

REMARKS ON CATTLE BREEDING AND AGRICULTURE IN THE MIDDLE AND LATE NEOLITHIC ON THE LOWER DANUBE¹

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For a century the archaeological excavations performed in numerous neolithic settlements on the Lower Danube have disclosed sufficient materials to solve the various problems of that epoch. Nevertheless, until recently, cattle breeding and agriculture, the two basic branches of economy during the Neolithic on the Lower Danube, have not been studied thoroughly enough in our country or by our neighbours.

Since 1946, when the excavations were resumed at *Vădastra*, the bones of animals and rests of cereal plants² have begun to be studied and later analyses were carried out of the pollen drawn from the civilization strata and from the virgin soil, in order to determine the climate and vegetation of the region³. As the excavations at *Vădastra* continued (intermittently) year after year, it was gradually possible to carry on comparative researches and thus enlarge their sphere.

When the climatic optimum developed in the Lower Danube region in the 6th millenium, the population became more numerous and began to move away. On the plains and on low terraces, near the rivers and springs with good water, in the proximity of groves or forests, and wherever the geo-biotic medium was favourable, there appeared settlements whose population was engaged more especially in cattle breeding and in agriculture.

By the beginning of the 5th millenium, one of these populations settled at *Vădastra* (Fig. 1), on *Măgura Feteilor* (Maidens' Hillock) and on *Dealul Cișmelei* (Fountain Hill). The excavations performed disclosed from the strata of *Vădastra* I and *Vădastra* II, middle Neolithic, a very large number of bones of domestic animals. Of these, approximately 60 per cent were bones of bovines, 20 per cent of ovines, and the rest were bones of porcines, caprines and canines. Something new was discovered in 1956 in the *Vădastra* II stratum: it was the 3rd phalanx of a horse⁴. In the *Sălcuța* stratum, late Neolithic, were disclosed bones of the same species of domestic animals, but in small numbers. For the moment there are no precise statistics for many other neolithic settlements on the Lower Danube. The bones of animals were not gathered and studied or the excavations were of smaller size or are still taking place.

Of the domestic animals reared for meat, milk, hides and, except for the pigs, for their bones from which various instruments and implements⁵ were processed, the bovines were of special importance, as they were first of all used as beasts of labour. The sheep and the goat were mostly reared for their wool and their hide⁶, the pig for fat, the dog to guard the house and the flocks⁷. During the middle and late Neolithic hunting and fishing lost much of their former importance⁸.

¹ A resumé of the paper *Considérations sur l'élevage et l'agriculture du Néolithique moyen au Bas-Danube*, read at the 3rd International Congress of South-East European Studies, Bucharest, September 4th-10th 1974, printed in the summaries of the essays, *Histoire*, 1974, I, p. 27.

² Cornelius N. Mateescu, *ArchRozhl*, 14, 1962, 3, p. 407—408, 410—412, 414, 419; *idem*, *Materiale*, 9, 1970, p. 68—75.

³ Arlette Leroi-Gourhan, Cornelius N. Mateescu, Em. Protopopescu-Pake, *Bulletin de l'Association française pour l'étude du Quaternaire*, 1967, 4, p. 271—279.

⁴ Corneliu N. Mateescu, *Materiale*, 5, 1959, p. 72; *idem*,

ArchRozhl, 14, 1962, 3, p. 412.

⁵ Cornélius N. Mateesco, in *Proceedings VIIIth International Congress of Anthropological and Ethnological Sciences 1968, Tokyo and Kyoto*, Tokyo, 1970, III, p. 142—144.

⁶ Basile Gheție et Cornélius N. Mateesco, *L'Anthropologie*, 78, 1974, 1, p. 13, 15—16.

⁷ *Ibidem*, 75, 1971, 5—6, p. 366—368.

⁸ After the excavations carried on at *Vădastra* in the years 1946, 1948, 1956—1959 the ratio between the bones of wild animals and those of domestic ones was 1 : 18.5.

Judging by the bones found, there were two breeds of bovines : one consisting of large-sized animals with long horns, characteristic today of the plain areas, another of small-sized animals with short horns, both known in the Neolithic on the Lower Danube. Their bones result from young and old animals, thin ones or fat ones, the Neolithic man being concerned with selective breeding.

