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Bd. Dr. Petru Groza nr. 8
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HEAD-HUNTING, ETHNOIATRY OR SKULL-CULT DURING THE NEOLITHIC IN ROMANIA? *

BY

DARDU NICOLĂESCU-PLOPȘOR and WANDA WOLSKI

During the archaeological excavations carried out in 1960—1961 [1] by C. S. Nicolăescu-Plopșor and Al. Păunescu at "Peștera Hoților" in Băile Herculane (Romania), there were discovered in the right chamber of the cave main corridor, a human skull without mandible, a human sacrum, a fragment of Bos humerus, and a small bowl. These objects were found in a small space enclosed by the very walls of the chamber; the opening was closed by some big stones, 12 — 40 cm. in length, placed horizontally or obliquely to the entrance (Fig. 1).

The human skull was found in the upper part of the chamber and the sacrum beneath it. The skull position faced south; at a small distance, of about 14 cm, there were the fragment of Bos humerus and the small, handmade bowl. It was made of light-brown paste, without any decoration (Fig. 2). The vessel rim seems to be ritually split in several points.

Over the skull there was no stone, because of the small distance (10 — 12 cm) between it and the quite inclined ceiling of the cave.

From a stratigraphic point of view, according to the findings of P. Roman during the excavations carried out in 1965 [2], two layers of different cultures can be observed: a thinner one, to be assigned to a later stage of Sălcuța culture, strongly contaminated with elements of late Tisa culture, and a second layer which attests a long habitation in the Coțofeni culture.

The bowl found in the proximity of the skull belongs — as shown by its work technique and form — to the first layer. This allows us to assign the human bones, both chronological-stratigraphically and culturally, to the later stage of Sălcuța culture, strongly contaminated with later Tisa elements. From among the metrical and morphological data concerning the human bones, we selected for our discussion only those liable to allow an analysis of the problem, related also to other findings [3].

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* Paper read at the Symposium of Medical Ethnology, Cluj, May 27—28, 1972

[1] C. S. Nicolăescu-Plopșor and Al. Păunescu, *Raport preliminar asupra săpăturilor de la Băile Herculane (1960—1961)* (Manuscript).

[2] Petre Roman, *Unele probleme ale neoliticului tîrziu și perioadei de tranziție în lumina săpăturilor de la Băile Herculane — Peștera Hoților*, in "Comunicări", series Archaeology, 1967, I, Craiova; cf. also Petre I. Roman, *Strukturanderungen des Endaeneolithikums in Donau-Karpaten-Raum*. Dacia, N S, 1971, XV, p. 31—169.

[3] Dardu Nicolăescu-Plopșor, *Anthropologische Angaben uber die menschlichen Überreste aus Băile Herculane* Dacia, N S, 1971, XV, p. 133.

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The skull belonged to a woman not older than 25 — 30 years of age. Friability and dolichocephalism (index 72.8), the relatively long and narrow, leptoprosopic face (index 57.2), the leptorrhine nose (index 43.3), the round eye-sockets of average dimensions, mesoconch (index 80.0) and generally the marked mesognathous form of the facial massif (index 83.0) plead in favour of including it into the group of phenotype structural variables peculiar to the ancient Mediterranoid populations.

The sacrum, wide and short, having a marked ventral curvature especially in its lower part, shows that it belonged to a female. The incomplete ossification of the 1 — 2 and 4 — 5 sacral vertebrae indicates a young age, which corresponds with the age of the skull. Although there is a marked correlation of sex and age between the skull and the sacrum, still we cannot categorically solve the question whether these bones belong to a single female or to two different persons of female sex, on the ground of the metrical and morphological data at our disposal.

In any case, we consider highly interesting to know, in the case of this ritual complex of skull associated to sacrum — the first of this kind in the literature to our knowledge — whether the bones have belonged to a single female, as all elements concur to show, or to two different persons. It is only blood-group determination, performed both on skull and sacrum, which could unmistakenly and objectively solve this problem.

The presence of a mark of violence on the left parietal and more especially the extensive detachment of the skull base together with the temporal bone and a large part of the occiput, which evidently are the result of a strong stroke, can be explained only as a ritual practice (Fig. 3).

We consider as indisputable the fact that we have to do with a *cult complex of the skull and the sacrum dating from the later stage of Sălcuţa culture.* Moreover, we consider worthy of mention some remarks, of special interest in connection with this finding. The fragment of Bos humerus, which has been placed in proximity of the skull, got impregnated after the soft parts (muscles and tendinous tissues) were disintegrated, with the precipitates which infiltrated and pervaded the space in which the cult complex had been deposited. As a result it got a reddish colour which is visible in all the depth of the bone. The human skull and the sacrum — of a white-yellowish colour — were covered by a reddish powder produced by sediments which, however, did not adhere or fill the bone texture. This testifies to the fact that the human bones have been brought there already "prepared", dried up before being moved and placed ritually in the cave chamber prepared previously. It is only after the cult complex had been closed that the human group of the later stage of Sălcuţa culture settled and inhabited the place. This finding, which is quite conspicuous stratigraphically, presents a special importance for the ritual behaviour of the neolithic human community at the moment of its settlement in the "Peştera Hoţilor" at Băile Herculane. Moreover, this finding offers some indications related to some ritual practice of later date, known under the name of "immure sacrifice", which will be dealt with in another paper.

We consider, under the conditions at Băile Herculane, that this finding is a quite isolated case for the neolithic age, when the skull and sacrum of a female were the object of a cult act. On the other hand, this

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raises the question whether we are entitled to consider it a case of accidental stroke with a contusive object, most likely silex, when the skull was mutilated by detachment of its base, or better to relate it with some practices of ritual anthropophagy, cannibalism or ethnoiatry. In the latter case, might it indicate the presence of some hed-hunters in the Neolithic ?

A short survey of some well-known facts is most necessary for giving a definite answer to this question which was only casually tackled by researchers, even by those engrossed in problems of funeral rites and rituals of neolithic communities.

The specialty literature, both anthropological and ethnological, and to a lesser extent the archaeological one, records a great number of works which analyse and accept — for fossil men — some ritual anthropophagical practices, of ethnoiatry and head-hunting. The opinions and conclusions in this direction are grounded on certain analogies which sometimes reach identity between fossil remains and objects of today found at some tribes practising head-hunting.

Such surprising analogies made some research-workers think that it was necessary to go back, in interpreting them, to those remote times and to the level of magical frame of mind of the fossil man. Some other authors, like A. C. Blanc for example, considered that identity of mutilation of occiput foramen magnum and of right side of skull base represents "an inflexible identity of the psychic functions and of mental reactions", which, according to this author, can justify the opinion that "there is the proof of the specific unity of man, starting as back as the Proto-Neanderthal man of Steinheim type up to the Homo sapiens of today" [4].

Mutilation of skull base with the Steinheim, Monte Circeo and Ngandong cave men is quite identical with that found with the head-hunters of New-Guinea of Borneo of today.

The Andamanians of the Indian Ocean and some tribes of Australia use to exhume after a time interval corpses of dead members of the tribe, and to preserve skulls in their huts. Thus, the skulls take part to certain festivities, such as wedding feasts, when they are being offered meals; the mandibles are often utilised as neck ornaments. Some authors consider that isolated mandibles discovered — as a matter of fact quite frequently as compared with burial-places where whole skeletons are discovered — may be explained by this practice.

Perhaps in the same way may be also explained the isolated human mandibles discovered in the neolithic settlements of Vidra and Băieşti-Aldeni, especially those found in closed archaeological compounds, from dwellings' interior.

Some authors, among whom especially Carlo Maxia and A. Floris [5] and Luigi Brian [6], relate the small, insignificant mutilations, circumscribed to the occiput foramen, with some ethnoiatric practices.

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[4] A. C. Blanc, *Torre in Pietra, Saccopastore, Monte Circeo. On the Position of the Mousterian in the Pleistocene Sequence of the Rome Area*, in Hundert Jahre Neanderthaler, Böhlau-Verlag, Köln, 1958, p. 172.

[5] Carlo Maxia and A. Floris, *Su una mutilazione finora non descritta del Foramen magnum riscontrata in crani italiani delle collezione dei Musei Antropolcgici di Cagliari e di Saffari*. Riv. di Antropol., LXVIII, 1961.

[6] Luigi Brian, *Mutilazione del foramen ed etnoiatria*, in *Atti del I Congresso di Scienze Antropologiche, Etnologiche e di Folklor, Torino, 19—23 Sept. 1961.* Torino, 1961, p. 317—336.

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The same meaning may have the object used in certain ritual practices of ethnoiatry — a fragment of parieto-occiput, taken by a broad circular section, in such a manner as to include the most part (more than a half) of a previously healed up trepanning [7]. Such a piece was discovered in a dwelling at Sărata-Monteoru from the Bronze age, Monteoru culture.

We mention also the skeleton without skull (M_1 of 1956) and the cult complex (M_2, 1956) belonging to the Cucuteni AB culture, excavated at Traian (Bacău county). The latter consists of a female skull, of approx. 60 years of age, without mandible and having the base destroyed, placed on a plate of the fruit dish type. All this was placed in a circular pit in which remains of several vases ritually broken were also found. This finding, initially considered as a case of "beheading"[8] and later as a "ritual of skull re-burying"[9], proved to be, after a more attentive analysis and correlated with other discoveries, indisputably a complex of skull cult.

Several skeletons without skulls, however in initial position, were discovered also in the necropolis of the Gumelnița type at Grădiștea Ulmilor — Boian-Vărăști (Fig. 7).

To the same Gumelnița culture belongs the finding discovered at Gumelnița in 1960 : in the neighbourhood of a surface dwelling, in a pit 45 — 50 cm deep, containing ash, pottery fragments, a broken lid and red ochre, there was discovered the skull of a child, $3^1/_2$ — 4 years of age, and several calf caudal vertebrae [10]. Obviously, we cannot consider it as a tomb, and in any case as a "simple pit dug near the hearth"[11]. Position, dimensions and content of the pit attest unmistakenly to the presence of a cult complex. For the Hamangia culture we mention the findings at Cernavoda, in the section "Columbia D", where a group of 6 fragmentary skulls have been discovered, disposed in two lines. They had between them a wild boar mandible, while over the rows of skulls, towards the east, placed transversally, there was a human thighbone; at the southern end there was a river stone placed there deliberately [12].

A discovery in the Placard cave, France, at the bottom of Magdalenian level, shows a conspicuous similarity with the Cernavoda discovery. In this case there are 4 skulls with mutilated bases disposed along the cave wall one near the other, turned up like cups. Together with the skulls there were only a thighbone and a humerus, in close contact with one another [13].

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[7] Olga C. Necrasov, Eugène Floru and Dardu Nicolăescu-Plopșor, *Contribution à l'étude de la pratique de la trépanation chez les populations préhistoriques du territoire de la R.P. Roumaine*. Przeglad Antropologiczny, 1959, **XXV**, p. 14—16, pl. VII, figs. 1 and 2.

[8] Hortensia Dumitrescu, *Découvertes concernant un rite funéraire magique dans l'aire de la céramique peinte du type Cucuteni-Tripolie*. Dacia, N.S., 1957, **I**, p. 97—116.

[9] Olga C. Necrasov and Dardu Nicolăescu-Plopșor, *Etude anthropologique des squelettes énéolithiques appartenant à la culture de la céramique peinte, Cucuteni-Tripolyé, découverts à Trajan*. Analele Univ. Al. I. Cuza — Iași, Seria Șt. Naturale, 1967, **5**, p. 66—80.

[10] Dardu Nicolăescu-Plopșor, *Expertiza antropologică asupra unui craniu de copil descoperit la Gumelnița în 1960*. SCIV, 1966, **17**, *1*, p. 109—112.

[11] Vl. Dumitrescu, *Gumelnița. Sondajul stratigrafic din 1960*. SCIV, 1966, 17, 1, p. 56.

[12] Sebastian Morintz, D. Berciu and Petru Diaconu, *Șantierul arheologic Cernavoda*. SCIV, 1955, VI, *1—2*, p. 154.

[13] Paul Werners, *L'anthropologie rituelle et la chasse aux têtes aux époques actuelle et paléolithique*. L'Anthropologie, 1936, 46, p. 33—43; cf. also H. Breuil, L'Anthropologie, 1909, 20, p. 211.

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Fig. 1. — "Peştera Hoţilor", Băile Herculane: the niche where the cult complex of the skull was disposed, followed — stratigraphically — by the Neolithic habitation.

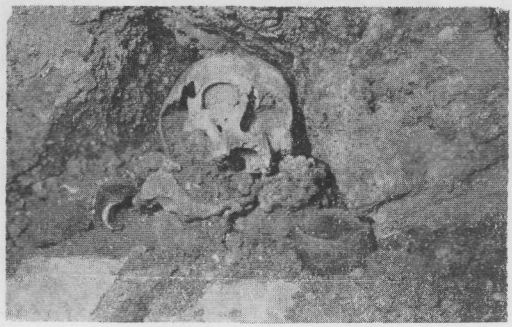

Fig. 2. — The skull cult complex, after the stone-slabs closing the opening have been removed.

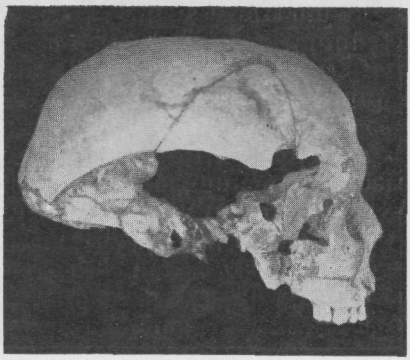

Fig. 3. — Female skull found in the cult complex of "Peştera Hoţilor", Băile Herculane. It may be observed the skull mutilation by an intended strong stroke aiming at extracting the cerebral mass.

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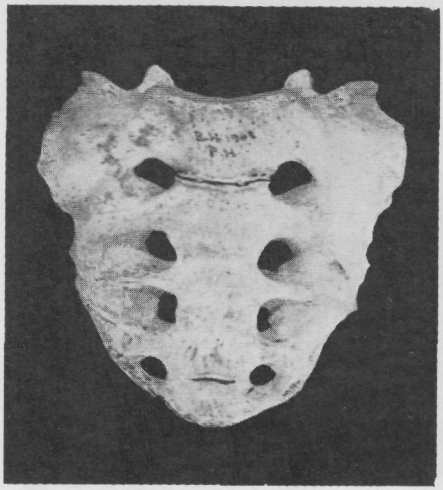
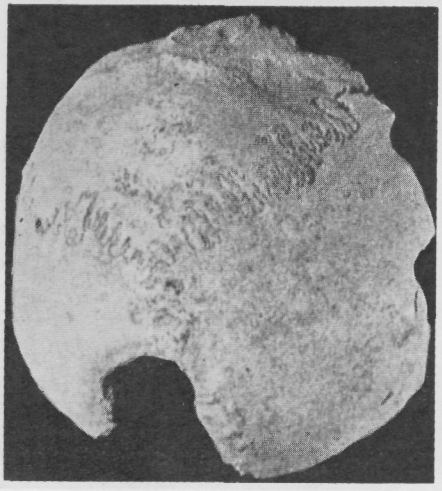
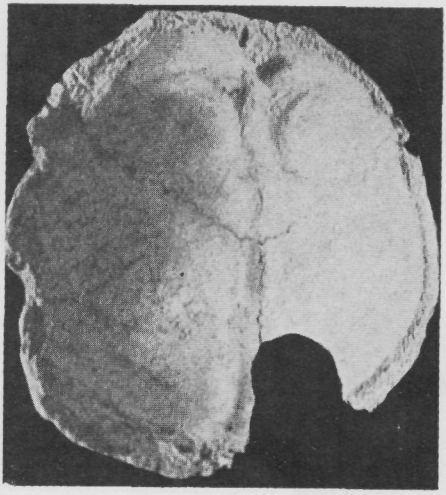


Fig. 4. — The sacrum, having the same age and sex with the skull, probably remains of the same female.

Fig. 7. — Skeleton without skull discovered in the necropolis of the Gumelnița type at Boian-Vărăști.





Figs. 5 and 6. — Skull fragment showing an old, already "healed up" trepanning, discovered on a ritual platform in a dwelling at Sărata-Monteoru, Monteoru culture. View of exocranial and endocranial faces.

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Likewise at Cernavoda, at the point named "Coada Zăvoiului", near the area where the remains of a surface dwelling belonging to the Hamangia culture have been discovered, "there were found human skulls placed ritually, which constituted in a first case a 5-skull group, while the others were isolated. With the skulls there were also some human long bones, and also ox, she-goat, and pig maxillaries"[14].

In conclusion, we consider worthy of mention the older discoveries in the Călăştur cave (Cheile Turzii) by the Cluj connoisseur Orosz Endre, made during the August 22 — 23, 1898 excavations and published by Erasmus Gyula Nyárády [15], which were brought to our attention by the archaeologist Nicolae Vlasa. They consist of a human skull, a neolithic vase of blackish colour, some painted ceramic fragments of Petreşti Culture and a beautiful silex knife, all these found in a niche in the southern wall of the cave, at 50 — 60 cm from the surface. A second discovery was at the opening of the Călăştur cave, where in a recess of the wall, also at some 55-cm depth, a human skull and near it half of a stone hammer have been discovered.

★

If it is generally admitted that he cave men practised a certain ritual anthropophagy, cannibalism and tethnoiatry or head-hunting, the analogy and even identity of certain palaeolithic discoveries with objects of today tribes of head-hunters justify us to raise the question whether during the Neolithic of Romania there were practised ethnoiatry and skull cult. We consider that the most representative findings in this country, as mentioned above, and also other ones constitute irrefutable proofs in this direction. At the same time, these findings prompt us to advance the proposal of limiting the use of the term "head-hunters" only to cases when the head was unmistakenly an object of head-hunting, irrespective of the ritual practice to which the skull was subjected later on.

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Bucharest

[14] Sebastian Morintz, D. Berciu and Petre Diaconu, op. cit., p. 158.
[15] Erasmus Gyula Nyárády, *A Tordatissodék*, Cluj, "Lyceum" Nyomda, 1937, p. 146.

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ONTOGENIC SPECIFICITY OF THE NEWBORN. CONTRIBUTION TO THE ELUCIDATION OF THE BIOLOGIC SIGNIFICANCE OF THE ACCELERATION PROCESS

BY

TH. ENĂCHESCU, SUZANA GRINȚESCU-POP and CRISTIANA GLAVCE

It is well known that the newborn has a specific conformation, widely illustrated in the specialty literature, among the descriptions of which we mention the classical one made by Stratz [5], as being more suggestive : the head has one fourth of the body's length as against only one eighth in the adult, the trunk is comparatively much longer, while the limbs are much shorter than in the adult.

The problem is whether to this specific conformation of the newborn there corresponds also an own physiology of his physical development and, likewise, whether this physiology is relevant to the biology of the human species as far as the latter's adaptability and evolution are concerned.

The answer to this fundamental question has been looked for by the authors of this paper within several studies in which they have registered the changes elicited in the physical development of the newborn by qualitatively antagonistic environmental conditions, acting either within simultaneous time intervals, i.e. within the same series of newborns [1] [2] [4], or within chronologically distinct time intervals, i.e. in successive generations of newborns [3].

Body dimensions and proportions were used for indicating the course of the developmental process in qualitatively dissimilar environmental conditions, and dissimilarity, in its turn, was employed for disclosing the biologic significance of the processes which were noticed.

Our results are presented under the form of several graphs arranged in such a way as to deduce the sequence of the studied processes. Since facts occurred repeatedly, we considered the utilization of tests as superfluous.

Thus, figure 1 reveals the relationship between the dimensions of the newborn and the quality of the environment. Compared with the general control series for the year 1950 — 1951, marked out on the graph by 100, the qualitatively contrary action of the environment orientates the reactivity of the considered 25 dimensional values in an opposite sense ; under the conditions of a favouring environment, the dimensions of the newborn are, with few exceptions, augmented ; on the contrary, under the

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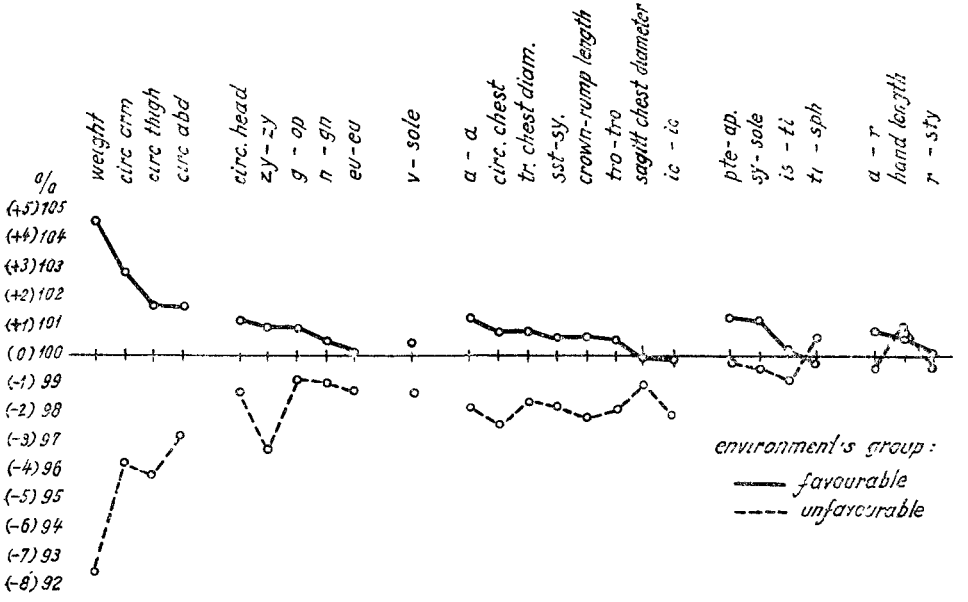

Fig. 1. — Ratio of newborn's dimensions depending on environmental conditions.

