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Rustaviornis georgicus gen. et sp. n., a new fossil bird from the Hipparion fauna of Georgia

[Pp. 373-388, pl. XX, and 1 text-fig.]

Rustaviornis georgicus **gen. et. sp. n., nowy kopalny ptak z hipparionowej fauny Gruzji**

Rustaviornis georgicus **gen. et sp. n., новая фоссильная птица из гиппарионовой фауны Грузии**

Abstract. The authors give a description of a new avian genus and species, *Rustaviornis georgicus* novum genus et sp., of the order *Galliformes* from Eastern Georgia. Dating: Upper Sarmatian — Meotian. The description is based on a distal fragment of the left tibiotarsal bone. The species is an intermediate form between the genera *Phasianus* and *Lyrurus*.

I. INTRODUCTION

Remains of fossil members of the *Carinatae* are found in a very small number of localities of the Hipparion fauna of the Soviet Union. In the south of the Ukraine they occur in the Meotian Hipparion fauna from the region of the town of Tiraspol (Kolkotova Balka). Hence the list of the fauna (LASKAREV, 1908) includes *Urniornis* sp. and *Gallus aesculapi* GAUDRY. *Gallus* aff. *aesculapi* GAUDRY has been described, in addition to an ostrich, from the Meotian fauna of Nova Elizabetovka (ALEKSEYEV, 1915), whereas *Aquila* sp. has been reported, also together with an ostrich, from the Meotian Hipparion fauna of Kuyalnitskiy Liman near Odessa (PRZEMYSKI, 1912) and *Suschkinia pliocaena* TUGARINOV from the Lower Pliocene Hipparion fauna of the region of Pavlodar in Kazakhstan (TUGARINOV, 1935). Recently, fossil birds have been found in the Middle Sarmatian layers in the town of Kishinev and described by GANIA and KUROTCHKIN (1967). A goose, *Casarca*, cormoran, duck of *Cairinini*, ibis and heron, altogether five new genera, have been identified so far. ?*Larus* sp., *Ardea* sp. and *Plegadis* were gathered from the Middle Sarmatian of Kalfa in Moldavia (GANIA, 1965) and, earlier, *Cygnus* sp. was found in the Middle Sarmatian in the region of Kishinev (MACAROVICI and VOESCU, 1942). Thus, very interesting, though not very rich palaeornithological materials have been collected gradually in the south of the Ukraine and Moldavia; they have been partly worked out, but the greater part of them still wait for elaboration. Only 3 finds of birds of the group *Carinatae* are known from the Hipparion fauna of the Caucasus Mts. They are *Anser udabnensis* BURCHAK-ABRAMOVICH (1957) from the Upper Sarmatian Hipparion fauna of Natlis-Mcemeli near Udabno in Kachetia, *Anser eldaricus* BURCHAK-ABRAMOVICH et GADZYEV (in press) from the Upper Sarmatian fauna of Eldar on the River Yori, and a bird of the order *Galliformes*, being described in this paper. In addition, in literature there is mention (IVANOV, 1916) about the finding of a few cervical vertebrae and long bones of some birds together with the bones of *Hipparion* and other mammals in the Upper Sarmatian layers on Kutsay Mt. near the village of Petrovka in Stavropol' Kray.

The bone of the bird belonging to the order *Galliformes* and being described in this paper comes from the Hipparion assemblage of the Upper Sarmatian or Meotian fauna discovered in the gorge of the stream Tavat-Dere, a right-bank tributary of the Kura, near the town of Rustavi on the left bank of the Kura, a few years ago. Several other sites with assemblages of fossil bones were discovered later. Bone materials of these sites lay in continental caseous sandy clays, not exceeding 0·5 m. in thickness. The first report on the newly discovered locality (GABUNYA, MACCHONASHVILI, CHKHEIDZE, 1966) gives its detailed description. The list of the fauna, published so far, includes *Testudo* sp., *Rodentia*: gen.?, *Carnivora*: *Melinae*, gen?, *Promephitis* ex gr. *meotica* ALEX., *Ictitherium* sp., *Crocuta eximia* GAUDRY, *Machairodontinae*, gen.?, *Proboscidea*: *Choerolophodon pentelici* (GAUDRY et LARTET), *Perissodactyla*: *Hipparion* cf. *eldaricum* GABUNYA, *Chalicotherinae*: gen.?, *Dicerorhinus* sp., *Aceratherium* sp., *Artiodactyla*: *Microstonyx* sp., *Procapreolus* sp., *Palaeotragus* sp., *Oioceros* aff. *atropatenes* (ROD. et WEIT.), *Paraoioceros improvisus* gen. et sp. nova and *Tragocerus* sp.

We wish to express our hearty thanks to Dr Z. BOCHEŃSKI for his critical remarks and suggestions for the improvement of the text.

II. SYSTEMATIC POSITION AND CHARACTERISTICS

Order: *Galliformes* (TEMMINCK)
Family: *Phasianidae* VIGORS*
Genus: *Rustaviornis* gen. novum

(The generic name has been coined after the town of Rustavi, near which this Hipparion fauna was found, and the word „ornis")

* The classification of the *Galliformes* is derived from a paper by BRODKORB (1964), in which the family *Phasianidae* is split into the subfamilies *Phasianinae* and *Tetraoninae*.

Species: *Rustaviornis georgicus* species nova

Upper Sarmatian — Meotian. Eastern Georgia.

