



Cenozoic vertebrates from the central Mediterranean Basin: A tribute to the palaeontological legacy of Giovanni Capellini (1833-1922)

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On the 28th of May 1922, Giovanni Capellini died at the age of 88 in Bologna, his adoptive city for more than sixty years. At that time, very few geoscientists had ever achieved a comparable scientific reputation, institutional recognition and international standing. Capellini's story had been one of endurance, ambition, and boundless achievements. Born in La Spezia on the 23rd of August 1833 in a family of modest economic conditions, Capellini was soon directed by his parents to an ecclesiastical career which he was not fit for, showing instead an unusual interest and outstanding capabilities in science. Having paid for his studies through occasional jobs in his teens, in 1855 Capellini was eventually able to access the classes of the Università di Pisa thanks to the support of several benefactors. Here, Capellini forged formative relationships with the renowned naturalists Paolo Savi and Giuseppe Meneghini, and in 1857 he led Charles Lyell on a field trip across the mountains around La Spezia and in Tuscany. After graduating in 1858, Capellini travelled throughout Europe, spending time to study in Paris, to be eventually nominated Professor of Geology at the Università di Bologna at the age of 27. Since 1860, Capellini's star shone in the international scientific arena for some five decades. In many ways, Capellini was indeed a forerunner of an international approach to science: he was the first Italian naturalist to visit North America for research purposes (1863), made pioneering studies on the petroleum geology in Eastern Europe (1864), envisioned the first session of the International Geological Congress (Paris, 1878) and organized the second session in Bologna (1881) acting as President (Fox, 1938; Vai, 2004), and contributed to the establishment of the Società Geologica Italiana (1881). Not least, Capellini led the Alma Mater Studiorum as Rector and shaped the Geological Museum that now bears his name as a global reference for palaeontologists. Fellow of dozens of scientific associations and academies, starting from 1890 Capellini flanked his scientific and academic activities with new institutional duties as an appointed member of the Italian Senate.

Capellini must be regarded as one of the greatest naturalists who lived between the 19th and 20th centuries (e.g., Rodolico, 1967). The numerous and diverse research activities (developed through a historical phase of strong cultural ferment), the often-innovative methodological approaches, an outstanding scientific production, the

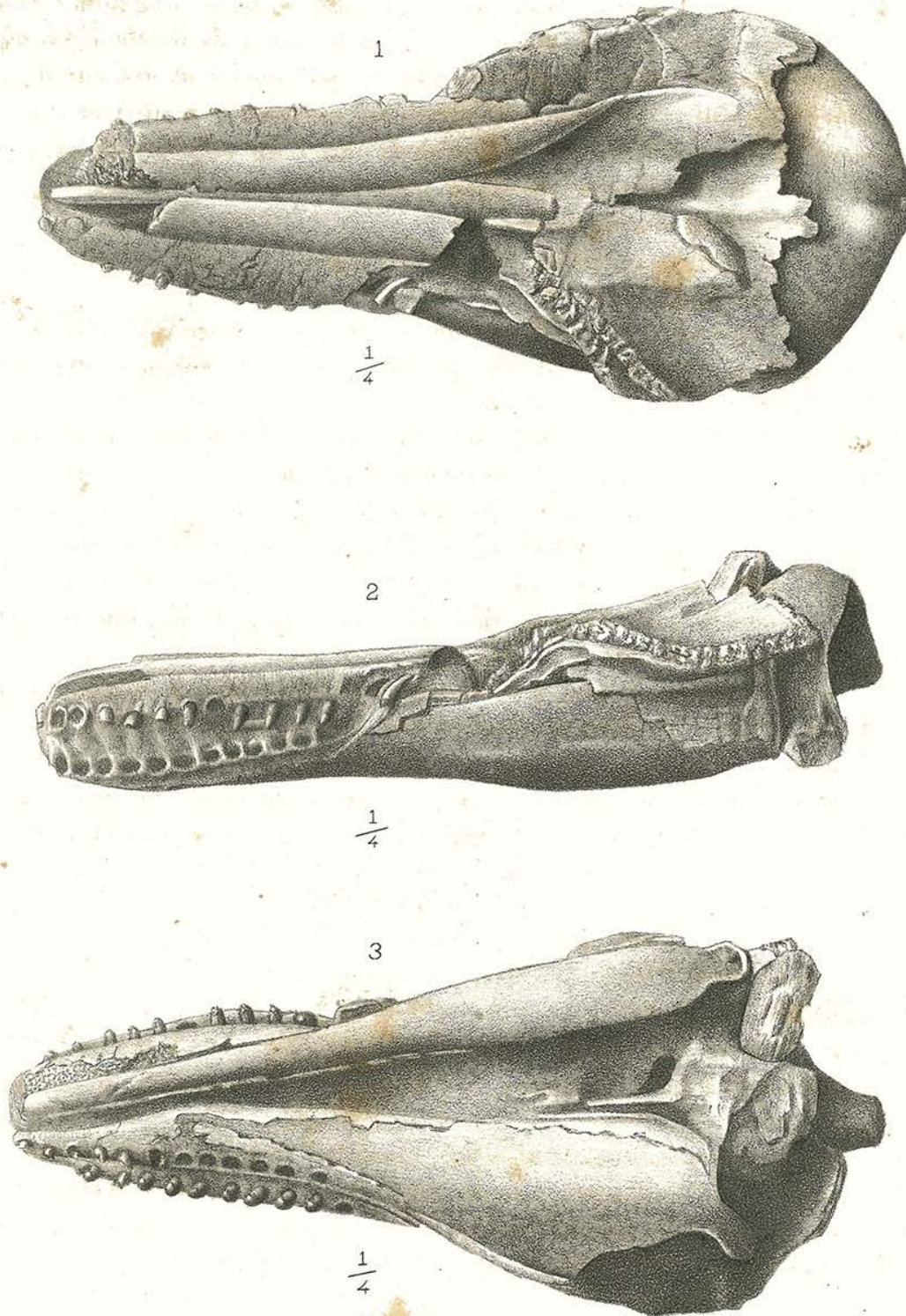
uncommon organizational skills, and the countless awards received by Capellini contributed to draw the outline of a modern and internationally renowned scientist. During his long and prolific research career, witnessed by more than two hundred papers, Capellini explored a variety of geological, palaeontological, palaeoethnological, palaeoanthropological and archaeological issues. Although Capellini's interests and outcomes were broad and very diverse, a prominent role in his scientific legacy is undoubtedly played by his many contributions to vertebrate palaeontology. In particular, the studies on the Italian fossil vertebrates represent the core of Capellini's scientific production. Thus, on the centenary of his death, the Società Paleontologica Italiana wants to honor the memory of Giovanni Capellini with a Thematic Issue devoted to the vertebrate faunas - both terrestrial and marine - of the central Mediterranean basin. This Issue comprises eight papers on Italian Cenozoic vertebrates, in many cases focused on specific topics that were formerly introduced and discussed by Capellini.

