

coarse and fine grits and greywacke, having red and green bands of flinty mudstone, conglomerate, and occasional breccia associated with them, occur—a persistent band of conglomerate containing quartz-rock pebbles, Lydian stone, and jasper characterise this group. The conglomerate, being locally known as “Haggis Rock,” has furnished the name to the series, which is about 1,800 feet thick. The Haggis group in Dumfriesshire is seen striking across the river Afton, also, along the N.W. flanks of the Lowther hills, and elsewhere in this county. More to the north it can be recognised along the north-western margin of the Silurian area in Crawfordjohn, Lanarkshire. The Haggis rock is not persistent in its character. To the N.E. this conglomerate becomes much finer in grain, and passes “into a gritty greywacke.” This group has hitherto yielded no fossils. In Wigtonshire the Haggis rock cannot be distinguished as a distinct series; its characteristic conglomerate being, as already seen, of local occurrence, it does not appear to manifest itself in the Silurians in the S.W. of Scotland.

(To be continued.)

LOCAL SCIENTIFIC SOCIETIES

IN very many ways has the general advance of intelligence, elevation of taste, and spread of education been shown during the present century, and more especially during the last thirty years; one of these ways is undoubtedly the increasingly rapid spread of Local Scientific Societies. What we mean by a “Local Scientific Society,” as distinguished from the large Societies of London, is an association of individuals in a particular locality for the common study of one or more branches of science, by the reading of original papers, and what is perhaps of more importance, the actual investigation of the natural history—geology, zoology, botany, meteorology—and archæology of its district. Of the societies established within the last thirty years, nearly all are marked by these characteristics; such at all events is their professed object, and we are glad to say that, to judge from the special reports which we have received, and the numerous printed “Proceedings” of greater or less pretensions which are sent us from time to time, a very large proportion creditably carry out their programme.

In a number of the principal towns of England and Scotland associations exist, dating, some of them, from the end of last century, known as “Literary and Philosophical Societies,” or by some similar title. These are generally comparatively wealthy, possessed of good buildings containing a library, museum, reading-rooms, lecture-hall, &c., with a large body of members belonging to the middle and upper classes. These, however, so far as their original objects are concerned, with one or two exceptions, scarcely come under the category of Local Scientific Societies, in the sense of the definition given above, though many of them, stimulated by the growing taste for Science, have recently added to their usual courses of lectures on literary subjects, others on subjects connected with Science, and have even organised classes for the study, under competent lecturers or teachers, of one or more branches of Science. In some instances, moreover, a few of the members of these respec-

table old associations have united to form societies of a kind which entitle them to be regarded as Local Scientific Societies, and even Field-Clubs. Still, all these older societies, as they existed previous to 1830, differed in many essential respects from the Local Societies and Field-Clubs which began to spring up about that time; even the well-known Literary and Philosophical Society of Manchester, quite on a par with some of the best London Societies, and which has produced original work of the highest value, has been all along confined to the learned and professional men of the city and neighbourhood, who have made use of the meetings of the Society for the purpose of making known the results of their independent scientific investigations.

So far as can be ascertained, the society just mentioned is the oldest provincial society which can be considered as in any way scientific, having been established in 1784, for the purpose of diffusing “literary and scientific intelligence, and of promoting the literary and scientific inquiries of learned men in the town and neighbourhood.” “The results of its labours,” Sir Walter Elliott says, in his valuable address to the Edinburgh Botanical Society, in 1870, on this subject, “were published in ‘Memoirs,’ the first volume of which appeared in 1785, at which time James Massey was president, and Thomas Barnes, D.D., and Thomas Henry, F.R.S., were Secretaries. Five volumes had appeared up to 1802. In 1805 a second series commenced under the Rev. John Walker, President, and John Hall and John Dalton, Secretaries, which had extended to five volumes more in 1860. A third series was commenced in 1862, and has reached volume xiii. The second series is enriched with many papers by Dalton, including the first development of the atomic theory.” In 1858 a microscopical and natural history section was established; the latter, however, we regret to say, is since defunct.

The next society of this class in order of time was instituted at Perth in 1781, as the Perth Literary and Antiquarian Society; we need not say that, so far as eminence is concerned, it was never to be compared with the Manchester Society. It has never done scientific work of any value, though it possesses a handsome building, with a museum, devoted mostly to antiquities, but having a fine natural history collection as well, and a good library. Like many other societies of a similar kind, its building serves as a kind of meeting-place or club, where those members who have nothing to do can meet and have a gossip, and read the papers. This society has published only one volume of “Transactions” (in 1827), but so far as we know, they have now no transactions to record. A few years ago, as will be seen from our list in Vol. viii. p. 521, a Natural Science Society was established in the county, with Perth as its headquarters, which gives promise of being one of the best working Local Scientific Societies in the kingdom.

In 1801 a society of a similar kind was established in the sister kingdom, the Literary Society of Belfast, which has never done anything to call for note here. Previous to this, however, in 1793, the Newcastle-on-Tyne Literary and Philosophical Society was established, which, although it has published only one volume of memoirs, and is little more than the owner of an excellent public library, does good work by providing educational courses of lectures for in-

struction in mathematics, chemistry, and other branches of science as well as literature.

