

JUHAN AUL – 125 YEARS FROM THE BIRTH OF THE FOUNDER OF ESTONIAN ANTHROPOLOGY

*The professor who wanted his homeland to be among these countries where
the research of the greatest natural resource – the humans – is not forgotten*

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ABSTRACT

On 15 October 2022, 125 years passed from the birth of Juhan Aul (1897–1994), the founder of Estonian anthropology. The article gives a brief overview of the versatile scientist's contribution to the history of science and anthropology. Some aspects that have been particularly emphasized in his works, presentations and manuscripts and the importance of the anthropological data throughout the ages are highlighted. As a further development of the data collected by Juhan Aul, Markus Valge's doctoral thesis was published in the year of his 125th birthday.

Keywords: *Juhan Aul; anthropological data; pedagogical anthropology; environment; heredity; upbringing; life-history; Markus Valge*

On 15 October 2022, 125 years passed from the birth of Juhan Aul (1897–1994), the founder of Estonian anthropology.

Actually the versatile scientist Juhan Aul (until 1931 Klein) has made his contribution to a number of other disciplines besides anthropology, including botany, zoology, genetics, human anatomy and education. Aul was also the pioneer of Estonian palaeoanthropology, investigating, in collaboration with the archaeologist Richard Indreko, the neolithic skeletons found in Estonia. He was also a pathfinder in biometry and biological data processing which the rich dataset collected by him needed in the pre-computer age. We should definitely not forget Juhan Aul's contribution as a schoolteacher, being a role model for schoolchildren, university students and future teachers.

His colleague at the University of Tartu, Professor Kalju Põldvere, wrote about Juhan Aul on his 95th birthday [1]: “He is the man with the greatest educational experience in Estonia, from a village school to the university chair. On all his posts he has been a schoolmaster in the finest sense of the word.”

Already before entering the university, he was a schoolteacher for several years and after graduating from the University of Tartu in 1928, he was immediately employed as a lecturer (initially as an assistant) and held this job until 1982, from 1957 as a professor and from 1958–1969 also as Head of the Department of Zoology. He was the first professor who delivered anthropology lectures at the University of Tartu in the Estonian language.

From 1947, he also worked at the Institute of Biology at the Academy of Sciences where he founded the sector of zoology. He managed to bear the whole everyday load of teaching, research and administration despite severe blows in personal life – loss of near ones, coming through the times of war and Stalinist repressions that affected him personally (He was dismissed on 17 August 1950 and reinstated to work in 1954).

Juhan Aul list of publications includes 213 works published in print [2], in addition to them, manuscripts [3], many presentations, interviews and papers supervised by him. When speaking about Juhan Aul’s anthropological works, his three monographs on Estonian anthropology should be mentioned first of all: *Anthropology of Estonians* (1964), *Anthropology of Estonia Women* (1977), and *Anthropology of Estonian Schoolchildren* (1982) [4–6]. Although only these monographs could have been a pride for a whole anthropological institute which he planned to establish, his papers on anthropology were not limited to these monographs.

He began his anthropological studies by anthropological research of the inhabitants of Sõrve peninsula in 1927 [7]. His doctoral thesis already characterised the inhabitants of whole West Estonia [8]. Creation of the Anthropology Section of the Eesti Naturalists’ Society at his initiative in 1939 marked the beginning of extensive anthropological research in Estonia [9]. “This step was caused by the general increase in the significance of anthropology and stabilisation of the development of anthropological research. While relatively recently anthropology was treated as an obscure science – on the one hand, as a narrow “application of anatomy”, on the other hand, as a rather broad umbrella term for “all sciences dealing with humans”, now the content of anthropological research is rapidly becoming clearly delimited and acquiring a great and independent flow path. Developing several branches in the direction of an applied science (pedagogical, judicial, social, medical anthropology), it is becoming a vital research discipline,” Juhan Aul wrote in the naturalists’ journal *Eesti Loodus*

to inform the public about the establishment of the anthropology section. “We want to see our homeland among these countries where the research of the greatest natural resource – the humans – is not forgotten” [9]. He admonished anthropologists that no one in the world will study Estonians somatologically but the Estonians themselves; therefore, this is the part of anthropology to which Estonian anthropologists must contribute most strongly.

