

Articoli/Articles

THE MEDICAL COLLECTIONS  
OF THE UNIVERSITY OF TARTU

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SUMMARY

*In the year 1999, a new and modern building Biomedicum was finished addressed to preclinic subjects of the Medical Faculty of the University of Tartu; the institutions of anatomy as well as pathological anatomy and forensic medicine moved there. However, no place was planned to exhibit the collections of specimens. Many of the specimens which had so far only been used for learning purposes found their place in the Old Anatomical Theatre, in the hope that this could be transformed as a museum. The medical collections of the Medical Faculty were opened up for a broader audience in October 2005. With the support of the national programme “The collections of humanities and natural sciences”, the medical study specimens, models, moulages, and literature related to them in danger of being destroyed were collected from several subdivisions and buildings of the Medical Faculty. In 2012, the medical exhibition moved to the premises of Science Centre AHHA and in the same time a specific educational study began to be developed.*

*Early history*

*The study of anatomy and pathology at the University of Tartu (Dorpat)*

During the period of Academia Gustaviana, the constitution stipulated that the Medical Faculty had two professors, one of whom was sup-

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posed to teach physics, botany, and anatomy and also to conduct a post-mortem every year; moreover, the body belonging to a criminal or someone who had died in an almshouse had to be provided by the housemaster of the stronghold. The first medical professor of the university was Johann Below (1633-1642), who in addition to other disciplines also read anatomy. Cats and dogs were dissected to teach anatomy. At the end of 1695, Jacob Friedrich Below took over the vacant position of the medical professor and he highly valued the visual and illustrative side of teaching; from the academic year 1697/1698 he conducted anatomical post-mortems on bodies (in the winter of 1697/1698, he dissected the first body of a man and of a woman). This caused a great sensation in Tartu. In 1709, the last medical professor of the Swedish-era University of Tartu, Laurentius Braun, conducted a public post-mortem examination, as required by the university's constitution. He also delivered lectures on the human anatomy.

When the university was reopened in 1802, it did not have its own buildings yet. A 1803 statute of the Imperial University of Tartu stipulated the establishment of various buildings for the departments, and an anatomicum was to be provided for the Medical Faculty. Preparations were made for academic work in the summer of 1803, but the anatomical theatre did not have its own rooms yet. So, a wooden house was rented from a wig master. One of the organizers of the university was Professor D. G. Balk who did a lot for the development of the Medical Faculty both as Rector and Dean and actively tended to the building of the anatomicum. H. F. Isenflamm (1771-1825, professor at the University of Tartu from 1803 to 1810) was invited from Erlangen as the first professor to teach anatomy, physiology, and forensic medicine when the university was reopened. Prof Isenflamm had brought along from Germany a large collection of anatomical, physiological, and patho-anatomical specimens, he can also be considered to have laid the basis for the pathological anatomy collection. Isenflamm also conducted patho-anatomical post-mortems, which

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provided him the opportunity to collect materials for the specimens. 8000 rubles a year had been assigned to him from the university's budget for acquiring additional specimens. According to him, there were enough materials and specimens were also made by themselves. In two years, the students also prepared a fresh cadaver. Isenflamm noted that wild animals which were rare in Germany (bear, wolf, fox, also various ra-re birds) were easily found in Estonia and he used these possibilities for his comparative anatomy class. In the spring of 1804, the anatomical theatre acquired a half-year-old bear and the structure of a human's and bear's thorax as well as the strength of their muscles were compared during lectures.

In 1803 a special fund was allocated for construction works at the university and one of the first buildings that began to be designed and built was the anatomicum, planned in the Classicist style. In July of the same year an auditorium in the shape of a rotunda began to be built in Toomemäe and it was finished in 1805. An audito-



Fig. 1. Old Anatomical Theatre

rium, devices for preserving cadavers and cleaning bones, as well as a room for the collection of anatomical specimens were built in the Old Anatomical Theatre.

The preliminary plan only foresaw the rotunda and the additional side buildings are from later times. The annexes that also held the collection of anatomical specimens were built from 1825 to 1827, from 1856 to 1860 the annexes were expanded.

At the beginning of 1900 there was not enough anatomical material at the anatomicum. "Cadavers are acquired every year from Pskov and Saint Petersburg with great difficulty and there are extremely few of them so the students cannot gain the necessary practical knowledge."

