

das Nationalmuseum Serbiens. Glücklicherweise kam dem Rezensenten in dieser heiklen Angelegenheit ein serbischer Kollege zu Hilfe, der sich 2008 der Aufgabe unterzog, die Arbeit seinerseits zu besprechen. Es ist wahrscheinlich nicht sehr üblich, dass sich Rezensenten mit ihren Artikeln gegenseitig zitieren und aufeinander verweisen, denn der Leser darf ja zu Recht erwarten, dass jeder Rezensent unabhängig seine Stimme erhebt. Im aktuellen Fall ist der Verfasser der vorliegenden Besprechung jedoch sehr froh, dass ihm mit Dušan Borić ein Landsmann von Ljubinka Babović zuvor gekommen ist (D. BORIĆ, Rezension zu: Ljubinka Babović. Sanctuaries of Lepinski Vir: Location, Position and Function. Archaeological Monographs 17. Belgrade 2006: National Museum. Serbian Arch. Soc. 24, 2008, 467–477), denn ihm kann nicht so leicht vorgehalten werden, möglicherweise wissenschaftliche Einschätzungen mit nationalen Ressentiments zu vermischen. Dušan Borić bringt in seiner ausführlichen Rezension den Sacherhalt klar auf den Punkt, auch er verweist das Buch aus der Gilde wissenschaftlicher Arbeiten. Und er versteckt seine Betroffenheit über die offensichtliche Fehlleistung des Nationalmuseums in Belgrad nicht, das ja eine Mitverantwortung trägt für die Herausgabe dieses Buchs als Arbeit mit wissenschaftlichem Anspruch. Ich verzichte deshalb an dieser Stelle gerne auf die Ausbreitung weiterer Details, der Band ist ein Fall für das Kuriositätenkabinett der Archäologie, in dem sich schon so mancher Beitrag aus der Fachrichtung „Archäoastronomie“ befindet. Die Arbeit kann als Mahnung an alle in diesem Bereich tätigen Personen dienen, niemals die Schwelle zu überschreiten, die zu überschreiten Ljubinka Babović sich entschlossen hat.

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DETLEF GRONENBORN, (Hrsg.), Klimaveränderung und Kulturwandel in neolithischen Gesellschaften Mitteleuropas, 6700–2200 v. Chr. Climate Variability and Culture Change in Neolithic Societies of Central Europe, 6700–2200 cal BC. RGZM Tagungen Band 1. Verlag des Römisch-Germanischen Zentralmuseums, Mainz 2005. € 25,-. ISSN 1862-4812; ISBN 3-88467-096-4. 231 Seiten mit zahlreichen Abbildungen.

Well-known long term climatic changes in the Holocene have been deduced from the major pollen zones, and more short term fluctuations are shown by the Greenland ice cores. But up till now neither has one of the pollen zone transitions (such as the Atlantic-Subboreal boundary), nor one of the more short term fluctuations been placed in direct connection with cultural change, at least not in earlier prehistory. But there is growing attention to the theme for later prehistoric times. Can we detect some synchronisms and possible direct or indirect impact on human society? These are the main questions addressed in the volume under discussion. It is the first volume in a new series from the Römisch-Germanisches Zentralmuseum, containing fifteen papers presented at a conference in Mainz in 2004. The contributions are mainly by German researchers, supplemented by one each from the adjacent countries of Austria and Switzerland. Two papers are in English, all others in German with an English summary. The volume ends with a conclusion by the editor, Detlef Gronenborn.

We may distinguish four categories of papers, although this is not done so explicitly by the editor: purely palaeoclimatological, directly related to the theme, remotely related and unrelated.

