

I. Cretaceous. - Reptiles & some whales, but no quadrupeds. - Plants see last number of Journal & preceding articles by Hayden -

II Tertiary

1. Claiborne Epoch or older Eocene. Various molluscan fossils, sharks, etc., but no known quadrupeds.

2. Vicksburg Epoch or Newer Eocene of Lyell (^{corresponds to} what is called Lower Miocene on the Continent of Europe) - The Nebraska quadrupeds of the Mauvoises Series, probably here. No fossil marine shells occur with the bones, and hence the doubt. The species according to Leidy are, of ^{the genera of Multungulales} Titanotherium (related to Cuvier's Palaotherium of the early Eocene), ~~two~~ Rhinoceros (2 species); ~~Ruminants~~ Choeropotamus, Entelodon, Palaechoerus, Leptochœrus; Ruminants, Oreodon, Agriochœrus, Pachbrotherium, Leptomeryx, Leptauchenia, Protomeryx, Merychochœrus; Solidungulates or of the Horse family, Anchitherium (3 species); Carnivores, Hyaenodon, Amphicyon, Deinictis, & Machærodons; also some Rodents.

3. Yokton Epoch or Miocene of Geologists. - Some or all of the preceding species may have extended into this epoch.

4. Pliocene - About the upper Missouri & Platte especially in the region of the Nebraska, occurs a fauna later ~~of~~ than the above & wholly distinct. It includes, among Ruminants, 3 species of Camel (Procamelus), 3 of Merychus, 1 of Cervus, 1 of Rhinoceros, 1 of Mastodon, 1 of Elephas, 6 of Solidungulates among which 2 were of the modern genus Equus; 1 of Carnivores, 1 of Uelis, 4 of Canis, 1 of Ailuroidon, & 1 of Leptaenus. They are all different from

Those of the ²post-tertiary.

II Post-tertiary.

1. Glacial Epoch - an epoch of Cold over the northern latitudes - the era of the drift (the lower or mostly unstratified drift). No bones are found in the drift.

2. Pluvial Epoch. An epoch of milder temperature - when the ~~sea stood 500 feet above~~ ^{region of St. Lawrence and} Lake Champlain were submerged, and the sea ^{consequently reached} ~~stood~~ ^{was} 500 feet above its present level; and when the northern portions of our Country generally as shown by the immense upper alluvial plains 50 to 300 feet ^(+ the rivers much larger) above the present bed of the rivers, was at a lower level than now - This was the epoch of the Melaphas americanus & E. primigenius, the former from Canada & New England south, the latter (the Siberian species) from Canada north. In Europe, ^{Asia} the E. primigenius ranged from the parallel of 40° N to the Arctic coast of Siberia. Also the era of the Megalonyx, & Myiodon, of the Bison latifrons, ^{other allied species} Cervus americanus (larger ^{as} than the Irish Elk of the same epoch) - a horse much like the modern horse but larger, Dicotyles (near the Mexican species) north and south of the Ohio, Megatherium (in the Southern States) - the Castorides a giganteus &c.

3. Terrene Epoch - an epoch of transition toward the present condition, bringing the Continent up to its present level, and down to its present cool temperature. Some of the above species may have continued into it.

In Europe - during the Post-tertiary
 then ^{species of} Elephants, Mastodon, Hippopotamus,
 Rhinoceros, Tiger, Lion, Hyenas, Bear,
 Stag, horse - mostly ^{very} much larger than any
 existing species - in England. - The Rhinoceros
 (R. tichorinus) ranged as far north as the
 Elephant, that is to the arctic shores of Siberia
 when ^{an} undecomposed animal has been found
 of each in the ice near the mouth of the Lena.

In the Abhandlungen K. K. Geol.
 Reichsanstalt, Band II, 4to, you will find an
 article on the Eocene flora of the Tyrol & the
 Climate ^(temperature) of the Period; and another on the Miocene
 flora of Wien and the Climate. If you have
 not the volume I can send it to you. There
 ought to be an abstract in the Journal.

Dear Mary - I have written off
 something here - if not sufficient you
 must tell me. I believe our Continent has
 always been a considerably colder one than
 the European, perhaps with a greater difference
 formerly than now. But still there is no
 doubt of the greater warmth ^{than the present} in the post-tertiary
 after the Glacial Epoch, and still greater in the
 Tertiary epochs. - Ever yours
 James D. Dana



Dana, James Dwight. 1836. "Dana, James Dwight undated [notes]." *James Dwight Dana letters*

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