

ulation is based on what seems a faulty method. The average of life, about fifty years, is taken, and the expectation of life (in reality a somewhat larger figure), twenty-five years, is added, making up seventy-five, the manifest assumption being that the full term of life of a species is equal to its average life plus the expectation of life at that age, a conception for which I know of no physiological justification. Eighty-six to eighty-seven years, the period given by the formula, probably represents with fair accuracy the average age at which people would pass from life by senile decay if their lives were not shortened by deleterious influences and conditions. ERNEST D. BELL.

"Primitive Constellations."

REFERRING to your reviewer's hostile notice of my work, "Primitive Constellations," I have seldom realised the strength of my general position until I have seen some attack on it. Against my main contention, *i.e.* the identity of various Greek and Babylonian constellations, he has nothing to say, except that I start with my "theory ready made." Really, he does me much honour. Am I the inventor of the "theory" that, *e.g.*, the signs of the Zodiac were derived from Babylonia? But, leaving nine-tenths of the book with merely a little abuse, he has much to say on the transliteration of Babylonian words, and expresses great scorn because, following Prof. Sayce, I deliberately write *sa*, and not *sha*, and so on. He says I "really ought to know there is no *h* in Assyrian." Indeed, I am at present away from books, but happen to have Sayce's "Assyrian Grammar" at hand. At p. 46 I read, "a, ha ∇ . . . h. Δ \rightarrow ∇ , ah, hi, h." Again, I am perfectly aware of the force of "the determinative particle *hi*," and, in a book for general readers, have naturally chosen to write "Barsipki," not "Barsip^{ki}," "Suanaki," "Tintirki," &c. If the critic had endeavoured to refute my general proposition, or had carefully examined my treatment of any particular constellation figure, *e.g.* the *Arrow*, how much more useful it would have been. But a policy of pin-pricks does not venture on this. Berry Pomeroy, Boscombe, April 18. R. BROWN, JUN.

THE writer of the review did not suggest that Mr. Brown had discovered the Babylonian origin of the signs of the Zodiac. The theory which the reviewer laid to his charge was to the effect that the Greeks of the pre-Homeric and Homeric ages had a full knowledge of the constellations known to their descendants in Ptolemaic times; and, further, that they obtained such knowledge at this early period from the Babylonians through intercourse with the Phœnicians and the "Hittites." It is from this theory that the reviewer entirely dissents. Mr. Brown's wholesale assertions that representations of animals in early Greek art are astronomical symbols it was thought might be charitably explained by supposing that he began his studies with this part of his theory "ready made." Of the two cuneiform signs which Mr. Brown cites as proving the existence of the *h* in Assyrian, the first only represents the vowel *a*, the second is only used to indicate the smooth breathing; that he should rely on a grammar published more than twenty years ago shows that he has not made himself acquainted with the recent literature on this subject. It is satisfactory to learn that Mr. Brown is aware of the force of the determinative particle *hi*; but to transliterate such a determinative (which was not pronounced) as though it formed a syllable of the word to which it is attached is, to say the least, misleading—particularly so in a book for general readers. Mr. Brown's numerous blunders in citing Hebrew, Phœnician, and Assyrian words, show that he is not acquainted with these languages at first hand; and it was stated that such a knowledge is essential to a writer who treats the subject of Babylonian astronomy from the linguistic side.

THE ROYAL SOCIETY SELECTED CANDIDATES.

THE following are the names and qualifications of the fifteen candidates selected by the Council of the Royal Society, to be recommended for election into the Society this year:—

W. F. BARRETT,

F.R.S.E., M.R.I.A., Professor of Experimental Physics in the Royal College of Science for Ireland, Memb. Physical Society, Royal Dublin Society, and of General Committee of the British

