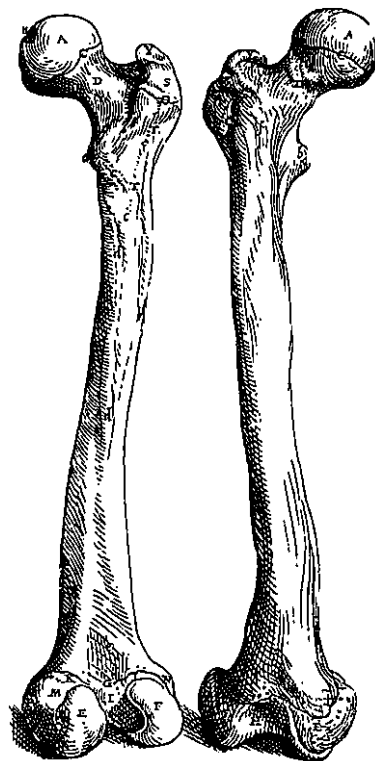


美術解剖学雑誌

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研究ノート

Anatomy, art and society – Carl Werner Spalteholz

Hanno Steinke*, Michiyo Miyanaga**, Niels Hammer*

*Institut für Anatomie, Universität Leipzig,

**Department of Artistic Anatomy II, Art and Education, Faculty of Fine Art, Tokyo University of the Art

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キーワード 解剖, 芸術, 社会, カール・ヴェルナー・シュパルテホルツ, カール・アウグスト・リングナー, ドイツ衛生博物館ドレスデン (DHMD)

要約

20世紀初頭のドイツでは、『国際衛生博覧会 Internationale Hygieneausstellung』や『ドイツ衛生博物館ドレスデン (Deutsches Hygiene-Museum Dresden)』のような人体標本の展覧会が大変ポピュラーなものとなった。

1911年, 初めて人体標本が医学を職業とする人以外にも, 美的印象を科学的知識に結びつけて一般の人々に展示された。当時, 約4,500万人の人々が, いわゆる“シュパルテホルツの標本”を見に訪れた。

カール・ヴェルナー・シュパルテホルツ (Carl Werner Spalteholz 1862-1940) は, ライプツィヒ大学の解剖学者だった。彼は標本をオイルに浸す前に組織を漂白し, 脱水して生物学的組織を透明にする手技を発明した。彼はマックス・クリンガー (Max Klinger 1857-1920) のような美術家たち, そして健康用品の企業家であったカール・アウグスト・リングナー (Carl August Lingner 1861-1916) と親密な友情を持ち続けた。このグループの共通した考えは, 『国際衛生博覧会』や『ドイツ衛生博物館ドレスデン』の開催により, そしてまた「普通の人々への啓蒙の一部として健康教育に供すること」により成し遂げられた。

シュパルテホルツはまた3分冊から成る解剖アトラス“Handatlas der Anatomie”を, 数カ国語の多くの版で著し, 出版部数は100,000部を超えた。

本研究の目的は, シュパルテホルツの生涯と, 健康教育についての彼の関わりを示すこと, 及び, それをベースに解剖と美術, そして社会との関係に関連して彼の仕事を比較することにある。もう一つの目的は, 解剖学的技術の手技, および美を創造するという主張により, 同様に現在有名になったグンター・フォン・ハーゲンス (Gunther von Hagens 1945-) と比較することにある。

1. Introduction

The “Internationale Hygieneausstellung” became very popular in Europe in the beginning of the twentieth century. For the first time, human specimens were exhibited not only to medical professions, but also to the common people. The exhibition combined aesthetic appearance of specimens and scientific knowledge. It was closely related to a German anatomist: Carl Werner Spalteholz from Leipzig University. Spalteholz was very popular not only to scientists and medical doctors, he also had close relations to artists, e.g. to the famous painter and sculptor Max Klinger. Even an anatomical method is connected with his name until today. Spalteholz invented a procedure of making biological tissues transparent. Who was Spalteholz? Which story can his life teach us today, as we have on-going discussions about anatomy in art – or art in anatomy?

