one-fifth the AEC estimate. This lower figure would make the range 1.4 to 30, but here, and in other parts of the report, the AEC figure for the most probable level is taken as the minimum level.

Using the factor of 10, the other major article makes rough estimates of the increase in strontium-90 in lichens (which accumulate strontium-90 very readily and which are the principal food of caribou) and in caribou. The report then discusses the possible increase in levels of strontium-90 in the 700 Eskimos living in the affected area, a major part of whose diet is caribou. No estimate of this increase is made, since, "although it can be predicted that fallout from the Chariot blast would increase the level of Sr^{90} in the diet of the region's Eskimos, no accurate estimate of the size of the effect can be made without additional information not yet available."

The article points out that there is not now enough information to make a judgment on whether there is any possible harm from the strontium levels involved, and suggests, therefore, a research program to supply the needed information.

The article concludes that "until the results of these studies are available, the great uncertainty about its possible effect on life is perhaps the most serious problem which stands in the way of a decision on the wisdom of setting off the Chariot explosion."

AEC officials complain that the report is neither as accurate nor as complete as the general public might suppose. They point out, for example, that the CNI assertion that the strontium-90 yield might be 10 times greater than the AEC believed likely was based on a misreading of an AEC-sponsored study. This study gave 5 percent as the most probable portion of the total radioactive yield that might get into the fallout.

Any technical errors, though, although they may prove embarrassing to CNI, do not affect the ultimate conclusions of the CNI report. The ultimate conclusion of CNI, as stated in a press release contrasting their report with the AEC's is that "the evidence, including the more extensive data cited in CNI's own report, is insufficient to support any firm conclusion regarding the safety of the project." This conclusion is not affected by the technical errors that may have crept into the report, and does not, for that matter, contradict the AEC report, which also did not reach any "firm conclusion."

The main problem with the CNI report is not with the technical soundness of the report but with the wording, and particularly the probable effect of the choice of words on the lay audience to whom the report was addressed.

CNI Conclusions

On one major conclusion CNI seems clearly misleading. The report states that "the fallout from the proposed explosion will add to the Sr^{90} levels by an *amount* which cannot now be estimated with any degree of precision" (emphasis added). This amount, of course, while difficult to predict precisely, falls within well-defined limits: it cannot be less than 0 percent nor more than 100 percent of the total strontium-90 produced by the explosion, and this latter figure can be predicted with good accuracy. But it also estimated that for the particular fallout constituent CNI was concerned with, strontium-90, the most probable figure would be 25 percent. Thus the figure could be underestimated, at most, by a factor of 4, not by the factor of 10 calculated by CNI.

Of the other two "general conclusions" cited earlier, the AEC agrees with that concerning the food chain. But the final conclusion, although accurate, could be misleading for the lay audience to whom the report is addressed. It simply says that "no firm prediction can be made regarding the ultimate harm that may result [from the test]" and that "according to the current philosophy of radiation protection, it is assumed that every increase in radiation exposure carries with it an increased risk of disease." This is perfectly true. Thus it is known that watching television exposes the viewer to small amounts of radiation, and in the words of the CNI report, "no firm prediction can be made regarding the ultimate harm," and again as the CNI report accurately points out, "it must be assumed that [this] increase in radiation exposure carries with it an increased risk of disease." As it happens, the exposure from habitual television watching, or from current levels of fallout, is roughly the same as the exposure the 700 Eskimos might receive if pessimistic assumptions about absorption of strontium-90 are correct. Although the ultimate harm cannot be firmly predicted, the National Academy of Sciences, in its widely respected report on radiation hazards, referred to the probable damage from such levels as "negligible."

A spokesman for CNI was asked whether the repeated emphasis on the difficulty of predicting the damage, if any, from such levels, along with the lack of any discussion of the range of damage within which uncertainty lies, might not mislead a general reader into thinking that the risks are much greater than any reputable scientist claims they are. The CNI spokesman said that "the idea of anyone interpreting the report in this way never crossed our minds," and that such information certainly would have been included if the committee had felt the report, as is, might mislead the public.

The CNI spokesman was asked whether the public, in evaluating the possible risks, might not have found useful some discussion of the likelihood that the damage would be great enough to be detectable. He said that an analysis of this problem would have made the report "too long," that the committee had attempted a calculation of probable damage but that it proved "too complicated," and that the committee had covered this subject, in any case, in other reports it had issued.

The CNI spokesman said he considered the report, as is, to be "a tremendous labor to give the scientist an idea of how he can function, and to give the public an idea of what the scientist can do for him."

The report (50 cents) is available from CNI, 6504 Delmar Blvd., St. Louis, Mo. The AEC report ($1) is available from the Office of Technical Services, Department of Commerce, Washington, D.C.—H.M.

The Test Ban

The general feeling is that the Administration has been handling the delicate problem of the disintegrating test-ban negotiations about as well as possible. What the Administration wanted to do, and appears to have succeeded in doing, was to make clear that the threat to resume testing was brought about by Russian intransigeance, rather than by an American desire to resume testing that outweighed our interest in reaching an agreement, or by a mere yielding to domestic political pressures.