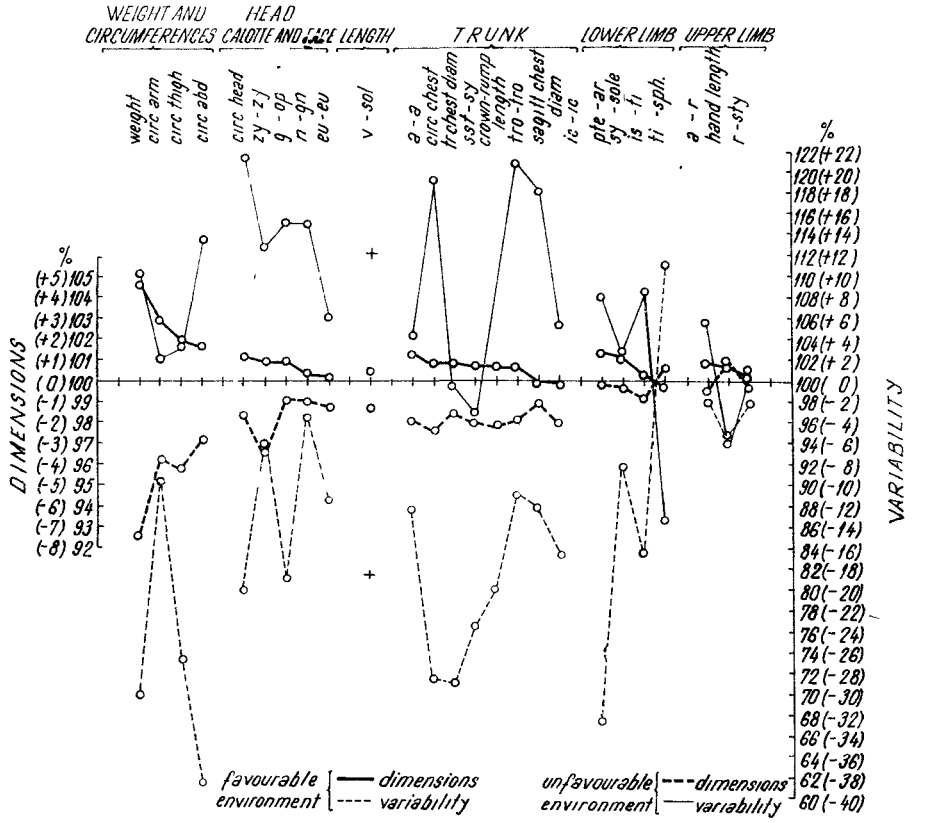

Fig. 2. — Simultaneous dependence of the dimensions and of their variability indices on the favouring and unfavouring environment.

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conditions of an unfavouring environment, the same dimensions as a rule diminish. The process of dimensional decrease is more accentuated than the contrary process of increase, the diminution attaining 2.43% as against no more than 1.38% for the augmentation.

Since it has been noticed that dispersion is triggered at the same time, the analysis of this aspect has been performed, as presented in figure 2.

Under the circumstances of a favouring environment, within the framework of which dimensions score an increase, variability shrinks

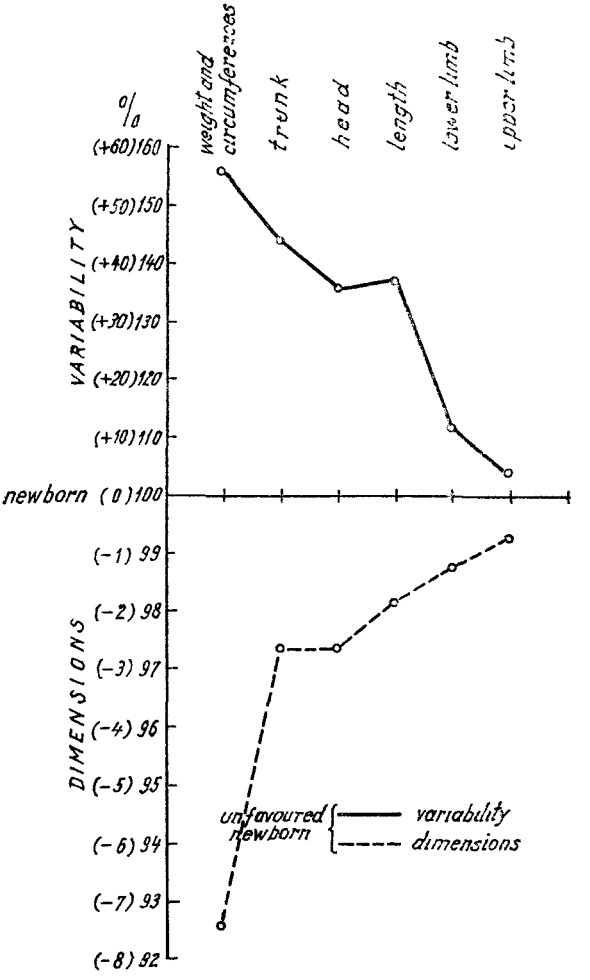

Fig. 3 — Dimensioning/variability ratio within the groups of newborns favoured and unfavoured by environment (favoured newborns = 100).

and, conversely, under the conditions of an unfavouring environment, when dimensions are on the downgrade, variability goes up. The process of shrinking dissimilarity is much more intensive than the process of its extension, amounting on the whole to 19.9% as against only 9.5%.

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The phenomena shown in the preceding figure are tackled once more in a direct manner of presentation, that of favouring-unfavouring environment, and in a cumulative grouping of parameters by body areas.

Figure 3 reveals the perfect oppositeness in the behaviour of variability and dimensioning, with a constant repetition of a hierarchy of reactive capabilities by categories of paired parameters : weight and adipose-muscular perimeters, trunk and head and, finally, the limbs.

In this manner of hierarchical ordering of the reactive capabilities lies one of the specificities of the ontogenetic stage of the newborn.

As a rule, these conformation changes depending upon the environment quality are little set off as compared with the dimensional ones, but two divergent conformation trends can be recognized (fig. 4) : in case of an unfavouring environment — reduction of bodily plenitude, hand and leg more slender, longer limbs with respect to the trunk — a conformation complex stands out which tends to leptomorphy, the contrary occurring in the favouring environment where everything converges toward the opposite expression of brachymorphy.

Proceeding further on this line of observation, the relationship between conformation and variability is investigated, depending on the environment quality.

From figure 5 the general impression emerges that facts repeatedly point out the extension of conformation dissimilarity in the case of a favouring environment, and, conversely, preferentially the shrinking of variability in the case of an unfavouring environment, but without qualitative significance.

In connection with all that has been established till now, a comparison is made concerning the integration of the acceleration process in the patterns of dimensional behaviour and of conformation and variability depending on the environment quality.

Newly found biometrical data on the Bucharest newborn of the year 1967 being available, the latter will be projected on the models of newborns of the time interval 1950 — 1951. The principal points of investigation are those apt to find out whether an acceleration process could be or not evinced and likewise, whether this acceleration is induced by the relationship favouring environment/growth and development increase [1], as well as whether there is an ontogenetic specificity in the acceleration process [2].

Figure 6 shows the dimensional evolution of the 1967 newborn versus the newborn of the years 1950 — 1951, for the latter the data being given for the general series, the group occurring in a favouring environment. A generalized somatic increase is to be noticed in the 1967 newborn, the process of acceleration being, therefore, obvious. Incontestably, and even to a greater extent, the dimensional behaviour of the 1967 newborn appears as enjoying a benefit, being, as we have ascertained, a characteristic expression of the relationship favouring environment/dimensional increase. Therefore, the acceleration process identifies with the model represented by the newborn in a favouring environment, the 1950 — 1951 series.

Discussing critically the validity of our results, we wondered whether the strong acceleration in the 1967 newborn was not perhaps due to the

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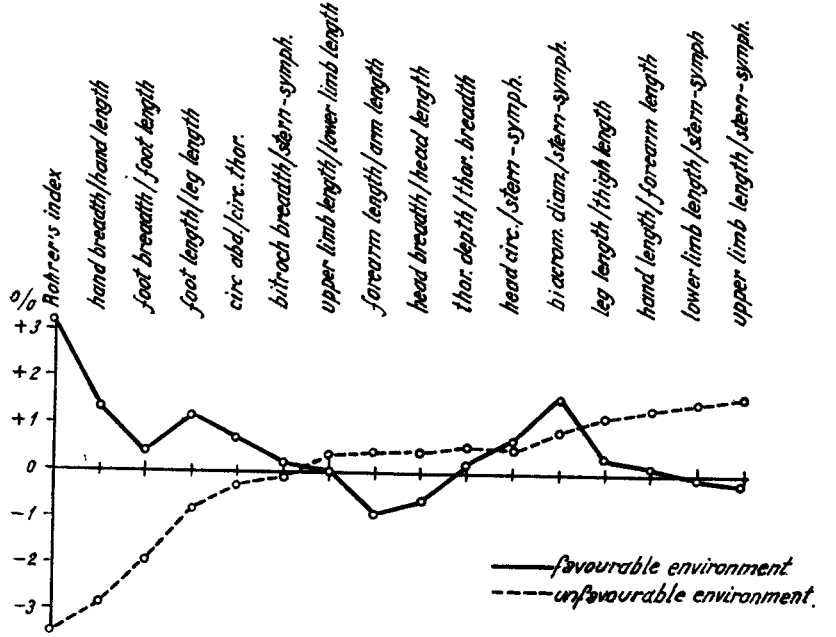

Fig. 4. — Corporal conformation of newborn depending on the environment quality.

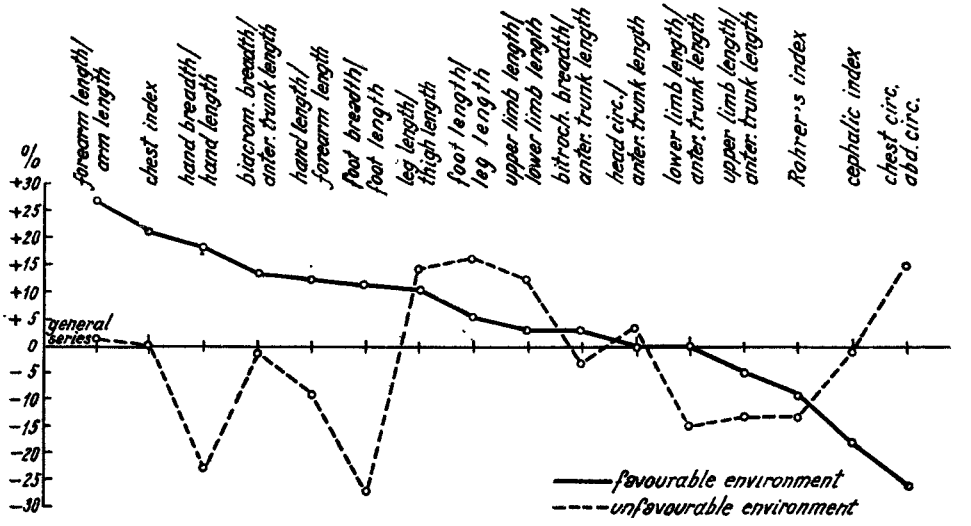

Fig. 5. — Variability indices of corporal conformation of newborns depending on the environment quality.

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fact that the mother of the 1967 newborn was herself accelerated, i.e. somatically more developed than the 1950 — 1951 mother.

This would result in bigger babies engendered by bigger mothers, without a new intervention of the accelerating environment. A comparison of the mother's stature in both series has indicated, however, the same size category (157.09 cm in 1950 — 1951 as against 157.66 cm in 1967), which shows that the acceleration of the newborn does exist irrespective of the factor "mother's stature", and consequently, is not

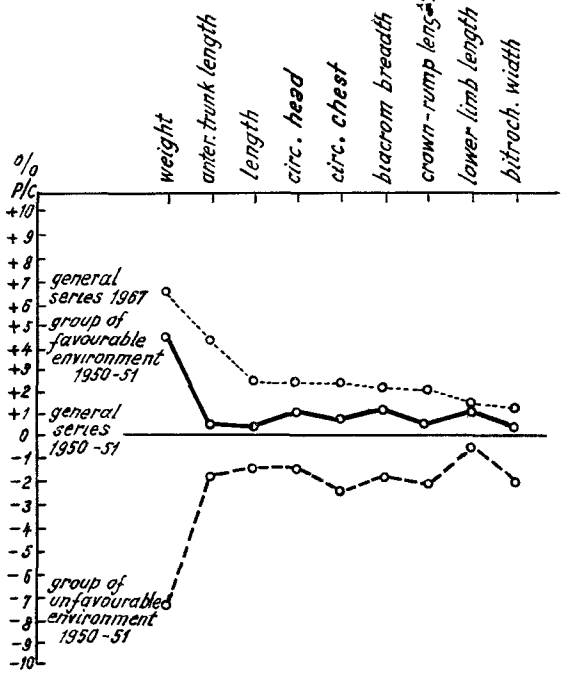

Fig. 6. — Dimensional evolution of the Bucharest newborn of 1967, as compared with the newborn of 1950 — 1951.

conditioned by the macrosomatic acceleration of the mother, as the specialty literature has tried to suggest [6].

Coming back to the integration of the acceleration process in the case of the favouring environment, we find in this process, too, an unequal capability of somatic increase of the various corporal areas. Thus, in the hierarchy of benefits, the weight comes once more first and the lower limbs last. Acceleration cannot occur but in the cases where, in the given ontogenetic moment, there is also an augmented reactivity capability. Acceleration, therefore, submits, in its turn, to the same hierarchy previously encountered by us as a part of a favouring environment.

An important phenomenon however occurs, namely, in the acceleration process the anterior length of the trunk stands out among the increasing dimensions of the body. It attains a much higher level, closely similar to the weight and, in this way, rising above the other dimensions. The consequences of such an ample development of the trunk's length

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under acceleration conditions will be followed with respect to the conformation, as well.

For the time being, while further investigating the acceleration integration under circumstances proper to the favouring environment, we shall make clear up to what point such an integration could be supported also by the reciprocal relationship dimensioning/variability of the favouring pattern.

In this respect, figure 7 is quite enlightening. The acceleration process duplicates the specific relationship of the favouring environment:

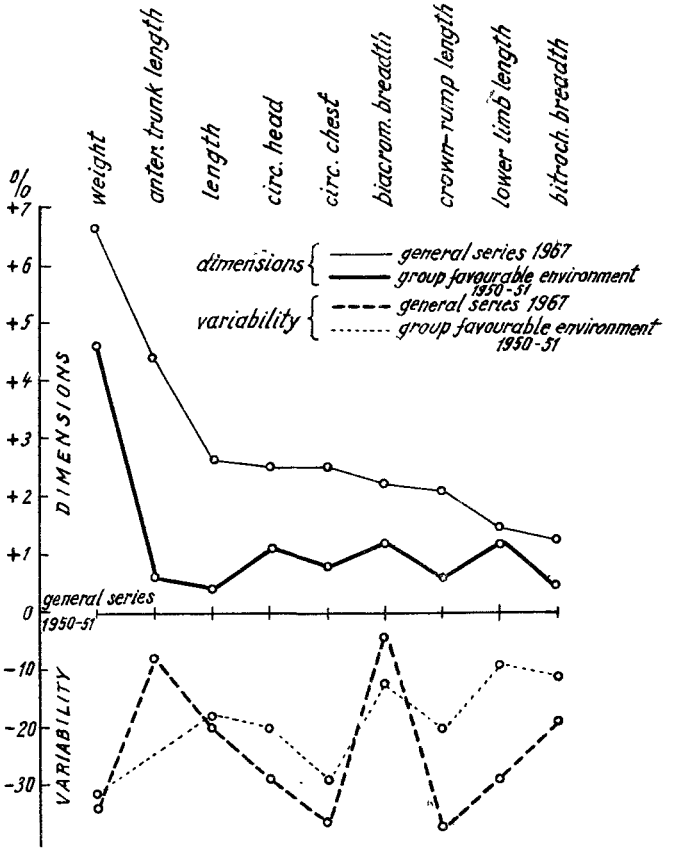

Fig. 7. — Mutual relationships of dimensioning and variability during the acceleration process in the newborn.

dimensional benefit associated with shrinking of variability indices. Moreover, to a larger dimensional increase in the accelerated series of 1967 as against the favoured series of 1950 — 1951, corresponds a more marked shrinking of variability.

As to the corporal size of the accelerated newborn, projected on the conformation patterns of the favoured and unfavoured newborn, it is pertinent to dwell first upon the latter two.

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From figure 8 two points of disjunction are deriving: the Rohrer index and the relationship between limbs and trunk. The Rohrer index demonstrates that whereas the newborn of the favouring environment puts on weight, the newborn in the unfavouring environment loses his

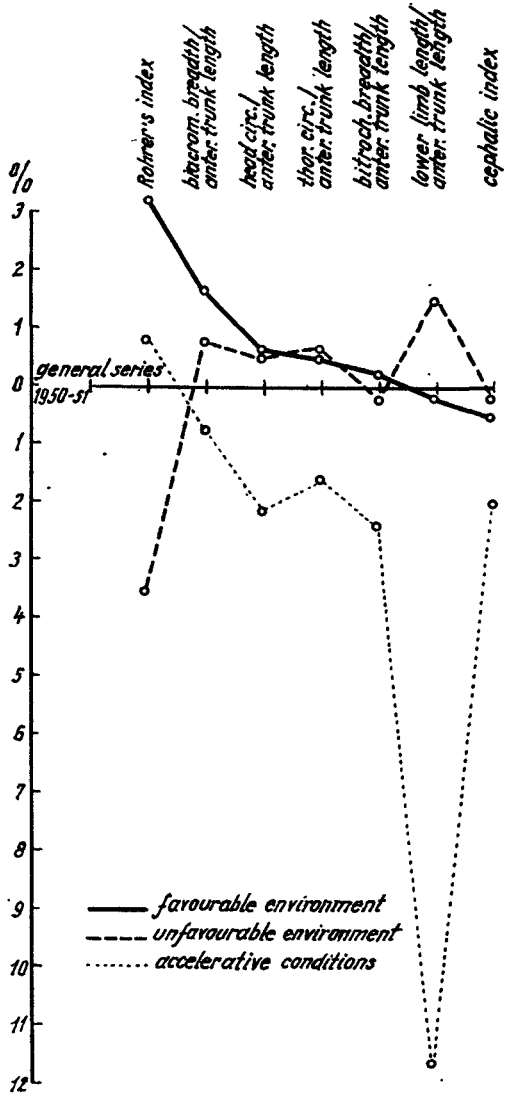

Fig. 8. — Ratios achieved in favouring and unfavouring environment, as well as under accelerative conditions.

bodily plenitude. At the level trunk/limbs, the newborn in the unfavouring environment displays a tendency to makroskelia, whereas the newborn in the favouring environment, on the contrary, is prone to become brachyskelic.

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In his turn, the accelerated newborn upholds the two features relevant to the favouring environment, preserving the benefit of Rohrer's index, but to a lesser extent. An important indication is that acceleration represents, in the first place, a phenomenon of increasing bodily size and,

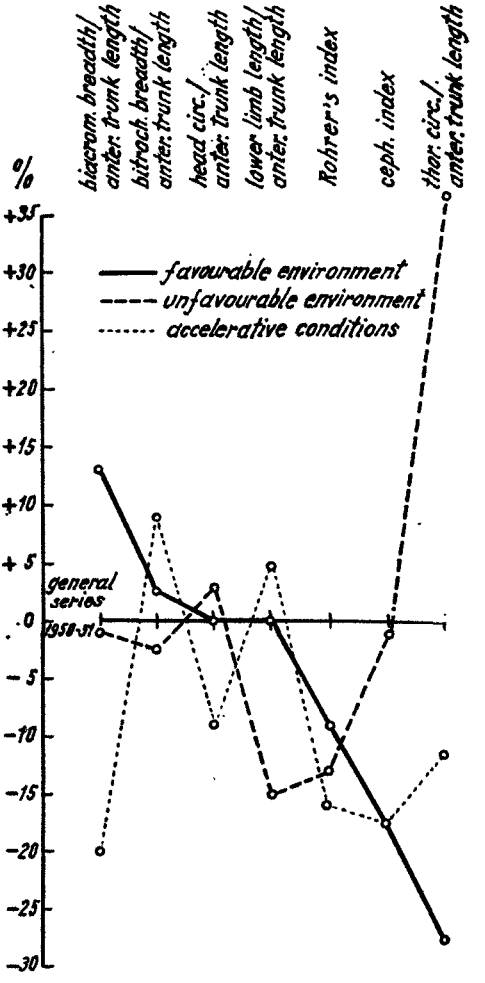

Fig. 9. — Variability indices in favouring and unfavouring environment, as well as under accelerative conditions.

only secondarily, of increasing adiposity. Accordingly, the question is not exclusively that of better food with respect to quantity, but also to the protein quality and, in any case, of general better conditions, resulting in the improvement of sanogenesis expressed by this size increase of present-day generations.

Moreover, the accelerated newborn repeats the phenomenon of becoming brachyskelic like the newborn of the favouring environment, but, this time, contrary to the previous situation, to an excessively large extent. This aspect is supposed to be the outcome of the major parti-

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cularity of the accelerated baby of developing preferentially the trunk, the most specific particularity we have found on our material as a part of the acceleration process in the newborn. For the same reason, the other proportions measured on the trunk have, as a rule, lower values as well. Accordingly, acceleration is a part of a wider process induced by an environment favouring the development, but which puts its mark according to its own ontogenetic specificity.

There is further to be seen whether the accelerated newborn fits better in the favouring environment pattern than in the unfavouring environment one with respect to the conformation variability, too.

We have assessed the position depending on the discrepancy between the variability of the accelerated newborn versus the newborn of the favouring and unfavouring environment.

Figure 9 reveals that out of the seven positions for the variability of conformation ratios dealt with in this survey, five times the variability of the accelerated newborn is closer to the variability of the newborn in the favouring environment. Therefore, the accelerated newborn is approaching the newborn of the favouring environment also through the character of his variability.

An assessment of the accelerated newborn, as far as the biologic quality is concerned, could be expressed as follows: starting from the benefit of a preferential development of the trunk — a feature which the accelerated newborn takes advantage of — this fact cannot be considered as a process of anticipating the postnatal development, but rather as an optimization of the final growth of the fetus; at birth he looks like an "overfetalized" child.

Since a better developed trunk affords the prospect of a better developmental capacity of the respiratory, digestive and circulatory apparatuses, the accelerated newborn acquires a higher adaptative capability to the extrauterine conditions and therefore he is a better endowed child. As a proof, the cumulative "APGAR" test which always was above the index 8 for the accelerated newborn. Acceleration would, therefore, mean an optimization of the biologic quality.

Variability should be taken into consideration in the same prospective of the species' optimization. Limiting the dimensional variability of the accelerated newborn means, essentially, a homogenization at the macrosomatic level. Consequently, within the acceleration process ever more children can attain the best developmental level of the species in the framework of which the biologic functions, in their turn, can flourish best.

In order to understand correctly the path along which the "accelerated" organism and the species move it seems convenient to determine it in the prospective of the selection process: does acceleration increase or reduce the number of conformation variants? As it has been shown in this paper (fig. 7), acceleration reduces the dimensional variability and renders homogeneous, in respect of the physical developmental level, the respective group.

Does this mean, at the same time, the consecutive diminution of conformation variants, is there in other words a diminution of polymorphism genetically characteristic of the human species ?