2. Carl Werner Spalteholz – his life as an individual and his friend Max Klinger

Spalteholz was born in Dresden (Saxony) in 1861. He went to medical school at Leipzig University and soon decided to become an anatomist. Spalteholz studied and graduated under the directorship of Wilhelm His, a famous anatomist and embryologist. Wilhelm Braune (1831-1892) and the physiologist Carl Ludwig (1816-1895) were among his teachers¹³⁾. His marriage to Emma Völker left no children. He

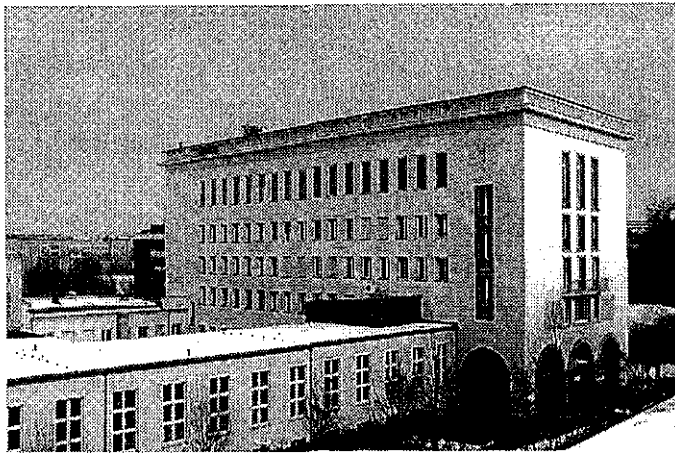


Figure 1 : Institute of Anatomy, Leipzig, Germany: lecture auditorium from Nürnberger Straße (a) and the main building from Liebigstraße (b). Today's anatomy was built in 1956, after the old building was devastated in World War II.



Figure 2 : In 1915, Carl Werner Spalteholz became general surgeon in command at the military hospital of Zwickau soon after World War I began. Though being re-appointed to Leipzig Anatomy in 1917, Spalteholz remained in Zwickau until the end of the war.

worked at Leipzig Anatomy from 1892-1929 (Fig. 1). Despite calls for a full professorship, e.g. in New Orleans he never left Leipzig Anatomy except as a military doctor in World War I (Fig. 2)¹³⁾. Later he worked with Carl Rabl (1904-1917), Hans Held (1899), Hermann Stieve (1918; Spanel-Borowski 1998)⁴²⁾ and Herrmann Voss (1926)⁴²⁾. The group of anatomists established a huge anatomical collection during this time, including many transparent specimens according to his method. Spalteholz was the Custos (collector) of this collection from 1898 on until his retirement in 1929 (Figs. 3 and 4)⁹⁾. Spalteholz lived for one issue: How to combine research and education by means of (transparent) specimens. Spalteholz wrote extraordinary textbooks and even won Bruno Héroux⁶⁾ to do the drawings for his books. He was in contact with Emil Abderhalden¹⁾, and Matthias Erzberger⁸⁾.

Spalteholz kept a close friendship to Max Klinger, who also inspired him for the “Internationale Hygieneausstellung”. Spalteholz was a member of the society “Villa Romana” in Berlin, which was a