Juhan Aul’s scope in anthropology was broad. For comparison to the Estonian people, he also studied the ethnic minorities of Estonia (Russians, Swedes, Germans) and representatives of neighbouring peoples (Latvians, Votians, Izhorians, northwestern Russians) [10]. Among his manuscripts, the tables comparing Estonians’ anthropological characteristics with Mordovians, Moksha and Russians [11] and the forms filled in 1961 about the anthropological characteristics of the Mari people [12] are still waiting to be analysed.

He points out the differences in children’s constitution before and after World War II (Figure 1). The list of his anthropological works [2] also includes papers on differences in children’s constitution before and after World War II, or on slenderness and stockiness, on the capacity of lungs, on the use of the regressive scale for the estimation of physical development, but also papers on social anthropology, e.g., on the differences between rural and urban inhabitants and the impact of urbanisation.

It has sometimes been mentioned as a mild reproach that Juhan Aul recognised only biological individuality [13] and his interests were mainly limited to physical anthropology. Nonetheless, he could excellently see the whole and could distinguish what was essential, was of primary importance, and what was possible and feasible in Estonia in the research of humans.

It is written in Item 1 on p. 28 in J. Aul’s personal archive at the Manuscripts Department of University of Tartu Library [14]: “Anthropology is a great science the task of which is to study the general features of the peoples of the whole world, their level of bodily development and diversity – to explain the temporal, geographical, social and individual variability of the human species. We do not treat anthropology so broadly (it is not possible); we have to limit ourselves to so-called physical anthropology (anthropology in its everyday sense).” In his lectures and presentations, he always emphasised that anthropology is a group science, not the research of a human but humans. These groups (populations) of humans that anthropology studies are very diverse – local, regional, ethnic, racial, professional, social, age- and sex-related. Simultaneously, anthropology also studies the members of these groups at the level of individuals [15].

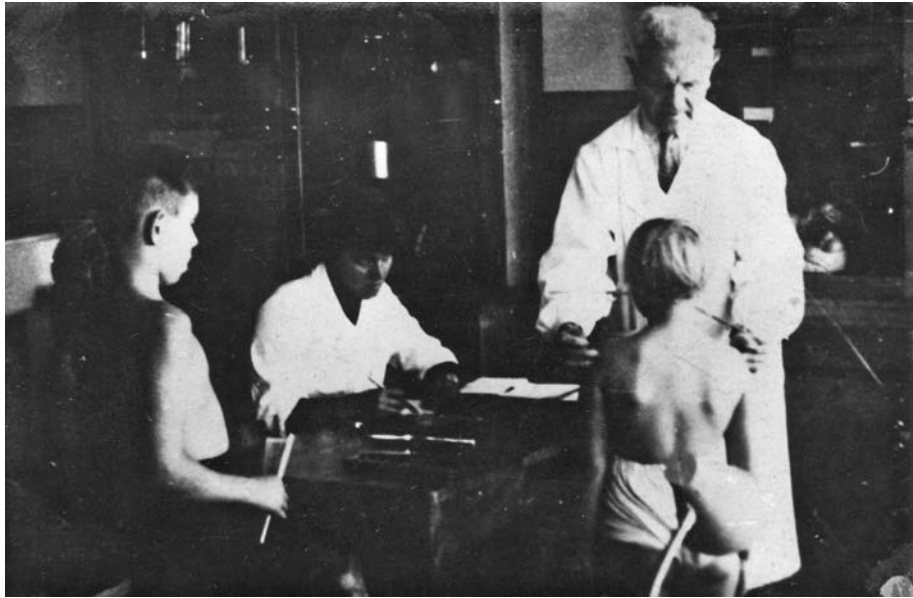


Figure 1. Juhan Aul measuring children, 1957 (presumably the only photo where Juhan Aul has been shown measuring people). Photo from a private collection.

As early as in 1938, Juhan Aul sees as a future assignment, along with theoretical research of anthropological problems, the need “to deal with the applied branches of anthropology. From among several, I would underscore one which should be particularly eagerly practised here; this is pedagogical anthropology” [16].

