

the crop destruction program and concluded that it has been a failure because of poor intelligence.

Some 2000 square kilometers of land have been sprayed to destroy crops. At the request of the AAAS team, specialists on Vietnam in the Agriculture Department estimated that this entailed destruction of enough food to feed 600,000 persons for a year. The anti-crop spraying has been largely confined to the food-scarce Central Highlands, which has a population of only about 1 million, mostly Montagnards, a tribal people disliked by the lowland Vietnamese who are active in helping to plan the spraying missions.

The AAAS team was twice flown over an area in Quang Ngai province where crop destruction operations had been conducted only a few days before. They were accompanied by the chemical operations officer who had planned the missions, and they were assured by him that the fields destroyed were growing food for the enemy. The reasons given for this assessment were that the target area was virtually uninhabited (supposedly less than eight persons per square kilometer); the area under cultivation had expanded strikingly in recent years; the cultivated area was much larger than needed to support the supposedly small indigenous population; and there were numerous terraced rice fields—which indicated the presence of the enemy, since the native Montagnards supposedly don't practice terracing.

All four contentions, the AAAS team later concluded, were in error. Though the officer said there were no dwellings below and none could be seen from the air, aerial photographs taken by the AAAS team and a map issued in 1965 both indicate more than 900 dwellings in the area—suggesting a population of more than 5000, or about 180 persons per square kilometer. Moreover, the boundaries of cultivated fields seen in the photographs compared closely with the boundaries on the 1965 map, indicating no major crop expansion over the past 5 years. The AAAS team concluded that the land under cultivation was just about enough to support the people apparently living there. They also learned from other military sources that the Montagnards in question have grown rice on terraced fields for a long time. Summing up, the AAAS team said: "Our observations lead us to believe that precautions to avoid destroying the crops of indigenous civilian populations

have been a failure and that nearly all the food destroyed would actually have been consumed by such populations."

In the give-and-take of debate at the AAAS convention, it was also learned that several classified studies conducted under military auspices since 1967 have come to a similar conclusion. The one major classified study which came to an opposite conclusion and asserted that the program was hurting the enemy but was having little impact on civilian food supplies was marred, according to Meselson, by a simple error in arithmetic, which threw its results off by a factor of 100.

The AAAS team also concluded that continuation of the crop destruction

program would have "devastating consequences for the Montagnard peoples," not only by depriving them of food, but also because of their animist beliefs. Interviews with Montagnard refugees whose lands had recently been sprayed revealed that they regard the spray operations as the manifestation of an evil spirit. Some abandon their land in the belief that it has fallen under a curse; others destroy their water buffalo, the chief source of wealth, believing them to be infected or feeling a sacrifice is needed.

Brig. Gen. Stone, in attempting to rebut the AAAS team's findings, claimed that the Army's "best intelligence" indicated that the houses seen in Mes-

State Radiation Law Loses in Court

A Minnesota federal court judge has ruled that a state has no right to establish radiation standards stricter than those set by the Atomic Energy Commission (AEC). The ruling came as a result of a suit filed by the Northern States Power Company, which is building a nuclear generating plant in Monticello, Minnesota. The power company sought to contravene new standards on radiation emissions, which were set by the Minnesota Pollution Control Agency (MPCA). The decision is bound to affect efforts by other states to tighten controls on radioactive pollution.

The Minnesota controversy began in 1968 when the new plant sought a waste disposal permit from MPCA (see *Science*, 7 March 1969). Objections by local scientists led MPCA to hire an outside consultant to study the situation. The consultant, Ernest Tsivoglou, said that the AEC standards did not take into account the cumulative effect of radiation when other plants are built in the area (Monticello is some 40 miles up the Mississippi River from Minneapolis-St. Paul), nor did they make allowance for possible radiation damage to organisms other than human ones.

The judge, Edward J. Devitt, based his ruling on a 1959 amendment to the 1954 Atomic Energy Act, which gives the AEC authority over construction and operation of any production or utilization facility, and on a congressional report which stated that licensing and control of reactors is the "exclusive responsibility" of the AEC. Whether the standards permitted deviation, said the judge, was solely for the Congress or the AEC itself to decide. The state argued that the right to strengthen atomic power regulations fell within its constitutional mandate to oversee the health and safety of its citizens.

The maximum permissible radiation endorsed by the state is only 2 percent of that sanctioned by AEC. According to a company spokesman, Peter Cook, Tsivoglou's recommendations embraced the "ideal" standards set forth in General Electric's design for the plant, plus some "strange" ideas of his own. Cook said the new regulations are "in conflict with AEC standards in some instances and in others unworkable."

The MPCA plans to appeal the decision. Its stand in court was accompanied by "friend of the court" briefs from nine states—Illinois, Maryland, Michigan, Missouri, Pennsylvania, Texas, Vermont, Virginia, and Wisconsin—and from the Southern Governors Conference, which represents 18 states and territories. The MPCA has expressed fear that the ruling may affect other state standards which govern the amounts of radiation allowable in all state institutions, including hospitals and research centers.—CONSTANCE HOLDEN