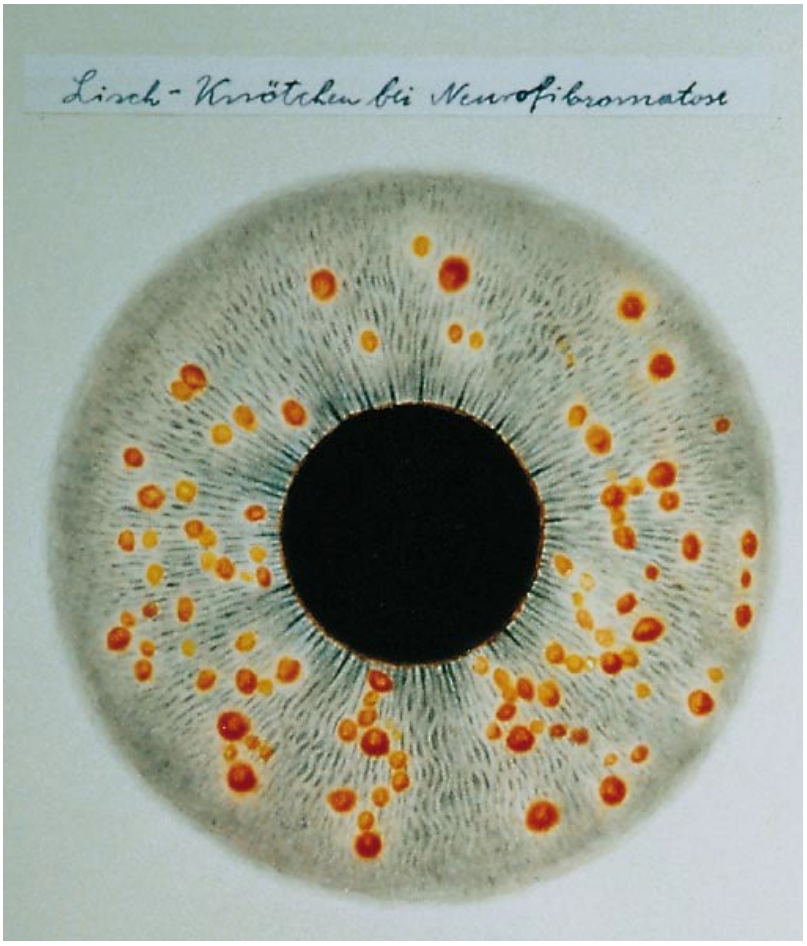
Ophthalmology Series

Ophthalmology Hall of Fame

Faces behind Ophthalmic Eponyms

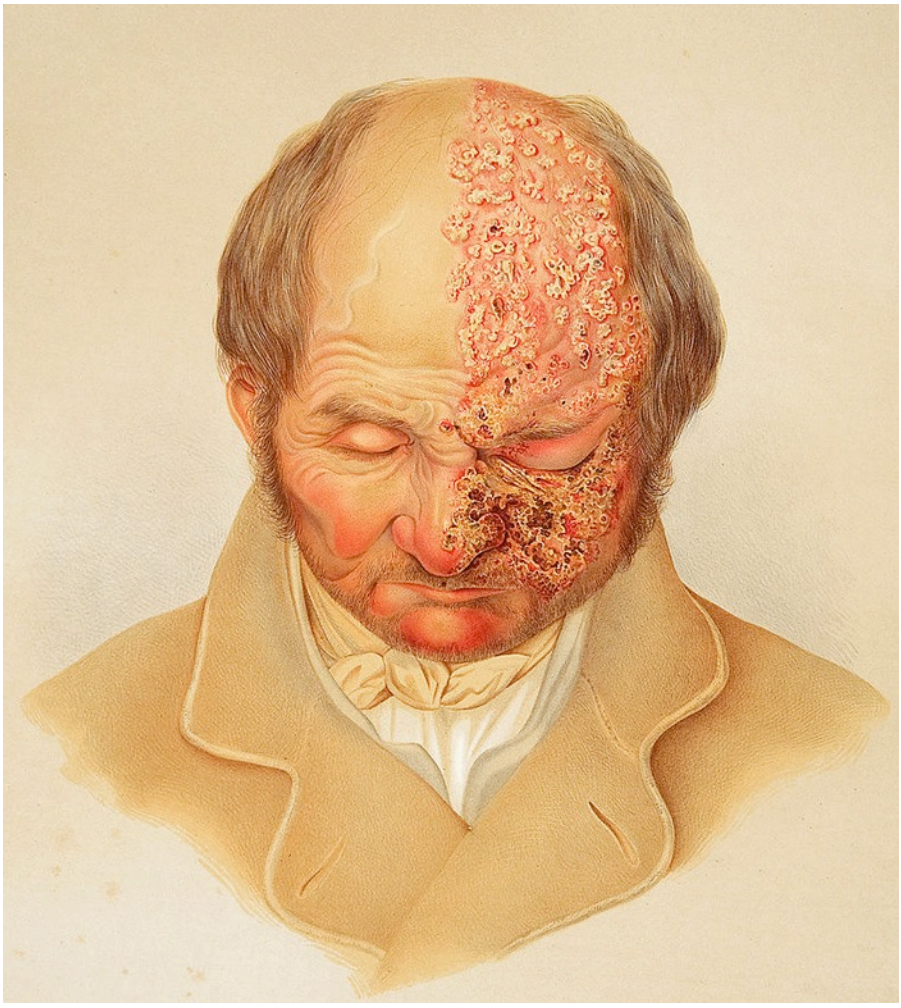


Lisch nodules after Karl Lisch (1907 – 1999).

CHUA Chung Nen **NGO Chek Tung**

MARUDI

PUBLICATION



Hutchinson sign after Sir Jonathan Hutchinson (1828 – 1913).

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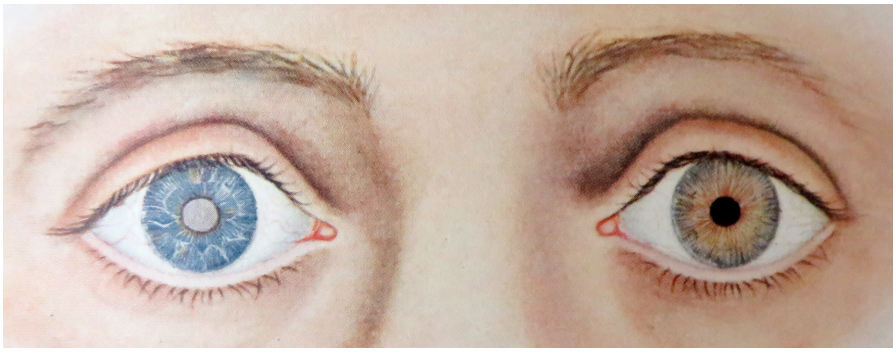

Fuchs heterochromic iridocyclitis (right eye) after Ernst Fuchs (1851 – 1930).