Diagnosis. The tibiotarsus is of medium size (the bird must have been somewhat larger than *Gallus aesculapi* Gaud.). The distal articular surface of the tibiotarsal bone narrows distinctly to the rear owing to the posterior convergence of tis side ridges. The lateral condyle has its external margin more or less uniformly convex, its antero-inferior slopes being somewhat steeper. The fovea for ligament in the lateral condyle is indistinct. Two small tubercles are situated behind the fovea (right above and below it) and are connected by a low crest. The depression in the antero-inferior part of the ridge of the medial condyle is very poorly marked. A small tubercle lies 1·5 mm. above the antero-superior end of the medial condyle. Generally speaking, the ligamentum transversum ossificatum is situated in the same plane as the right and left side edges of the adjoining anterior surface of the bone and it bears a longitudinal (vertical) protuberance, which is indistinct at the sides. The crest for the ligamentum obliquum, sited between the side base of the ligamentum transversum ossificatum and the upper end of the lateral condyle, is very sharp, narrow, and extends in a mediodistal direction for the nearly whole width of the upper end of the lateral condyle. The distance between the upper end of the crest and the lower angle of the canalis musculi ext. digites approximates to the length of the crest itself. The canalis musculi ext. digites is comparatively narrow, with two pronounced side ridges. The foramen situated under the ligamentum transversum ossificatum is oval (nearly round) and slightly inclined proximomedially along its long axis. Seen from the distal side, the incisura intercondyloidea shows a broad flattened bottom, equal in width to the base of the medial condyle, and with a well-defined line along which it meets the inside walls of the condyles. The bottom is somewhat inclined laterodistally and slightly convex in its middle part. The antero-inferior edge of the canalis m. peron. prof. forms no apophyses.

Specific composition: type species.

Comparison. So far as the modern genera of the *Galliformes* are concerned, we were in the position to compare the bone of *Rustaviornis* with the corresponding bones of the members of the genera *Gallus*, *Pavo*, *Phasianus*, *Lagopus*, *Perdix*, *Ammoperdix*, *Francolinus*, *Alectoris*, *Coturnix* and *Falcipennis*. Its comparison with other genera was based on literature.

The distal end of the tibiotarsal bone of *Gallus* differs from this part of the bone of *Rustaviornis* distinctly in the broad posterior half of its distal articular surface, whose side ridges extend up to the very end parallel to each other, whereas in the upper part of the articular surface of *Rustaviornis* they rapidly converge to be 2 mm apart in the uppermost portion. The intercondyloid notch in *Gallus* is hardly wider than half its width in *Rustaviornis*, the size of the bones being the same; the bottom is slightly concave, whereas it is flattened in *Rustaviornis*. *Pavo*, in addition to its larger size, is distinguished by the presence of a depression in the distal portion of the ridge of the medial condyle and the relatively broader and less convex ligamentum transversum ossificatum. In *Numida* the ligamentum transv. ossif. is not convex as in *Rustaviornis* but somewhat concave and the intercondyloid notch is obviously narrower. The difference in width between the two articular complexes, measured on the posterior wall, is markedly larger than it is in *Rustaviornis*. On the marginal rim of the medial condyle there is a visible depression, which is absent in *Rustaviornis*; the lateral condyle is asymmetrical, whereas it is oval (nearly round) in *Rustaviornis*. From *Tetraogallus Rustaviornis* differs in its clearly smaller size and some essential structural details: *Tetraogallus* has a raised cylindrical rim, extending at the lower margin of the ligamentum transv. ossif. and lacking in *Rustaviornis*, and the outlines of its tubercle situated between the upper end of the lateral condyle and the lateral base of the ligamentum transv. ossif. are quite different. *Rustaviornis* differs from the genus *Meleagris* in its markedly smaller size and in structural details and from the genera *Coturnix*, *Perdix*, *Alectoris*, *Francolinus* and *Falcipennis* in its markedly larger size and in structural details.

The closest structural similarity in the distal end of the tibiotarsal bone is observed between *Rustaviornis* and the genera *Phasianus* and *Lyrurus*. The ligamentum transversum ossificatum of our bird more resembles that of *Lyrurus* in width and degree of convexity, whereas in *Phasianus* its surface is more flattened. The narrow crest for the ligamentum obliquum, extending obliquely upwards and outwards between the upper end of the lateral condyle and the lateral base of the ligamentum transv. ossif., is similar in shape in these three genera, but in position only in *Phasianus* and *Rustaviornis*, in which the upper end of the crest lies at a distance approximating to the length of the crest itself from the upper margin of the ligamentum transv. ossif., whereas in *Lyrurus* it is situated close to the upper margin of this ligament. In *Phasianus* the medial base of the ligamentum transv. ossif. passes into the medial edge of the bone without any visible boundary, and in the other two genera there is a slight narrow bulge of the bone along its medial edge. The outlines of the intercondyloid notch are alike in *Rustaviornis* and *Phasianus*; in *Lyrurus* the notch is narrower and its lateral slope is milder. The lateral surface of the lateral condyle is a transversely oriented oval in shape, its external arch being more or less regular. In *Phasianus* the oval is asymmetrical and its long axis runs in a distal-plantar direction.