#### *Prof August Rauber and his anatomical collection*

After graduating from the Munich University, A. Rauber worked for more than two years with the famous morphologists T. L. Bischoff and N. Rüdinger. In 1873, Professor W. His invited A. Rauber to Basel to the post of prosector. In the same year, together with W. His, he proceeded to Leipzig. There he was appointed professor extraordinary. In 1875, because of fundamental disagreements, A. Rauber left the department of W. His, placing the interests of science above his personal interests. In 1876-1886, A. Rauber worked as a free-lance scientist. Although at that time there were vacancies at the anatomical institutes of Germany, A. Rauber was not elected to these posts. The Medical Faculty of the University of Tartu was able to justly appraise his merits, inviting A. Rauber to the post of head of Institute of Anatomy and professor in 1886.

Arriving at Tartu University in 1886, A. Rauber delivered an introductory lecture "On the importance of scientific anatomy," where he defined the research areas and tasks of anatomy. Besides the practical significance of anatomy, he underlined its general educational importance. A. Rauber outlined the task of creating optimal living

conditions for the complicated human organism from the initial stages of development in order to decrease morbidity and increase life expectancy. Prof A. Rauber's students remember him as a very interesting lecturer, whose lectures were abundantly illustrated with specimens and models.

While teaching, he paid great attention to raising the students' academic standards. For that, he considered the anatomical museum especially important and started making arrangements for its foundation immediately after his arrival in Tartu.

In 1890 Rauber established an anatomical museum at the Department of Anatomy of the University of Tartu. He considered important the accessibility of the study hall of anatomy not only to medical students but to a larger public of interested people. He considered his aim achieved when the study hall, "which completely lacks the frightening aspect, is also suitable for students of other faculties in order to help mediate to them knowledge of their body through visual study. If such a study hall exerts a favourable influence beyond the Medical Faculty and encourages non-medical students to study anatomy, then, to my firm conviction, the study hall has achieved its purpose." Finally, the museum grew so large that it occupied almost the entire ground floor of the Old Anatomical Theatre's left wing, where comprehensive models and excellent anatomical specimens were displayed in beautiful glass cases. Many exhibits had been prepared by the professor himself; others were the work of his well-known preparator.

The museum was opened in 1890 and gained great appreciation because of the quality of its exhibits, originality of models and general arrangement of the display. Professor A. Stefanis called the anatomical museum of Tartu University exemplary (1903). In 1895, A. Rauber published a work on the arrangement of the anatomical museum, which also included an overview of its exhibits. A. Rauber found that the museum should provide students with every opportu-



Fig. 2. Exhibition Hall

nity to explore anatomical details, arouse in them esteem and respect for anatomy as a science and facilitate comprehension of the extent of the discipline. Tartu anatomical museum served as an example for the founding of other similar museums. Regrettably, a large part of Tartu anatomical museum and A. Rauber's toilsome work has been destroyed in wars.

### *Collection of pathological anatomy*

Following Isenflamm, Karl Friedrich Burdach (1811-1814) became professor at the chair of anatomy, physiology and forensic medicine. Burdach put the collection of the specimens of pathoanatomy in order, supplemented it and compiled a catalogue.

In 1820, a separate chair of physiology, pathology and semiotics was created which was led by the professor of physiology Martin Heinrich Rathke. During his whole term of office, Rathke was also the head of the collection of pathology.

Rathke's successor was the professor of anatomy and physiology Friedrich Heinrich Bidder who was also involved in pathological anatomy until the year 1860, when pathology was separated from physiology and Professor Ernst Arthur Böttcher became the head of the chair of pathological anatomy. The chair also became the owner of the collection of pathoanatomical specimens under the leadership of

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Böttcher which had so far belonged to the chair of physiology. When Böttcher was repeatedly abroad for self-improvement, he also studied the collections of pathoanatomical specimens there and took them as an example. Looking into our collection, it appears that many of the supplementations, markings and labels date back to the time of Böttcher, at least when it comes to bones. Therefore the oldest specimens date back to when Böttcher was the head and earlier. Fortunately, later numberings have been added to the bones without removing the older ones during repeated inventories and cataloguings which makes it possible to determine the approximate age of the specimens. Unfortunately, the jars of wet specimens have not been treated in a similar way. Regrettably, the catalogues do not include the exact dates when they were compiled and the oldest catalogues are lost without a trace. The specimens that were collected during the time of Böttcher



Fig. 3. New Anatomical Theatre



still have number labels with a red brim on them from that time. Even older number labels with a broad blue brim can be found on a few bones and these have not been marked over by Böttcher. These can be considered the original collection from the time of Isenflamm.

