

Graham Hutchison.

Graham Hutchison was the youngest son of the Rev. John Hutchison, a Presbyterian Minister of Glasgow, Scotland. Like not a few Scotch ministers of real ability, the latter, a merchant meteorologist, he gave himself up almost entirely to minute Biblical criticism of some particular book of the Old Testament. The only part of his studies he gave to the public was "Essays on the Book of Job," too scholarly to be popular and consequently little known now. He had four sons, James, Robert, William and Graham. In a busy mercantile city like Glasgow it is little wonder they all decided to become merchants; shrewd men and after their business education in different counting houses in the city they united and founded the firm of James Hutchison & Co., manufacturers of plain muslins of every grade, doing a very large business with the leading London houses and with them only. The Rogers, Leaf, Moreleys, Pawsons, Bradburys, &c. of 50 years ago, were their constant customers. The leading men of these houses visited Glasgow several times a year and their orders having been first received by G. Hutchison, they liked nothing better than to have a little talk with him on physiology, physiognomy, politics, meteorology, theology, &c. On any of these he was ready and always original and interesting. His London friends often said they did not understand how he could be both the thorough business man and the philosopher too. Mr. H. always took a deep interest in the Commercial and Literary Society of Glasgow, of which with other merchants along with the professors and clergymen of the city he was one of the founders. He was a regular attendant at its meetings and contributed many papers to it. Some of these were published and were full of information and thought. With his brothers and other leaders on political matters in the heart of Scotland he took a quiet yet deep interest in the phase of politics resulting from the accession to the throne of William the Fourth, which finally led to the introduction of the Reform Bill and all that resulted therefrom. His acquaintance with Sir Daniel Keyte Sandford, the accomplished Professor of Greek in Glasgow University, perhaps was the means of inducing the latter to offer himself as one of the candidates for the city of Glasgow, soon after the passing of the Reform Bill. Sir Daniel found, however, that though the electors admired his beautifully classical orations, he had not the skill at the beginning of their popular power to lead them in their aspirations after political liberty. Mr. Hutchison was somewhat disappointed at first but subsequently felt that prudent business men were required just then. All the brothers were highly conservative in their feelings, but all of them and Graham in particular, liked to listen to the often stern and theoretical, but as often unpractical ideas of their own workmen, of whom they had some thousands, who were scattered in the suburbs and country districts around Glasgow. Leaders of the weavers frequently met the firm on the questions of wages and politics, and Mr. Hutchison more than once remarked how closely in theory and impracticability the ideas of the classical Greek Professor and the workmen who know only the three R's of education, approached to each other.

It was very much at the solicitation of some Glasgow merchants, amongst whom the Hutchison Brothers took a leading part, that Professor Nicoll delivered the course of lectures on astronomy, which he afterwards published under the title of the "Architecture of the Heavens," and to this day these

lectures are justly popular amongst young and old. The nebular hypothesis was then new and all wished to know about it. About the same time, at one of the meetings of the British Association for the Advancement of Science, before which Mr. Hutchison read some papers, he had some correspondence, and interviews with the late Sir David Brewster on the subject of the construction of a monster telescope. Sir David felt satisfied that he could construct one which would bring the moon within a distance which would let us know a great deal more about it than any instrument then in existence. The funds required were large and the results too problematical to induce those who might have been able, to go on with the matter. In 1833 Mr. Hutchison found that his eyesight, from excessive reading and writing by candlelight, was getting impaired. He then employed a young friend as an amanuensis, who often afterwards spoke of the real pleasure he had in his society for four or five evenings every week for some years. During this time he produced a treatise on meteorology, full of information and original and well digested thought on the subject. This was followed by Essays on Unexplained Phenomena, presenting some new and striking views on the laws of caloric, and also on the question of the secondary laws in planetary motion. Mr. Hutchison's theological views were by some counted not sound. He declined being dictated to by some who thought they had a right to dictate to him. About 1834 the Rev. Robert Montgomery visited Glasgow and was invited to preach in St. Mary's Episcopal Church. In the past it was a success, as regarded audiences. The rector and he however, did not get along together very well. A number of gentlemen, however, including Mr. Hutchison, were so much interested in the eloquent young minister that they, with the permission of the Bishop, secured his services, and a neat little chapel was obtained close by the Royal Exchange, in the very centre of business. There for some time were delivered warm-hearted addresses on the most important of all subjects. Mr. Montgomery's audiences were largely made up of young merchants. On entering his new chapel, with reference to a report that some of them were called free thinkers, he told them that they "were men of business and so was he, and whatever the past was, his own business would be that they should should not be either Godless, Christless, careless or prayerless when he was done with them." By the exertions of Mr. Hutchison and others St. James Church on Blythwood Hill was afterwards erected, and there he continued to worship for some years, until Mr. Montgomery removed to London.

