Here, $\gamma = MK^{\frac{1}{2}}/x_{\max}$, and is expected to lie in the approximate range 0.15 to 0.30. At $E_p = 2E_{p\,\max}$, for example, the predicted range of $\delta/\delta_{\max}$ corresponding to these figures is 0.96 to 0.93. These numbers agree rather well with experiment, the available data suggesting that the correct range is something like 0.95 to 0.90.

It is hoped that the above and related material can be treated more fully in a later publication.

* Sponsored by the Army Signal Corps and the Air Force.
[1] James J. Brophy, Phys. Rev. **82**, 757 (1951).
[2] D. E. Wooldridge, Phys. Rev. **56**, 562 (1939).
[3] However, there is a misprint in the definition of A. The upper limit of the integral should be $K^{\frac{1}{2}}$, rather than K.

Angular Distributions for (d,p) and (d,n) Reactions in Light Nuclei

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IN this note, we wish to point out that the experimental angular distributions recently reported[1,2] for the reactions $T(d,n)He^4$ and $He^3(d,p)He^4$ can be explained by means of the stripping process.[3] Figure 1, for example, is a comparison between the

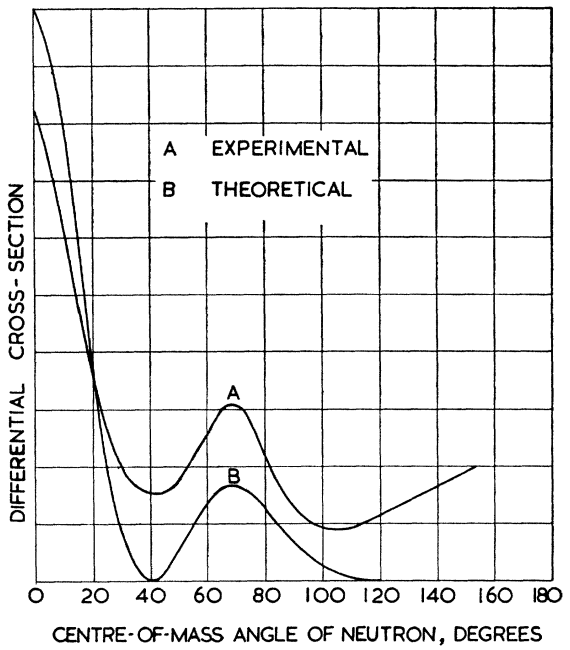

FIG. 1. Comparison between experimental and theoretical angular distributions for the reaction $T(d,n)He^4$ for 10.5-Mev deuterons. (Theoretical curve calculated assuming "radius" of tritium plus range of nuclear forces $=4.3\times10^{-13}$ cm.)

theoretical and experimental distributions for the $T(d,n)He^4$ reaction for an incident deuteron energy of about 10.5 Mev (lab.), and the distributions for the mirror reaction are almost identical. The theoretical curve has been calculated assuming the captured proton carries with it zero orbital angular momentum (consistent with the known spins and parities of the initial and final nuclei involved), and the experimental curve is a replica of that drawn by Brolley *et al.*[1] through their experimental points.

It is seen that good agreement is obtained for the positions of the two peaks at 0° and 68° in the center-of-mass system, although beyond 100° the two curves diverge. The relative heights of the two maxima do not quite correspond, but the agreement is nevertheless remarkably good. The absolute magnitude of the differential cross section in the forward direction (about 16 millibarns) is also quite compatible with an approximate estimate made assuming a stripping process.

This indicates that stripping plays a major part in determining the angular distributions. Compound nucleus formation, then, can at most be the cause of the slowly varying difference between the two curves, although even this is not certain, since the theoretical treatment of the stripping process does not claim to be rigorous for the smaller incident deuteron angular momenta. The similarity between the distributions for the above mirror reactions follows immediately, therefore, from the fact that T^3 and He^3 have the same symmetry properties and similar binding energies, and does not necessarily imply similarity in the properties of the compound nuclei, as suggested by Brolley *et al.*[1]

From a comparison of the experimental[4,5] and theoretical angular distributions of protons from the $d-d$ reaction at incident energies of 8–10 Mev, it seems likely that in this reaction, also, the main features of the curve can be explained by stripping. Only a qualitative comparison has been made as yet, however, since the theory has to be modified in this case to take account of the identity of the two initial particles.

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The Nuclear Magnetic Moment of Praseodymium

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PRELIMINARY reports from this laboratory[1,2] gave accounts of a nuclear magnetic resonance absorption peak observed in a solution of praseodymium nitrate. The observed absorption line was very strong and unexpectedly narrow in view of the fact that the praseodymium ion is paramagnetic, but the observed peak could not be attributed to any of the impurities listed in the original chemical analysis of the sample. However, studies of several other praseodymium salts failed to reveal an absorption peak—even in the case of another nitrate sample prepared in our laboratory from the oxide. Therefore, a check of the chemical analysis of the original nitrate sample was requested. Although the supplier of the original sample reaffirmed his original analysis of the sample, a subsequent spectroscopic analysis made by Professor J. I. Watters of the local chemistry department revealed the presence of a considerable quantity of rubidium in the sample.

The ratio of the resonance frequency of Rb^{87} to the proton frequency is 0.327100 ± 0.000023 in a sample of Rb_2CO_3 solution, whereas the "best" value for the corresponding ratio for the "praseodymium nitrate" sample was 0.32698 ± 0.00016. Hence, there can be little doubt that the observed peak was due to the rubidium, which was not detected in the chemical analysis of the sample.

Therefore, it becomes necessary to retract the previously reported value for the praseodymium moment. The writer must accept full responsibility for the error in not insisting that the original chemical analyses be checked by spectroscopic methods. The close agreement of the ratios listed above is actually a tribute to the experimental skill of W. H. Chambers and R. E. Sheriff, former graduate students, who made the original frequency