Since 1884, the chair of pathology was headed by Professor Richard Thoma. In 1886-1888, the New Anatomical Theatre was built at the request of physiology professor and dean Alexander Schmidt and according to the plans made by Thoma and the university's architect; the chairs of physiology and pathological anatomy moved there together with the collection of pathoanatomical specimens. Thoma continued to make macrospecimens while working as a prosector.

Professor of pathological anatomy, Vjatsheslav Afanasjev from Russia was at the head of the institution of pathology of the University of Tartu when World War I erupted and according to an order of 1915 the University of Tartu as well as the institute of pathology was evacuated to Voronezh. It is known that pursuant to the peace treaty of 1920 between Russia and Estonia, all the assets of the university were subject to re-evacuation. During the re-evacuation, however, the university encountered great problems getting the assets back from Russia. According to a report from the university's re-evacuation commission, the assets of the institute of pathology were not yet re-evacuated in 1923. The pathologist A. Valdes, a student of Afanasjev who had been in Voronezh, has similarly described the difficult and slow process of getting the assets back. Nevertheless, the greater part of the specimens has found its way back to the University of Tartu. During Afanasjev, the collection grew a lot and a new inventory was made of it.

Thanks to Alexander Ucke, professor of forensic medicine and also of pathological anatomy, some study tables have been added to the collection. However, there are no specific signs that the collection of macrospecimens grew during that time.

The next period when the collection of pathology grew and was again re-labelled was 1930-1962. During 1962-1974, the collection



acquired supplementations and labels of an inventory. Later specimens in the collection do not include a specific number of the inventory, but the jar has a respective number of the specimen together with the diagnosis. Macrospecimens have continuously been made out of interesting pathological material up to today.

*The content of the collections*

*Anatomy and histology*

The bone specimens of the anatomy collection show the audience the normal anatomy of a human being. The anatomy collection also includes various macroscopic-anatomical dry specimens, specimens of glyceric acid and chromic acid that have been injected with wax, dry specimens that have been injected with colour, the colourful gypsum models of Edinger, Dursy-Froriep, Kronecker, and Solger, as well as His's colourful gypsum casts (His prepared together with the sculptor Steger gypsum casts of anatomical specimens which are also known as His/Steger's models). The collection also holds many wet specimens of normal anatomy.

August Rauber's collection demonstrates the original museum specimens of Rauber. These can be divided into two groups: specimens which are represented in Rauber's atlas-textbook and scientific works, and specimens which are represented neither in the atlas-textbook nor in scientific works. Unfortunately, it has to be acknowledged that a significant part of the specimens and models of the anatomy study museum has been destroyed in the turmoil of wars.



Fig. 4. Long processus



Fig. 5. Model of a femur sinister

*Specimens from the collection of Carl Bogislaus Reichert*

He worked as the professor of anatomy in 1843-1853. A. von Humboldt, who had visited Estonia and Livonia, including Tartu, in 1829, also gave him a recommendation to go to Tartu. At the University of Tartu, besides anatomy, Reichert also lectured on embryology and did it on the basis of his own works. Reichert studied the gill arches of vertebrates, their metamorphoses in birds and mammals and the embryogenesis of mammals. In Tartu he wrote the work *Bemerkungen zur vergleichenden Naturforschung in allgemeinen und vergleichenden Beobachtungen über das Bindegewebe*



Fig. 6. Specimens from the collection of C.B. Reichert

*und die verwandten Gebilde* (1845) that made him famous. In this histogenetic study as well as in his other works Reichert refuted the contemporary theory of the free formation of cells in liquid cyto-blastoma and, having studied the development of organisms, stated that all cells in the body derive from existing cells. This theory, later widely spread by R. Virchow, claimed: "Omnis cellula a cellula". His works in embryology (Reichert's cartilage, Reichert's socket) also have historical significance.

