

it, in humans. The actual mechanisms of mutation in DNA molecules are not observable, and although visible chromosome breakage is associated with mutations, scientists are not sure how yet.

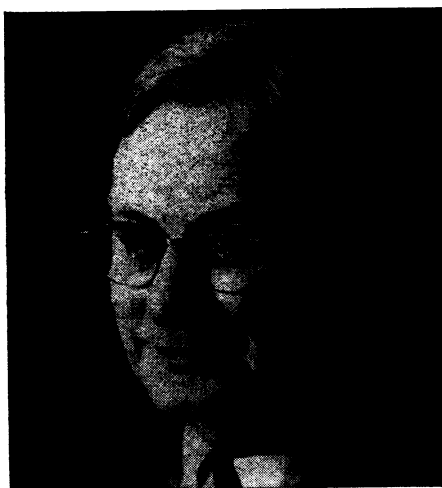
Tests on organisms other than man demonstrate mutagenicity in these organisms. But extrapolation to man, or even to another strain of the same organism, is sometimes doubtful. Some tests identify only dominant mutations, not the more insidious and long-term recessive ones. Population sampling is inconclusive because of the difficulty of attributing a mutation to a specific cause.

The result is, according to EMS president Dr. Alexander Hollaender of the Oak Ridge National Laboratory, that human mutagenicity has not been completely proved for any chemical. Dr. Hollaender suggests that perhaps five or six tests, including some existing ones, will eventually be selected as a routine gamut for any suspect substance. Already, he says, EMS is compiling a registry of compounds that have undergone various kinds of testing by various researchers, and he sees this kind of coordination as a prime function of the new group.

Dr. Samuel S. Epstein of Children's Cancer Research Foundation in Boston believes, that presently available tests include enough different approaches to provide a practical basis for assessing human mutagenicity. These include the dominant-lethal test, in which mutations caused chemically in male mice are measured through fetus death in females impregnated by the males; host-mediated assays, in which microorganisms and chemicals are introduced into the same mammal and mutations in the microorganisms are identified, and various tissue-culture or bacterial tests that measure more specific cell changes. Dr. Epstein says all the tests provide good screening of one kind or another and that the mammalian tests have a high degree of relevance to man.

Dr. Epstein calls for integrating the tests—many of them inexpensive—into toxicology as standard procedures, and he suggests that we view this science from a far broader perspective—so that tests not only for mutagenicity, but also for the related carcinogenicity and teratogenicity, become standard operating procedure for any compound suspected of toxicity of any kind. "We need a conceptual reintegration that will rely on an interdisciplinary approach." He says that the mixed bag of toxicologists, pathologists, geneticists and others in EMS is the cadre for such a thrust.

Dr. H. Bentley Glass of the State University of New York at Stony Brook is convinced that too little is being



Glass: New protection essential.

done, even with existing tests. "Almost nothing is done to mitigate the dangers of chemical mutagens or to protect the population," he says. But Dr. Glass, too, is hopeful that the formation of EMS will mark a turning point.

The fallibility of existing tests is still evident, however. None of them, says Dr. Glass, is conclusive, especially for low chronic doses.

It may be that tests on human embryos will be the only conclusive answer, he says. "No other species will answer the questions in regard to human beings." □

NEWS BRIEFS

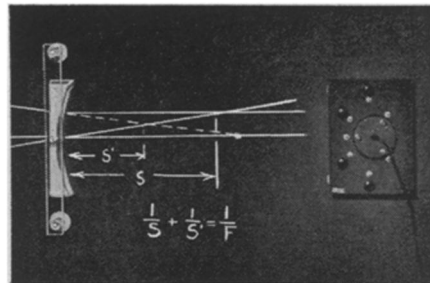
NSF; crown of thorns

An increase of \$27.63 million over the President's \$498 million request for the National Science Foundation's budget for fiscal year 1971 (SN: 2/7, p. 144) has been recommended by the House Committee on Science and Astronautics. The increase includes \$9.5 million more for graduate traineeships, \$10 million for support of research projects dropped by other Government agencies (primarily the Defense Department), and \$4 million for the college science improvement program. □

The coral-eating crown of thorns starfish was first noticed in large numbers six years ago on Australia's Great Barrier Reef. Now the once rare spiny creature threatens coral reefs through a wide area of the South Pacific and Indian Oceans and the Red Sea (SN: 9/13, p. 218).

There is little that can be done to stop the devastation, says a report of the Australian Academy of Sciences which was released this month. There is no evidence of any decline in proliferation of the starfish, adds the report, which resigns itself to recommending local control actions in tourist areas. □

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