

Zdeněk Burian and the Golden Age of Palaeo-art

Part 3. Palaeo-landscapes

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1 Introduction

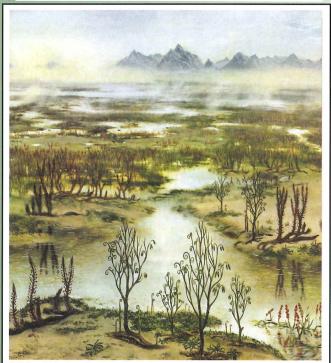
Although my first two articles on Zdenêk Burian (PT issues 116 and 117) were originally intended as a one-off review, publisher Mike Fredericks and I received a large number of responses to the articles, with some readers assuming that they were part of an ongoing series. Following a subsequent discussion with Mike, it was agreed that I would continue writing contributions on Burian, each concentrating on a different

Amongst the 386 oil paintings that Burian completed on palaeo themes, 35 were specifically dedicated to prehistoric landscapes. These are sometimes referred to in the Czech literature as the 'Geological Series'. Many of these images featured significant phyto-palaeontological detail and, as such, can be considered as a chronological sequence of the evolution of terrestrial plants. And although there were a number of palaeozoological paintings that included highly-defined phytopalaeontological components (e.g. Meganeura; 1942, Diplodocus; 1952, Ichthyostega; 1967), these were rarely to the level of detail evident in the Geological Series. The Geological Series also included at least seven images from periods that pre-dated the emergence of land plants, as these mainly depicted marine benthic reconstructions from the early Palaeozoic. Given that the benthic images will likely be considered in a later instalment of this series, the current article will concentrate on Burian's terrestrial landscapes that have phyto-palaeontological themes.

I previously stated that in many respects the 1940s -1960s was the Golden Age of Burian's palaeo-art, whereas Burian commentator Rostja Walica specifically regarded the 1960s as Burian's most notable period. The important series of 15 detailed palaeo-land-







ig. 2. Upper Silurian - Lower Devoniar This image from 1967 is an updated and enhanced version of the Lower Devonian landscape painted by Burian in 1952. It shows the most primitive types of vascular cryptogams (Psilophytales) with bulbous or creening rootstock and spore vessels at their tips, including leafless types (Rhynia and Hornea) and those with leaves (Psilophyton). Sprouting from the muddy swamp fringes are the genera Taeniocraga and Zosterophyllum. Although they were modest and simple in tructure, Augusta stressed the primary significance of these early types as having initiated the plants' invasion of the land

scapes that Burian completed in 1967 for the Geological Series falls within both time frames. Although perhaps not as well-known as his palaeozoological works, Burian's palaeo-landscapes are nonetheless worthy of analysis in their own right and thus form the subject of this short review. I thank fellow Burian enthusiasts Jan Kopecky and Paul McFarland for their assistance with this series of articles.

2 Burian's collaborators

The object of Burian's celebrated collaboration with Dr. Josef Augusta (1903-1968) of Charles University was to produce a scientifically-based pictorial inventory of the succession of life on Earth. Representative taxa would be chosen from all corners of the globe, including phyto-palaeontological and palaeoanthropological subjects in addition to those of palaeozoology. Following the end of WW II, Augusta began to invite other specialists from the Czech scientific establishment to act as advisors for Burian's art. On geological and palaeoanthropological matters, they included Dr. F. Prantl (an authority of the Barrandian geology of western Czechoslovakia), the anthropologists Drs J. Maly and V. Prokopec, and the archaeologist Dr. J. Filip. On phyto-palaeontological matters, Burian's principal advisor was the well-known Czech palaeo-botanist Prof. František Némejc (1901-1976).

