# A short history of physical anthropology in Slovenia

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## Abstract
Physical anthropology is a scientific discipline focusing on biological aspects of human beings. It was amongst the first disciplines that developed at the University of Ljubljana, Slovenia, which celebrated its centenary in 2019. This paper was prepared for this special occasion and presents the establishment and development of the discipline in present-day Slovenia, as well as the most prominent Slovene physical anthropologists. A short overview of the main topics investigated over a century, and a short look into the future is presented.

KEYWORDS: physical anthropology; Slovenia; Yugoslavia; Bozo Škerlj; history; University of Ljubljana; centenary

## Introduction
In 2019, the University of Ljubljana, the main national university of the Republic of Slovenia, celebrated the first century of its establishment. The celebration of this anniversary is an excellent opportunity to take a look back to the times passed, to appreciate the work of our predecessors, and to pay honour to those who paved a path to present achievements. Amongst other university celebrations, this overview aims to pay tribute to the most important researchers in the field of physical anthropology in Slovenia in the last century and to present the focus of their research activities.

## Early years
The previous century in this part of the world was rather tumultuous, with new countries being established and old ones falling apart several times; such was also the history of today's University of Ljubljana. The first university in the area of the present-day Republic of Slovenia was established in 1919 in the then newly formed Kingdom of Serbs, Croats, and Slovenes (which was renamed into the Kingdom of Yugoslavia in 1929), as the University of Kingdom of Serbs, Croats, and Slovenes.[1,2] Its founding members were

[1] https://www.uni-lj.si/v_ospredju/2019031111104965/ (accessed on 11 March 2019).
[2] https://www.uni-lj.si/univerzitetni_arhiv/zgodovina_ul/univerza_v_ljubljani_- ustanovitev_in_razvoj_do_konca_20 stoletja/ (accessed on 12 March 2019).

*ANTHROPOLOGICAL NOTEBOOKS* 25 (3): 87–93.
ISSN 1408-032X

Faculty of Arts, Faculty of Law, Technical Faculty, Faculty of Theology, and a not yet fully functional Faculty of Medicine[3] offering only the first two years of study.[4,5,6] At its establishment in 1919, Faculty of Arts included a much older Ljubljana botanical garden (established in 1810), and a botanical and zoological institute, which, together with the Institute of Anthropology, became constituting parts of the Department of Biology at the Faculty of Arts of the University of Ljubljana, as the university was called after the Second World War.[7]

Prior to the first world war, Slovene intellectuals, with Slovenia then being a part the of Austro-Hungarian Empire, exhibited strong connections with the Universities of Vienna and Prague. Not surprisingly, Niko Zupanič (1876-1961), a historian, politician, ethnologist, and anthropologist studied in Vienna, and later published primarily in the field of history and ethnology of Slavic people of the Balkan peninsula (Novak 2013). He was also the first to perform some anthropometric measurements in ex-Yugoslavia and the area of present-day Slovenia; in 1905 he measured Uskoks at the border between Slovenia and Croatia (Županič 1912; Zajc 2006, in: Batagelj 2008), and in 1929 Serbs in Kosovo polje (Županič 2006). Not surprisingly, he defended a biologistic version of a united Yugoslavism as a politician (Promitzer 2001).

Similarly, Slovene intellectual Milan Škerlj (1875-1947) first studied law in Vienna and was later a professor and twice (1924/25 and 1933/34) a dean of the Faculty of Law in Ljubljana (Murko 2013); although the name of the country changed between his two mandates, as did the name of the university (it was renamed into the University of King Alexander I of Ljubljana), at least the name of the faculty remained unchanged. His son, Božo Škerlj, was the pioneer of academic physical anthropology in Slovenia, the first professional anthropologist in this part of the world, and, putting it into a wider perspective, a founder of physical anthropology in Yugoslavia.

Božo Škerlj graduated in biology and geography at the Faculty of Arts in Ljubljana in 1926. He then specialised in Brno, Czecho-Slovakia (now the Czech Republic), and studied under the guidance of professor Jan Matiegka at the Institute of Anthropology of the Charles University in Prague, where he defended his doctoral thesis, entitled *A contribution to the anthropology of Yugoslavs* in 1927 (Trebežnik, 2013). He was thus the first doctor of anthropology in the area of ex-Yugoslavia. He was employed at School Polyclinics in Ljubljana in 1929, as a person who understood the meaning of physical exercise for the development of children and adolescents; apart from his anthropological education, he was in his younger years also a member of the Sokol gymnastic society (Križnar 2005), a politically engaged gymnastic movement. He investigated the problems of women in sport and, amongst the other, performed anthropometric measurements of prostitutes (Batagelj 2006). He worked at National School Polyclinics (Državna šolska

[3] See Footnote 1

[4] See Footnote 2

[5] https://sl.wikipedia.org/wiki/Univerza_v_Ljubljani (accessed on 14 March 2019).

[6] https://www.uni-lj.si/university_archives/archival_fonds/ (accessed on 18 March 2019).