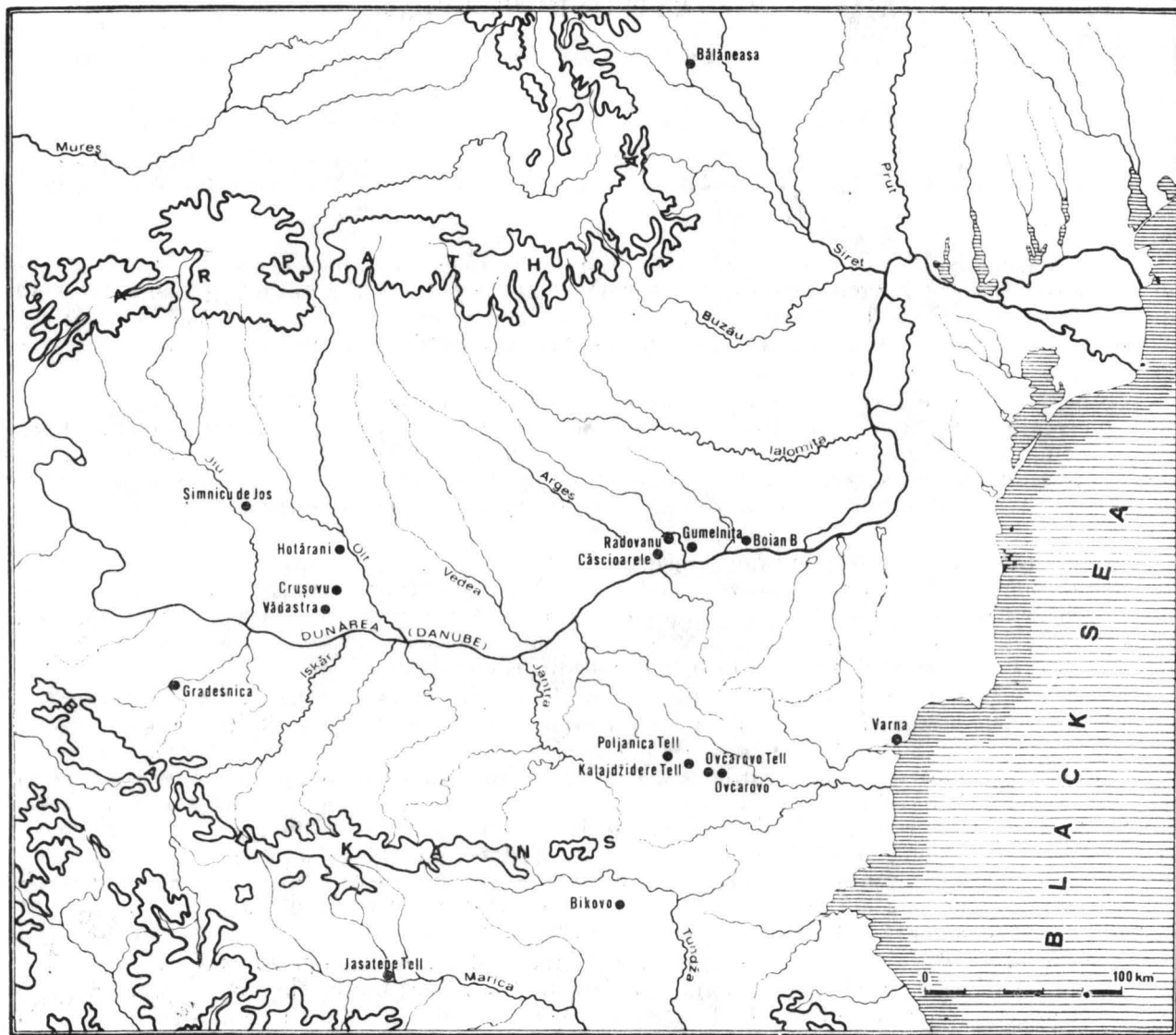


Fig 1. Map of the neolithic settlements mentioned in the text.

The comparative study of the bones of bovines, based on the examination of the articular conformation and of the macroscopic structure of the epiphyses of the long bones, led to the conclusion that some of the animals were used as beasts of draught or beasts of burden⁹. At the humerus, the lamellae of the spongy tissue, which represent the lines of force transmitting the pressure force exerted on the articular surface of the diaphysis compact are almost vertical and try to unite at the compact of the diaphysis (Pl 1/1). Hence there results that the bones studied come from animals whose members carried a great weight, the articular surfaces being far more taxed¹⁰. The same conclusions were reached after examining the humeruses of bovines in the mid-

⁹ Basile Gheție — Cornélius N. Mateescu, in *Actes du VII^e Congrès International des Sciences Préhistoriques et Proto-historiques*, Prague, 21—27 août 1966, Prague, 1971, 2, p. 1312—1313.

¹⁰ *Ibidem*, p. 1312.

dle Neolithic at *Crușovu*¹¹ or at *Gradeșnica*¹², as well from the investigation of the humerus of bovines in the late Neolithic, disclosed by the excavations in the *Jasatepe* tell at Plovdiv¹³.

Very interesting observations have been made regarding the radius bone which presents the most striking differences. Thus the bovines of the middle Neolithic at Vădastra and Crușovu (more especially those of the Vădastra II phase) were noticed to have the proximal and distal articular surfaces more developed in transverse direction (Pl. 1/2; 2/1), compared to the radius of bovines of today, not used for traction¹⁴. Investigating a larger number of radius bones in the settlements at *Hotărani*¹⁵, the Vădastra II phase and Gradeșnica, in the *Poljanica* tell, end of the Vidra phase¹⁶ (Pl. 2/2), at *Radovanu*, the Spanțov stage¹⁷ (Pl. 2/3), or in the late Neolithic settlements on *Boian B*¹⁸, *Gumelnița*¹⁹, *Căscioarele*²⁰ and the *Jasatepe* tell (Pl. 3/1), led to the same results. The development of the articular surfaces of the two epiphyses proves that the bovines were subjected while still young to great physical efforts. To be able to resist them the articular surfaces were modelled in the direction mentioned.

Under propulsion, the angles formed by the bony rays of the thoracic member were modified in comparison with the angles in a static position (Pl. 3/2). Thus, the humero-radial-ulnar angle decreased from 225° to 207°, perhaps even more while the carpal-metacarpal one increased from 175° to 196–200° and even more²¹.

