

covered to be a radio source as well. "It is a compact, powerful source that behaves very erratically," says Riccardo Giacconi, a principal investigator on Uhuru. It is a binary star system, and Uhuru astronomers have been trying to establish if its X-ray variations are periodical.

Both Gregory and Hjellming speculate that Cygnus X-3 could be a black hole, although they do not understand why it would be giving out radio energy. The black-hole theory would account for the high temperatures, however, since as mass from another star falls into the black hole, energy would be released. If the outburst were a nova or a supernova, astronomers would expect to see some optical brightening.

Evidence indicates that the source is in front of the Cygnus rift—a dust-cloud in the constellation Cygnus. From the abruptness of the increases, the size of the source must be less than one light-day in width. The Uhuru astronomers should be able to nail down an upper limit of the size more precisely.

Because Cygnus X-3 is a strong X-ray source also, scientists expect to find a dramatic increase in the X-ray emissions coinciding with the radio. "If the X-ray and radio sources are independent," says Hjellming, "it would be even more inexplicable. It should be one of the strongest X-ray sources in the sky about now."

But Giacconi is not so sure. "We really haven't established if the X-ray

and radio sources of Cygnus X-3 are the same." When Cygnus X-1, for example, increased in radio emissions, it dropped in X-ray energy, he noted. But Giacconi says that six days before the radio outburst, Uhuru recorded an increase in X-ray counts from Cygnus X-3 from 150 (the normal count) to 300 counts per second, the highest ever seen from that source. "But that is not an increase of the magnitude seen in the radio," Giacconi notes. The Uhuru data from the Sept. 2 outburst have not been analyzed. "If the increase in the X-ray turns out to be as large as the increase in the radio, it will have blasted our detectors," concludes Giacconi. They will know by the end of this week.

On Tuesday of this week, Chi-Chao Wu of the University of Wisconsin had in hand the raw data from OAO 2's ultraviolet observations of the source during the outburst. "The data are not reduced completely yet," says Wu, "but we do see a substantial increase in counts in one wavelength of the ultraviolet." There were no significant increases detected yet in other wavelengths.

Later this week, the new ultraviolet and X-ray telescopes of Copernicus (SN: 9/2/72, p. 156) were to look at the Cygnus X-3 mystery.

"Something very weird is going on here," says Giacconi. All agree, however, that more study and observations are needed to find out just what that something is. □

Psychologists: In the shadow of Diamond Head

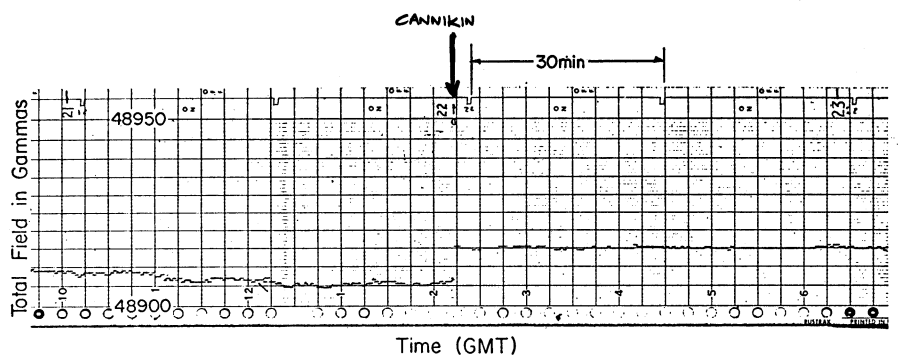
The 80th annual meeting of the American Psychological Association was held this week in Honolulu, Hawaii, where the dominant mood was one of vacation. The almost 6,000 persons who attended were more likely to meet and greet on the beach at Waikiki than at a symposium. Many were more interested in taking home a good tan than a pile of research papers. But all was not pineapple and poi for the psychologists. New research was presented and old concerns were voiced.

For instance, the week prior to the APA meeting, the Association of Humanistic Psychologists met in Honolulu. Their meeting coincided with President Nixon's meeting with Japan's Prime Minister Kakuei Tanaka. For many of the AHP members, Nixon's presence was good enough reason to organize an antiwar rally and to take a stand against the war in Southeast Asia.

Carl R. Rogers, pioneer in encounter group therapy and director of the Center for Studies of the Person at La Jolla, Calif., was keynote speaker at the AHP meeting. In reference to the war, he contended conflict can be avoided by using the group approach. The leaders—not the representatives—of two antagonistic groups will almost certainly reach an understanding, Rogers said, if they meet in an atmosphere of openness and honesty.

Concerns other than the war were aired at the APA's open forum or town hall meetings. Women and blacks asked why so little has been done by the APA to upgrade their status. Others called for more effective psychological training, laws against corporal punishment in schools and a reform of marijuana laws. But the tone of the arguments raised at the town hall meeting was subdued compared with previous years. Some psychologists even speculated that the prohibitive expense of traveling to Hawaii kept the less affluent but more vociferous and radical members away.

Along the same lines, Jack Sawyer of Harvard University said the artificial surroundings of the resort city and the feeling of tourism at the meeting detracted from what should be an atmosphere of social and intellectual ferment. He accused the APA convention planners of contributing to, instead of striving against, racism and commercial exploitation of the Hawaiian Islands. Rogers, who was at the APA meeting to receive the organization's first Distinguished Professional Contribution's Award, also took a few pot shots at the organization he once headed. In an invited address he said psychology is "slipping backward as a



NOAA

Jump in magnetic intensity after Cannikin confirms geopiezomagnetic effect.