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In order to give an appropriate answer to this question it should be retained from the conformation ratios shown initially in figure 9, only the ratios of genotypic value (biacromial breadth, bitrochanteric breadth, head circumference, length of lower limb — all of them referred to the standard —, anterior length of the trunk, as well as cephalic index), leaving aside the phenotypic ones (Rohrer index of bodily plenitude and the chest circumference, both highly influenced by the nutritional status).

The mean square root of the variability of conformation-genotypic parameters actually do not differ in the unfavoured newborn (4.80), favoured newborn (4.80), and accelerated newborn (4.47) from the general series of reference (4.69), either.

Assuming that the favouring environment and the accelerating one actually mean the slackening of the selection process, one might expect that under these circumstances the conformation variability would be augmented.

It would, however, be rather difficult to draw a conclusion starting from the conformation variability of the newborn ontogenetic stage, in which case both the rapid development of organism and, chiefly, the unequal development speed of the parts making the object of conformation ratios are factors masking the genetic pool, which, nevertheless, remains equal to itself in its various ontogenetic fluctuations. This is why the answer to the question about the selection/acceleration ratio should be looked for rather in the adult ("imago").

Anyway, within the limits afforded by our material, the supposition can be made that in the framework of accelerative somatic increase it is not likely that at the same time a decisive change in the selective pressure would occur, which in the last analysis may lead to the increase/decrease of polymorphism and, consequently, to the change of adaptative capability.

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MODÈLES DE CROISSANCE DE LA STATURE CHEZ LES FILLES PENDANT L'ADOLESCENCE

PAR

MARIA CRISTESCU, ANA ȚARCĂ et MARIA IACOB

L'importance des recherches longitudinales pour la connaissance des particularités de la croissance et du développement des enfants fut soulignée par de nombreux auteurs (Boas, Shuttleworth, Greulich, Tanner, Falkner et autres). Nous allons nous contenter de citer ici une phrase de Falkner, publiée dans les documents du Centre international de l'Enfant (1961) : « Ce serait une grave erreur de ne considérer que cette taille moyenne à chaque âge et de penser que les courbes réunissant ces valeurs moyennes représentent la croissance d'un enfant moyen idéal ».

C'est pourquoi, étant donnée la pénurie des enquêtes du type longitudinal, un collectif constitué par certains collaborateurs du Laboratoire de Morphologie et d'Anthropologie de l'Université de Iași [1] et par certains chercheurs du Secteur d'Ecologie humaine et de Paléoanthropologie du Centre de recherches biologiques de Iași [2] ont commencé en 1967 une étude complexe de ce type, ayant pour but d'établir, entre autres, la variabilité des rythmes de croissance des adolescents dans le milieu urbain comme dans le milieu rural, en rapport avec l'âge de puberté (qui y est en moyenne différent).

Les auteurs de la présente Note ont choisi d'y analyser la variabilité individuelle de la croissance de la stature. D'autres aspects du problème seront analysés dans d'autres travaux.

I. MATÉRIEL ET MÉTHODE DE TRAVAIL

Le matériel d'étude fut réuni au cours des enquêtes annuelles du type longitudinal, commencées en 1967 et poursuivies jusqu'en 1973 par l'équipe citée précédemment. Il est constitué de 400 enfants dont 200 originaires de la ville de Iași et 200 originaires des villages voisins (Tomești, Chicera, Osoi, Comarna, Vînători, Popricani, Probota, Bălteni), la série féminine (dont nous nous occupons ici) étant formée de 100 filles provenant de cette ville et 95 filles provenant des centres ruraux.

En 1967, l'âge de ces enfants variait de 9 ans à 9 ans et 11 mois. L'âge moyen du lot étudié était en cette première année de recherches de

[1] O. Necrasov, M. Știrbu, M. Iacob et S. Comănescu.
[2] M. Cristescu, R. Kluger et A. Țarcă.

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9,5 ans. L'examen de chaque enfant, à partir de cet âge, fut répété chaque printemps (y compris celui de 1972), selon une fiche spéciale. De cette manière il fut possible de suivre les rythmes de la croissance des enfants pendant la période de 9 — 14 ans, ce qui correspond à la période péripubérale des filles.

La fiche individuelle des filles comprend 32 caractères anthropométriques, le degré de développement des caractères sexuels secondaires, l'âge des premières règles, l'éruption des dents permanentes, la pigmentation des cheveux et des iris, le rendement scolaire, l'état de santé et les antécédents pathologiques, la situation socio-économique de la famille, etc.

II. RÉSULTATS OBTENUS

1) VARIABILITÉ DES COURBES DE CROISSANCE DE LA STATURE

L'analyse de l'évolution de l'accroissement annuel de la stature pendant l'étape considérée nous permet de constater que la majorité des sujets suit, en lignes générales, la courbe typique des adolescentes, telle que celle-ci est bien connue dans la littérature de spécialité. De cette façon, chez 60 % des filles du lot urbain et chez 41 % du lot rural, la vitesse de croissance augmente d'abord d'une manière progressive jusqu'à la poussée pubertaire, après quoi elle diminue plus ou moins brusquement, pour continuer ensuite à diminuer lentement. De cette manière, pendant l'étape considérée, nous enregistrons une accélération positive jusqu'au moment de la poussée (qui correspond à un certain intervalle d'âge, variable selon les individus) et une accélération négative après cette dernière. C'est le type principal de croissance, ou type A. L'intervalle d'âge quand a lieu la poussée de croissance est variable selon les individus (comme nous l'avons déjà souligné plus haut), mais l'allure des courbes est la même si on les superpose en faisant abstraction du moment de la poussée (fig. 1 et 2).

Une variante de ce type principal (A), assez rarement rencontrée (8 %), est celle où la poussée se déroule pendant deux intervalles d'âge quand la vitesse reste pratiquement égale (type A_1, fig. 3). Cette variante est rencontrée soit parmi les sujets à maturité sexuelle précoce, soit au contraire parmi ceux à maturité tardive. Dans le premier cas, après cette poussée relativement forte en forme de plateau, la vitesse décroît brusquement ; dans le second, la poussée est relativement atténuée comme intensité, la courbe se situant le long de l'abscisse, avec des valeurs proches de celles des intervalles voisins de celui de la poussée.

Un autre type de croissance (type B) correspond à une courbe à deux sommets aux valeurs très proches (fig. 4 et 5). On pourrait considérer comme variantes de ce type, certaines courbes qui offrent, comme nous l'indique le graphique 6 excepté la poussée principale, une esquisse de seconde poussée (bien moindre) (B_1, fig. 6) soit avant celle-là, soit après, quand l'accélération positive atteint un maximum de 13 mm. La signification de cette seconde variante, quand l'accélération redevient de nouveau positive à l'étape postpubérale, nous semble des plus intéressantes et mériterait d'être approfondie.

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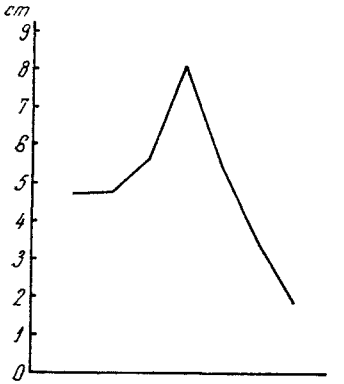

Fig. 1. — Type A — Vitesse de croissance.

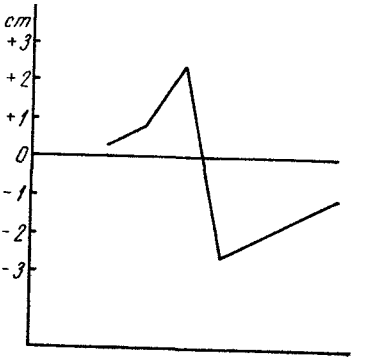

Fig. 2. — Type A — Accélération de la croissance.

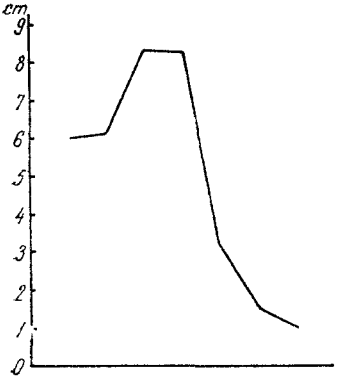

Fig. 3. — Type A_1 — Vitesse de croissance.

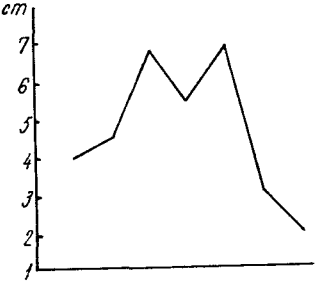

Fig. 4. — Type B — Vitesse de croissance.

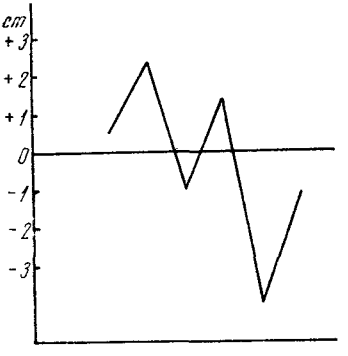

Fig. 5. — Type B — Accélération de la croissance.

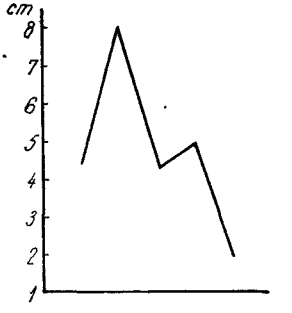

Fig. 6. — Type B_1 — Vitesse de croissance.

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Une comparaison de la fréquence de ces modèles de croissance dans les deux milieux écologiques différents, urbain et rural, nous permet de constater une moindre incidence de la courbe typique (type A) dans ce dernier, où nous rencontrons plus souvent la courbe en forme de plateau (type A_1), plateau qui peut s'étendre dans certains cas même le long de trois intervalles. Dans ce dernier cas, les valeurs maximales qui correspondent au plateau sont moins élevées que celles de la courbe typique. Dans le milieu rural, elles sont également moindres que celles que présente le même type de courbe (A_1) dans le milieu urbain, où il est rencontré principalement chez les filles à poussée précoce (où celle-ci atteint cependant des valeurs plus élevées), après quoi la vitesse décroît brusquement.

Dans le milieu rural, on rencontre plus fréquemment le type de courbe B_1 offrant 1 — 2 esquisses de poussée avant la poussée principale.

Les déviations en rapport de la courbe typique, plus fréquemment rencontrées dans le milieu rural que dans le milieu urbain peuvent être interprétées comme effets de l'influence de facteurs freinant d'une manière passagère l'évolution de la croissance selon le modèle génétique, produisant une certaine atténuation de la vitesse maximale, qui gagne en durée ce qu'elle perd en intensité. Ce phénomène pourrait être interprété comme une adaptation de l'organisme aux conditions du milieu, une croissance brusque au moment de l'adolescence en des conditions moins favorables (alimentaires ou autres) pouvant provoquer des déficiences physiques.

III. VARIABILITÉ DE L'ÂGE DE LA POUSSÉE DE LA STATURE ET SON RAPPORT AVEC L'ÂGE DE PUBERTÉ

L'âge d'installation de la poussée fut déterminé, pour chaque sujet, comme correspondant au centre de l'intervalle annuel d'âge individuel, quand fut enregistré le maximum de vitesse de croissance (entre deux mensurations successives). Par exemple, si la vitesse maximum de croissance d'un sujet correspond à son intervalle d'âge de 10 ans et 2 mois — 11 ans et 2 mois, l'âge de la poussée fut établi comme étant de 10 ans et 8 mois.

L'âge moyen de la poussée, calculé à l'aide des valeurs individuelles ainsi établies, est de 11,39 ans dans la série urbaine et de 12,06 ans dans la série rurale. Il existe cependant une variabilité individuelle prononcée de l'âge d'installation de la poussée, offrant une distribution gaussienne, avec une déviation standard (σ) d'un an dans la série urbaine et de 1,2 ans dans la série rurale.

Selon le moment de la poussée nous avons pu distinguer, dans l'ensemble de la population des adolescentes que nous avons étudiée 6 types de poussée, que nous allons définir comme suit :

— Type 0, à poussée située dans l'intervalle d'âge de 8,5 — 9,5 ans* ;
— Type I, à poussée située dans l'intervalle de 9,5 — 10,5 ans ;
— Type II, à poussée située dans l'intervalle de 10,5 — 11,5 ans ;
— Type III, à poussée située dans l'intervalle de 11,5 — 12,5 ans ;

* A ce type établi par supposition (étant donné que nos recherches longitudinales débutent par l'âge de 9 ans), ne correspond qu'un seul sujet, dont la vitesse maximum, située à l'âge de 9—10 ans, n'est que de 4 cm, ce qui permet de déduire avec certitude que la poussée a eu lieu avant que nous ayons commencé nos études.

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— Type IV, à poussée située dans l'intervalle de 12,5 — 13,5 ans;
— Type V, à poussée située dans l'intervalle de 13,5 — 14,5 ans.

La variabilité de l'âge de la poussée de la stature fut corrélée, par bien des auteurs, avec l'âge des premières règles. Excepté Deming qui obtint un coefficient de corrélation très élevé (+ 0,93), d'autres auteurs (Shuttleworth, Nicolson et Hanley Frisch) n'obtinrent que des valeurs qui varient de + 0,71 — + 0,73. Les valeurs que nous avons obtenues nous-mêmes sont légèrement plus basses, de + 0,64 pour la série urbaine et de + 0,62 pour la série rurale.

La tendance à la corrélation se manifeste également dans la répartition procentuelle des filles en fonction du type de poussée dans la série urbaine en comparaison de la série rurale.

Tableau 1

Fréquence des principaux types de poussée dans la série urbaine et la série rurale (%)

	0 9 ans	I 10 ans	II 11 ans	III 12 ans	IV 13 ans	V 14 ans
Série urbaine	1,0	14,0	49,0	21,0	11,0	4,0
Série rurale	—	6,3	36,9	21,1	15,7	20,0

En effet, comme il résulte du tableau 1, la fréquence des poussées tardives est plus élevée dans la série rurale que dans la série urbaine, tout comme l'âge médian * de la puberté est plus avancé dans la première (13,90 ans) que dans la seconde (12,73 ans).

Il faut cependant souligner que dans les deux milieux considérés, le maximum de fréquence correspond au type II de poussée (11 ans), cela malgré la différence de plus d'un an (1,17 ans) entre les âges médians de puberté (A_m) des deux séries. Si nous considérons que, d'autre part, entre leurs âges moyens de poussée (A_p) il existe une différence de seulement 0,67 ans, on peut conclure que dans le milieu urbain la différence entre l'âge de la poussée et l'âge de puberté est plus petite (1,34 ans) que dans le milieu rural (1,84 ans). Ce fait semble avoir une signification particulière pour l'explication des phénomènes d'accélération, que nous allons discuter plus tard.

Pour le moment, nous pouvons conclure qu'entre la poussée de croissance et la puberté il existe une tendance générale de corrélation, mais non pas un rapport déterminant strict.

Les résultats de l'analyse individuelle de ce rapport peuvent être suivis dans le tableau 2, à double entrée, dans lequel nous avons inscrit les fréquences des types de poussée et des âges de puberté correspondants.

* Nous avons calculé l'âge médian de puberté, et non pas l'âge moyen, étant donné que dans la série rurale seulement 73% des filles sont devenues pubères pendant la période : printemps 1967 — printemps 1972.

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Répartition procentuelle des types de

Type de poussée / Age de puberté	Série urbaine					
	0 8,5—9,5	I 9,5—10,5	II 10,5—11,5	III 11,5—12,5	IV 12,5—13,5	V 13,5—14,5
10,5	12,5	37,5	50,00	—	—	—
11,5	—	28,6	71,4	—	—	—
12,5	—	18,4	63,2	15,8	2,6	—
13,5	—	—	30,5	47,8	21,7	—
14,5	—	—	37,5	12,5	50,5	—
Impubères	—	—	11,1	33,3	11,1	44,5
Total	1	14	49	21	11	4

La lecture des chiffres présentés dans le tableau 2 nous permet de conclure comme suit :

Le « start » de la poussée de la stature a lieu dans la majorité des cas avant les premières règles. Seulement chez 5% des filles, dans le milieu urbain, et chez 1% dans le milieu rural, la poussée a lieu la même année que la première règle et prend fin après celle-ci. Dans ce dernier cas nous sommes en présence d'une poussée pubérale et même post-pubérale (l'achèvement de celle-ci ayant lieu, en moyenne, 6 mois après les premières règles). Cette situation fut rencontrée seulement chez les filles à puberté précoce.

Dans le reste des cas, la poussée de croissance de la stature est prépubérale, l'intervalle entre l'âge de son « start » et l'âge des premières règles étant très variable (de 0,5 ans à 4 ans). Même dans le cas d'un même âge de puberté il existe une variabilité importante de l'âge de la poussée. Par exemple, dans le lot de la série urbaine à puberté située à 12 ans (qui y correspond à un maximum de fréquence), l'âge de la poussée tend vers une distribution gaussienne.

Un autre aspect, qui nous semble être particulièrement intéressant, peut être surpris à la lecture du tableau 2 : c'est l'augmentation de la différence entre l'âge de la poussée et l'âge des premières règles, à mesure que ce dernier est plus tardif. Nous avons inscrit dans le tableau 3 cette différence calculée pour chaque classe d'âge de puberté.

Tableau 3

La variabilité de la différence entre l'âge au «start» de la poussée et l'âge des premières règles

Age de puberté / Série	10,5 ans	11,5 ans	12,5 ans	13,5 ans	14,5 ans
Urbaine	0,78	1,25	2,00	2,07	2,88
Rurale	—	—	1,90	2,50	2,64

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bleau 2

poussée en fonction de l'âge de puberté

	Série rurale					
N tot.	I 9,5—10,5	II 10,5—11,5	III 11,5—12,5	IV 12,5—13,5	V 13,5—14,5	N tot.
8	—	—	—	—	—	—
14	—	—	—	—	—	—
38	15,0	65,0	15,0	5,0	—	20
23	3.33	56,7	30,0	10,0	—	30
8	9,0	18,2	27,3	18,2	27,3	22
9	4,3	4,3	8,8	30,4	52,2	23
100	6	35	20	15	19	95

Le coefficient de corrélation calculé pour l'âge des premières règles et la différence entre celui-ci et l'âge à la poussée (A_m et A_p), est de + 0,64 dans la série urbaine. Cette corrélation nous explique pourquoi la série rurale (dont l'âge médian de puberté est plus tardif) offre une différence entre A_m et A_p (1,84 ans) plus grande que la série urbaine (1,34 ans) et d'une manière implicite pourquoi entre ces deux séries il existe une différence moindre entre les âges moyens de la poussée (0,67 ans) qu'entre leurs âges de puberté (1,17 ans).

Cette conclusion pourrait indiquer que l'âge des premières règles (qui représente l'étape finale du processus de maturisation sexuelle) est un caractère dont l'expression phénotypique est plus fortement influencée par le milieu que l'âge à la poussée. Les mécanismes endocriniens qui constituent les prémisses de la poussée — premier signe de l'adolescence — et qui sont bien plus complexes, paraissent être au contraire plus fortement gouvernés par l'hérédité. D'ailleurs, comme nous l'avons déjà vu, la déviation standard de l'âge à la poussée est plus restreinte que celle de l'âge à la puberté.

IV. INTENSITÉ DE LA POUSSÉE ET NIVEAU DE LA STATURE, EN RAPPORT AVEC L'ÂGE DE LA POUSSÉE ET CELUI DE LA PUBERTÉ

En calculant la moyenne de la vitesse maximale de la croissance de la stature, indifféremment du type de poussée (autrement dit indifféremment de l'âge de son installation), en utilisant à cet effet les valeurs maximales individuelles, nous avons obtenu pour la série urbaine le chiffre de 81 mm ($\sigma = 12,1$), celui de la série rurale étant de 75 mm ($\sigma = 11,9$). Cette intensité moyenne de la poussée, moindre dans le milieu rural que dans le milieu urbain, peut être expliquée par l'existence d'une corrélation négative, entre l'intensité de la poussée et l'âge de puberté, trouvée par certains auteurs (Boas, 1932 ; Shuttleworth, 1930 ; Simons et Greulich, 1943 ; Deming, 1957 ; Tanner, 1965). Le coefficient de corrélation calculé pour la série de ce dernier auteur est de — 0,39. Dans nos séries il est cependant un peu plus bas : — 0,348 dans la série

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urbaine et — 0,366 dans la série rurale. Il existe également une corrélation négative entre l'âge de la poussée et son intensité, celle-ci étant d'autant plus marquée que le moment de son « start » est plus précoce. Le coefficient de corrélation que nous avons obtenu dans ce dernier cas est cependant un peu plus bas dans le précédent : — 0,2600 et respectivement — 0,2263.

Il résulte par conséquent que la durée plus courte de croissance des pubères précoces (à la suite de l'ossification plus rapide des disques de croissance) est en partie compensée par une poussée plus énergique. Mais elle est également compensée, comme nous l'allons voir bientôt, par une stature plus élevée déjà réalisée avant le « start » de la poussée.

En groupant les filles en fonction de l'âge à la poussée, d'une part, et en fonction de l'âge de puberté, d'autre part, et en calculant les accroissements de la stature d'une classe d'âge à l'autre, nous constatons que la vitesse maximum de croissance de la stature est d'autant plus grande que la poussée et la puberté sont plus précoces (tableaux 4 et 5).

Il faut bien souligner cependant que le groupe des filles à poussée très précoce (à 10 ans) présente, dans la série urbaine comme dans la série rurale, une poussée un peu plus basse (de 5 — 7 mm) que le groupe des filles à poussée située à 11 ans. En échange, la vitesse de croissance enregistrée à l'intervalle qui suit immédiatement la poussée y est plus élevée (65 mm dans la série urbaine et 64 mm dans la série rurale) en comparaison de ce dernier (51 mm dans la série urbaine et 56 mm dans la série rurale).

Dans la série urbaine le même phénomène doit être enregistré pour le groupe des filles pubères à 10 ans, en comparaison du groupe pubère à 11 ans (tableau 5). Nous n'avons pas pu constater le même phénomène pour la série rurale, l'âge de puberté y étant plus tardif (à partir de 12 ans).