Four papers are fully and one partly palaeoclimatological, dealing with tracing climatic variation in itself. Burghart Schmidt and Wolfgang Gruhle discuss the tree ring “homogeneity curve” of the last few centuries, showing the computed variability in ring-widths, or in other words the growth similarity for a series of trees in a restricted region. Periods of “growth homogeneity” (HG), with a

restricted ring variability, are interpreted as periods with a moderate, more maritime climate with relatively high precipitation. This is based on the close correlation of meteorological data and the curve for the historical period. The periods of heterogeneity are by analogy viewed as more continental and relatively arid. Homogeneity or H-curves from various regions in Europe for the last six centuries show a distinct, if not absolute, correlation. The curve of atmospheric ^{14}C fluctuation and the Western European H-curve show a general correspondence, which confirms that climate may be one of the factors of influence for ^{14}C production, next to variations in the geomagnetic field and in solar radiation. I would like to add: we are possibly looking at one closely interrelated complex of factors.

Christian Maise demonstrates that the well-known and frequent level changes of the Alpine lakes have a distinct correlation with the roughly corresponding ^{14}C and H-curves in the period 4000–2500 cal BC, but as suggested earlier by Magny a reverse one for the Jura lakes. High levels correlate with cool periods and low levels with the humid (= homogeneous tree rings) period, quite the reverse to what one might have predicted. Not precipitation, but evaporation must be the decisive factor for the lake levels! It is a bit confusing for our understanding of these complex relations that ‘kontinentaleren’ and ‘maritimeren’ seem to have been switched in the caption of Abb. 1.

In a short summary paper on Schwaben, Joseph Merkt and Helmut Müller mention changes in lake sedimentation and forest vegetation with cycles of 150–300 years since the Early Neolithic. The Austrian contribution by Kurt Nicolussi et al. on glacier fluctuations has a much lower time resolution and accuracy, but shows that the two glaciers studied had experienced some advances in the 6th millennium: around 5750 and 5380 cal BC, interpreted as indications for relatively cool conditions in the preceding century.

Closest to the core issue are three contributions dealing with climatic change and culture disruption, two of which concentrate on the ‘6200 cal BC event’. Bernhard Weniger et al. starts on a purely palaeoclimatological note, explaining the cause of this event: the disturbance of the thermohaline circulation by the abrupt drainage of the Canadian Laurentide ice lakes into the North Atlantic. The enormous masses of fresh water (more than the $1.6 \times 10^{14} \text{ m}^3$ mentioned at p. 87!) resulted in a cooling of the northern climate and to more arid conditions over several centuries. In the second part of the paper the effect is traced in the occupation sequence of a series of important sites in the Near East and south-eastern Europe, as expressed in their cumulative ^{14}C dates. Settlement decline seems to start well before 6200 cal BC in the Near East, but is more closely linked to it on Cyprus and in Central Anatolia. The best fit is the start of the early Neolithic tell settlements in south-eastern Europe, in Thessaly and Macedonia. It is suggested that this is in some way linked to the disruption of the Neolithic cultures further to the east, making the Event the driving force behind the spread of the Neolithic.

Birgit Gehlen and Helmut Schön apply the same approach to south-eastern Europe in more detail. They argue that Greece was already ‘neolithized’ at the beginning of the 7th millennium and that the expansion into Thessaly already started well before 6400 as well. The 6200 Event seems, however, to give a new impulse to this process and to further expansion to the north. A main problem in both papers remains, however, the difficulty in the interpretation of the graphs of cumulative ^{14}C dates of widely varying quality. It is in fact a very blunt tool, with many sources of contamination and blurring. This is perhaps best demonstrated by the “group calibration” of various groups of ‘circumalpine’ Late Mesolithic dates. There is indeed a general shift to more open air sites, and burials are remarkably clustered between 6500 and 6000, but is there any ‘causal’ relation to the 6200 Event?

