z. Morgan, a Georgia Institute of Technology health physicist. Pending "proof" of a linear correlation between radiation dose and effects extending into the low-dose range, many have considered linear low dose-effect extrapolations as only a conservative limit for what one might expect. But "I and many others have shown that in some cases (e.g. internal exposure to plutonium) the linear hypothesis is nonconservative" and actually underestimates health risks. Morgan said during recent congressional hearings.

Morgan added that present exposure levels for plutonium and transplutonic elements "should be reduced considerably." Arthur R. Tamplin, a scientist with the Natural Resources Defense Council, in testimony during the same hearings, said, "The latest biological evidence indicates that the estimates of the biological effects of radiation made only five years ago, both for cancer induction and genetic effects, are too low by at least a factor of 10." □

Meteorites join moonrocks

Among the various collections of meteorites that have been recovered from various parts of the earth, those gathered in Antarctica are considered to be particularly valuable, since they are largely protected from normal weathering by the low temperatures and shifting snow cover. Now the latest batch of them has been assigned to prestigious accommodations that formerly were the exclusive domain of some even more valuable extraterrestrial rocks, the Apollo lunar samples.

The first two meteorite samples were expected to arrive by the end of this week at the elaborate Lunar Sample Curatorial Facility at the NASA Johnson Space Center in Houston. They would be hand carried (sealed in special stainless steel containers and packed in dry ice) by William A. Cassidy of the University of Pittsburgh, leader of the team that found them, and by Mort Turner of the National Science Foundation's Office of Polar Programs, which sponsored the expedition. An additional 308 samples, which are coming most of the way by ship, are due to arrive in April or May.

The initial pair of samples, however, may be the most important of the lot — perhaps, in fact, among the most important meteorite samples ever recovered. The reason, according to the National Science Foundation, is that they appear to be the best-preserved examples known of carbonaceous chondrites, carbon-rich meteorites believed to represent the material from which the planets were formed. Easily weathered and rarely recovered, they could provide unprecedentedly valuable data on the origins of the solar system and even, perhaps, of life on earth.

The idea of keeping meteorites at the moonrock facility arose last summer, says John Annexstad of JSC, when it was merely a possibility that Cassidy would find some on his expedition several months later. This was, in a sense, a vote of confidence in Cassidy's later-confirmed hypothesis that wind-cleared, old ice surfaces would be promising places to look.

Though the facility may actually offer more protection than the Antarctic meteorites need, some researchers have felt that the lunar samples need still more. As a result, the moonrocks will be transferred to an improved facility, now under construction at JSC and expected to be ready in about a year. □

Teen pregnancies rising

Melvin Zelnik and John F. Kantner have been studying the sex habits of teenage Americans for most of the 1970s (SN: 7/6/74, p. 6) and the two Johns Hopkins sociologists are still scratching their heads. "Far more study is required before we can hope to explain and understand the sexual and reproductive behavior of young Americans," they conclude in the January/February FAMILY PLANNING PERSPECTIVES.

Nevertheless, their 1971 to 1976 study of teenage sex and pregnancy, primarily among white girls, has yielded some clear trends: Premarital sex is up from 26.3 to 37.2 percent; premarital pregnancies rose from 6.4 to 9.3 percent; 80 percent of all first pregnancies are conceived before marriage, although out-of-wedlock childbearing dropped by more than 20 percent; the proportion of abortions of first pregnancies nearly doubled, with overall abortions of premarital pregnancies rising from 33 to 45 percent; girls who married after becoming pregnant dropped from 52 to 36 percent before having the baby and from 12 to 9 percent after giving birth; adoption and foster placement declined, with all but 7 percent of the mothers choosing to keep their babies. □

European launcher tests

All three stages of the European Space Agency's Ariane launch vehicle have now been successfully test-fired on the ground, the most recent test being that of the second stage on Jan. 31 at Hardthausen, Germany. The complete first stage, carrying a cluster of four rocket motors, was initially test-fired on Dec. 13, while the single-motor third stage was tested on Jan. 10. (The second stage uses a single motor, a modification of the first-stage version.)

Launched from Kourou in French Guiana, the Ariane booster is designed to be capable of carrying a 4,500-kilogram payload into a low circular orbit, or 925 kg into geosynchronous orbit (using an Intelsat V type "apogee motor"). This would place it between the U.S. Delta and Atlas-Centaur for low-orbit missions, and, according to ESA, slightly above the Atlas-Centaur for geosynchronous tasks.

The first four "developmental" launchings of the Ariane are scheduled to take place between June 1979 and October 1980, with the first "operational" launching due in December 1980. This will bring it into service shortly after the U.S. space shuttle has replaced most of the expendable U.S. space-launch vehicles in use up to that time. (Another European expendable launcher is being developed under private financing by a German firm known as OTRAG. The OTRAG rocket was test-launched in May 1977, with its first orbital mission planned for 1979.) □