En ce qui concerne l'accroissement total de la stature, enregistré pour toute la période que nous avons étudiée, ses valeurs sont d'autant plus petites que la poussée est plus tardive, étant donné que dans ce cas nous surprenons une période prépubérale plus longue. Cependant, jusqu'à la dernière classe d'âge (14 ans) les statures sont d'autant plus élevées que la poussée s'est installée plus tôt (tableau 6). A cela contribuent également les valeurs plus élevées à l'âge de 9 ans (c'est-à-dire avant la poussée), que nous trouvons généralement chez les filles à poussée plus précoce en comparaison de celles dont la poussée est plus tardive. Ce phénomène fut déjà signalé par Boas (1932), mais ses observations, qui furent confirmées plus tard par d'autres auteurs, ont amené quelques-uns d'entre eux à des conclusions qui nous semblent assez exagérées. Il s'agit de l'hypothèse de la « stature critique » émise par Palmer et Reed (1935) selon lesquels le début de la poussée est conditionné par une certaine stature qui doit être atteinte avant celui-ci, une sorte de seuil au-dessus duquel la poussée ne peut pas avoir lieu. Cette stature-limite fut fixée à 127 — 130 cm par les auteurs cités plus haut. Plus tard, Deming (1957) l'a évaluée à 140 cm. Même cette différence de seuils, indiquée par Palmer et Reed d'une part et Deming d'autre part (déterminée, comme nous l'allons voir, par l'accélération), pose le problème de la justesse de cette conception qui fixe des limites rigides pour la stature, au-dessous desquelles la poussée ne peut pas avoir lieu.

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Tableau 4

Vitesses moyennes annuelles de la croissance de la stature des filles, groupées en fonction de l'âge à la poussée

Age chr.		N° des sujets	Série urbaine						N° des sujets	Série rurale					
			9,5—10,5	10,5—11,5	11,5—12,5	12,5—13,5	13,5—14,5	9,5—14,5		9,5—10,5	10,5—11,5	11,5—12,5	12,5—13,5	13,5—14,5	9,5—14,5
Age poussée	10	14	81	65	33	17	20	216	3	76	64	50	53	20	218
	11	49	55	86	61	41	16	248	8	59	83	56	46	23	216
	12	21	55	58	77	54	39	283	28	58	60	71	54	33	276
	13	11	53	51	51	73	46	274	52	53	53	52	74	48	280
	14	4	40	50	40	50	60	210	9	49	51	48	56	73	227

Tableau 5

Vitesses moyennes annuelles de la croissance de la stature des filles, groupées selon l'âge de puberté

Age chr.		Série urbaine						Série rurale					
		9,5—10,5	10,5—11,5	11,5—12,5	12,5—13,5	13,5—14,5	9,5—14,5	9,5—10,5	10,5—11,5	11,5—12,5	12,5—13,5	13,5—14,5	9,5—14,5
Age poussée	10,5	70	70	22	16	10	188	—	—	—	—	—	—
	11,5	60	79	43	27	20	232	—	—	—	—	—	—
	12,5	62	76	57	34	25	257	64	79	57	38	19	257
	13,5	50	66	65	55	32	270	60	69	61	50	31	273
	14,5	52	60	59	56	33	260	52	56	58	60	50	278
	Impubères	46	51	61	60	53	261	49	53	48	60	59	269
	Moyenne	59	70	53	41	26		57	64	54	51	41	

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En étudiant ce problème sur notre matériel, nous constatons, au contraire, l'existence d'une importante variabilité du niveau individuel de la stature au moment du « start » de la poussée, cette variabilité étant en rapport avec l'âge quand celui-ci s'installe.

En effet, comme il résulte du tableau 6, plus élevée est la stature au moment de son début, le coefficient de corrélation entre ces deux variables étant de + 0,45.

Bien plus, une variabilité prononcée de la stature au moment du start de la poussée s'observe non seulement en rapport avec l'âge de celui-ci, mais aussi à l'intérieur de cet âge même. A ce point de vue les différences (que l'on peut suivre dans le tableau 6) entre les séries urbaine et rurale dans les groupes présentant le même âge de la poussée, nous semblent particulièrement suggestives. Par exemple, tandis que dans la série urbaine le groupe à poussée située à l'âge de 10,5—11,5 ans (offrant la plus haute fréquence dans les deux séries) enregistre au « start » (10,5 ans) une stature moyenne de 140,2 cm, dans la série rurale le groupe au même âge de la poussée, présente au « start » une stature moyenne de seulement 135,1 cm.

Il en résulte que, même si une poussée précoce est généralement rencontrée chez les sujets dont le rythme de croissance fut plus énergique pendant la période neutrale de l'enfance, il ne peut cependant être question ni de limites rigides ni d'une stature-seuil. A ce propos, nos données se rencontrent avec celles de Frisch et de Revelle (1969—1971) qui, en étudiant le rapport entre la stature au moment de la poussée et la stature finale, trouvent des valeurs plus élevées au moment du « start » dans les groupes à poussée tardive en comparaison de ceux à poussée précoce. On peut en conclure qu'au moment du début de la poussée les premiers avaient atteint une stature plus élevée que les seconds. Une autre conclusion découle des données des auteurs cités (sans que ceux-ci l'aient exprimée). En effet, si nous considérons que chez les adultes la différence entre la stature moyenne du groupe à puberté précoce et celle du groupe à puberté tardive ne dépasse pas 1 cm, tandis que la différence au moment du « start » de la poussée entre les statures moyennes de ces mêmes deux groupes s'élève à 7 cm, nous pouvons conclure que pour atteindre une stature finale en moyenne très proche du second, les sujets du premier groupe durent avoir présenté, à partir de la poussée jusqu'à l'âge adulte, une croissance plus intense que ceux du second. En effet, la stature moyenne du premier groupe a augmenté pendant cette période de 36 cm, tandis que celle du second n'a marqué qu'un accroissement de 26 cm. Nous nous proposons de vérifier ces conclusions sur notre propre matériel, en poursuivant notre étude longitudinale des sujets qui forment nos séries jusqu'à la fin de leur période de croissance.

Pour ce qui est de la variabilité de la stature en rapport avec l'âge de puberté, nous donnons dans le tableau 7 les valeurs moyennes des classes d'âge établies en fonction de la puberté.

La lecture de ce tableau nous permet de constater, comme il est d'ailleurs bien connu (Baldwin, 1921; Boas, 1930—32; Meredith, 1935; Simons et Greulich, 1943) que les filles dont la puberté sera précoce ont une stature plus élevée avant l'adolescence (à 9 ans) que celles dont la puberté sera plus tardive.

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Tableau 6

Moyennes des statures des filles, groupées en fonction de l'âge de la poussée

	Age chr.	Série urbaine						Série rurale					
		9,5	10,5	11,5	12,5	13,5	14,5	9,5	10,5	11,5	12,5	13,5	14,5
Age poussée	9,5—10,5	1387	1468	1533	1566	1583	1603	1292	1338	1432	1482	1520	1540
	10,5—11,5	1347	1402	1488	1539	1579	1595	1292	1351	1434	1492	1534	1560
	11,5—12,5	1303	1358	1416	1493	1547	1536	1292	1350	1410	1481	1535	1568
	12,5—13,5	1306	1359	1410	1461	1534	1580	1253	1303	1359	1411	1485	1533
	13,5—14,5	1290	1330	1380	1420	1470	1530	1245	1294	1345	1393	1449	1522

Tableau 7

Moyennes de la stature des filles groupées selon l'âge de puberté

	Age chr.	Série urbaine						Série rurale					
		9,5	10,5	11,5	12,5	13,5	14,5	9,5	10,5	11,5	12,5	13,5	14,5
Age pubertaire	10,5	1402	1472	1542	1564	1580	1590	—	—	—	—	—	—
	11,5	1351	1411	1491	1534	1562	1583	—	—	—	—	—	—
	12,5	1342	1406	1482	1539	1575	1600	1307	1371	1450	1507	1545	1564
	13,5	1331	1382	1448	1513	1569	1601	1285	1346	1415	1477	1527	1588
	14,5	1313	1365	1425	1484	1510	1573	1269	1321	1378	1433	1496	1547
	Impubères	1293	1339	1390	1441	1501	1554	1249	1298	1351	1399	1459	1518
	Moyenne	1339	1398	1469	1522	1563	1590	1277	1334	1398	1456	1507	1548
	0	54	61	67	61	53	49	55	58	65	70	64	55

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Ces différences se maintiennent ou bien s'atténuent dans les classes d'âge suivantes mais dans le milieu urbain les filles qui sont devenues pubères à 12 et 13 ans, vont dépasser (de 1—2 cm) à l'âge de 14 ans celles qui le sont devenues plus tôt, c'est-à-dire à 10 et 11 ans. De pareils résultats furent obtenus par d'autres auteurs (Boas, 1932 ; Stone et Barker, 1937 ; Schuttleworth, 1939), ce qui fait qu'on affirme souvent que les pubères précoces sont un peut plus petites que les tardives. Malheureusement, nous ne pouvons pas connaître la situation dans la série rurale, étant donné l'absence de cas de puberté à 10—11 ans.

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Secteur d'Ecologie humaine et de Paléoanthropologie

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CONTRIBUTIONS TO THE STUDY OF THE CORRELATION BETWEEN SCHOOL EFFICIENCY AND PHYSICAL DEVELOPMENT OF THE PUPILS

BY

CEZARINA BĂLTEANU, D. BOTEZATU, MARIA ROŞCA and GH. ŞTEFĂNESCU

Many authors, such as Stone and Berker (1937), Shuttleworth (1939), Boas (1941), Bayley (1956), have observed that at the same age, the pupils with a better physical development give better results at the intelligence tests. Studies of the same type, to which there was associated the analysis of the results in learning, had been elaborated by Douglas (1960).

In our country similar studies concerning the intellectual efficiency (expressed by the school average marks established at the end of the year) in relation to the physical development of the pupils were elaborated by Maria Cristescu et al. (1970, 1971) and by a team led by Gh. Tănăsescu (1971), but the latter appreciated the intellectual efficiency of the pupils testing the intellectual and working capacity, the assimilation of the knowledge, the attention and concentration, etc.

In comparison with the anterior researches, which have studied the phenomenon using the transversal method, our study started in 1972 was realized on the same group of pupils, observed two years through the longitudinal method, starting with the first school year.

MATERIAL AND METHOD

Our series are composed of 115 boys and 118 girls from the town Iaşi, and of 47 boys and 56 girls from the district Iaşi (villages Tomeşti, Chicerea, Comarna, Bălteni and Popricani).

From the biometrical data established for these series, we took into consideration their height, a character which illustrates well enough the pupils' degree of physical development.

In the studied series there was calculated for each sex the correlation coefficient Brevais-Pearson between the height and yearly average mark in learning. The pupils from the town Iaşi were divided into three groups which were established taking into consideration the general average mark in learning, as follows :

— the first group (group I), with very good results (the average mark being between 10 and 8.50);

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— the second group (group II), with good results (the average mark being between 8.50 and 7.00);

— the third group (group III), with poor results (the average mark being under 7.00).

RESULTS

In the series under study there was observed the existence of a positive correlation between height and school efficiency. In table 1 are given the values of the correlation coefficients during two school years.

Table 1

The values of the correlation coefficients between height and school efficiency

Series		Boys	Girls
Urban	The first form	+ 0.3368	+ 0.1785
	The second form	+ 0.2727	+ 0.2218
Rural	The first form	+ 0.5891	+0.3445
	The second form	+ 0.3456	+ 0.2819

From the data of this table it may be observed that there are more accentuated correlations in the boys, as compared with the girls, both in urban and rural series, and that in both sexes from rural series the correlation coefficients are greater than in the urban series.

Table 2

Height averages of the girls and boys grouped according to the school efficiency (urban series)

Categories of school efficiency	Boys		Girls	
	7 years old	8 years old	7 years old	8 years old
Group I	122.7	128.2	121.6	127.3
Group II	119.0	125.8	118.7	125.8
Group III	116.0	124.9	118.7	124.5

The correlation between height and school efficiency was illustrated by establishing mean values of height in relation to the school situation (the classification of the variability is mentioned at the work method).

From the analysis of the data listed in table 2 it results that there is a difference in the height of the pupils grouped according to their school efficiency, both in girls and in boys.

In the first group (I), which includes pupils with very good results in learning, the mean value of the height is by 2.40 cm. superior in the boys and by 1.50 cm. in the girls, as compared with the mean value of the heights of the second group (II).

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Table 3

The modification of the height and of the school efficiency in the second school year in comparison with the first year (urban series)

Cat. of height and school eff.	Maintenance of the 1st year cat.	Same height cat.		Same school eff. cat.		Incr. of height and school eff.	Diminution of height and school eff.	Diminution of height and incr. of school eff.	Diminution of school eff. and incr. of height
		Increase of school eff.	Dimin. of school eff.	Increase of height	Dimin. of height				
				BOYS					
I I	12.93	—	—	—	—	—	—	—	—
I II	5.17	0.96	0.86	—	—	—	—	0.86	—
I III	1.72	—	—	—	—	—	—	—	—
II I	13.79	—	3.44	2.58	1.72	—	—	—	—
II II	8.62	0.86	2.58	—	—	0.86	—	—	0.86
II III	6.89	1.72	—	1.72	—	—	—	0.86	—
III I	5.17	—	4.31	—	—	—	—	—	9.86
III II	4.31	—	0.86	1.72	—	—	—	—	—
III III	10.34	1.72	—	1.72	—	—	—	—	—
	68.94	5.16	12.05	7.74	1.72	0.86	—	1.72	1.72
				GIRLS					
I I	12.71	—	0.84	—	1.69	—	—	—	—
I II	4.23	1.69	2.54	—	0.84	—	—	—	—
I III	4.23	1.69	—	—	—	—	—	—	—
II I	16.94	—	0.84	—	0.84	—	—	—	—
II II	5.93	0.84	1.69	—	—	0.84	—	—	—
II III	5.08	0.84	—	—	0.84	—	—	—	—
III I	7.62	—	0.84	2.51	—	—	—	—	—
III II	5.93	1.69	4.23	—	—	—	—	—	—
III III	10.16	0.84	—	—	—	0.84	—	—	—
	72.83	7.59	10.98	2.54	4.21	1.68	—	—	—

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The difference is maintained, with smaller values (0.87 and 1.23 cm.), between the height averages of the pupils from the second and third groups (II and III).

For an individual analysis of the evolution of the correlation between the level of physical development and the school efficiency, during the two school years (the first and the second form), the growing rhythm of the height was observed for each subject from one year to the other, in parallel with school efficiency. To this purpose the height variability and that of the school efficiency were classified into three categories, established in both cases according to the sigmatic species, as follows :

— the first category, heights and general average marks with values superior to $M + 1/2\ \sigma$:

— the second category, heights and general average marks with values between $- 1/2\ \sigma$ and $+ 1/2\ \sigma$;

— the third category, heights and general average marks with values inferior to $M - 1/2\ \sigma$.

In table 3 there can be observed first of all the raised frequency of the pupils who remained to the end of the second form in the same category of variability in which they were classified at the end of the first form, both for height and school efficiency. There can be observed a little higher frequency in the girls (72.83%) than in the boys (68.94%).

For the subjects which are situated in a different category in comparison with the previous year, as concerns the school efficiency or the height, the following may be observed :

— the cases of school efficiency improvement with maintenance of the same height are in both sexes less frequent (5.16% in the boys and 7.59% in the girls) than those of its diminution (12.05% and respectively 10.98%).

A more accentuated increase of the school efficiency can be observed in the girls as compared with the boys, while the diminution of the school efficiency is a little greater in the boys than in the girls.

In most cases (9.46% in the boys and 6.75% in the girls) the shift of the subjects to a different height category as against that of the previous year is not accompanied by a correspondent modification of the school efficiency.

In our series the cases of change of the type of height in correlation with the modification of the school efficiency appear only sporadically (2.58% in the boys and 1.68% in the girls).

We emphasize that the modifications previously presented did not occur between the extreme categories (I — III), but only between the neighbouring categories (I — II, II — III).

CONCLUSIONS

From the analysis of the data concerning the relation between physical development and school efficiency in two series of studied pupils, it results that there is a positive correlation between these two variables.

We emphasize that this correlation is more accentuated in the rural series (both in girls and in boys) than in the urban series.

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Likewise, the correlation obtained in our rural series of pupils from the first and second form is more accentuated than that obtained by Maria Cristescu et al. in a rural series which included pupils of older age.

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University "Al. I. Cuza", Iași
Chair of Morphology and Anthropology

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L'ANALYSE STATISTIQUE MULTIVARIÉE DANS L'ÉTUDE ANTHROPOLOGIQUE COMPARÉE DE QUELQUES POPULATIONS DE MUNTÉNIE — ROUMANIE

PAR

MARIA VLĂDESCU

GEORGETA RUSU, ELENA MACARIE, SANDA BĂLDESCU, SILVIA SAVU et T. DAMȘA

Dans l'étude ci-contre nous analysons la structure anthropologique de quelques populations de l'ouest de Munténie. Elle constitue une nouvelle contribution à l'élaboration de l'Atlas anthropologique de la Roumanie.

Pour la présente étude, nous avons sélectionné 14 villages situés dans un espace géographique qui s'étend de la zone sous-carpatique des massifs Bucegi et Făgăraș jusqu'à la Plaine roumaine (fig. 1).

Tableau 1

La répartition des villages d'après les critères des nationalités ethniques et des zones géographiques

Roumains		Bulgares	Rudari
montagne	plaine	plaine	plaine
1. Dragoslavele	Suhaia	Izvoarele	Prundu
2. Dîmbovicioara	Recea	Calomfirești	
3. Aref	Tătărăștii de Jos	Licuriciu	
4. Nucșoara	Bragadiru		
5.	Lunca		
6.	Călinești		

MATÉRIEL ET MÉTHODES

L'étude a été effectuée à partir de 471 sujets de sexe masculin. Pour analyser la population par rapport au paramètre stable — l'âge — nous avons sélectionné pour chaque village seulement les groupes d'âge de 25 — 40, ans bien que les données recueillies sur le terrain aient inclus la population tout entière entre 20 et 80 ans. En même temps, afin d'aboutir à une définition des plus claires possibles concernant le type anthropologique de chaque communauté, nous n'avons sélectionné pour notre étude que des individus autochtones, c'est-à-dire ceux qui ne sont pas liés par mariage aux villages voisins.

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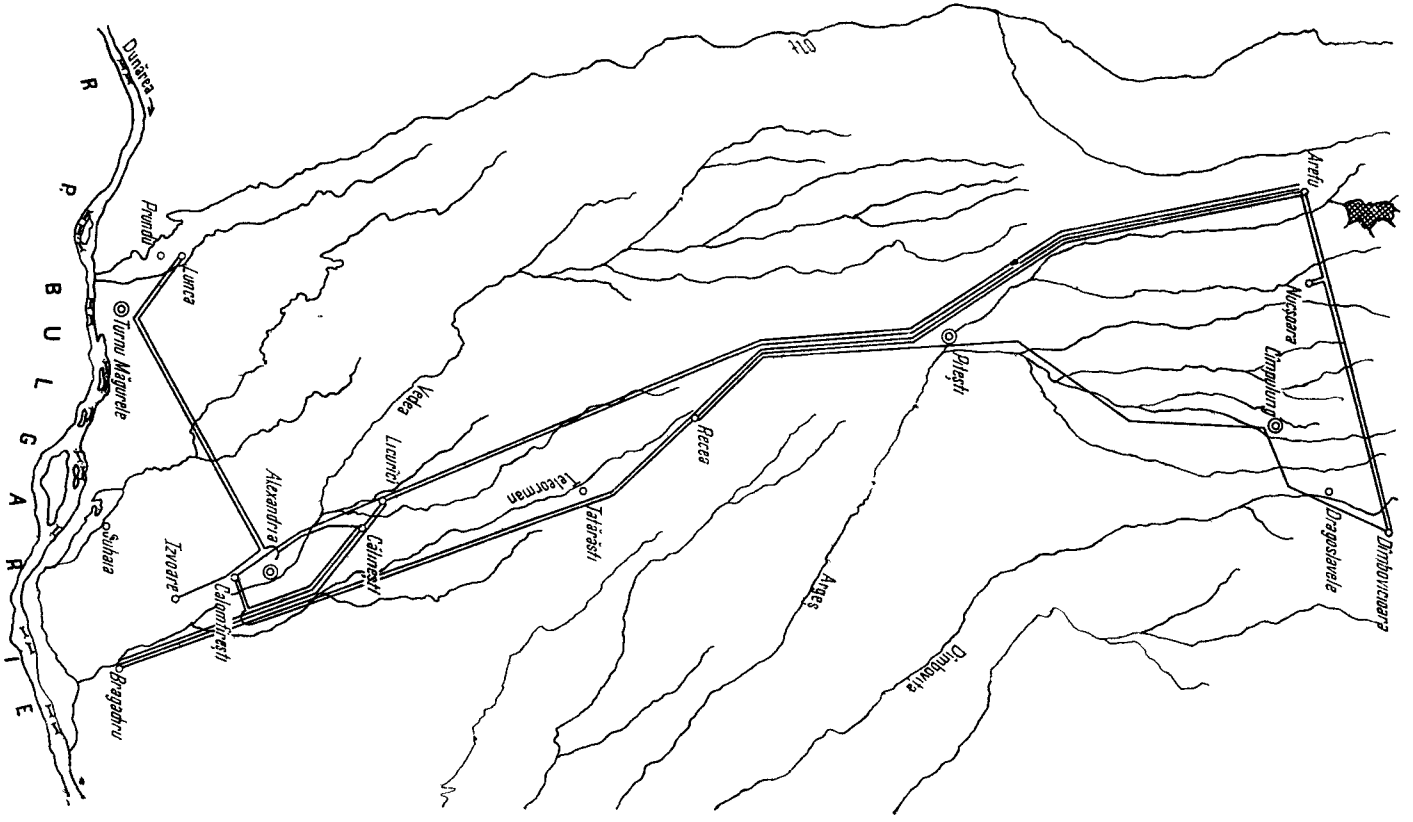

Fig. 1. — La carte de l'ouest de Munténie représentant les liaisons entre les villages, concernant les séries masculines, pour lesquelles les valeurs du D^2 sont non significatives (Test F à un seuil de signification $\alpha = 0{,}01$).

