

TWO ROMANIAN SCIENTIFIC PERSONALITIES, FRANCISC I. RAINER AND MINA MINOVICI - TWO COLLECTIONS OF SKULLS, EACH UNIQUE IN THE WORLD BY THEIR ANTHROPOLOGICAL SIGNIFICANCE

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Abstract: This paper aims to present two unique collections of skulls gathered by the Romanian medical personalities: Prof. Dr. Francisc I. Rainer and Prof. Dr. Mina to. Professor Rainer's anthropological collection, counting over 6,000 skulls retrieved from the skeletons left after dissections at the Faculty of Medicine in Bucharest, the majority belonging to Romanians. A peculiarity of this collection is that for each skull there are recorded identification data, such as: serial number, gender, age, nationality, name and surname, profession, date of death, diagnosis and hospital of origin. The Minovici collection relatively modest in numbers, around 100 complete skulls and similar numbers for skulls with traumatic injuries or particular skull caps, provides valuable information for several fields of Anthropology such as physical, criminal and legal medical. The two collections of skulls, unique in the world by their anthropological significance have an important formative value for many generations.

Key words: Skull collections, legal-medical anthropology, anatomy, craniology.

INTRODUCTION

Depicting fields of Anthropology such as physical, criminal and legal medical anthropology the two unique collections of skulls in Bucharest serve as an example of dedication to scientific research and education from the emblematic medical professionals Prof. Dr. Francisc I. Rainer and Prof. Dr. Mina Minovici. For many of us, even doctors, questions related to the studies of Romanian anthropology, but especially the existence of an Institute of Anthropology in Bucharest can be real challenges. History has been kinder to the legacy of Prof. M. Minovici, the National Institute of Legal Medicine that honours his name, though not in the original location on Cauzasi street, serves as a testimony to his work guarding the expositions of the original Museum. Both prestigious institutions are patronized by two personalities who have left their mark on the medical world and in Romanian society: Professor Francisc I. Rainer and Professor Mina Minovici, doctors as well as refined cultural and

scientific spirits of the last century. If we continue the foray into the unknown of these institutes, we will be surprised to learn that they house two collections of skulls, unique in size and the information they can provide.

Institute of Anthropology "Francisc I. Rainer" – Historical overview

Doctor Francisc I. Rainer (1874–1944) remains the most representative figure of Romanian anthropology, being essentially the creator of the anthropological school of the country. An anatomy professor at the medical school, a scientist who pursued novelty and innovation, he discovered that anthropology was missing from Romanian science. Although Professor Rainer had numerous didactic and scientific obligations, he began to gather scientific material around the year 1900 [1].

On the occasion of the XVII International Congress of Anthropology held in Bucharest in 1937, through the efforts of Professor Rainer, the building

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of the Institute of Anthropology was put into use in Bucharest. It was officially inaugurated on June 20, 1940, under the auspices of the dean from the Faculty of Medicine in Bucharest, Professor Dr. Mezincescu, when it was considered that it could be compared with the best similar institutions in countries with an old tradition in the field [2]. The Institute of Anthropology was established as an autonomous institution, attached to the University of Bucharest in 1942, by a decree-law (Fig. 1).

The urgent need of a building destined for the morgue, a building whose foundations had already been dug, but had meanwhile been abandoned, was made at the suggestion of Professor Rainer to the Minister of National Education, who was in charge of organizing this Congress. Professor Rainer also ran the faculty morgue, following a 1935 ruling by the faculty board of the Faculty of Medicine. The Minister, Professor C. Angelescu, accepted this idea and obtained the necessary funds, so that the construction was completed on time: in the basement the morgue was arranged, the anthropological collections were placed on the ground and first floor, having been collected previously but until then piled up in the basement of the Faculty of Medicine. Thus, the scientists who participated in the Congress of Anthropology in 1937, in Bucharest, were able to visit the exhibited collections and take note of the vast scientific material from our country [4].

This Anthropological Institute was not endowed with budgetary funds, but Professor Rainer, over the decades, had gathered scientific collections, specialized equipment and scientific treatises from donations and own funds. It is also noteworthy that he formed collaborators from among whom rose personalities such as: George Emil Palade future Nobel Prize winner,



Figure 1. Institute of Anthropology „ Fr. J. Rainer”(Historic building)[3].

