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155 Years from the birth of professor of anatomy Georgios Sclavounos: His contribution to the greek surgical anatomy

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ABSTRACT

Georgios Sclavounos (1869 - 1954) was a 20th-century Greek physician and university professor. He reformed the field of Anatomy in Greece, at a time when it began to be qualitatively compared with its progress in other countries.

Key Words: *Georgios Sclavounos; professor of Anatomy; National and Kapodistrian University of Athens*

Georgios Sclavounos was born in Tithorea in the province of Lokris, Fthiotides, Greece, on October 16, 1869. He graduated from Thebes School and in the academic year 1884-1885 he enrolled in the Philosophy School of the University of Athens. He then transferred to the Law School. A year later, the University was closed due to conscription and Sclavounos went to Zurich for eight months and later to Würzburg in Bavaria where he studied Medicine. He graduated in 1891 with a doctorate with the thesis "On elaidin and the keratogenic process of the cardiac fate of the stomach of mammals" [1] (Figures 1-4).

In 1891, he passed practical examinations and worked for two years as an assistant in the anatomical institute of the famous Swiss great anatomist, physiologist and histologist Albert von Köliker (1817-1905) in Würzburg. Kölliker made contributions to the study of zoology. Köliker's earlier efforts were directed to the invertebrates, and his memoir on the development of cephalopods (which appeared in 1844) is considered a classical work [1].

G. Sclavounos collaborated with the great anatomists Max Schultze (1825-1874), Hermann Braus (1868-1924) and Johannes Sobotta (1869-1945), who are the authors of well-known contemporary anatomical textbooks and atlases.

In 1892, he returned to Greece for family reasons. Upon his return to Athens, he was appointed assistant professor of Anatomy and curator of the Anatomy under the supervision of Professor Rigas Nikolaidis (1856-1928). In 1893 he was appointed lecturer of anatomy, in 1895 curator of the anatomy laboratory and in 1899-1900 he was elected professor and director of the Institute of Anatomy [2].

Sclavounos introduced anatomical research and many anatomical terms into Greek medical literature. Greek anatomical science began to be comparable to its Western counterpart.

In 1906, Sclavounos published the first volume of his three-volume monumental scientific work about Human Anatomy. To illustrate his book, he borrowed anatomical paintings from Werner Spalteholz (1861-1940), professor of the University of Leipzig, and histological and anatomical images from Johannes Sobotta (1869-1945), professor

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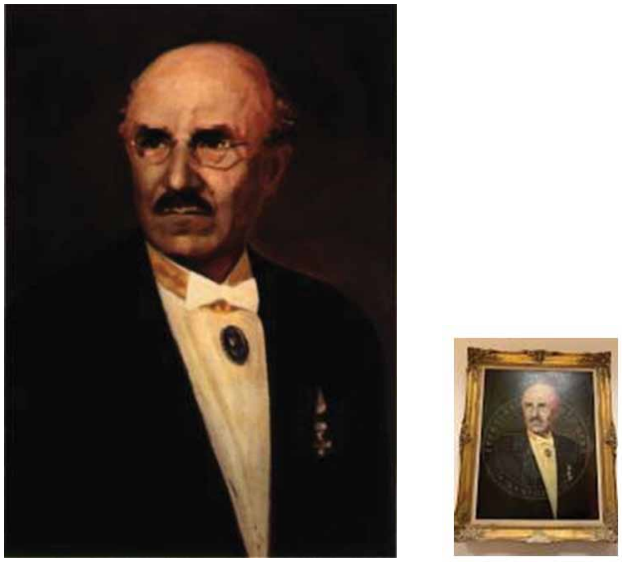

FIGURE 1. Georgios Sclavounos. Oil painting of Georgios Sclavounos by an unknown artist. Adapted from the Department of Anatomy of the National and Kapodistrian University of Athens.

of the University of Würzburg and later professor of the University of Königsberg and University of Bonn, and Otto Schultze, also professor of the University of Bonn. The 48 illustrations in Sclavounos' book were illustrations of his own preparations and they are astonishing in their accuracy of detail [3-5].