Association. Author of numerous original investigations and papers; amongst them are:—"The discovery of certain physical phenomena produced by the contact of a hydrogen flame with various bodies, and its application as a delicate chemical re-agent" (*Phil. Mag.*, November, 1865); "The discovery and investigation of a serious source of error in the determination of the absorption of heat by liquids" (*ibid.*, September, 1868); "The discovery and investigation of sensitive flames" (*ibid.*, March and April, 1867); "The application of sensitive flames as a delicate acoustic re-agent in illustrating the laws of the reflection, refraction, and interference of sound-bearing waves and the detection of inaudible vibrations" (*Proc. Roy. Dubl. Soc.*, January, 1868; *Science Review*, April, 1867; *Nature*, May, 1877); "The discovery of recalcence and other molecular changes in iron and steel when raised to a bright heat" (*Phil. Mag.*, December, 1873; *Brit. Assoc.*, 1890); "The investigation of the molecular changes accompanying the magnetisation of iron, nickel, and cobalt, and the discovery of the retraction of nickel, and the elongation of cobalt by magnetisation, with the determination of its amount" (*Phil. Mag.*, December, 1873, and January, 1874; *Brit. Assoc.*, 1873, 1874, and 1882; *The Electrician*, October, 1882; *Nature*, October, 1882); "The investigation of the magnetic properties and the determination of the physical constants of various alloys of manganese steel" (*Brit. Assoc.*, 1887 and 1889; *Proc. Roy. Dubl. Soc.*, November and December, 1889, March, 1886, and in *The Electrician*). Also brief papers on the spheroidal state (*Proc. Roy. Dubl. Soc.*, December, 1877); on the magnetic properties of columnar basalt (*ibid.*, December, 1889), and on the magnetic moment of ingots of manganese steel (*ibid.*, December), &c.

CHARLES BOOTH,

Hon. Sc.D. (Camb.), Merchant and Shipowner. As having applied Scientific Methods to Social Investigation, exemplified by:—(1) A Study of Changes in the Occupations of the People in England, Scotland, and Ireland, from 1841 to 1881 (*Journ. of Statistical Soc.*, 1886); (2) A Study of the Condition of the Aged Poor in England and Wales from Official Statistics and Extended Private Enquiry ("The Aged Poor," Macmillan, 1894); (3) A Study of the Condition of the People of London, 1889 to 1899, in twelve volumes, of which nine are already published ("Life and Labour of the People in London," Macmillan).

DAVID BRUCE,

M.B., Surgeon-Major, Army Medical Staff. Has made important investigations relating to the nature and causes of Malta Fever, and discovered the micro-organism which is the cause of that disease, and proved its nature by experiment. Has successfully investigated the endemic disease of horses in Zululand, and proved the agency of the Tsetse Fly in producing it. Author of the following papers: "Discovery of a Micro-organism in Malta Fever" (*Practitioner*); "Sur une Nouvelle Forme de Fièvre rencontrée sur les Bords de la Méditerranée" (*Annales de l'Inst. Pasteur*); "On the Epidemic of Cholera in Malta during 1887" (*Trans. Epidem. Soc.*); "Report (to the Governor of Natal) on the Tsetse Fly Disease or Nagana" (1897); and a previous Report on the same subject; "Ueber die Virulenzsteigerung des Cholera Vibrio" (*Centralblatt f. Bacteriologie, &c.*). Eminent in Pathology and Bacteriology.

HENRY JOHN HORSTMAN FENTON,

M.A. (Camb.). Author of several papers on the action of hypochlorites and hypobromites on urea and other nitrogen compounds. Has made the remarkable discovery that hydrogen peroxide, although inactive alone, in presence of an iron salt, at once oxidises tartaric and other similar acids, carbohydrates, &c., giving rise to very characteristic products—a discovery of special importance in connection with plant metabolism, which he has elaborated with particular skill and thoroughness. His results are described in the following papers:—"Oxidation of Tartaric Acid in Presence of Iron" (*Trans. Chem. Soc.*, 1894); "A New Method of obtaining Dihydroxytartaric Acid, and the use of this Acid as a Re-agent for Sodium" (*ibid.*, 1895); "New Formation of Glycollic Aldehyde" (*ibid.*); "The Constitution of a New Dibasic Acid resulting from the Oxidation of Tartaric Acid" (*ibid.*, 1896); "A New Synthesis in the Sugar Group" (*ibid.*, 1897); "Properties and Relationships of Dihydroxy-tartaric Acid," I. and II. (*ibid.*, 1898); "The Oxidation of Polyhydric Alcohols in presence of Iron" (*ibid.*, 1899).