Șt. M. Milcu future academician, I. Riga, Gr. T. Popa, S. Iagnov, I. Țurai and others, doctors of great value who promoted medical research and Romanian medicine [2].

Between 1912 and 1919, Rainer was a professor at the University of Iasi, where he enlarged and organized the Institute of Anatomy, which was practically his creation, endowed the institution and expanded the library, supplying it with the necessary journals. From 1912 to 1942, Rainer headed the Institute of Anatomy in Bucharest, which he organized, equipped and created a museum with 700 anatomical preparations, worked either by him abroad or by his assistants in the country, under his supervision. He also enlarged the library by several thousand volumes, some of which were donated by the teacher himself. Professor Rainer held a general biology course each week in the amphitheatre of the Faculty of Medicine. Between 1942-1943, a period in which a lot of pseudo-scientific theories had spread and circulated, Rainer held public courses at the University of Bucharest, portraying the Romanian anthologies point of view.

On December 4, 1939, as director of the Institute of Anatomy, Professor Rainer wrote to the Dean of the Faculty of Medicine, the following:

“I have compiled, not without personal sacrifices and in addition to the needs of education, a collection of anthropology of great scientific value, including significant documentation on bone morphology, which certain anthropological issues have made necessary. The collection, started before 1,900, since the time of my assistance, includes, among others, over 4,000 skulls. No other collection in the country can be compared to it. Not many foreign collections can compete with it. It is located in the courtyard of the faculty, in the tall building, through my long efforts, to include in its basement the Corpse Service, on the ground floor and upstairs the laboratory and the anthropology collections. [...]” [4]

Professor Rainer gathered in the years of teaching (1920–1944) a rich collection formed in 1940, when he retired, from over 4000 skulls and over 600 pieces dedicated to bone morphobiology. A publication Romanian Athenaeum from 1946 claimed that this collection of contemporary skulls had 6,300 pieces, measured and labelled. These imposing collections at the time were some of the largest in the world. Related to the collection of skulls, a little known fact today is that Professor Rainer organized in parallel the collection of data on the anatomical variants of the soft parts, muscles, vessels and nerves, corresponding

to each skull. The study of the Paleolithic skull from Cioclovina was carried out by Rainer and I. Simionescu [5]. They showed that by metrical and morphological characters, it resembled the skulls found at Predmost (Czechoslovakia), the Cro-Magnon type [2][5].

After the First World War, when Professor Rainer taught anatomy at the Faculty of Medicine in Bucharest, the number of students had increased greatly, the amount of material used in dissections was significant, which helped him develop the collection. Professor Rainer, who was an authority on pathological anatomy, after serving their educational purpose, analyzed the remaining thousands of skeletons and sorted out what needed to be kept for collection.

At first, the collections were housed in an unused part of the basement of the Faculty of Medicine, which communicates through a hatch with the professor's office, located on the ground floor. To store the objects in the collection, which were constantly increasing, a large basement room was added, which served as a work room for students. Then they were housed in the building of the Institute of Anthropology, where they were inventoried, classified or prepared for anthropological studies. Also, all the information in this field and the moulds were gathered in the Institute, and a laboratory for research was set up.

The scientific material of the Institute includes the collection of skulls (very grand), the collection of whole skeletons (few in number), the collection of skeleton segments, the collection of bone morphology, sheets, moulds and a collection of microscopic sections [4].

Of the more than 6,000 skulls in the anthropological collection, by the end of 1944, the pieces in the first room were all classified and almost all annotated. The skulls are coming from the skeletons left

after dissections at the Faculty of Medicine in Bucharest, and most belong to Romanians. Among the skulls of foreigners are also the skulls of Jews and two skulls of Moroccans, a rarity for this part of the world. In the classification, age was taken into account, the skulls of adults and the elderly being grouped separately. Also, 54 skulls from archeological excavations were exposed. The reconstructed pieces, complete or fragmented (mostly neurocranial), come from the medieval cemetery near the Roman baths of Turnu Severin, Drobeta Castle, Severin Fortress, Simian Island (La Tène era), Poiana, Cavaclar and Piscul Crasani. These were donated by teachers Al. Bărcăcilă, Tzigara-Samurcaș, Radu Vulpe and Pârvan [6].

