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Femur of a morganucodontid mammal from the Middle Jurassic of Central Russia

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We describe a nearly complete mammalian femur from the Middle Jurassic (upper Bathonian) from Peski quarry, situated some 100 km south east of Moscow, central Russia. It is similar to the femora of Morganucodontidae in having a globular femoral head, separated from the greater trochanter and reflected dorsally, fovea capitis present, both trochanters triangular and located on the same plane, distal end flat, mediolaterally expanded, and somewhat bent ventrally, and in the shape and proportions of distal condyles. It is referred to as Morganucodontidae gen. et sp. indet. It is the first representative of this group of mammals in Eastern Europe from the third Mesozoic mammal locality discovered in Russia. Exquisite preservation of the bone surface allowed us to reconstruct partial hind limb musculature. We reconstruct m. iliopsoas as inserting on the ridge, which starts at the lesser trochanter and extends along the medial femoral margin for more than half of the femur length. On this basis we conclude that the mode of locomotion of the Peski morganucodontid was similar to that of modern echidnas. During the propulsive phase the femur did not retract and the step elongation was provided by pronation of the femur.

Key words: Mammalia, Morganucodontidae, femur, anatomy, locomotion, Jurassic, Russia.

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