

suade the natives that the sacrifice of a dead rat as often as possible to Kalee would avert pestilence, rats would very soon be destroyed, and plague would be at an end.

Cases of plague from time to time arrive at the Port of London, and rats might therefore become infected and start a pestilence in our midst. We are pursuing a foolish policy in allowing rat- and flea-infected districts to exist in the East End of London and other similar places.

THE THIRD "PREHISTORIC" CONGRESS OF FRANCE.

THE third Congrès préhistorique de France was held at Autun (Saône and Loire) from August 12 to August 18, and attracted some 350 adherents, about fifty more than did the congress held at Cannes in 1906. More than 150 archaeologists attended the scientific meetings and excursions held at Autun.

The congress was opened in the town theatre, where an address of welcome was delivered by the Mayor of Autun. Then Dr. A. Guébbard and Dr. Marcel Baudouin, the president and general secretary respectively of the congress, made the usual statements, and were followed by the official delegate of the Minister of Public Instruction, Prof. Matruchot, of the Faculty of Paris and director of *Pre-Alesia*. Prof. Matruchot congratulated the Société préhistorique de France on the success it has attained, and conveyed to it the compliments of the Government.

On Monday evening, August 12, the congressists attended a reception at the Town Hall at the invitation of the learned societies of Autun, a group of bodies held in high respect in France. The brilliancy of this gathering was enhanced by the presence of numerous professors and men of science from other lands, the list of those present including the names of M. Rutot (Brussels), Prof. Cossina (Berlin), MM. O. Montelius (Stockholm), Valdemar Schmidt (Copenhagen), Count Zeppelin d'Arlenhause (prefect of Lorraine), M. Wassre (Switzerland), MM. Lewis and Dickins (England), M. Peabody (U.S.A.), &c. In addition to several German professors who assisted in the meetings of the congress, there were also present Prof. Adrien de Mortillet (Paris), P. Girod (Clermont-Ferrand), Dr. Henri Martin, M. Edmond Hùe, M. Gustave Chauvet (Ruffec), Dr. Baudouin, deputy of Beauvais, &c.

Among the subjects discussed should be mentioned that which treated of the prehistoric features of the Eduen country, in which the congress was held, and which was celebrated in the Roman history of Gaul. In the environs of Autun itself is situated the "Champ de la Justice," a Neolithic station which has furnished a number of "finds," and formerly included a fine megalithic alignment, which to-day is totally destroyed. This was visited by those who attended the congress, and there is indubitable evidence that it was formerly an ancient fortified camp, of which only the eastern side of the vallum, which has been investigated by M. Déchellette, remains.

Part of another evening was devoted to each of the walls of the town, and groups of the congressists also visited the Roman remains of Autun, which is surrounded on all sides by primitive ramparts dating from the time of Augustus; the temple of Janus, the sepulchral pyramid of Couhard, and the principal gates, such as La Porte St. André and La Porte d'Arroux, were amongst the sites visited. Then another place of great interest was found in the Roman theatre, at one time an important structure, now a mass of ruins, which, however, forms one of the chief attractions to tourists in Autun.

The principal question on the agenda of the congress was that of prehistoric camps and fortifications, which have been thoroughly examined by the learned president of the meeting, M. Guébbard. These were clearly described and discussed by the president before a large meeting of the whole congress held in the theatre on the evening of August 13. The exposition was rendered more enjoyable by the lantern-projection of more than 130 slides, and was so enthusiastically received by the large audience present that another afternoon was devoted to this complex subject.

Another lantern lecture was delivered, on the afternoon of August 14, by Mr. Lewis (England), his subject being

the principal megaliths of England, whilst Mr. F. V. Dickins (England) exhibited a number of photographs of Japanese megaliths taken by M. Goodhan. These photographs were greatly appreciated by the audience, and, in the subsequent discussion, Dr. Marcel Baudouin, the great French authority on the study of megaliths, insisted upon the great interest of the English cromlechs and of the Japanese *allées couvertes*, which belong to a more recent epoch, and of which the funeral ornaments singularly recall those of the Gaulish sepultures.

This meeting concluded with a lantern demonstration given by Dr. Henri Martin, who dealt with the remains, showing traces of utilisation, found at stations of the *Moustérienne* epoch in Charente and Dordogne.

It is not advisable to describe here all the communications discussed at the congress, but it should be recorded that, concerning the megaliths, it seems to be generally admitted in France that the monuments were unquestionably oriented for a set purpose. Dr. Baudouin, who, following Gaillard (of Plouharnel) and many others, scientifically defends this theory in France, stated that the orientation varies from N.E. to S.S.E. in Brittany and Vendée, and clearly refers to the rising sun if one takes into account the latitude of the place and, an important factor, the momentous seasons.