For the final ordering of the skulls, classified according to anthropological criteria, Professor Rainer adopted direct numbering on pieces with annotations in order to identify them. After a thorough craniological examination, the pieces were removed and grouped according to morphological features, age, nationality and possibility of identification. On the left parietal bone, at the angle between the sagittal and coronal sutures, on a layer of substance that prevents the penetration of the ink into the bone, the serial number, sex, age, nationality, name and surname, profession, date of death, diagnosis and the hospital of origin; the written area was then covered with an insulating layer, after which the pieces were arranged in the anthropological collection (Figs 3-5).

The bone morphobiology collection was also stored in the Institute of Anthropology. This was done by sorting a huge amount of material and presenting various shapes of each skeleton segment, as well as the general genetic processes. The numbering was done on each piece, and the established diagnosis was written on its support. The pieces were grouped according to



Figure 2. Part of the room where the skull collection was located [3].

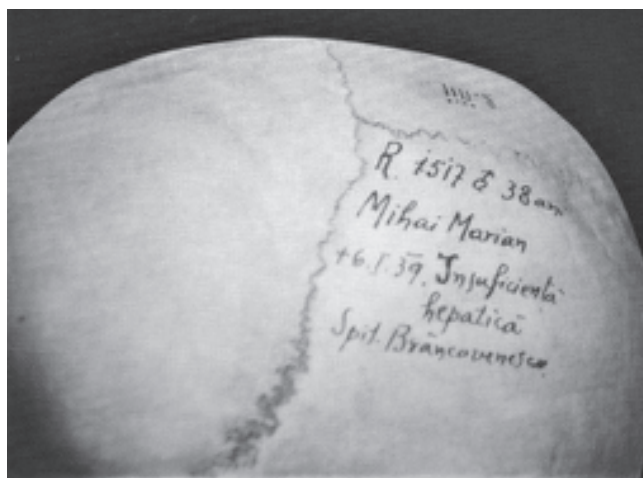


Figure 3. Inscribed skull [4].

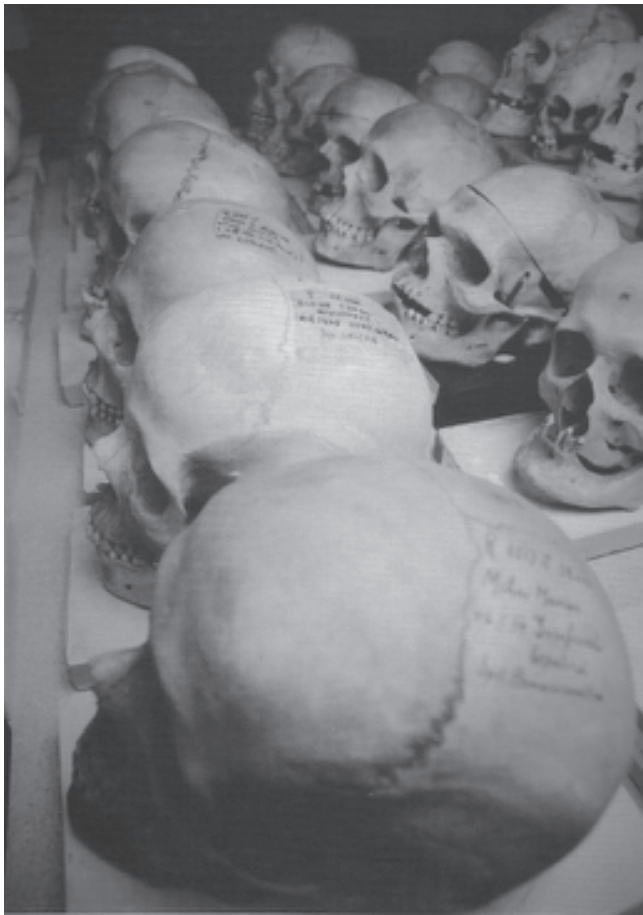


Figure 4. Inscribed skulls [4].

similarities. Professor Rainer was assisted by Dr. P. Georgescu in compiling the morphobiology collection. The number of preserved whole skeletons is relatively small, leaving only those that had certain features.

