

horizons. The lowest of these yields pyritous ammonites, especially *Amm.* (*Holcostephanus*) *versicolor*, *A.* (*Holcost.*) *inversus*, also *Belemnites pseudopanderianus*, *Astarte porrecta*. The middle zone contains septaria inclosing *Amm.* (*Holcost.*) *Decheni*, *umbonatus*, *progredicus*, *fasciatofalcatus*, *discofalcatus*, *Barboti*, *Inoceramus aucella*, *Rhynchonella obliterated*. The highest zone is almost unfossiliferous near Simbirsk, but its lower layers yield *Pecten crassitesta*. Deposits of the same type as the Anglo-French Aptian are well developed in the governments of Simbirsk and Saratov, and are characterized by *Amm.* (*Hoplites*) *Deshayesi* and *A.* (*Amaltheus*) *bicurvatus*. The Albian or Gault, which is found in the government of Moscow, and may eventually be traced over a wide area, has yielded a number of ammonites, especially of the genus *Hoplites* (*H. dentatus*, *talitzianus*, *Bennettia*, *Engersi*, *Tethydis*, *jachromensis*, *Dutemplei*, *Haploceras Beudanti*). This stage is well developed in the Caucasus, Transcaucasia, and the trans-Caspian region. In the chief Russian Cretaceous area the Cenomanian stage begins with dark clay closely related to the underlying Jurassic series, from the denudation and rearrangement of which it may have been derived. The clay shades upward into sandy, glauconitic, and phosphatic deposits, which gradually assume the condition of chalky marls. These Cenomanian strata appear to have a wide extent at the base of the Upper Cretaceous formations of central Russia. They contain numerous remains of fishes (*Ptychodus*, *Lamna*, *Odontaspis*, *Otodus*) with bones of ichthyosaurs and plesiosaurs. Ammonites are rare, but *Amm.* (*Schlönbachia*) *varians* occurs, also *Belemnitella plena*, *Exogyra haliotidea*, *E. conica*, *Ostrea hippopodium*, *Janira* (*Vola*) *quinquecostata*, *Pecten laminosus*, *Rhynchonella nuciformis*, etc. Turonian strata have likewise been found over a wide tract in central Russia. The lower bands with *Inoceramus* (*I. russiensis*, *labiatus*, *Brongniarti*, *lobatus* aff.) abundant, *Belemnitella* and *Ostrea vesicularis* are of constant occurrence in the Cretaceous region of central Russia. In that area, however, the Senonian and higher Cretaceous stages are not well developed, though they assume greater importance in the southern part of the Empire.<sup>177</sup>

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<sup>177</sup> Nitkin, "Les Vestiges de la période Crétacée dans la Russie centrale," Mem. Com. Geol. Russe, v. No. 2, 1888, p. 165.