

# news and views

## Interpreting Stonehenge

from R. J. C. Atkinson

THE formulation of astronomical interpretations of Stonehenge is becoming a minor industry with its own characteristics. These are well illustrated by a recent and a current contribution to *Nature*.

R. F. Brinckerhoff has suggested (*Nature*, 263, 465; 1976) that selected depressions on the tops of some of the lintels were made to hold markers used by an observer, himself standing on the lintels on the opposite side of the circle, to identify significant risings of the moon. This is clearly possible under certain circumstances; but is it likely?

I think not, if only because the tops of the lintels are now so weathered as to make it impossible to distinguish artificial holes from those of natural origin. On other lintels, notably stone 152, there are many weathered holes far deeper, and no less regular in outline, than Brinckerhoff's examples, for which no astronomical explanation is possible. Furthermore, the author admits that the relevant observations could have been made only after the fall of stone 55. The date of this event is unknown; but we do know from Gowland's excavations of 1901 (*Archaeologia*, LVIII, 37-118; 1902) that the base of this stone was not deliberately undermined. The differential weathering of the upper and lower surfaces of the lintel which it formerly supported (stone 156) suggests that stone 55 may not have fallen until well after the end of the Early Bronze Age. There is no archaeological evidence for the continuing use of Stonehenge thereafter.

A. D. Beach (this issue of *Nature*, page 17) makes the new, ingenious, but to me equally improbable suggestion that the Aubrey Holes were used as counters for predicting tidal amplitudes by way of previous knowledge of the period of rotation of the lunar apsides. This is a more 'difficult' explanation than Hoyle's (which Beach apparently rejects) because it involves an additional generalisation from natural phenomena unobservable at Stonehenge itself.

From our present knowledge of celestial mechanics it is all too easy to impute to our prehistoric ancestors an understanding of nature which may well be ours alone. Both these papers, by concentrating exclusively on the astronomical interpretation of aspects of a monument which was surely more than an observatory (if it was ever that), lead to invalid inferences and to the posing of non-problems.

Brinckerhoff says, for instance, "No one has ever explained convincingly why it [the linteltop walk-way, so-called] had to be 16 feet high." Why indeed, except that the builders so decided within the limits of the building material available? Has anyone, for that matter, explained convincingly the height of the spire of Salisbury Cathedral? That the lintel-tops could have been used as an elevated walk-way does not necessarily imply that they were.

Beach, in advancing a purely 'functional' purpose for the Aubrey Holes, dismisses the 'religious' explanation of

Stonehenge I as "surely the lowest common denominator of imprecision and evasion". One wonders how he accounts for the use of Stonehenge I as a cemetery, and for the occurrence of similar cremated burials in similar rings of pits elsewhere in Neolithic Britain, for which no 'functional' purpose has ever been suggested. In fact, of course, one need look no further than many Christian churches, orientated on the sunrise either at the equinoxes or the patronal saint's day, to see that a religious purpose need not be incompatible with some elements of astronomy; nor does the incorporation of sun-dials and clocks in churches imply that they were built primarily as time-pieces.

Both these papers seem to me to show an almost obsessive desire to interpret Stonehenge exclusively in 'practical' or 'scientific' terms, and to ignore the probability that it served simultaneously a number of purposes which only we would regard as separable or conflicting, and many of which, could we know them, we should find it virtually impossible to understand. The distinctions which we make between the rational and the irrational, the practical and the useless, or between religion and science, are all part of a universe of discourse which is quite inapplicable in a prehistoric context. To impose that universe of discourse on our remote ancestors is to abolish history, and to people the prehistoric past with ourselves in fancy dress. □

## Metal bites metal

from Robert W. Cahn

THE recent Report of the Court of Inquiry (HMSO, London, 1975) on the disaster at Flixborough, where a caprolactam manufacturing plant exploded with grave loss of life, cited surprising evidence concerning weakening of hot stainless steel by traces of metallic zinc on the steel surface. This had not been recognised before the disaster inquiry and the special research commissioned

to help in that inquiry. It appears that minute quantities of zinc, which can reach the steel either as liquid or as vapour, lead to fracture within seconds at modest stresses ( $5-6 \text{ kg mm}^{-2}$ ) in the temperature range  $800-900^\circ\text{C}$ . Without the zinc, a stress well over  $10 \text{ kg mm}^{-2}$  would be needed in this temperature range to achieve similarly rapid fracture. This is an instance of stress-

corrosion, a phenomenon which involves the mutual abatement of stress and corrosion: the corrosive agent accelerates the action of the stress and the stress enhances the corrosive attack. The importance of zinc-embrittlement in the sequence of events that led to the explosion was the central and highly disputatious issue at the Court of Inquiry; mutterings of dis-