[7] https://sl.wikipedia.org/wiki/Oddelek_za_biologijo,_Biotehniška_fakulteta_v_Ljubljani (accessed on 18 March 2019).

poliklinika) until 1946 and established its Anthropological section. As its head, he popularised physical exercise in schools and stressed the importance of quality education of physical exercise teachers; he emphasised that physical exercise teachers should not only be knowledgeable in practice but should also understand the theory (Zupanič Slavec & Slavec, 2009). Škerlj, a versatile man of several interests, including music (he played piano and violin), painting (several of his drawings and paintings are preserved, with Božidar Jakac, one of the most prominent Slovene painters, being his mentor and friend (Križnar 2005)), and amateur filmmaking (he filmed scenes of his family life and his working activities (Križnar 2005)), also promoted the inclusion of dance and music into physical activity (Škerlj 1938).

In the early 1930s, a Rockefeller scholarship enabled him further education in Berlin, Germany (Knežević Hočevar 1996), and in several cities in Norway (Oslo, Bergen, Trondheim, Uppsala) (Križnar 2005), where he searched for data for his study on the effect of climate on menarche (Križnar 2005). At that time, these were also two countries with the strongest eugenic activities. He studied eugenics and genetics in Berlin with Professor Eugen Fischer, who later cooperated with Nazis. This experience obviously resulted in the propagation of eugenic ideas at his workplace (Cergol Paradiž 2015), where he first focused on physical attributes and heredity lineages of children enrolled into ordinary schools and schools for deprived children, and wrote about the genetic determination, thus heritability of "diseases" such as prostitution, alcoholism, and criminal activities (Knežević Hočevar 1996). He also focused on physical attributes associated with "races", including pigmentation, eye, and hair colour. It has to be noted, however, that he distanced himself from racist Nazi views (racial hygiene) (Trebežnik 2013); he considered race as a strictly biological phenomenon, unrelated to a nation (Vlahović 1996). During the Second World War, he was a member of the resistance and was in 1944 deported to Dachau Nazi concentration camp, where he continued with his anthropological observations (Cergol Paradiž 2014, oral communication). Škerlj became an assistant professor of anthropology in 1933, and in 1946 became an associate professor at the University of Ljubljana.

## Post-WWII period

Soon after the Second World War (already in 1946) Škerlj established a Cathedra of Anthropology at the Faculty of Arts, which was renamed into the Institute of Anthropology in 1947; this was the first anthropological institute in the area of ex-Yugoslavia. Together with the Ljubljana botanical garden botanical, and zoological institute, it formed the Department of Biology at the Faculty of Arts. Some turbulent organisational years followed its establishment, as the Faculty of Arts was first split into the Faculty of Arts and Faculty of Natural Sciences and Mathematics in 1949, then reintegrated into the Faculty of Natural Sciences, Mathematics, and Arts in 1954, and finally split again into Faculty of Arts and Faculty of Natural Sciences in 1957.[8] In 1960, the Institute of Anthropology was again renamed into the Cathedra of Anthropology and was, as a part of the Department of

[8] see Footnote 5

Biology, separated from the Faculty of Arts and integrated into the Faculty of Agronomy, Forestry and Veterinary Medicine. In the same year, the Institute of Biology was also established (NIB, 2014).

Škerlj maintained extensive connections with some of the most prominent physical anthropologists of that time, which resulted in several of his educational visits to the USA, the UK, France, Switzerland, the Middle East (Egypt, specifically), Sweden, Poland, and Czechoslovakia (Bufon 2013). He befriended Josef Brožek, a distinguished USA-based Czech psychologist, also a violin and cello player, who is known for his studies of malnutrition and body composition (amongst other, the Brožek equation has been used to calculate body fat percentage from body density) (Harbrecht 2004). Their acquaintance led Škerlj to do research on body composition, based on anthropometric measurements, which he performed throughout his professional life. He also worked and published in the fields of archaeology (he investigated several Middle Age skeletons and the orientation of tombs (he thus introduced archeoastronomy to Slovenia)) and human evolution. As an internationally recognised expert on human races, he prepared several works about them but clearly condemned racism (Knežević Hočevar 1996). He became an honourable member of the Royal Anthropological Institute of Great Britain and Ireland in 1953 (Knežević Hočevar 1996), which invited him to write a contribution about the European races for their planned series of books The History of Human Races. This was a work he gladly accepted but never accomplished due to his early death. In 1958, he established Anthropological Society of Yugoslavia and became its president. In 1961, Škerlj died.

In the same year, the Faculty of Agronomy, Forestry and Veterinary Medicine that included the Department of Biology, and thus the Cathedra of Anthropology, was named Biotechnical Faculty,[9] a name that has remained unchanged to these days. At present, there is no longer a cathedra, but a Group of Anthropology at the Department of Biology of the Biotechnical Faculty, University of Ljubljana, Slovenia.

## Post-Škerlj physical anthropology research

Following Škerlj's more than 200 scientific and professional manuscripts and more than 10 monographs, it was a demanding task for his successor, Professor Zlata Dolinar Osole, previously his assistant, to fulfil his position in Slovene physical anthropology. She focused on heredity studies (especially on distribution of AB0 blood groups) and demographic studies (natality and mortality) of human populations in geographically isolated areas (the island of Susak). She also continued with the analysis of historical skeletons and maintained the anthropometric tradition established by Škerlj. These topics were also focal points for other physical anthropologists who followed the footsteps of their predecessors.