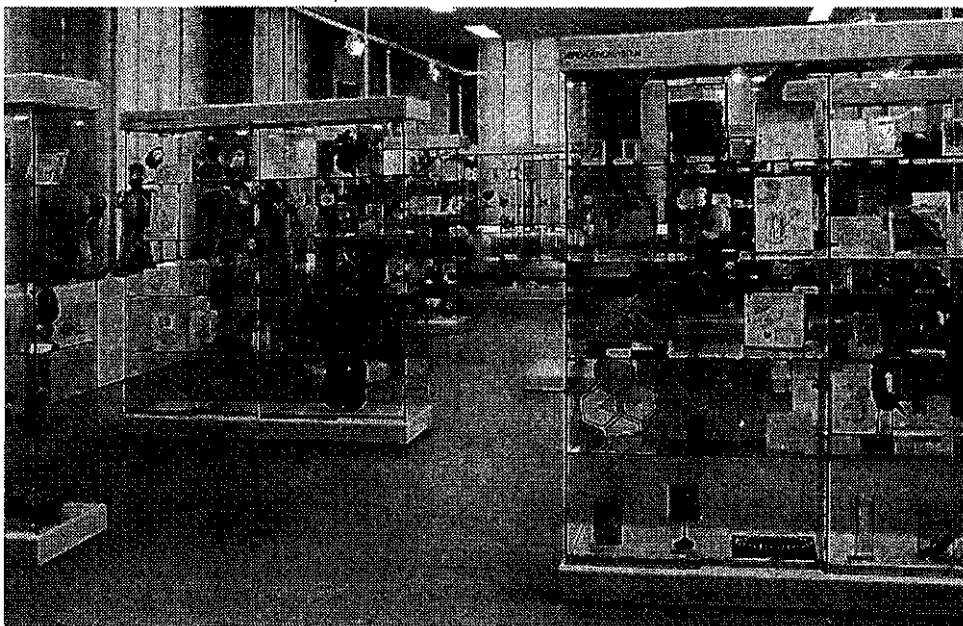


Figure 3 : Present teaching collection at Leipzig Anatomy.

Some Spalteholz specimens remained and are still used for educational and research purposes.



Figure 4 : The Memory of Spalteholz

a) Painting of Georg Preller of Spalteholz in 1929. The painting is located at the conference room at Leipzig Anatomy (Picture collection of the Karl-Sudhoff-Institut für Geschichte der Medizin und der Naturwissenschaften, Universität Leipzig, Germany).

b) A bust of Spalteholz can also be visited in Leipzig anatomy, created by in the year of his retirement in 1929

c) The signature of Carl Werner Spalteholz

center of art in Germany, greatly influenced by Max Klinger. Klinger and Spalteholz had a close personal relation¹⁹⁾. Regular meetings were held at Spalteholz' flat at the Mozartstraße in Leipzig (Fig. 5), the Klinger vineyard near Naumburg, but also at Institute of Anatomy which soon became a center of Art and Anatomy. Spalteholz regularly held lectures at the "Königliche Kunstakademie und Kunstgewerbeschule Leipzig", later (1918) "Staatliche Akademie für Graphische Künste und Buchgewerbe", or "Hochschule für Grafik und Buchkunst" (HGB). The interest in the anatomy of the living was shown early by his first lecture for the Venia Legendi (1891 : "Dozent" or lecturer), "Verbreitung und Bedeutung des elastischen Gewebes im Körper" (Distribution and importance of elastic tissue in the body; June 19th)²³⁾. Spalteholz' friend Max Klinger died 1920 in his vineyard. Until Spalteholz' death on January 20th 1940 in Leipzig, he kept in memory their close friendship and their common idea of combining art and anatomy⁴⁵⁾.

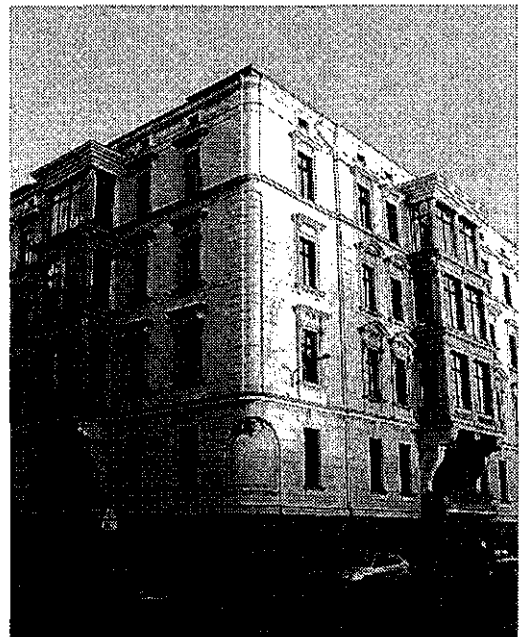


Figure 5 : Spalteholz' flat became a popular place for students, professors and artists such as Max Klinger, his close friend. It is still preserved at Mozartstraße 21 in Leipzig.

