we estimate the magnitude of the additional magnetic moment to be 0.25 $\frac{2j+1}{2j+2}$ nuclear magnetons, which is too small to explain the observed deviations. If we assume[2] the average $\overline{f(r)}$ to be proportional to $A^{-2/3}$, then $\overline{r^2 f(r)}$ and consequently the additional magnetic moment is independent of A.

Another consequence of (2) are additional radiative transition probabilities which are important only in cases where the ordinary transitions have vanishing matrix elements. For example, in transitions from a state with $j = \rho - \frac{1}{2}$ to a state with $j' = \rho' + \frac{1}{2}$, the interaction (2) gives a non-vanishing matrix element for magnetic L-pole transitions with $\Delta j = L$ and $\Delta \rho = L + 1$, which otherwise would be forbidden. As a special example we mention the transition d 3/2 $\longrightarrow$ S 1/2 for which we calculated for the magnetic dipole radiation a transition probability which corresponds to the radiation of an oscillating classical magnetic dipole with an amplitude of 0.25 nuclear magnetons. The electric transitions turn out not to be affected by (2), in agreement with a general theorem given by Sachs and Austern.[3]

As stated above, both effects are present for odd protons only. They are closely connected with the more general "interaction moments" as defined and discussed by Sachs[3], which according to Sachs might give additional moments of a somewhat greater magnitude than those discussed in this paper, and of equal character for odd neutrons and odd protons. We wish to express our thanks to R. G. Sachs for helpful discussions.

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2. M. Goeppert Mayer, Phys. Rev. 78, 21 (1950).
3. R. G. Sachs and N. Austern, Phys. Rev. 81, 705 (1951).