In a presentation delivered at the Estonian Naturalists’ Society, “On age-related changes in anthropological characteristics” [17], Aul stressed: “Anthropological facts are a reality of life, laws of nature, which cannot be changed, they must be reckoned with.” As a schoolteacher, he was particularly concerned that the peculiarities of puberty were not considered when arranging studies at school: the rapid growth process of boys and girls, changes in body proportions, differences in sexual development and the fact that the activity of somatic growth is (generally) accompanied by a decline in psychic abilities.

Yet, it is generally known that “at the age of puberty, young people’s ability of both physical and mental work has declined; therefore, they get tired easily, are psychically unstable, socially labile, get agitated easily and also fall ill more easily.” J. Aul states that while puberty in girls lasts at least two years and is followed by a period of equal length in boys, gender inequality at school age lasts for at least 4–5 years [17].

We want to be special, but we forget that people are still living beings whose certain elementary needs must also be considered in the context of creating the cultural and social environment.

In several papers and presentations [16–18], J. Aul stresses repeatedly that anthropology, primarily pedagogical anthropology, is a practical science. Before studying and guiding young people's mental development, we must consider their physical development, as the psyche is inseparably related to the body, and if we want to understand one, we must understand the other [17].

J. Aul was convinced that each major educational establishment should have a centre for anthropological studies (a lab, a set of instruments, a library, a few workrooms, and two or three staff members).

Unfortunately, the developments in the society have not moved this direction. Educational philosopher Airi Liimets states in the teachers' newspaper *Õpetajate Leht* on 18 March 2022 [19]: "Pedagogical anthropology as a scientific or educational discipline is almost unknown in Estonia." At that, Airi Liimets also considers pedagogical anthropology, also known as educational anthropology together with philosophical anthropology the underlying disciplines of education science. This "almost unknown" pedagogical anthropology as it is treated in Estonia now does not, however, include dealing with the peculiarities of physical development along with the mental and cultural aspects. In his lifetime, Juhan Aul was an appreciated lecturer and presenter at teacher training seminars and educators' conferences. He was listened to, and his opinion, based on knowledge and experience, was respected. However, no separate classes for boys and girls within one school were founded as he recommended.

Juhan Aul's research work began with studying the relations between the organism and its environment. His first research paper, which deserved the 1st prize and was later accepted as a master's thesis, was a study of tadpoles' development in different environments (clean water, alcoholised water and a changeable environment: one day in clean water and another day in alcoholised water) that he wrote at the recommendation of Prof. Alexander Lipschütz, Head of the Institute of Physiology [20]. According to Juhan Aul's research, the most unsuitable for development was the unstable environment (intermittently in alcohol and clean water). Later, J. Aul continued the research of connections between the organism and the environment in humans – in twins. From Aul's memories, we learn that he got special impetus for taking up anthropology from the studies of the Finnish anthropologist Kaarlo Thorsten Oskar Hildén on Siberian peoples' anthropology. During his anthropometric measurements which involved more than 50,000 people (including 30,000 school students),

J. Aul always tried to fix, as much as possible, along with the physical characteristics of the subjects (both anthropometric and anthroposcopic), the parameters of their environment (then called milieu), demographic and social indicators (even in schoolchildren measured in wartime).

In the presentation “Heredity and upbringing” [15] delivered at the seminar “Topical issues of education and psychology” in 1970, Aul explains the formation of the human personality in the interaction between hereditary and external factors (the environment). “Hereditary factors or genes determine which physical and mental characteristics can evolve in each developing organism; without these factors no characteristics can develop at all. ... On the other hand, no hereditary factor can prevail on its own, “in time and space” but in the conditions of a concrete environment, under the influence of external or exogenic factors.”

It is clear that, in the case of humans, these environmental conditions which shape them and influence their development greatly include cultural and social conditions.

J. Aul continues his presentation to educators in 1970 [15]: “When we speak about heredity, we must always also think about the corresponding external factors, and when we speak about the external factors (upbringing, etc.) we must never forget the corresponding hereditary factors, the nature of the organism, the innate prerequisites. The former cannot exist without the latter.” In addition, J. Aul mentions the influence of destructive and harmful external factors of teratological nature (poisons – alcohol, narcotics, nicotine, etc.) and possible mechanical injuries. To illustrate the role of heredity, he also presents comparisons from the research of identical and non-identical twins.