The examination of the direction of the distal articular surfaces of the radii of some bovines in the middle and late Neolithic, disclosed that it exhibited a marked dorso-ventral and lateral-medial obliquity. The line of greatest obliquity is noticed in bovines which made great physical efforts while still young and the line less oblique was noticed in the bones of the animals which were exempt from great efforts (Pl. 3/3), being reared for milk or reproduction²².

The spiky processes of certain cervical and thoraco vertebrae of bovines of the Vădastra II phase discovered at Vădastra are more developed both in length and breadth (Fig. 2). This proves a development of the withers which is favourable to traction with the yoke. Judging by a well-preserved frontal bone of bovine from Vădastra, the development of the extensor and of the supporting musculature of the head²³ indicates animals used for traction.

If there is no doubt that in the middle and late Neolithic numerous bovines were used as beasts of draught, we can wonder for what kind of labour the animals were used. Of course, in the first place for the agricultural labour²⁴ that man could not perform by himself: ploughing, harrowing, the transport of the harvest, the threshing, etc. Judging by the large quantity of ashes of cereal plants found in the pits and in the civilization strata, produced by the burning of the straw for the various housekeeping necessities and taking into account the fact that a large quantity of straw was used to feed the animals, we conclude that on the Lower Danube, cereals were cultivated on a large scale in the middle and late Neolithic.

The soil of the settlement at Vădastra, lightly leigated chernozem formed from continuous deposits of loess²⁵, was an excellent soil for agriculture and has always been so. The same as here, on the Lower Danube plains and in the neighbouring regions there was good soil for agriculture and hayfields, cattle breeding and agriculture being equally favoured. Moreover, the litter of the flocks increased the fertility of the soil.

But rains that fell in time were more important than the quality of the soil and helped to produce bumper crops of high quality. This accounts for the prosperity of the population, reflected in the mode of life: spacious dwellings with several rooms, different production imple-

¹¹ *Ibidem*, p. 1311–1312.

¹² Unpublished osteological material examined with the kind permission of Prof. St. Ivanov and of Mr. Bogdan Nikolov who conducted the excavations.

¹³ Several humeri and radii were offered us for research by Prof. P. Detev to whom we tender our best thanks.

¹⁴ Basile Gheție et Cornélius N. Mateesco, in *Proceedings VIIIth International Congress ...*, Tokyo, 1970, III, p. 153.

¹⁵ Form a sounding performed by Mr. M. Nica. The osteological material employed comes from the Vădastra II stratum.

¹⁶ Unpublished osteological material offered by Mrs. Henrieta Todorova who conducted the excavations and to whom we tender our best thanks.

¹⁷ After Mr. Eug. Comșa who conducted the excavations and who gave us a few bones for our researches.

¹⁸ B. Gheție — C. N. Mateesco, in *Actes du VIII^e Congrès International des Sciences Préhistoriques et Protohistoriques*,

Beograd 9–15 septembre 1971, Beograd, 1973, II, p. 458–459.

¹⁹ Basile Gheție et Cornélius N. Mateesco, in *Proceedings VIIIth International Congress ...*, Tokyo, 1970, III, p. 153.

²⁰ *Ibidem*. Other radii from Căscioarele, which Mrs. Alexandra Bolomey entrusted to us a few years ago for our researches.

²¹ *Ibidem*, p. 153.

²² *Ibidem*; Basile Gheție et Cornélius N. Mateesco, *Zephyrvs*, 21–22, 1970–1971, p. 102–103.

²³ B. Gheție — C. N. Mateesco, in *Actes du VIII^e Congrès International ...*, Beograd, 1973, II, p. 456.

²⁴ Basile Gheție — Cornélius N. Mateesco, in *Actes du VII^e Congrès International ...*, Prague, 1971, 2, p. 1312–1313.

²⁵ Cornélius N. Mateesco et Em. Protopopescu-Pake, *Zephyrvs*, 19–20, 1968–1969, p. 28–31; Em. Protopopescu-Pake, Cornélius N. Mateesco et Al. V. Grossu, *Quartär*, 20, 1969, p. 139, 147–150.

ments, richly ornamented ceramics, exquisite clothing (as the pieces of the costumes recognised on some statuettes prove), rich tombs, etc. In the Vădastra II phase, there were produced vases whose decoration constitutes the most remarkable artistic achievement in the middle Neolithic on the Lower Danube²⁶, unequalled at the time, to say nothing of the decoration of wood none of which could be preserved. And the gold jewels and the clay vases, with a gold ornamentation in the necropolis at Varna²⁷ are unique for the whole late Neolithic in the region under consideration.