Th. Enăchescu recorded that Professor Rainer, through a work of over 40 years, gathered from the Colțea prosectorship for the beginning and then from the anatomy department, approximately 7,000 skulls from the current populations. For each skull, Professor Rainer noted the age, sex, occupation, and disease that determined the death. It is noteworthy that in the Rainian conception, the disease had an anthropological significance, being able to give details both about living conditions and the degree of vitality of a population [4,7].

Professor Rainer was concerned with ontogenesis studies, an aspect highlighted in the pieces in the skull collection and in the collection of photographs taken of children from different ages and sexes, similarities between brothers, sisters, twins, similarities between parents and children. He also showed a special interest in childhood pathologies and the changes they cause, especially for diseases characteristic of special socio-economic and genetic

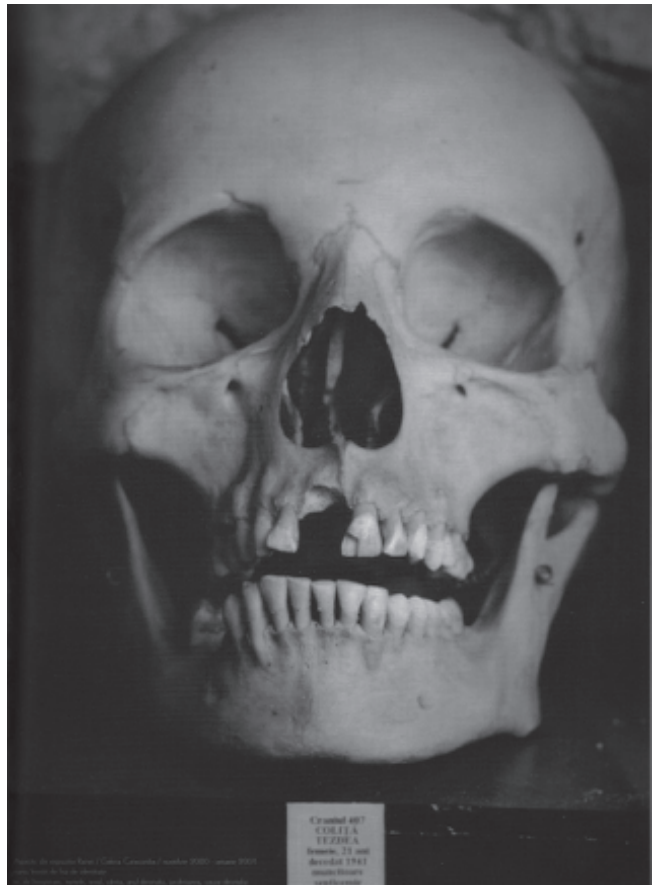


Figure 5. Skull accompanied by identity card (registration no., name, sex, age, year of death, profession and cause of death) [4].

conditions [4].

During the years of the communist dictatorship, the institute and the researchers suffered a lot, the fundamental research not being agreed by the totalitarian regime. It was transformed in turn into a laboratory, then into a center, and in recent years it has become an Institute again. A large part of the building that belonged to it by right, located behind the Faculty of Medicine and built by Rainer with the help of the Royal House was ceded, the ground floor being occupied by the Biophysics department, and the institute was limited to the first floor of the building. Therefore, the collection of skulls, unique in the world, as well as the exceptional museum archive were stored in a modest, spacious space, thus limiting the Romanian public's access to the valuable Rainer heritage.

Today the historic building of the Institute of Anthropology is in an extensive process of consolidation and restoration. The entire collection of skulls, as well as the other collections, the museum archive, the library are stored in special conditions, in specially arranged places. Because access to them is difficult and would jeopardize the good preservation of materials

during this period, we call to images taken from the RAINER Documentary Album, as well as from *L'oeuvre scientifique* by Fr. J. Rainer IV [3, 4].

After the renovation of the building, the Rainer Museum will be reopened, and the collection of skulls and other materials donated by Professor Rainer will be exposed to the general public. Thus, the activity of Professor Rainer, as well as the Institute he founded, which belongs to the Romanian Academy, the highest scientific forum in the country, will be much better

known and why not, appreciated at its due value.