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Tableau 2

Variabilité des caractères métriques céphalo-faciaux

Village	Sexe	N	g-op			eu-eu			t-v			ft-ft			zy-zy			go-go	
			$\overline{X}$	σ	CV	$\overline{X}$	σ	CV	$\overline{X}$	σ	CV	$\overline{X}$	σ	CV	$\overline{X}$	σ	CV	$\overline{X}$	σ
Dragoslavele	H	30	187,4	4.5	2,4	160,3	4,4	2,7	126,9	5,5	4,3	115,5	4,6	3,9	143,8	3,9	2,7	112,8	6,2
Dîmbovicioara	H	30	181,8	4,7	2,6	157,6	5,1	3,2	125,5	4,6	3,7	107,9	2,6	2,4	140,7	3,7	2,6	106,4	6,5
Aref	H	40	181,2	5,1	2,8	158,3	4,1	2,6	125,9	3,6	2,8	109,8	4,4	4,0	143,3	4,8	3,4	111,5	5,2
Nucşoara	H	31	182,4	5,1	2,8	158,6	5,2	3,3	126,3	4,0	3,1	109,2	3,6	3,3	141,8	3,2	2,3	106,2	5,6
Suhaia	H	40	182,2	5,0	2,8	159,7	4,9	3,0	123,7	4,4	3,5	119,9	7,8	6,5	147,1	4,2	2,9	114,2	6,2
Recea	H	30	182,7	5,9	3,2	156,8	4,4	2,8	128,8	5,2	4,1	112,2	4,9	3,3	143,3	4,7	3,3	111,2	5,8
Tătărăştii de Jos	H	32	182,9	4,7	2,5	155,2	3,8	2,5	124,4	4,3	3,4	113,6	6,6	5,9	141,0	5,1	3,6	107,7	5,9
Bragadiru	H	36	183,3	4,8	2,6	156,9	4,4	2,8	123,0	3,5	2,9	110,5	4,3	3,9	144,4	5,0	3,5	114,1	6,7
Lunca	H	32	184,9	5,0	2,7	150,1	4,5	3,0	125,3	4,3	3,4	109,4	3,6	3,3	139,5	5,4	3,8	110,9	4,6
Călineşti	H	33	183,5	5,6	3,1	154,6	4,6	3,0	124,1	4,9	3,9	110,8	3,1	2,8	142,9	5,1	3,6	111,7	6,1
Izvoarele	H	40	187,9	4,4	2,3	150,2	4,1	2,7	122,7	4,8	3,9	108,3	4,7	4,3	140,7	5,1	3,6	110,4	6,5
Calomfireşti	H	32	182,9	6,4	3,5	155,0	5,8	3,7	126,1	3,7	2,9	111,3	5,3	4,8	142,4	4,4	3,1	111,6	3,5
Licuriciu	H	33	182,8	4,3	2,4	159,5	4,8	3,0	124,2	3,8	3,1	110,8	4,4	3,9	143,9	6,1	4,3	112,5	4,9
Prundu	H	32	190,1	4,7	2,5	148,6	3,6	2,4	121,3	4,5	3,7	108,1	3,9	3,7	139,8	4,1	3,0	113,9	5,6

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Tableau 2

Variabilité des caractères métriques céphalo-faciaux

t-v		ft-ft			zy-zy			go-go			n-gn			n-sn			al-al		
σ	CV	$\bar{X}$	σ	CV	$\bar{X}$	σ	CV	$\bar{X}$	σ	CV	$\bar{X}$	σ	CV	$\bar{X}$	σ	CV	$\bar{X}$	σ	CV
5,5	4,3	115,5	4,6	3,9	143,8	3,9	2,7	112,8	6,2	5,5	131,3	6,2	4,8	59,3	3,6	6,1	36,4	2,7	7,3
4,6	3,7	107,9	2,6	2,4	140,7	3,7	2,6	106,4	6,5	6,1	126,2	3,4	2,7	59,0	3,1	5,2	34,9	2,0	5,7
3,6	2,8	109,8	4,4	4,0	143,3	4,8	3,4	111,5	5,2	4,6	126,9	6,0	4,8	57,5	3,5	6,2	34,9	2,3	6,7
4,0	3,1	109,2	3,6	3,3	141,8	3,2	2,3	106,2	5,6	5,3	124,6	5,3	4,2	55,6	4,0	7,1	34,1	2,2	6,4
4,4	3,5	119,9	7,8	6,5	147,1	4,2	2,9	114,2	6,2	5,4	130,5	6,4	4,9	60,0	4,0	6,7	34,9	2,6	7,4
5,2	4,1	112,2	4,9	3,3	143,3	4,7	3,3	111,2	5,8	5,2	128,8	5,2	4,1	59,8	3,1	5,2	34,3	2,4	7,0
4,3	3,4	113,6	6,6	5,9	141,0	5,1	3,6	107,7	5,9	5,6	126,4	5,2	4,1	57,6	3,6	6,3	33,9	2,8	8,4
3,5	2,9	110,5	4,3	3,9	144,4	5,0	3,5	114,1	6,7	5,9	129,4	5,6	4,3	58,7	3,4	5,1	34,3	2,6	7,5
4,3	3,4	109,4	3,6	3,3	139,5	5,4	3,8	110,9	4,6	4,1	130,6	6,4	4,9	57,4	3,8	6,7	34,7	2,3	6,7
4,9	3,9	110,8	3,1	2,8	142,9	5,1	3,6	111,7	6,1	5,4	128,3	5,3	4,1	55,3	3,1	5,7	33,1	2,5	7,6
4,8	3,9	108,3	4,7	4,3	140,7	5,1	3,6	110,4	6,5	5,9	131,5	5,8	4,4	60,4	3,2	5,0	34,1	2,1	6,2
3,7	2,9	111,3	5,3	4,8	142,4	4,4	3,1	111,6	3,5	3,2	126,2	5,5	4,4	56,0	3,0	5,3	33,9	2,2	6,9
3,8	3,1	110,8	4,4	3,9	143,9	6,1	4,3	112,5	4,9	4,3	127,2	3,9	3,1	56,3	3,2	5,7	34,1	2,6	7,5
4,5	3,7	108,1	3,9	3,7	139,8	4,1	3,0	113,9	5,6	5,0	127,2	4,6	3,6	55,6	3,6	6,5	34,7	2,6	7,5

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L'analyse des données a été faite en mettant en parallèle des méthodes classiques, des méthodes originelles des anthropologues roumains [3] et des méthodes statistiques fondées sur la programmation et l'utilisation des calculateurs électroniques, dans le but de mettre en évidence, par cette confrontation, la valabilité des conclusions finales dans une recherche conçue de cette manière ainsi que de vérifier si l'on peut arriver à une conclusion commune.

Pour l'étude présente nous avons sélectionné 9 caractères céphalofaciaux et la stature, prélevés d'après la méthode classique de R. Martin.

En appliquant la méthode du morphogramme taxonomique [3] pour l'analyse des données dimensionnelles moyennes de la calotte, de la face et du nez, considérées dans leur complexe associatif, nous avons établi la structure typologique de chaque village. Le procédé nous a aidés, dans cette première étape, à établir les similitudes et les dissemblances entre les trois catégories de population situées différemment au point de vue géographique.

Afin de définir l'homogénéité des communautés humaines, la liaison entre celles-ci et leur manière de groupement, nous avons appliqué ensuite l'analyse de discrimination et le calcul de la distance généralisée Mahalanobis D^2.

RÉSULTATS

1. *Les populations roumaines.* Bien que situées dans deux zones diamétralement opposées comme milieu géographique, on ne peut pas faire une séparation nette, au point de vue typologique, entre les populations roumaines de la plaine danubienne et celles sous-carpatiques,

Tableau 3

Variabilité statistique de la stature

Villages	Hommes		
	$\bar{X}$	σ	CV
Dragoslavele	1688,10	52,80	3,13
Dîmbovicioara	1683,50	43,60	2,59
Aref	1678,50	46,40	2,76
Nucşoara	1678,90	67,50	4,02
Suhaia	1694,50	67,20	3,97
Recea	1719,61	63,00	3,66
Tătărăştii de Jos	1672,10	51,60	3,05
Bragadiru	1687,25	59,50	3,53
Lunca	1675,70	51,40	3,07
Călineşti	1672,70	74,70	4,47
Izvoarele	1684,90	62,10	3,69
Calomfireşti	1698,45	41,10	2,42
Licuriciu	1658,00	57,00	3,44
Prundu	1668,75	60,00	3,60

phénomène explicable par les processus de pendulations pastorales de ces populations et les mélanges consécutifs qui ont eu lieu entre les habitants de la montagne et ceux de la plaine.

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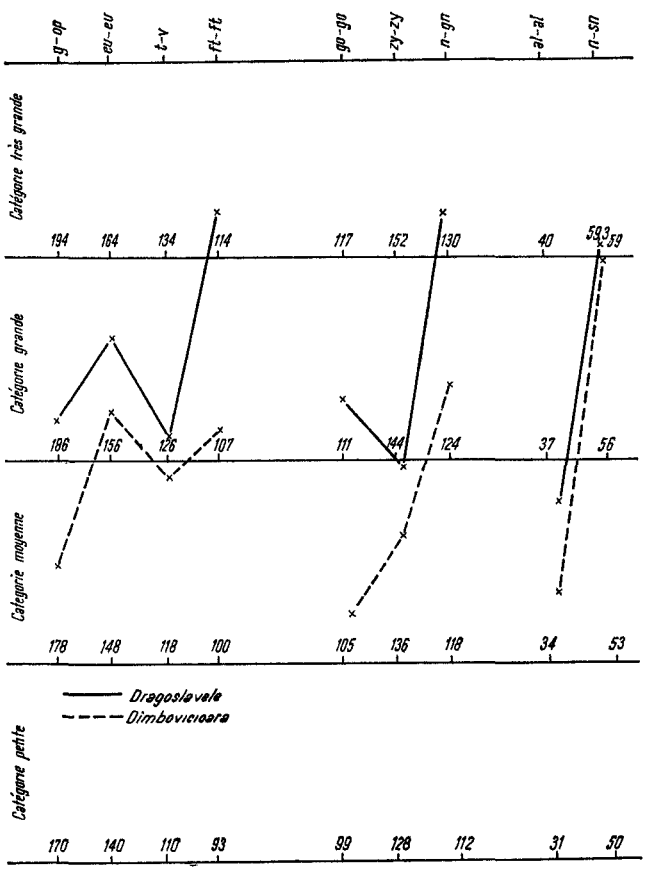

Fig. 2. — Morphogrammes taxonomiques des dimensions céphalo-faciales de la population masculine des villages de Dragoslavele et de Dimbovicioara.

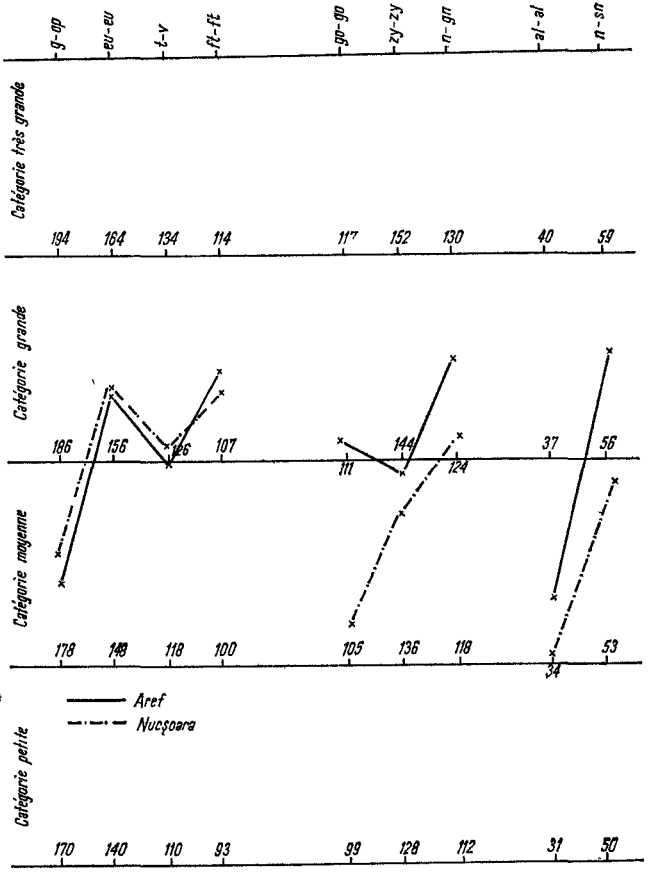

Fig. 3. — Morphogrammes taxonomiques des dimensions céphalo-faciales de la population masculine des villages de Aref et de Nucşoara.

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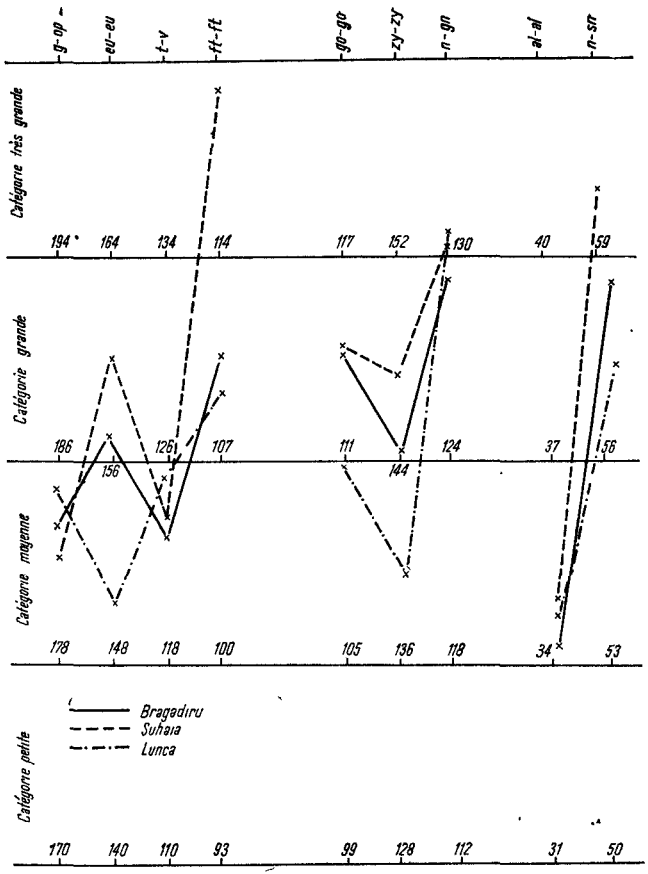

Fig. 4. — Morphogrammes taxonomiques des dimensions céphalo-faciales de la population masculine des villages de Bragadiru, de Suhaia et de Lunca.

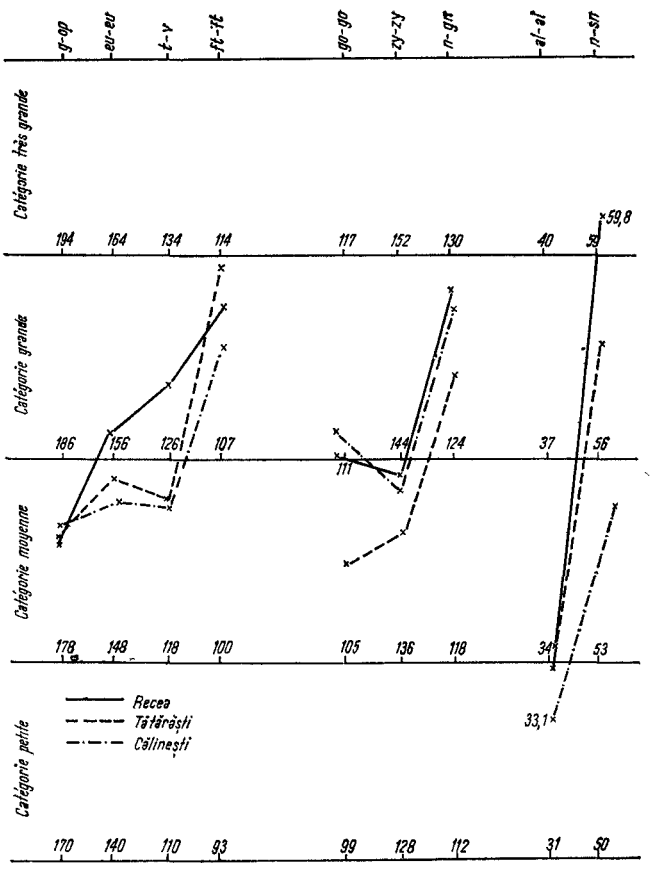

Fig. 5. — Morphogrammes taxonomiques des dimensions céphalo-faciales de la population masculine des villages de Recea, de Tătărăştii de Jos et de Călineşti.

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Les caractères de la calotte céphalique. Dans les tableaux 2 et 3 nous avons concentré la variabilité des 10 caractères anthropométriques des 14 échantillons masculins ; quant aux figures 2, 3, 4 et 5 nous avons illustré les morphogrammes taxonomiques. Les quatre villages de montagne Dragoslavele, Dîmbovicioara, Aref et Nucşoara ainsi que les deux autres de la plaine, Suhaia et Bragadiru, réalisent graphiquement une calotte dont les dimensions de largeur eu-eu et ft-ft ont une situation de prévalence au point de vue des niveaux des valeurs, par rapport aux niveaux des valeurs du diamètre antéro-postérieur g-op et vertical t-v. C'est une calotte de type graphique alternatif [8], que nous rencontrons, en Roumanie, particulièrement chez les populations montagnardes à caractères alpinoïdes. Il s'agit d'un g-op dont la valeur s'encadre dans la catégorie moyenne (181—187 mm), eu-eu large, mais plutôt vers la limite inférieure de la catégorie (156,9—160 mm), t-v moyen à tendances vers les valeurs de catégorie haute (123—126,9 mm) et le front large (107—119,9 mm).

Un seul village roumain, Lunca, se caractérise par une calotte pour laquelle eu-eu inscrit, sur le morphogramme, une valeur au-dessous du niveau des trois autres dimensions de la tête. C'est le type graphique en forme de V, caractéristique de la typologie méditerranoïde.

Entre ces deux extrêmes, trois villages de la zone de plaine, Tătărăştii de Jos, Călineşti et Recea, se caractérisent par des calottes dont les valeurs de longueur (g-op) et de largeur (eu-eu) se placent dans la catégorie moyenne, t-v moyen ou haut et le diamètre frontal minime (ft-ft) large.

En comparant les villages, on peut remarquer le caractère plus unitaire de la calotte céphalique chez les populations de montagne et une plus grande variabilité phénotypique chez les populations de la plaine du Danube.

La face. Par rapport à la calotte céphalique, la typologie de la face est plus unitaire. Développée plus fortement dans le sens sagittal que dans le sens horizontal, la hauteur de la face se place au début de la catégorie des faces très hautes à Dragoslavele, Suhaia et Lunca (130,5 — 131,3 mm) et hautes dans toutes les autres localités (124,6 — 129,8 mm). En ce qui concerne le développement en largeur, le diamètre zy-zy est moyen jusqu'à la contingence avec la catégorie large (139,5 — 144,4 mm) à part une seule exception, Suhaia, où ce diamètre est large (147 mm) ; quant à la mandibule, elle est moyenne ou large. La relation graphique positionnelle entre les dimensions est dans l'ordre : n-gn, zy-zy, go-go dans le cas de Nucşoara, Dîmbovicioara et Tătărăştii de Jos et dans l'ordre n-gn, go-go, zy-zy pour les autres villages.

Le nez. Le nez est très haut, toujours dans le cas de Dragoslavele et Suhaia, et haut dans les autres villages. Les seules exceptions apparaissent à Călineşti et Nucşoara où les populations ont un nez de hauteur moyenne. Pour la majorité des villages roumains, les moyennes des dimensions de la largeur du nez (al-al) varient entre les deux limites, inférieure et supérieure, de la catégorie moyenne.

Sur la base de ce spécifique dimensionnel on peut affirmer que la face et le nez des populations roumaines rejoignent les caractères de dominance dinaro-nordique. Les différences d'ordre typologique entre

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les villages roumains sont localisées spécialement au niveau de la calotte. Celle-ci se caractérise par une combinaison de caractères alpino-dinaro-nordiques chez les hommes de montagne. La calotte céphalique des hommes de la plaine apparaît d'une plus grande variabilité de forme. Elle présente des caractères alpino-dinaroïdes à Suhaia et Bragadiru, prédominants méditerranoïdes à Lunca et dinaro-méditerranoïdes à Tătărăşti, Călineşti et Recea.

La stature. Rapportée à l'échelle de classification de R. Martin, la stature des hommes est moyennement développée à Licuriciu (165,8 cm) et Prundu (166,9 cm). Dans les autres villages, la taille des hommes est de catégorie surmoyenne, variant entre 167,2 et 169,4 cm.

2. *Les populations d'origine bulgare.* Sur la figure 6 on constate que les hommes d'origine bulgare d'Izvoarele, Calomfireşti et Licuriciu, eux aussi, ne sont pas identiques au point de vue phénotypique, spécialement en ce qui concerne la calotte céphalique. Sous le rapport de la similitude

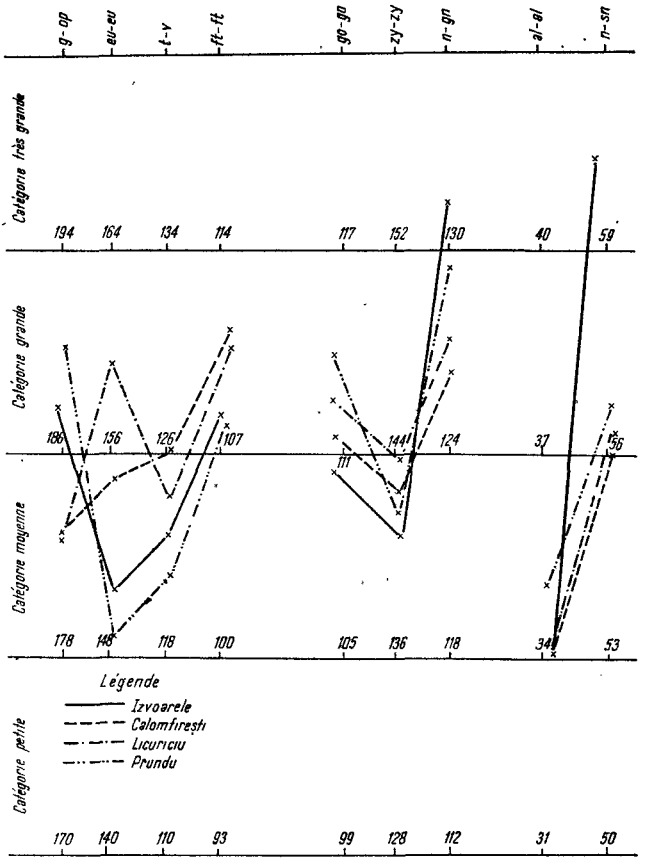

Fig. 6. — Morphogrammes taxonomiques des dimensions céphalo-faciales de la population masculine des villages de Izvoarele, de Calomfireşti, de Licuriciu et de Prundu.

avec le peuple bulgare, le plus représentatif est l'échantillon d'Izvoarele. Les hommes de ce village ont un grand nombre de caractères anthropologiques décrits par Popov [9], correspondant au type pontique (variante

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méditerranoïde) de Bulgarie, à savoir : la tête longue, moyennement large et haute, la face à dimensions bien développées spécialement dans le sens vertical, le nez haut, la stature surmoyenne. La population de Licuriciu est alpino-dinaroïde et celle de Calomfireşti dinaro-méditerranoïde [13].