In the 1970s, physical anthropology in Slovenia gained momentum not only at the Department of Biology, but, with the spread of Škerlj's students, also at the Institute of Biology, and College of Physical Culture, which became the Faculty of Sports of the University of Ljubljana in 1990.

[9] See Footnote 6

Vida Brodar, a student of Škerlj's, first performed anthropometric analyses of human skeletal material, later focused on hereditary principles in twins, and acted as court expert biomorphologist in cases of disputed paternities (Miletić & Tomazo-Ravnik 2014). Throughout her life, she worked at the Institute of Biology and also performed extensive anthropometric measurements of students and children, focusing on their morphology and growth.

Anton (Tone) Pogačnik, also a Škerlj's student, examined the morphology of the Roma population (Gypsies) in Slovenia and the biotipology of Montenegrins. Later, he focused primarily on cultural anthropology and visited some of the native tribes in Africa (in the area between Senegal and Nigeria), and native Americans in Arizona and California, in the United States (Židov 1993).

Apart from the scientific fields presented above, Škerlj is also regarded as the pioneer of sport science in Slovenia (Šturm 1994); his understanding of the importance of physical activity for health and development was reflected at the College of Physical Culture, where first research activities were established after Škerlj's death with the help of Škerlj's students (Šturm 1994). Namely, it was Mario Peruzzi, Škerlj's technical assistant, who provided guidance and teaching as well as performed first anthropometric measurements at the College of Physical Culture (Šturm 1994); joined activities of the Department of Biology and College of Physical Culture continued through the collaboration between Zlata Dolinar Osole, Tone Pogačnik, and Jože Šturm (Šturm 1994). The later activities of Jože Šturm and particularly Janko Strel resulted in a unique national surveillance system for physical and motor development of children named SLOfit (formerly known as Sports Educational Chart). Every April since 1987, children whose parents provide consent for their children's participation are enrolled in all primary and secondary schools in Slovenia, and are measured with the same test battery, that includes basic anthropometric measurements and evaluations of physical fitness.[10] Every ten years, these measurements are extended with a wider battery of tests and anthropometric measurements, performed on a nationally representative sample (Jurak, Kovač & Starc 2013; Starc et al. 2014).

At the Department of Biology, the research work of Zlata Dolinar Osole was continued by Marija Štefančič and Tatjana Tomazo Ravnik, who provided anthropometric analyses of historical skeletons but also continued with the Slovene legacy of anthropometry. They collected a large database of anthropometric data obtained from yearly measurements on students, performed studies of menarche, longitudinal growth, and body composition, as well as investigated somatotypes and secular trends (Štefančič 2008).

## A look into the future

Extensive work of our predecessors resulted in a wide collection of anthropometric data. All of them were, of course, documented on paper. Therefore, the current Group of Anthropology has first gained permission from the National Ethics Committee for the use of all acquired anonymized data, and we are currently establishing an electronic anthropometric database. It will include almost a century of anthropometric data collected from over 15,000 subjects. As especially older anthropometric data, thus those from the first

[10] http://en.slofit.org (accessed on 25 March 2019)

half of the 20th century, are not easily available, we believe the establishment of an electronic database will open new possibilities for collaborations, especially in the field of secular trend and body composition investigations.

It is both, expected and logical, that we continue with anthropometry. We are now extending previous anthropometric work with evaluations of the physical fitness of students. We continue collaborating with the new generation of researchers of the Faculty of Sport; we have provided anthropometric measurements for the decennial study of somatic development of Slovene young people (Jurak, Kovač & Starc 2013; Starc et al. 2014). We have also introduced some new research areas, including those related to physical activity: the role of sports clubs in sports activity of students (Golja & Robič Pikel, 2014); the use of dietary supplements in adolescents (Zdešar Kotnik et al., 2018); and growth patterns of preterm children (Robič Pikel et al., 2017).

All this would not be possible without the dedicated work of people who paved our path; it is now a perfect time to express our gratitude to all of them. We are looking forward to new challenges and new collaborations in the times to come.

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## Povzetek

Fizična antropologija je znanstvena veda, ki se osredotoča na biološke vidike človeka. Je ena izmed prvih disciplin, ki so se razvile na Univerzi v Ljubljani, ki je v letu 2019 praznovala svojo stoletnico. Pričujoči prispevek je nastal v okviru praznovanja stoletnice Univerze in predstavlja vzpostavitev in razvoj fizične antropologije kot vede na področju današnje Slovenije, kot tudi najbolj znane slovenske fizične antropologe. Predstavljen je tudi kratek pregled ključnih raziskovalnih vsebin, s katerimi so se fizični antropologi ukvarjali v zadnjih sto letih in kratek pogled v prihajajoče izzive.

KLJUČNE BESEDE: fizična antropologija, Slovenija, Jugoslavija, Božo Škerlj, zgodovina, Univerza v Ljubljani, stoletnica

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