In order to make known to the general public the patrimony of RAINER, property of the Center for Anthropological Research “Francisc I. Rainer”, today the Institute of Anthropology “Fr. I. Rainer” of the Romanian Academy, during November 2000-January 2001 an exhibition was opened at Galeria Catacomba in which the Rainer collection and archives were presented. The RAINER museum archives, anthropological documentation (photographic, anatomical and aesthetic), as well as 2000 skulls from the large Rainer craniological collection, the largest in Europe, consisting of over 6,000 human skulls, were exhibited. It should be noted that in Europe, the largest craniological collection has only 1000 skulls and is found in Portugal. Of course, we are not referring to the huge Catholic collection of bones in various Western monasteries. If in an ossuary, the bones (skulls) are stored on top of each other, often looking sinister, the owners deliberately remaining anonymous, the skulls of the Rainer collection retain their precise identity (Figs 6-8).



Figure 6. Various aspects of the Rainer exhibition / Galeria Catacomba / November 2000-January 2001[4].



Figure 7. Various aspects of the Rainer exhibition/ Galeria Catacomba/ November 2000-January 2001[4].



Figure 8. Overview of the exhibition of skulls from the Rainer collection/ Catacomba Gallery/ November 2000-January 2001[4].

For Professor Rainer, predecessor and the classic of his own discipline: anthropology, anthropologically looking at a skull or anthropologically photographing a person's head means distinguishing bone morphology in the smallest detail, the fixed shape that supports and orders the dynamics of a face, and beyond all, the discovery of the person in all its fullness. "According to Rainer, the skull is the base of the face" [8].

Dr. A. Tudor, Professor Rainer's assistant at the Institute, reported that once, the professor showed them an embalmed mask after a personal procedure. Professor Minovici asked him to use the procedure to embalm the remains of King Ferdinand I, but he wanted to know the secret. Fr. But Rainer turned down the Legal –Medicine doctor, preferring to keep it a secret. However, these scientists collaborated, having common concerns in the field of anthropology.

The methods employed by the Minovici brothers, together with those initiated by Rainer, which had a medical-anthropological character, formed the basis for the anthropological activity carried out in a multidisciplinary team in the post-war years.

At the International Congress of Anthropology in 1937, held in Bucharest, was attended by delegates from 19 countries (Albania, Algeria, Great Britain, Belgium, Bulgaria, Czechoslovakia, Switzerland, France, Italy, Yugoslavia, Japan, Poland, the Netherlands, Portugal, Romania, Sweden, United States of America, Turkey, USSR), among the personalities of the time who participated were Prof. Nicolae Minovici, director of the Institute of Legal Medicine in Bucharest [2].

"Mina Minovici" National Institute of Legal Medicine - Historical overview

In the second half of the 19th century, Legal Medicine was organized and regulated both as a professional activity and as a branch of Romanian medical education. The health care organization in the country, which involved a series of measures adopted in a short time, also brought a series of directives on Legal Medical practice and education [9, 10].

After the establishment by Carol Davila in 1856 of the School of Surgery in Bucharest, which in the following year was renamed the National School of Medicine and Pharmacy, a Legal Medicine course was also provided.

In Romania, the end of the 19th century and the beginning of the 20th century were marked by the activity Minovici brothers. The name Minovici resonates both through the imprint left on works and scientific research with international resonance, but

also through the social and administrative works at the level of Bucharest and surrounding territory.

Mina Minovici began his studies in pharmacy, shortly after being especially appreciated by Carol Davila the Minister of Health in that time, he left for Paris in 1885, to specialize in medicine, later on in Legal Medicine under the guidance of Professor Paul Brouardel, one of the leading figures in European Legal Medicine at the end of the 19th century, focusing from the beginning on Legal Medicine and toxicology. Among the great personalities he met was Louis Pasteur, in whose laboratory he worked for a short period of time[10], [11].

As a result of the legislative regulations for the activity of the Legal- Medicine doctor, due to the volume and specificity of the profession that had presupposed and still implies a multidisciplinary approach, problems had arisen regarding the location of these activities. There was a short period of time in which Legal Medicine found its place right in the building of the Ministry of Justice, in the Palace of Justice, here there was a cabinet of expertise, a chemistry laboratory and even a small museum of Legal Medicine [9].

Like all Legal Medicine doctors in Romania, Mina Minovici faced the lack of a framework for conducting autopsies with the appropriate instruments and in different places with the character of improvisation or additional examinations. Moreover, although the law provided for medical students to participate in autopsies, there was no autopsy laboratory.