In 1899, G. Sclavounos became full professor in the chair of Anatomy and Physiology. From the academic year 1933-1934 he was director of the Dental School. He retreated, due to retirement, from the University of Athens in 1938. During his presence at the University, he ordered new anatomical casts from abroad while he inaugurated the new Anatomy Department in Goudi, Athens [1,2].

Georgios Sclavounos used the technique of pyrography to describe the adhesion of muscles to bones by representing the cauterised points which were the points of attachment of the muscles. At that time, the use of the Teichmann technique for injecting a colored substance into corpses was introduced and this technique was applied in Greece before it was applied in Europe. This achievement is considered important for the progress of surgical anatomy and anatomical research.

G. Sclavounos taught Anatomical and Physiological Histology and gave a demonstration with microscopic presentations of embryological preparations, Anatomical and Histological exercises, as well as dealing with Osteology and Syndesmology and taught Anatomy courses at the School of Fine Arts.

In 1897, he was elected a life member of the International Anatomical Society, the German Anatomical Society and since 1926 a member of the Academy of Athens. He died on May 13, 1954 in Athens.

He was married to Victoria Kyriazis, daughter of the mayor of Drymia, Fthiotides, Themistocles Kyriazis and great-granddaughter of the famous fighter in the Revolution of 1821 Komnas (Komninos) Trakas (1786-1840). They had four children including Themistocles Sclavounos, professor of Histology-Embryology at the School of Medicine of the University of Athens and Konstantinos Sclavounos, professor at the Agricultural School of the University of Thessaloniki. Themistocles Sclavounos was the first Professor -Director from 1936 when the extraordinary chair of Histology-Embryology became regular, until 1967 [1-5].

In 2010, a museum in his honor was opened in Amfikleia, Fthiotides. The museum, which bears the name of the late academician, was created jointly by the Municipality of Amfikleia and the School of Medicine of the National and Kapodistrian University of Athens [6].

G. Sclavounos wrote numerous books and scientific works on Anatomy and Physiology in Greek and German. Among them [3-5]:

- Untersuchungen über das Eleidin und den Verhornunsprozess der Pars cardiaca des Magens der Säugetiere (Investigations on eleidin and the keratinization pro-

FIGURE 2. The Anatomy Museum. Department of Anatomy-"Anatomeion", Medical School, National and Kapodistrian University of Athens, Athens, Greece.

FIGURE 3. Georgios Sclavounos of tithorea, fthiotides, academician, professor of anatomy.

cess of the pars cardiaca of the stomach of mammals), PhD thesis, 1890

- Beiträge zur feineren Anatomie des Rueckenmarks der Amphibien (Contributions to the finer anatomy of the spinal cord of amphibians), 1892
- Über Oesophagitis dissecans superficialis (About esophagitis dissecans superficialis),1893
- Über die feineren Nerven und ihre Endigungen in den männlichen Genitalorganen (On the finer nerves and their endings in the male genital organs), 1893
- On the first embryonic cell and its relation to the finished organism, opening lecture, 1899
- Some observations on the construction of the placenta of carnivores, 1904
- Über Ventricularsäcke des Kehlkopfes beim Erwachsenen und Neugeborenen Menschen sowie bei einigen Affen (On ventricular sacs of the larynx in adult and newborn humans and in some monkeys), 1904
- Über eine einfache Methode zur Feststellung und Abbildung der Umrisse der Muskelansätze (On a simple method for determining and depicting the outlines of muscle attachments), 1907
- Anatomy of man, i.e. a collection of anatomy after colored pictures and tables, 3 volumes, 1906
- On anomalous course of the vena cava through the apex of the right lung, 1918
- Zur schnellen Ablösung der Placenta (For rapid detachment of the placenta), 1920
- Über die Appendices epiploicae des Duenn, und Dickdarmes des Menschen und der Thiere und über deren Abstammung (On the Appendices epiploicae of the small and large intestine of humans and animals and on their origin), 1926
- Sur l'epiploidium de l'appendice vermiculaire de l'homme (On the mesenteriolum of the vermicular appendix of man), 1929
- Über einen Fall von Mesenteriolum ventrale beim Menschen (On a case of ventral mesenteriolum in humans), 1931

From the Greek Bibliography of the History of Medicine it is established that Georgios Sclavounos, has published three works on the History of Medicine [7]:

A. "On the color of the hair of the ancient Greeks", announced at the Academy of Athens, Session 20 May 1943, and published in the magazine Helios, vol. 136-140, 1946. Proceedings of the Academy of Athens, vol. 18, 1943, p. 92.
B. "On the stomach and its constriction according to Galen", Hellenic Medicine, vol. 16, 1947, p. 505.
C. "On Galenian terms and in particular on the terms "ανάδοσις, ευανάδοτος, δυσανάδοτος" after two epimeters, the first for Galen, the second for Michail Psellos (the great Byzantine physician and scholar), Proceedings of the Academy of Athens, vol. 25, 1950, pp. 298-334 [7].

