

Plastic anthropological reconstruction of the head by the skull of the Thracian princess of Vratsa (IV century B.C.)

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A plastic anthropological reconstruction of the soft tissues covering the head has been carried out on a woman's skull from the IVth century B.C. found in the Mogilan mound in the town of Vratsa. The anthropological study established a female sex representation, an age of 15 to 16 years and the racial type was determined as gracile mediterranean. The restoration of the soft tissues has been performed after the routine method of the laboratory for plastic anthropological reconstruction. The adornment of the head corresponds fully to the golden laurel wreath and golden earrings found near the skull in the tomb. The complete final plastic reconstruction presents the image of a young Thracian girl belonging to an aristocratic family.

Key words: anthropology, skull, Thracian, plastic reconstruction.

In 1985 a plastic anthropological reconstruction of the head by the skull of the so-called "Thracian princess" from the town of Vratsa was made. The skull was discovered in excavation works of the Mogilan mound site in the town's centre in 1965 [6, 7, 8, 12, 13, 14].

P. Boev was the first to explore it anthropologically [1]. That is how he presents the finding: "The skeletons are in a very poor condition and their full restoration is impossible. The skull of the Thracian princess and her servant are better preserved. The princess is a young girl at the beginning of juvenility.

The skull is gracile, brachicranial. The cranial index of the princess cannot be defined but it probably is dolichocranial or mesocranial. The woman is aged towards the end of juvenility. The skull is gracile and tiny, most evidently belonging to the gracile type of the mediterranean race. Only fragments are preserved from the other bones which do not allow for drawing conclusions as to their racial typing."

State of the skull (Fig. 1). Almost the entire right half of the skull is missing. The available bones are fragile, strongly demineralised which grossly hampered the skull restoration. Ten permanent teeth are only preserved; three of them are with a separate fragment of the right half of the mandibular body.

Determination of sex. The metric and descriptive features categorically characterize the skull as female.

Determination of age. By assessment of the degree of the ossification of the skull sutures it was established that all sutures of the skull (the ones that are between the preserved bones) are open, i.e. the processes of their ossification were far from initiation (3.5). Better opportunities for the exact determination of age were rendered by the available 10 permanent teeth. From the X-ray pictures - an orthop Panorama and others of single teeth it is seen that root growth is totally completed for all teeth excepting for the two second left molars - the upper and lower ones (Fig. 2). In the upper second molar, the root growth of the lateral hind root is not terminated and for its lower counterpart it is the hind root. The terms for the final completion of the tooth root growth is 14-16 years for the upper one and 14-15 years for the lower second molar [4]. The incompleteness of root growth is more distinctly manifested in the maxillary second molar. The degree of development of tooth roots gives grounds for assuming the age in the interval of 15-16 years. If we admit that at the time when the Thracian princess lived processes of retardation or acceleration had been taking place we can broaden the interval by 0.5 to 1 year. Upon inspection of the orthop Panorama a lack of the tooth germ of the third molar is established on the left below (the other wisdom teeth and the underlying bones are missing). This is encountered also in recent population but its presence would allow a much more precise determination of the age of the skull under study.

Peculiarities. An impact of a weak artificial deformation is found on the skull [10]. The concavity is parallel and directly behind the sutura coronalis and most probably is the result of a deliberate or unwilful wearing of a single ribbon bandage. It could have been shaped as a hat, ribbon, some type of adornment or a special de-



Fig. 1. The skull of the "Thracian princess" of Vratsa (IV century B.C.) before the restoration in frontal and vertical aspects. An open metopic suture (arrow)

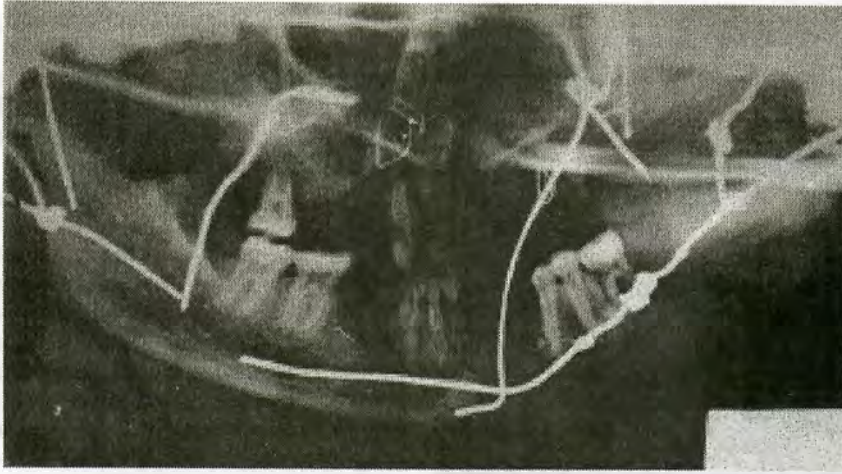


Fig. 2. An X-ray picture of the jaw bones and the teeth from the skull of the "Thracian princess" of Vratsa (IV century B.C.) - Orthopantograph