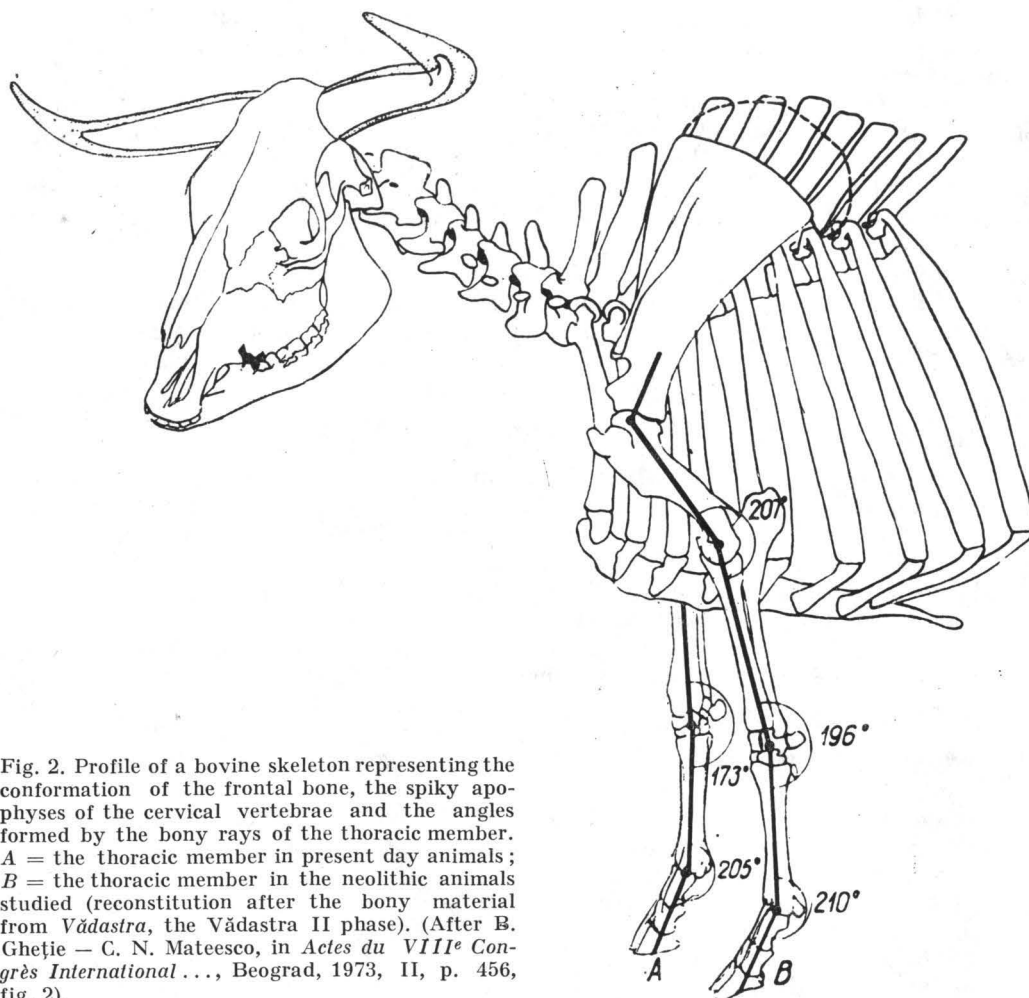


Fig. 2. Profile of a bovine skeleton representing the conformation of the frontal bone, the spiky apophyses of the cervical vertebrae and the angles formed by the bony rays of the thoracic member. A = the thoracic member in present day animals; B = the thoracic member in the neolithic animals studied (reconstitution after the bony material from Vădastra, the Vădastra II phase). (After B. Gheție — C. N. Mateescu, in *Actes du VIII^e Congrès International* ..., Beograd, 1973, II, p. 456, fig. 2).

In the middle Neolithic, life at Vădastra and in the region developed in a climate with a forest-steppe vegetation, an average temperature of 10–11°C and 450–500 mm of annual rainfall²⁸. As the analyses of the soil reveal, at the beginning of the Vădastra I phase the climate had a little more moisture²⁹. The investigation of the gasteropodes and the analyses of the pollen in the Vădastra II phase stratum reveal a forest-steppe climate with a rather greater degree of moisture³⁰.

In the Vădastra I phase, the pine trees (represented more especially by *Pinus* pollen) were more numerous than the leafy trees (*Betula*, *Fraxinus*, *Alnus*, *Corylus*, *Quercus*, *Tilia*, *Ulmus*,

²⁶ Corneliu N. Mateescu, in *Atti del VI Congresso Internazionale delle Scienze Preistoriche e Protostoriche*, Roma 29 agosto — 3 settembre 1962, Roma, 1965, II, p. 261.

²⁷ Ivan Sim. Ivanov, in *Resumés des Communications, III^e Congrès International d'Etudes du Sud-Est Européen, Histoire*, Bucarest, 1974, I, p. 21–22.

²⁸ Em. Protopopescu-Pake, Cornélius N. Mateescu et Al. V. Grossu, *Quartär*, 20, 1969, p. 153.

²⁹ Cornélius N. Mateescu, in *Bericht über den V. Internationalen Kongress für Vor- und Frühgeschichte Hamburg 1958*, Berlin, 1961, p. 530.

³⁰ Arlette Leroi-Gourhan, Cornélius N. Mateescu, Em. Protopopescu-Pake, *op. cit.*, p. 276, 278; Em. Protopopescu-Pake, Cornélius N. Mateescu et Al. V. Grossu, *Quartär*, 20, 1969, p. 159–160.

Buxus, Salix, Prunus avium, Cerasus, Hedera); in the Vădastra II phase the leafy trees were more numerous than the pine trees³¹.

Among the plants known since the upper Palaeolithic and earlier too, the graminacea developed very much in the middle Neolithic. Among the grains of graminacea pollen there are also grains of *Plantago lanceolata* and of *Cerealia*, which prove man's action.