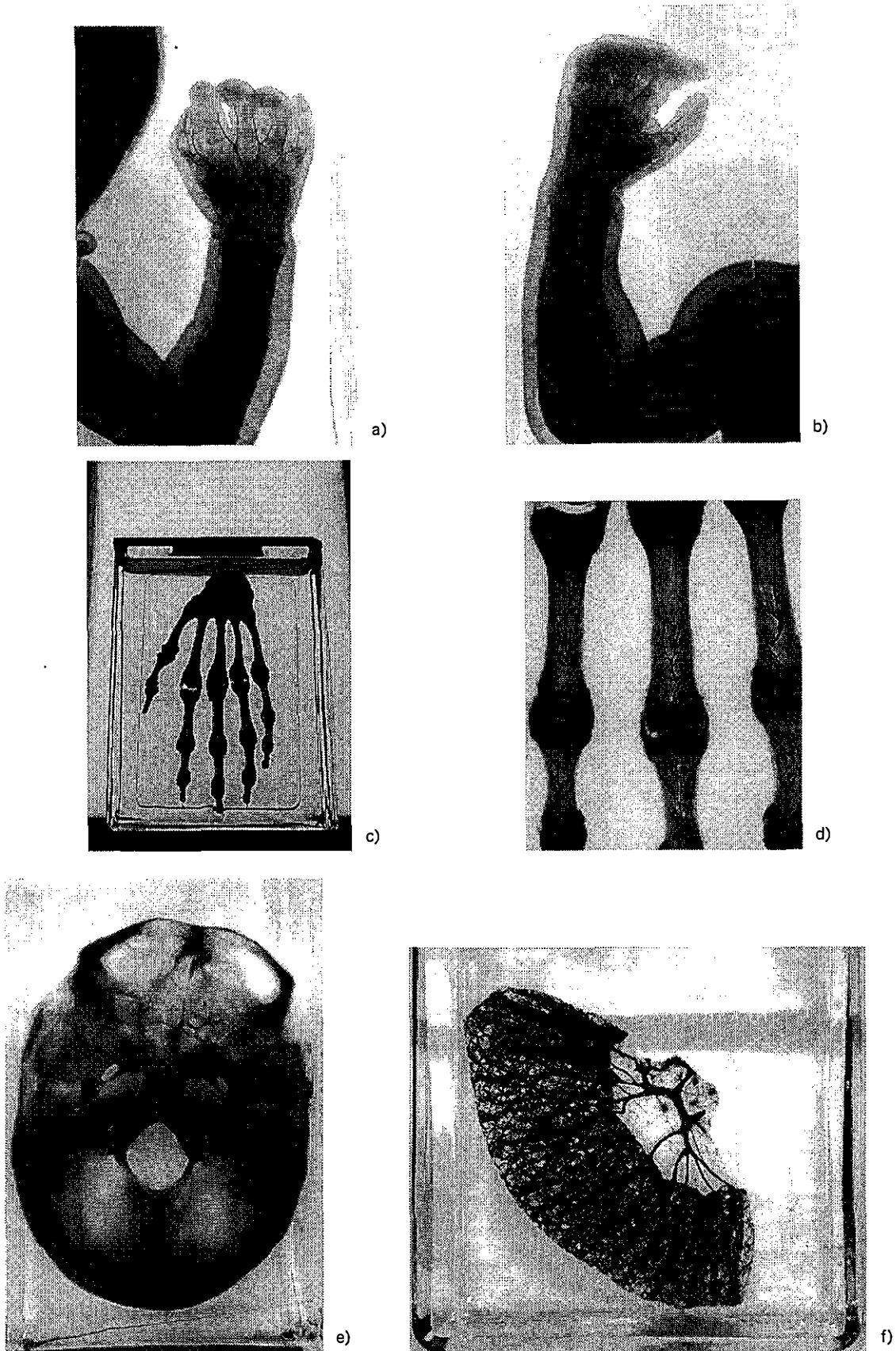


Figure 6 : Specimens in Spalteholz technique. In transparent human specimens, vascular injection was accomplished to show arterial vessel distribution in a fetus (a, b) and in an adult hand in different magnifications (c). Using the technique, even nutrient arteries of the phalanges of the hand could be depicted (d). Also, massive osseous structures such as the skull base were made transparent (e): Here, the carotid siphon is shown, as situated in the cavernous venous sinus. Presently, new developments of the Spalteholz technique allow for gaining specimens for histology, e.g. from the intestine (f).