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Introduction

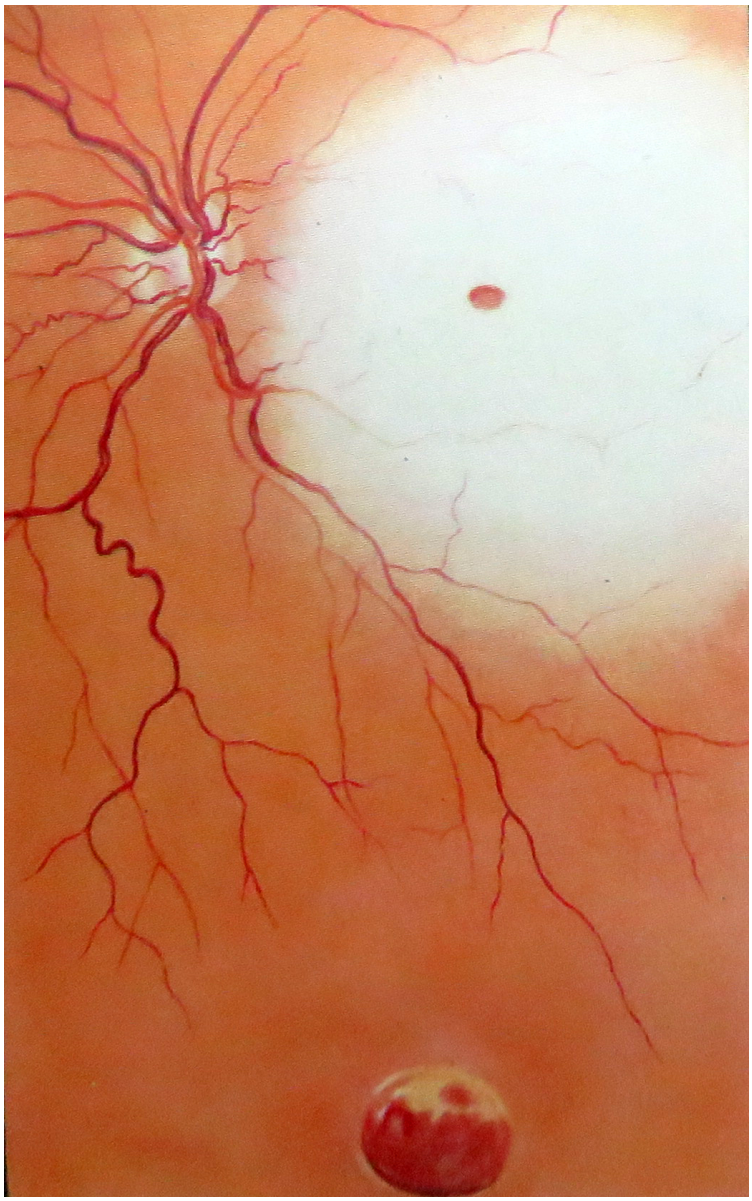
If you were curious as to how Marc Amsler, Shinobu Ishihara, Hermann Snellen and many more great ophthalmologists looked, you will find the portraits and short biographies of them in this book. Pseudophakic cystoid macular oedema, also called Irvine-Gass syndrome, is named after Don Gass and Samuel Rodman Irvine. However, Marcus Gunn pupil and Foster Kennedy syndrome are named after two instead of four people and both were named Robert. Hans Goldmann developed and refined many ophthalmic instruments such as goniolens, applanation tonometer etc which no modern eye clinics can do without. Roberto Sampaolesi and Alberto Urrets-Zevalia both were Argentinians who gave their names to signs in the anterior chamber. Robert Marcus Gunn and Douglas Moray Cooper Lamb Argyll Robertson both were Scottish ophthalmologists who gave their names to well-known pupil abnormalities. Some prolific ophthalmologists have given their names to more than one disease or structures for example David Cogan has a disease, a syndrome and a sign named after him.

For ophthalmologists who aspire to have their names immortalized by eponyms, the book may also help by listing the publications from which the eponyms derived. For those who are into myths and legends, the book contains a short section on ophthalmology names coined from Greek mythology. For those who have been working hard and feel disheartened by the lack of diseases attached to their names, there is a section on some great ophthalmologists who were commemorated in other ways. Finally, the book ends with alternative careers ophthalmologists may pursue to be remembered by posterity.