In the late Neolithic the climate with forest-steppe vegetation continued, but slightly colder and with less moisture, becoming a climate with a steppe vegetation. Compared to the pollen of ligneous vegetation, the herbaceous pollen was found in larger quantities. It was now that the rye appeared (*Secale*)³².

Besides the quality of the soil and the climate, the crops also depended on the quality of man's labour (ploughing, harrowing, weeding). The agricultural implements employed in the middle and late Neolithic on the Lower Danube were made of wood and, unfortunately, could not be preserved³³.

The plough, as one can easily imagine, was at first made of a piece of wood with twin branches; one served as coulter and the other was hooked to a pole which the cattle drew. At Vădastra and in other settlements where the people of the Neolithic had succeeded in producing exceptional things in ceramics, it is impossible that there was not perfected plough, not to mention the ploughs of the late Neolithic³⁴, when the generations of tillers of the land had had the advantage of a millenary experience.

Most likely the harrow was made of twigs, the branches of bushes or brambles and it lasted long in that form, being used until the recent decades even at Vădastra.

For the threshing they used sickles made of wood or of stag antler, having an edge of flint blades. Such blades were found in settlements dating from the middle and late Neolithic. When the earth was soft they also pulled up the plants³⁵.

The sheaves were carried on the backs of bovines or, perhaps, even with a wagon the existence of which seems to be documented by some small clay wheels³⁶. The threshing was done with the help of bovines, or the sheaves were beaten with sticks, as used to be done not very long ago.

After the winnowing, the grains were turned into flour with the help of the stone grinders which have been found in large numbers in all the Neolithic settlements.

For other minor agricultural operations, small spades of stag antler or stone were used (they have been seldom met with in excavations³⁷); the handiest implement used was the club.

The analyses of pollen, carried on in the years 1966–1967, showed that in the middle Neolithic at Vădastra, the same as in the older strata here (the intermediate stratum, middle-prolonged Aurignacian stratum, the virgin soil), there existed graminacea³⁸. Later, in 1970, it was said but no attempt was made to prove it, that North of the Balkans there existed no wild grain plants before the Neolithic³⁹.

The histological investigation of the rests of cereal plants in the floors and rough casts of the walls of dwellings in the middle and late Neolithic discovered in various settlements on the Lower Danube prove the presence of graminacea next to *Cerealia*⁴⁰.

At *Șimnicu de Jos*, in a few specimens of rough casts of a dwelling dating from the middle phase of the Criș civilization⁴¹, one can notice imprints of graminacea, calcined leaves and stalks most likely of *Triticum* sp., the imprints of leaves and two caryopses of *Hordeum* sp. wrapped in a calcined palea. There was also the chaff of the caryopses of some monocotyledons, most likely *Triticum*.

In one of the specimens from *Ovcharovo*, later Criș⁴², there was found a caryopsis of *Hordeum* sp. and a fragment of a leaf, (Pl. 4/1 a-b), perhaps a wild plant and not a cultivated one.

³¹ Arlette Leroi-Gourhan, Cornélius N. Mateesco, Em. Protopopescu-Pake, *op. cit.*, pl. 3.

³² *Ibidem*, p. 276.

³³ On the agricultural implements discovered South of the Danube: Kăncio Kăncev, *Arheologija Sofia*, 9, 1967, 3, p. 50–64; P. Detev, *Godišnik Plovdiv*, 1968, 6, p. 49–64 (with a résumé in French).

³⁴ Cf. Vladimir Dumitrescu, *Dacia*, 9, 1965, p. 61–64. According to the elements and data submitted, the author's argumentation that it is the coulter of a plough that faces us is not convincing. A talk with engineer Sylviu Comănescu reveals that, from the point of view of the strength of materials, the section of the spare part could not support the drawing pressure which opposes the soil.

³⁵ In the specimens from the rough cast of the walls of a dwelling belonging to the Vădastra II phase, discovered at Vădastra, Prof. I. T. Tarnavski found fragments of stalks

of cereals with their roots.

³⁶ A small wheel in the Brukenenthal Museum, Sibiu.

³⁷ In all the excavations at Vădastra a single fragment of a small spade made of stag antler was found in the Sălcuța stratum.

³⁸ Arlette Leroi-Gourhan, Cornélius N. Mateesco, Em. Protopopescu-Pake *op. cit.*, p. 275–276; Em. Protopopescu-Pake, Cornélius N. Mateesco et Al. V. Grossu, *Quartär*, 20, 1969, p. 159–161.

³⁹ Vladimir Dumitrescu, *SCIV*, 21, 1970, 2, p. 192–193.

⁴⁰ Histological researches of specimens from various Neolithic settlements on the Lower Danube, as it shall further be seen, carried on by Prof. I. T. Tarnavski.

⁴¹ Form the excavations performed in 1973 conducted by Mrs. Doina Galbenu who gave us the specimen for our researches.

⁴² Specimens offered by Mrs. Henrieta Todorova who conducted the excavations.

At Vădastra, as the grains and the rests of roots and stalks of cereal plants in the rough casts of the walls and floors of a dwelling dating from the Vădastra II phase show, *Triticum*, probably *monococum*, *Hordeum* sp., *Panicum* sp.⁴³ were cultivated (Pl. 4/2 a-c).

