

A Suggested Modification of "Proton" to "Prouton" as a Memorial to William Prout.

THE amazing advances in our knowledge of the composition and structure of matter achieved during the past few decades constitute an important, if not quite final, step toward the establishment of the essential unity of the physical universe.

In reviewing the epoch-making work of J. J. Thomson, whose electrical theory of matter underlies all recent developments in this field, with that of Rutherford, Ramsay, Soddy, Aston, and others in England and elsewhere, one should not be unmindful of the contribution made over a century ago by his compatriot, William Prout, an early apostle of unity.

To all students of chemistry Prout's hypothesis, published in 1816, to the effect that all of the elements are formed from hydrogen by some process of condensation or grouping, has been familiar by reason of the stimulus it has afforded to accurate experimental work. Relegated for many years to the limbo of discarded theories, it has at last emerged to increased plausibility. Although of necessity less specific than the hydrogen-helium theory of Harkins, it is correspondingly simpler, and equally valid if the helium atom, with its four protons and four electrons, be regarded as an intra-atomic polymeride or condensation product of hydrogen. However intricately the more densely populated communities of protons and electrons may be arranged in the heavier atoms, the one proton and one electron of the atom of hydrogen certainly constitute the "first pair" in the chemical Garden of Eden, or present the first stage in the upward evolution of the elements.

In recognition of the genius and insight of William Prout it is suggested herewith that the name "proton" recently assigned to the unit charge of positive electricity, be modified, with some small sacrifice of etymological accuracy, to "prouton," a term with distinctive historical connotation.

ARTHUR WESLEY BROWNE.

Cornell University,
Ithaca, N.Y., U.S.A.

An Uncommon Type of Cloud.

IN NATURE of November 17, p. 725, Dr. Lockyer puts forward a suggestion as to the physics of the formation of "mammato-cumulus" cloud, namely, that it is formed by descent of moist air into colder air below, when there is a reversed vertical temperature gradient, in the same way that "cumulus" clouds are formed by an ascent of warm air (when there is a normal temperature gradient) into colder air above.

Any satisfactory explanation of the formation of this type of cloud would be welcome, but surely "cumulus" clouds are formed by the *adiabatic cooling* when moist air rises to a place where the atmospheric pressure is lower. The general decrease of temperature upwards is only necessary to make such ascent of air possible. A descent of air, such as Dr. Lockyer suggests, must be accompanied by adiabatic warming, since the pressure is increased whatever the general vertical temperature gradient may be. It is true that some cloud might be formed by the mixing which might occur at the surface of separation between two masses of nearly saturated air at different temperatures, but this would not be expected to form the dense globules of cloud actually seen with this type of cloud formation.

G. M. B. DOBSON.

Robinwood, Boar's Hill, Oxford,
November 17.

NO. 2822, VOL. 112]

IN my letter which appeared in NATURE of November 17 I referred to Mr. Arthur Clayden as "the late," when actually he is very much alive. How I came to make this error I cannot understand, but I was most probably thinking of Mr. Clayden as the *late* Principal of the University College, Exeter, and so made the mistake. I much regret the error, and shall be glad if this correction of it can appear in an early issue of NATURE.

WILLIAM J. S. LOCKYER.

Norman Lockyer Observatory,
Sidmouth, S. Devon,
November 20.

National Certificates in Chemistry.

I HAVE observed on page 610 of NATURE for October 27 a reference to the scheme of examinations for national certificates in chemistry.

The writer of the article, upon the basis of an expression of opinion commencing with the word "apparently," proceeds to criticise something on which he is not fully informed. The scheme is "designed to secure all the advantages of internal examinations and of reasonable freedom in the arrangement of the courses of work to meet local conditions and needs," and the writer need not fear that there is any truth in the suggestion that before courses of study are recognised they are modified or mutilated by the Board of Education.

So far as national certificates in chemistry and the courses leading thereto are concerned, the Board acts only in conjunction with the Institute of Chemistry.

The experience of the first two examinations for such certificates has amply demonstrated the usefulness of the scheme. No complaint of bureaucratic intervention has been submitted either to the Board or to the Institute.

So far from insisting on "that machine-like uniformity beloved by bureaucrats," the examination papers have, in fact, been set either by the local schools or by their own affiliated groups—such as the Union of Lancashire and Cheshire Institutes.

The view of the writer as to the need of "some measure of central control and to some sound and official organisation" is incontestable: those desiderata are precisely those which the scheme is designed to attain.

RICHARD B. PILCHER,

Registrar and Secretary.

Institute of Chemistry,
30 Russell Square, London, W.C.1,
November 13.

MR. PILCHER will know that before an educational institution can submit candidates for national certificates the course of study proposed must be approved by the Board. This, of course, is absolutely necessary and desirable, but it is at this stage that modifications may be suggested by the Board—the alternative to acceptance being refusal to place the institution concerned on the approved list. I do not suppose for one moment that modifications of courses proposed are not necessary sometimes, but I do suggest that the trend of the modifications is towards uniformity of syllabuses.

I have no suggestions to make, at present, on the actual conduct of the examinations, and I know that the papers are set by the local schools and assessed by gentlemen whose work is not questioned. My reference was made distinctly to the pre-recognition stage, and I can assure Mr. Pilcher that I did not write without some knowledge.

I would also point out that I was referring to complete courses of work—including subjects ancillary to the main subject, and covering a period of from three to five years.

THE WRITER OF THE ARTICLE.