Cannikin epicenter. Post-Cannikin measurements across the fault showed a "dip" in magnetic intensity running parallel to the fault. There were increases of as much as 13 gammas in the magnetic field on the Cannikin side of the fault and decreases of 11 gammas on the far side of the fault. This change of a total of 24 gammas across the fault, says Hasbrouck, "may not seem like much compared to the 50,000-gamma intensity of the earth's field, but it is exciting to me. The most we expected was a change of half a gamma to two gammas." These

magnetic changes also appear to be permanent. The NOAA scientists interpret them as signs of an increase in compression in the crust on the Cannikin side of the fault and an increase in tension on the other side. Magnetic dip, they suggest, may be the result of opening of the fault.

The next step in the investigation will be to quantify the piezomagnetic effect—to determine how much stress produces a given magnetic change—and to study it at other locations. Says Hasbrouck: "It looks promising, but we have a long way to go in a far-out field like this."



APA

Anastasi: Keeping out personal views.

significant science." He accused graduate departments of stifling creativity in doctoral dissertations.

He said licensing of professional psychologists has been a failure. Criteria for certification are not kept up to date, and he said there are as many certified charlatans and exploiters of people as there are unqualified.

The American physician, he went on, "has acquired the image of being a dollar-seeking reactionary, a member of the tightest union in the country, opposed to all progress and change, and especially opposed to giving health care where it is most needed." This image, says Rogers, has come about as an unintentional result of the American Medical Association's licensing of physicians.

"It hurts me," he said, "to see psychologists beginning to follow the same path."

In conclusion Rogers asked "whether psychology will remain a narrow technological fragment of a science, tied to an outdated philosophical conception of itself, clinging to a security blanket of observable behaviors only; or whether it can possibly become a truly broad and creative science, rooted in subjective vision, open to all aspects of the human condition, worthy of the name of a mature science."

Not in response to Rogers, but in a speech representing a somewhat different point of view, APA President Anne Anastasi of Fordham University said in her presidential address that it is important that a psychologist distinguish truthfully between those assertions or recommendations that derive from his work as a psychologist and those that stem from his individual values, beliefs and preferences. "Psychology cannot be employed to justify one's entire personal value system . . . such a state of affairs diminishes credibility, arouses public skepticism and weakens the potential contribution of

psychology to the solution of social problems."

Throughout her paper she proposed that psychologists recognize and cultivate diversity within their fields, but that they differentiate between the contributions psychologists are best equipped to make and the contributions more appropriate to other disciplines. "To present personal values in the guises of science," she warned, "is both ineffective and misleading." □

How well do agencies assess technology?

"Technology assessment" has become a common phrase since it was coined in 1966 by Rep. Emilio Daddario, then chairman of the House Subcommittee on Science, Research and Development. In the years since, awareness that new technologies have societal and environmental impacts that go far beyond simple cost-benefit analyses has been widely recognized by scientists and Government officials. According to a report from George Washington University's program of policy studies in science and technology, the new awareness has resulted in meaningful reforms in the way Federal agencies plan and evaluate new technological programs. But the report also stresses that many agencies have a long way to go before the process is anywhere near foolproof.

The need for technology assessment is abundantly clear in retrospect. A number of new technologies have been adopted over the decades without comprehensive prior evaluation, and the results have sometimes been disastrous. DDT, hailed as a panacea for widespread agricultural and public health problems, turned out to have major environmental drawbacks. The boom in automobile ownership and freeway construction turned out to cause more problems than it solved in many cities.

It is unlikely today that a new agricultural chemical would receive such wide use as DDT has before extensive studies of second- and third-order effects were made, and the same is true of most proposed new technologies. But, according to the new report by GW's Vary T. Coates, issued last week, much more needs to be done before the public is assured of full consideration of all the potential impacts of new projects. Coates' study of Federal agency technology assessment, supported in part by the National Science Foundation, is based on 110 interviews with officials in the 86 civilian agencies involved with new technologies or projects. Although the general picture is one of great improvement over the past five to ten years, there are still immense gaps.

A major gap is the low priority given to assigning social scientists to multi-

disciplinary technology assessment teams. This results in a general conservatism in considering social aspects of proposed programs. According to Coates, these are particularly glaring deficiencies in the U.S. Department of Agriculture and in the National Institutes of Health and other biomedical agencies. The USDA, she says, produces assessments of high technical quality, but limits them to environmental or economic questions. USDA "tends to avoid, ignore, or suppress assessments dealing with controversial or sensitive social changes. . . . The chief factors [in this avoidance] are fear of constituency pressure and congressional reaction, stemming from the incompatibility of two primary departmental mandates: service to industrialized agriculture and protection of the small farmer."

Similar influences are at work in the National Institutes of Health and the Food and Drug Administration, claims Coates. These agencies "take a narrow view of technology assessment, concerning themselves almost solely with the safety and efficacy of drugs and medical devices, and to a lesser extent with costs of delivery and impact on medical training and practice. . . . In large part the explanation . . . is the prevailing American view of the private and privileged relationship between doctor and patient." New developments, especially in psychotropic drugs, contraception, genetic manipulation and organ transplants make a broader concern "an urgent need."

Another area of failure, according to the GW researcher, is in agencies that have conflicting roles as promoters and as regulators of a technology. The Atomic Energy Commission and the National Aeronautics and Space Administration are, she says, the two largest offenders. "NASA," she says, "has not only failed to develop a capability for technology assessment but has consistently taken an aggressively promotional stance toward the technology which after all provides its *raison d'etre*." She



Coates: A lag in gauging technology.