Remarks. Thus the distal part of the tibiotarsal bone of *Rustaviornis* shares some characters with *Phasianus* and *Lyrurus*, though it has more of them in common with *Phasianus*. Nevertheless, it differs from both these genera in its larger size (from their recent members). The fossil species of the genus *Lyrurus* are known from the Lower Pleistocene of Romania (Betfia). *Lyrurus partium* Kretzoi has been described on the basis of a right tarsometatarsal bone from this locality. A new genus and species — *Palaeotetryx gilli* Shufeld — have been erected on the basis of a right carpometacarpus from the Middle Pleistocene of Oregon. Lambrecht (1933) distinguished a new genus, *Archaeo-*

phasianus, in which he included *Phasianus roberti* (Stone) described from a distal fragment of the tarsometatarsus and the phalanx of a toe from the Upper Oligocene (Upper Miocene acc. to Brodkorb, 1964) of Oregon and *Phasianus mioceanus* (Schufeld) from the Upper Miocene of Nebraska (proximal parts of the right humerus and left hip bone). *Archaeophasianus* is larger than *Phasianus colchicus* by a third. The tibiotarsus of *Archaeophasianus* has not hitherto been found and for this reason this genus cannot be compared with *Rustaviornis*, which however does not exclude the possibility of a close relationship between these two genera. The genus *Miophasianus* has been established by Lambrecht (1933) for three pheasant species (*Phasianus desmoyersi*, *Ph. medius* and *Ph. altus*) described by Milne-Edwards (1869) from the Upper Miocene of France, Switzerland and Germany. The lower portion of the tibiotarsus of *Ph. altus*, according to the data presented by Milne-Edwards (o. c.) resembles that of the peacock, and therefore it markedly exceeds the tibiotarsus of *Rustaviornis* in size. Judging by Milne-Edwards's description (1869, p. 240), the tibiotarsal bones of the genera *Miophasianus* and *Rustaviornis* differ from each other. Fuller materials are, however, necessary for the definitive solution of the problem of the systematic relationship between *Miophasianus* and *Rustaviornis*, which is the more important since they approach each other in their geological age. The fossil recent pheasants (genus *Phasianus*) are known from the Lower Pliocene of Greece (a part of the skeleton of *Ph. archiaci* Goudry from the Hipparion fauna of Pikermi) and the Middle Pleistocene of Israel (a framgent of the tarsometatarsus of *Ph. hermonis* from Mousterian culture layers).
Holotype. Collection of the Institute of Palaeobiology, Ac. of Scs. of the Georgian S. S. R., in Tbilisi, No. P-215. Distal portion of the left tibiotarsus of an adult specimen found in the gorge of the Stream Tawat-Dare (right-bank tributary of the River Kura, opposite the town of Rustavi). Upper Sarmatian-Meotian Hipparion fauna.

III. DETAILED DESCRIPTION

The diagnosis of the species is the same as that of the genus. The measurements of the bone are given in Table I and its appearance presented in the photographs (Pl.). Figure 1 shows where and how the measurements of some elements of the bone were taken.

In general outline and structural details the distal fragment of the tibiotarsus in *Rustaviornis* most resembles the corresponding part of this bone in the pheasant and black grouse, to a lower degree in the hen, but differs from all three of them in its larger size and other structural details, mostly those of essential import.

On passing on to the vertical back surface of the bone the two side ridges of the lower articular surface begin to converge and meet at an acute angle of about 80° in the upper part of the articular surface. In the pheasant the angle is less acute, whereas in the other members of the *Galliformes* it is still more acute (except for *Alectoris*, in which it is approximately the same as in *Rustaviornis*); in the hen, black grouse, peacock, guinea-hen and some other birds both ridges rise more or less parallel to each other.

The posterior part of the lower articular surface of *Rustaviornis* is concave with a somewhat longer lateral slope. Below the middle of the depression there extends a very low and hardly convex prominence, which begins in the lower half of the posterior depression and ends at the posterior edge of the anterior

