definitely connected with position in the shells. The second assumption made is that the state of a nucleus, whose spin and moment has not been measured, must correspond to one of the observed orbitals in an appropriate range.

The procedure to be followed then is that for each transition possible orbitals for the initial and final nucleus are selected which give a coherent scheme of ft values with proper selection rules. The validity of this procedure is strongly supported by our main result, that it is indeed possible to set up such a scheme with a high degree of internal consistency.

In general, nothing more than the above assumptions will be implied about nuclear structure and our results are thus independent of any detailed model except in showing a perfect correlation with a general shell scheme. They will give information about spins and parities of radioactive nuclei, but do not do much to prove or disprove particular models. On the other hand, it is much easier to speak in terms of a definite picture. The spin orbit coupling model proposed by Haxel, Jensen, and Suess[9] and by M. G. Mayer[10][11], particularly with the rules formulated by the latter, gives an almost perfect description of the empirical spins and moments. It will, therefore, be used to help in the discussion.

There are a small number of anomalies in spins and moments. In Na^{23} and Mn^{55} the spin differs by 1 from the expected values. The allowed character of the β-transition of Ne^{23} proves that the parity of Na^{23} corresponds to the shell scheme. It supports, therefore, the customary explanation that in these cases the odd particles outside a closed shell couple to a different configuration from those in the neighboring nuclei but with preservation of the parity. This assumption is made here throughout. The evidence from β-decay data makes it likely that the spins of such configurations

9) O. Haxel, J. Jensen and H. Suess, Phys. Rev. 75, 1766 (1949)
10) Maria G. Mayer, Phys. Rev. 75, 1969 (1949)
11) Maria G. Mayer, Phys. Rev. 78, 16, 22, (1950)