4. 1st Internationale Hygieneausstellung (IHA) and Deutsches Hygiene-Museum Dresden (DHMD)

Spalteholz research on transparent specimens gave high impact to the German society¹³⁾. “Human bodies on display” was the motto of a group of scientists, artists, and philosophers³⁾, as mentioned above. This group tried to gain public impact with their idea of “Enlightenment”, related to Goethe and Schiller and the “Weimaer Klassik*¹⁾”. For “gesundheitliche Aufklärung” (health education) this group was supported by the industrial Karl August Lingner⁹⁾. Lingner was amazed by Spalteholz and his transparent specimens and soon Lingner and Spalteholz became partners. Spalteholz already had a patent and gave a license to “Natura Docet” in Naunhof near Leipzig. Friedrich Renk from Halle was the scientific leader to follow the idea of “Enlightenment” in the group around Lingner²²⁾. Karl Sudhoff contributed to the ideals of “Enlightenment” and humanism also⁹⁾. Robert Koch, one of the teachers of the famous Ogai Mori*^{2,21)} supported the project of Lingner and Spalteholz to gain health education as part of “Enlightenment” for the public. Franz von Stuck gave a symbol: an opened eye (Fig. 9)²⁾,⁴⁴⁾.

Lingner produced household goods in Dresden together with Kraft since 1888, founded a chemical laboratory in 1893, and became wealthy selling products such as “Odol”, a famous mouthwash¹⁸⁾. Lingner earned merit for his work in the field of public health – he founded one of the first German infant clinics with physician Schlossman in 1898. In 1900, he opened a central office for dental hygiene and in 1901 a central office for disinfection³¹⁾.

As a next logical step Lingner intended to gain health education. He therefore established a world exhibition in hygiene, the “Internationale Hygieneausstellung” (IHA). The group around Spalteholz accepted Lingner as the main initiator of the IHA in 1911⁹⁾. Soon Lingner became the sponsor of the Leipzig laboratory of Spalteholz. Up to 14 medical students worked there¹³⁾, so Spalteholz' director Rabl soon became afraid that Spalteholz may not to have enough time for teaching and research at Leipzig Anatomy. The main attraction of IHA was the pavilion “Der Mensch”. More than five million visited this pavilion with the “Spalteholz Präparate” (Spalteholz-specimens*⁴⁾). One million Reichsmark (RM) profit was gained in 55 weeks*⁵⁾. 1912, the “Deutsches Hygiene-Museum Dresden”, DHMD was founded by Lingner. Here, hygiene was shown as a science easy to understand for everybody. The primum - men - was the focus of DHMD which was reached by transparent specimens. Later on, the DHMD produced transparent specimens until 1972²³⁾. In 1930, a new building served as the venue for the second IHA. Here, the main attraction was the “Man of Glass”, inspired by the transparent specimens of Spalteholz, made by Tschackert, who was also experienced with transparent specimens working with Spalteholz for years¹⁶⁾. Around 4.5 million people went there. The IHA/

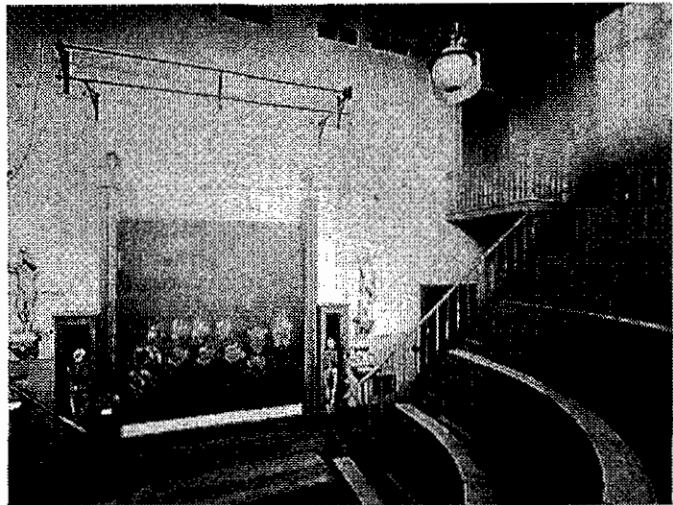


Figure 8 : Old anatomy lecture hall in 1909. Here, Spalteholz held some of his anatomy lectures to anatomy and to graduate students.