Up to 1830, about twenty other societies, more or less "Philosophical," which term seems then to have been thought a more dignified term than "Scientific," were instituted within the three kingdoms, including the Ashmolean Society of Oxford, and the Cambridge Philosophical Society. Of these, no less than six were in Yorkshire alone, a county, as we shall see, which continues to hold the foremost place, so far as number of scientific societies is concerned; the West Riding bristles with little Field Clubs. Among the best of the societies referred to is the Liverpool Literary and Philosophical Society, which, especially since its amalgamation in 1844 with the Natural Science Society, has done some excellent work, as can be seen from its voluminous "Proceedings," which contain papers that would do credit to any society. The Glasgow Philosophical Society is also one of high standing; and the Royal Geological Society of Cornwall, founded in 1814, which has done some good work in connection with the geology of the district. The Royal Institution of Cornwall is also one of the most creditable of these old societies, having been formed in 1818, for the advancement of knowledge of natural history, natural philosophy and antiquities, especially in their connection with Cornwall. Besides its valuable antiquarian work, it has published "The Cornish Fauna," a compendium of the natural history of the county.

The one of these older societies which in its object and work corresponds most nearly to our definition, is the Northumberland, Durham, and Newcastle Natural History Society, instituted at Newcastle-on-Tyne in 1829. Among its original members were Sir John and Sir Walter Trevelyan, and the late Albany Hancock, and both before and since its junction with the Tyneside Naturalists' Field Club, it has done much work of a kind similar to that which the recently established Field Clubs aim to do, having between 1831 and 1838 published two volumes containing valuable lists of the flora and fauna of Northumberland and Durham. This society, though somewhat crippled for want of funds, is still in a flourishing condition, and continues, in conjunction with the Tyneside Club, to publish in their Transactions, under the title of "Natural History Transactions of Northumberland and Durham," excellent lists of the fauna and flora, existing and fossil, of the district which it has adopted as its field for work. It possesses some splendid collections which the Newcastle College of Physical Science is generously allowed to use for purposes of study.

Had we space, others of these societies founded previous to 1830, as well as some of a more ambitious kind than the simple Field-Club, instituted since that time, could be named, which stimulated either by the example of the field-clubs, or more probably by the general advance of culture and the growing impressiveness of Science, have done much to foster a love for Science in their respective neighbourhoods and to investigate the natural history of their several districts. A large proportion of societies of this class are found in the south-west of England, in Devonshire and Cornwall: such are the Cornwall Polytechnic Society, the Devonshire and Cornwall Natural History Society, the Devonshire Association—a peripatetic Society founded in 1862 after the model of the British Association—the

Royal Institution of South Wales (Swansea), and the Isle of Wight Philosophical and Literary Society. Others also we might mention at the other end of England, for an examination of our list shows that the activity of the country in this respect has been developed to the greatest extent in the north and south.

These societies, though differing in some essential respects from the simple Field-Club, yet in their own way do good and serviceable work by the establishment of museums, the encouragement of local exhibitions, the occasional publication of papers illustrative of the natural history and archæology of the district, and recently, what we deem of considerable importance, the institution of courses of lectures by eminent men of science, and the establishment of classes for the working and other classes who are engaged during the day. We would urge all of this class of association to bestir themselves to the performance of more thorough and more extended work in these directions, thereby not only doing a benefit to the members themselves, as well as to the cause of Science, but elevating the district in which they are located, and thus helping the country onward in the general march of improvement. By means especially of continuous series of lectures by eminent men of science and by well-organised systems of classes, the good that might be done by these institutions would, we believe, be inestimable; and now that the Science and Art Department offers such splendid facilities for the establishment of classes and museums in connection with any institution that chooses to take advantage of them, no local society of any pretensions need any longer be without the material of a comprehensive and high-class education for its members and those in its neighbourhood who are willing to be improved; only a lazy unwillingness to keep up with the rapid progress of the time can deprive a neighbourhood of these advantages. The Royal Cornwall Polytechnic Society, the first "Polytechnic" in the United Kingdom, is an example of what can be done in one way, by the establishment of lectures and classes, and by the institution of medals and money prizes for successful attempts to apply Science to industry. But a model which all literary and philosophic societies, *et hoc genus omne*, would do well to imitate, though they would find it difficult to rival, is the Birmingham and Midland Institute, an institute of which its originators may well be proud, and for the establishment of which they deserve the gratitude of the busy and important district in the midst of which it is planted. It scarcely comes within the scope of our subject, and we only mention it to show to the class of societies with which we are at present dealing, what they might hope to achieve if they only had the will and the generosity to bestir themselves and take the necessary steps. There is no reason why in every county town or other suitable place institutions of this kind should not be established, forming active centres of intellectual culture, and to which the smaller scientific societies of the surrounding districts might be affiliated without losing their independence and with very valuable results. We hope ere long to see this accomplished; and who are better fitted to take the initiative in the matter than those societies which pretend to represent the culture of the districts from which their members are drawn?

(To be continued.)