

LETTERS TO THE EDITOR.

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A Plea for Uniformity in Radio-active Nomenclature.

In a letter to NATURE (vol. lxxvi., p. 661, 1907) Prof. Rutherford advised against an immediate adoption of a permanent system of nomenclature for the radio-elements since the discovery of a new element in the midst of a series would entail the alteration of the names of a possible half-dozen others which follow it. It was considered, however, that the number of products still to be discovered was nearly exhausted, and that when there was a general consensus of opinion that such was the case, chemists and physicists should meet together in order to revise the whole system of nomenclature.

An opposite view was taken by Mr. Norman R. Campbell (NATURE, vol. lxxxiv., p. 203, 1910), who urged the adoption without further delay of a system of nomenclature for the radio-elements which would admit of interpolation, and would explain relationships between objects named. Since this would constitute a permanent system of naming, those names which are acknowledged as temporary might be at once dispensed with without having to wait for an indefinite time in the future when all the elements in a series are assumed to have been discovered.

Little attention, however, seems to have been given to this suggestion. New elements have been discovered since then, and the names assigned to some of them are even more unsystematic than the names previously given to other elements of the same series. As examples of this diversity of naming may be mentioned mesothorium 1, radium C¹, and radium C₁.

It might be urged in defence of the names now in use that no satisfactory system has yet been devised which would provide for the naming of elements yet to be discovered, and would show relationships between elements either in a straight or branched series. The most favoured system of naming the radio-elements seems to be that by which an element is designated by a letter or number following the name of the first of a group of elements. Such a system, however, does not admit of interpolation, and there may thus be good grounds for the delay in adopting a permanent system of nomenclature.

The object of the present note is to direct attention particularly to the diversity and careless use of symbols selected to represent the names of the radio-elements now in use. The lack of uniformity in the use of symbols is illustrated by the following examples, most of which were taken from recent numbers of the *Philosophical Magazine* and the *Physikalische Zeitschrift* :—

Uranium.—U and Ur.

Actinium.—Ac, Act, and Akt.

Radium A.—Ra A, RaA, and Ra-A. The symbols of all other elements designated by a letter are likewise written in one or other of the three ways represented.

Uranium 2.—U 2 (or Ur 2), U₂, U-2, U-two, and U₁₁. A similar diversity is observed in the symbols of all elements which are designated by a number.

Radio-thorium.—Radio-Th, Radioth, Ra Th, Radth, Rad Th, Rad-Th, and Rt.

Mesothorium.—Meso-Th, Mesoth, Mesth, Mes-Th, and Ms.

Radium A, Radium B, and Radium C when considered collectively.—Ra A, Ra B, and Ra C; Ra A,

B, and C; RaA+B+C; Ra(A+B+C); A, B and C; A+B+C. The active deposit of other series is likewise referred to in a corresponding variety of ways.

Such a diversity of symbols must be very confusing to the student in radio-activity, and particularly to the future student when referring back to the work of the present day.

No less confusing is the use of duplicate names in the case of several of the elements. Thus the product following radium is sometimes called radium emanation (Ra Em), and sometimes nitron (Nt); that following radium C is called radium D, and also radio-lead; and that following radium E has the duplicate names radium F (Ra F) and polonium (Po). These different names for the same element are often to be found in the same article. In the same way the terms X-ray and Röntgen ray are still used for the same radiation.

In an abstract journal like *Chemical Abstracts*, where only the symbols of the elements are used, it is particularly desirable that each element should be always represented by the same symbol. In the case of some of the radio-elements this is not possible since no standard symbols have yet been decided on. It would thus seem worth while to adopt by general agreement uniform symbols for the radio-elements, even although the names of some of the elements may be considered as only temporary.

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Swarthmore College, U.S.A., May 14.

Pianoforte Touch.

I HAVE been very much interested in Prof. Bryan's article on pianoforte touch in NATURE of May 8. There is, of course, no question with anyone who is a pianist that dynamic differences of touch produce enormous differences of quality in the tones of a well-made pianoforte. My own observations in the matter do not go very far, but, amongst other things, it has seemed to me that two things are important: (1) the harmonics of a note have always seemed to me to be most prominent when the note has been produced by the least possible "hit" by the fingers, in fact, when the note is practically produced by pressure alone. Pressure alone is, of course, unable to produce a note, and a certain fractional hit is always necessary to give the hammer the necessary momentum.

(2) As a result of (1), it seems worthy of note that variations in quality must be produced by differences in the time the hammer is in contact with the string. Since the sensitive fingers of a trained pianist will be able to produce an infinite variety of pressure and hit from the heaviest arm staccato to the merest "caress" of a key, it is possible to produce very large differences of quality as well as large differences in intensity.

My own experiences with a player-piano have made me well-nigh despair of its capabilities in its present form. In spite of the instinctive control it is certainly possible to obtain with it, its mechanical details seem to me to fall far short of the ideal that a musician can demand. It is, of course, practically impossible to produce a differentiation of intensity between notes of the same chord, and to a musical ear it is this difference of intensity which enables differences in quality to be detected and appreciated. Prof. Bryan seems to have been able to control this differentiation in quality in a solo passage, and if he can produce a mechanical arrangement which can even approximate to the sensitiveness of a pianist's fingers, he will certainly go far to make the piano-player more acceptable to musicians.