The variation of the orientations indicates that in erecting these monuments all the seasons were considered, although the alignments to the winter sun predominate, as in Brittany, where the most frequent direction is S.S.E. This is in good accordance with the results of the work recently prosecuted in England concerning this important problem. The author also insisted upon the relations between menhirs and dolmens, and showed by an example, *à propos* and indisputable, that the menhirs were really indicators of megalithic sepultures, or of the limits of the neropolis of this epoch. By using two certain holed stones as indicators, he was enabled to discover an *allée couverte* which was buried under the soil, and had until then remained undiscovered. This "find," made with remarkable scientific precision, was received by numerous foreign congressists as a striking example of the value of a theory which many of them still ignore.

The question of the place the Aurignacien stratum should occupy in the classification of Palæolithic industries was also discussed at length, first at Autun by Prof. Girod, then at Solutré itself by Dr. Arcelin, jun., and M. Adrien de Mortillet. One sees that the excavations of Solutré should afford the much-desired solution of this problem, but it is not there, for the stratigraphy of that classical station is very intricate owing to serious landslides, and the consequent over-running, which detracts all meaning from the disposition of the layers laid bare by the recent work of M. Arcelin, jun. This worker believes, however, the *sous-solutréenne* layer to be re-mounted; but M. de Mortillet holds the opposite opinion, and believes that the over-running is real.

The question of forgeries was also discussed, and it was decided that it is necessary to warn prehistorians concerning "finds" in the Charollais country, near Autun. Possibly some of the Neolithic arrows of bizarre shapes are genuine, but it is certain that others are the work of clever forgers.

"Eoliths," the fruitful source of much debate, also came up for discussion. The subject seems threadbare in spite of the frequent writings of M. Rutot. He apparently admits that there are "eoliths" of every epoch of the "Stone age," but the true "eoliths" are those which correspond to the Tertiary deposits and suddenly appear in the Lower Quaternary. This is what may be called, with Dr. Baudouin, the *Préchélléen*, without entering into the detail of the layers.

Four days, instead of three, were this year devoted to the final stages of the congress, the session being augmented by one day for this purpose. In this time all the camps were visited, special attention being paid to the stations of the Iron age. Thus, in the days devoted to the more extensive excursions, the congressists visited Mont Beuvray, near Autun, which, under the name of *Bibracte*, was formerly the central Oppidum of the Aedui. Here are carefully preserved the precious remains of brave Gaulois; of which other specimens were also seen in the

Musée de l'Hotel Rolin. The toilsome journey to an altitude of 810 metres was amply repaid by a good lunch, and, in spite of the rain, by the more artistic pleasure of the grand panorama of surrounding plains and hills which is to be seen from the summit.

This visit to Mont Beuvray, a hill well known to the whole world, since it has justly given its name to an important epoch—the Iron age—recalled the fact that Cæsar once visited this Oppidum, and shortly after protected the Aedui from the Helvetian attack, and also from that of Ariovistus. It was here, too, that the Gauls held the famous general assembly, after the Aedui abandoned the Roman cause, and proclaimed Vercingetorix, the proclamation no doubt taking place near the *Pierre de Vibre*.

The ancient importance of this fortified Eduen camp is also attested by the fact that Cæsar, after the triumph at Alesia, established himself there. After this, Gaul was completely submitted to the Eastern civilisation, and *Bibracte* (with its *Beuvraysien*, i.e. its *industrie du Fer*), some years after the commencement of the Christian era, was completely obliterated by a forest fire. Vestiges of the town have been found by a modern Eduen, Bulliot, and a room in the Musée de l'Hotel Rolin is devoted to the results of the gigantic excavations. These were shown to the congressists by his worthy successor, M. Déchelette, who also exposed, for the congress, several Gaulish habitations, and prepared an exposure laying bare part of the old ramparts of the Oppidum, thus affording the visitors a view of a good example of the constructions of that epoch.

On August 16 an excursion to the boundary of the Côte d'Or and Saône and Loire occupied the attention of the congress, and a number of dolmens in the neighbourhood of Nolay and Decize were examined, but these do not recall anything of those well-known monuments on the borders of the Gulf of Morbihan. This visit showed what becomes of monuments in the centre of France, as those of the Field of Justice, in Saint Pantaléon, near Autun, had already appeared as an ultramicroscopic reduction of those of Menec and of Kerléscant at Carnac.

The evening was devoted to an enjoyable visit to the camp of Chassey, a typical Neolithic fortification occupied later by the Gallo-Romans. In the hands of the late director of the Musée Rolin, Dr. Loydreau, this camp furnished a valuable collection to the museum, and, thanks to the enthusiasm of M. R. Gadant, the room devoted to the collection was solemnly declared open during the visit of the congress. The subject of this second excursion was restricted entirely to the two principal periods of the polished stone epoch.

