

the only wicked one in the world is like saying it's the only good one," and amounts to extreme ethnocentrism. "It's a bore, just a bore," she says.

No one nation can achieve peace; all will have to be involved, Dr. Mead points out, and she suggests a future world in which men would no longer be able to draw their historic, exclusive lines between nations, races, customs, religions and ideologies.

The alternative to war is not a world federation, since revolution would only replace wars between states. Therefore, says Dr. Mead, the essential functions of life must be spread out in a network over the globe so that no one group can fight another without cutting off, for example, its food. Shipping might be in one center; finances in another; food distribution in another, in an overlapping interdependent system, somewhat analogous to the international monetary system.

SAFEGUARDS

Counting the Plutonium

Among the scientists who developed the atomic bomb, the hope that nuclear energy could be used for peaceful power was a happy dream shadowed by the nightmare fact that any reactor would produce plutonium equally useful for weapons.

The dream became a reality—but so did the nightmare. And attempts to forestall the prospect of nuclear weapons proliferation rely mostly on the development of international techniques to keep track of the fission material produced in reactors, and to insure that it isn't diverted to weapons production.

The hopes for controlling the spread of weapons improved slightly last week when Germany, Brazil, Italy and India—all critics of the proposed U.S.-Soviet draft of a nuclear non-proliferation treaty—had kind words for President Johnson's pledge to open all U.S. nuclear facilities not connected with weapons production to inspection by the International Atomic Energy Agency.

Johnson's announcement—made on the 25th anniversary of the first successful atomic reactor, a prototype of the pile that produced plutonium for the bomb that destroyed Nagasaki—was followed by a similar pledge on the part of Great Britain.

The U.S. already has put one power reactor, the Yankee plant at Rowe, Mass., under IAEA inspection. Recently, inspectors visited the fuel reprocessing plant of Nuclear Fuel Services, Inc., West Valley, N.Y., which services the Yankee station.

Experience at these sites has shown that keeping track of fissionable mate-

rial in reactors themselves presents relatively few problems: "a cinch," is the way one industry spokesman describes it.

In the first place, fuel for most reactors now going into the line uses slightly enriched uranium, with only a few percent of fissionable U-235 and the rest U-238. For weapons, the uranium must have a much higher percentage of U-235.

Beside this, the nuclear fuel gets very little handling in the reactor. Fuel elements are received at the plant, sealed in the reactor, and left there until they no longer have enough U-235 to maintain fission. Keeping track of fuel elements, and insuring that none get misdirected, is relatively simple.

But the fission process that produces heat for power generation also affects the U-238, turning it into plutonium, which is also fissionable. So fuel elements that become depleted in U-235 are shipped to a fuel reprocessing plant, where any remaining U-235 is removed, along with the plutonium produced.

In the processing plants, the problem is more difficult. Here, bomb-quality material—plutonium—is present in large quantities. Moreover, the process of working with radioactive material, melting it down and making a solution of it, then separating the plutonium and U-235, involves some fairly exotic chemistry. The presence of inspectors demanding information at critical moments, perhaps gaining access to industrial secrets in privately-run plants, is an unsettling prospect.

European companies—particularly in Germany—have made foreign inspectors' access to commercial processes a key argument against IAEA.

Nevertheless, the U.S. willingness to open nuclear installations to international inspection—while not overcoming the non-nuclear nations' contention that they are being asked to give up weapons with no compensation—was taken abroad as a step in the right direction.

DRAFT

Deferments for Graduate Science Students

A special report to National Security Council this week is urging draft deferments for graduate students in natural sciences, mathematics, engineering and health. If the recommendation is accepted, the draft situation will remain much as it is for the nation's science students, though their contemporaries in the liberal arts will not fare as well. Of the nation's 144,000 graduate students, about half would come under the categories recommended for deferment. The recommendation comes from a special Interagency Advisory Committee on the draft.

ALDABRA

Saved by the Pound

The devaluation of the British pound shook international finance. But it also seems to have provided a reprieve for the ecology of Aldabra.

For months Aldabra's virgin ecology has lived under the threat of invasion (SN: 8/12). The British Ministry of Defense, backed by the U.S. Defense Department, planned to build an air base, complete with 9,000-foot run way and a BBC-operated radio station. Last February the prestigious British Royal Society began to worry about the matter, and three months later threw its full weight behind efforts to ban the base. Soon the Society was joined by the U.S. National Academy of Sciences, the American Association for the Advancement of Science, the Smithsonian Institution and platoons of individual scientists in both countries.

The fighting became fast and furious, with impassioned speeches in the House of Commons and scientific expeditions to the atoll preparing lengthy reports in defense of the unique ecology of the Aldabra group.

Then British Prime Minister Harold Wilson devalued the pound.

That did it. The Wilson's action resulted in some \$250 million in defense spending cutbacks, and the island base was one of them. "We have decided not to proceed with the Aldabra project," said Wilson.

ELECTION

Brode to Head Chemical Society

Dr. Wallace R. Brode, a leader in international science diplomacy, has been elected president of the American Chemical Society for 1969.



He was science adviser to the Department of State from 1958 to 1960.

In 1960, Dr. Brode, who is a Trustee of Science Service, won the Priestly Medal, the highest award in American chemistry.

His research has been on the chemistry of dyes, optics and photographic processes.

During his teaching years—1928 to 1948—at Ohio State University, he developed sets of models to enable students to visualize molecular structures. His text, "Chemical Spectroscopy" is a standard reference.

A member of the National Academy of Sciences, Dr. Brode is former foreign secretary of the ACS.