Prof. Némejc was regarded as the founder of modern phyto-palaeontological research in Czechoslovakia. He was a member of the prestigious

> Czechoslovak Academy of Sciences (and a 1955 Laureate of their State Prize), the National Museum of Prague (1924-1952) and, from 1933, was Head of the Department of Phyto-palaeontology at the Institute of Botany at Charles University (the same year that Josef Augusta was appointed to that institute). Amongst Némejc's numerous scientific papers are studies on fossil flora of the Permian, Carboniferous, and Devonian periods, as well as Tertiary fossil angiosperms. His influence is particularly evident in the 15 palaeo-landscapes that Burian completed for the Geological Series in 1967.

3 Influences

As previously related (PT issue 116), the philosophy behind Burian's art was partly moulded by his early years spent in the eastern Czech town of Koprivnice, Moravia. One of his favourite childhood pastimes was exploring the rural countryside surrounding the Burian family home, especially the small local peak named Kotouc Hill which featured a cavern that had been inhabited by Neanderthals. Distant peaks resembling Kotouč hill can be found scattered throughout Burian's palaeo-themed works either as singular or multiple peaks (multiples being evident in the Geological Series while singular ones were more typical of his palaeozoological

Another major influence on his work came after he left the Prague Academy of Art (into which he had been accepted even before turning 14). Following his departure, Burian embraced a Bohemian lifestyle as an artist roaming the Czech countryside, sketching all that he encountered along the way. He trekked extensively along the Sázava and Berounka rivers and spent several months in Slovakia camping amongst nomadic gypsy communes along the Lpel River. Although this austere and formative period of his life

has only been briefly-documented, it played a significant part in honing his ability to depict natural history and human subjects in a remarkably faithful manner. To some extent, the same can be said with regard to the prehistoric vistas represented in his paintings. Aspects of the rural Czech and Slovak countrysides across which he tramped would eventually find their way into the palaeo-landscapes that he painted decades later (indeed a number of such images would specifically represent scenes from Czech regions, as would some of his marine benthic paintings that were based on Central Bohemian Silurian fossil deposits).

From the outset, Burian was aware that the most convincing examples of palaeo-art were those that could not readily be identifiable as being reconstructions. In his landscapes, the viewer does not see an ency-

clopaedic-type representation of flora or associated landforms, as one might well expect to be produced by a formal palaeo-artist. For amongst the living trees and undergrowth can be seen split boughs and fallen, shattered trunks, while dead fronds and dried broken branches abound amidst the living greenery. Water, the sacred giver of life, plays a prominent role in many Burian images, and is depicted as cascading streams, runoff from low plateaus, or as serene, reflective pools and lakes. These are indeed images depicted by an artist who was not only acutely perceptive of the natural world around him, but also intimately familiar with its endless cycle of life, death, and regeneration.

Although Burian's palaeo-landscapes may sometimes appear mysterious and surreal to our eyes (and this is certainly true of some images featuring

primeval plant types), they are never divorced from credibility. If the images were enlarged to life-size, viewers would hardly hesitate to try and literally step into them. To a large extent, Josef Augusta's influence was the prime reason that made this possible. Throughout their 30-year collaboration, to his credit Augusta never restricted Burian's artistic licence and nor did he ever impose formal composition restrictions upon any of Burian's artwork (as was frequently the case with subsequent collaborators). As Walica noted in his series of articles on Burian (which were largely dedicated to his dinosaur reconstructions as opposed to his palaeo-landscapes or phyto-palaeontological images), Augusta no doubt peered over Burian's shoulder as his colleague (and friend) painted, offering scientific advice and knowledge as he did so, but without ever hindering the freestyle technique that Burian employed until around 1970 (two years after Augusta's death).

4 The Geological Series

The Geological Series was compiled between 1952 and 1975, with 24 of the images being completed during the Augustanian era and 11 during the term of Augusta's successor, Dr. Zdenek Špinar (1916-1995). Unlike Burian's early palaeo-





Fig. 3. Middle Devonian
The top image (1967) showing a mid-Devonian lake is an
enhanced and more detailed version of Burian's original
Devonian landscape (1952), shown at left. By this stage, the
Psilophytales had retreated markedly although some leafless,
tree-like types persisted, including Pseudosporchnus. Newer
types of mid-Devonian flora included horse-tails (Hyenia,
Calamophyton), club mosses, the tall and slender
Protolepidendron (now classified as a lycophyte), the stumpy
three-branched lycopod Barrandeina, and various ferns
(particularly Protopteridium). By the Upper Devonian, the
first true primeval forests had become established.

