BOOK REVIEW

ESTONIA: NATURE, MAN AND CULTURAL HERITAGE PACT 37, 1992

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A most interesting volume of the Journal PACT has recently been published and deserves the attention of Quaternary geologists. Even though »PACT» has now been in existence for 15 years, the term still needs some explanation. According to its official designation the PACT Group is concerned with »Physical, Chemical, Mathematical and Biological Techniques applied to Archaeology». It was created in 1975 within the framework of exercises on scientific cooperation of the Council of Europe.

The PACT group is divided into seventeen networks. In April 1991 the Palaeoecology network, supported by Stockholm University, arranged a scientific meeting in Tallinn. The host of the meeting was the Estonian Academy of Sciences. The proceedings of this meeting have now been published as PACT Vol.37.

The restored independence of the Baltic republics has made European research collaboration possible. PACT Vol. 37 is, essentially, a declaration of this activity. The importance of the Round Table in Tallinn can be seen in the introductary part of the volume where six leading people within the PACT Networks write about the importance of interdisciplinary research in the Baltic republics. These writers include the President of the PACT Networks, His Highness Hans Adam II, Prince of Lichtenstein and the Head of the Division for Scientific Cooperation, Council of Europe, Secretary General of the PACT Networks, Dr. Jean-Pierre Massué. The background to the meeting as a part of the PACT organization is also discussed by Prof. Tony Hackens, Vice-President of PACT, Doc. Urve Miller, coordinator of the network and by Prof. Inge Jonsson, Chancellor of Stockholm University.

An introduction is also given from the Estonian side by Prof. Valter Lang and Dr. Aarend Mihkel-Rouk with respect to the improvement of interdisciplinary research on cultural and environmental heritage in Estonia. The writers present a short review of the history of interdisciplinary research in Estonia, which expanded noticeably in the 1970's and 1980's when ecological problems in terms of groundwater, soil and air pollution increased considerably. They also welcome the PACT network, considering that assistance in research into the cultural and environmental heritage of the East Baltic is, in the long run, in the interest of the whole of Europe.

The scientific contributions are divided into three sections the first of which is: Geology, Archaeology and History. The section starts with

Prof Anto Raukas' paper on »Late- and Postglacial Geological Development and Human Impact in Estonia». Reviews of Estonian Prehistory (by Valter Lang), interdisciplinary research on environmental history and archaeology in Estonia (by Aarend Mihkel Rouk), and a glimpse at research into historic towns in Estonia (by Kaur Alttoa and Jaan Tamm) are also included.

Prof. Raukas shows how Estonian settlement throughout the Holocene, has been dependent on the geology with the Quaternary deposits and land uplift having been two of the most important factors. The increase in land area has been due not only to shore displacement but also to the way in which the lakes have developed. In the Early Holocene lakes numbered 5000 but only one third exist at present. Human impact on the landscape started with primitive agriculture in the Late Stone Age and proceeded by damming rivers, for example, in Early Medieval Times and by draining lake shores and swamps by means of ditches the 14th- 15th centuries. During the past decade extensive land improvement has taken place by regulating lake levels and constructing reservoirs. Prof. Valter Lang also presents his review of Estonian prehistory from the Mesolithic period to the Iron Age in the light of the geological components taking into the consideration the natural development of the landscape, as well as the limitations and advantages given by the environment to the settlement.

In his article on »Environmental history and archaeology» Dr. Aarend-Mihkel Rouk gives a historical review of the links between archaeology and the natural sciences in Estonia going back to the late 1800's. It is most interesting to note that interdisciplinary research, including palynological, palaeobothanical and osteological analyses was very active in the 1920's-30's, Lennart von Post himself being one of the first who reported pollen analytical results from the Kunda site in Estonia. These he presented as early as 1924. Not only were the cultural layers investigated but the relationship between the cultural layers and the surrounding landscape was elucidated.