The American "white paper" on the situation emphasized that it was the Russians who originally insisted that the test ban be separated from the

problem of general disarmament; that the West had offered significant concessions since the talks resumed in March, only to have the Russians step back from positions that had already been agreed upon; and that it was going to be extremely difficult to enter into the new kind of international relationships that seem to be required by the advent of nuclear weapons so long as the Russians insist on an unlimited concept of national sovereignty that makes a useful system of international law impossible to achieve.

Despite the vigorous tone of the white paper, as a policy statement it did not go beyond what both the Eisenhower and Kennedy Administrations have been saying for a long time: that the U.S. cannot permit the present unpoliced ban to run on indefinitely. The paper was primarily a criticism of Russia's uncompromising attitude. It did not assert that the U.S. *would* resume testing, and apparently no such decision has yet been made.

Space Discoverer Recovery

The Air Force soon may put a monkey in prolonged global orbit and attempt recovery as a result of the safe return and pick-up of its Discoverer XXV last Monday. The capsule had orbited the earth 33 times during a 50-hour ride in space.

Parachuting skin divers, all trained medical corpsmen, part of the 76th Air Force rescue squadron, recovered the 1-ton vehicle when it fell into the Pacific out of reach of Air Force planes standing by for an aerial catch.

The Air Force Discoverer program began 28 February 1959. It is an open-end research and development program aimed at perfecting a general-purpose space vehicle or "space truck" that can launch a variety of payloads.

The program has achieved, among other things, the first polar orbit; the first completely stabilized and controlled vehicle to be set in orbit and then redirected from ground controls; the first successful orbit and recovery of animals; the first aerial recovery of a space vehicle; and, now, the recovery at sea by parachuting skin divers.

If successful, the Air Force plan to recover a monkey after more than 2 days in space is expected to yield important information on the effects of weightlessness and on radiation.

Subversion and Education

Both the Senate and the House of Representatives are considering the question of subversion as it may relate to government loans for education.

The Senate Education Subcommittee has accepted President Kennedy's proposal to repeal the disclaimer affidavit provision in the National Defense Act of 1958. This provision requires a college student receiving a government loan to execute an affidavit disclaiming subversive beliefs and affiliations.

Twice during his terms in the Senate Kennedy tried to win repeal of the provision, but his efforts were unsuccessful.

In support of his legislation, Kennedy pointed out that several universities have refused to use the loans because of the loyalty and disclaimer requirements. If passed, his original bill would have removed both provisions. His present proposal does leave in the law the loyalty oath requirement for students. This is similar to the oath required of the President, and all those working in government, and most universities and colleges have found this less objectionable. The repeal of the disclaimer provision in the student loans, it should be noted, will not apply to students who may be recipients of fellowships and grants.

The American Legion has protested the Administration's proposal to drop the disclaimer affidavit, charging through Miles D. Kennedy, legislative director of the Legion, that those opposing the loyalty affidavit were waging "an active cold war of anti-Americanism." When asked by Representative John Brademas (D-Ind.) if he was accusing President Kennedy and former President Eisenhower, who had also opposed the provision, of being anti-American, the Legion official said he did not mean that they were un-American, but "they have been wrong before."

In the House, the Committee on Science and Astronautics opened hearings to investigate awards of fellowships and scholarships by the National Science Foundation.

The hearings were called at the request of Representative Richard L. Roudebush, a past national commander of the Veterans of Foreign Wars and a member of the House committee. He charged that the NSF was lax from the standpoint of security when it awarded a $3800 fellowship to a student convicted of contempt of Congress as a result of a hearing in 1958 before the House Un-American Activities Committee. The student, Edward Yellin, had refused to answer when asked if he was a Communist.

Roudebush, expressing shock and anger at the NSF grant to Yellin, said, "I think that there was not the necessary security exercised by the National Science Foundation. Greater security should be exercised whenever public funds are spent." He pointed out that the House Science Committee does have jurisdiction over the NSF grants by legislation as well as by House rule.

The House Science Committee, at its hearing, asked Alan T. Waterman, director of NSF, on what basis Yellin was awarded the grant, made in March of this year. Waterman said the law provides that the applicants are to be judged solely on ability. In response to the question whether the Foundation would have reached the same decision in approving the grant to Yellin if it had known of his conviction, Waterman said, "I believe so." Waterman and NSF counsel William J. Hoff said an applicant would be entitled to a fellowship, if he qualified on grounds of ability, regardless of a court conviction, whatever the grounds for the conviction might be. Several committee members said they felt that the law was deficient and should be changed.

Yellin had planned to use the grant to continue his engineering studies at the University of Illinois. He was recommended for the grant by Illinois faculty members, who may be brought for questioning before the House Science Committee, according to a statement by committee chairman Representative Overton Brooks (D-La.).

Yellin had based his refusal to answer the House Un-American Activities Committee query on the First Amendment to the Constitution. A staff member of the Un-American Activities Committee said, "This left him wide open to a contempt charge. If Yellin had pleaded the Fifth Amendment, no action could have been taken against him."

Upon his conviction in April 1960, Yellin was sentenced to a year in prison. The U.S. Circuit Court of Appeals upheld the conviction. Yellin now is carrying the appeal to the U.S. Supreme Court. In applying for the NSF grant, Yellin signed the disclaimer affidavit and took the loyalty oath.