Burian's use of water cascading over elevated landforms was a theme he used elsewhere in the Geological Series (Fig. 8) as well as several palaeozoological reconstructions. zoological images where he experimented widely with his special gouache technique of monochrome painting (the details of which he never revealed), as far as I am aware almost all the Geological Series images were rendered in colour (but see the 1952 sepia Carboniferous scene; Fig. 5).

In 1952 Burian began the series by painting five geological landscapes representing the Devonian (twice), and one each of the Carboniferous, the Permian/Carboniferous, and the Druhohorni (= generic Mesozoic). The Carboniferous was subsequently painted seven more times (once in 1957 and six times in 1967). The Archeozoic was dramatically depicted twice for the Geological Series (both in 1971), and once for the Vagner series (1977). The Precambrian was depicted twice (both in 1970), the Cambrian ocean twice (1970, 1971; and in this regard there was also Burian's well-known

Cambrian ocean benthic image from 1951), the Ordovician ocean twice (both from 1970), and the Silurian ocean once (1970; he also painted a Silurian ocean scene in 1942). The terrestrial reconstructions included another of the Devonian (1967), two of the Permian (1967, 1970), one of the Triassic (1967), two of the Jurassic (both from 1960), one of the Weald (= Upper Jurassic/Lower Cretaceous; 1967), two generic images of the Mesozoic (both from 1967), one named *Ptaci ostrov ze svrchni kridy* (= Bird island of the late Cretaceous; 1960), two of the Miocene (both from 1967), and one named *Vychodoafricka krajina na zacatku* (= Early East African landscape, with fauna; 1975).

5 Publication

Some of Burian's palaeo-art was featured in Augusta's landmark 1942

textbook Divy Prasveta, which was an authoritative tome that dealt with both palaeozoological and phytopalaeontological content within its 759 pages (in this regard I must especially thank Jan Kopecky for sourcing a copy of this magnificent work for me). Although two of Burian's marine benthic scenes were included in this publication (one of which -1942 Silurian ocean - was used as the frontispiece), he had not yet begun his Geological Series and thus the first such terrestrial images did not appear in print until publication of the popular title Prehistoric Animals in 1956. Given its content, this book may very well have been titled Prehistoric Animals and Plants (which was indeed a title later adopted for a 1979 pocket edition illustrated by Burian, with accompanying text by Josef Beneš).

Prehistoric Animals was a largeformat and very pictorial work, and Burian's images of primeval life perfectly match the mystique and lucidity with which Augusta's text takes the reader on a journey back through the geological ages. Augusta begins his narrative with Journey into the

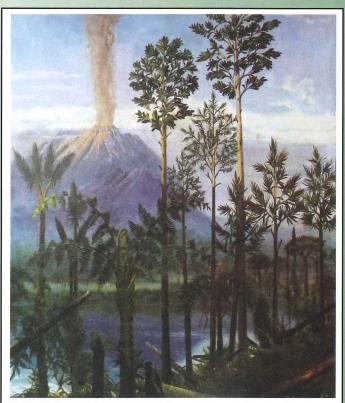


Fig. 4. Carboniferous plants
To the right (far background) of this 1967 image can be seen a giant club moss *Lepidodendron* while
at left is *Sigillaria* (with long, thin leaves). The two tallest trees (centre) are cordaitaleans, and the
fan-like *Psaronius* (foreground, left) was a typical representative fern.

