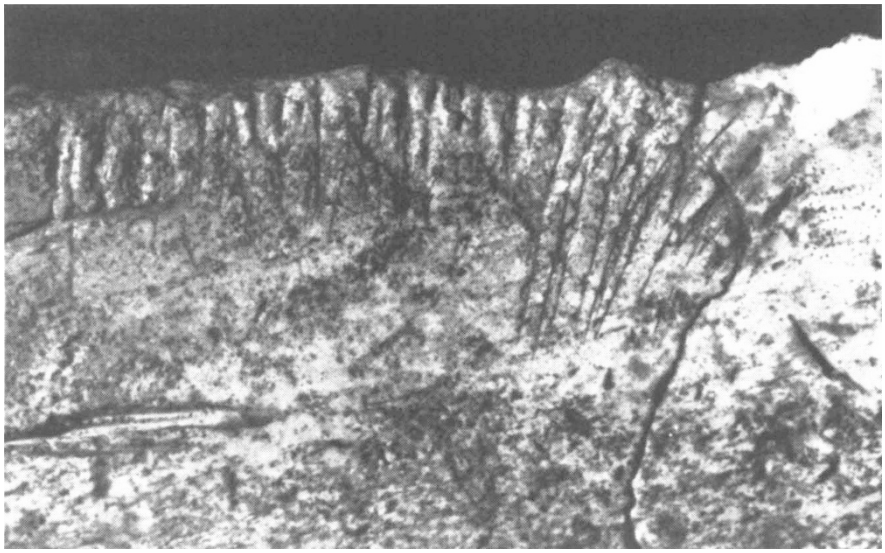

Fig. 2 Enlargement of the mane of the Sherborne horse. Photo: Jill Cook.

head that is very similar to that engraved on the Creswell Crags bone and rather dissimilar to the Sherborne variant. Sollas suggested that the illustration of the Creswell Crags horse, published (for the second time) by Boyd Dawkins in 1880, was the inspiration for the Sherborne piece, in that both show head and forequarters of a horse, facing right, with an upstanding mane. There seems some force in this argument, for the Sherborne horse is much more similar to Boyd Dawkins' rather poor illustration than to the original Creswell piece. Side by side the Sherborne and Creswell originals have little in common, the Creswell horse, for example is extremely delicately engraved, but this is not a characteristic that is conveyed in the illustrations and it is not a characteristic repeated in the Sherborne engraving. Furthermore, if the Sherborne copyist had seen the original Creswell engraving he might have appreciated the importance of the numerous additional odd lines that occur on the surface of this bone. Some of these appear in Boyd Dawkins' illustration, but might here well be dismissed as cracks, although they are a very consistent feature of Palaeolithic decoration. It is unusual to find a Palaeolithic engraving that is devoid, as is the Sherborne horse, of any extraneous lines, though these are not always included in illustrations of the material. Obviously there is no way of conclusively determining the age of an engraving as opposed to the age of its bone support, but such evidence as can be cited suggests that the Sherbone horse is not an authentic Palaeolithic engraving. The catalogue of Palaeolithic art pieces from this country is very small but to augment it by including the Sherborne horse appears to be quite unjustifiable. □

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Geology and health

from a Correspondent

THE influence of minerals and chemicals naturally occurring in the environment on health, together with the problems that arise in the mining and industrial use of minerals were reviewed at a recent meeting in London*. P. C. Elmes and J. C. Wagner (MRC Pneumoconiosis Unit) reviewed the diseases resulting from occupational and environmental exposure to mineral dusts. On the one hand are those which lead to lung scarring and malfunction such as silicosis, coal miners' pneumoconiosis and asbestosis, in which the severity of the symptoms is directly related to the intensity and length of exposure, and on the other are the more insidious cancers, where exposure may be small and the time lag to distress and diagnosis as much as 30–40 years. The load of dust in the lung associated with disease varies widely, from several hundred grams of coal dust, 5-10 g of pure silica to as little as 1 mg of asbestos. Both asbestos exposure and smoking increase the risk of lung cancer, but combining the two multiplies the risk. A recent discovery of an extremely high prevalence of the rare pleural mesothelioma in the village of Karain, in Cappadocia, Turkey, where in one year all 11 deaths out of 800 inhabitants were due to this one disease (there were no cases in the surrounding villages), has been linked with the presence of a zeolite mineral, erionite, which is found in the volcanic tuff rock from which local houses are built, and which weathers to form the soil on which this agricultural community depends. Similar fibrous minerals of 0.01–0.5 μm in diameter and 5–15 μm in length, a dimension that is retained in the body tissues and causes cell damage, occur in other geological materials and must be a cause of concern.

The large-scale development of natural resources to meet the energy crisis will have important environmental consequences. W. Chappell (Center for Environmental Sciences, University of Colorado) forecast the production of 1 million barrels of oil a day from oil shale in the US by the late 1990s, requiring the processing of 500 million tons of shale per annum, as much as the present-day coal production in the US. Problems of waste disposal, release of toxic trace elements and organics into surface and ground waters and emissions of SO_2 into the atmosphere will expose workers and local communities to possible health hazards. Projected large scale expansion in surface coal mining over the next five years has led to studies linking epidemiology and water quality in the Midwestern USA, a programme funded by the Environmental Protection Agency and undertaken by Betsy Kagey (Downstate Medical Center, New York) and B.G. Wixson and N.L. Gale of the Environmental Research Center, University of Missouri — Rolla.

Geochemical investigations linking heavy metals in soils and the prevalence of dental caries were described by B.E. Davies (University of Wales, Aberystwyth) and R.J. Anderson (Dental School, University of Birmingham). Caries incidence has been found to be above normal where soils are heavily contaminated with lead from old metalliferous mining and smelting activities.

The Applied Geochemistry Research Group at Imperial College and the Institute of Geological Sciences have over the years mapped most of the country and geochemical atlases of England and Wales, Northern Ireland and parts of Scotland have been published. Research initiated by John Webb in the early 1960s has shown that regional geochemical differences can be successfully related to the health of crops and livestock, and that maps have uses in agriculture, water resources, pollution studies and public health. The Atlases will continue to provide unique sources of data on many different elements which can aid in selecting areas for food, water and medical surveys, particularly in rural parts of the country.

J. Lag (University of Oslo) reported that the Academies of Science in the five Scandinavian countries are setting up a committee to organise further cooperation in geomedical investigations. This will in part fulfil a similar role to the Working Party on Environmental Geochemistry and Health in Britain established in 1979 by the Royal Society under the chairmanship of S.H.U. Bowie. Consultation and cooperation in this expanding multi-disciplinary research area should now be possible between scientists in the UK, Scandinavia, USA, Canada, USSR and Australia which now all have similar groups of interested scientists. □

*A one-day discussion meeting on Geology and Health was held on 30 January at the Geological Society of London, Burlington House, and organised by Dr Iain Thornton, Imperial College.