Mr. Hutchison was really a fine character. His temperament was highly nervous and sensitive, but never hasty to take offense. During many years of intimate intercourse the writer never heard him say a word which anyone would wish unsaid. This tribute, imperfect as it is he offers to his memory. B.

Earthquakes.

Great earthquakes seem to have occurred for some centuries past at intervals of about a hundred years, and groups of several important convulsions at intervals of fifty years. Thus, within the last four hundred years we find that the middle and latter part of the sixteenth century was marked by great and numerous earthquakes in China, Europe and the Atlantic, many of them very severe. In the middle of the seventeenth century there were great an

disastrous shocks in the Mediterranean basin; and towards the latter end of it occurred the great Jamaica earthquake, besides many others of importance. Towards the middle of the eighteenth century was the great Lisbon earthquake, and subsequently the great one in Calabria. Hitherto, during the present century, there have been none of very extreme intensity; but they may perhaps be looked for before long. There thus appears to have been an interval of about a century between each of the very greatest paroxysms; and a like period may be traced between those of next importance in each century, following the former at an interval of from thirty to forty years. It also appears that, near the time of the great paroxysms, a number of smaller, but still important ones, have been crowded into four or five years; while, near those of second importance, a number also large is thickly spread over ten or twelve years. As the record of the great disturbances is of course more likely to be found in history than that of smaller ones, it seems further worthy of remark that the first, fifth, ninth, twelfth, and eighteenth centuries of the Christian era seem to have been those when the destructive force of earthquakes has exercised the largest influence over the human race in civilized countries; while the first and second A. D., and the third, seventh, tenth, and fourteenth B. C. of our era, were times of comparative repose.

DATES OF ELEVEN OF THE MOST RECENT EARTHQUAKES FELT AT MONTREAL.

- 1855, Feb. 8th and 19th.
- 1856, June 1st.
- 1857, Oct. 16th.
- 1858, Jan. 15th, May 10th, and June 27th.
- 1860, Oct. 17th.
- 1864, April 20th.
- 1870, March 4th, Oct. 20th.

Eighty-seven earthquakes have been recorded as having been felt in Eastern America. Of these twenty nine, at least, were felt in Canada; that of February 5th, 1663, being by far the most violent. The next in importance was that of April 20, 1864.

Connection of Moon's Phases with Earthquakes.

With regard to the phases of the moon's motions, M. Perrey found that in four years, 1844 to 1847 inclusive, the number of earthquakes near new and full moon, exceeded the number at the quarters very nearly in the proportion of six to five. In a number of exceedingly elaborate calculations, M. Perrey endeavored to show that, however the figures were handled, they always presented the same general conclusion; but there are not as yet sufficient facts to justify more than an allusion to this curious speculation. It does, however appear to be an inevitable deduction from the evidence, not only that earthquakes occur more frequently at the periods of new and full moon, but that their frequency increases at the time when the moon is nearest the earth, and diminishes when it is most distant; and, moreover, that earthquake shocks are more frequent when the moon is near the meridian, than when she is 90° away from it.