He then took over the task to build a city Morgue after the City Morgue model from Paris. The plan of the Morgue was made in the smallest details since 1888 by Professor M. Minovici himself. He convinced the Ministry of Justice in that time Mr. Alexandru Marghiloman and the maire of Bucharest, Mr. Pache Protopescu to find financial resources and a place for the Morgue. In 2 years the City Morgue , "Morga oraşului", was built and inaugurated on December 20, 1892. In 1898 Mina Minovici renamed the Morgue as the Institution of Legal Medicine founding the social institution of legal medicine: Legal Medicine experts, formation of Legal Medicine experts and academic teaching for medical and law students, everything on a public base without any private fee [9].

The Institute's premises consisted of the following rooms: a large hall over 8m high, an exhibition and conservation hall, where unknown bodies, could be stored by freezing with a refrigerator, based on the cooling of a bath of calcium chloride by liquefied ammonia that produced a temperature of 10-12 degrees



Figure 9. International Congress of Anthropology, Bucharest 1937 [13].



Figure 10. Institute of Legal Medicine, Bucharest – original building, graphic representation for the 125 years anniversary in 2017.

below zero. The room was separated from the hall by a large window glass; an amphitheater; a room for the Legal Medicine Laboratory; a room for the Museum of Legal Medicine; an office of the medical examiner and magistrates; an office of the clerk in charge of receiving and releasing corpses; a room for photography [12].

From the professor's inaugural speech of the City Morgue we note "Our morgue, as it is today, is an ideal for civilized states, and we can be proud that our morgue is the only one in Europe that can meet both the requirements of justice and Legal Medicine education"[12]. The modernity of this institution would be emphasized by many personalities of international for Legal Medicine. For example, Professor V. Balthazard of Paris, with the inauguration of a new building of the Institute of Legal Medicine in Paris in 1924, acknowledged the influence of his visit to Bucharest on the construction of the French institute. By Decree published in the "Official Gazette" of March 5, 1925, the Legal Medicine Institute was to bear the name of the founding professor, Mina Minovici [9].

Between 1932-1938 the Institute was led by Professor Nicolae Minovici, the younger brother of Mina Minovici, who continued his brother's scientific work. In 1937, Nicolae Minovici as general secretary, with Professor Francis Iosif Rainer, organized the XII International Congress of Anthropology which was held in Bucharest (Figs 9, 10).

In 1986, the historic building of the Institute, on Cauzasi Street, was to be demolished, after futile efforts to save the building, of great architectural, historical and sentimental value.

For over three years (1986-1989), the Legal Medicine activity was temporarily hosted by the Pantelimon Hospital. During this period, the new institute was built with its headquarters in Sos. Vitan-Birzesti no. 9. This impressive architectural achievement has four levels, which house the various departments and laboratories of the Institute. The institute has a library, a Museum and large spaces that are intended for academic meetings (two amphitheatres with 150 and 350 seats). The library houses the scientific works collected and donated by the Minovici brothers and their associates and also a museum where most of the rare pieces from the old establishment are exhibited [14].

In the nineteenth century, the beginning of the 20th century, the psycho-biological theories were promoted, they argued that certain abnormalities or psychophysiological dysfunctions are determining factors of criminal behavior. Cesare Lombroso (1835-1909), university professor of legal medicine at the University of Torino, was the primary representative of this theory of causality in criminology, the physical type of a criminal as an intrinsic cause of crime, the "natural born killer". At the Geneva Congress of Anthropology in 1896, Mina Minovici held a detailed



Figure 11. Museum of the Medico-Legal Institute, Cauzași Street [16].



Figure 12. Mina Minovici National Institute of Legal Medicine- Museum 2020.



Figure 13. Skulls – traumatic injuries. Mina Minovici National Institute of Legal Medicine- Museum 2020.

report on the results of the Romanian statistical studies on criminal anthropology, in the sense that these results “condemn Lombroso’s ideas on the existence of the criminal man, the natural born killer”. Professor Mina Minovici concluded, “What Lombroso’s school classifies as criminality stigma (facial asymmetry, ear malformation, strabismus and other ocular lesions, prognosis, dental abnormalities, mouth defects, trunk deformities and deformities, hernia, genital abnormalities, skin pigments, naive mothers, etc.) is actually more common to alienated, epileptic and idiots, as well as in an individual with an excessive moral sense. [...] The Lombroso signs were, are, and they will be wrong: their presence does not characterize



Figure 14. Skull – traumatic injury. Mina Minovici National Institute of Legal Medicine- Museum 2020.

the killer, nor does their absence constitute a certificate of irreproachable moral sense” [15] (Fig. 11).