Hans-Christoph Strien and Detlef Gronenborn concentrate on Europe in the 6th millennium, especially on the phasing of the LBK culture and any possible links to climatic change. The main

figure (p. 132 Abb. 1) is however more confusing than revealing: what do the grey zones indicated mean? The 'correlation' of certain LBK events (start of Flomborn, early / middle LBK transition, LBK end) to climatic curves remains rather fuzzy, and the suggestion that the Mt. Mazama eruption in Oregon in the 57th century might have had anything to do with the emergence of the earliest LBK is just a speculation, as is admitted. It leaves us with the uneasy feeling that there are no correlations at all. But there is some light as well! Most intriguing in our understanding of LBK expansion is the introduction and Abb. 1 of the paper by Schmidt et al., which deals with the detailed correlation of the phasing of the Rhineland LBK with the HG curve. It suggests that LBK expansion was conditioned by a more humid climate after an 'extreme dry' period, and shows that the end of the LBK around 5000 cal BC coincides with another dry period. This would fit well with the observation that early crop cultivation so far west from its origins was a tricky and vulnerable affair.

The remaining papers may be divided in two groups, the first dealing with climate-induced changes that in some way indirectly affected human life, but not so much culture. One is a paper by Karl-Ernst Behre showing how sea level rise and bog development narrowed the Neolithic living space along the southern North Sea. Large parts of the land were drowned by the sea and / or covered by coastal sediments. Bogs extended over previously inhabited areas, as illustrated by megaliths reappearing from below several metres of peat as result of drainage in historical times. Ulrich Schmölcke describes the changes in geography in the western Baltic as a result of sea level changes and isostatic uplift between 8800 and 4000 cal BC. Life became concentrated on aquatic resources and these not surprisingly reflect the shifts from fresh to marine and back again to fresh conditions. More spectacular are the shifts in subsistence in Switzerland, traced on the basis of archaeozoology and – much less visible – in archaeobotany by Jörg Schibler and Stefanie Jacomet (cf. also contribution Maise Abb. 3). Most Neolithic lake shore sites are correlated with periods of low water levels and consequently a moist climate. They show faunal spectra dominated by domestic animals, with a difference between Lake Zürich and the western areas of less than 20 % wild animals. But exceptionally there is a series of wetland sites preserved, e. g. from the 'cold' 37th century, all with a domestic:wild ratio of less than 0.5, indicating that hunting was of crucial importance in that stage. The effect is mainly documented in western Switzerland. It is argued that (serious) disturbance of cereal production may have been compensated for by hunting and gathering wild plant food in these times, and that people resumed a more agrarian life after the return of the 'fair weather'. The absence of similar shifts in the Bronze Age is seen as the reflection of the fact that crises caused by climatic factors could be better compensated for by domestic produce in these times. It shows after all the relative vulnerability of the Neolithic crop cultivation system. One should, however, observe that lower temperatures may have been of more importance than increased precipitation in view of the correlation with the high-level / more continental phases (p. 30 contra p. 184).

There are at last four papers which in fact seem to be unrelated to the theme of the volume, at least any relation escapes me, but which does not imply that the contributions in themselves are not interesting. One is on the genesis of the 'Schwarzerde' or 'Chernozem' in the region of Göttingen by Thomas Sallie and Carsten Lorz. The second an osteometric comparison of Early and Middle Neolithic human remains in the Upper Rhine region by Christian Meyer and Kurt Alt. The third is on the increase of alder between 3400 and 3150 cal BC in eastern Holstein by Arie Kalis and Jutta Meurers-Balke. I mention in addition the study by Burghart Schmidt et al. on the lifespan of Bandkeramik houses, on the basis of observations on full-scale reconstructions: they could last a full century instead of the 25–40 years generally assumed. This would have serious consequences for the modelling of LBK demography if all houses remained in use up until their final decay.