Depths of Primeval Time when the planet was a molten mass offering no opportunity for life to develop. The Archeozoic Era commenced with the waterless (anhydric) period followed by a cooler period when water condensed, vapour eventually leading to shallow first primeval seas having collected in the Earth's crustal depressions. The Earth's violent volcanic activity ejected hot gases, boiling water and immense lava flows from the planet's lunarlike surface to form the first elevated landforms which were, in turn,







Fig. 5. Carboniferous landscapes

Three Carboniferous scenes, as painted for the Geological Series, are amongst Burian's most intricate and exacting phyto-paleontological reconstructions. The top left image (1957) is very similar in compilation to his original sepia image from 1952 (above). During the Carboniferous Hercynian crustal folding produced extensive intermontane basins overgrown with dense forests that would eventually produce the world's vast coal-fields. Typical Carboniferous trees included towering club mosses, calamite horse-tails, cordaitaleans, and tree-ferns, all growing profusely and densely side by side, and leaving their dead trunks, fronds and stems piled randomly one upon the other.

Burian's very lucid depiction of a Carboniferous tempest (lower left, 1967) is unconventional, both for its era and currently. This and other similarly-dramatic palaeo scenes were likely influenced by the formative period that Burian spent as a struggling young artist trekking over the rural Czech and Slovak countrysides by day and camping along its riverbanks in the evenings.

winds, rose darkly over the endless plains. After heavy storms, the shores of the then seas were bordered by narrow strips of thrown-up algae, among which glittered the coloured shells of gastropods, lamellibranchs, cephalopods, and where the articulated bodies of trilobites lay without motion. But even these strips disappeared in time, and the desolation of the landscape reappeared in all its terrifying monotony."

He continues with no less passion...

"They [the plants] disregarded the dead

with which they strewed their pioneer road, they disregarded obstacles and setbacks, and obstinately hurried forward, changing and adapting themselves until finally....they were victorious."

This new environment offered plants greater habitat variety and also stimulated their evolution as it promoted epidermal changes to cope with the exchange of oxygen and carbon dioxide, and necessitated the development of strengthening tissue (including lignin) to enable them to stand unaided by the support of water. Thus did the conquest of land by vascular plants occur

at some stage during the Silurian (Fig. 2), with the oldest known types having been the vascular cryptogams (Psilophytales), some of which were leafless (e.g. *Rhynia*) while others possessed basic leafs (*Psilophyton*). And although the Psilophytes themselves died out by the end of the Devonian, they had given rise to the lycopods, horse-tails, and ferns, all three of which were typical representatives of the mid- to Upper Devonian land-scapes (Fig. 3).

With In the Primeval Carboniferous Forests, Augusta continues his narration with the great Hercynian folding episodes that further stimulated plant evolution. The uplifting of massive mountains was followed by rapid erosion and deposition of material by floods and rivers into vast basins at the foot of mountain ranges. In such places the well-watered environment combined with the hot, moist climate and high carbon dioxide levels from active volcanoes gave rise to the Earth's first primeval forests (Figs 4, 5). Characteristic of such forests were the great lycopods that stood 13-27

metres tall, with crowns either richly-branched or having terminated in shafts of long, narrow leaves. Along the shallow waters edge grew horse-tails and calamites, the latter rivalling the lycopods in height. Mosses, ferns, cryptogams and lianas added variety to the landscape vegetation. The Earth's first gymnosperms (= naked-seeds) which had appeared in the Upper Devonian (and evolved from the cryptogams), were also to be found

seas. Such sediments might themselves have later been uplifted above the water by orogenetic forces to repeat the entire process.

6 The evolution of plants

In The Primeval Evolution of the Plants Augusta invokes stark imagery to convey the bleak conditions that had preceded terrestrial plant life..."for endless distances yellow sands and jagged rocks lined the shores of the first ocean and extended far inland. But sand and rocks were alike desert, bar-

eroded by the elements to produce the first sediments deposited into the

ren of the smallest and simplest forms of life...And thus there brooded over this empty wilderness a deep, heavy silence interrupted only by the thunder of tempestuous storms, by the shrieking of gales, or by a boulder detaching itself from some rock and cannonading down the steep mountainside or falling with a mighty splash into the ocean."

