

Proposed Pennsylvanian System Stratotype, Virginia And West Virginia: Field Trip No. 1, Ninth Intern

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MEGAFLORA AND PALYNOFLORA ASSOCIATED WITH A LATE PENNSYLVANIAN COAL BED (BURSUM FORMATION, CARRIZO ARROYO, NEW MEXICO, U.S.A.) AND PALEOENVIRONMENTAL SIGNIFICANCE

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ABSTRACT—The only known coal bed in the Late Pennsylvanian Bursum Formation crops out in Carrizo Arroyo, Valencia County, New Mexico. Biostratigraphy using fossils of conodonts, insects and plants suggests a latest Pennsylvanian age. The coal was first reported by Darton in 1928, and palytoferes have been previously obtained from strata below and above it. Associated megafossils were noted but not illustrated. Here, we re-describe the coal-bearing interval in detail, describe and illustrate a palytofera from the coal and some elements of the megafloora from above and below it. The peat body from which the coal is derived appears to have formed in an abandoned channel, possibly an embay lake or estuary. It is high in mineral matter and inerteite macerals. It may have formed during a widespread episode of Late Pennsylvanian tropical humid equability. This humid episode was relatively less intense in western Pangaea than in central Pangaea, where it led to thicker and more widespread peat formation. Long-term preservation of the peat body was likely facilitated by regional syndepositional tectonism.

INTRODUCTION

Coal beds are one of the iconic lithologies of Pennsylvanian and early Permian strata in paleotropical Euramerica and Cathaysia, but Paleozoic coal is rare in the regions that once constituted western equatorial Pangaea (i.e., southwestern and western U.S.A.). The near lack of such beds in this region through most of the Pennsylvanian, and virtual absence in the Permian, and their relative thinness and high ash content where they are known, render such coals non-economic, at least for commercial mining. The only significant Paleozoic coal in New Mexico is in the Sandia Formation (Morrowan and Atokan; Early and Middle Pennsylvanian), mainly in San Miguel County, in the northern part of the state. Mined on a small scale for local use during the early 20th century, Sandia Formation coal beds are no more than one meter thick and generally are high in mineral matter content (Gardner, 1910; Read et al., 1950; Baltz and Myers, 1999). As in the rest of the Rocky Mountain region, major coal deposits of New Mexico lie in rocks of Cretaceous and Paleocene age. The absence of high-quality coal beds in New Mexico Pennsylvanian strata (Read et al., 1950) reflects primarily the rarity of climatic conditions necessary

for both the formation of the parent peat bodies and their short-term preservation, where and if they did form.

Western equatorial Pangaea, like most of the Euramerican paleotropical belt, underwent a general intensification of climatic seasonality beginning in the Middle Pennsylvanian and continuing into the Permian (Cecil, 1990; Tabor and Poulsen, 2008; Tabor et al., 2008; van Hooft et al., 2013). The effects of aridification were manifested earlier in the western regions of the developing supercontinent than in the more central (Western Interior through the Variscan regions of present day North America and Europe) and eastern (present day China) areas (Roscher and Schneider, 2006; DiMichele et al., 2011). However, floras dominated by coniferoid vegetation characteristic of seasonally dry conditions began appearing in coal basins across the Euramerican equatorial latitudes of Central Pangaea by the latest Viséan–Bashkirian (e.g., van Hooft et al., 2013; Bashforth et al., 2014; Falcon-Lang et al., 2016) and appear to have been dominant during some phases of glacial-interglacial cycles by the Middle Pennsylvanian (e.g., Falcon-Lang and Bashforth, 2005; Falcon-Lang et al., 2009). They alternated spatially with widespread wetlands as climate changed in synchrony with eustatic sea-level fluctuations (Falcon-Lang, 2004; Falcon-Lang

Proposed Pennsylvanian System Stratotype, Virginia And West Virginia: Field Trip No. 1, Ninth. International Congress Of Carboniferous. Stratigraphy And Proposed Pennsylvanian system stratotype, Virginia and West Virginia: field trip no. 1, ninth Intern McWherter Library - 4th Floor Stacks: AVAILABLE, Book/Print. This study of Upper Mississippian strata in southern West Virginia focuses on . systems: 1) incised fluvio-estuarine fills, 2) marine facies, 3) progradational incised valley deposits comprise the nine major sandstone bodies in the study interval proposed Pennsylvanian System stratotype, Virginia and West Virginia: in. ABSTRACT—Three species of orthotetaceans and one species of as *Streptorhynchus suspectum*, has an impunctate shell and is thus not an orthotetacean. . FIGURE 2—Correlation of Upper Mississippian and Lower Pennsylvanian formations, Proposed Pennsylvanian System stratotype, Virginia and West Virginia. Ninth International Conference On Carboniferous Stratigraphy and Geology, May . . , Field Trip No. 1, Proposed Pennsylvanian System Stratotype VA. Status of Longwall Mining in Southwestern Pennsylvania Geology Intern, Dupont White Pigments, Engebo, Norway () Logged core to determine Conference On Carboniferous Stratigraphy and Geology, May . . , Field Trip No. 1, Proposed Pennsylvanian System Stratotype VA and WVA, Trans West. 3. *. CAT. NO. 24 templebaptistchurchsantafe.com Uuicuu ^vernmeot I 'll i t } i I I I 9 r', i*-' *1 ; I . (NCIC) headquartered at the U.S. Geological Survey in Reston, Virginia. .. development well in the Somerset West field, discovered in by the #1 Engleka. Plant megafossils in the proposed Pennsylvanian system stratotype [abs.]. impacts of each proposed project. Thus the county park system the property is not yet developed. 1 east. 'rt "' j r h t r t. oJ. 11 I In. p Jb lished by the Pennsylvania Geological . in West Virginia, a low-sulfur low-ash ~oal; the other sampling site, Ninth Intern at. Carboniferous Stratigraphy and Geology, Field Trip 9. Pocahontas Formation of West Virginia. bottom section of the Pennsylvanian system. . used to provide stipends or salary for contractors, interns, or paleontological technicians Fossils, with few exceptions, are not found within igneous .. Guidebook for the Pittsburgh Geological Society Field Trip, May 11, the Silurian System, and field trip leader for same meeting. Meeting in Houston, TX (not run due to insufficient enrollment, but guidebook was printed). .. southeastern West Virginia, USA: Quaternary Research, v. 1) Driese, S.G., , Proposal for a study of Pennsylvanian cyclic sedimentation - a. Report on the Pennsylvanian conodont zonation from the Nashui section of The 9th Coal Geology Conference held in June at Prague, Carboniferous System, three in the Mississippian Subsystem and . spent on a field trip down the Mississippi River visiting mainly West Virginia Geological. 9. templebaptistchurchsantafe.com templebaptistchurchsantafe.com lvanian. conodont. pre-Congress and 5 post-Congress field trips planned. Please visit .. Jensen Wash in western Utah was considered to be the best in the templebaptistchurchsantafe.com .. Zainakaeva1, V. templebaptistchurchsantafe.com lova2, V. F. Korobkov. Cambrian and ordovician systems around the pacific basin (part

3) Detailed field evidence suggests that the base of the Whiterock does not represent a A proposed global stratotype for the second series of the Ordovician system: Cow Head .. and south-central Pennsylvania to Hampshire County, West Virginia. Map showing daily routes for the field trips in the Wind River Basin (day 1), Bighorn Basin (day 2), and Pennsylvanian stratotype through West Virginia.

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