3. *Les Rudari.* S'encadrant dans une typologie ayant beaucoup de caractères méditerranoïdes (fig. 6), particulièrement au niveau de la calotte, les Rudari de Prundu se distinguent, au point de vue typologique, de Lunca, le village roumain le plus proche, par un g-op plus long (190 mm), un t-v plus bas (121,3 mm) et une mandibule large (113,9 mm). Par comparaison aux Bulgares d'Izvoarele, village ayant également une typologie à prédominance méditerranoïde, ceux-ci ont les dimensions de la face et du nez en même temps plus étroites et plus hautes.

L'ANALYSE DISCRIMINANTE

Le tableau 4 présente les constantes et les coefficients des fonctions de discrimination des trois groupes : Roumains, Bulgares et Rudari. appartenant aux populations de l'ouest de Munténie.

Tableau 4

L'analyse discriminante. Fonctions de discrimination

I		II		III	
Constante	Coef.	Constante	Coef.	Constante	Coef.
−1 233,34 115	4,44 233	−1 231,23 779	4,51 884	−1 223,85 889	4,76 120
	2,12 616		2,07 116		1,85 982
	2,67 983		2,62 854		2,51 573
	0,27 635		0,21 744		0,23 308
	2,18 929		2,21 722		2,17 101
	0,17 826		0,21 244		0,30 413
	0,83 340		0,85 184		0,80 960
	−0,46 910		−0,51 474		−0,69 139
	0,93 099		0,90 988		0,97 752
	0,30 041		0,30 136		0,30 204

Par la détermination de l'appartenance des individus des trois groupes initiaux, Roumains, Bulgares et Rudari, on peut déduire que les villages de la zone de montagne sont homogènes. En même temps, les typologies qui se répètent expliquent, du moins partiellement, les similitudes entre les villages roumains de Bragadiru, Călineşti et Lunca et ceux des Bulgares de Licuriciu et Calomfireşti.

L'affirmation est soutenue par la petite différence de probabilité avec laquelle on peut attribuer les individus aux deux premières fonctions de discrimination f_1 et f_2.

Le groupe des Rudari est très homogène.

En ce qui concerne les Bulgares d'Izvoarele, on remarque un nombre relativement grand d'individus qui peut être attribué avec une grande probabilité au troisième groupe. Au point de vue anthropologique l'explication serait soutenue par le fond méditerranoïde commun aux deux populations.

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LA DISTANCE GÉNÉRALISÉE MAHALANOBIS D^2

Le calcul de la distance généralisée Mahalanobis entre les 14 villages, sur la base des 10 caractères anthropométriques analysés plus haut concernant la population masculine, nous a permis de mettre en évidence tant les liaisons organiques entre les villages, que leur degré de divergence.

Tableau 5

Distances généralisées – hommes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Dragoslavele	—	4,19	3,25	4,62	2,99	3,19	2,64	3,46	4,76	4,56	6,67	4,19	3,16	11,64
2 Dîmbovicioara	—	—	1,54	1,06	7,77	1,81	2,79	3,20	4,96	5,10	5,83	3,73	3,30	12,87
3 Aref	—	—	—	1,38	6,22	1,58	3,12	1,46	4,22	2,25	6,88	1,67	0,82	11,57
4 Nucşoara	—	—	—	—	8,41	2,07	2,61	4,00	5,71	4,13	7,73	2,74	2,77	13,28
5 Suhaia	—	—	—	—	—	5,60	3,46	5,31	8,86	6,86	11,15	6,50	5,24	17,14
6 Recea	—	—	—	—	—	—	2,47	2,70	4,17	3,86	5,60	1,80	3,31	11,88
7 Tătărăştii de Jos	—	—	—	—	—	—	—	3,31	3,41	3,01	4,88	2,49	3,07	9,17
8 Bragadiru	—	—	—	—	—	—	—	—	3,34	1,63	3,92	2,10	0,95	8,03
9 Lunca	—	—	—	—	—	—	—	—	—	1,88	1,89	2,50	4,46	3,71
10 Călineşti	—	—	—	—	—	—	—	—	—	—	4,54	1,12	1,38	5,90
11 Izvoare	—	—	—	—	—	—	—	—	—	—	—	5,28	6,73	3,57
12 Calomfireşti	—	—	—	—	—	—	—	—	—	—	—	—	2,20	7,19
13 Licuriciu	—	—	—	—	—	—	—	—	—	—	—	—	—	10,30
14 Prundu	—	—	—	—	—	—	—	—	—	—	—	—	—	—

De l'analyse des distances, concentrées dans le tableau 5, on peut affirmer en général que les 14 villages humains sont distincts.

Un groupe unitaire est constitué par les communautés de montagne Dîmbovicioara, Aref et Nucşoara ($D^2 = 1{,}54$; 1,06 ; 1,38) (fig. 1).

Parmi les villages de la plaine, l'échantillon des Bulgares d'Izvoarele est semblable à celui des Roumains de Lunca, phénomène explicable par leur appartenance au même fond méditerranoïde. En ce qui concerne la liaison qu'on observe entre les villages de montagne et ceux de la plaine (fig. 1), Aref apparaît comme un point important par les relations qu'il établit tant avec les établissements montagnards d'une part, qu'avec quelques établissements de la plaine, d'autre part (Bragadiru, Recea, Calomfireşti et Licuriciu). Un tel groupement est soutenu par le spécifique alpino-dinaroïde des communautés, résultat des mélanges des populations qui ont eu lieu entre la montagne et la plaine.

Trois échantillons de Roumains, Dragoslavele-montagne, Suhaia et Tătărăşti-plaine, occupent une position divergente par rapport à tous les autres villages, phénomène qui peut être expliqué au moins pour Dragoslavele et Suhaia. Dans le premier cas il s'agit d'une population masculine ayant des dimensions céphalo-faciales fortement développées tant dans le sens horizontal que dans le sens vertical. Le spécifique dimensionnel du lot masculin de Suhaia est présent par le front très large ($\bar{x} = 119{,}9$ mm), le diamètre zy-zy lasge et le nez très haut.

Les Rudari de Prundu se situent, eux aussi, de façon divergente par rapport à tous les autres villages, enregistrant, à quelques exceptions près, les plus grandes valeurs du D^2.

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En échange, les typologies qui se répètent dans le cadre des populations roumaines et bulgares expliquent les similitudes entre les hommes de certains villages tels que Aref et Licuriciu $D^2 = 0,82$ ou Călineşti et Calomfireşti $D^2 = 1,12$.

La signification des différences entre les vecteurs-moyen a été calculée à l'aide du test F à un seuil de signification $\alpha = 0,01$.

La figure 1 sur laquelle nous avons figuré la représentation géographique de la distance généralisée D^2 seulement pour les villages entre lesquels il y a des liaisons organiques (des valeurs non significatives du D^2, sur la base du test F à un seuil de signification $\alpha = 0,01$) confirme, pour le sexe masculin, les mouvements de populations qui se sont produits, au cours des siècles, de la Transylvanie vers la Munténie, premièrement dans la zone subcarpatique et ensuite vers la plaine. Le phénomène a été soit généré par des causes d'ordre politique, soit lié aux occupations pastorales.

CONCLUSIONS

Appliquant en parallèle, dans notre étude, nos méthodes courantes de définition typologique, doublées de méthodes d'analyse mathématique, il nous est possible d'affirmer qu'en final les résultats ne sont pas contradictoires. Le groupement des échantillons d'après le même morphogramme taxonomique est valable en premier lieu pour le segment céphalique et seulement jusqu'à un certain point. L'exemple est offert par les échantillons masculins de Dîmbovicioara, Aref et Nucşoara où les dimensions transversales de la tête prévalent, du point de vue du niveau des valeurs, sur celui du diamètre g-op et t-v, ainsi que par les échantillons d'Izvoarele et de Lunca chez lesquels la longueur de la calotte domine sa largeur. Ces deux groupes de villages, à dominante alpine dans le premier cas et à dominante méditerranoïde dans le second cas, ne se classent jamais ensemble. En échange, l'échantillon de Călineşti et de Calomfireşti qui ne forment, au niveau de la calotte, des combinaisons aussi évidentes que ci-dessus, occupent une position intermédiaire, oscillant vers l'un ou l'autre groupe.

En même temps, il y a lieu de spécifier que nos méthodes anthropologique se sont avérées un très bon instrument pour l'explication de certains phénomènes qui ont résulté de l'analyse de discrimination et du calcul de la distance généralisée Mahalanobis D^2.

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THE GENERALIZED MAHALANOBIS DISTANCE (D^2) BETWEEN SOME COMMUNITIES IN THE BANATULUI MTS

BY

HORST SCHMIDT

The material comes from 14 groups of populations belonging to four various ethnical groups, namely Romanians (the Rudăria, Cornereva, Bogîltin villages and two groups — an orthodox one and a catholic one — of the Slatina-Timiş village), Czechs (the Bigăr, Ravensca and Şumiţa villages), Germans (the Gărîna, Brebu Nou and Lindenfeld villages), and Caraşovians * (the Caraşova, Nermet and Iabalcea villages). As far as the origin of the two population groups from Slatina-Timiş is concerned, there are two hypotheses which arise. The first one assumes that the catholic population would have a Southern-Slav origin, taking over the Romanian language along the generations in contact with the Romanian populations around it, but still keeping its faith. The second hypothesis supposes that a part of the same Romanian population passed to catholicism under the Austrian occupation due to some promised favours. The fact is sure, however, that there are two groups which along the last generations did not get mixed with one another, hence forming two separate evolutive lines.

Cornereva and Bogîltin, localized in the Cernei Mts, and Rudăria, in the Almăjului Depression, are villages showing a limited marriage area resulting from their geographic position.

The Czech and German populations studied by us originate from the same region (Central Bohemia) and settled here at the beginning of the 19th century (1824 — 1830). The three Czech-population villages have had a high endogamy degree ever since their colonization in this place, each village forming a real isolate. Two of the three German villages (Gărîna and Brebu Nou) are very close, forming a single marriage area; the third village, Lindenfeld, being far from the other two agglomerations, constitutes another typical isolate.

The Caraşovian villages, for a change, occur in close neighbourhood, thus forming a single marriage area.

The characteristic features studied are 15 cephalofacial and corporeal measurements, namely: g-op, eu-eu, ft-ft, zy-zy, go-go, n-gn, n-sto, n-sn, al-al, t-v, the ear length and height, the stature, the sitting height and the weight.

* Population of unknown origin, speaking a Serbo-Croatian dialect.

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The lots comprise an average number of 80 men and 80 women between 20 and 45 years and originating in the villages in question. The mathematic calculations were carried out at the Calculus Centre of the Mainz University.

PRESENTATION AND DISCUSSION OF THE RESULTS

The Mahalanobis generalized distances between the 14 groups are shown in table 1. Figures 1 and 2 represent the possible groupings (clusters) based upon the Mahalanobis generalized distances in both sexes.

Table 1

The generalized Mahalanobis distance between the fourteen communities studied

Community	1	2	3	4	5	6	7	8	9	10	11	12	13
1	—												
2	0.89	—					Men						
3	1.65	2.13	—										
4	2.80	1.91	2.44	—									
5	1.98	1.88	1.49	1.86	—								
6	1.72	1.87	1.52	2.86	1.74	—							
7	2.08	1.50	1.66	2.79	1.16	1.57	—						
8	3.10	3.17	1.60	3.29	2.08	2.98	2.06	—					
9	2.84	2.06	2.26	2.51	1.89	1.71	1.84	1.78	—				
10	2.45	1.80	2.19	3.47	1.20	2.04	1.31	2.48	1.52	—			
11	3.11	3.30	4.28	4.19	2.05	3.73	2.83	5.01	2.37	2.37	—		
12	3.51	7.61	5.75	5.69	3.69	5.50	4.33	5.68	3.11	3.11	1.03	—	
13	1.55	2.13	1.89	2.41	1.42	2.18	1.79	2.69	2.41	2.41	1.86	3.68	—
14	1.49	2.66	1.81	3.64	1.30	2.71	2.22	3.71	2.38	2.38	2.27	4.13	0.92
1	—												
2	0.83	—											
3	1.76	1.22	—				Women						
4	3.04	2.27	2.81	—									
5	3.02	1.61	2.67	1.31	—								
6	2.44	1.35	1.58	2.14	1.40	—							
7	1.28	0.84	1.63	1.95	1.01	1.59	—						
8	2.20	1.94	2.13	2.15	1.44	2.35	0.57	—					
9	2.97	1.78	3.12	1.54	0.87	1.67	1.24	1.10	—				
10	2.58	1.14	2.83	2.12	1.40	2.25	1.26	1.91	1.43	—			
11	3.70	3.21	4.57	2.87	1.52	3.66	2.41	2.33	2.32	2.29	—		
12	4.09	3.96	4.07	4.66	3.01	4.15	3.69	3.35	3.78	3.62	1.08	—	
13	1.97	2.30	2.73	3.69	2.38	3.09	1.54	2.23	3.73	2.46	2.19	2.44	—
14	2.20	1.85	2.32	3.49	1.67	2.75	0.90	1.49	2.73	1.88	2.55	3.20	0.67

1, Gărina; 2, Brebu Nou; 3, Lindenfeld; 4, Bigăr; 5, Ravensca; 6, Şumiţa; 7, Caraşova; 8, Nermeţ; 9, Iabalcea; 10, Rudăria; 11, Cornereva; 12, Bogîltin; 13, Slatina-Timiş (catholic religion); 14, Slatina-Timiş (orthodox relgion).

The analysis of these data emphasizes that the Cornereva and Bogîltin villages are constantly placed at the superior extremities of the comparative distances between the villages. Although one of the hypotheses put forth by the population asserts the different origin of these two groups, the small Mahalanobis distance obtained between them, the clear-cut differentiation of both groups from the rest of the villages, the existence

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of special common characters, as for instance the extremely great development of the frontal-bone width, are certainly pleading for the common origin of the two groups. At the same time, the small differences between

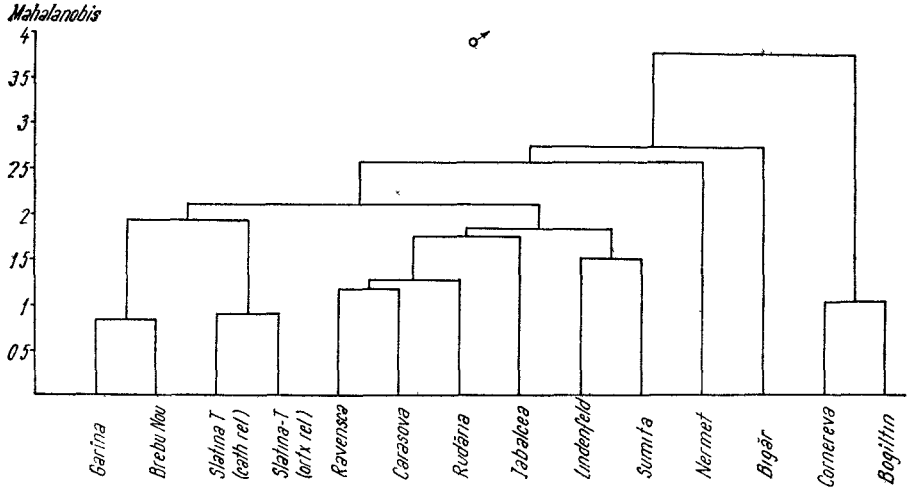

Fig. 1. — The possible clusters between the villages on the basis of the generalized Mahalanobis distance (men).

the two groups of Slatina-Timiș support the second hypothesis formulated at the beginning of this work, namely that, in this place as well, the studied population is the same. Although in the last generations,

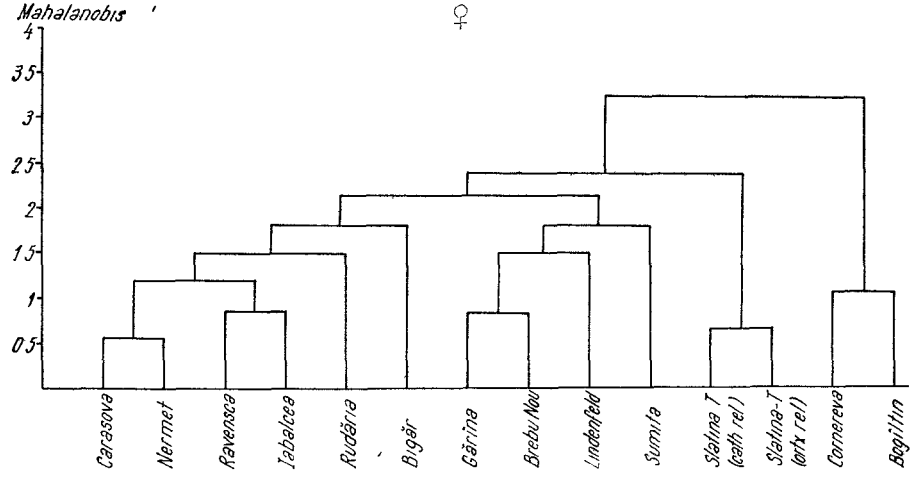

Fig. 2. — The possible clusters between the villages on the basis of the generalized Mahalanobis distance (women).

no marriages between the two groups were recorded, the moment the catholic group detached itself is too recent to have favoured the appearance of major differences between the two groups. Consequently, in

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following comparisons, the Bogîltin and Cornereva villages, as well as the two groups of Slatina-Timiş, were grouped into two populations, namely Cornereva (B) and Slatina-Timiş. The three Romanian populations are variously structured and well differentiated between them. Owing to some prominently northern elements, the male population of Slatina-Timiş somehow resembles the German one. The Rudăria village is more like the Caraşovian and Czech populations of Ravensca. In fact, despite all the differences, a certain closeness is to be observed between the Caraşovian villages and those with Czech population, both of Slav origin. The nearness between these two groups and the Romanian population of Rudăria remains to be explained. According to some Slav-toponymy studies carried out by the linguist E. Petrovici in the Romanian populations of Ţara Almăjului, where the Rudăria village also occurs, this toponymy presents phenological Serbo-Croatian characters, in contrast with the rest of the population of Banat showing a medio-Bulgarian character. These features also appear in the Serbo-Croatian idiom of the Caraşovians. The author concludes that, probably, concurrently with the Caraşovians' establishment, a branch of these latter would have settled also in Ţara Almăjului. This hypothesis is confirmed by our anthropologic data, as well. This old Serbo-Croatian population of Ţara Almăjului was gradually assimilated by the autochthonous population, giving this latter some linguistic and biologic characteristics common with the Caraşovian population.

The Cornereva and Bogîltin population, which remained a long time isolated and retired in the over 30 hamlets of the Cernei Mts' heart, displays an obviously differentiated structure as against all the other 12 communities. This phenomenon could not be explained but by two hypotheses: either in this population, retired in difficultly accessible mountainous regions, no important foreign-gene afflux took place, the population keeping the structure of some ancient populations of the country's territory, or, during the long isolation period, changes of genic frequency developed, giving this population a peculiar aspect.

Manifest nearnesses are also found between the Gărîna and Brebu Nou villages which form the same marriage area, as well as between the Caraşovian ones. In fact, as expected, between the villages grouped per ethnical origin, although sometimes isolated from each other, differences smaller than the Mahalanobis-distance average between the villages belonging to different ethnical groups are recorded. One can assume that the villages of the same group resulting from a common fund had initially the same characteristic features, forming in fact a unique population. There are, however, two aspects to be discussed over here. The German villages, Lindenfeld excepted, and the Caraşovian ones, occurring in near vicinity, have close marriage relations. On the contrary, in the Czech-origin and Romanian populations, due to the great geographic distances separating them this kind of relations is much more restricted. A second aspect to be considered is that the German and Czech populations are recently settled, the time in which they could have differentiated being short. The Caraşovian and especially the Romanian populations have a very long settlement time in these places. There are just these two aspects which constitute the explanation

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of a lack of differentiation or, on the contrary, of a differentiation between the villages of the same group (Fig. 3). Thus, in the German and Czech populations settled in the same period, the greatest distances are recorded between the Czech villages, as well as between Lindenfeld and the other two German villages, as these latter are separated by geographic bar-

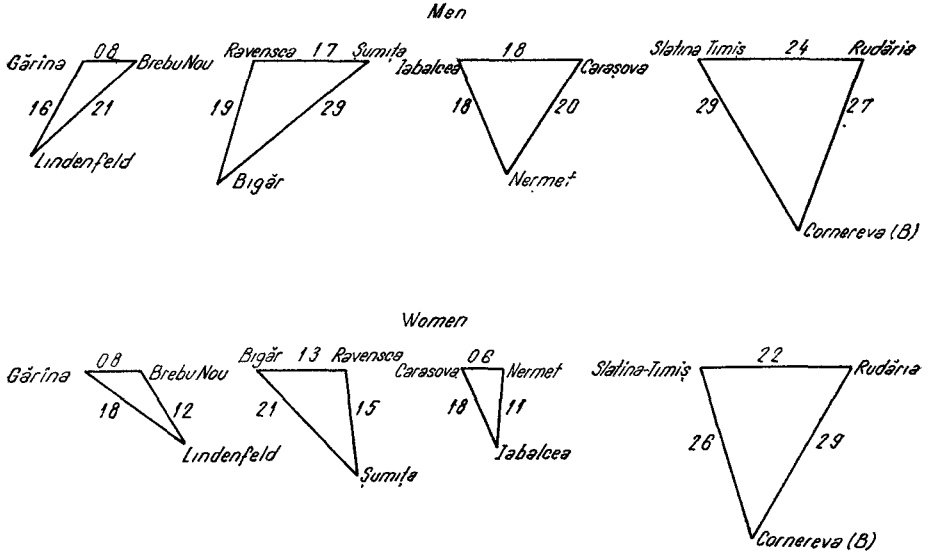

Fig. 3. — The generalized Mahalanobis distance between the villages belonging to the same ethnical group.

riers. In the males of the Caraşovian villages, distances resembling those in the Czech population are to be noticed, but here, this differentiation appeared as a consequence of a longer dwelling time along several generations, since the marriages are rather frequent between these two villages. In most cases, there are just the women who migrate by marriage from one village to another, a fact which explains the homogeneity of Caraşovian women. Finally, in the places the groups' division appeared long ago, also excluding marriage relationships, the differentiations are obvious, like for the Romanian populations.