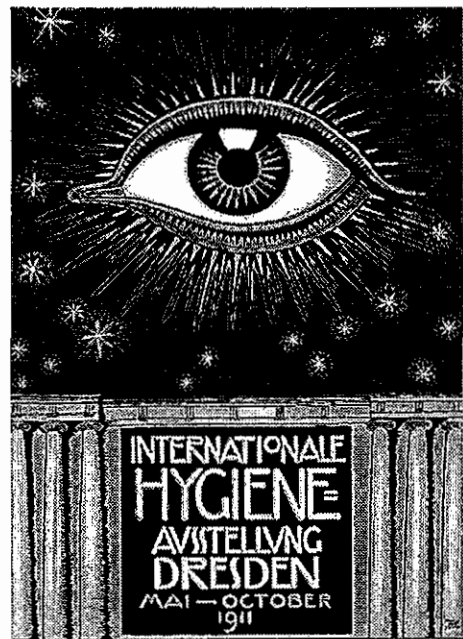


Figure 9 : Poster of the “1st Internationale Hygieneausstellung” in Dresden in 1911. The exhibition under the leadership of the industrial Karl August Lingner became so popular that soon in 1912 this temporary exhibition, turned into a permanent exhibition at the “Deutsches Hygiene-Museum Dresden”. Spalteholz specimens exhibited there served as a public magnet.

DHMD exhibitions gave inside-view into the human body. Millions of people had seen Spalteholz' specimens and called them "Spalteholz Präparate".

5. The "Natura Docet" company and "Pathoplastisches Institut"

Due to the contract between Spalteholz and Lingner (1909) for the production of "Spalteholz Präparate", many body donors were necessary. Their procurement was difficult. Because of the mentioned patent rights sold to "Natura Docet" by Spalteholz, court proceedings were performed. 1909 Lingner founded the "Pathoplastisches Institut" for the production of transparent specimens in Dresden for scientific and teaching purposes. In Leipzig, the production number of transparent specimens was reduced due to a fire at Spalteholz' laboratory in December 1910²⁹). After the great success of the IHA 1911, Lingner and Spalteholz made another contract on the production of transparent specimens for the planned "Hygiene Museum". He founded the "Centralstelle for Hygiene" in Dresden³⁰). 1913 the group of Spalteholz and Lingner distinguished the transparent specimens for teaching at IHA/DHMD from those for distribution. The lab for the production of the specimens called "Pathoplastisches Institut" was soon transformed to a limited corporation (GmbH). Because Spalteholz gave license to the "Natura Docet", production and the distribution from Dresden was difficult. In 1913 the dissector (preparatory) Fritz Tschackert was headhunted from "Natura Docet". The production in Leipzig was just for anatomical purposes. Starting in 1916, the Lingner foundation bought partnership interests from "Natura Docet" and transferred the company to Dresden. Specimens for teaching were produced by order of the Lingner-foundation, which gave them to schools for free. An intension to earn profit was noticed in 1920³⁰). Until 1930, high quality in production of teaching aids, museum arts, advertisement and distribution was reached. The production of transparent specimens was extended to England 1913. They were produced at Odol Chemical Works London⁹).

6. Conclusion and comparison of Spalteholz to recent anatomist with intension to art: Gunther von Hagens

After not even one century, Spalteholz' achievements are almost forgotten. Another anatomist arouse, Gunther von Hagens, which became likewise famous by means of anatomical techniques, which is comparable to the Spalteholz technique: dehydration, and impregnation - but with resin instead of oils, as introduced by Spalteholz¹¹). Von Hagens therefore adapted a known technique using unpolymerized resins²⁴) and developed polymerizing resins together with the BASF company. While Spalteholz was always a member of an anatomical department (Leipzig), von Hagens left anatomy soon. Maybe this lack of personal support is one of the reasons why von Hagens' work is more discussed as a show rather than education, while the work of Spalteholz was always attributed to education. Both were involved in special institutes: Spalteholz at Lingners' foundations, e.g. "Pathoplastisches Institut", von Hagens at Angelika Whalley's "Institute for Plastination"⁵).

