NEWSLETTER 1963

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Wilcock, J.D. 1963
"Report of the Annual Conference of the British Speleological Association, Sheffield, August 1963"
Newsletter Vol.1 No.3, NCMRS, pp.7-10

Published by the

THE NORTHERN CAVERN & MINE RESEARCH SOCIETY
SKIPTON U.K.

NB
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REPORT ON THE ANNUAL CONFERENCE OF THE BRITISH SPELEOLOGICAL ASSOCIATION, SHEFFIELD, AUGUST 1963.

John D. Wilcock, B.A., B.Sc.

The speleological conference and exhibition of the B.S.A. for the year 1963 took place at the University of Sheffield from August 10th. to 12th. The following society members were present:- R.T. Clough & J.D. Wilcock. A full account of the papers presented is published in The Proceedings of the British Speleological Association, Number 1. All deal with original speleological work relating to caves, potholes, cave archaeology, technical speleology and leadmines. A summary of the papers is given in French and German. The B.S.A. was formed in 1935 for the purpose of furthering all aspects of speleology and for providing an association of British individuals, clubs, museums and other bodies interested in caves, archaeology and leadmine history. Together with the [7] Cave Research Group of Great Britain and the newly-formed Association of the William Pengelly Cave-Research Centre it coordinates the work of British speleologists. As Dr. Sutcliffe said in his paper, however, it is a great pity that Britain now has three national caving organisations, and we may hope that it will not be long before they amalgamate into one, as in America.

The national conference of the B.S.A. is designed to bring together all British caving enthusiasts and cave organisations, for several days during which lectures, discussions, films, caving trips, social gatherings and a salon of photographic art are to be held.

A short resume of each paper presented to the conference will now be given. A.L. Pill, F.R.G.S., F.G.S. described some recent discoveries in Hartle Dale Caves, in the Castleton area of Derbyshire. Archaeological discoveries from the pleistocene up to the present day, and present day zoological discoveries in the caves were described. The finds were discussed in detail. Some observations on the chemical and physical characteristics of the cave deposits followed, together with a more specialised description of the archaeological stratigraphy of Fissure Cave.

R.S.W. Braithwaite, B.Sc., Ph.D., A.R.I.C., gave a summary of the Mineralogy of the Derbyshire Dome. The distribution of primary and gangue minerals were discussed, in particular with respect to their igneous origin. The occurrence of secondary minerals, formed by alteration of primary minerals, also received attention, with reference to the region under discussion.

Dr. A.J. Sutcliffe, Ph.D., of the British Museum (Natural History) outlined the aims of the William Pengelly Cave-Research Centre, Buckfastleigh, Devon. The centre is named after Pengelly, the nineteenth century excavator of Kent's Cavern, Torquay. It is situated at Higher Kiln Quarry, Buckfastleigh, and is the property of the Society for the Promotion of Nature Reserves, by whom it is leased to the Devon Naturalists' Trust. It is managed by a Governing Body composed of representatives from these two Societies, the Devon Speleological Society and Exeter University, and is supported

by the Association of the William Pengelly Cave-Research Centre, a national body with headquarters in London. The caves of Higher Kiln Quarry are in course of being developed as a teaching and research centre. In the first instance Joint Mintnor. Cave is being set up as a museum-cavern and demonstration bone cave, with a standing section of the deposits showing, their stratification and some of the bones lying where they were found.

D.A. Jenkins, B.A. gave some notes on Agen Allwedd and the Geology of the Mynnydd Llangattwg, South Wales. The cave system of Agen Allwedd is developed within the oolite group of the Avonian succession in the cliffs overlooking the Usk Valley at Crickhowell. It is one of the largest known systems in Britain, and because of its many unique features, it is also one of the most interesting systems. Mr. Jenkins gave a brief account of the general stratigraphy and structure as exposed in the cliff face and within the cave, and the petrology of the relevant beds. Next a series of notes on the various types of passage, and their deposits and [8] formations was given. Finally, the age, origin and development of the cave system were discussed.