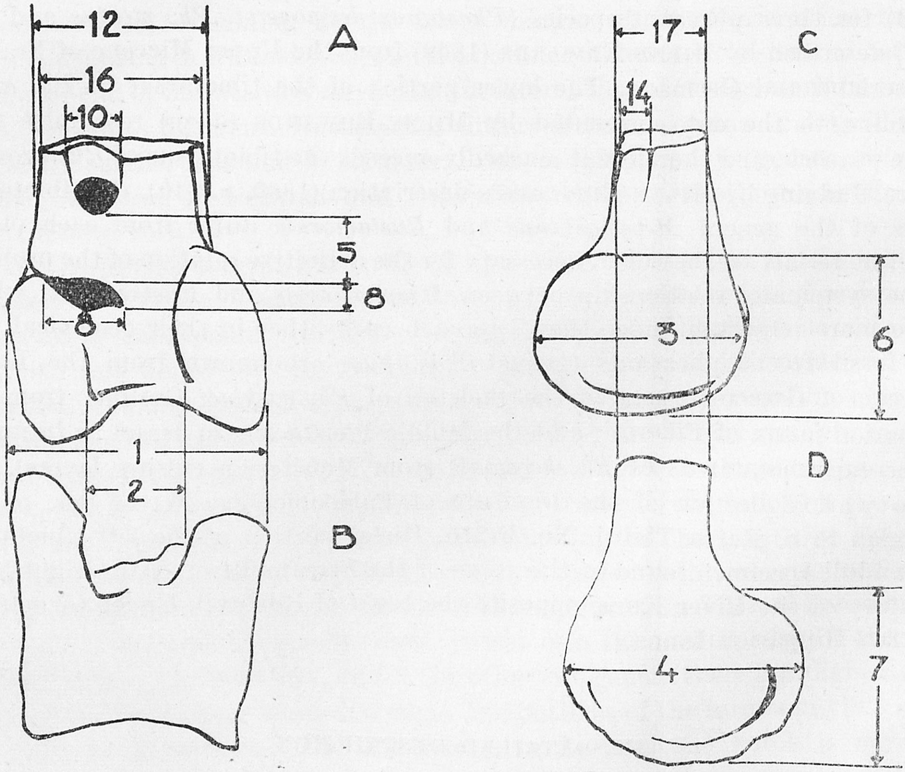

Fig. 1. Diagrammatic drawing of the distal fragment of the tibiotarsus of *Rustaviornis georgicus*, seen from in front (A), from below (B), from the medial side (C) and from the lateral side (D), showing the methods of measuring used (the numbers of measurements correspond with those in Table I)

intercondylar fossa, where it looks like a small projection. The bottom of the posterior intercondylar fossa is not flat as, e. g., in the hen, peacock, turkey, etc., since there the opposite slopes of the fossa meet. This shape of the depression occurs also in the pheasant and black grouse. Both slopes of the anterior intercondylar fossa are steep and the bottom is flat. A small transverse protuberance lies where the anterior intercondylar fossa passes into the lower intercondyloid notch. The flat and relatively broad bottom of the anterior intercondylar fossa is sharply demarcated from the inner slopes of both condyles, the slope of the

Table I

Measurements (in mm.) of the distal fragment of the tibiotarsus in *Rustaviornis georgicus* gen. et sp. n. compared with the corresponding measurements of the selected recent gallicaceous species (measurements of single specimens)

Species / Measurements	*Rustaviornis georgicus* gen. et sp. n.	*Gallus gallus*	*Tetraogallus caucasicus*	*Tetraogallus caspicus tauricus*	*Phasianus colchicus*	*Pavo cristatus domesticus*	*Lyrurus tetrix*	*Lyrurus mlokosiewiczi*	*Tetrao urogallus*	*Tetrao urogalloides*
1	2	3	4	5	6	7	8	9	10	11
1. Greatest width of distal articular complex	13·0	14·0	13·0	14·2	11·5	16·5	10·0	9·2	15·4	14·0
2. Smallest width of anterior intercondylar fossa	~5·0	~3·5	~4·2	~5·8	~3·8	~5·5	~2·6	~2·6	~4·8	~4·6
3. Greatest antero-posterior diameter of external surface of lateral condyle	12·0	13·0	11·0	12·6	11·0	15·0	9·8	8·0	15·2	14·0
4. Same for medial condyle	12·8	14·2	12·0	13·6	11·8	16·5	10·5	9·0	16·5	15·1
5. Smallest width (height) of ligamentum transversum ossificatum	3·6	5·0	4·0	5·0	4·0	5·0	3·0	2·0	3·5	4·0
6. Greatest height of lateral surface of lateral condyle	10·0	11·6	9·4	11·2	9·8	13·8	8·0	6·6	12·0	11·0
7. Same for medial condyle	9·0	10·9	8·1	11·6	9·0	12·2	7·5	6·0	10·6	11·0
8. Length: width ratio of foramen below ligamentum transversum ossif.	$\frac{2·8}{1·2}$	$\frac{4·1}{1·4}$	$\frac{3·0}{1·8}$	$\frac{3·5}{2·1}$	$\frac{3·0}{1·6}$	$\frac{3·0}{1·6}$	$\frac{3·0}{1·8}$	$\frac{2·8}{1·8}$	$\frac{4·0}{2·1}$	$\frac{3·9}{2·0}$
9. Index of ratio of width to length of foramen below ligamentum transv. ossif. (in %)	53·5	35·4	60·0	60·0	53·3	53·3	60·0	64·3	52·5	51·3
10. Width of canalis musc. ext. digit.	2·1	3·0	2·1	2·9	2·0	2·6	1·9	1·9	2·9	2·1
11. Depth of canalis musc. ext. digit.	1·0	—	—	—	—	—	—	—	—	—

1	2	3	4	5	6	7	8	9	10	11
12. Width of bone at level of lower edge of canalis musc. ext. digit.	8·5	9·5	8·0	11·2	8·0	10·0	6·6	5·5	9·9	8·0
13. Index of ratio of width of canalis musc. ext. digit. to width of bone at same level (in %)	24·7	31·5	26·2	25·9	25·0	26·0	28·6	34·5	28·7	21·2
14. Width of canalis musc. peron. prof. at level of ligamentum transv. ossif.	1·2	1·6	1·3	2·1	1·2	1·8	1·2	1·0	2·0	1·6
15. Depth of canalis musc. peron. prof.	0·5	—	—	—	—	—	—	—	—	—
16. Width of bone at level of fracture (18 mm. from distal end)	8·0	—	—	—	—	—	—	—	—	—
17. Antero-posterior measurement at same level	5·0	—	—	—	—	—	—	—	—	—
18. Thickness of bone wall at same level	0·8 —1·1	—	—	—	—	—	—	—	—	—

medial condyle being subperpendicular and that of the lateral one at an angle of 80°. The width of the bottom of the anterior intercondylar fossa is 4 mm., the width of the base of the medial condyle slightly smaller (3·8 mm.) and that of the lateral condyle a little larger (4·4 mm.); consequently, the lateral condyle is somewhat bigger than the medial. The external surface of the lateral condyle is oval (almost round) in shape, its long axis being nearly horizontal in the bone positioned upright. The peripheral rim, surrounding this surface, approaches a circle in shape, and the anterior part of the surface is wider than the posterior (about 9 and 7 mm., respectively).