He next discusses the first unicellular algae that developed from Flagellata towards the end of the Archeozoic, defining them as a great leap forward in having had an improved energy intake and sexual reproduction, thus initiating the evolutionary process. They have left extensive surviving ash deposits (up to 2m thick) in Finland and Russia, while other deposits proved the existence of vast algal beds that thrived in the Silurian seas, which he likens to the seaweed forests of today's Sargasso Sea.

In The Plants Conquer the Dry Land Augusta relates the next great leap forward for life. This was the result of Caledonian upheavals and folding of the landmass that forced algae to survive in freshwater lakes and swamps, thus having paved the way as a prerequisite for the

eventual succession of terrestrial vertebrates. He relates how the early plants had attempted countless times to invade dry land before they finally conquered the new habitat, and, in emotive terms, he describes the harsh environment that they encountered...

"This was astonishing, because the dry land was at that time still desert, entirely without life. Only the naked rocks, whipped by downpours and



Fig. 6. Triassic

Burian's reconstruction of the Triassic flora (1952) as reproduced in *Prehistoric Animals* (1956). The Triassic Period signalled the advent of the Mesozoic Era and the flora was markedly different from the preceding Permian (which was not depicted in *Prehistoric Animals* other than as background in the 1941 *Moschops* reconstruction, but did feature twice in *Life before Man*; 1972). The vast jungles of cryptogam plants, many of which had attained heights greater than most trees, gave way to the gymnosperms, with genera such as *Ullmannia*, *Bai*era, and *Voltzia* being abundant. The gymnosperms also included the cycadophytes with short, barrel-shaped trunks covered with large flowers, and tall, slender forms with rich crowns of long palm-like leaves. Representative conifers also evolved and included the Gingkoales, taxodiums, pine- and cypress-like species, and the first of the giant sequoias. Ferns still grew in the shade and at the waters' edge, and although the horse-tails survived in pools and lakes, they were far less common than previously.

in this Carboniferous world. Another type of Carboniferous gymnosperm (Cordaites) reached to almost 40 metres in height, but later died out in the Permian. The most advanced plants of the era were the Walchia conifers, although these preferred drier upland areas. Augusta goes on to describe how humanity's industrial activity of last century was made possible by the highly-compressed remains of the great Carboniferous forests which gave rise to the world's black coal seams.

In The Gymnosperms Conquer the World, he relates the floral changes that took place in the Upper Permian, when the coalforming swamps of Carboniferous were replaced by an abundance of gymnosperms. The 'naked seed' method of reproduc-

tion separated gymnosperms from earlier plant types that had depended on spores for reproduction (and had required water to enable fertilisation). Unlike the unicellular spores, seeds were multicellular and could store nutrients for the development of the germ, which was also protected by the seed case. Thus the gymnosperms were able to conquer drier areas and extent their distribution further than had been the case with spore-producing plants. This was particularly important towards the end of the Carboniferous when the climate began to dry markedly and arid regions became increasingly widespread.

The age of algae, psilophytes and vascular cryptogams was described by

Augusta as the Antiquity of Flora or the Paleophytic Age of Plants. Then the victory of the gymnosperms to adapt to drier climates marked the beginning of the so-called Mesophytic or Middle Age of Plants (Figs 6, 7) which was to last right up to the Upper Cretaceous after which it was replaced by the Modern Age of Plants (Cenophytic or Neophytic) with the evolution of the angiosperms (Fig. 8).