*Specimens from the collection of Ernst Reissner*

He worked as the professor of anatomy (1856-1875). His dissertation "*De auris internae estibule*" (About the development of the middle ear) was a comparative study on inner ear embryology of avians, mammals and man. Reissner claimed that the cochlear duct was subdivided into three, and not as earlier accepted, into only two compartments. A very thin membrane (Reissner's membrane) thus divided the cochlear duct into two perilymphatic and one endolymphatic compartments. However, the existence of the canalis cochlearis (Reissner's scala media) was generally not accepted until reconfirmed by Reichert (1864). In his doctoral dissertation of 1851 Reissner also described the existence of aqueductus estibule (recessus estibule) which surrounds the endolymphatic duct. The inner ear adult anatomy and embryology was further described in 1854 and 1859. The 8th-nerve (*nervus acusticus*) extension from the brain to the peripheral end organs was documented.

The anatomy collection has later been supplemented with study specimens from Russia.

The embryology collection includes the embryological wax models made in Ziegler's wax works. The collection also holds many comparative-anatomical wet specimens introducing embryological development and the malformations of the human fetus; wet specimens (human embryos, approximately 20; animal embryos, approxi-



Fig. 7. Specimen from the collection of E. Reissner

mately 40). There is also a collection of histological microspecimens from the end of the 19th century and the beginning of the 20th century, at times together with the original microphotos (approximately 800 specimens).

#### *The collection of pathological anatomy*

The institution of pathological anatomy possesses many valuable macrospecimens. In addition to materials that have been conserved, there are also moulages and study tables dating from different historical periods.

The main exhibits of the pathological collection are macrospecimens, e.g. conserved wet specimens in glass jars. There are materials from postmortems as well as surgical operations. The materials are provided with the diagnosis, but only in a few cases they are also dated with a year record. Very different pathological processes can be found there. There are many bones and skulls, most of which dat-

ing from the time of Afanasjev and earlier. A few bone specimens can even be considered to date back to the time of Isenflamm. It appears that few bones were added after Afanasjev. The animal specimens originate from the oldest collection.

Interesting specimens are malformations and monsters which originate from older collections. The collection includes a calf with two heads and a calf with several legs, a pig's foot with double cloven hoofs, a one-eyed human, a human with hydrocephalus, Siamese twins. There can be seen various tumours, parasites, heart conditions, stases, varices, the infarcts and hemorrhages of different organs, biliary and urinary calculi, ulcers, leukemias, cirrhosis of the liver, tuberculosis, atherosclerosis, leprosy, syphilis, etc. The largest macrospecimen is a myofibroma or tumour of the muscle connective tissue weighing 14.9 kilos.



Fig. 8. Skull. Syphilitic caries of the skull



Fig. 9. Skull. Bones on the right side have been destroyed by the tumor

Study tables have an important historical value and were needed to illustrate the study materials. Until the age of the Internet and copy machines, blackboards and tables on cardboard were still used during lectures as illustrative materials. Nowadays, of course, these do not have such key importance in academic work anymore.

On moulages, there are depicted very extreme and advanced pathological changes. For example, nowadays a patient with a tumour will seek medical aid sooner and will not let it grow to such extreme sizes. Because such moulages are made on the basis of real life, they are interesting for today's students, young doctors, as well as future visitors to the museum. Wall moulages are provided with French texts and date back to the end of the 19th century. The word "Jurjev" has been written on the wax moulages and therefore they have their way to our collection during the time of Afanasjev.

*Collection of N. I. Pirogov*

Nikolai Pirogov was born in 1810 in Moscow. N. I. Pirogov graduated from Moscow University in 1828 with excellent results and the qualifications of a physician. He was sent to continue his education at the University of Tartu. In 1832, Pirogov defended his doctoral dissertation and after upgrading his skills in Germany he was elected in 1836 to the post of extraordinary professor and 1837 to the post of full professor. In 1837-1838 he published the book *Anatomia chirurgica truncorum arteriarum atque fasciarum fibrosarum* (Surgical Anatomy of Artery Trunks and Fasciae), complete with an atlas consisting of 50 original drawings. The book brought Pirogov the Demidov Prize of Russian Academy of Sciences and won him great recognition abroad. Prior to Pirogov, almost no one had dealt with fasciae. Pirogov set himself the aim to study the direction of each fascia in relation to the neighbouring blood vessels, muscles and nerves. Descriptions of operations were illustrated with drawings, which stand out for their proportionality and exactness. This was the beginning of a new science – surgical anatomy. Original drawings of the artist Slater have survived until today and are an important part of the exhibits of medical collections. Pirogov's activities illustrate also his famous models of cross-sections. Pirogov was the discoverer of the new anatomical specimens using the frozen sections of the different