We are left with some uneasy feelings. Yes, the seemingly so stable Holocene climate appears to have suffered fluctuations with cycles of several decades, as reflected in the GRIP 2001 and GISP 2

ice cores, the ^{14}C curve and the dendro H-curve. But it is still unclear what the amplitude of these fluctuations in a climatic sense might have been, and faced with Gronenborn's Abb. 1 (p. 132) the need for one climatological 'master curve' arises. Yes, the fluctuations resulted in lake level oscillations in the Alps, presumably a highly sensitive system in this respect, and yes, in some way the spread of the Neolithic way of life from the Near East to Europe and then into the subcontinent seems (appears?) to be conditioned by the singular Event around 6200 cal BC; and Neolithic subsistence seems to have been influenced by climatic fluctuations. These are all interesting research outcomes. But Gronenborn rightly states that the state of research is both sobering and encouraging. Future research is dependant on high-resolution chronologies, like the Swiss one. The occurrence of "Severe climatic fluctuations, which result in the starvation of larger parts of a population [...] resulting in the formation of entirely new social societies" may be a bit too optimistic and not so much archaeological reality. But the volume at any rate sets the stage and makes one take climate as a serious variable in the study of culture change.

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GABRIELE KÖRLIN / GERD WEISGERBER, (Hrsg.), Stone Age – Mining Age. Montanhistorische Zeitschrift DER ANSCHNITT Beiheft 19 = Veröffentlichungen aus dem Deutschen Bergbau-Museum Bochum Band 148. Deutsches Bergbau-Museum, Bochum 2006. € 49,-. ISBN 978-3-937203-27-0. 608 Seiten mit zahlreichen Abbildungen.

Der Tagungsband „Stone Age – Mining Age“, der als Beiheft 19 der renommierten montanhistorischen Zeitschrift DER ANSCHNITT erschienen ist, nimmt all jene Beiträge auf, die im Zusammenhang mit dem VIII. internationalen Flint-Symposium zusammengetragen wurden. Die beiden Herausgeber – Gabriele Körlin und Gerd Weisgerber – haben es sich zur Aufgabe gemacht, insgesamt 61 Artikel, davon 59 in englischer und 2 in deutscher Sprache, redaktionell zu betreuen und auf 574 Seiten (S. 17–591) zum Abdruck zu bringen. Abgerundet wird diese umfangreiche Veröffentlichung durch ein Inhaltsverzeichnis der Beiträge im Vorspann (S. 5–7) incl. des Abdruckes des zweitägigen Programms der Exkursion. Es finden sich zwei Grußworte an die Teilnehmer, ein Vorwort, das Tagungsprogramm und schließlich ein Gruppenfoto der mehr als 100 Teilnehmer aus 23 Ländern vor dem mit dem Logo der Tagung geschmückten Tagungsgebäude (S. 16). Im Nachspann (S. 593–608) finden sich fünf Farbtafeln zu verschiedenen Beiträgen, die Adressenliste der Teilnehmer sowie eine Liste aller bisherigen Veröffentlichungen aus dem Deutschen Bergbau-Museum in Bochum. Den meisten Steinzeit-Spezialisten ist dabei der 1980 erschienene Band 22 ein Begriff: „5000 Jahre Feuersteinbergbau. Die Suche nach dem Stahl der Steinzeit“ (bearbeitet von Gerd Weisgerber, Rainer Slotta und Jürgen Weiner), ein bis heute gern zitiertes Standardwerk. Dieses wurde aus Anlass dieses Treffens in Bochum in einer überarbeiteten und erweiterten Auflage (1999) als Band 77 der „Veröffentlichungen aus dem Deutschen-Bergbau-Museum Bochum“ erneut aufgelegt und ist somit wieder erhältlich.

Der hier zu besprechende Tagungsband widmet sich dem „VIII. International Flint Symposium“, welches vom 13.–17. September 1999 im Deutschen Bergbau-Museum in Bochum stattfand. Dabei waren die seit 1886 durchgeführten archäologischen Untersuchungen im Feuersteinrevier bei Rijckholt-St. Geertruid der eigentliche Anlass für die „Nederlandse Geologische Vereniging“, im Jahre 1969 eine Arbeitstagung zum Feuerstein – „Symposium over Vuursteen“ – in Maastricht durch-