Looking south from Chassey, the far-away plateau of Aluze may be seen, considered by the Eduens as being the only Alesia possible. This supposition has not, however, prevented M. Etienne Bonneau from preparing his modest work, in spite of many difficulties, on the *Siège d'Aluze par J. César*.

At the camp of Chassey, of which the northern and southern parts of the vallum remain intact, excavations had been specially preserved, and furnished the visitors numerous fragments of Neolithic pottery and remains of Bovides, &c.

The third day was devoted to the Palæolithic age, to the period of the *Pierre taillée*, and to this end the congressists visited the very fine collection made by Arcelin père from the classical beds of Solutré, and now to be found in the Musée de Mâcon. The son of the inventor of Solutré, Dr. Arcelin fils, was the guide, and had prepared a new cutting of the *Clos du Charmier*, which showed *in situ* the exact stratification of the beginning of *Solutréen*. As has already been mentioned, this visit did not give the key to the thorny question of *Présolutréen* or *Aurignacien*, on which sides are taken by the leaders of the Belgian and French brigades.

But the old school of prehistoric France showed that the *Solutré* bed has been greatly modified by the earth displacements, and so rendered little assistance to the solution of the Aurignacien problem. Against this the few facts have shown that the layers, as known, of horses, which form the base of the station, appear to be contemporaneous with the *Mousterien*. In fact, it appears,

a priori, that one such place which had been frequented by the Palæolithic workmen had also been inhabited by the *Solutréens*. Certain flints, and remains of horses, apparently prepared on the *Mousterienne* model, have been found by Drs. Arcelin and Baudouin.

On the last day of the excursions a visit was made to the Oppidum d'Alesia, where there are rare traces of the Gaulois (huts, &c.). The epoch appears to be completely the Gallo-Roman, i.e. at the end of the Iron age. Here is to be seen the result of two years' assiduous labour, and one sees that if Faith is not able to raise mountains, Science of to-day is able to dig out from their foundations the majestic ruins of several successive Roman civilisations. In face of these works, the question which suggested itself was, "If by some unlikely chance this was not the true Alesia, how is it that a town, having presented such elaborate monuments, has left no trace of itself in the primitive history of France?"

This visit, with that to the two special walls which were seen at *Alise Sainte Reine*, worthily brought the congress of Autun to a close.

As a proof of the enthusiasm aroused, it may be stated that the last excursion attracted more than 100 participants. In spite of the complexity of the excursion programme, and in spite of the large number of adherents, the congress programme was carried out punctiliously.

The splendid organisation of this Congrès préhistorique de France may henceforward remain a model for others. It is to be hoped that its success will be repeated upon the occasion of the fourth congress in 1908, and that a still greater number of foreign workers, more especially the specialists of Great Britain, will be present.

ECONOMIC BIOLOGY AND AGRICULTURE.

A CONFERENCE to mark the inception of a new department of economic biology at University College, Bristol, was held on Thursday, October 17, in the Bristol Museum, the Right Hon. Henry Hobhouse, P.C., taking the chair.

Mr. A. D. Hall, director of the Rothamsted Experimental Station, speaking upon the experimental work at Rothamsted, directed attention to the part played by bacteria in the fixation of nitrogen in the soil. Mr. E. S. Salmon (Agricultural College, Wye) referred to the destructive character and prevalence of fungus pests, and the beneficial results following the use of various spray solutions. Mr. F. V. Theobald (vice-principal Wye College), in dealing with the investigations upon insect pests, urged the importance of each worker making his own observations upon their life-history and habits within the district in which he worked, otherwise much mischief would result from the repetition of misstatements. It has been found, for example, that the winter moth, the wingless females of which are supposed to emerge in the middle of October and ascend tree trunks to lay their eggs, does under certain conditions and in some districts appear earlier, so that grease banding of the trees is in such cases carried out too late, and much damage results.

Prof. J. R. Ainsworth Davis (Aberystwyth), speaking upon economic biology in relation to fisheries, urged a much closer connection between educational work and trade. He also pointed out the need of a fuller knowledge of the movements of food fish, and the importance of organising systematic investigations upon the fisheries of the Bristol Channel and the rivers flowing into it. Mr. T. H. Middleton (Board of Agriculture and Fisheries), speaking upon the public and departmental aspects of economic biology, stated that it is the policy of the Board to subsidise institutions establishing departments of agriculture, recognising that the work of economic biologists is of public benefit, in that all are consumers. The result of disease and unscientific management leads to dearer food-stuffs. The Board has a special interest in the work of biologists, and can be made an effective intermediary between the scientific man and the grower. It is possible that a time will arrive when the Board will be able to do more in support of applied science, and when that time comes consideration will be given to those institutions