

PRELIMINARY REPORT ON THE AMERICAN  
CLARK FORK MAMMAL FAUNA, AND ITS CORRELATION  
WITH SIMILAR FAUNAS IN EUROPE AND ASIA

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## RÉSUMÉ

En se fondant sur des récoltes effectuées durant les deux derniers étés (1975, 1976), il apparaît que pour l'Amérique du Nord, le Clarkforkian constitue un étage mammalien valide et important. La comparaison de la faune de mammifères du Clarkforkian avec la succession de faunes de mammifères qui encadre la limite Paléocène-Eocène en Europe, conduit à la conclusion que cette faune est très proche de celle de Meudon du Sparnacien inférieur. Aussi le Clarkforkian est considéré comme l'étage mammalien de la base de l'Eocène inférieur en Amérique du Nord.

La répartition stratigraphique et géographique des Notoungulés, liées à l'histoire climatique de la période Paléocène-Eocène, font qu'il est probable que ces Notoungulés sont originaires d'Amérique Centrale ou d'Amérique du Sud. Ils ont atteint l'Amérique du Nord précocement dans le Clarkforkian, et ils ont atteint le continent asiatique doit durant le Clarkforkian soit le Wasatchian inférieur. L'âge des faunes de Mammifères de Mongolie de Gashato et de Naran Bulak doit donc être considéré comme Eocène inférieur plutôt que Paléocène supérieur.

## ABSTRACT

On the basis of collections made during the past two summers (1975, 1976), the Clarkforkian appears to be a valid and important land mammal age in North America. Comparing the Clarkforkian mammal fauna to the sequence of mammal faunas spanning the Paleocene-Eocene boundary in Europe, the Clarkforkian fauna is most similar to the basal Sparnacian fauna from Meudon. Thus the Clarkforkian is regarded as the earliest Eocene land mammal age in North America.

The stratigraphic and geographic distribution of notoungulates, together with the climatic history of the Paleocene and Eocene, makes it probable that notoungulates originated in Central or South America, reached North America early in the Clarkforkian, and reached Asia in the Clarkforkian or early Wasatchian. The age of the Mongolian Gashato and Naran Bulak mammal faunas is thus regarded as early Eocene rather than late Paleocene.

MOTS-CLÉS : ÉOCÈNE INF. (CLARKFORKIEN), FAUNE MAMMIFÈRE, FAUNE SPÉCIFIQUE, CORRÉLATION, WYOMING.

KEY WORDS : LOWER EOCENE (CLARKFORKIAN), MAMMALIAN FAUNA, SPECIFIC FAUNA, CORRELATION, WYOMING.

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## INTRODUCTION

The Clark Fork vertebrate fauna was first recognized and defined in the northern Bighorn Basin of Wyoming by W. J. Sinclair & W. Granger (1912) and W. Granger (1914). The Clark Fork fauna was originally thought to lack representatives of the modern mammalian orders Perissodactyla, Artiodactyla, Rodentia, and Primates, and to contain the archaic reptile *Champsosaurus*. On this basis, the Clarkforkian was considered to be Palaeocene rather than Eocene in age, although it was recognized that some typically Eocene genera were present. G. L. Jepsen (1930), G. G. Simpson (1937), and others added new taxa to the Clark Fork fauna, but more recently R. C. Wood (1967) has questioned whether or not a distinctive Clark Fork assemblage of mammals can be recognized at all. Because of this confusion in the published reports on the Clarkforkian mammal age, and because the Clarkforkian appeared potentially to document the evolutionary transition from

archaic Paleocene to more modern Eocene faunas, we recently began an intensive new program of detailed stratigraphic study and fossil collecting in the Sand Coulee area of the Clark Fork drainage basin. This work is still in progress, and the present report is a preliminary one, based on the first two seasons of field work.

Our work has shown clearly that there is an important and distinctive Clark Fork mammal fauna. In this paper we wish first of all to list the major elements of the Clark Fork fauna as we now understand it. Secondly, we shall discuss the correlation of this fauna with the European sequence of mammal faunas, which has a direct bearing on the geological age of the Clarkforkian. Finally, we wish to discuss briefly the possible implications of the Clark Fork fauna for dating Mongolian localities of the Gashato-Naran Bulak level.

## CLARK FORK MAMMAL FAUNA

During the past two field seasons, University of Michigan expeditions have collected fossil mammals from more than 150 localities in the Sand Coulee area of the northern Bighorn Basin in Wyoming. The Sand Coulee area covers more than 100 square miles (250 km<sup>2</sup>), and much of this

area is fossiliferous and very well exposed. Approximately one-third of the localities discovered so far are in Clark Fork beds. Work to date has been concentrated on locating the boundary between the Clarkforkian and Wasatchian<sup>1</sup> as precisely as possible, and it is now possible to map

1. Gingerich (1975, 1976a) stated that the Clark Fork and « Sand Coulee » faunas might be the same, and reported *Pelycodus* from the Clarkforkian. This was based on a misunderstanding of labels on fossils in the Princeton University collection. Our recent field work suggests that the term « Sand Coulee » is best applied to a fauna that is

clearly at the base of the Wasatchian and not part of the Clarkforkian. Whether the term « Sand Coulee » will continue to be useful must await further study. Our investigations to date indicate that *Pelycodus* first appears in Wasatchian beds; they do not substantiate the occurrence of *Pelycodus* from the Clarkforkian.