instead of thus *circulating, converges* to a limit, the general value of

$$u_x = \left(\frac{10j}{5i+}\right)^x c$$

was assigned for any arbitrary quaternion *c*, by the help of the quadratic equation

$$q^2 = 5qi + 10j;$$

and it was shewn that with only one exception, namely, the case when $c = (2k - 4i)$, the limit in question was (for *every other* value of *c*),

$$u = \left(\frac{10j}{5i+}\right)^{\infty}_{3\ 4} c = 2k - i.$$

The Rev. Dr. Todd read a paper on the Khorsabad inscriptions, by the Rev. Dr. Hincks. This was the sequel to a paper read on the 25th of June, 1849, and printed in the twenty-second volume of the Transactions of the Academy. To that paper, which was chiefly occupied with the ideographic element in the Assyrian inscriptions, and with chronological investigations respecting them, an appendix was added, in which the phonetic characters were arranged. It was maintained that they were all syllabic, and that the elementary syllables represented four vowels and seven different forms of combinations of a vowel and a consonant; all of which, however, were not in use in the case of every consonant, while some syllables had more than one representation.

Up to the date of the publication of this paper, it was maintained by all other writers on the subject that the elementary characters represented the letters of a Semitic alphabet, though it was not denied that some characters represented combinations of two others. After a considerable part of the present paper was written, Colonel Rawlinson, abandoning his former theory of the characters representing letters, proposed syllabic values for them; he, however, admitted only three

vowels in place of four, and six forms of simple syllables in place of seven. The existence of four vowels, *a, i, u,* and one equivalent to the first Sanscrit vowel, or Hebrew *Sheva mobile,* is here maintained, and of a class of syllables which it terminates.

All the characters which represent syllables that cannot be resolved into more simple ones, are then exhibited with their values. They are arranged in the order of the letters of the Hebrew alphabet; six vowels, which may be considered as the Aleph series, heading the list; then seven, in which Beth predominates, and so to the end. After the leading value of each character is given, its secondary phonetic value or values, if it have any, and also its ideographic values, are stated. The characters thus enumerated are in number 115, to which 153 phonetic values are attached. With respect to 91 of these values, Dr. Hincks and Colonel Rawlinson are perfectly agreed; and of these Dr. Hincks claims to have been the first to publish the values of 66, the other 25 having been first published by Colonel Rawlinson. As to 42 values, they differ; but the difference for the most part arises from Colonel Rawlinson not admitting the short vowel, which Dr. Hincks supposes to terminate certain syllables. Finally, there are 20 new values given, as to which Colonel Rawlinson has said nothing.

Dr. Hincks is acquainted with more than 60 other values of characters which do not represent elementary syllables, which he has not been able to arrange in the present paper, but which he hopes to arrange before long.

An appendix is added, containing a modification of the chronological system of the former paper. The Khorsabad King was not called Khinnilin, and could not have been the Chinzirus of the Canon. He was not *Lord paramount* of Babylon, but after his twelfth year its *immediate king.* He was the Sargon of Isaiah; and Dr. Hincks supposes him to have been the Arkianus of the Canon of Ptolemy. His predecessor,

Marduk Baladan, is said to have held Babylon twelve years, which is the exact time that the Canon gives to Mardokempadus, the predecessor of Arkianus. After this he was driven to Chaldea. Dr. Hincks maintains that his father, Yagin, the Yugæus of the Canon, was also the father of Sargon, and that having conquered Assyria, he left it to Sargon, while his ancient kingdom of Chaldea was assigned to Marduk Baladan. On this supposition he accounts for the cancelled inscriptions on the reverse of the pavements, in which the title of King of Babylon, borne by most other kings of Assyria, is omitted.

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Alexander Mac Donnell, Esq., communicated, through Dr. Apjohn, a notice on the results of certain experiments instituted by him for fixing the atomic weight of magnesium.

In experimenting on the true atomic weight of magnesium, the method which I used was to find the exact composition of sulphate of magnesia, a salt whose formula is known with certainty to be Mg O, S O$_3$ + 7 H O, and which admits of being rendered perfectly anhydrous without losing any of its acid.

Some of the crystallized salt was deprived of all hygrometric moisture by placing it in the vicinity of a dish of oil of vitriol under the receiver of an air-pump. The water of crystallization being then expelled by a low red heat, the composition of the crystallized salt was found to be—

Water, ...	51.17	51.13	51.14	51.26	51.28	51.29
Sulphate of Magnesia,	48.83	48.87	48.86	48.74	48.72	48.71
	100	100	100	100	100	100

The sulphuric acid was then precipitated from the anhydrous salt with chloride of barium. The sulphuric acid calculated from the sulphate of barites thus formed showed the composition of the anhydrous salt to be—

Sulphuric acid, .	66.67	66.73	66.64	66.65	66.69
Magnesia, . .	33.33	33.27	33.36	33.35	33.31
	100	100	100	100	100