In general shape and its approach to symmetry the external surface of the lateral condyle comes nearest to that of the domestic turkey; in the hen its oval shape is slightly more asymmetrical and in the black grouse and guinea-hen this character (asymmetry) is still more enhanced to reach the highest degree in the pheasant. In this last bird the long axis of the oval external surface of the lateral condyle is oriented at an angle of 30° to the long axis of the bone and the peripheral rim of the surface shows a rapid bend in its postero-inferior portion. In *Rustaviornis* the external surface of the lateral condyle is, generally speaking, concave and in the middle of its bottom there is a very low tubercular ridge, 5 mm. long, projecting upward and forward. In none of the gallinaceous birds examined have we found an analogous ridge; in some genera there is a tubercle (*Meleagris*, *Tetraogallus*) or a pit (*Gallus*, *Phasianus*, etc.) in its place. The peripheral edge of the external surface of the lateral condyle forms a rim, 1·5—2·0 mm. in width. In the posterior part of the surface the rim is lacking. Analogous rims are observed in the black grouse, pheasant, guinea-hen and some other gallinaceans, but it is poorly developed in the hen and *Alectoris graeca* KAUP. The external surface of the medial condyle has the shape of a more elongated oval than this surface of the lateral condyle. Its long axis is also subperpendicular to the long axis of the bone. The length of the long axis of the oval surface is 12·8 mm. against 12·0 mm. in the lateral condyle. The peripheral rim, surrounding the external surface of the medial condyle, is more distinct and sharper than it is in the other condyle and posteriorly disappears only in the uppermost part.

Generally speaking, the external surface of the medial condyle is concave. The deepest depression occurs in the supero-posterior part of this surface, it becomes shallower to the front and rises towards the peripheral portion of the surface. Supero-posteriorly the depression passes without any boundaries into the medial surface of the bone shaft. The structure of the external surface of the medial condyle is analogous to that in most of the other gallinaceous genera, i. e., the pheasant, black grouse, hen, etc. A distinct prominence, measuring 2 mm. (vertically) by 1 mm. (across), lies in the antero-superior angle of the external surface of the medial condyle, at the level of the upper end of its peripheral rim, 1 mm. from it to the rear. None of the gallinaceous genera examined by us has such a prominence. In most of them the external surface of the medial condyle bears a protuberance of various size and shape, but, as has already been mentioned, it is situated farther from the peripheral rim towards the middle, generally in the proximity of the line which demarcates the anterior half of the external surface of the medial condyle from the posterior half. A very indistinct depression, hardly visible when the bone is viewed from the side, occurs in the infero-anterior part of the peripheral rim of the medial condyle.

In most of the other recent gallinaceous genera this depression is usually much more distinct and deeper, e. g., in the pheasant and hen, but comparatively less distinct in the black grouse. The ligamentum transversum ossificatum of *Rustaviornis* is very similar to that in the black grouse and, especially, the pheasant. In relative width it comes closer to this element in the grouse, the ligamentum transv. ossif. of the pheasant being relatively narrower. Its smallest width is 3·6 mm. in *Rustaviornis*, 2·6 mm. in the black grouse, 3·4 mm. in the pheasant and 5·0 mm. in the domestic hen. The index of the ratio of the width of the ligamentum transv. ossif. to that of the bone is 42·3 for *Rustaviornis*, 42 for the grouse, 40·5 for the pheasant 50 for the domestic hen. The surface of the ligamentum tranversum ossificatum of *Rustaviornis* is distinctly convex and the long axis of the convexity runs vertically with a slight supero-external inclination. In the black grouse the degree of convexity is like that in *Rustaviornis* and in the pheasant it is milder. On the contrary, in the domestic hen the surface is slightly concave. In *Rustaviornis*, grouse and domestic hen the medial base of the ligamentum transversum ossificatum is separated from the medial ridge of the bone shaft by a very low longitudinal bulge on the anterior surface of the bone. The width of this bulge is 1·5 mm. in *Rustaviornis*. In the pheasant the medial base of the ligamentum transv. ossif. merges into the medial ridge of the bone. At the boundary between the upper end of the lateral articular complex and the lateral base of the ligamentum transv. ossif. of *Rustaviornis* there is a narrow crest for the ligamentum obliquum; its long axis extends proximo-laterally. The length of the crest is 3·8 mm., its width at the base about 1 mm. Analogous crests occur in the black grouse and pheasant, but in the black grouse the upper end of the crest nearly ascends the external top margin of the ligamentum transv. ossif. in the lower external angle of the canalis musc. ext. dig. In *Rustaviornis* and pheasant the upper end of the crest is at a distance of its own length from this point.