The Museum of the Medico-Legal Institute on Căuzași Street hosted an extensive collection of human skulls for anthropometric measurements that included over 100 pieces, mostly prepared at the beginning of the nineteenth century, most of which are also found in the present museum: Hungarian Skulls, 27 pieces of which 8 female and 19 male, ages 19 to 70, taken

from autopsies conducted between 1903-1909; Gypsy Skulls, 12 of which 1 female and 11 male, aged 30 to 80, taken from autopsies conducted between 1902-1909; Bulgarian Skulls, 10 male parts, aged between 20 and 66, taken from autopsies during 1897-1911; Italian skulls, 11 of which 1 female and 10 male, ages 31 to 85, taken from autopsies during 1900-1918; Skulls of Hellenic nationality, 6 of which 2 female and 4 male, aged between 25 and 70, taken from autopsies between 1901-1906; Serbian skulls, two male parts, ages 63 and 70, taken from autopsies in 1905 and 1907; Austrian skulls, 5 of which 2 female and 3 male, ages 26 to 65, taken from autopsies conducted between 1902-1905; German skulls, 14 of which 3 female and 11 male, ages 17 to 80, taken from autopsies between 1903-1918; Jewish skulls, 3 of which 1 female and 3 male, aged 44 to 85, taken from autopsies conducted between 1905-1911; Turkish skulls, 3 male parts, aged between 44 and 85, taken from autopsies conducted between 1905-1911; Albanian, French, Armenian, Belgian skulls, one piece per nationality, taken from autopsies conducted between 1905-1907; Polish skulls, 2 of which 1 female and 1 male, aged 35 and 54, taken from autopsies conducted between 1902-1903; Skulls of "Boem" and "Sas" nationality, two pieces each nationality, taken from autopsies during 1900-1911; Romanian skulls, over 40 pieces, taken from autopsies conducted between 1895-1915. Most of the information above is written in the Original Ledger "Catalog of the Medico-Legal Museum", as it can be seen it provides structured data for each skull: gender, age, nationality, height, weight, year and one additional item – the number of the medico-legal autopsy that can be found even today in the Institutes Archives [17]. A study conducted in 1918 regarding the anthropological features of the Romanian skull which was carried out on 125 crania, 21 from the Faculty of Medicine and 104 from the Institute of Legal Medicine should great gratitude to the information provided by the ledger and the medical records or additional data from the autopsy reports [18] (Fig. 12).

Additionally to the skulls for anthropometric measurements, the museum holds a skull - collection of fractures. Head injuries, (skull and brain injuries) had been and have remained one of the main causes of death, either directly through their severity or indirectly through the multiple complications that may occur in their evolution. In this collection there are complete skulls, with the mandible, or partial - without mandible. For the exhibits where it was feasible, reconstruction of the anatomical integrity was achieved by positioning and fixation of the bone fragments,

for example: irradiated fractures, localized temporal-parietal-occipital; complex fractures of neuro and visceral cranium; localized occipital-parietal fractures, after the morphology of the lesion it may be appreciated that they were produced with a splitting object. Most of the exhibits with traumatic injury show signs of autopsy technique. Another important section of the Minovici collection are the skulls with firearms injuries - entrance and exit wounds, for example small-caliber right parietal entrance wound with complex cranial fracture through shock wave and no exit wound; Right temporal entrance wound without exit wound; right temporal entrance wound without exit wound; right temporo-sphenoidal entrance wound with orbital explosion, without any exit wound; right temporo-sphenoidal entrance wound, exit wound on the left parietal bone with oblique direction associated with the explosion of the skull through the shock wave.

The last but not least, stands witness the extensive collection of skull caps with lesion caused by blunt force trauma, an object as "rake, hammer, box ..." [17] (Figs 13, 14).

In conclusion, the two great medical personalities from interwar Romania, left, through the two collections of skulls, an invaluable treasure, with an important formative value for many generations of doctors, anthropologists, historians or science enthusiasts for history and culture.

Conflict of interest

The authors declare that they have no conflict of interest.

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