Half of these references are in Galen's works: "On ana-

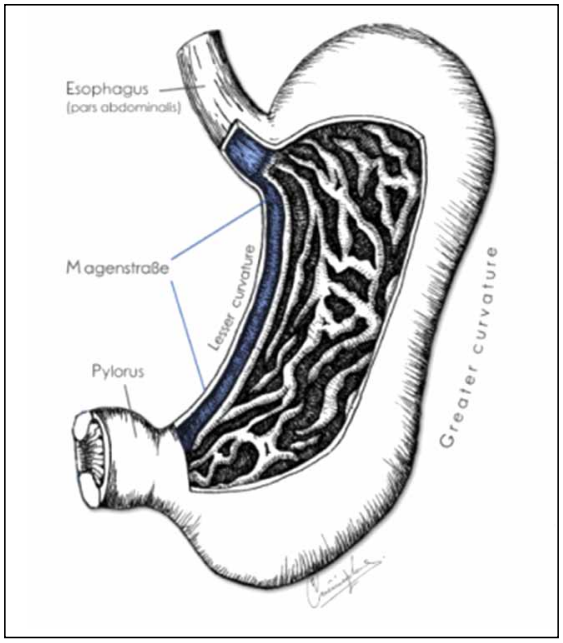

FIGURE 4. Brief explanation of Georgios Sclavounos' "sialine groove of the stomach" created by Michail Saintanis.

tomical operations", "Medical terms", "On dissection of muscles", and "On the necessity of the molecules in the human body". This is also a sample of breadth of knowledge and familiarity with the multi-volume work of Galen.

The description by the late Professor Georgios Sclavounos of the sialine groove of the stomach in a fetal stomach is considered an important contribution to the progress of surgical anatomy. According to Sclavounos' book "The Anatomy of Man", our internal gastric anatomy is very complex. In particular, the internal surface of the stomach displays folds. In an empty stomach eleven plications are created in total by the contraction of the muscularis mucosae (mucosal plications). Some disappear when the stomach is full and expands, some correspond to pachynsis or strangulation of the muscular coat and others are created by the retraction of the entire gastric wall (total folds) [3].

The eminent Professor Georgios Sclavounos described the gastric tract at the same time as Wilhelm von Waldayer (1836-1921) did in adults, but Sclavounos did it alone in infants. Sclavounos called it the salivary groove of the stomach, while Waldayer called it gastric road or Magenstrasse.[8].

The term magenstrasse refers to a tubular portion of the stomach adjacent to the lesser curve of the stomach. It is a favored route by food, fluids and drugs as they flow from the cardia/fundus to the gastric outlet [9].

Magenstrasse is an old German anatomical term that has come back into common medical usage in view of the commonly performed Magenstrasse and Mill procedure, a form of bariatric surgery [10].

Magenstrasse is a compound word from the German for "Magen" meaning stomach and "Strasse" meaning road or street. Therefore, "magenstrasse" means stomach road [11].

To conclude, Georgios Sclavounos was undoubtedly a great Greek physician and professor of his time, whose work contributed to the gradual formation of the foundations of modern anatomy science. His field of interest was extensive and among others, he described the "stomach road", a tubular portion of the stomach, which is a route favored by fluids.

He reformed the branch of Anatomy in Greece, at a time when it began to compare qualitatively with its progress in other countries. The imprint that Georgios Sclavounos left on the science of anatomy and medicine in general during these years was very strong for two main reasons. One was the competence and scientific rigor that was installed in all the functions of the Department of Anatomy without exception. The other was his three-volume, many thousand-page monumental work about Anatomy of the Human Body, which influenced doctors in Greece for many decades.

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