In most of the other gallinaceous genera examined by us there is usually a prominence of an irregular shape in the place of the crest. The lower edge of the ligamentum transv. ossif. of *Rustaviornis* is straight and direxted somewhat proximo-laterally. The upper edge is concave and somewhat shorter than the lower one. In the black grouse both edges are bent in, the lower one to a higher degree. In the pheasant the lower edge of the ligamentum transv. ossif. is nearly straight as in *Rustaviornis*, the upper one slightly concave. The foramen situated right below the ligamentum transv. ossif. is longitudinally oval in *Rustaviornis*, and its long axis rises mildly latero-proximally. The index of the width: length ratio of the foramen is 53·5 in *Rustaviornis* (cf. Table I, 8 and 9). In the black grouse the outline of the foramen comes nearer to a circle in shape. The index of the width: length ratio of the foramen is 60·0 in *Lyrurus terix* and 64·3 in *Lyrurus mlokosiewiczi*. In the pheasant the foramen is similar to that in *Rustaviornis* (width: length index — 53·3). In the domestic hen the foramen has the form of a slit and the index is 35·5. It is of relatively very small size in the domestic peacock (Table I), its index being 53·3. In *Roustaviornis* and grouse the long axis of the foramen slants to the same degree, in the pheasant it rises fairly steeply, being still steeper (roughly at an angle of 45°) in the domestic hen.

The canalis musc. ext. digit. is relatively narrow, the index of the ratio of its width at the bottom to the width of the bone at this level is 24·7 (Table I, measurements 10, 12, 13). This index is 25·0 in the pheasant, 31·5 in the domestic hen, 32·2 in the black brouse and 36·5 in the Caucasian black grouse. Both side rims of the canalis musc. ext. digit. are distinct as in the black grouse; in the pheasant the lateral rim is less distinct, though in some specimens it is pretty well seen and approaches that of the grouse in appearance. In *Gallus domesticus* the lateral rim is not marked at all, and the gently falling lateral slope of the canalis musc. ext. digit. passes gradually into the anterior surface of the bone. The limits of the canalis musc. ext. digit. are very sharply defined in *Tetraogallus caucasicus* and *T. caspius*, whereas the lateral margin of this canal is somewhat less distinct in the guinea-hen. The canalis musc. peron. prof., in its depth, sharpness of both side rims, and great length of the groove, most resembles this canal in the black grouse. The posterior rim is particularly sharp, in the black grouse the two rims are more or less alike. In the domestic hen and pheasant the canalis musc. peron. prof. is relatively poorly developed and the side rims are low and short. The length of the canalis musc. peron. prof. in *Rustaviornis* is not known owing to the fracture of the bone, but it must have been much greater than 6 mm.

The transverse section of the tibiotarsus of *Rustaviornis* at the level of the fracture of the bone, 18 mm. from the distal end of the bone, has an almost round shape, its medial half being somewhat narrower. Anteriorly, in the place of the canalis musc. ext. digit. there is a depression, the lateral slope of which is the gentler one. In general, the posterior side is more convex than the anterior. The interior of the bone is filled with white calcite. The thickness at the level of fracture is not uniform. The bone wall if thickest in the antero-lateral and antero-medial portions (about 1·1 mm.) and thinnest in the postero-medial (0·8 mm.).

In its general structure the distal part of the tibiotarsus of *Rustaviornis* most resembles that in the genera *Phasianus* and *Lyrurus*, to a lower degree this bone in *Gallus*, to which, however, it comes near in size, but in the bulk of characters it is most similar to *Phasianus*. The genus *Lyrurus* or *Tetrao* is not known from the pre-Pleistocene periods; according to Brodkorb (1964), the genus *Archaophasianus* from the Upper Miocene belongs in the *Tetraoninae*. In the subfamily *Phasianinae* the genus *Phasianus* is known from the Lower Pliocene, and so is the genus *Gallus*, the genus *Miophasianus* from the Upper Miocene and *Schaubortyx* from the Upper Oligocene. Thus, according to the present state of knowledge, the subfamily *Phasianinae* would have more old members than the *Tetraoninae* have. It may well be that *Rustaviornis* is a pheasant-like bird of the subfamily *Phasianinae*, leading further to the genus *Lyrurus*, not known from the periods preceding the Pleistocene. The scantiness of available material demands prudence in conclusion and the lack of old pre-Pleistocene forms closely related to the genus *Lyrurus* may be due to nothing else but the fact that their remains have not, as yet, been discovered.

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STRESZCZENIE

W składzie hiparionowej fauny Kaukazu, Południowej Ukrainy, Mołdawii i Syberii kopalne ptaki spotka się bardzo rzadko. Wiąże się to przede wszystkim z trudnością zachowania się ptasich kości w stanie kopalnym. Stosunkowo najczęściej spotyka się resztki kopalnych strusi (kości i skorupy jaj). Z Kaukazu do tej pory została opisana gęś *Anser udabnensis* BURCHAK-ABRAMOVICH, pochodząca z górnosarmackiej hiparionowej fauny Natlis Mcemeli, znalezionej obok dawnego jaskiniowego klasztoru Dawida Geredżi w Udabno (Wschodnia Gruzja).