vice. The artificial deformation of the Thracian princess's skull is undoubted and the degree of its manifestation is clearly displayed by the left profile craniograph performed. The concavity is of a 4 mm depth and of a width of 39 mm. It is possible that the shape and convexity of the forehead are influenced also by the artificial skull deformation. An anatomical variation is registered in the skull (Fig. 1) - an open metopic suture dividing the frontal bone squama into left and right halves. Its normal closing takes place at the end of the second year. In modern Bulgarian population it is found in about 7.5% of the population [11.16]. Its presence may be attributed to the action of the ossification germinal sites in the process of growth and development of the cranial bones, the frontal bone in particular. In this respect, the two frontal elevations are strongly pronounced where the germinal ossification sites of the frontal bone squama are localized.

Restoration of the skull. After an evaluation of the skull's condition it was restored and stabilized after the routine technique (10). For the restoration of the almost totally missing right half were used and the sizes of the left half to the median plain. (Fig.3).

Metric features of the skull. Measurements of the skull were made after the restoration. It is possible that some of the sizes are not absolutely exact because of improper restoration work. In the table these are notified by a question mark (Table 1). Fifteen indexes were calculated between the absolute sizes. According to them the skull is dolichocranial, hypsicranial and acrocranial (orthocran and metriocran with auricular height), eurimetop, euriprosop, eurien, hypsiconch, hammerhin, brachiuran [2, 3, 5, 14].

Descriptive features of the skull. [3, 5, 10]. The vertical outline of the skull is ovoid. The occipital bone is moderately convex backwards and of circular shape. The calvarium is slightly bowed in profile with the described concavity caused by the artificial deformation of the skull. From the occipital aspect the skull has a circle-like eave-shaped silhouette. The occipital relief is weakly expressed. The forehead is straight, slightly convex forward with pronounced frontal elevations, weakly devel-



Fig. 3. The skull of the "Thracian princess" of Vratsa (IV century B.C.) after the restoration. Frontal aspect

oped supraciliary projections and glabella. In frontal aspect the skull has a pentagonal shape with a convexity of ossa zygomatica outside the orbit. The orbitae are square-shaped with smooth angles, high and closed. The right one is higher and is situated by 2 mm lower than the left one. The vertical slant of the orbitae is 80° and the horizontal one - 138° . The nasal bones are straight and symmetrical. Apertura piriformis has a pear-like triangular shape with a lower end - Anthropina, with a horizontally located moderately big nasal spike. The cheek bones are well developed with an angle for the vertical slant of 57° - which is typically true for the Europoids. Fossa canina are of medium depth. The teeth are big in a psalidontal bite. The mandibula is moderately developed, well-shaped with a protruding chin of triangular shape. Ramus mandibulae is very wide and of a small height. The face as a whole is well-profiled in the horizontal and vertical plains.

From the anthropological study of the skull thus carried out it can be calculated that the "Thracian princess" of Vratsa (IV century B.C.) was a young

woman (14-15 years of age) possessing the features of the gracile mediterranean racial type.

Plastic anthropological reconstruction of the head by the skull of the "Thracian princess" of Vratsa [9, 10]. The plastic anthropological reconstruction of the head was performed on gypsum copy of the skull moulded in an elastic imprint taken after its restoration. The work followed the order established by the method currently used by us. After the in-detail medico-anthropological study of the skull on a left profile craniograph, the graphic reconstruction of the profile was made. The profile displays a medium-sized head, elongated backwards with a big skull height. The forehead is high, slightly convex to the front and in its lower part distinctly making the transition into the nasal back. The nose is straight, medium-sized, with a hardly detectable crest in its upper third, moderately protruding with a horizontally situated oblong apex. The nasal wings are pronouncedly cut. Following an oval course the nasal septum passes into the upper lip. The rima oris formed by the two moderately high, well folded lips is horizontally located. The chin is well-outlined, moderately protruding with an oval transition to the underchin and sulcus mentolabialis.

The modelling of the soft tissues covering the head began by restoring the chewing muscles (the massetera) and the neck muscles consistently following all stages described and accepted in the used method.

T a b l e 1. Absolute skull sizes and indexes of Thracian Princess (15—16 years) — IV century B. C.

