sonally canvassing the members. The gain to the explorers in this way would surely far more than compensate for any fancied loss of independence.

One word more about American exploration, and it shall be one of unqualified admiration. When a member of any of the branches of the public service in this country which are concerned with scientific publications contemplates the style in which such publications are prepared and issued in the United States, he finds a spirit of envy rising uppermost within him. Quarto after quarto, atlas after atlas, all published in the most sumptuous style as regards paper, printing, engraving, and chromo-lithography, are poured out from the American national press, yet at such prices as not to place them beyond the reach of all but the rich. The number of copies of these costly works actually distributed gratuitously is almost incredible. They are scattered lavishly over Europe, not merely to public libraries, but even to private students of science whose names are known to few of their own countrymen save those who read their writings in the scientific journals. Such open-handed generosity makes many a recipient of the gifts accept them almost with reluctance when he knows how little we in this country can offer in exchange. It is not that we are idle, or that the results of our labours would not furnish materials for important memoirs. But they manage these things better in the States. Perhaps we may profit by their example some day.

ARCH. GEIKIE

Discovery of a Scottish Crannog

WILL you kindly allow me, through the columns of NATURE, to draw the attention of archæologists to a recent discovery of an ancient crannog on the farm of Lochlee, near Tarbolton, Ayrshire. It appears that formerly a considerable portion of what is now arable land, and divided into several fields, was occupied by a loch with mossy banks and bottom, and that about forty years ago its outlet was deepened and its whole area completely drained. When this was done a small mound was observed near the outlet of the lake and about 100 yards from its nearest bank, which, from its artificial appearance and the discovery of two canoes in the bed of the lake, then attracted the curiosity of a few observant people in the neighbourhood, but led to no further result, and soon the whole affair was entirely forgotten. Just now the same locality is being re-drained under the direction of Mr. Turner, factor for the Duke of Portland, and his men, while engaged in cutting the main drain which happened to pass through a small bit of this mound, came upon the peculiar structure of the crannog. Fortunately this came under the cognizance of Mr. James Brown, Tarbolton, who wrote a note to Mr. J. Anderson, Keeper of the Museum of the Society of Antiquaries of Scotland, drawing his attention to this discovery. This gentleman immediately wrote to R. W. Cochran Patrick, Esq., of Woodside, Secretary of the Archæological Society for the counties of Ayr and Wigton, who lost no time in visiting the district, and at once recognised the nature and importance of the discovery. Meantime Mr. Turner and myself made several visits to the locality, in the course of which we observed that three rows of closely-set wooden piles, six feet apart, extended from the mound to the mainland—presumably forming the foundation for a wooden gangway. The tops of these piles, except in a very few instances, are below the surface of the soil. At the same time the men dug up a canoe, in a good state of preservation, hollowed out of one log, and tapering rapidly and uniformly at both ends. It was lying about 150 yards from the mound, and the highest portion of it was three feet below the surface. It measures ten feet long, two feet six inches broad, and one foot nine inches deep. It was then arranged that a careful exploration of the mound should be made, and accordingly systematic excavations were begun on Tuesday last, in presence of Messrs. Turner, Patrick, Anderson, Dr. McDonald, Ayr, and myself, and are now being prosecuted with great vigour and success. As a detailed account of whatever discoveries may be made, together with plans, sections, and drawings of the crannog, will be published in the Collections of the Archæological Society of this county, under the superintendence of its accomplished secretary, Mr. R. W. Cochran Patrick, it is unnecessary for me to give here more than a few remarks, just sufficient to convey to your readers some idea of what has already been done and may yet be expected. Guided by the tops of a few upright piles which just appeared on the surface, a broad trench was dug right round the mound. Some of these piles, all of which were formed of young oak trees, were found to terminate in holes in large horizontal beams, while others appeared to be driven into the muddy bottom and surrounded by thick planks of oak, young trees, and brushwood, amongst which beech, birch, and hazel were readily recognised. On the north-east side, and only about one foot below the surface, were two series of horizontal beams of oak from five to six feet long, and about five feet apart, each of which had two square-cut holes near its extremities, through which upright piles penetrated and were firmly fixed by wedges of wood. These mortised beams rested on round trees which lay horizontally but pointed in various directions. Conterminous with these beams and running towards the centre, there was a rude and very much decayed platform formed of rough planks and saplings lying on large beams of split oak trees. The oozing of water prevented the complete exposure of the mossy bottom on which this curious structure was reared, but it was ascertained to be from seven to eight feet below the present surface. In all the parts that were examined large stones were found interspersed with the woodwork, and the diameter of the foundations of the mound was estimated at about twenty-five yards. A trench was then dug across this circular area, and near the centre we exposed two stony pavements, one lying immediately above the other, the space between being 2½ feet thick. These pavements rested on a thick stratum of clay which extended for several feet all round, gradually thinning towards the rim, and, from the abundant remains of ashes, charcoal, and burnt bones, evidently formed fire-places. About two feet below the lower pavement another layer of clay, together with ashes, charcoal, &c., was observed, and though not yet excavated, we concluded that it must have been a third fire-place. Nearly on a level with this was a layer of chips of wood as if cut by an axe, and underneath this was a layer of turf with the heather part downwards. On pressing the spade still further down it struck a log of wood. The perpendicular height from this log to the top of the upper pavement was seven feet nine inches. All these fire-places were below the level of the water before the first drainage was made. As it is ascertained that previously there was no island to be seen, the whole island must have sunk very much since its original structure. Round these fireplaces were the remains of a series of seven or eight large piles with their bases cut flat and resting on the floor of the middle pavement or a few inches below it. These upright piles inclosed a somewhat circular area, with a diameter varying from ten to fifteen feet. The articles hitherto discovered in the interior of the mound consist of querns, hammer-stones, bone-chisels, and lance-like objects, a spindle-wheel, wooden implements like clubs or paddles, &c., deer-horns, some cut across and marked with holes and other markings, numerous boars' tusks, and a great assortment of bones and teeth belonging to various kinds of animals. With the exception of a singular three-pronged iron instrument found in the large drain outside the mound and a rusty piece of iron shaped like a door-handle, picked up very near the surface of the mound, not the slightest trace of either iron or bronze has been discovered. A piece of red pottery, said by a competent authority to be so-called Samian, found in the same drain and near the same spot as the iron implement above alluded to, and the half of a grooved bead of the size of a hazel-nut and covered with a greenish pigment, are the only fragments of pottery as yet brought to light.

Kilmarnock, October 21 ROBERT MUNRO

Power of Stupefying Spiders Possessed by Wasps

MR. ARMIT'S letter, from Queensland, on this subject (NATURE, vol. xviii. p. 642) is, to my mind, of great interest as showing that the habits of insects are the same at the antipodes as on our side of the globe. I was well aware that the spiders were stupefied (or paralysed) and not killed, and that the use made of them by the wasp was as a nidus for her ovum, and to serve as fresh provisions for her larvæ when hatched. Of course if killed they would be useless for this purpose. We have a wasp of similar habits, but he makes use, in the cases in which I have watched his operations, of the larvæ of the garden white butterfly, which are rendered passive and helpless, but not killed, in a similar manner.

I make alternative suggestions for further, and if possible microscopic, examination into the matter. First, are the wounds producing this insensibility inflicted with the sting, or by an ovipositor in the act of inserting the ovum? Is the egg in the case of the wasp, as with the ichneumon, inserted in the insect to serve by and by as food, or outside it, in the cell? If