(N = 161) nuclide for study. This nuclide would be of particular interest since it could fission symmetrically into nuclei with more nearly the N = 82 closed-neutron shell configuration, but which would have an extra proton over two Z = 50 closed-shell fragments. Although studies of the SF properties of the heaviest Md isotopes will obviously be most difficult and challenging, they are critical in assessing the relative importance of the proton and neutron shell structure of the fragments on the fission process.

In summary, the heavy Fm isotopes ($^{258}$Fm and $^{259}$Fm) so far appear to be unique in exhibiting very symmetric mass distributions and anomalously high fragment total kinetic energies. These effects appear to be associated with the Z = 100 proton configuration of the fissioning nuclide which can fission symmetrically into two fragments having the Z = 50 closed-proton shell configuration; $^{256}$Cf which has the same number of neutrons but only 98 protons does not exhibit these fission properties. Furthermore, $^{259}$Md, also having 158 neutrons but with 101 protons, fissions symmetrically but with a "normal" total kinetic energy. However, the total kinetic-energy distribution is extremely broad, perhaps indicating a range of fragment shapes at scission from spherical to highly distorted. It is extremely important to measure the properties of more nuclides with Z greater than 100 and N $\geqslant$ 158 to check the relative importance of the fragment proton and neutron shells. New methods are needed for measurements of half lives of milliseconds or less and for providing positive identification of the Z and A of the fissioning species. Recent experiments[11] indicate that $^{259}$Fm is produced with a 10 to 15 nb cross section in bombardments of $^{248}$Cm with $^{18}$O and that therefore extreme caution must be exercised in making assignments based on the assumption of compound nucleus formation. However, these direct transfer or deep inelastic reactions