

- Kervran, L. (1972). *Biological Transmutations*. Brooklyn, NY: Swan House Publishing Co. (Collected and translated from the French by Abehsera, M.)
- Mills, R. L., & Kneizys, S. P. (1991). Excess heat production by the electrolysis of an aqueous potassium carbonate electrolyte and the implications for cold fusion. *Fusion Technology*, 20, 65.
- Mizuno T. (1998). *Nuclear Transformation: The Reality of Cold Fusion*. Concord, NH: Infinite Energy Press; translated by Rothwell, J., from the Japanese edition, Kogakusha Publ. (1997).
- Shanahan, K. L. (2006). Reply to "Comments on papers by K. Shanahan that propose to explain anomalous heat generated by cold fusion", E. Storms, *Thermochim. Acta*, 2006. *Thermochimica Acta*, 441, 210.
- Will, F. G., Cedzynska, K., & Linton, D. C. (1993). Reproducible tritium generation in electrochemical cells employing palladium cathodes with high deuterium loading. *Journal of Electroanalytical Chemistry*, 360, 161.

The Megalithic Monuments of Britain & Ireland by Chris Scarre. Thames & Hudson, 2007. 160 pp. \$19.95 (paper). ISBN 0-5002-8666-3.

This nicely illustrated book is an up-to-date survey of what is currently known and speculated about the people who settled the British Isles and built the monuments whose icon is Stonehenge and whose construction sometimes demanded massive effort and remarkable organization. What pre-history nowadays learns from applications of science is illustrated by isotopic analysis of human bones, which has revealed, for instance, that in the West of Scotland the Neolithic transition was marked by a sudden change of diet from marine to terrestrial food sources.

The separation of Britain from the Continent after the last Ice Age is sketched. In the Mesolithic, they were still connected by land. The beginnings of agriculture and use of domesticated livestock came after the English Channel had formed around 6500 B.C. Were these Neolithic developments owing to cultural assimilation or to replacement of populations? Increasingly detailed evidence suggests that there may be no single answer for the whole of what is now Britain and Ireland.

That the Channel was no insurmountable barrier is obvious: domesticated animals and plants must have been brought across the water. Agriculture arrived around 4000 B.C, apparently simultaneously with the construction of monuments. However, some scholars believe that at least some of the types of monuments in Britain are homegrown. Their density in some places invites the inference that an aim was to mold or model the landscape, perhaps an insight into a contemporary worldview. That train of thought is followed in such works as *The Archaeology of Natural Places* (Bradley, 2000) and is not necessarily at odds with the huge literature that considers possible astronomical correlates of various megalithic constructions (e.g., Ruggles, 1999).

The famous sites like Stonehenge, Avebury, and Newgrange (in Ireland), which required the efforts of many workers, are numerically a tiny minority; the vast majority of the circles and cairns could have been built by extended families

or small clans. That there are no indications of "cities" near the famous sites suggests that Neolithic populations were widely scattered in small groups that came together, perhaps seasonally, for purposes of ritual and construction. It remains puzzling, why such locations as Callanish in the Outer Hebrides were chosen, regions where no large population could ever have subsisted.

Though in some places the evidence for deliberate orientation toward heavenly events is clear, certainly as concerns solar movements, there is much less evidence for more elaborate astronomical significance; and with many groups of cairns and the like, the statistics show no overall uniformity of orientation. At Stonehenge, where the conventional wisdom has long accepted an orientation to midsummer sunrise, some now believe that the significant line of sight was in the opposite direction, toward midwinter sunset; the passage graves at Newgrange and Maes Howe are undoubtedly oriented to midwinter sunset. The "universal megalithic yard" of about 32 inches, postulated by Alexander Thom, may just indicate that sites were laid out using an average human pace as guide. That stones were usually of irregular shape suggests no great concern for precision of layout—nor is there reason to postulate that the modern engineer's obsession with precision was shared by Neolithic people.

Though human remains have been found associated with many monuments, those represent a tiny proportion of the populations from which they stem, so these were not all-purpose cemeteries. Some of the earliest constructions do seem to have been communal repositories for the dead, with indications that the remains were periodically rearranged. Later, cremations became common, and many later sites had burials of individuals or small groups, sometimes associated with material goods of various kinds. This shift in practices may indicate a change in beliefs about the relations between the living and the dead.

As well as and sometimes associated with stone constructions, Neolithic sites feature sizeable earthworks: *cursus* and *henge* monuments, respectively long tracks (or large fields) and circular areas, in both cases surrounded by banks and ditches. Some burials have been found associated with these, but their chief purpose appears to have been for processions and gatherings other than funerals. Henges vary in size from about 65 feet to nearly 800 feet in diameter and typically had one or two entrances through the bank and across the ditch; Avebury is 1300 feet across, with a ditch that was 30 feet deep. The *cursus* sites were typically about 150 feet wide, closed at both ends, and defined by parallel ditches; they are sometimes very long indeed, with the one in Dorset running apparently 6 miles long (though it may be a combination of two separate constructions).

Excavation increasingly turns up indications that the well-known stone circles were preceded in time, or accompanied in other geographical locations, by similarly massive wooden constructions, some of them quite complex in terms of numbers and settings of post arrangements.

One whole chapter of this book is devoted to Avebury and Stonehenge, with

mention of the close-by Silbury Hill whose purpose remains a matter of speculation. Another chapter deals with Ireland. While Stonehenge is the site that everyone seems to have heard of, some of the Irish sites are no less remarkable, in particular perhaps the huge passage grave at Newgrange constructed so that the sun's rays at dawn on the midwinter solstice shine onto the very end of the passage. Stone for the magnificent Newgrange had been transported for tens of kilometers, as for Stonehenge; and here too activity stretched over at least two millennia. Unlike in Britain, in Ireland there are many signs of Neolithic houses and also walled fields, apparently associated with megalithic monuments. Following the Newgrange era, there came a period in which burials or cremations were in so-called "wedge" tombs, whose interiors decreased in height from the entrance, which faced west and to the setting sun rather than, as in earlier monuments, toward the rising sun.

The final short chapter places the British sites into the larger context of continental Europe. There appear to have been megalithic constructions in France and Iberia as early as the middle of the 5th millennium B.C., in the British Isles beginning early in the 4th millennium. There are many indications of "homegrown" local and regional concepts or innovations, and also clear evidence of continuing contacts across the Irish Sea and the English Channel, some in designs of monuments and styles of occasional decorations, but also because the origin of materials from which tools were made prove movement, perhaps trading, across those waterways.

The bibliography points to many books published in the last decade that offer further reading for aficionados of this remarkable stage of human prehistory.

HENRY H. BAUER

Virginia Polytechnic Institute & State University

hhbauer@vt.edu

www.henryhbauer.homestead.com

References

- Bradley, Richard. (2000). *The Archaeology of Natural Places*. Routledge; see review in *Journal of Scientific Exploration*, 16(3), 492-495.
- Ruggles, Clive. (1999). *Astronomy in Prehistoric Britain and Ireland*. Yale University Press; see review in *Journal of Scientific Exploration*, 16(3), 492, 495-498.
- Thom, Alexander. (1962). The megalithic unit of length. *Journal of the Royal Statistical Society*, series A vol. 125, 243-251.