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### ON THE LAW OF OCTAVES.

TO THE EDITOR.

SIR,—With your permission, I would again call attention to a fact pointed out in a communication of mine, inserted in the *Chemical News* for August 20, 1864. If the elements are arranged in the order of their equivalents, with a few slight transpositions, as in the accompanying table, it will be observed that elements belonging to the same group usually appear on the same horizontal line.

|      |       |       |            |            |       |           |            |     |     |
|------|-------|-------|------------|------------|-------|-----------|------------|-----|-----|
| No.  | No.   | No.   | No.        | No.        | No.   | No.       | No.        | No. | No. |
| H 1  | F 8   | Cl 15 | Co & Ni 22 | Br 29      | Pd 36 | I 42      | Pt & Ir 50 |     |     |
| Li 2 | Na 9  | K 16  | Cu 23      | Rb 30      | Ag 37 | Cs 44     | Tl 53      |     |     |
| G 3  | Mg 10 | Ca 17 | Zn 25      | Sr 31      | Cd 38 | Ba & V 45 | Pb 54      |     |     |
| Bo 4 | Al 11 | Cr 19 | Y 24       | Ce & La 33 | U 40  | Ta 46     | Th 56      |     |     |
| C 5  | Si 12 | Ti 18 | In 26      | Zr 32      | Sn 39 | W 47      | Hg 52      |     |     |
| N 6  | P 13  | Mn 20 | As 27      | Di & Mo 34 | Sb 41 | Nb 48     | Bi 55      |     |     |
| O 7  | S 14  | Fe 21 | Se 28      | Ro & Ru 35 | Te 43 | Au 49     | Os 51      |     |     |

NOTE.—Where two elements happen to have the same equivalent, both are designated by the same number.

It will also be seen that the numbers of analogous elements generally differ either by 7 or by some multiple of seven; in other words, members of the same group stand to each other in the same relation as the extremities of one or more octaves in music. Thus, in the nitrogen group, between nitrogen and phosphorus there are 7 elements; between phosphorus and arsenic, 14; between arsenic and antimony, 14; and lastly, between antimony and bismuth, 14 also.

This peculiar relationship I propose to provisionally term the "Law of Octaves."

I am, &c.,

August 8, 1865.

JOHN A. R. NEWLANDS.