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Gustav Fritsch from Cottbus – neuroanatomist, neurophysiologist, anthropologist
Gregor Wollensak

Gustav Fritsch was born in Cottbus (Brandenburg) on March 5th 1838 as a son of the royal construction inspector Ludwig Fritsch and his wife Sophie Kramsta, the daughter of the Silesian textile industrialist Kramsta. At the age of 19 years, he began his medical studies in Berlin, and continued later on in Breslau and Heidelberg. In 1862 he received his doctorate in Berlin with an anatomical study entitled ‚De medullae spinalis textura‘. After his studies, he undertook a 3-year-long anthropological journey to South Africa at his own expense. In 1867 he became assistant under Reichert at the Institute of Anatomy in Berlin. In 1871 Fritsch married Helene Hirt, the daughter of the publisher Ferdinand Hirt. In 1872 he was habilitated with his work on the heart of amphibians and reptiles. In this fruitful period, he performed together with Eduard Hitzig, who later became the director of Burghölzli Hospital in Zurich, his ground breaking investigations about the motor centers in the brain. In 1874 he became professor of physiology in Berlin. In 1881 he examined electrical fish from Egypt. Later on his interest turned to scientific photography which he used intensely for anthropological studies. He was engaged with coloured photography and wrote a booklet entitled ‚Die Retinaelemente und die ‚Dreifarbentheorie‘. In 1885 he received a honorary diploma by the “Photographische Verein in Berlin” for his pioneering work. In 1904 Fritsch started a world tour commissioned by the Prussian Academy of Sciences, on which he studied anthropological characteristics of the macula of the eye and the differences in hair among different races. In 1909 his book ‚Über Bau und Bedeutung der Area centralis‘ was published, in which he introduced the terms “area centralis” and “fovea centrals” instead of “macula”. Fritsch died in Berlin on June 12th 1927. He was a great Prussian and medical researcher.

p. 29–37

Austrian public figures with visual aids minted on coins
Gottfried Vesper

Public figures with visual aids were minted in more than 80 years past on Austrian coins. In art, science, research and policy eleven people are presented with different glasses.

p. 39–82

History of the mysterious *conjunctivitis lignosa*. Was Leber’s “conjunctivitis petrificans” the first description of a *conjunctivitis lignosa*?

Dieter Schmidt

Background: Theodor Leber published his examinations on an unusual conjunctival inflammation in 1895 and 1900. He called this disease “Conjunctivitis petrificans”.

Method: Judgement of publications on ligneous conjunctivitis in relation to Theodor Leber’s reports.

Results: Leber’s examinations of three patients with an unusual conjunctivitis with signs of relapses and formations of hard membranes that he called “conjunctivitis petrificans”, received scarcely attention. Leber in detail reported on the findings of three patients that correspond to ligneous conjunctivitis. He reported on the ocular, and on the general clinical findings, and on follow-up observations as well as on the histological and chemical findings of conjunctival membranes in a 23-, a 38-, and a 16-year-old patient. The case history of the 16-year-old patient was given to him by Arthur von Hippel (Halle).

In addition, follow-up observations of more than 100 years concerning this mysterious disease and therapeutic trials of numerous authors are reported.

The actual cause of this systemic disorder with inflammatory pseudomembranous involvement of several organs was detected about 100 years later by Mingers et al. (1994). The autosomal recessive disease is caused by a plasminogen deficiency.

Conclusion: The detailed report on the clinical picture of “conjunctivitis petrificans“ by Leber in 1900, in his publication with 97 pages, corresponds largely to the findings in ligneous conjunctivitis.

Theodor Leber was the first author who comprehensively described the clinical picture of this unusual disease. The underlying disease is a plasminogen deficiency which was detected in 1994.

p. 83–91

Albert Mooren (1828–1899) – Traces to be found around his hometown in the Lower Rhine
Martin Lauer

Albert Clemens Maria Hubert Mooren was born and raised in the village of Oedt (Lower Rhine) and worked there after his education since 1856, before in 1862 he took over the direction of the first new established Eye Clinic in Duesseldorf. His talent as a surgeon and a practical ophthalmologist as well as his social concerns in patients made him well known and popular. Thus, still today there are numerous hints to his activities to be found in the Duesseldorf area of the 21st century.

p. 93–118

Historical visual aids, hidden and curious
Gisela Kuntzsch-Kullin

When the author was visiting an exposition of fans where she discovered a sort of spectacles hidden in the crinkles of a fan she got motivated on the subject and began to search for hidden and odd spectacles in museums, optical collections, in the literature and even at friends and colleagues.