So how was their personal intention as regards "Enlightenment"? Enlightenment is a term, which von Hagens likewise claims: "Das oberste Ziel der Körperwelten ist die gesundheitliche Aufklärung" ("The main target of Body worlds is about enlightenment about health"⁴⁸). By touching the corpse, however, there is a difference to the "art" of Spalteholz and the group around Lingner: Spalteholz also has shown transparent genitals - but without any intension to art but proportion and education. Cadavers shown having sexual intercourse, as in von Hagens' exhibitions, are claimed to be art but do not relate to any "gesundheitliche Aufklärung" (<http://blogs.lr-port.de/wp-content/uploads/2010/05/P5273249.jpg>.) While Spalteholz' group remained almost anonymous, von Hagens soon became a famous but controversially discussed person. Yet, von Hagens may be too late to show what others already did as spectacular to millions - sex can be seen elsewhere now, in our pornographic time. Specimens posing and looking more alive with glass eyes seem to be education in an entertaining way. Basically this is nothing new to show

and discussed likewise²⁰⁾. Von Hagens' intension is ambiguous therefore. Two atlas are made by him from slice plastinates which are translated in English. He also wrote a foreword to reprints of Vesalius' work⁴⁶⁾. Is von Hagens an artist then? To the author's notion, an anatomist cannot be an artist. Anatomists cannot create art, but just show the art of creation done by nature⁴⁾. Spalteholz tried to show the beauty of the nature, which von Hagens claims likewise^{5),12)}. However, the techniques of both von Hagens - and Spalteholz can be used for unspectacular research. They are continually used and developed internationally.

The content of anatomy and its ambiguous relation to art is the same. Yet, the environment changed: Nowadays we think we are modern and progressive. We know more now about our "vehicle", which takes us through our lives: Our human body, shown by Spalteholz specimens or by plastinates. But did this knowledge really change us? Maybe we still lack of "Aufklärung". This is another story told by Goethe and Schiller. A stone located at the entrance of the Leipzig anatomy lecture hall states what we always should keep in mind when thinking about anatomy, art and its relation to society: "Anatomia clavis et clavus medicinae" - "Anatomy is key and steering wheel of medicine" (Fig. 10).

Notes

- * 1) "Aufklärung" is not really translateable to other languages. An attempt may be the English "reconnaissance", "clarification", "enlightenment"
- * 2) Ogai Mori Rintarō studied in Leipzig 1884 as a first year student and thus may have known Spalteholz, which worked as an assistant at anatomy since 1885 and graduated there 1886)
- * 3) For the IHA 1930 Willy Petzold
- * 4) Pavilion burned 1945
- * 5) 1 RM=1/0.279g Gold (1914). 1 Million RM=358.5kg

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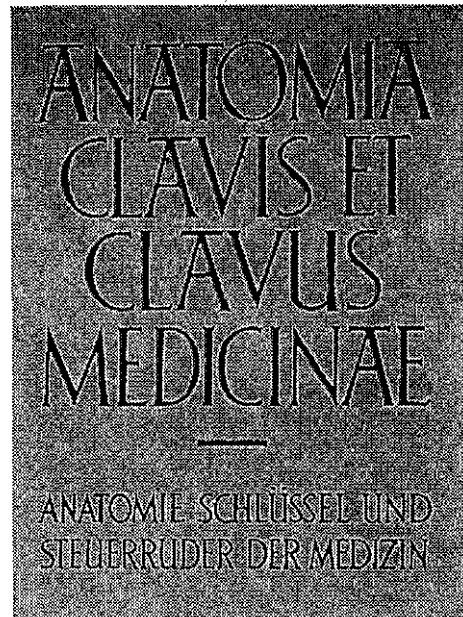


Figure 10 : A stone plate located at the Nürnberger Straße entrance of the lecture hall with the imprinting: "Anatomia clavis et clavus medicinae" ("Anatomy - key and steering wheel of medicine").

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