CHUA CN

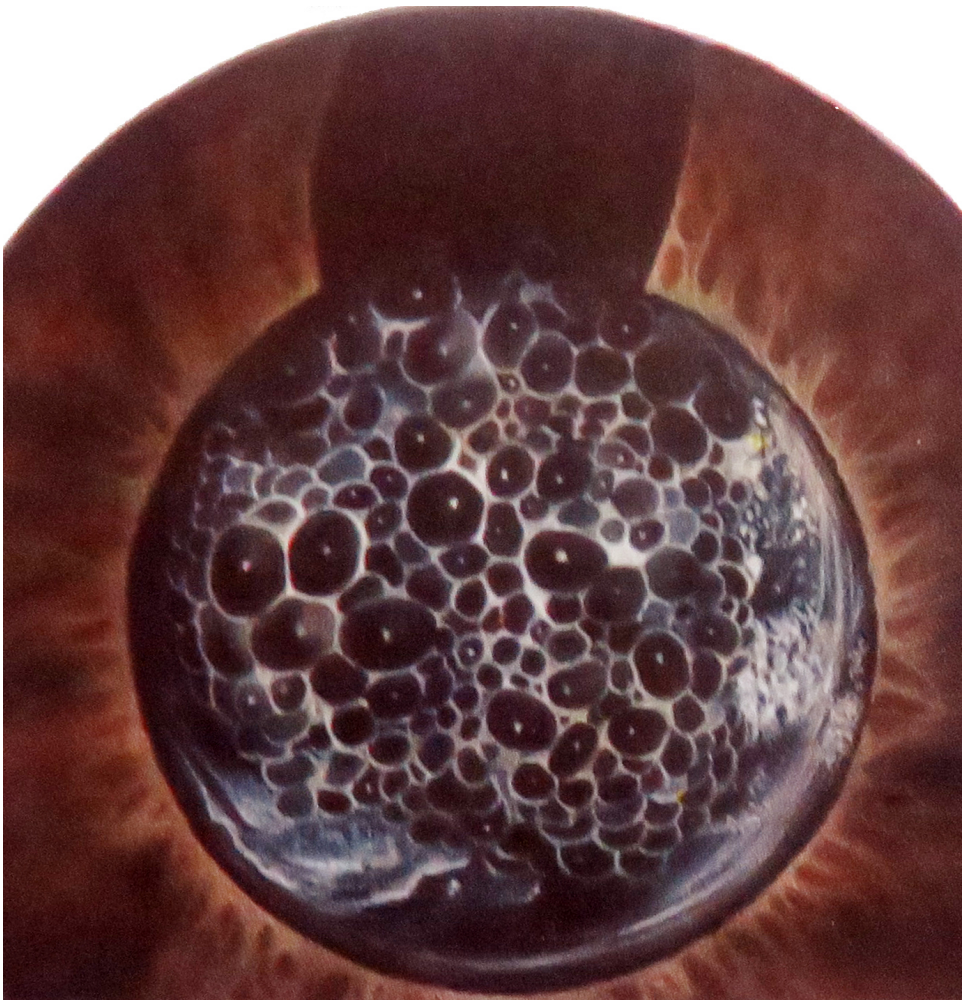
NGO CT

April 2017



Berlin oedema after Rudolf August Berlin (1833 – 1897).

Contents



Elschnig pearls after Anton Elschnig (1863 – 1939).

ADIE William John

(1886 – 1935)

Adie tonic pupil: a neurological disorder characterized by a tonically dilated pupil that reacts slowly to light but shows a more definite response to accommodation ie. light-near dissociation.

William John Adie was born in Geelong, Australia on 31 October 1886. He was educated at Flinders Street Model School, but had to leave school to support his family at the age of 13 when his father died in 1899. He worked as an office errand boy, and an employer noticed his ability to learn and funded evening classes for Adie, who was able to pass the university entrance examination. A doctor in Geelong, Dr. Arthur South, inspired him to study medicine.

An uncle in Boston, Massachusetts paid £19 for a one-way ticket for Adie to travel to U.K. to study medicine, which he did at the University of Edinburgh with the help of his uncle and a scholarship. He qualified M.B. Ch.B. in 1911. He became interested in neurology, and worked in Berlin, Vienna, Munich and Paris for a year on a travelling scholarship.

He fought in the First World War in France, firstly as medical officer to the Northamptonshire Regiment, and was one of few survivors from the regiment after the retreat from Mons due to a bout of measles that kept him from the battle. He was then posted to the Leicestershire Regiment, and was mentioned in despatches for saving a number of soldiers from a gas attack in 1916 by improvising a gas mask made of clothing soaked in urine. While on leave in 1916 he married Lorraine Bonar; they had two children. He subsequently served as neurological specialist to the 7th General Hospital, where he advised on management of head injured patients.

After the war he was a medical registrar at Charing Cross Hospital before working at the National Hospital for Nervous Diseases, Queens Square, and the Moorfields Eye Hospital in London, practising general medicine with neurology as his speciality. He became a Member of the Royal College of Physicians in 1919. In 1926 he was elected to the Fellowship of the Royal College of Physicians, and also received the gold medal for his M.D. at Edinburgh.

In 1932 Adie was one of the founders of the Association of British Neurologists, which was formed at a meeting on 28 July at the house of Gordon Holmes. Adie was known as an excellent teacher of medicine and a fine diagnostician with

extraordinary powers of observation. He once made a telephone diagnosis of a right posterior inferior cerebellar infarct.

Adie is best known for his paper on *'Tonic pupils and absent tendon reflexes: A benign disorder sui generis; its complete and incomplete forms'* published in *Brain* in 1932. Although others had claimed priority, Adie tried to widen the syndrome by describing several forms: (1) the complete form with its tonic pupil and absent reflexes but other incomplete forms such as: (2) tonic pupil alone; (3) atypical phases of the tonic pupil ('iridoplegia' or 'internal ophthalmoplegia'); (4) atypical phases with absent reflexes; (5) absent reflexes alone. These syndromes usually occurred in healthy young females.

Of medium height, Adie had a bronzed complexion, brown hair and a clipped moustache. His interests also included ornithology, tennis and skiing. A friendly man without arrogance, he had a considerable private practice in Brook Street, outside 'pill-island', as the Wimpole Street–Harley Street enclave was known. Adie lived in an elegant Nash terrace facing Regent's Park. He was plagued by angina and died at the early age of 49 on 17 March 1935.

