

QUATERNARY ENTOMOLOGY DISPATCH

The Newsletter of Quaternary Entomological Research



Greetings from Boulder! Looking back, 1994 has been a very busy and productive year. Many of you have written or sent me e-mail messages, commenting on my book, *Quaternary Insects and Their Environments*. It has generally gotten good reviews, including several journals dealing with Quaternary research, *Journal of Biogeography*, *Nature*, and *Ecology*. Some readers have also found errors, both of commission and omission. I apologize for these mistakes. Although the manuscript for the book was reviewed by three well-qualified referees, some mistakes crept in. I can only make amends by promising to fix the mistakes from the first edition in a second edition of the book, assuming the first edition sells out. So, please let me know of any errors you find, and I will keep a list of things to add, delete, or modify in a second edition.

My books on ice age environments of National Parks in Alaska and the Rocky Mountain region will be coming out next March and September, respectively. I am currently writing a third book in this series, concerning ice age environments of National Parks in the American southwest. The principal aim of these books is to acquaint the general public with Quaternary research in and around the various National Parks in the three regions. I think we have an obligation, as scientists, to explain our research to "educated lay people." There are people out there who are interested in ancient landscapes, environmental change, and the role of primitive peoples in ancient ecosystems. However, if all of our research results are published solely in scientific journals and other "scholarly" publications, 99% of the public will never learn what we have discovered. The effort to explain our science to the world at large is being increasingly demanded by government

grant funding agencies, but even if it weren't high on their list of priorities, we are only shooting ourselves in the foot by keeping our discoveries buried in scientific journals crammed full of technical jargon, statistics, and data tables. This newsletter will arrive considerably after December, 1994. The reason for the delay is that I bought a color ink jet printer to print the newsletter, and it didn't arrive until mid-January. I apologize for the delay, but hope that the addition of color livens the newsletter up a bit! The printer I'm now using is an Epson Stylus Color Printer, printing at 360X360 dots per inch.

Subscription to *QED* will continue to be \$10 (US) for 1995. I enclose a subscription form with this edition of the newsletter. On it, you will find a place to put your Visa or Mastercard account number (circle one). If you prefer, you may pay by check, but only if the check is drawn on a bank in the United States. To contact me, please use the following information:

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I prefer e-mail to postal delivery mail (now sometimes called snail-mail) because it is so much quicker, and it is easier to respond quickly this way. For the technically minded....this issue of *QED* was produced using WordPerfect for Windows, version 6.1. The updated version allowed me, for the first time, to import graphic images from other Windows applications (i.e., CorelDraw and Corel PhotoPaint).

Quaternary deposits. He would also like to make a brief description of his method for QED and believes that it may be of interest to Quaternary entomologists. Dr. Zinovjev has been studying insect remains from Early Pleistocene deposits of the lower reaches of the Irtysh river (Tchembaktchino site). These deposits also contain mammoth remains. He plans to finish the study of Late Quaternary insects from the Jamal peninsula (there are some interesting sites dating back to Upper Pleistocene and Holocene). Beside that, he continues to study the modern insect faunas of western Siberia and the Ural Mountains, and has found some new species of ground beetles from the genera *Carabus* and *Pterostichus*. After finishing their descriptions he will inform QED readers in detail about these new species. Dr. Zinovjev sent the following English-language summary of his recent work with Dr. Erochin:

Quaternary Insect Fossils of the West Siberian Plain

The Quaternary insect faunas of West Siberia were studied by S.V. Kiselyov (1973, 1988; Kiseljov, Druk, and Krivolutsky, 1982) and some data from this region were mentioned by other authors (Krapivner, 1969; Nazarov, 1989). The data given here are the results of the investigations made by N. G. Erochin during 1985-1987 and E. V. Zinovjev during 1988-1994. The fossil insects were found in deposits dating to the Early, Middle, and Upper Pleistocene, and the Holocene. Fossil materials were obtained from over 60 sites, situated in the northern and central parts of western Siberia. The main difficulty of paleoentomological investigations in this region is our poor knowledge of its geology. As a consequence, many Early and Middle Pleistocene faunas have only very approximate dates, based on the stratigraphy of the deposits where the insect remains were found. In some cases, insect faunas were dated on the basis of the comparisons with the biological data (i.e., vertebrate fossil faunas) obtained from the same deposits. Three types of fossil insect faunas were found. The first type is similar to the