That way a presentation was created beginning with more fans, perfume bottles, little tobacco boxes, pendants, pocket watches, canes and quirts up to certain odd objects.

The author was pleased when the objects showed relatively few age-related signs of use although they were over 200 years old.

p. 119–152

Plagiarism Quarrel amongst Cataract Surgeons: Janin and the Guérin-Brothers
Hans-Reinhard Koch

Two cataract surgeons were competing in Lyon in the last third of the 18th century, the local surgeon Jean-Joseph Guérin (* 1731) and the oculist Jean Janin (1731–1799), who had moved there from the south of France. Guérin invented a spring knife for the incision of the cornea in cataract extraction. He then wrote an ophthalmological textbook (1796), the main motive of which was the presentation of his new spring knife. Janin read the work of his opponent and detected a large number of plagiarisms. After a detailed search, he demonstrated the plagiarized passages side-by-side with the original quotations, reminding us of current-day plagiarism research. He published his scathing critique anonymously in the form of a satire, in which he pretended to be the past master of cataract surgery, Daviel, writing from the kingdom-come. In a „Letter written from the region of the dead“ (1769), Daviel – together with the also deceased oculists Maître-Jan and Saint-Yves, as well as the poets Boileau and Molière – wonder how it was possible to write a book of 455 pages on eye surgery, after only 3 years exposure to ophthalmology. Guérin sued Janin for libel and slander and had him imprisoned for the pretended reason that he had no fixed abode. Janin was released after a few hours, but his piece of invective from the kingdom of the dead was levied. After this, however, Janin’s counterclaim was accepted and Guérin was sentenced to a fine and the legal expenses. In 1772, Janin also published a textbook on ophthalmology, the quality of which surpasses that of his opponent by far.

Guérin’s younger brother Pierre (1740–1827), who was and is often confused with Jean-Joseph, saw no future for himself in Lyon. He decided to emigrate to the colonies. However, he got stuck in his port of embarkation, Bordeaux, where he settled and became an esteemed surgeon. He was also a puzzle freak and invented two further, even more complicated instruments for the cataract incision. Both had spring blades like his brother’s instrument and were fixated to the limbus by means of a

suction ring (1st version) or a fixation ring (2nd version). They also proved to be too complicated for his contemporaries and were thought to be abstruse. Two centuries had to pass, until refractive surgeons re-invented the suction ring as a means to firmly fix a cutting instrument to the eye.

p. 153–167

Loiasis: African eye worm Loa loa (Guyot)

Guido Kluxen

Loiasis is an endemic filarial infection in the tropical rain forests of Western and Central Africa. It is transmitted by the Chrysops fly. The filarial worm lives in humans and other primates. The worms migrate through the skin causing local inflammatory reactions called Calabar swellings. The worms can often be seen migrating across the conjunctiva. Hence, it was termed >African eye worm<. Its microfilariae are found in blood and lymphatic fluid during the day and in the lungs at night.

The French naval surgeons, Mongin, Bajon, and Mercier, were among the first Europeans to report surgical extraction of this worm, although witch-doctors and their kind had been performing such procedures for centuries. 240 years ago Mongin (1770) published his studies on this subconjunctival worm which he had extracted from a Negro woman at Saint-Domingue/Haiti in the Caribbean. In 1777, Bajon wrote about a similar case from Cayenne, where he had removed a worm from a 7 year old Negro girl (negresse). Further studies in the following century showed that the patients had been Negro slaves transported from Africa. Transmission of Loa loa outside of Africa had not been possible. Guyot, another French naval surgeon, had taken the name >Loa< from the language of the natives at the cost of Angola: "It was the name they gave this worm". Worms were encountered by many surgeons subsequently, but it was not until 1895 that the British ophthalmologist, Argyll-Robertson, in collaboration with Manson, provided the first detailed description of the male and female parasite. Their offspring had been identified as microfilariae diurnae. It is a very modern aspect that in contrast to Onchocerca volvulus, Wolbachia (endosymbionts in many filariae) are absent from loa loa.

