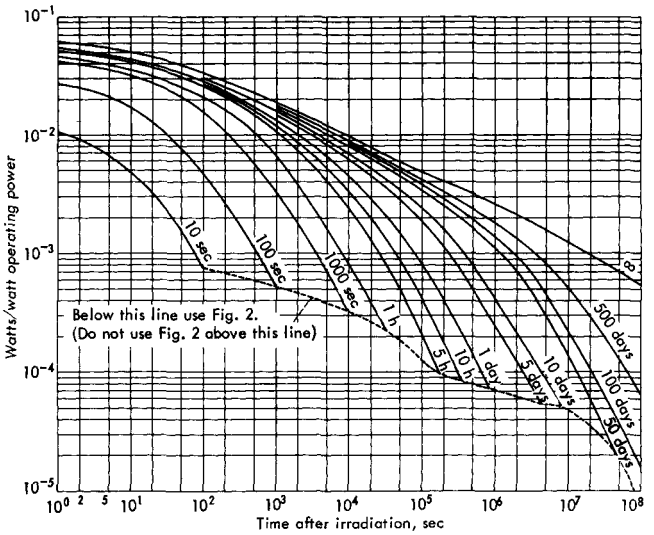

Fig. 1. ^{235}U fission product decay heat vs time after irradiation for a number of irradiation times.

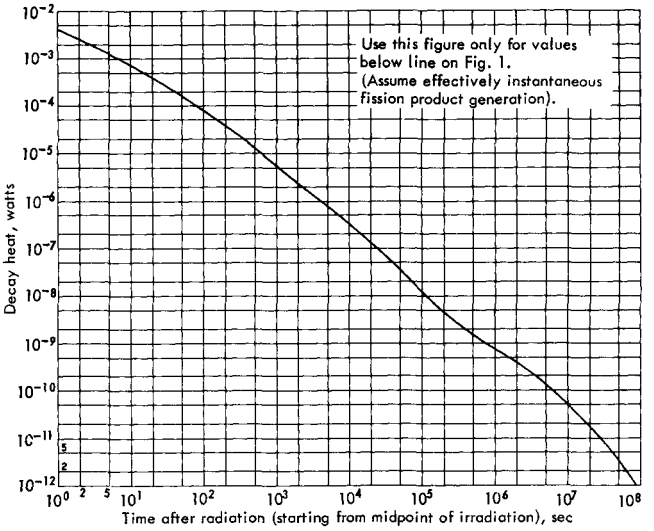

Fig. 2. ^{235}U fission product decay heat vs time after one watt-second irradiation.

(60 MW) = 0.144 MW decay heat. If we wish to determine the decay heat at 4.0×10^7 sec (1.27 year) from the midpoint of operation, which is >10 times the operating time, we use Fig. 2 and find (5.0×10^{-12}) $(8.64 \times 10^5$ sec) (60 MW) = 259 watts.

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October 2, 1968

REFERENCE

1. J. R. STEHN and E. F. CLANCY, "Fission-Product Radioactivity and Heat Generation," *Proc. Intern. Conf. Peaceful Uses At. Energy, Geneva*, **13**, 49, United Nations (1958).

PROPER UNDERSTANDING NEEDED

Dear Sir:

The idea of including commentary on the social implications of science in a technical journal is most interesting and is particularly apt in a journal entitled *Nuclear Applications*. To fulfill its implicit promise, however, the sophistication and depth of such commentary should attempt to match the importance of the subject. The editorial in the November issue seems to fall somewhat short of this ideal.

For example, you suggest that "the possession of nuclear weapons . . . (has) . . . a deterrent effect on all nations . . . against a rash belligerent act that could escalate into an annihilating war." But isn't it just nuclear weapons that makes such an "annihilating war" possible? For your statement to be true, the probability of a conventional war occurring *and* being "annihilating" must be greater than the probability of a nuclear war occurring *and* being "annihilating." There is considerable historical reason to believe that such is not the case. Learning to live with nuclear weapons *is* considerably different from learning to live with fire or dynamite or automobiles. It is different for the same reason that blowing up 1/100th of the world 100 times throughout history is different from blowing up the whole world once.

I'm afraid I must also take exception to the notion that respect for science and scientists is going to be significantly enhanced by the peaceful applications of nuclear explosives. If scientists qua scientists should not be given the blame for the use of nuclear explosives to blow up people (and they shouldn't) why should they be given the credit for the use of nuclear explosives for digging canals? In fact neither of these activities are scientific activities. I would suggest that there is a greater need for the proper understanding of science and scientists by the public—and that includes the Congress as well as "the younger generation"—than for some ambiguous, if gratifying, "respect." In any case, I think we don't deserve the respect of the world if we think we can gain it by digging different and bigger holes for less money.

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