There seems to be a gap in the cooperation between natural scientists and archaeologists from the 1930's to the 1960's. Since then not only the number of contacts but also the methods have improved, one of the main improvements being the foundation of radiocarbon dating laboratories in Tartu (1957) and Tallinn (1971).

The second section on »Environment — past and present», containing three papers, deserves special attention. The first paper in this section is by Dagfinn Moe, Kersti Kihno and Reet Pirrus on »Anthropogenic disturbance of Vegetation in Estonia through the Holocene». A detailed pollen diagram with six 14C-dates from Raigastvere is presented and anthropogenic signals from the Atlanticum to the Subatlanticum in nine lake deposits from continental Estonia are summarized and discussed. In analysing the human impact the intensity of anthropogenic influence is classified into three degrees and the date of the earliest cereal growth compared at the different sites. The earliest Cerealia find is from Ümarjärv, northeastern Estonia, at approx. 5500 BP while in most diagrams the first Cerealia phase is dated to between 2000—3000 BP.

The second paper in this section is by Leili Saarse and Lars-König Königsson on »Holocene environmental changes on the island of Saaremaa, Estonia». The results are based on six lake deposits and four mires and record both natural environmental changes and human impact on the vegetation. The material includes 41 radiocarbon dates which have been used for defining the forest history on Saaremaa but the examination of some calcareous rich deposits has been hampered by the »hardwater» effect. The first Ulmus decline, for instance, has been dated in Karujärv to 5200—5000 BP, in Pelisoo to about 5200 BP and at Järvesoo to approx. 5500 BP the hardwater effect being suspected of affecting the last mentioned result.

In summarizing the evidence of human impact in the diagrams, Saarse and Königsson outline the cultural development on Saaremaa from the Mesolithic. There is some weak biostratigraphi-

cal evidence of Mesolithic land-use at Pitkasoo, but apart from that settlement in Saaremaa dates back to the Early Neolithic. Cereal cultivation expanded, at least in the surroundings of the Kaali lake, during the first half of the Pre-Roman Iron Age. Different stages of cattle breeding and tillage are discussed.

J.-M. Punning focuses on the environmental problems in his paper »On the state of the natural environment in Estonia» . He refers to natural factors, such as the prevailing winds, the topography and the bedrock structure as a background to the understanding of the present-day ecological situation. He discusses the nature and amount of industrial pollutants transported to the atmosphere and into the ground water and shows that throughout most of Estonia the ground water is only weakly protected . A large number of the surface water bodies have been polluted through being used as reservoirs for industrial waste water. The situation in the country side where, in addition to the huge amount of industrial pollutants, large-scale farming continously causes high nitrogen pollution, is extremely severe. There are areas which have completely lost their natural features. J.-M. Punning calls for wide cooperation in the field of ecological and environmental activity.

The third section of PACT Vol. 37 comprises three interesting articles on regional archaeological studies in Estonia. Ülle Tamla presents »The hillfort of Varbola-Jaanilinn and the settlement at Jalase», situated 50 km south-south-west of Tallinn. In this area the continuity of the 2000 years old settlement is well known through the archaeological-ethnographical evidence which has been preserved.

Vello Lougas writes about »The Rebala agricultural protection zone near Tallinn», the oldest settlement of which dates back to the Middle Neolithic period. Among the abundant archaeological evidence e.g. cairns, stone settings and cup marks, the first fossil »Celtic field» in Estonia has been docu-ac-mented. Lougas looks forward to arranging some archaeometrical research, e.g. pollen analysis, in the Rebala protection zone.

Priit Ligi in her article on »The prehistory of Saaremaa» highlights the intensive human impact on the island from the Mesolithic period up to the Late Iron Ige. The importance of that particular area is reflected inthe fact that 15 % of the whole population of Estonia was settled on the island (comprising only 7 % of the total area of Estonia) at the beginning of the 13th century. Today Saaremaa is the most outstanding region with respect to the prehistory of Estonia.

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