p. 169–182

"Isola Tiberina" – 2300 years of Medical History

Gerhard Keerl

The small isle (about 240 m X 40 m) was in early prechristian times helpful for passing the River Tiber. Maybe, this importance for trade was one reason for the foundation of Old Rom on the hills of the eastern side. Its Medical history is known since 289 b. Chr. Rom was suffering of pestilence. To prey for help, some officials were sent to the holy place of Aesculap in Epidaurus. It is said, a holy snake of Aesculap swam from the homecoming boat to the island. Thankful for being escaped from a terrible course of the illness a temple for Aesculap could be consecrated already three years after the landing of the snake. In all the following centuries ill people could be treated. In the 16th century a hospital was founded by the "Barmherzigen Brüder vom heiligen Johannes von Gott". This hospital had become modernised several times and belongs to the same congregation still today.

p. 183–190

The Ophthalmologist becomes a traffic medical scientist

Peter Kober

The second half of the 19th century saw a new task field for ophthalmology which up till then had not been focussed on. Norms were to be set up concerning visual acuity and colour perception, which were to serve as the basis for the requirements for the personal operating the quickly developing railways as the major means of transport.

In the process known physiological knowledge, which was not normally in use, was defined in more detail, e.g. regarding colour perception and deviation from normal perception of colours. In addition, demands were put forward as to how these deviations from the norm should be evaluated and where to draw the line with regard to the capability of refraction and colour perception of the respective professional groups.

Examples from professional articles of that time, esp. relating to the requirements of the Austrian railways are made use of and quoted.

p. 191–199

Dr. Antonio Grossich (1849–1926) – All-round surgeon and politician in Fiume: Founder of the disinfection on the operative field with tincture of iodine

Manfred Jähne

Antonio Grossich was born on the 7th of June 1849 in Draguccio, Istria, at that time Austria. He studied law in Graz for 3 semesters, but he shifted to medicine from 1871–1875 in Vienna, graduated in 1875.

At first he worked as a physician in Kastav, close to Fiume, than he served in the Austrian army as a head-physician. In 1884 he went back to Vienna to specialize at Prof. E. Albert (1841–1900) and K. Maydl (1853–1903) on surgery with ophthalmology and obstetrical medicine under the supervision of Prof. J. Spaeth (1823–1896). In 1886 Grossich became Head of the Surgery Division in the City Hospital of Fiume, today Rijeka, Croatia. Eye operations were performed by him, too.

Grossich was among the first to use disinfection on the operative field and in 1908 tincture of iodine was introduced by Grossich [Zbl. Chir. 35 (1908) and 37 (1910)] and he became a world known surgeon. 100 years later his method of disinfection for the prophylaxis of infection is irreplaceable worldwide. Paper with antisepsis in ophthalmology by Alfred Graefe (Halle/S.; 1884) will be discussed with present opinions of disinfection in ophthalmologic surgery.

Fiume was a free state on its own with an area of 28 km² after World War I from 1920–1924. After his time as a surgeon Grossich became an important politician, he got presidency of the National Counsel of the city state Fiume. In 1919 he was honoured for his political work on a stamp.

p. 201–215

The development of the textbook of ophthalmology in the German language in the 19th century as represented by the textbooks of the directors of the I. and II. University-Eyeclinic in Vienna

Gerhard Holland

The first author writing a textbook of ophthalmology in the German language at the beginning of the 19th century was George Joseph Beer, who became the head of the I. University-Eye clinic in Vienna in 1812. Also his three successors Anton von Rosas, Ferdinand von Arlt und Karl Stellwag von Carion published a textbook of ophthalmology. In 1883 the II. University-Eye clinic had been established with Eduard Jaeger von Jaxtthal as it's first chairman, for nine months only due to his early death. He did not write a textbook, but he became famous for his excellent atlas of ophthalmoscopy. But his successor as head of the clinic, Ernst Fuchs, published a textbook of ophthalmology, at his time one of the best known books with 18 editions and translations into many languages. It is our intention to describe the development such as the improvement of the textbook of ophthalmology in the 19th century using these five textbooks from Beer to Fuchs. The progress can be shown well by the different descriptions of the glaucoma.

p. 217–231

Migration and Emigration – The Ophthalmologist Josef Igersheimer (1879–1965)