In the excavations on the Ovčarovo tell, late Neolithic, grains of wheat were found of larger size (Pl. 4/3 a-c), similar to the recent grains of wheat. Most likely, a sort of *Triticum vulgare* (*aestivum*) cultivated at present too. In the specimens examined no rests of chaff were observed, which proves that the wheat had been carefully winnowed.

Triticum vulgare appears in the area of painted ceramics in Romania, discovered in the settlements at Bălăneasa, Bacău Co., (Pl. 4/4 a-c), dating from the Cucuteni B phase⁴⁴.

Large grains of charred wheat, most likely belonging to the species *Triticum vulgare*, were found in a large vase in an Aeneolithic settlement, near the village of Bikovo⁴⁵, together with small grains of wheat which have both ends sharp: *Triticum monococum* (Pl. 5/1 a-c).

In the specimens from Kalajdžidere⁴⁶ tell there appear leaves and stalks of graminacea (Pl. 4/5), probably *Triticum* sp., a material gathered from a primitive area; the cereals do not seem to be pure from a constitutive point of view. In the specimens from here, there are leaves of *Plantago* too.

In a specimen from the excavations performed in 1965 at Vădastra, there appeared in the Sălcuța stratum (the latter half of the 4th millenium) a small percentage of small grains of rye (*Secale*).

In the majority of the specimens examined there were found also fragments of leaves and stalks of sedge (*Carex*), which proves that the agricultural plots of land extended in the proximity of rivers.

The smaller quantities of cereals resulting after the threshing were deposited and preserved in large clay vases of different shapes found in the dwellings discovered in the settlements on the Lower Danube. Some of the vases still contained charred wheat. The larger quantities were preserved in grain pits or in storehouses.

The grain pits began to be studied recently. Often, during the excavations, they were wrongly considered household pits or pits to burn clay pots. At Vădastra several grain pits were found, belonging to the Vădastra II phase. Two metres deep, they had a wide bottom and a narrow neck and could store some 2 000 kg cereals⁴⁷, a sufficient quantity for a year, for the needs of a household.

Dug in dry soil and well plugged up, well protected against atmospherical agents and against the action of rodents, the grain pits were able to preserve cereals in good condition⁴⁸. That is why they were used in the course of time until the end of the last century.

As regards other regions in the South, storehouses are mentioned, in which cereals were deposited and preserved⁴⁹.

The following conclusions result from what has been set forth above:

- in the middle and late Neolithic the geo-climatic medium on the Lower Danube equally favoured cattle breeding and agriculture;
- among the animals reared (the ox, the sheep, the goat, the pig, the dog) the bovines were of special importance as beasts of burden or of traction, more especially in agriculture;
- animal traction and agriculture marked a revolution in the neolithic economy (sedentary living, settlements that lasted long, some in very prosperous conditions, etc.);
- in the middle and late Neolithic the animals were selected and agriculture was extensive, the cultures diversified (barley, wheat, millet, rye);
- besides straw used as food for the cattle, as fuel and in building, a quantity of grains was used as food for the animals (fat bovines);
- larger quantities of cereals were deposited and preserved especially in grain pits;
- cattle breeding and agriculture, the bases of Neolithic economy, prove that the population were well off, some with far higher concerns, more especially in the field of the arts.

⁴³ Ion T. Tarnavski și Corneliu N. Mateescu, *Importanța cercetărilor palinologice din așezarea de la Vădastra (cunoașterea climei și vegetației din neoliticul mijlociu în Cîmpia Dunării)*, în *Progrese în Palinologia Românească*, II (in press).

⁴⁴ Excavations performed under the management of Mr. Constantin Buzdugan who let us have a few grains of corn for our researches. Cf. Eug. Comșa, *Terra Nostra*, 1973, p. 249.

⁴⁵ Cf. P. Detev, *op. cit.*, p. 55–58, 63–64.

⁴⁶ Offered for our researches by Mrs. Henrieta Todorova.

⁴⁷ Sylviu Comănescu and Corneliu N. Mateescu, *Proceedings of the Anglo-Romanian Conference, Mamaia 1970*, Edinburgh, 1971, p. 419–420.

⁴⁸ At Vădastra, in the excavations performed in 1974 a grain pit with a hiding place (Pl. 5/2) was discovered. It is unique.

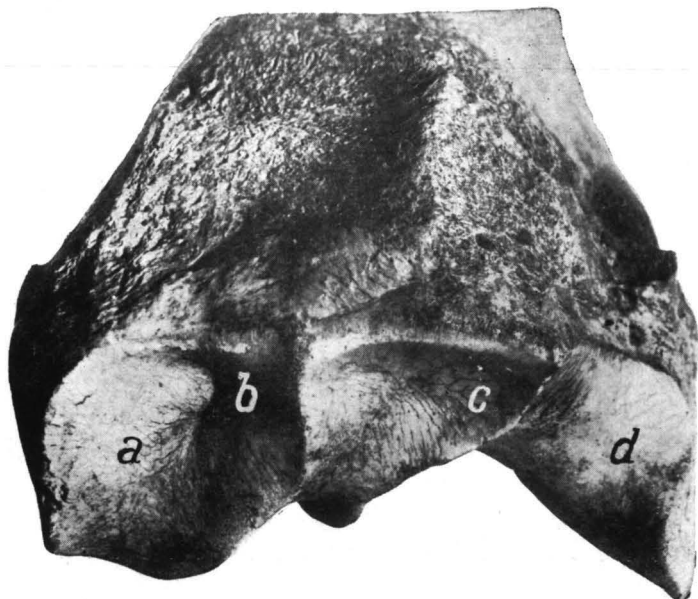
⁴⁹ P. Detev, *op. cit.*, Fig. 9/2.