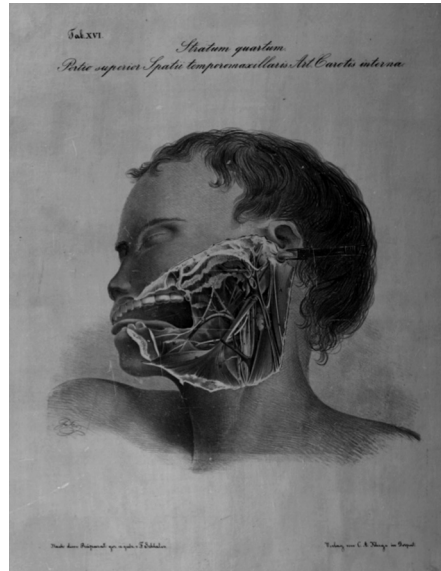


Fig. 10. Illustration for the atlas made by the artist Slater



parts of the body, which have been used as the basis for topographical and surgical anatomy.

### *Collection of Ludvig Puusepp*

The collection of the first neurosurgeon in Russia, Ludvig Puusepp demonstrates specimens of the brains in fluid. Professor Ludvig Puusepp (1875–1942) founded the Estonian school of neuropathologists and neurosurgeons. During his St. Petersburg period, L. Puusepp's great organizational achievement was the new building for the N. I. Pirogov Neurosurgical Hospital of the Institute of Psychoneurology and he was appointed its director. He was the first professor of surgical neuropathology and the first neurosurgeon in Russia. He made several innovations in operation methods. In 1926 he devised an original method for surgical treatment of the brain cavity. Another original method, physiological enucleation of brain tu-

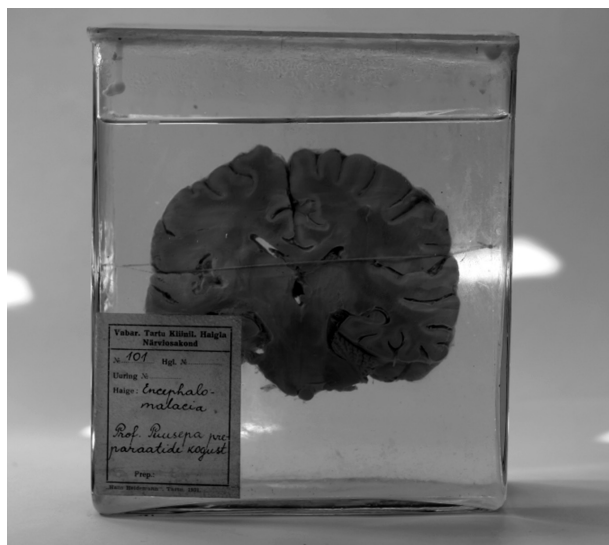


Fig. 11. Wet specimen of brain from the collection of L. Puusepp

mours had been adopted by him as early as 1913. Puusepp's reflex (1923) also became widely known. It manifested itself in patients with epidemic encephalitis and consisted in abduction of the little toe on stimulating the external part of the sole of the foot with the neurological hammer. L. Puusepp also had ample experience in surgical treatment of epilepsy. He was among the pioneers of surgical treatment of compression syndromes caused by protrusions of intervertebral discs. The description of his first successful operation of this kind was published in 1933. Colleagues from many foreign countries came to work with L. Puusepp and learn from his experience.

