

had been added to uranium-238. As a result, two new elements, 99 and 100 subsequently named einsteinium and fermium, had been isolated from the products which were generated by successive beta decays in the Mike debris.

With the progress of thermonuclear technology we now can produce the same type of explosions in miniature. In fact, a recent underground shot performed at the Nevada test site has given rise to a distribution of heavy elements very similar to those produced in the enormous Mike event. We are planning a shot by the code name of Coach which will be specifically designed to produce a maximum neutron flux giving rise to the greatest possible number of captured neutrons and to the heaviest and most strongly charged daughter nuclei. We expect that this procedure will make it possible to produce elements beyond lawrencium, which is element 103 and the last of the actinide series. Of course, transplutonic elements produced so far differ from each other only in the number of electrons present in the 5f shell. Their chemical properties are almost as similar as those of the rare earth series. Starting with element 104 we must expect completely new chemical properties, and thus the transplutonium chemistry will become more complex and more interesting.

Plowshare will make its great contributions not only in the structure of the nucleus but also in exploring how the outer electronic shell behaves under pressure. We have learned from experiments carried out with the help of high explosives up to two million atmospheres a great deal concerning the