W obecnej pracy opisany jest nowy rodzaj z rzędu *Galliformes* z górnosarmackiej hiparionowej fauny góry Jagłudży, na prawym brzegu rzeki Kury, naprzeciw miasta Rustawi, na wschód od Tbilisi. Bogate znalezisko hiparionowej fauny zalega tu w kontynentalnych iłach wąwozu rzeczki Tawat-Dere (prawobrzeżny dopływ Kury). Do tej pory w składzie fauny stwierdzonych zostało 16 gatunków ssaków, lądowy żółw i pojedyncza kość ptaka, opisywana w obecnej pracy — distalny koniec lewej kości podudzia (tibiotarsus). Kość ta, od góry obłamana, była prawdopodobnie cała do chwili wydobycia jej ze skały. Podczas badań była ona porównywana ze szkieletami wszystkich rodzajów współczesnych kuraków, należących do fauny ZSRR: *Gallus*, *Pavo*, *Phasianus*, *Tetrao*, *Lyrurus*, *Tetraogallus*, *Meleagris*, *Numida*, *Tetrastes*, *Lagopus*, *Perdix*, *Ammoperdix*, *Francolinus*, *Alectoris*, *Coturnix* i *Falcipennis*. Inne rodzaje z rzędu *Galliformes* były, w miarę możności, porównywane z opisywaną kością na podstawie literatury.

Diagnoza. Tibiotarsalna kość średnich rozmiarów (nieco większa niż u *Gallus aesculapi*). Jej wielkość i wygląd ilustrują: tabela I, ryc. 1, oraz fotografie (Tablica XX). Distalna powierzchnia stawowa kości w tylnej części silnie zwęża się w wyniku zbliżania się ku sobie bocznych żeber ograniczających tę powierzchnię. Condylus lateralis jest w zarysie owalny, zbliżony do okrągłego. Jamka więzadłowa na condylus lateralis jest niewyraźna. Z tyłu za nią leżą dwa niewielkie wzgórki. Zagłębienie na przednio-dolnej części kraja condylus medialis jest wyrażone bardzo słabo. O 1,5 mm wyżej (proksymalno-aboralnie) od przednio-górnego końca condylus medialis leży maleńki wzgórek. Ligamentum transversum ossificatum jest wypukłe (długa oś wypukłości przebiega pionowo) z dwoma podłużnymi obniżeniami powierzchni, leżącymi po bokach wspomnianej wypukłości. Od przyśrodkowego kraja kości ligamentum transversum ossificatum jest oddzielone wzniesieniem. Grzebyczek, leżący pomiędzy górnym krajem condylus lateralis i lateralną podstawą ligamentum transversum ossificatum, jest bardzo wąski i ciągnie się prawie na całej szerokości górnego końca condylus lateralis; nie dosięga jednak dolnego kraja canalis m. ext. digit. (odległość od niego w przybliżeniu równa się długości tego grzebyczka). Incissura intercondyloidea ma szerokie, płaskie dno, którego szerokość jest równa szerokości podstawy condylus medialis. Powierzchnia dna załamuje się po bokach, przechodząc ostro na przyśrodkowe (względem osi kości) powierzchnie kondylusów.

Wygląd distalnego końca tibiotarsus wskazuje, że opisywany w tej pracy rodzaj *Rustaviornis* stoi najbliżej rodzajów *Phasianus* i *Lyrurus*, a szczególnie pierwszego z nich. Od rodzaju *Gallus* różni się bardziej wyraźnie, choć rozmiary *Rustaviornis* i kury są bardzo podobne. Rodzaj *Lyrurus* lub *Tetrao* znany jest z dolnego plejstocenu Rumunii, *Paleotetrix* ze środkowego plejstocenu Oregonu, *Archaeophasianus*, zaliczany przez Brodkorba (1964) do podrodziny *Tetraoninae*, z górnego miocenu Oregonu i Nebraski. W podrodzinie *Phasianinae* znane są dawniejsze rodzaje niż u *Tetraoninae*. I tak *Schaubortyx* opisany jest z górnego oligocenu Francji, *Phasianus* i *Gallus* z dolnego pliocenu, a *Miophasianus* z górnego miocenu Europy Zachodniej. Można przypuścić, że bażantopodobny *Rustaviornis*, należący do *Phasianinae*, dał następnie początek rodzajowi *Lyrurus*, jak dotąd znanemu tylko z plejstocenu. Brak dostatecznych materiałów nakazuje jednak ostrożność w wyciąganiu wniosków. Nie da się wykluczyć, że brak przedplejstoceńskich przedstawicieli rodzaju *Lyrurus* wiąże się z niekompletnością naszych badań i że w przyszłości takie cietrzewie zostaną znalezione. Wtedy wspólnego przodka dla *Phasianinae* i *Tetraoninae* będzie trzeba szukać w pokładach dawniejszych: w dolnym miocenie, oligocenie albo jeszcze głębiej.

РЕЗЮМЕ

В составе гиппарионовой фауны Кавказа, Юга Украины, Молдавии и Сибири ископаемые птицы встречаются весьма редко, что в первую очередь объясняется трудностью сохранения птичьих костей в ископаемом состоянии. Относительно чаще попадаются остатки ископаемых страусов (кости, скорлупа яиц). С территории Кавказа до сих пор пока описан удабнийский гусь *Anser udabnensis* BURCHAK-ABBRAMOVICH происходящий из верхнесарматской гиппарионовой фауны Натлис Мцемели возле древнего пещерного монастыря Давида Гареджи в Удабно (Восточнаяа Грузия).