In The Victory of the Angiosperms, Augusta notes that the two angiosperm types (Monocotyledonae and Dicotyledonae) appear at the same time in the fossil record in the Upper Cretaceous. In geological terms, the transition from gymnosperms to angiosperms was relatively sudden (several hundred thousand years). Whether this change was driven by further orogenetic folding and/or climatic change towards the end of the Mesozoic was unknown. Angiosperms are markedly distinguished from the gymnosperms by having seeds

encased in fruit and their pistils and stamens shielded by bright petals and green sepals. Magnolias, tulip trees and other similar types were the oldest known types. The angiosperms also adapted themselves to an aquatic existence, which further distinguishes them from gymnosperms (which have no such examples). Augusta associated the angiosperm explosion with the evolutionary rise of the birds and mammals, both of which assisted in the effective dispersal of angiosperm seeds. Even the Polar regions had a moist and warm climate supporting a sub-tropical plant life. By the Neogene, climat-







of Burian's depictions of the Jurassic period completes Three of Burian's depictions of the lurassic period completer in 1967. The upper left image shows the typical tropical of the time. The palm-like Williamsonia was a common bennetitalean-type gymnosperm. Confers and ginkgoes were also widespread, the latter being an unusual non-flowering type that first appeared in the Permian. It is represented by a sole survivings poecies often described as a "living fossil" (the leaves are shown at the left of the image).

The extensive gymnosperm forests of the Jurassic (upper rine accessive gymnosperin lores on the Jurassic (upper, right) included ancestors of the sequoia (a redwood, of whic there is only one surviving species that includes the world's largest trees), and giant conifers with luxuriant crowns.

Jurassic landscapes (left) were generally wetter and warmer rousasic anoscape's (letr) were generally wetter and warmer than the preceding Triassic, and cycadophytes (foreground) featured prominently amongst the prolific vegetation. In addition to a flourishing of reptilian life at this time, the first frogs evolved in the Jurassic's numerous lakes and swamps.

southwards, whilst trees such as oaks, elms, sumacs, nut-trees and chestnuts became common in Europe. In Vegetation and the Ice Age, Augusta describes the Pleistocene lowering of temperatures, the advance of the glaciers and consequent scouring and erosion of landforms. The resultant

ic changes had caused palms and

other thermophilic types to retreat

European ice sheet covered 6 million sq. kms, whilst that of North America covered no fewer than 10 million sq. kms. The Ice Age was of course not continuous, and sequential advances and retreats of the ice were complemented by the inter-glacial periods, some of which were marked by even warmer temperatures than those of today. At the onset of an Ice

Age, thermophilic plants retreated south or descended from the mountains into the valleys and foothills, but as the ice eventually retreated, they would again move north. In the periglacial regions (a belt which lay in front of the northern Ice Sheet), there were three recognized vegetation zones; tundra, steppe and taiga, the last of which was characterised by vast belts of coniferous and deciduous forests (Fig. 9). With the final retreat of the ice, the tundra disappeared from Europe, and the steppes were rapidly overgrown with thickets and woods of the type of vegetation that it largely retains today.

Having thus provided the background of the plants' conquest of the land and the evolution of terrestrial plants through the ages, Augusta only then

> proceeds with the faunal section of the text, beginning with the earliest invertebrates of the primeval oceans, followed by the first marine fishes and the first terrestrial vertebrates, whose invasion of the land was only made possible by the preceding conquest of that habitat by plants. This is succeeded by the 60 plates of Burian paintings.

> In addition to the oceanic benthic scenes, just six palaeo-landscapes were featured in Prehistoric Animals. They included the Lower Devonian (1952). the Middle Devonian (1952), the Carboniferous (in sepia, 1952; there was also another detailed image from 1942 showing the Upper Carboniferous landscape as the environment of the giant dragonfly Meganeura), the Triassic (1952), and a swamp scene showing the brown coal forests of the Tertiary (a coniferous tree-landscape inhabited by archaic tapirs of the Palaeotapirus; for some reason this image was later re-painted by Burian, minus tapirs, in 1967). The final land-





Fig. 8. Miocene Amongst the Tertiary landscapes that Burian painted were several from the Miocene Period. The two images shown here are both from the Geological Series. The upper one, from the Augustanian era (1967), portrays Central Europe in the early Miocene and shows birch trees

The image at left (1976) dates from the sub-sequent Spinar era and shows a Czech Miocene lake with several types of fossil vertebrates known from this part of Europe. It has a not dissimilar them to one of Burian's earlier paintings from the Augustanian era (1954) of a Miocene forest glade that included several Gomphotherium, two species of ancestral deer and flamineas.

scape in the book was that of the Central European Miocene (1954) which included the fauna Gomphotherium (= Trilophodon), the first cervidae (deer) that lacked antlers (Palaeomeryx), and the first to possess them (Dicrocerus).