CONCLUSIONS

1. Contrarily to some hypotheses, the common origin of the two groups of the Slatina-Timiş village could be proved, as well as that of the Cornereva and Bogîltin populations.

2. The nearness between the Caraşovian villages and the Rudăria village is due to some ancient common Southern-Slav elements.

3. There is a direct relationship between the generalized Mahalanobis distance and the period elapsed since a population got divided, on the one hand, and the isolation degree of this latter, on the other hand.

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4. The strong differentiation of the Cornereva and Bogîltin villages appears to be a remnant of an ancient population or a consequence of a different structure obtained during the long isolation period.

5. The women lots show a higher homogeneity, while in the male lots a stronger heterogeneity is to be observed. The marked resemblances between women may be explained by the demographic movements produced at this level, women rather always migrating by marriage to other villages, as well as by the fact that women's development stopping earlier, feminine typology is less differentiated, leading to a higher degree of resemblance.

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Centre of Anthropological Researches
Bucharest

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PRELIMINARY SEROLOGICAL INVESTIGATIONS ON A GROUP OF "RUDARI"

BY

SIMONA BERONIADE, TATIANA DRĂGHICESCU and S. ALOMAN

In 1971 the National Committee of Anthropology and Ethnology led by Acad. Prof. Dr. St. M. Milcu initiated a complex investigation on some groups of less studied populations in our country. This paper joins the W.H.O. research plan for the study of some isolated populations scattered all over Europe.

With that end in view, a joint collective of researchers from the "C. I. Parhon" Institute of Endocrinology, Bucharest, and the Centre of Anthropological Researches, Bucharest, began the study of an ethnical group known under the name of "rudari", scattered in small communities in several villages of the country.

We made up our mind to study the "rudari" for we do not know very much about them so far. Speaking with them they told us that they are not gipsies and did not entirely agree with the idea of their belonging to gipsies. The "rudari" are not wandering people, do not speak the "Romany" language, marry only within their community, their customs differ from those of gipsies and show a larger morphological variability. They are settled in isolated communities living in some villages in groups of 20 — 50 families dealing with wood working (wooden spoons, baskets, cart wheels, etc.). Some of them, especially the younger ones, began to work regularly. The relations with the local population are very good.

We thought it would be very interesting to study this isolated ethnical case because some investigations on the "rudari" support the idea of their belonging to the gipsy sedentary groups. The same idea is supported by the fact that some of them are very similar with gipsies as far as the typological features are concerned. The question is whether they belong or not to the sedentary groups that originate in the European migratory gipsies. Thus, the purpose of our study is to comparatively investigate at the same time the three different groups : the "rudari", the European gipsies, and the Punjabi population (Punjab is the native place of the European gipsies).

About the European gipsies we know that they originated in the Middle India and migrated into the North Indian Punjab (now Pakistan) after the Arabian conquest in the 7^{th} — 8^{th} century A. D. From there they began to migrate westward, the first groups reaching Europe in the 12^{th} century. The last wave came into Europe through Turkey and the Balkans in the 15^{th} century [14].

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On the territory of our country the documents certify the existence of gipsies from the 14th century on. Nowadays a part of them are living in towns, assimilated into the general population. They work regularly and live the life of the common citizen. Another category lives in villages, also assimilated into the local population.

Works dealing with the gipsy groups in Europe appeared sporadically in: Hungary, Yugoslavia, Soviet Union, Czechoslovakia, France, Sweden, and Romania.

MATERIAL

The present paper deals with the data on 259 subjects of both sexes from two neighbouring villages, Romanii de Sus and Vaideeni, Vîlcea County, Oltenia. The people under investigation were taken at random and unselected. We investigated the two samples together, for there were no significant differences between them. We examined the A_1A_2B0, M—N, $Rh_{(D)}$ blood groups, the secretory factor (ABH), the tasting ability (PTC), and the haptoglobin system.

RESULTS AND DISCUSSIONS

The results of our investigations (Table 1) have been compared with those of the Romanian population (the data collected by the transfusion centres were omitted from this material, only the serological studies published by different authors for about all the country's zones being maintained). Another comparative material was that referring to the Pakistani population (living in Punjab) [4] [9] — [12]. We also used some papers on gipsy populations from Europe [1] [5] [8].

AB0 system. Table 1 shows that the phenotypic frequencies of B and AB groups are higher in "rudari" as compared to the Romanian population and very close to those of the Punjabi population and European gipsy population.

As far as the difference of gene frequencies is concerned, the value of q is higher and the values of p and r are lower in "rudari", the Punjabi population and European gipsies.

The χ^2 significance test of the difference between the distribution of the AB0 groups reveals the following results: "rudari"/Pakistani population $\chi^2 = 5.82$; "rudari"/European gipsies $\chi^2 = 23.20$; "rudari"/Romanians $\chi^2 = 110.66$.

The distribution of the subgroups in "rudari" is: $A_2 = 21.88\%$, $A_2B = 17.65\%$.

The p/q quotient is 0.75 in "rudari" as against 2.55 in the Romanian population. The similarity with the Punjabi population (p/q 0.67) and with the European gipsies is evident.

M—N groups. We noticed in our sample a higher frequency of the M factor and m gene in the "rudari" as compared to the three other samples. However, the relationship is more stressed in the Punjabi population.

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It is well known from the literature [13] that in South Asia, namely in India, the gene frequencies vary from 0.60 to 0.70. In the northern provinces the values are under 0.60 for the m gene.

The χ^2 test of comparison reveals the following results: "rudari"/Punjabi population $\chi^2 = 0.55$; "rudari"/European gipsies $\chi^2 = 3.15$; "rudari"/Romanian population $\chi^2 = 2.94$.

$Rh_{(D)}$ factor. The Rh negative incidence is of 11.97% in our material and it is comparatively lower as against the Romanian population (14.88%) and higher as against the values for the Punjabi population (6.90%) and for the European gipsies (9.61%).

It is well known that the incidence of Rh negatives in the Asian population is very low. It is also mentioned that in the northern India and Punjab the frequency of Rh negatives is higher than in other zones.

Secretory factor (ABH). On our material the frequency of the non-secretory gene is even higher as compared to that found for the Punjabi population. The values are closer to those reported for the Romanian population. We have not comparative data for the European gipsies.

The tasting ability (PTC). There are low values of nontasters (8.11%) in the "rudari". As compared to the Romanian population, the value is not significant but the percentage of nontasters is very high in the Punjabi population. Here, too, we do not have comparative material for the European gipsies. Supplementary investigations are to be done.

Haptoglobin system. We remarked for this system low values of Hp_{1-1} group (1.74%) and very high values of Hp_{2-2} (66.28%). We found ahaptoglobinaemia only once but we eliminated it from the calculation of gene frequencies. The gene frequencies we found are $Hp^1 = 0.1760$ and $Hp^2 = 0.8240$ and they differ from those of the Punjabi population and European gipsies. The χ^2 test exhibits highly significant values in comparison with the Romanian population (38.08) and nonsignificant ones when compared to the Punjabi population (4.34) and to the European gipsies (2.67).

CONCLUSIONS

The examination of the material at our disposal permitted us to draw the conclusion of a striking similarity between the "rudari" and the Punjabi population.

This statement can be set forth thanks to the results we got comparing the data referring to the A_1A_2B0, MN, Rh, and Hp systems.

A final conclusion requires both socio-cultural and morphological studies and a thorough investigation on other "rudari" groups.

At least one thing is proved. The serological data show that the "rudari" differ from the Romanian population and it seems that they are more related to those populations which originate in the northern zones of India.

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Table 1

The phenotype and genotype frequencies of some genetical traits of the "rudari", Romanian, Pakistani (Punjabi) and gipsy populations

Blood group systems	Phenotype frequencies				Genotype frequencies			
	"Rudari"	Romanians	Pakistanis (Punjabis)	Gipsies from Europe (combined)	"Rudari"	Romanians	Pakistanis (Punjabis)	Gipsies from Europe (combined)
AB0 :	present investigations	combined	[9]	[1] [5] [8]				
A	0.2171	0.4383	0.2337	0.3493	p = 0.2104	p = 0.2922	p = 0.1809	p = 0.2767
B	0.3552	0.1561	0.3726	0.2895	q = 0.2820	q = 0.11446	q = 0.2697	q = 0.2363
0	0.2664	0.3463	0.3049	0.2344	r = 0.5076	r = 0.5932	r = 0.5494	r = 0.4870
AB	0.1313	0.0593	0.0888	0.1268				
Total	1.0000 (259)	1.0000 (25961)	1.00000 (5225)	1.0000 (1271)				
A_1/A_2	present investigations	combined	[9]	[1] [5] [8]				
A_1	0.7812	0.8274	0.7936	0.8763	$p_1 = 0.1632$	$p_1 = 0.2317$	$p_1 = 0.1394$	—
A_2	0.2188	0.1726	0.2064	0.1237	$p_2 = 0.0472$	$p_2 = 0.0605$	$p_2 = 0.0415$	—
A_1B	0.8235	0.7756	0.8082	0.8375				
A_2B	0.1765	0.2244	0.1918	0.1625				
Total	1.0000 (98)	1.0000 (12919)	1.0000 (1685)	1.0000 (363)				
M—N :	present investigations	[3]	[4]	[1] [5] [8]				
M	0.3436	0.3017	0.3416	0.2985	m = 0.5946	m = 0.5580	m = 0.5817	m = 0.5502
MN	0.5020	0.5118	0.4801	0.5034	n = 0.4054	n = 0.4420	n = 0.4183	n = 0.4498
N	0.1544	0.1865	0.1783	0.1981				
Total	1.0000 (259)	1.0000 (30018)	1.0000 (202)	1.0000 (737)				

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$Rh_{(D)}$	present investigations	combined	[4]	[1] [5] [8]				
Rh +	0.8803	0.8512	0.9310	0.9039	R = 0.6540	R = 0.6143	R = 0.7373	R = 0.6900
rh	0.1197	0.1488	0.0690	0.0961	r = 0.3460	r = 0.3857	r = 0.2627	r = 0.3100
Total	1.0000 (259)	1.0000 (29001)	1.0000 (203)	1.0000 (729)				
Secretor	present investigations	combined	[9]					
secretor	0.6641	0.7047	0.8289	—	Se = 0.4205	Se = 0.4566	Se = 0.5864	—
nonsecretor	0.3359	0.2957	0.1711	—	se = 0.5795	se = 0.5434	se = 0.4136	—
Total	1.0000 (259)	1.00000 (19425)	1.0000 (5225)					
Tasting ability PTC	present investigations	combined	[11]					
Taster	0.9189	0.8505	0.6802	—	T = 0.7153	T = 0.6134	T = 0.4345	—
Nontaster	0.0811	0.1495	0.3198	—	t = 0.2847	t = 0.3866	t = 0.5655	—
Total	1.0000 (259)	1.0000 (21204)	1.0000 (322)					
Hp :	present investigations	[2]	[10] [12]	[1] [6] [7] [8]				
Hp_{1-1}	0.0174	0.1138	0.0425	0.0369	$Hp^1 = 0.176$	$Hp^1 = 0.335$	$Hp^1 = 0.1686$	$Hp^1 = 0.1747$
Hp_{2-1}	0.3198	0.4432	0.2521	0.2757	$Hp^2 = 0.824$	$Hp^2 = 0.655$	$Hp^2 = 0.8314$	$Hp^2 = 0.8253$
Hp_{2-2}	0.6628	0.4430	0.7054	0.6874				
Total	1.0000 (172)	1.0000 (9703)	1.0000 (353)	1.0000 (10308)				

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THE IMPORTANCE OF ALKALINE PHOSPHATASE ISOENZYMES' STUDY IN HUMAN POPULATIONS

BY

A. GAGHEŞ, RODICA GAGHEŞ and S. ALOMAN

The study of the polymorphism of the alkaline phosphatase is carried out following two aspects : the genetic studies on various populations and the functional and clinical studies.

An extremely remarkable fact is the discovery of the correlations between the type of alkaline phosphatase, the AB0 blood groups and the type of ABH secretion. Bernard and Ruffié [5] suggest that, taking into account the possible adaptability value of the alkaline phosphatase isoenzymes, the AB0 groups — about which we know that they do not avoid the influence of environment — might be influenced by the natural selection (under certain environment conditions, still unknown).

The AB0 polymorphism has been implicated in a variety of biological phenomena — association with peptic ulcer, gastric cancer and other diseases ; prezygotic selection, maternal-fetal incompatibility, etc. In this instance the association occurs with an identifiable biochemical activity. Further elucidation of this association and definition of the specific function of the phosphatase component could contribute to the understanding of the gene action mechanisms which control the structure of expression of the ABH blood group substances and of the selective factors which maintain the AB0 blood group polymorphism [9].

In the blood serum two main isoenzymes of the alkaline phosphatase have been discovered. They reflect the organo-specific tissue isoenzymes [1] [6] [7] [9]. They move between α_1-globulins and β_1-lipoproteins. The faster component, which constantly appears in all analyzed sera in the proximity of transferrins, is of hepatic origin (A). The slow migrating component, which is inconstant and specificly inhibited by L-phenylalanine, is of intestinal origin (B).

Both the relatively rapid A band and the slower B band present intensity variations. Thanks to some population studies, it was proved that these variations are under genetic control [4] [8] [9]. The existence of an autosomal locus of three common alleles and six rare ones was supposed. It seems that the serum alkaline phosphatase variation is determined by a multilocical system and not by a simple polyallelical series.

It was also proved the association of the alkaline phosphatase isoenzymes with the AB0 blood groups and the ABH secretion type

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[1] [2] [3] [9]. No association with the sex, type of haptoglobins and other blood group systems has been noted.

This paper was meant to prove the association of the alkaline phosphatase molecular forms with the AB0 blood groups and ABH secretion type. Our results (Tables 1 and 2) are in agreement with those of Arfors, Beckman and Lundin [1], Beckman [3], and Shreffler [9].

MATERIALS AND METHODS

The sera were collected from 107 individuals belonging to Transylvanian Saxons from Prejmer village, Braşov County. Each individual was typed for AB0 blood groups, ABH secretion and the type of alkaline phosphatase.

Alkaline phosphatase isoenzymes were electrophoretically separated by starch gel electrophoresis in Poulik discontinuous buffer system at pH = 8.6. The electrophoresis was carried out at 6 V/cm for six hours. The bands of characteristic activity of alkaline phosphatase were visualized by using α-naphthylphosphate as a substratum of the enzyme and Fast Blue BB as diazonium salt. The incubation lasted three hours at 37°C.

The alkaline phosphatase was classified as type I or type II according to the existence or nonexistence of the B band. Type I presents the A band and type II presents both A band and B band. We did not try to classify the alkaline phosphatase types according to the intensity of B band, because the semiquantitative visual appreciation is quite imprecise.

RESULTS

All the individuals show the rapid-moving A band. The intensity of this band varies from one individual to another. The slow-moving band appears with a frequency of 27.10%. As a result of B band variation, Shreffler [9] classified the individuals into 5 groups.

In a majority of samples an activation occurs near the starting point. No significant loss of activity in the bands due to storage could be discerned.

A small proportion of A individuals shows the alkaline phosphatase type II. The B band occurs with a relative high frequency at the individuals belonging to 0 blood group.

Table 1

The distribution of the phosphatase types by the AB0 blood groups

Phosphatase \ AB0	A		B		0		AB		Total
	N	%	N	%	N	%	N	%	
I	44	84.61	6	66.66	26	59.09	2	100	78
II	8	15.38	3	33.33	18	40.90	0	—	29
Total	52		9		44		2		107

$\chi^2_{A+AB} = 8.30$, 1 df, $P < 0.01$

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Table 2

The distribution of the alkaline phosphatase types by ABO blood groups provided the secretor is taken into consideration

Secretor	Phosphatase	A	B	0	AB	Total
Secretor	I	25	3	19	1	48
	II	7	3	17	0	27
		32	6	36	1	75
Nonsecretor	I	19	3	7	1	30
	II	1	0	1	0	2
		20	3	8	1	32
Total		52	9	44	2	107

$\chi^2_{(\text{se r})} = 5\ 57,\ 1\ \text{df},\ 0\ 01 < P < 0\ 02$

Most of the nonsecretory individuals show the type I alkaline phosphatase. Out of 32 nonsecretory individuals only two show the type II alkaline phosphatase (one belongs to the A group and the other to the 0 group). 33.33% of the secretory individuals show type II alkaline phosphatase.

There is a very significant difference in the distribution of the type II alkaline phosphatase in the secretory and nonsecretory individuals. The "t" value of appreciation of the difference between the two percentages is 4.41, $P < 0.001$. The synthesis of B band of alkaline phosphatase seems inhibited or slowed in all nonsecretory individuals, irrespective of the ABO blood group.

DISCUSSION

The data with respect to the relationship of alkaline phosphatase isoenzymes in human serum to the ABO blood group and the secretory type support the findings of Arfors, Beckman and Lundin [1] [2], Beckman [3] and Shreffler [9].

It was observed that the A group individuals present the alkaline phosphatase B band in a small proportion. However, a number of A group individuals presented the B band, thus enabling us to draw the conclusion that there is no absolute association between these two features. At the B and 0 group individuals the alkaline phosphatase appears with a higher frequency. A distinction can be made (as far as the distribution of alkaline phosphatase B band is concerned) between the A group, on the one hand, and the B and 0 groups, on the other.

The data so far available also indicate an inhibition of B phosphatase in all nonsecretors.

Our results are not in agreement with Shreffler's [9] as far as the proportion of individuals showing B band is concerned. This is probably due both to the dissimilar sensitivity of the method which vizualized the enzyme and to the different conditions of electrophoretical separation.

We know that there is a correlation between B band of alkaline phosphatase and ABO blood groups and that the A group individuals

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show an inhibited synthesis; the same goes for all nonsecretors. Thus, we may suppose that the B band frequency will vary according to the nonsecretors' proportion and to the frequency of AB0 groups within a certain population. It can also be supposed that there might be another genetic factor to characterize a population, provided that standard conditions are observed.

We think we could check up in the future this hypothesis by studying some populations with dissimilar ethnical origins and some endogamous human collectivities.

The study of alkaline phosphatase in populations that differ in social, physical and biological climate might also bring new and interesting data about the adaptable role of these isoenzymes.

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THE STUDY OF "BASIC PERSONALITY" IN BERIVOEŞTI-ARGEŞ

RESEARCHES OF SOCIOLOGY AND SOCIAL-PSYCHO-CULTURAL ANTHROPOLOGY

BY

V. V. CARAMELEA

Ever since its official introduction in our country (1964), social and cultural anthropology enjoyed a field laboratory of its own, a permanent-research basis: the Berivoeşti-Argeş *pilot-station*. Herein, methods are experimented with, problems are raised, intensive and comparative investigations are carried out upon either samples or population segments pertaining to the eight human groups these studies are bearing upon. The methods experimented with, the specialized and interdisciplinary researches were and are extended to all the field studies in the Argeş county and are directed by sociology and social anthropology.

Between the years 1964 — 1974, a very large number of research-workers belonging to several institutes of the Academy or of certain departments, members of the university and high-school teaching staff participated in these complex investigations. A useful and profitable co-operation with the teaching staff of the pilot-station was also obtained. Over 50 contributions were published and communications were presented at numerous national and international scientific manifestations (Tokyo, Birmingham, Prague, Belgrade, Varna, Chicago), dealing with the problems, the theoretical conception, the method, the results and projects of the complex anthropological researches carried out in the Argeş county.

In the conception of a unitary theory of the human sciences, sociology and social and cultural anthropology in co-operation with physical anthropology and with other social sciences, carry out researches upon the "integral man occurring in the industrialization process", for complexly defining him from the biological, psychological, and cultural viewpoints, in this very phase of his social development in which important millennially agricultural population contingents change their working and living manner. It is a philosophical position considering the man as nature, society, culture, history, which develops, materialized into concrete interdisciplinary bio-psycho-socio-cultural historical researches put together into a Romanian anthropological system experimented with at Berivoeşti and also taught at the *Faculty of Philosophy* to the students of the *Philosophy* and *Sociology sections*. The system mentioned is denominated "integral-dynamic system".

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Instead of working with simple tools within a rather familial, diurnal and relatively various frame, the peasant takes up mechanized work in big-sized industrial enterprises where the activity is developed by work teams in 3 × 8 h-shifts.

The industrialization, co-operativization and mechanization of agriculture generates a series of human problems, whose scientific knowledge under their specific development conditions in our country might contribute to production optimization and, finally, to the finding of proper ways towards man's accomplishment, to the development of human personality.

Therefore, the research themes in the pilot-station have such a formulation as to allow the approach of the industrialization phenomena in their relationship with the changes this latter induces in the social structure and living manner, with the processes of morphophysiological adaptability, psycho-social integration, education, hence with the industrial-man formation, with the structuring of the new personality type.

Human individuals, adults (young, mature, old ones of both sexes), and children (boys and girls) were studied. Specialized investigations, with an anthropological, ecological, historical, sociological, economic, demographic, psychological, biological, ergonomical, linguistic, ethic, aesthetic profile, were carried out. The data obtained by the researches directed by psychological, social, and cultural anthropology were correlated to each other at numerous levels.

Were finalized the researches which led to : a) the complex, biological, historical, social, and cultural definition of the population ; b) the knowledge of the adaptability process. The last problem was then investigated : personality. As far as this latter is concerned, the conception which stands at the basis of our researches is that of an integral anthropology, its components and determinants being not only psychological ones, but also biological, ecological, historical, social, and cultural. *Personality* constitutes the *final synthesizing indicator* of the data of *physical*, *psychical*, *social*, and *cultural* anthropology.

1. *Theoretical considerations upon basic personality.* In the researches bearing upon basic personality (i.e. the relationships culture-personality), the starting point was the finding that each society has its own type of basic personality and own series of statute personalities which somehow differ from those of any other society (R. Linton, *The Cultural Background of Personality*, Ed. ştiinţifică, 1968, translated into Romanian. Introductory study by Prof. V. V. Caramelea).

The problem was thus set of testing some population groups in order to approach the new type of personality being accomplished in the Romanian contemporary society which undergoes changes in its social-structure and behavioural configuration, in its *value-attitude* systems, owing to socialist industrialization, agriculture co-operativization and mechanization.

To this end, already used methods of psychological research (observations, biographies, personality tests), which gave results in the studies of individual, group or society personality, have to be necessarily applied.

Wishing to carry out an as elaborate as possible study upon personality in the social context of the changes occurred in our country we

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have considered it proper to use, for methodological reasons, the two "concepts": *basic personality* (or *modal personality*, if "stratifications", "differentiations", "subcultures" exist) and *statute personality*, introduced by the research-workers who carried out studies on different human societies, especially on underdeveloped populations, called "primitive".