PLATE 1.1. Sagittal section in the proximal epiphyses of the humerus; the arrows indicate the direction of the trabeculae (*Vădastra*, the *Vădastra* II phase). (After B. Gheție — C. N. Mateesco, in *Actes du VIII^e Congrès International* . . . , Beograd, 1973, II, p. 458, fig. 4).

2. The upper articular surface of a bovine radius (*Vădastra*, the *Vădastra* II phase). a) *fovea capitis radii*; b) *fovea synovialis*. (After Basile Gheție et Cornélius N. Mateesco, *Zephyrus*, 21—22, 1970—1971, pl. 1/2).

PLATE 2. 1. Distal articular surface of the bovine radius (*Vădastra*, the *Vădastra* II phase). *a*) *proc. styloideus radii*; *b*) *fossa digitalis medialis*; *c*) *fossa digitalis lateralis*; *d*) *proc. styloideus ulnae*. (After Basile Gheție et Cornélius N. Mateesco, *Zephyrus*, 21—22,, 1970—1971, pl. 2/2).



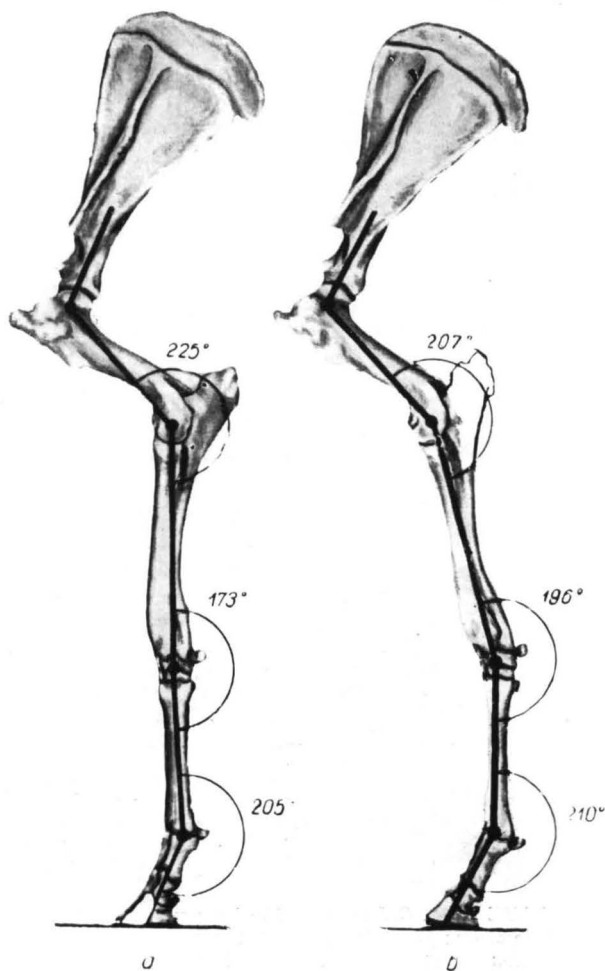
2. Distal articular surface of a bovine radius (*Poljanica* tell, end of Vidra phase).



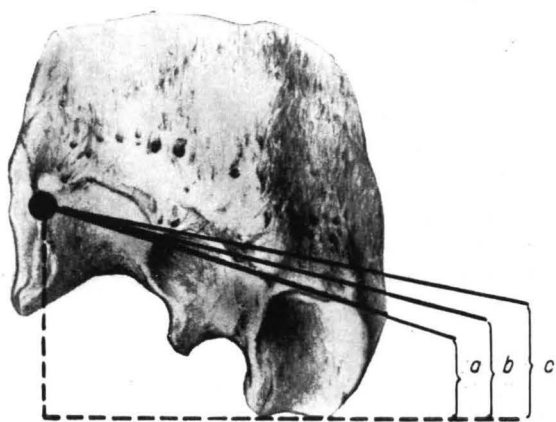
3. Distal articular surface of a bovine radius (*Radoveni*, *Spânțov* stage).



2. Articular angles from the bovine thoracic member. *a*) static position at rest; *b*) dynamic propulsion position. (After Basile Gheție et Cornélius N. Mateesco, *Zephyrvs*, 21—22, 1970—1971, pl. 3/1).



3. Lower articular surface of the bovine radius. *a*) the oblique, articular line in the animal subjected to a physical effort; *b*) the oblique articular line in the animal without any physical effort; *c*) the oblique articular line in an animal kept in stalling. (After Basile Gheție et Cornélius N. Mateesco, *Zephyrvs*, 21—22, 1970—1971, pl. 4/2).