Aul finds that school students should be studied not only from the viewpoint of the environment, i.e. social conditions and influences, but also from the hereditary point of view. “As much as possible, an overview should be received about the mentality, interests, inclinations and notable specific features of the student’s whole family and relatives. Knowledge of the student’s hereditary differences gives the teacher a very efficient means for finding the adequate methods of upbringing and teaching. This is also helpful for counselling the students in selection of the right job.”

In J. Aul’s opinion, one of the teacher’s tasks should be finding and supporting individual properties and inclinations, the creative abilities of each child, “finding this point of interest where they want to work willingly and directing them to namely this secondary school where they can develop their individual interests and inclinations” [21].

He is worried that enormous resources of mental abilities get lost in the society because of inadequate upbringing [15]. “The better the upbringing and work of schools are arranged, the greater their results. Heredity still makes itself felt and is actually expressed in the fact that upbringing yields better results in some students more easily than in others, and in some of them, the effect of upbringing and teaching remains quite small. Under ordinary conditions and without selection of students, equal academic progress cannot be achieved among them.”

As early as in 1938, Aul wrote about the future tasks of anthropology [16]: “What do we know about the physical structure of Estonian school students and their development, their anthropological peculiarities? How well do we know our greatest treasure?” Aul sets the aim to continue the collection of scientific materials and understands well the significance of the collected anthropological data: “We must be aware that these materials hide values that only the future generations can use and apply.”

We can be happy that Juhan Aul’s rich scientific legacy and his data are still in active use, and we can confidently say that they are being developed. Part of the values that Prof. Aul kept in mind are beginning to open only now. In the year of Juhan Aul’s 125th birth anniversary, Markus Valge defended a doctoral thesis based on Juhan Aul’s the data [22]. Professor Aul would definitely have been glad about it. With the help of Population Register it was found what had become of the 27,000 Estonian school students aged 7–20 years about whom Aul had acquired detailed anthropological data (ca 20 body measurements, personal data, data on sexual development, residence, parents’ occupation, etc.) – how long the onetime children had lived, how many children they had, what education they had obtained, etc. It was found how the childhood stature and speed of maturation in girls was related to their later life, how the Estonians who had acquired higher education differed anthropometrically from those who had not. This doctoral thesis has enabled to study the relations between people’s social environment and anthropometric characteristics and connections between sexual maturation and fertility and also how people have their life-history – success in survival and getting offspring. The published results show expressively that present-day human populations are also subjugated to natural selection. The impact of natural selection, however, may differ in time and space. It also differs according to gender and can even be antagonistic in the case of such characteristics as acquisition of education and body height. Supported by Aul’s data, it was revealed that more offspring was produced by taller and more highly educated men and shorter and less educated women.



Figure 2. Juhan Aul in front of the University of Tartu Main Building in 1985. Photo: UT library <http://hdl.handle.net/10062/25351>

As the genes influencing body height and acquisition of education are mostly the same in men and women, the difference in optimum life-histories of sexes hinders men becoming even taller and women even smaller in the course of evolution. The reason is that selection pressure on corresponding genes is the opposite depending on the sex of the owner of the genes.

Markus Valge, together with his supervisor Professor Peeter Hõrak, has also published several articles [23–28]. In these, Juhan Aul data have been juxtaposed with the data of the Estonian Biobank and have been used for checking several essential evolutionary hypotheses of human development.

In the year of Juhan Aul's 125th birth anniversary, his book of memoirs was published [20]. Its manuscript dates from 1972, and it was prepared for print by his grandchild.

It only remains to be wished that the future generations would have the persistency, perseverance, devotion and scope embracing whole Estonia, which characterised the anthropologist Professor Juhan Aul (Figure 2).

We should hope that anthropology – the science that serves the people like J. Aul said, the science that is the mirror of the people – would find broader support and application, including in education.

That Estonia would always be among these countries where the research of the greatest natural resource – the humans – is not forgotten.

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