*The collection of forensic medical specimens*

Forensic medicine has been taught in the re-opened University of Tartu since the year 1802. Eduard Otto Körber (1837-1915) laid the basis



Fig. 12. Specimen from the collection of forensic medicine. Skull cap (female). Left parietal bone. Left temporal bone frontal bone shattered by a blow of a horse's hoof. Crack in the right parietal bone.

for the university museum of Forensic Medicine. He acquired dry specimens, primarily injured skulls. Also nowadays the medical collections are including interesting injured skulls. The collections also hold macrospecimens connected to poisonings and suicides, as well as a photo collection on glass boards showing cases of forensic medicine.

*Connection of the old collection with the present day*

Medicine in a museum is a theme that can be presented to visitors in quite different ways – informatively, didactically as well as offering sheer viewing pleasure or a shocking experience.

Usually museums as memory institutions collect items that have lost their original function. Medical exhibits, however, have retained their original function—they contribute to the enrichment of knowledge of medical students and serve as objects for international comparative biomedical studies. For practicing doctors, the museum is a place to refresh their memory and to compare symptoms.

The then-standpoint by Rauber is also typical today. The study of the function of the museum attempted to find out what the connection of the museum and the objects exhibited there should be with people's daily life. The tasks of a medical museum in the present-day society can be summarized as follows: a medical museum has both an educational and entertaining function. At the same time, we can mention a developmental tendency - when a couple of years ago they spoke about an educational mission, namely that the museum should inform and teach, today they just come to look at specimens of malformed organs - although as such they are part of our daily life. At the same time this brings about an exchange of opinions. It is important that topics that may arouse horror should not acquire the event-character. People are interested in discussing essential medical issues - diseases and their prevention. Visitors come to get information on a particular issue, but they also come out of sheer curiosity. The mission of a medical museum is to fulfill the visitors' expectations as well as lead them on, so

that at the end of their visit they get the so-called ‘wow-effect’, wherein the fulfilment of their expectation has taken quite a different course.

The museum has also acquired a number of new functions. The socio-pedagogical and educational aspects expressed by the opportunities offered to pupils to advance in their school competences and knowledge. The same exhibition is used to playfully teach very young children (of the 4th school year) to know their anatomy and physiology. The exhibition has become a part of the education system through which school students and adults can learn about the risk behaviour’s hazards (e.g. smoking, overconsumption of alcohol, drug addiction, unsafe sex, wrong nutrition, etc.).

Attempts are made to get schoolchildren interested in biology and medicine, which caused great competition among those interested in taking up studies of medicine at the university. The medical exhibition has also become a place for self-reflection where adherents of a healthy way of life from the whole world get assurance that their behaviour is correct. As the feedback questionnaires and interviews with visitors show, in many cases the exhibition makes those who practice risk behaviour seriously reconsider their lifestyle and can provide impetus for changing their lifestyle and prolonging their lifespan. The exhibition has also been well received by disabled people as it gives them strength to cope with their lives. Specimens, models and posters tell the story of the study and discovery of the human organism that has been increasingly dependent on the technological development. The exhibits have been of great interest for children and adult artists, and their pictures inspired by the exhibition have been at the center of the attention of visitors.

Our research showed that in the museum’s relationship with a visitor the following two standpoints prevailed:

- The more individual the approach to the visitor, the closer is his/her relationship with the museum exhibition; the visitor has to feel the relevance of the theme for himself/herself and at the same time get an emotional experience,

*“...there is an attempt to make the communication very personal; the museum should approach the visitor relevantly, so to speak the thing in question must be my personal problem; it must have got very close to my heart and touched me emotionally [...] this relevance or “hearts on” is exactly the daily life and not the ivory tower which has been described all the time, meaning that scholars potter in some high tower and that nobody can get up there, and they also have a beautiful and broad view, but others down at the base of the tower can by no means get up there [4].*

A close connection may also emerge when the museum can be used as a place of recreation or as an information bank.

- Although people do not associate the latter aspect with their daily life, they are subconsciously aware that they can always go to the museum if they want to. An opinion was also expressed that “the museum should not be very closely connected with everyday life, but it should be continually aware of the processes and trends in the society and have the opportunity, by using its means of expression, also to react to them and have its say in the matter.”