A paper on the Halkyn and other mines in the Carboniferous limestone region of Flintshire, North Wales, was read by M. Bevan-Evans, M.A., F.S.A., the county archivist of Flintshire, in the absence of the author, P. Wild, Esq. The paper gave a general description of the lead mines of Flintshire, and their history. The Tal-ylGoch and Halkyn mines received special attention, and there followed a description of the great drainage levels of the area.

H. Lord, B.Sc., Ph.D., of the Technical Speleology Unit, described a device for surveying and speech communication underground employing a magnetic field generator and detector. The device was developed in an attempt to improve the accuracy of cave and mine surveys, by relating them to surface points, and also to provide a reliable means of communication with the surface, particularly in bad weather and for rescue purposes. The merit of the instrument is that it overcomes the disadvantages of radio waves, does not require a Post Office license, and is quite accurate up to several hundred feet in depth below the surface. A description of early work, more recent developments and surveying technique were given. In the appendix given in the proceedings, there is also a full description of the apparatus (which can be carried in an ammunition box), circuit diagrams, and a theoretical discussion of the physical principles involved. This device could with advantage be adopted by the N.C. & M.R.S.

F. Atkinson, B.Sc., F.M.A., gave some notes on the formation of caverns in the Craven Area of North-West Yorkshire. The paper included many excellent diagrams, and will be of interest to all members of the N.C. & M.R.S. The factors in Vadose cavern formation, the mechanism of cavern formation, simple joint passages, fracture joint passages, and the effect of joints upon passage formation were among the topics discussed. The conclusions of the paper were that cave systems in the Craven area have been and are being formed by the action of flowing water, assisted by joints and impervious beds in the Great Scar limestone. Secondly, two types of passages have

been distinguished which, it is suggested, are the results of two types of jointing in the limestone.

The paper on Stump Cross Caverns, by G. Gill, Esq. ,and read in his absence by Dr. E. Travers, M.A., Ph.D., M.D., will be of interest to all members of the society, from our association with the caverns. Mining activity in the region of Greenhow since the days of the Romans was discussed. The discovery of the caves by the miners was also mentioned. The shaft dug by members of the society beyond the known Show Cave end received attention. An excavation of over 300 bones of Tundra Reindeer and the stratification in a shaft dug below them in the fill was described. Mr. Gill concluded by offering a welcome to anyone wishing to do serious work, and he received many tributes on his cooperation with researchers present at the meeting. At the end of the paper, Dr. Travers read a report from Geoff Workman, the Secretary of the Derbyshire Caving Association, who at the time of writing has broken the record for underground stay set up by M. Marcel Siffre; Mr. Workman described his stay [9] underground in Stump Cross Caverns, and his work, concluding with his best wishes for the conference.

The highlight of the conference, from a N.C. & M.R.S. point of view was a paper on the Industrial Revolution in Swaledale Mining, given by an economic historian, B. Jennings, M.A. This excellent description began with a discussion on the main vein complex of Swaledale, and the history of mining in the region. The increasing difficulties in mining at depth led to a need for adequate capital for drainage devices. Water power was used extensively, and because the coal supply in the area was poor, steam engines were not very successful. There were no changes in driving techniques until black powder was replaced by dynamite. The cost of level driving made necessary adventurers able to put up the money and willing to wait some time for a return. Since the usual time for a lease was 21 years, the time taken in level driving was a serious drag on development, and a complex series of covenants were evolved, so that former adventurers stood to regain some of their investments. The rationalisation of the dressing and smelting layouts was an important development. The absence of limited liability in company law at the time was not a serious drawback in Swaledale mining, because the personalities involved were cautious. Mr. Jennings expressed the opinion that many Swaledale agents were 'backward-looking and thick-headed', and that many difficulties in the mining could be traced to this incompetence. The personalities of the agents influenced the whole course of the undertakings. In the paper Mr. Jennings discussed the differences in outlook and capabilities of two agents, John Davies and his successor Frederick Hall, of the Old Gang Mines.

The salon of photographic art contained many good transparencies. The prize winners this year were of subjects in the Gouffre Berger and Carleswark Cavern, Derbyshire.

Copies of the Proceedings of the B.S,A. Number 1. may be obtained from P.W. Crabtree, B.A., B.Sc., Department of Chemistry, The University, Sheffield, Yks, price 15/-.