Jutta Herde

Josef Igersheimer, the son of the Jewish merchant Leopold Igersheimer and his wife Jenny, was born on September 3rd 1879 in Frankfurt/M. After the completion of the elementary and secondary school education in Frankfurt/M. Igersheimer studied medicine in Heidelberg, Munich, Berlin, Strasbourg and Tuebingen. As a teenager he contracted pulmonary tuberculosis. During his stay at a Swiss sanatorium he got an interest in tuberculosis and luetic diseases of the eye. In 1904 he awarded his degree with “Ueber den Blutdruck bei Tuberkuloesen”. Than he became a medical assistant at the pharmacological and hygienic institute in Strasbourg, at the ophthalmological department in Berlin by Prof. Paul Silex (1858–1929) and in Heidelberg by Prof. Eugen von Hippel (1867–1939) too. In 1910 he moved together with his teacher von Hippel to Halle/Saale. In the same year he qualified to give lectures at a university with the permission of Wilhelm II. In 1915 Igersheimer came back to his hometown Frankfurt, where he was appointed to the full professor of the eye clinic at the “Burgerspital” in 1926. In 1933 Hitler and the Nazi regime came to power. Josef Igersheimer and his Jewish wife too looked for possibilities for living and practice places. They went too Istanbul/Turkey. Josef get professorship of ophthalmology at the University for teaching and practising there. At the begin of the second world war the live became uncertain of all migrants in Turkey. In 1939 Igersheimer emigrated with his wife to the USA. He was associated with Tufts Medical School in Boston. We will

appreciate the achievements in the field of treatment of tuberculosis, luetic, traumatic and toxicological eye diseases as well as the first retinal detachment operation and the keratoplasties by Igersheimer.

p. 233–244

Barber, Surgeon, Oculist. The Surgeon-Family Mozart

Franz Daxecker

Barber surgeons were medical practitioners. A family named Mozart originated from Horgau near Augsburg and migrated via South Bavaria to Vienna in the 18th century. Many descendents of this family were barber surgeons and later (up to the present day) medical doctors with an academic training. A blood relationship with the famous composer Wolfgang Amadé Mozart seems possible but has not been proven. Four branches of the Mozart family lived in Vienna in the 17th and 18th century: the painter Gallus Mozart, the sculptor Johann Michael Mozart, the barber surgeon Johann Michael Mozart and the composer Wolfgang Amadé Mozart.

p. 245–281

Yellow spot, blind spot and visual axis – Controversies over almost 400 years

Balder P. Gloor

Fernando Buzzi's detection of the yellow spot 1782 passed almost unrecognised, but when Theodor Soemmering became aware of the Macula lutea 1791 and pretended that there were a hole in the centre of it, he triggered off long lasting controversies. He called not only Edmé Marriotte's explanation of the blind spot in question, but also predicted the collapse of the doctrine of Haller on the topography of the visual axis. This invites for a short review of the supposed position of the visual axis since the Greeks, the Arabs, and the modern time with the histological description of the fovea by H. Mueller. The ophthalmoscope didn't bring the clarification. Indeed, there was neither a hole nor any yellow colour in the macular region! Slowly the macular yellow got its rebirth with observations of Schmidt-Rimpler 1875 and of Dimmer 1894, but then Gullstrand started a controversy of Homeric dimension, denying the existence of a yellow pigment in the retina, first 1902–1908 against Schmidt-Rimpler und Dimmer, then 1918 against Vogt, stating that it is impossible to see the macular yellow with the light source Vogt had used for his investigations. J. W. Nordenson made an attempt to back up Gullstrand in 1949, but Wald had already proven the existence of Lutein in the Macula by spectroscopy 1945, what opened the way for the development of instruments and methods to measure Lutein content during live such as Raman-Spectroscopy, Ophthalmo-Spectrometry, heterochromic flicker photometry (HFP) to investigate correlations between Lutein content and senile Macular Degeneration.

p. 283–296

From balloon to international space station – According increasing needs for pilots vision

Jörg Draeger und Viktor Harsch

The rapid development of aviation and space technology also provides to the aviation and space medicine, especially in the visual perception, always new requirements. In civil aviation, there were the ever-increasing passenger numbers and longer routes, in military aviation, the constant technical development of aircraft with jet engines, the development of combat helicopters, as well as perfecting the patient transport in the air.

Taken place in the space, the tremendous developments of unmanned space flight with small missiles until finally the creation of permanent space station with regular commuter plane transport to Earth. This is represented in historical examples. It is obvious that these ever-increasing demands have led to the technical performance of the balloonists, pilots, astronauts also to increased demands on the eyesight.

