

There is a third field which could and should develop within the next few years into a massive and remunerative application of nuclear energy. This is the use of nuclear explosions for peaceful purposes. Altogether, more conventional explosives have been used so far in peaceful industry than in wartime destruction. That nuclear explosives have not yet made their contribution in a constructive manner is due to two reasons. One is that nuclear explosives become economic only when used in rather large units -- and large explosions must, of course, be handled with particular caution. The second reason is that nuclear explosives produce radioactivity, which is dangerous in the large quantities that occur in the immediate neighborhood of the explosion. Furthermore, the discussion about fallout has resulted in exaggerated and unwarranted fears so that even small quantities of radioactivity which are in themselves not harmful are viewed with alarm; this impedes actual progress of any peaceful enterprise.

Even during the war we discussed the possibility of using nuclear explosions for constructive purposes. Shortly after the war John A. Wheeler proposed the use of underwater nuclear explosions for the purpose of producing radioactive isotopes which could later be extracted from water collected on the explosion site. A little later Theodore B. Taylor made a more detailed proposal of nuclear explosions under ice or underground for similar purposes. But the first systematic consideration of the peaceful uses was started in 1957 by Harold Brown and Gerald W. Johnson at the Livermore Laboratory.\*

---

\*H. Brown and G. W. Johnson, "Non-Military Uses of Nuclear Explosions," Lawrence Radiation Laboratory (Livermore) Rept. UCRL-5026 (June 1958). The effort is now carried on by a numerous group in Livermore under leadership of Roger Batzel and Gary Higgins.