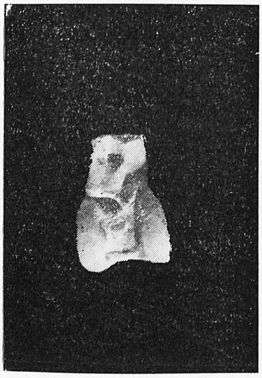
В настоящей работе описывается новый род из отряда *Galliformes* из верхнесарматской гиппарионовой фауны горы Яглуджы на правом берегу реки Куры против г. Рустави и к востоку от г. Тбилиси. Богатое местонахождение гиппарионовой фауны залегает в континентальных суглинках ущелья речки Тават-Дере (правый приток р. Куры). До сих пор в составе фауны определено до 16 видов млекопитающих, сухопутная черепаха и единственная кость ископаемой птицы, описываемая в настоящей работе — дистальный конец левой тибиотарзальной кости. Кость свеже обломана и возможно была представлена до ее извлечения из породы целой костью. При изучении кость была сравнена со скелетами всех родов современных куриных фауны СССР — 16 родов: *Gallus, Pavo, Phasianus, Tetrao, Lyrurus, Tetraogallus, Meleaagris, Numida, Tetrastes, Lagopus, Perdix, Ammoperdix, Francolinus, Alectoris, Coturnix, Falcipennis.* Остальные роды отряда *Galliformes* по мере возможности были сопоставлены с описываемой костью по литературе.

Диагноз. Тибиотарзальная кость средних размеров (немного крупнее чем у *Gallus aesculapi*). Её величину и форму представляют таблица I, рис. I, а также фотографии (планша XX). Дистальная суставная поверхность ее в задней части сильно суживается вследствие сближения кзади боковых ребер суставной поверхности. *Condylus lateralis* более или менее округло-овальных очертаний. Связочная ямка латерального кондилюса нечеткая. Сзади ее лежат два небольших бугорка. Выемка на передне-нижней части периферийного ребра медиального кондилюса выражена весьма слабо. На 1,5 мм. выше (проксимально-аборально) передне-верхнего конца медиального кондилюса лежит маленкий бугорок. Ligamentum transversum ossificatum выпукла (длинная ось выпуклости проходит вертикально) с двумя продольными понижениями поверхности, лежащими по бокам упомянутой выпуклости. От медиального края кости ligamentum transv. ossif. отделяется приподнятием. Гребешечек, лежащий между верхним краем латерального кондилюса и латеральным основанием ligam. transv. ossif. весьма узок и тянется почти на всю ширину верхнего конца латерального кондилюса, но не достигает до нижнего края canalis m. ext. dig., отстоя от него приблизительно на расстояние, равное длине этого же гребешечка. Incissura intercondyloidea имеет широкое, уплощенное дно, по ширине равное основанию медиального кондилюса с четкой переломной линией на боковые поверхности кондилюсов.

Судя по дистальному концу тибиотарзальной кости род *Rustaviornis* ближе всего к родам *Phasianus* и *Lyrurus*, особенно к первому. Отличия от рода *Gallus* уже более значительные, хотя по абсолютным размерам руставиорнис и курица более сходны. Род *Lyrurus* или *Tetrao* известен из нижнего плейстоцена Румынии, род *Palaeotetrix* из среднего плейстоцена Орегона в Северной Америке, род *Archaeophasianus* отнесенный Бродкорбом (BRODKORB 1964) к подсемейству *Tetraoninae* из верхнего миоцена Орегона и Небраски. В подсемействе *Phasianinae* представлены более древние роды, чем в подсемействе *Tetraonidae*. Так род *Schaubortyx* описан из верхнего олигоцена Франции, роды *Phasianus* и *Gallus* из нижнего плиоцена, род *Miophasianus* из верхнего миоцена Западной Европы. Можно допустить, что фазанообразный руставиорнис, входящий в подсемейство *Phasianinae* в дальнейшем дал начало роду *Lyrurus*, пока известному лишь с плейстоцена. Однако отсутствие достаточных материалов заставляет быть осторожным с выводами. Неисключено, что отсутствие доплейстоценовых находок представителей рода *Lyrurus* объясняется недостаточностью наших исследований и что в будущем такие находки будут сделаны и тогда общего предка для фазаньих и тетеревиных групп придется искать в отложениях более древнего времени — в нижнем миоцене или олигоцене, а то и глубже.

Plate XX

Rustaviornis georgicus gen. et sp. novae. Distal fragment of the left tibiotarsal bone. Natural size. 1. Anterior view, 2. medial view, 3. lateral view, 4. distal view, 5. posterior view



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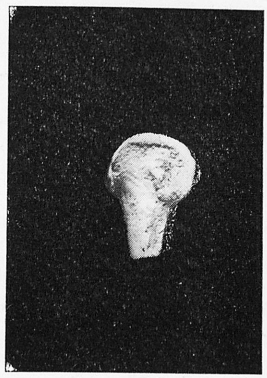

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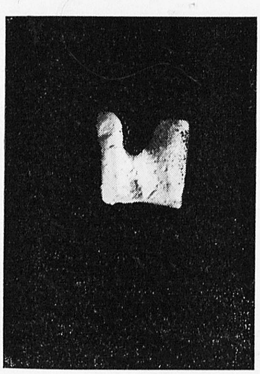

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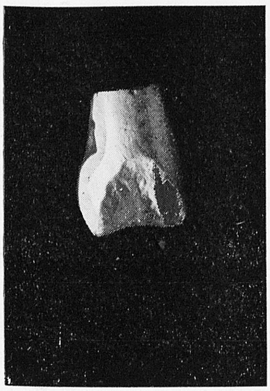

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