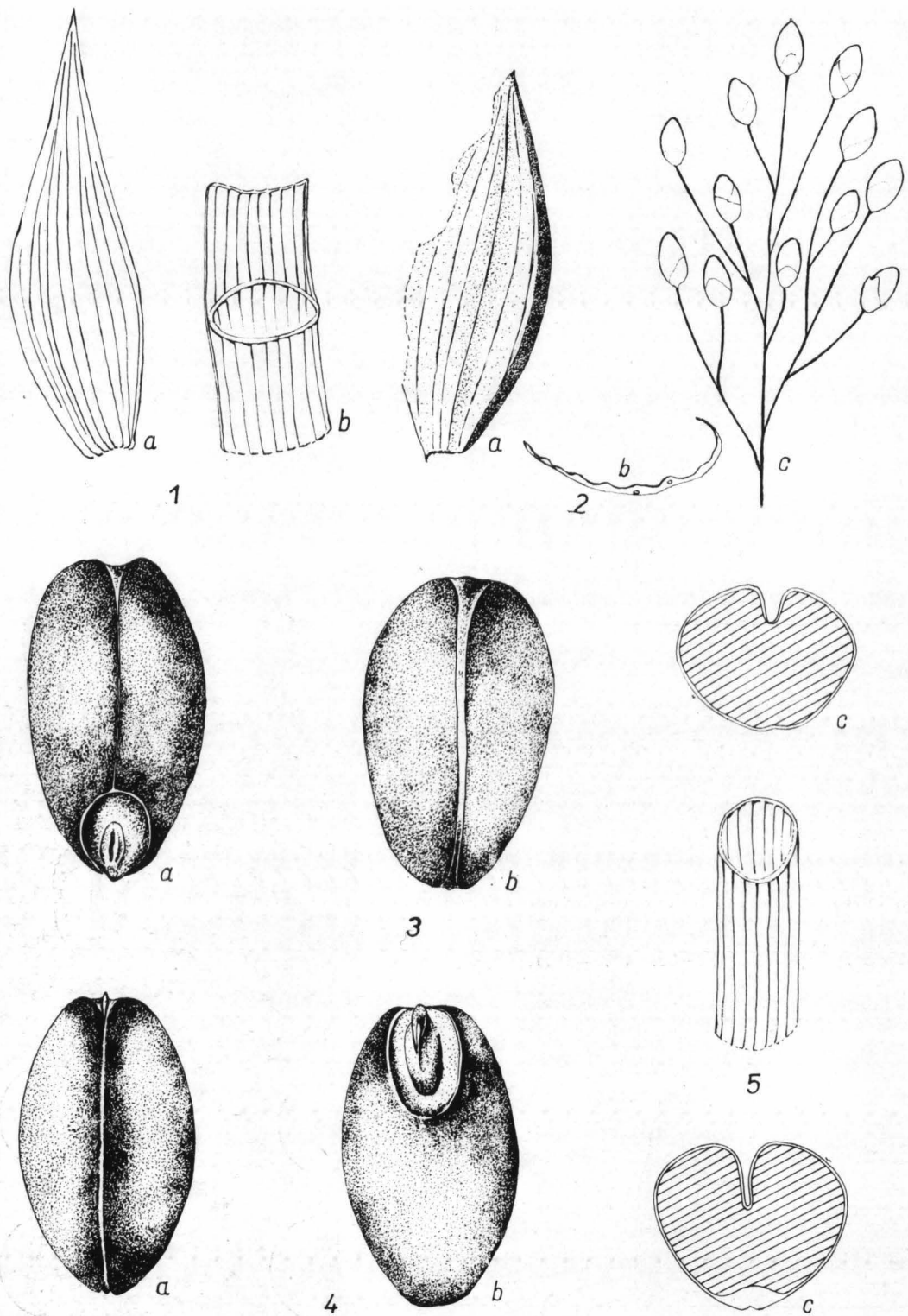


PLATE 4. 1. *Ovčarovo*. a) *Hordeum* sp.; b) fragment of a leaf. 2. *Vădastra*. a) *Triticum*, probably *monococum*; b) section through the palea; c) *Panicum* sp. 3. *Ovčarovo* tell. a—b) *Triticum vulgare* (*aestivum*); c) section through the grain. 4. *Bălăneasa*. a—b) *Triticum vulgare* (*aestivum*); c) section through the grain. 5. *Kalajdzidere* tell. Stem (upper end) of graminaceae. (All magnified circa 8 times).

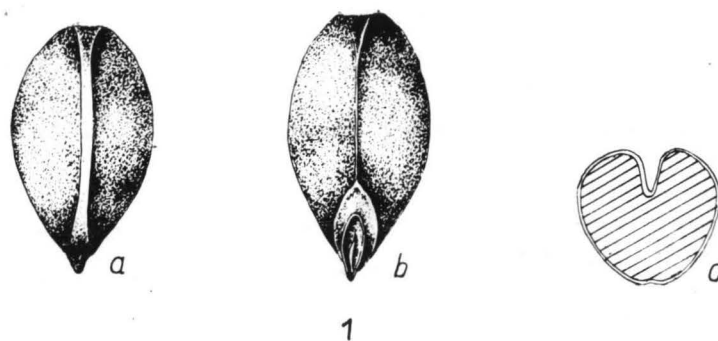


PLATE 5. 1. *Bikovo*, *a-b*) *Triticum monococum*, small grain sharp at both ends; *c*) section through the grain. (All magnified circ. 8 times).



2. *Vădastra*. Grain pit (A) with a hiding place (B).