The situation of the population researched by us is, however, different. We have no underdeveloped groups of populations. We have undertaken researches in civilized human groups, millennially agricultural, in a stage in which their social structure changes, new, emergent cultural patterns are introduced, the traditional agricultural living manner being deserted for an industrial society, a co-operative and mechanical agriculture. Problems of human adaptability and of the new type of human personality are consequently raising.

Therefore, by introducing into our research the concept of "basic personality", we start from the hypothesis that in personality there is an assemblage of cultural features which exist — apart from the individual characteristics — coming from a common fund of the group and being transmitted through education.

2. *The average type of basic personality of the children of Berivoești, different from that of their parents and grandparents.* The author of the present communication is a native of Berivoești, and tens of generations in his family were also born in this village. Consequently, he is very well integrated into the local human groups; precisely through his nonsystematic observations carried out before the proceeding to an organized research, the author could say, without being mistaken, that the basic personality (cultural patterns, institutions or "primary milieu") of the children of our days is different from the basic-personality type which entered the structuring of their parents' personality.

Why ? Since, in the meantime, some industrial units and an agricultural production co-operative were created in the village, the social structure changed, new cultural patterns were created, new aspirations appeared, hence some reactions directed towards the institutions forming the old primary milieu.

We are, therefore, well situated with our research-work, that is just when life-manner changes occur. The environment of parents' "childhood" was characterized by production relationships of a community developed from a freeholder commune whose economy was especially producing for the group members' subsistence, for the household's consumption; the children were grown up and educated in a traditional manner, with the aim to bring them to continue (without many changes) the household of their ancestors, taking the behaviour of their predecessors as example, conforming themselves to, and hence acquiring through education, the cultural patterns admitted, aproved, standardized by the old generations.

3. *The method applied to the study of basic personality.* The author established the principal primary institutions which constituted the skeleton, the characteristics of the social-cultural environment, the "mould" of personality development of each member of the two generations. It was thus easy to untie these "two milieus" of life (the parents' one and the children's one), from the so-called common factor, and the

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proper institutions of each social-cultural common medium could be interpreted, after having been grouped as a function of their belonging to the socio-cultural milieu of the children of today or of the parents or grandparents of the latter when being children themselves.

The personal observations, the talks had with the parents and the children, as well the biographies drawn up, were aimed at more realistically know the process of "socialization" and "enculturation", year by year, for the whole childhood and going on to the adult state and the old age.

In order to characterize the changes of culture, mentality, education, we endeavoured to obtain data, especially by having in view, during the conversations, a series of "questions" not directly addressed to our subjects. Upon free "arranged" talks, we turned the conversation upon these questions. For the sake of exemplifying, we mention a few of them :

— How old were you when your parents asked you to come and help them with the household problems ? What tasks were you, your younger or elder brothers and sisters asked to fulfil at home ? Were you supposed to follow them in your lifetime, to faithfully continue your ancestors (in your work, economy, family forming, relationships, children's growing up and education) or to do something else, to surpass them, for instance ?

— What did they consider — and do you now consider, also — that has to be changed or to be kept from the customs, traditions with which you were brought up and educated by your parents, in the reward-punishment system, in the professional orientation of the children, in using certain growth and education methods ?

— When you were sick or when someone had an accident, who was thought to be responsible for it ? What have they used to do for curing the ill people ? Exorcism for removing some magic, divine services for the patient's sins forgiving, administration of some remedies, of some drugs ?

— What did old people say when drought occurred, for instance ? Which was supposed to be the cause ? A punishment for people's wickedness ? Were the customs of rain-makers, of religious services, etc. practised ? How do you now explain the cause of this calamity and what do you do when it takes place ?, etc.

The answers received reflected some very useful elements for characterizing the primary cultural medium and, respectively, the basic personality, under the aspect of both material culture and spiritual one, of work techniques, thinking manner, children growing up and education methods, etc.

In our researches we took into consideration the fact that among the primary institutions, it is the discipline imposed to the child by the people around him which should be considered first of all. We had in mind that the *familial organization*, the *feeding discipline*, the *weaning*, the *child nursing*, the *education of physiological-need settling*, the *sexual discipline* are, according to Kardiner, primary institutions of any culture which play an important part in the formation of personality.

We have, therefore, paid special attention to these institutions in the *biographies* we drew up, in our *observations*, as well as in our own participation to the life of the collective.

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4. *Some stop-gap conclusions of the research.* From the study of the biographies, on the basis of our observations, we can assert that the primary institutions which act upon the individual in the pilot-station of Berivoeşti, in the period of his childhood, the milieu to which he has got to unavoidably adapt himself characterize a type of basic personality in the generation of today-children's parents, a type directed by and towards tradition. The formation of a well-thought-of, respected householder, having many friends in the village and a prosperous household, was aimed at. The children were severely educated, in order to most closely follow their parents, to realize a matri- or patrilocal family intended to increase the household and to keep consanguine and allied relationships in the village. We can say that the characteristics of the basic personality of the "moşneni" (freeholders) were maintained to a rather large extent. The freeholders took good care of the legacy left by their ancestors, watching this inherited wealth — and through it the commune's wealth — not to diminish. Hence, in the past, personality was directed inwards the village community.

The specific environment in which the children of today are brought up and educated greatly differs as against that of their parents. Many of the primary institutions are changed; the children's drawing off from the traditional orientation is aimed at, in order to let them occupy an advantageous social position in the contemporary society, in big enterprises, in the agricultural production co-operatives. The religious and magic elements have no more weight in the children's education. The parents endeavour to see their descendents attending high schools, their personality being directed outwards. The pride of being rich vanishes; instead of this latter, there are the high reputation, the professional value, the individual's position in the new structure of industrial society which appear to be important nowadays. There are still some elements which remain common to the generations, ensuring the culture continuity in the development of human, individual and social personality.

By connecting the problems of our contribution with the theory of education, the necessity appears obvious to know and, hence, to investigate the primary and secondary institutions, the relationship "culture-personality" by most suitably establishing the methods of forming the contemporary man, of educating him in the social context of industrialization, of multilaterally structuring his personality.

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THE ROMANIAN INTEGRAL-DYNAMIC ANTHROPOLOGICAL SYSTEM APPLIED TO THE MULTIDISCIPLINARY RESEARCHES BEARING ON PERSONALITY, COORDINATED BY PHILOSOPHY, SOCIOLOGY AND SOCIAL ANTHROPOLOGY

BY

GH. GEANĂ, CARMEN FURTUNĂ, IULIA TRANCU, SANDA HOINIC, VIORICA APOSTOLESCU, REMUS ANGHEL, SILVIU COPOSESCU, ION LUPEI, SORIN PETRESCU and V. V. CARAMELEA

As a result of interdisciplinary investigations, both intensive and comparative, made in two permanent field laboratories, a rural pilot-station located at Berivoeşti and an urban industrial one located at Cîmpulung-Muscel (Argeş county) — investigations presented in over 80 published articles and studies —, social and cultural anthropology has been acknowledged since 1964 as an autonomous branch of science in Romania, too. This status was reinforced in 1971, when a course in cultural anthropology was included at the Philosophy Department, University of Bucharest.

It is by way of pilot-stations, those permanent laboratories meant to nestle continuous and intensive investigations under the principles which later on are to be extended to the scale of our whole nation, that the preparation of a social-psychic-cultural anthropological atlas of the Romanian people is being aimed at.

What that work proposes to achieve is to characterize the configuration of Romanian culture, of its cultural values, both traditional and emerging ones, so that, as a final step, the national personality of the Romanian people, with its possible intervening changes, be finally defined. Of course, this aim is far off enough, taking into account that for the moment we have only two pilot-stations. In fact, they may be considered as two branch offices, rural and urban, of a single pilot-station, because they are placed in the same cultural sub-area, at 15 km from one another. Moreover, we cannot foresee all methodological and organizational difficulties which are likely to occur by passing from the intensive approach of today to the intensive-extensive one of tomorrow.

Romanian anthropological investigations bear on the human being from an ontological and at the same time axiological point of view, human individuality being considered as the most general indicator, obtained through a final synthesis of the complex investigations of physical, psycho-

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logical, social, cultural, ecological anthropology. Prior to this final synthesis, a number of interdisciplinary syntheses at various levels are made. The theoretical-methodological conception underlying the research works initiated and coordinated in such a way have been called "integral-dynamic".

Imbued with genuine humanism, Romanian inquiries of social and cultural anthropology are an item of the UNESCO international programme (theme H_2 — Romania). Their purpose is practical, applicative, and prospective.

A group of research-workers of the Centre of Anthropological Researches of Bucharest, specialized in various fields (philosophy, sociology, psychology, social and cultural anthropology, demography, linguistics, history, economy, biology, a.s.o.) collaborated with a lot of research-workers pertaining to other institutes of the Romanian Academy and, together with a few members of the teaching staff, organized themselves in interdisciplinary teams and directed their research activity towards the complex problem of personality. Related to the study of this problem, researches were concentrated as well upon certain resulting processes, such as socialization, enculturation, basic personality, etc.

The researches were carried out before and after the occurrence in Romania of the processes of industrialization, agriculture cooperativization and mechanization, and raised a series of problems concerning biological adaptation, psychological integration, and other themes related to the structuring of personality.

The aim of these researches is the knowledge of social structure and of personality cultural configuration from the viewpoint of their interaction and dynamics. All these problems show a clear-cut practical educational interest in studying the formation of the industrial man and his accomplishment as far as personality is concerned.

The great masters of social, cultural, and psychological anthropology unanimously agree that the complex interdisciplinary society-culture-personality study raises great methodological difficulties. In order to prevent method-experimentation from these hindrances before more extended researches, Romanian social, cultural, and psychological anthropologists created, in 1964, a pilot-station at Berivoeşti, in Muscel sub-area, Argeş county.

Within the 1964 — 1974 period, a series of researches were carried out in groups of inhabitants of the Berivoeşti village with a view to settle certain theoretical-methodological problems raised by the study of society-culture-personality relationships, as well as with a view to get detailed concrete data. The problem was expressed as follows: "man: changes in his way of work and way of life", or: "industrialization, technical socio-cultural changes, morphophysiological adaptation, psycho-social integration, language, esthetics, education, personality". As already mentioned, the problems concerned with are: the study of changes occurring in the social structure and behaviour configuration, in the socio-economic and cultural life, in the work and residence environment; the manner these changes are reflected in language, esthetical behaviour, patterns according to which children are brought up and trained, children's and adults' education by traditional and new means (e.g. mass media).

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The interference of the various factors influencing the process of personality structuralization was thus followed up in the formation of population groups who change their way of life.

1. CONCEPTUAL APPARATUS, TECHNIQUES, AND LEVEL OF ABSTRACTION

The scientific inquiries initiated and directed by the social and cultural anthropology in Berivoeşti pilot-station have the integral-dynamic system as theoretical basis.

The research-workers have adopted a concept according to which the man is considered under his real appearance, i.e. : a social individual occurring in a culture framework created by himself but concomitantly influencing to a great extent his own biological and psychological development ; a being who adapts himself to the technical and socio-economic transformations ; a being conceived not only from the zoological viewpoint, but also from the human one ; a man taken as a dialectical unity of the biological and psychological, social and cultural sides, under his relationships with the environment ; a man considered as nature, society, culture, history and studied under ontical and axiological aspects ; a man to whose knowledge all the human natural and social sciences have to conjointly collaborate under a unitary theory.

To this end, Romanian social and psycho-cultural anthropology has not avoided the collaboration with physical anthropology.

2. A METHODOLOGICAL NOVELTY : COMPLEX RESEARCHES CARRIED OUT BY A "TEAM OF INTERDISCIPLINARY TEAMS", COORDINATED BY SOCIAL AND CULTURAL ANTHROPOLOGY

By these experimental researches several teams, a group of interdisciplinary teams, a "team of teams" (as denominated by us), carried out a complex study bearing upon problems of : ecology, sociology, demography, psychology, social and psycho-cultural anthropology, ergonomy, physical anthropology, hygiene and medicine of work, esthetics, education, linguistics, a.s.o. Each team, made up by at least two research-workers of various specialities, was intended to perform a complex sound study, each group constituting in fact a "component" or a "determinant" in personality structuralization. Subsequently, each group also comprised — besides specialists of profile (coordinating) disciplines — specialists of neighbouring disciplines having the opportunity to work as coordinating members in other teams acting in a convergent manner. The organization manner ensured the deepness of the study, while, simultaneously, research-workers ensured the interrelationships over the whole study-interval, gradually preparing the final analysis of the central problem : society-culture-personality interrelationship.

For exemplifying, we shall consider the team of ergonomists who followed up adaptation and inadaptation problems — highly interesting to the study of normal personality structuralization, in the frame of

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technical, socio-economic, and organizational changes. Besides principal specialists (work physiologists), this team also included sociologists, psychologists, physical anthropologists, social and cultural anthropologists. In the demographic team, as well, sociologists, physicians, psychologists (for studying demographic behaviour), economists, anthropologists, statisticians, etc. were to be found. The sociology team counted six sociologists, a psychologist and a social anthropologist. That means an "extension", a development of the method of interdisciplinary researches of the sociological school of Bucharest.

3. THE WARRANT OF A UNITARY SYSTEM OF INTERDISCIPLINARY CONNEXIONS FOR THE PLURI-LEVEL ANALYSES AND FOR THE FINAL SYNTHESIS

As already emphasized by all the papers published, in all these teams the social and psycho-cultural anthropologists were always effectively working at taking the basic material, at performing interpretations and analyses, at drawing up the material of each team acting in the frame of multidisciplinary groups concomitantly ensuring the theoretical-methodological unity of research, a unitary system of interdisciplinary connexions upon performing analyses at several intermediary levels in the development of complex study, as well as upon preparing the final synthesis.

As the methods were experimented and hypotheses verified within the researches carried out in agricultural production cooperatives, in miners and in other categories of industrial workers of the pilot-station of Berivoeşti, the interdisciplinary teams directed by social, cultural, and psychological anthropology extended their study to the urban pilot-station of Cîmpulung, in the same sub-area (Muscel) of Argeş county.

The fact seems most important to us since, following the researches carried out in Argeş, new branches of anthropology developed in the context of changes generated by industrialization, urbanization and cooperativization. To each branch of anthropology one to six contributions have been provided. These new branches resulted from the effort made with a view to settle a problem — in its whole complexity — by each team of the group of teams which entered this interdisciplinary study under the direction of social, cultural, and psychological anthropology.

The branches of contemporary social and cultural anthropology developed in Romania by the first researches carried out between 1964 and 1973 in the rural pilot-station of Berivoeşti-Muscel, extended also to the urban-industrial pilot-station of Cîmpulung-Muscel, and gradually to the Argeş area, are the following : ecological, economic, demographic, juridical, ethical, political, esthetical, linguistic, cultural-philosophical, educational anthropology.

Finally, the studies performed in the pilot-stations and, prior to these, in a few other points of the country, strengthened in Romania a social and cultural anthropology and developed a psychological anthropology, at the same time raising the problem of developing other branches of contemporary anthropology based on the great directions of human behaviour ("universal categories of culture").

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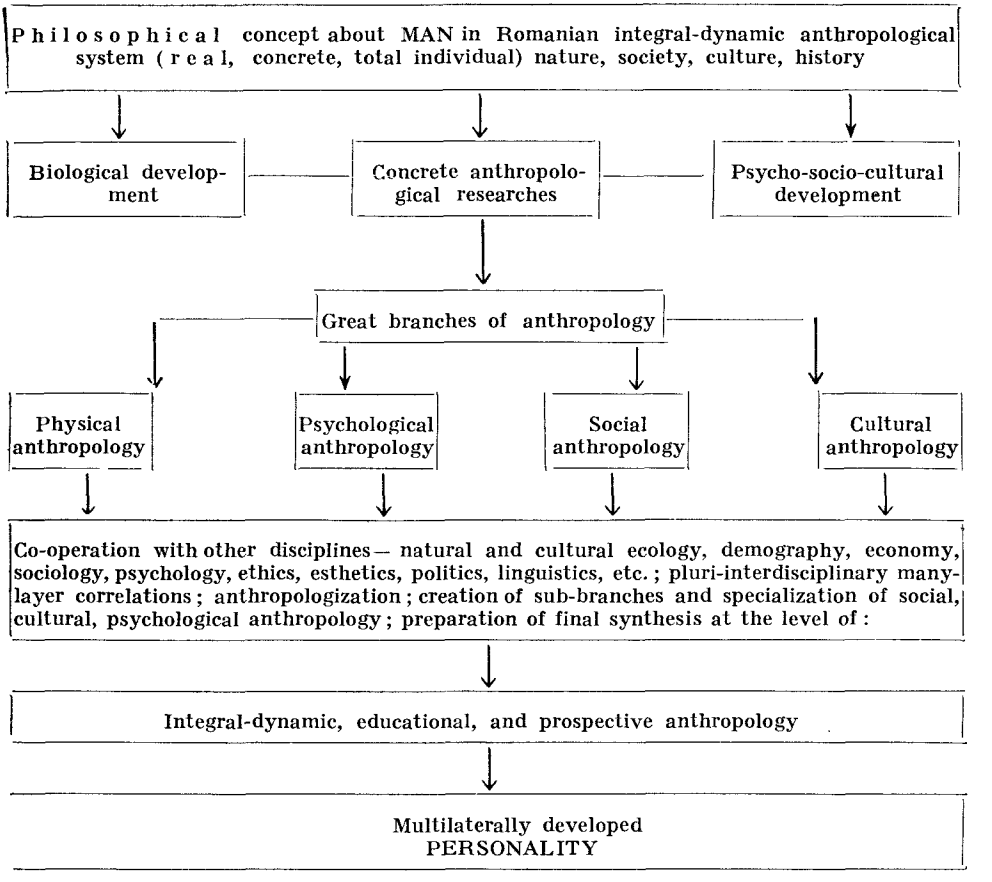
It should be finally pointed out that for the first time in Romania an integral anthropology appeared, which approaches the total man, or the complete man, from the biological, psychological, social, cultural, and historical point of view.

4. THE THEORETICAL-METHODOLOGICAL INTEGRAL-DYNAMIC SYSTEM

According to the theoretical integral-dynamic system of social and cultural anthropology demonstrated by interdisciplinary researches

INTEGRAL-DYNAMIC ANTHROPOLOGICAL SYSTEM

applied to the multidisciplinary researches bearing on personality, coordinated by philosophy, sociology, and psycho-cultural anthropology, with co-operation of physical anthropology, in the pilot-stations of Berivoeşti and Cîmpulung-Muscel, Argeş county, Romania



carried out in the Argeş county, at the integral-anthropology level there are performed — from the methodological viewpoint and until the final

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connexion — three data syntheses of all the collaborating biological, psychological, and social disciplines, namely: a synthesis of physical anthropology, one of psychological anthropology and a third one, of social and cultural anthropology. Psychological anthropology ties physical anthropology with social and cultural anthropology within a complex study of personality formation.

Several works underlie this anthropological system which guides our field researches. In some of these works, problems have been set and hypotheses have been emitted, while in others, intermediary syntheses and even a final generalization have been tried.

The fact has been demonstrated that there is a new orientation in Romanian anthropology to be considered which could not be carried out by physical anthropology, traditionally developed without social, cultural, and psychological anthropology.

In the anthropological "integral-dynamic" system adopted by Romanian social and cultural anthropology, man, society, and culture are each of them separately taken for a whole, undergoing a continuous development. Subsequently, they are also taken for a whole and in continuous development when found in interaction. This way, the orientation of researches "society-culture-personality" is found, as well, to be "integral-dynamic".

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THE THREE COURSES OF "SOCIAL AND CULTURAL ANTHROPOLOGY" held during the year 1973/1974 at the Faculty of Philosophy — Sections of Philosophy and Sociology *University of Bucharest*

1. *The course of "Social and Cultural Anthropology" held with the IIIrd-year students of the Section of S o c i o l o g y*

This course was inaugurated on January 7, 1974, at the Cabinet of Economy of the Faculty of Philosophy, the inaugural speech being delivered by prof. V. V. Caramelea.

Its introduction into the syllabus was made with a view to give the students the opportunity to know and, subsequently, to critically analyze the great theories and analysis methods proper to social and cultural anthropology in *the concrete study of culture* (both as a whole and as integration degree of the cultural patterns, structure and function, focal values, configuration, tendency, direction, participation of the individuals to the culture they live within, etc.), and to research, in a very advanced and correlated manner, the system of traditional and emergent values which constitute the "configuration" of culture in our continuously progressing society.

The *sociologist* could, this way, orient, organize and scientifically direct the cultural activity of the masses, contributing to production optimization, to the stimulation of the development of really valuable behavioural patterns which intervene in the structuration of the individual's and human group's personality, and directing in the sense required by society the processes of socialization and enculturation in the action of educating its members.

2. *The course of "Social Anthropology and Comparative Sociology" at the Section of Sociology, year II since its introduction at the Faculty of Philosophy*

The course was held by professor V. V. Caramelea in the frame of "branches of sociology" during a semester, consisting of two one-hour lectures and two two-hour seminars per week. This course was inaugurated on January 9, 1974, at the Cabinet of Sociology of the Faculty of Philosophy.

3. *The course of "Social and Cultural Anthropology" at the Section of P h i l o s o p h y, year III since its introduction at the Faculty of Philosophy*

On January 8, 1974, was inaugurated at the Cabinet of Philosophy the course of cultural anthropology held with the IIIrd-year students of the Section of Philosophy.

Since prof. Caramelea also directs the activity of concrete speciality research, in his quality of chief of the Laboratory of Social and Cultural Anthropology of the Centre of Anthropological Researches under the Ministry of Education, it was possible to realize a first modest theoretical-methodological unity between social and cultural anthropology education and concrete research, by *experimenting the Romanian anthropological "integral-dynamic" system.*

This unity between education, research-work, *students' practice* in the Berivoeşti and Cîmpulung-Muscel *pilot-stations*, Argeş county, and, in prospect, in the "zonal laboratories" for *extensive* researches, could result, *in our opinion*, in a profound, objective, real knowledge of the Romanian culture's configuration within which *the personality of the Romanian people* develops. The followed aim is *applicative*, as we have already mentioned, namely the orientation and direction of the cultural activity of the masses, with practical results in the production optimization domain, in *education* organization and efficiency, a.s.o.

Vasile V. Caramelea

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L'ANNUAIRE ROUMAIN D'ANTHROPOLOGIE publie des travaux originaux dans les domaines suivants : paléoanthropologie, anthropologie contemporaine, anthropologie socio-démographique et culturelle et anthropologie appliquée.

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