No	No after Martin	Size	Value	Size category
1	1	Cranial length	182	very large
2	5	Cranial base length	103	very large
3	8	Cranial breadth	135?	medium
4	9	Minimum frontal breadth	98?	large
5	12	Occipital breadth	106	large
6	17	Cranial height	141	very large
7	20	Cranial height from Porion	114	large
8	23	Cranial circumference	509	large
9	33	Cranial volume in cm ³	1352	large
10	40	Facial length	94	medium
11	45	Bizygomatic breadth	124?	medium
12	47	Total facial height	98	very small
13	48	Upper facial height	55	very small
14	50	Maxillofrontal breadth	22	
15	51	Orbital breadth	37?	very small
16	52	Orbital height	32	small
17	54	Nasal breadth	25	medium
18	55	Nasal height	42	very small
19	56	Nasal bone height	14?	
20	60	Maxilloalveolar length	49?	small
21	61	Maxilloalveolar breadth	58?	small
22	66	Bigonial breadth	94?	medium
23	67	Frontal mandibular breadth	45	medium
24	68	Mandibular length (projection)	82	very large
25	69	Symphysial mandibular height	25	very small
26	70	Height of ascending ramus	56?	medium
27	71a	Minimum breadth of ascending ramus	33?	large
28	72	General profile face angle	88°	very wide
29	73	Nasal profile angle	89°	wide
30	74	Alveolar profile angle	84°	very wide
31	75	Nasal bone profile angle	51°	
32	79	Mandibular angle	125°	medium
33	after	Orbital horizontal tilt angle	134°/142°	right/left
34	Gerassimov	Orbital vertical tilt angle	80°	
35		Zygom. vertical tilt angle	57°	
36		Nasal height	52	
37		Breadth between upper second premolars	51	

INDEXES

38	1(8:1)	Cranial breadth-length	74,18	small
39	2(17:1)	Cranial height-length	77,47	large
40	3(17:3)	Cranial height-breadth	104,44	very large
41	4(20:1)	Cranial height-length from	62,64	medium
42	5(20:8)	Cranial height-breadth from	84,44	large
43	13(9:8)	Transversal fronto-occipital	72,59	large
44	38(47:45)	Facial	79,03	very small
45	39(48:45)	Upper facial	44,35	very small
46	40(66:45)	Transversal zygomaticomandibular	75,81	medium
47	42(52:51)	Orbital	86,48	medium
48	48(54:55)	Nasal	59,52	large
49	54(61:60)	Alveolar	118,37	medium
50	60(40:5)	Facial protrusion	91,26	very small
51	71(45:8)	Transversal cranio-facial	91,85	medium
52	73(9:45)	Transv. fronto-zygomatical	79,03	large



Fig. 4. Final plastic anthropological reconstruction of the head after the skull of the "Thracian princess" of Vratsa (IV century B.C.). Frontal aspect



Fig. 5. Final outcome of the plastic anthropological reconstruction of the head after the skull of the "Thracian princess" of Vratsa (IV century B.C.) with the golden laurel wreath and the earrings. Left lateral aspect

In the last stage of the reconstruction of the image of the "Thracian princess" the eyebrows, the auricles and the haircut were modelled. The hair was put in a highly placed bun. Its centre is situated along the line passing across the chin and the external auricular meatus.

This decision was prompted by the golden needle found under the occipitoparietal part of the skull which has been probably used for the attachment and support of the lock as well as from the frescoes of the Kazanluk tomb (the chief's wife), from images on coins, ornaments, vessels etc. (Fig. 4). As for the adornment the task in this case was easy owing to the golden laurel wreath and golden earrings found near the skull [15].

The completed plastic anthropological reconstruction of the head by the skull of the "Thracian princess" of Vratsa (IV century B.C.) is the only visualized image of a young Thracian girl belonging to a high-ranking family up till now. The head is slightly raised upwards. The look is pointing forward. The complexion is one of a dignified proud person conscious of her social status. The hair is drawn backwards and put in a bun. The clear profile of the head is outlined - a high, slightly judding out forehead, a delicate, straight nose, small lips, well-shaped cheek bones and a square chin (Fig.5)

Having in mind the established facts: archaeological data, young age of the woman, the absence of pathological changes on the teeth and cranial bones a sudden death can be suggested. Taking into account the religious concepts and rituals

of the Thracians [17] and linking them to the fact that in the Mogilan mound tomb in Vratsa a man and a woman had been buried together with the servant in a separate premises for the horses it can be assumed that she has followed her husband in his eternal immortality - a brave warrior and chief. She - the most beautiful, the youngest, the most lovable one. She - the newcomer from her far-off time and remaining in Bulgarian history as the "Thracian princess of Vratsa".

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