For example, the stratigraphy and macropalaeontological content of the Messinian diatomites and marls discussed in this Issue by Carnevale et al. (2022) and Pavia et al. (2022) were extensively explored by Capellini (e.g., 1874, 1878a, 1880), especially in the Fine Basin in Tuscany.

The palaeobiodiversity of crocodyles and other reptiles was also the subject of several detailed studies carried out by Capellini (e.g., 1890, 1897) in the latest part of the 19th century and are discussed herein by Seghetti et al. (2022).

Neogene and Quaternary marine and terrestrial mammals were likely Capellini's favourite fossils. In particular, considerable efforts were devoted to the study of cetaceans and sirenians discovered from numerous Italian localities (e.g., Capellini, 1865, 1872, 1878b, 1882, 1883, 1901, 1904, 1905; Fig. 1), as well as of continental assemblages from northern and central Italy (e.g., Capellini, 1859, 1879, 1881, 1888, 1889, 1894, 1907, 1911). In this Issue, new data about the dugongid sirenians and odontocete cetaceans of the Italian Neogene - including a reappraisal of the Mediterranean Pliocene killer whale *Orcinus citoniensis* (Capellini, 1883), the first record of a sirenian from the Late Miocene Montebamboli vertebrate assemblage, and the description of a new sperm whale genus and species from the Lower Miocene of

Capellini.—Delfino fossile di Mombercelli.



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Bologna. Lit. G. Wenk.

TURSIOPS. CORTESII. Desm. sp.

Fig. 1 - Plate from Capellini (1882) showing the skull and mandibles of *Hemisyntrachelus cortesii* (Fischer, 1829) from the Pliocene of Mombercelli (Asti Province, Piedmont, northern Italy), in dorsal (1), left lateral (2) and ventral (3) views.

the Pietra leccese - are presented by Citron et al. (2022), Pandolfi et al. (2022) and Peri et al. (2022), respectively, while Azzarà et al. (2022) describe a new Villafranchian mammal assemblage from the Valdichiana Basin and Bartolini-Lucenti et al. (2022) discuss the structure and composition of the mammal assemblage from Montopoli, one of the most important sites for the European land mammal biochronology of the Pliocene and Pleistocene, which was discovered by Capellini in 1854.

Overall, the contributions comprised in this Thematic Issue demonstrate that, one hundred years after Capellini's death, his scientific legacy continues to inspire the research efforts of Italian palaeontologists.

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