or ferric chloride the mineral changes to a crimson colour; after prolonged etching it becomes light grey. Koutekite has a strongly lamellar structure. The density of the synthetic Cu_2As measured hydrostatically is 8·48. Strong reflexions on the X-ray powder pattern have the following d-spacings: 3·32; 2·446; 2·078; 2·024; 1·994; 1·374; 1·324; 1·197; 1·178 and 1·147 A. On the basis of a number of attempts to index the X-ray powder pattern of the mineral, its symmetry appears to be hexagonal. The new mineral has been named koutekite in honour of Academician J. Koutek, professor of economic geology, Charles University, Prague.

Results of a detailed investigation of koutekite will be published elsewhere.

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The Cromerian Interglacial

Prof. P. G. H. Boswell[1] has recently asked the question "Is the Cromer Forest Bed preglacial or interglacial?" and he states that it is premature to assign the Cromer Forest Bed to the oldest interglacial in East Anglia.

The crux of the problem appears to be one of nomenclature. If the term 'interglacial' is used in a descriptive stratigraphical sense, any non-glacial deposit between two glacial deposits may be called interglacial. Likewise, a preglacial deposit will lie below the oldest glacial deposits of the area concerned. In this stratigraphical sense the Cromer Forest Bed Series is preglacial, as Prof. Boswell rightly points out.

However, 'interglacial' has now acquired by usage a climatic as well as a stratigraphical meaning. The systematic application of pollen-analysis to interglacial deposits in many parts of western Europe, supplemented by identification of larger remains of plants and animals, has shown that the temperate interglacial stages can be recognized and characterized at least as precisely as the deposits of the intervening glacial stages. Such interglacial deposits commonly consist of organic muds or peats of substantial thickness: they consistently display a vegetational and faunistic sequence indicating amelioration of climate from arctic or boreal at the base, through conditions of increasing warmth capable of supporting temperate deciduous forest, to a final stage of revertence to cold conditions. In amplitude of climatic shift they resemble the changes from the end of the last glaciation through the Post-glacial thermal maximum, and they must have had a duration of similar magnitude, that is to say, a few ten thousands of years.

At Hoxne it has already been demonstrated that an interglacial of this kind lies between the tills of the Lowestoft and Gipping glaciations and the Bobbitshole, Ipswich, deposits referred to by Prof. Boswell, are of similar interglacial character though post-dating the Gipping glaciation. A precisely similar pattern of climatic change has been now demonstrated for the Cromer Forest Bed Series. These changes were first indicated in P. W. Thomson's pollen analyses published by Woldstedt[2], but they have been fully substantiated by extensive unpublished palynological research by Dr. S. L. Duigan[3] (now of the Department of Botany, Melbourne) upon coastal exposures of the Cromer Forest Bed Series from West Runton, Norfolk, to Kessingland, Suffolk.

Recent correlations of the Cromer Forest Bed Series[4,5] with certain continental deposits considered interglacial lead to the conclusion that the Cromer Forest Bed Series was deposited during an interglacial, the last of a series of glaciations and interglacials which occurred before the Elster/Mindel glaciation. These continental deposits contain substantial but decreasing frequencies of the Tertiary pollen types represented freely in the Dutch Pliocene deposits (Reuverian), and it is to be noted that both Thomson and Duigan emphasize the poverty of these types in the Cromer Forest Bed.

The Crag deposits themselves have not yet been investigated intensively by modern methods, and it seems to us possible that they may yet prove to include deposits which in a time-stratigraphical sense are glacial or interglacial in status.

Meanwhile, there seems a strong case for accepting the Cromer Forest Bed Series as the oldest of the known interglacial horizons[5] in East Anglia.

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April 20.

[1] Boswell, P. G. H., *Nature*, **181**, 1087 (1958).
[2] Woldstedt, P., *Nature*, **165**, 1002 (1950).
[3] Duigan, S. L., Ph.D. Dissertation, University Library, Cambridge (1954).
[4] Zagwijn, W. H., "Geologie en Mijnbouw", N.S., 19e Jaarg. No. 7, 283 (1957).
[5] West, R. G., *J. Glaciology*, **3**, 211 (1958).

We must not be tempted at the moment, I think, into a discussion of the meaning and implications of 'interglacial'—a matter which now seems to be running full circle. The purpose of my communication was not to state a case for the preglacial age or other age of the Cromer Forest Bed, but to prevent a brief and easily quotable statement to the effect that "it was formed in the oldest interglacial period in East Anglia" (or, for that matter, a title like that of their present communication) being copied from paper to text-book and book to paper without mention of the fact that other evidence does not support the statement.

The communication from Drs. Godwin and West may be welcomed, however, not only for the additional publicity it gives to the problem, but also for the new information that Dr. S. L. Duigan has extended her palynological studies of the Cromer Forest Bed from the type area by way of coastal exposures to Kessingland (and thus via Corton, where Clement Reid failed to convince himself that the peaty bed was the true Forest Bed). We now await still more keenly some geological evidence of the existence of the palynologists' oldest glacial epoch in East Anglia and knowledge of the way they are dealing with the important interglacial interval (so striking in the field but so often hidden in correlation tables) which separates the North Sea Drift from the Lowestoft Boulder Clay, and includes the Corton Beds, Billockby fauna, etc. (a post-Cromerian but pre-Hoxnian interval, to use their terminology).

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