years and if we add to this period the time which is undoubtedly going to pass before a decision on the Rampart Project is made, the development of Alaska which will have occurred in the meantime will make these great amounts of electrical power really useful. The location of the proposed dam is shown in Fig. 3.

Navigation, hydroelectric power, and irrigation by surface streams and reservoirs still do not completely exhaust the possible uses of nuclear explosives in water regulation. It is possible to break up impermeable layers with the help of nuclear explosives. In the first underground nuclear shot in 1957, which was called the Rainier shot, a 1.7 kiloton explosion shattered approximately 200,000 tons of rock and made this material at least temporarily water permeable. The amount of rock shattered and the time during which the material will remain in the water-permeable condition depends of course on the nature of the rock. But it is clear that under some conditions very great holes can be punched into geologic formations which prevent water from seeping into an aquifer. That underground water can supply flourishing agriculture has been amply demonstrated in Phoenix and Tucson. In the long run, however, these underground water deposits will have to be replenished. Nuclear explosives might turn out to be the proper tools with which the seepage and flow of underground water can be regulated. Before this can happen it will be necessary to make a most thorough study of underground hydrology.

This last topic cannot be strictly called an earth-moving project. There are still other applications in which it will be highly profitable to move great quantities of earth. The most important of these is to remove overburden from extensive underground mineral deposits. The mining of iron and coal is economically possible only if the deposits are reasonably close to the