NEWS FROM RUSSIA

Evgenij Zinovjev, Institute of Ecology of Plants and Animals, Ekaterinaburg, sent the following report of his activities. Presently, he is working out a method of estimating the state of preservation of fossil insect remains. He would like to write an article about this method and its application in the dating of

insect communities of the north taiga forests or floodplain habitats within the taiga zone. The faunas of this type are very rare, and are found only in the Early Pleistocene deposits along the Irtysh river. One of these faunas was found in the Isker site (near the town of Tobolsk). The composition of this fauna was similar to northern taiga insect communities, including such beetles as *Chlaenius costulatus*, *Poecilus lepidum*, and *Pterostichus (Phonias) spp.* Another fauna found in the Tchembaktchino site (lower reaches of the Irtysh river) was strongly hygrophilous. It included the subarctic ground beetle, *Pelophila borealis*, the boreal ground beetle, *Amara interstitialis*, and the riparian ground beetle, *Elaphrus riparius*; tundra-dwelling species were not found in this assemblage.

Faunas of the second forest-tundra type were found in the Middle (Semejka site, on the lower reaches of the Irtysh river. These include the Kul'egan-2251 site in the Kul'egan river valley), and Upper Pleistocene deposits from the Agan-1082/2 site in the Agan river basin, plus a few localities in the Irtysh river basin. These faunas are characterized by the predominance of tundra species, including *Pterostichus cf. pinguedineus*, *P. costatus*, *Tachinus arcticus*, and others, along with forest-dwelling insects, such as the ground-beetles *Notiophilus fasciatus*, *Tachyta nana*, *Calathus micropterus*, and *Pterostichus oblongopunctatus*, the dung beetle *Aphodius fossor*, and the weevil, *Hylobius albosparsus*. Some hygrophilous beetles, including *Pterostichus minor*, *Epaphius rivularis*, and *Chlaenius costulatus*, presently inhabit riparian biotopes in the forest zone. Faunas associated with tundra habitats are most numerous; they were found in deposits from the Middle and Upper Pleistocene. The specific composition of most of these faunas was similar to modern insect communities of the western and central Siberian tundra zones. They are characterized by the following cryophilous species: *Pterostichus costatus*, *P. sublaevis*, *P. pinguedineus*, *P. ventricosus*, *Curtonotus alpinus*, *Tachinus arcticus*, and *Lepyrus nordenskjoldi*. The main peculiarity of this type of assemblage was the presence of xerophilous insects, species found today in the cold steppe, tundra-steppe landscapes

and mountain tundras of southeastern Siberia. These include the pill beetle, *Morychus viridis*, the ground beetles *Poecilus kiritschenkoi* and *Poecilus cf. major*, and the weevil *Stephanocleonus eruditus*. Some of the cryophilous beetles are absent today from the western Siberian tundra fauna, but live in the arctic and alpine tundra zones of central and eastern Siberia. These include the weevils *Rhynchaenus arcticus*, *Apion tschernovi*, and *Sitona ovipennis borealis*. Some riparian insects are also absent in the western Siberian plains, but inhabit hygrophilous biotopes within the tundra, forest-tundra, and northern taiga of eastern Siberia, including the ground beetle, *Bembidion yukonum*.

Another peculiarity of these faunas was the presence of a few thermophilous ground beetles, including *Pterostichus mannerheimi*, *Carabus sibiricus*, and *Synuchus nivalis*. These might inhabit the open, south-facing slopes of low hills; their habitats are characterized by a high degree of insolation. Paleoenvironmental interpretations of these faunas allows us to reconstruct severe conditions, similar to the modern tundra zone of eastern Siberia, characterized by very cold winters with little snow cover and strong winds, and temperate, dry summer environments. These conditions existed during the period of the end of Karginskoje Interglaciation (ca. 24,000-22,000 yr BP) and the subsequent Sartanskoje Glaciation (22,000-18,000 yr BP).

Since we do not have fossil insect data for all Pleistocene intervals, we cannot say anything about the character of alternation between the cryophilous and thermophilous faunas. The elements of clear alternation were observed only in assemblages from one locality, Kul'egan-2251, where the tundra, forest-tundra, and riparian insect communities were found. It is interesting to note that the Pleistocene rodent faunas of western Siberia were exclusively cryophilous, with a single steppe species (Smirnov, Bolshakov, and Borodin, 1986). During continued study of Quaternary fossil insects from western Siberia, we intend to tackle the following research problems: (1) More detailed research of the Early and Middle Pleistocene insect faunas is needed; (2) We

will search for and do further detailed investigations on thermophilous insect assemblages from this region; (3) We will study the history of changing distributions of thermophilous and cryophilous insects in this region during the Pleistocene.

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