as have been the ranges of the turtles. A knowledge of the distribution is of assistance to the herpetologist for the clues to relationships which it gives, it aids the student who is not an expert herpetologist to identify his specimens, and it encourages geographical studies and the publication of local lists. In view of its importance in systematic work the subject may well receive careful attention in lists of this kind.

It should not be concluded that the value of the check list is seriously impaired by the shortcoming just mentioned. The criticism is meant to be constructive, for it must be the hope of all herpetologists that this very useful book will be the first edition of a permanent check list. That it may be, the reviewer suggests that it be officially adopted by the American Society of Ichthyologists and Herpetologists, and that the authors be appointed permanent editors.

Alexander G. Ruthven
University of Michigan

SPECIAL ARTICLES

IDENTITY OF ATOMIC WEIGHT AMONG DIFFERENT ELEMENTS

Auguste Piccard has recently suggested[1] that the "element" uranium may be composed of three isotopes, there being in addition to uranium I. and its descendant uranium II. a long-lived element of atomic weight "about 240" which is the parent of the actinium series of elements, but has no genetic connection with the uranium series. This "actino-uranium" is supposed to undergo an alpha ray change to form uranium *Y*, which through uranium *Z* gives rise to the actinium elements. The hypothesis is attractive for three reasons. It establishes the actinium series as a wholly independent series, as the Geiger-Nuttall relationships between the half-life periods and the alpha ray ranges seem to demand. It gives a plausible origin for the puzzling uranium *Y*. Finally, it accounts for the fact that the atomic weight of uranium, instead of being, as would be expected, just twelve units higher than that of radium, *i. e.*, 238.0, is 238.167 according to Hönigschmid's authoritative work; for Piccard assumes that the atomic weight of uranium I. itself, the chief constituent of the uranium pleiad, is 238.0 and that the admixture of the heavier actino-uranium is responsible for the higher value from the analytical determination.

This hypothesis is so attractive that Wolfke[2] has already issued a copy of the periodic table of the elements in which the actinium elements are given atomic weights which follow from the assumption that the weight of actino-uranium is 240.0. It should be pointed out, however, that this assumption tacitly involves the statement that two elements may occupy the same position in the periodic table, as is commonly accepted for the isotopes, and may in addition have identical atomic weights and yet be different elements. This is a new type of isotopism. In the lead pleiad there are seven elements with atomic weights ranging from 206 to 214, all with identical chemical properties though differing in stability and in their radiations. According to Wolfke's table not only is the range of atomic weights in this pleiad extended to 216 (for actinium B) so that it covers fully ten units of atomic weight, but there are two elements, actinium D and thorium B, both of which have an atomic weight of 212 and which are therefore identical in atomic number and atomic weight, and yet the former is apparently stable while the latter has a half-life period of 10.6 hours and emits beta rays. Actinium C^1 and thorium A form another such a pair of elements, actinium X and mesothorium 1 still another, while the identity between radio-actinium and thorium itself is perhaps even more striking. With the same atomic number and atomic weight, they are chemically inseparable, they both give alpha rays, yet their periods are 18.9 days and 1.5×10^{10} years, respectively, and their descendants are quite distinctive.

According to this hypothesis, then, the atomic weight is almost wholly devoid of in-

[1] *Archives des Sciences Physiques et Naturelles*, 44, 161–64, 1917.

[2] "Ueber den inneren Bau der Atome," Zurich, 1917.

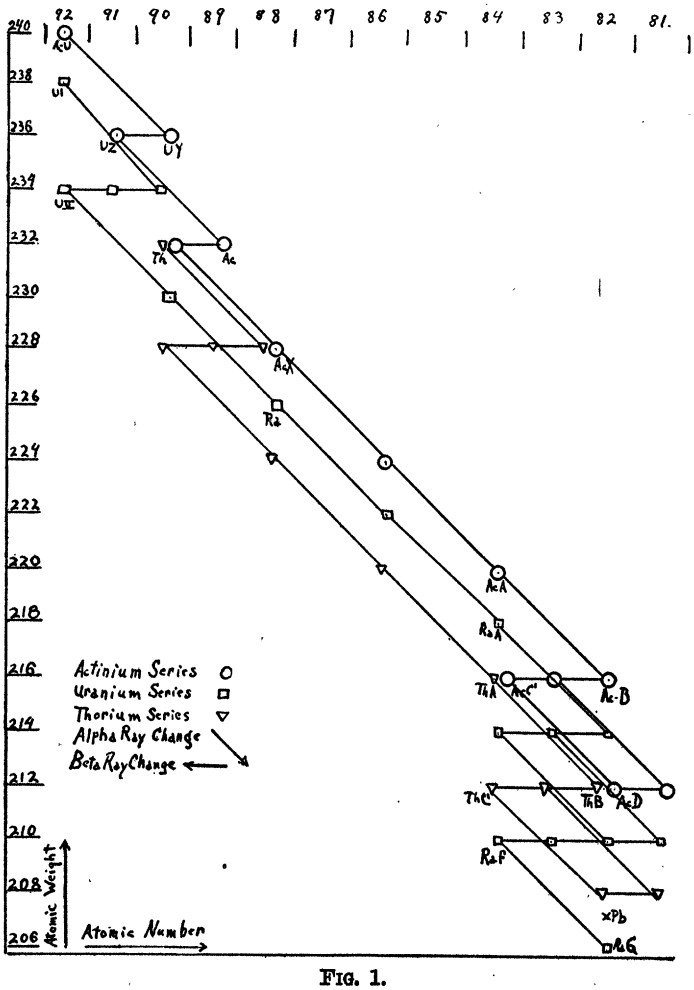

FIG. 1.

fluence on the internal properties of the atom and is solely a mass effect. All the intra-atomic characteristics, both chemical and physical, are dependent on details of atomic structure, on subatomic structural isomerism, which requires much further elucidation. There is nothing improbable about this view. Yet Piccard's suggestion by no means requires it. Until this further consequence of the theory of isotopes is experimentally verified Piccard's hypothetical actino-uranium will serve just as well if we assume its atomic weight to be 239 or 241 and thus avoid this theoretical elaboration.

GERALD L. WENDT
THE UNIVERSITY OF CHICAGO

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

MINUTES OF THE COMMITTEE ON POLICY

The committee met at the Cosmos Club, Washington, at 5.35 P.M., Monday, April 22, 1918, with Mr. Nichols in the chair and Messrs. Noyes, Woodward, Humphreys, Cattell, Ward and Howard also present. The minutes of the meeting of December 30, 1917, were read and approved. The permanent secretary reported concerning the present condition of the membership and a brief discussion followed on general conditions.

The election of Mr. John Barrett as a fellow and as vice-president of Section I was con-