SCIENCE & TECHNOLOGY

Status Report on Psychiatry

"Psychiatry: Dead or Alive?" by Alan A. Stone, in *Harvard Magazine* (Dec. 1976), P.O. Box 301, Uxbridge, Mass. 01569.

In 1960, "as many as one out of 300 Americans was involuntarily confined in a state mental institution," reports Dr. Stone, a Harvard psychiatrist and vice president of the American Psychiatric Association; the ratio is now only one in 2,000.

Better, quicker care is not the only reason for this change. Since the mid-1960s, Stone writes, an "anti-psychiatrist crusade" by civil libertarians in the courts and state legislatures has restricted treatment techniques and confinement of the severely disturbed; Stone sees too ready acceptance of lawyers' claims that "we can solve the problems [of the mentally ill] by giving them their freedom and nothing more."

Moreover, in the early 1970s, psychiatry faced other problems. The profession suffered from bitter internal disputes among transactionalists, existentialists, gestaltists, sex therapists, group therapists, behavioralists, and neurobiologists. Finally, a new "social psychiatry" blossomed with the notion that most mental illness stemmed from job trouble, racism, sexism, the atomic threat, and the like, and hence almost "everyone can do with some treatment." This "elastic" approach, Stone notes, almost destroyed psychiatry. Fortunately, he adds, the approach is now more realistic; and the nation's 25,000 psychiatrists have begun to focus on their real mission: treating those who suffer from "incapacitating mental illness."

How Volcanoes Change Climate

"Volcanoes and the Climate" by Owen B. Toon and James B. Pollack, in *Natural History* (Jan. 1977), P.O. Box 6000, Des Moines, Ia. 50340.

In 1815, 12,000 people died in the Dutch East Indies when the Tambora Volcano exploded, spewing ash high into the sky. The following year, New England and parts of Europe endured a "year without summer," with record cold weather destroying crops and causing famine and mass migrations. Were the two events connected? Many scientists believe so, say Toon and Pollack, climatologists with NASA's Ames Research Center in California. Most experts agree that a large volcanic explosion can cause bad weather for a few years but there is disagree-

ment about the relationship between violent volcano activity and long-term climatic changes.

When a volcano erupts, quantities of ash and volcanic gases rich in sulfur dioxide are hurled into the stratosphere where they remain for several years, reflecting sunlight back into space, thus cooling the earth's surface. Studies by British climatologist H. H. Lamb show that the period of major volcanic activity between 1500 and 1912 resulted in average temperatures almost 1 Fahrenheit degree cooler than during the post-1912 nonvolcanic period. Likewise, Toon and Pollack note, a worldwide study of volcanic ash layers in ocean sediments has found that there were many more violent volcanic eruptions during the 2 million years of the ice ages than during the preceding tens of millions of years. This does not prove that volcanic activity could initiate another ice age, but the evidence suggests that volcanoes have produced unusual weather in the past and may have been involved in important climatic changes.

'Gene-Splicing': A Public Debate

"Gene-Splicing: At Grass-Roots Level a Hundred Flowers Bloom" by Nicholas Wade, in *Science* (Feb. 11, 1977), 1515 Massachusetts Ave., N.W., Washington, D.C. 20005; "Recombinant DNA: Fact and Fiction" by Stanley N. Cohen, in *Science* (Feb. 18, 1977); "An Evolution-Perspective for Genetic Engineering" by Robert Sinsheimer, in *New Scientist* (Jan. 20, 1977), King's Reach Tower, Stamford St., London, SE19LS, England.

"For a research technique too new to have produced a single practical application," writes Wade, a *Science* reporter, the recombinant DNA method of "gene-splicing" has produced an unusually lively dispute revolving around safety issues. The debates have spread from university campuses to city councils or state legislatures in Sacramento, San Diego, Ann Arbor, Madison, Albany, and Cambridge. The Sierra Club and its allies seek tighter curbs on the technique; scientists who first pointed out the risks call much of the opposition "irrational." In the end, most public bodies endorsed the safety guidelines set by the National Institutes of Health last June.

Essentially, says Cohen, a Stanford geneticist, the three-year-old laboratory technique "involves the propagation of genes from diverse sources in bacteria." On a practical level, the process has potential for the construction of bacterial strains that can produce antibodies and hormones; it could vastly simplify the production of antibiotics, vaccines, vitamins, and medically and industrially useful chemicals. Other potential uses are less certain. In agriculture, the technique may someday be used to reduce plants' need for fertilizer. In the energy field, it may lead to the exploitation by man of the process