### *Conclusion*

Health and diseases are issues that concern everyone. The medical exhibition can, with its activities, help to raise people’s health awareness. Not only can lectures and interactive activities serve as communication tools, but centuries-old objects can also be informative and attractive and make the visitor ponder and encourage further discussion. The other standpoint expressed the museum’s potential and commitment to interfere in the topical issues and discourses of the society and help to bring about a change of attitude. According to Habsburg-Lothringen, presentations have to have a connection to actual reality, which reflects contemporary cultural theoretical, philosophical and other standpoints. An approach that surpasses the borderlines of one’s own branch of knowledge enables the person to specify phe-

nomena and developments in their cultural connections and bring the connections with nature and other branches of knowledge into sight. When dealing with topical problems at a social level, the importance of the individual diminishes; so that the visitor would feel the topicality of the theme for himself/herself personally.

In conclusion, we can say that in the 21st century the study hall which initially was meant to illustrate lectures has become a multifunctional place of edutainment. It has become a place where families and children spend their free time; school and university students study; doctors recall the time of their studies and revise what they have learned. Researchers study specimens of diseases. The exhibition has become a place where the exhibits influence people's emotions, giving them confidence or inspiring them to make changes in their lives. Professor of anatomy August Antonius Rauber would definitely be most satisfied seeing that his ideas have survived.

Historical medical collections have always been objects of interest for visitors, but more and more the visitor would like to not just see the exhibition and spend time, but also to learn something new. A survey of visitors conducted already in 2008 showed 80% of the 300 visitors who participated in the survey reporting that they came to gain new knowledge and 106 of them attended the exhibition already for the second time or even more. In 2012, the medical exhibition moved to the premises of Science Centre AHHAA and together a study programme began to be developed which includes a guided tour of the medical collections that explains anatomy and physiology, a practical workshop in a laboratory where a pig's eye, a pig's lung, or a pig's heart is dissected or, in the case of lower grades, one's senses are tested or a child can measure himself/herself; in the science theatre ("From Cake to Poop" or "Naked Brain") one can learn about a human being's digestion and senses. The study day ends with a summing up where every participant can point out what he/she personally learned on that day that was new. The study day lasts for five hours. The programme

is supported by the Estonian Research Council. Therefore a symbiosis of old and new has created a new and valuable learning environment.

#### BIBLIOGRAPHY AND NOTES

1. HABSBURG-LOTHRINGEN B., *Natur im Museum. Kontexte und Perspektiven*, 2005. <http://museumsakademie-joanneum.at/museologie/texte/pdf/BHL%20NaturII%20NM%204.05.pdf>
2. LEPIK D., *Kohtuarstiteaduse õppetoolist Tartu Ülikooli Vanas Anatoomikumis*. Tartu Ülikooli Ajaloo Küsimusi XXXIV. 2005, pp. 75-87. Tartu Ülikooli Kirjastus.
3. MESILA I., *Patoloogiapreparaatide kogu Vanas Anatoomikumis*. Tartu Ülikooli Ajaloo Küsimusi XXXIV, 2005, pp. 135-148. Tartu Ülikooli Kirjastus
4. PÄRNSALU L., *Muuseumi kommunikatsioon avalikkusega*. Eesti muuseumide näitel (Communication of the Museum with the Public), 2008. Master's thesis. Tartu.
5. PÄRNSALU L., *Interview with the manager of Federal Pathologic-anatomical Museum Vienna Dr. B. Patzak*. 2009.
6. PÕLDOJA E., SIMOVART H.-E., KOKK K., KOLTS I., *Professor August Rauber ja anatoomia õppemuuseum*. Tartu Ülikooli Ajaloo Küsimusi XXXIV, 2005, pp. 39-45 Tartu Ülikooli Kirjastus
7. RAUBER A. *Über die Einrichtung von Studiensälen in anatomischen Instituten*. Leipzig, 1895.
8. SIILIVASK K., *Tartu Ülikooli Ajalugu I*. Kirjastus Eesti Raamat. 1982.
9. TOOMSALU M., *Exhibition of Medical Collections as a Communicator of Health Awareness*. Tartu University Press, Papers on Anthropology XVII, 2008, pp. 282-310.
10. TOOMSALU M., *Pioneering medical research: N.I. Pirogov in Tartu*. The Mankind Quarterly 2005; 45(3): 345-352.
11. TOOMSALU M., *Professors of the Old Anatomical Theatre of University of Tartu*. Tartu University Press, 2006.

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