In developing this requirement profiles in terms of visual acuity, contrast sensitivity, color vision, but also dark adaptation of this development will be discussed in the course.

p. 297–341

**Charles L. Schepens (1912–2006),
Designer of a handy binocular indirect ophthalmoscope and promoter of modern retinal surgery. His experience about a half century**

Dieter Schmidt

Charles Schepens was born in Mouscron, Belgium. He was the youngest of six children. His father was a general practitioner. Charles Schepens studied medicine in Gent and became a physician like three of his elder brothers. After his study in medicine he began as scientist in Pharmacology in Gent, but decided to specialize in Ophthalmology in Brussels. In addition, he worked as an ophthalmologist in Moorfields Eye Hospital in London, 1936, and for three months in Utrecht (Holland) in Professor Weve's hospital, 1937. At the age of 30 as a member of the Resistance against Nazism he was forced to take a pseudonym. He acquired an abandoned sawmill in Mendive in the French Pyrenees and lived there with his family from 1942–1943. He was hunted by the Gestapo even in this place; with great strain, Schepens fled at first to Spain and then to England where he resumed his profession as an Ophthalmologist. He worked at the Moorfields Eye Hospital. His first great invention was the construction of a handy binocular indirect ophthalmoscope which is used routinely throughout the world as the essential instrument to examine the peripheral retina and as presupposition for improvement of retinal surgery. In 1947 he emigrated with his family to Boston where he founded the first Retina service at the Massachusetts Eye & Ear Infirmary. Schepens together with his excellent team published more than 400 papers and several books. He developed new methods for ocular examinations and techniques for retinal surgery and described several eye diseases, for instance the familial exudative vitreoretinopathy („Criswick-Schepens syndrome“). His Retina Department had soon become unique and was one of the greatest in the world. In 1999, he was awarded as „The Ten Most Influential Ophthalmologists of the Twentieth Century“. He was founder and first president of the Retina Society and Inaugural Laureat of the American Academy of Ophthalmology (2003).

In 2006, in France, Schepens at the age of 94 was awarded *la Legion d'Honneur*. His deserving activity in Ophthalmology covered 70 years.

p. 343–358

Ophthalmologic aspects of Luther's death mask and his statue

Jutta Herde

Background: The development of ocular prosthesis dates back to the sixteenth century but it is known that in antiquity artificial eyes were used on the dead. The original death mask and the wax mask of Martin Luther (10.11.1483–18.2.1546) as well his statue from the year 1663 are very special treasures of the Market Church in Halle. The formation of the face especially the eyes, are of great interest for the ophthalmologists.

Results: Justus Jonas who was present at the time of Luther's death on the 18 March 1546 commissioned a painter from Halle of the name Lukas Furtenagel to draw the head and make casts of the face and the hands of the deceased. The next day Furtenagel made a wax mask from the death mask after it had dried. In 1663 at the order of the superior of the Market Church Peter Untzer Lukas Schoene, a painter, created a moveable statue of Martin Luther basing on the wax mask and the casts of the hands. This was first preserved at the „Marienbibliothek“ and since 1924 it has been kept in the Market Church. Arched thin glass lamellae with a painted back surface gave the eyes a beautiful shape. In 1917 it was discovered that they were placed on the closed eye lids. The iris is yellowish brown, the right pupil is wider than the left, just as it was reported during Luther's life. The eye brows and the lashes exist as hair stumps. The area around the eyes shows signs of alterations made later. It is necessary to mention the beginning of ocular prosthesis and the 200th birthday of famous German oculars Ludwig Mueller.

Conclusion: The death mask and his statue are examples of early use of glass artificial eyes.

p. 359–376

Burkitt's Tumour

Guido Kluxen

Burkitt's tumour is named after the British surgeon Denis Parsons Burkitt (1911–1993), who mapped its peculiar geographic distribution across Africa. It is a high malignant B-cell neoplasm and is the

fastest growing tumour in humans. The African form most often involves the maxilla or mandible. The involvement of abdominal organs is less common. Before aggressive therapeutic programs were available, children with Burkitt lymphoma died rapidly. With chemotherapy the survival rate is now at least 60 %. Tony Epstein realized that the tumour described by Burkitt might be viral in origin, supporting his hypothesis of cancers induced by viruses, which was unknown in humans at the time in 1961. An arrangement between Burkitt and himself led to the discovery of electron microscopic evidence of a virus in tumour cells and at last to the discovery of the Epstein-Barr virus.

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