The first edition of Life before Man (1972) featured 21 of Burian's palaeo-landscapes (13% of the total of 162 paintings) including the Geological Series examples dating from 1967. It only re-printed one of the

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Continuing from Pg. 31

landscapes that had appeared in Prehistoric Animals (the 1954 Miocene painting) and included updated versions of two others; the Lower Devonian (1952) was re-painted in greater clarity and detail in 1967 as the Upper Silurian, while the original Middle Devonian image (1952) was also re-painted (in 1967) with somewhat greater phytopalaeontological variety and definition (Fig. 3). The revised version of Life before Man (1995) re-printed the same 21 landscapes as had featured in the 1972 edition, although some of them were cropped and, as with most other images

from this edition, the print quality control was uncharacteristically very poor.

7 Conclusion Burian produced a unique collection of palaeo-themed paintings that not only featured the succession of fauna and flora from Cambrian times to the present day, but also included evocative panoramas of the environments in which they evolved. The majority of these images were part of the Geological Series completed between 1952 and 1975, 15 of which were completed in 1967. The Bohemian period of Burian's early life spent as a young struggling artist roaming the countryside instilled in him the ability to render prehistoric vistas as convincingly as if he had observed them from life. Although his phyto-palaeontological images have historically remained somewhat in the shadow of his more widely-appreciated palaeozoological and palaeoanthropological works, as is also the case with both of those disciplines, his depictions of prehistoric flora have withstood



The taiga was one of three vegetation belts associated with the Ice Ages during the Quaternary Period (the other two being the tundra and the steppe). It extended some 320 km from the edge of the great northern Ice Sheet. This 1967 image by Burian invokes the vastness and monotony of the Quaternary taiga forests, which were mainly composed of conifers and deciduous species.

the test of time. A perusal of the Internet reveals a selection of academic websites featuring images from his Geological Series as standard reference examples of fossil plant life and/or landscapes. Burian's philosophy of applying the general principles of natural history illustration to palaeo-themed subjects proved highly successful under the supervision of Josef Augusta, and his acute perception of the natural world is particularly evident in his work from this era. Although the palaeozoological imagery that he produced with subsequent collaborators was more stylised and to some extent less credible

REHISTORIC SCENES

than his art from Augustanian times, such differences were less applicable to his palaeo-landscapes.

Select bibliography

Augusta, J. and Z. Burian (1956). Prehistoric Animals (104 p). London: Spring Books. Beneš, J. and Z. Burian (1979). Prehistoric Animals and Plants (65 p). London: Hamlyn. Lavas, J. (2016). Zdeněk Burian and the Golden Age of Palaeo-art. Part 1. Prehistoric Times, 116 (9-13, 42-43).

(2016). Zdeněk Burian and the Golden Age of Palaeo-art. Part 2. Prehistoric Times, 117 (9-13, 36-38, 55).

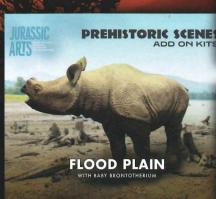
Špinar, Z. and Z. Burian (1972). Life before Man (228 p). London: Thames & Hudson Ltd. (1995). Life before Man (revised edition; 256 p). London: Thames & Hudson Ltd.

Walica, R. (2003). Dinosauria Buriannica: the Burianian phenomenon – searching for a context (four parts). Prehistoric Times, 58 (28-31); 59 (48-51); 60 (56-59); 61 (48-51).

http://www.zdenekburian.com/ Website by Zdeněk Burian's grandson Jiří Hochman, the legal copyright owner of Burian's art (Email: j.hochman@volny.cz).



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