

cothe, Ohio, 20 years ago, when he fed them tamed polio virus to select the strains to be used in his oral vaccine. Prisoners are also ideal subjects for drug studies, W. N. Hubbard Jr., president of the Upjohn Company said, because "the individual is not penalized by removing him from his alternate activities to devote time to the experiment. Since these same people typically have limited opportunity to contribute to the general welfare, participation in efforts carrying large potential social benefits adds to their self esteem." Sabin agreed and provided letters from prisoners as proof.

On the other hand, there is evidence that prisoners have been exploited in some medical experiments. Alvin J. Bronstein of the American Civil Liberties Union cited an example at the symposium where an Oklahoma physician, Austin Stough, left a trail of hepatitis through the prison systems of several states in the mid-1960's while his firm earned large sums of money testing drugs and selling blood plasma. And recently, Bronstein said, the directors of HEW and NIH have expressed their concern that prisoners are not adequately compensated for disabilities arising from their participation in Federal funded research activities.

"It is not so much the actual, occasional abuse of captive human subjects, but the potential for abuse which concerns me," Bronstein declared. "The combination of the secrecy with which prisons are operated and the general absence of post-experiment care makes the potential for abuse quite real." Bronstein called for a ban on prison research.

Meanwhile, the Pharmaceutical Manufacturers Association, which represents the nation's prescription drug companies, has issued a set of guidelines to make sure that drug studies on prisoners are conducted ethically. The guidelines assure prison subjects freedom from coercion, adequate medical protection, full information about the nature of the testing, suitable compensation, the right to withdraw from the study at any time and assurance that refusal to participate would not affect eligibility for parole.

One of the values of experimenting on the poor, pointed out at the NAS symposium, is that subjects are cared for by institutions rather than by private doctors. As a result, it is easier to conduct long-range studies on them than on private patients. On the other hand, it is unfair to the nation's 20 million poor that 80 percent of the nation's medical research is conducted on them, Henry W. Foster of Meharry Medical College pointed out. Foster, a black physician and scientist, asked researchers to consider a moratorium on research on the poor, or at least on

those "who suffer the deepest, most grinding social and cultural deprivation," that is, the illiterate, senile, foreign-speaking and mentally incompetent. "In this age of heightened consumer awareness," he declared, "occurrences such as the Tuskegee syphilis experiment, the injection of cancer cells into uninformed geriatric patients and the deception of Chicano women seeking contraception cannot and will not be allowed to continue."

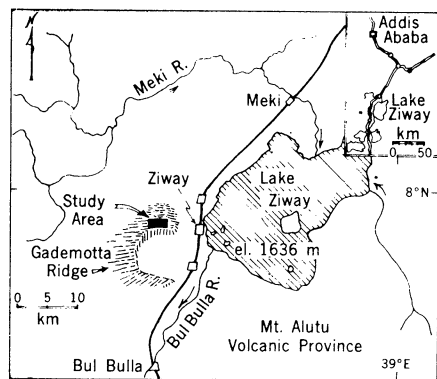
Franz J. Inglefinger, editor of the *NEW ENGLAND JOURNAL OF MEDICINE*, told Foster that halting research on the poor would deprive them of studies whose results they sorely need. Certain of the poor, he explained, are especially susceptible to infections, psychiatric problems and malnutrition. "An answer to malnutrition is food," Foster countered. "I once tried to get a grant to give the malnourished some lean meat each day. I could get money to give them a drug, but not meat." □

Pill-related stroke: A certain risk

A relationship between oral contraceptives and high blood pressure in young women was first noted in 1967. In April 1974, the *NEW ENGLAND JOURNAL OF MEDICINE* reported that women on the pill are nine times more vulnerable to heart disease than are other women. A study reported in the Feb. 17 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* has followed up on previous reports, and has examined the influence of other possible risk factors, such as hypertension, smoking or migraine headaches on women using oral contraceptives. The report concludes that use of the birth control pill by itself can increase a woman's chances of having a stroke. But the chairman of the group, Albert Heyman of the Duke University Medical Center, says the chances of a woman of childbearing age having a stroke at all are extremely rare. One woman in 10,000 may suffer a stroke attributable to the pill.

Previous studies indicated that pill users who also had high blood pressure, migraine, blood vessel diseases and diabetes might have a greater chance of suffering stroke. The study indicates women with these conditions may indeed be particularly susceptible to pill-related strokes, but that the pill may cause a stroke when these conditions do not exist. "Combinations of risk factors are bad," Heyman says, "and women who already face an increased risk of stroke would be well advised not to use the pill." About 10 million American women currently take oral contraceptives. □

Tool scraps date Middle Stone Age



Middle Stone Age in Ethiopia: Far greater antiquity than expected.

Sediments taken from a Central Ethiopian volcanic ridge indicate that the technological developments characteristic of Middle Stone Age man may be much older than suspected, a report in the Feb. 28 *SCIENCE* says. Because scraps from Middle Stone Age tools were covered by volcanic ash rich in sanidine crystals (alkali minerals of feldspar), scientists could use potassium-argon dating to determine the age of this find. It was a stroke of luck, Robert Scarborough of the Laboratory of Isotope Geochemistry at the University of Arizona says, that the researchers found tool flakes so close to volcanic debris. Stone Age people were probably attracted to the area by the outcrops of obsidian and by its close proximity to Lake Ziway.

Although the specific location of the volcano involved has not been determined, the excavation site is in the Galla Lakes region. Two of the three samples dated were from airfall ashes, and were virtually covered by volcanic dust at the time of an eruption. The oldest tool scrap dated was about 200,000 years old, or about five times as old as carbon-14 tests had indicated. Although other findings suggest tools were used in Africa three and a half million years ago, Scarborough's group has established that tools were almost certainly used 180,000 years ago. □

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