- edited from History of British Neurology -

Publication from which the eponym derived:

- *Adie WJ. Tonic pupils and absent tendon reflexes: a benign disorder sui generis; its complete and incomplete forms. Brain 1932; 55:98–113.*

BRUCH Carl Wilhelm Ludwig

(1819- 1884)

Bruch membrane: a thin, acellular, five-layered extracellular matrix located between the retina and choroid.

Carl Wilhelm Ludwig Bruch was born in 1819 in the city of Mainz. He studied medicine in Berlin and later in Gießen, where he received his doctorate in 1842. In 1844 Bruch was appointed to a position at the University of Heidelberg.

Here he helped Tiedemann teach anatomy, pathology, embryology as well as the evolving histology courses. In his quest to become a professor, Bruch published an article on his discovery of a membrane in the eye in 1844.

However, in January 1845 he was informed by the University that, because of current laws, he had to translate his submission from German into Latin. Instead of translating this work, he instead chose to submit a new article on rigor mortis. Bruch received a summa cum laude for this work, but his initial article about Bruch membrane in the eye made him forever famous in anatomy and ophthalmology.

In 1850 he accepted a professorship in Basel, but returned to Gießen 5 years later, where he continued his professional career. In 1851 Burch married his mother's younger step-sister Maria Magdalena Rettig of Schwetzng, who bore him four children. Because of poor health he was forced into retirement at the age of 41, only 5 years after his calling.

He continued teaching, though. Bruch gave presentations for the Senckenbergische Naturforschende Gesellschaft (Senckenberg Society of Scientists) in Frankfurt, in which his friend the anatomist Johann Christian Lucae was also a member. In 1884 Bruch died in an asylum for the mentally ill in Heppenheim due to an unknown nervous disorder.

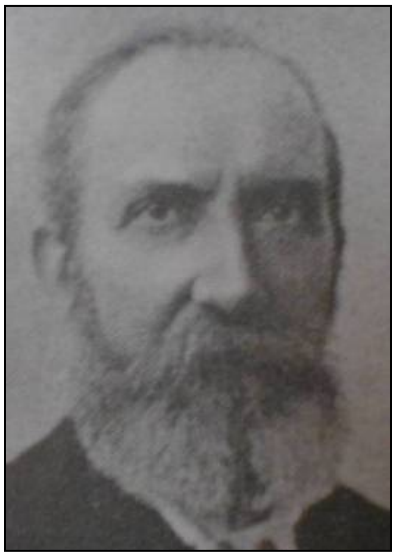
- from University of Heidelberg -

Publication from which the epony derived:

- *Bruch CLW. Untersuchungen zur Kenntniss des Kornigen Pigments der Wirbelthiere. Zurich: University of Zurich; 1844.*

Other eponyms associated with choroidal layer

The outermost layer of the choroid is made up of large diameter blood vessles and is also called the **Haller layer**. It is named after a Swiss, **Albrecht von HALLER** (1708 –1777). Like many well-educated gentleman of his era, he assumed a wide range of interest. Apart from being an anatomist, he was also a physiologist, botanist and poet.



Sattler layer is a layer of intermediate blood vessels situated between the Haller layer and the choriocapillaries. It is named after **Hubert SATTLER** (1844 –1928), an emeritus professor of ophthalmology in Leipzig. He was born in Salzburg, Austria. He did medicine in Vienna and later became student of Carl Ferdinand von Arlt. Sattler distinguished himself in his histological and histopathological research of the eye, in particular his work involving the choroid and conjunctiva.

Sattler, Hubert (1876). Ueber den Feineren Bau der Chorioidea des Menschen nebst Beitraegen zur Pathologischen und Vergleichenden Anatomie der Aderhaut. Abrech von Graefe's Archiv für Ophthalmologie. 22 (2): 1–100.

GASS Don

(1928 – 2005)

Irvine-Gass syndrome: macular oedema following cataract surgery; also known as pseudophakic cystoid macular oedema.

John Donald MacIntyre Gass was a Canadian-American ophthalmologis. He was on 2 August 1928 in Montague, Prince Edward Island. His father was the prominent tuberculosis specialist R. S. Gass. Donald Gass moved as a child with his family from Canada to Nashville.

He received his BA degree from Vanderbilt University in 1953 and spent the next 3 years as a line officer in the US Navy during the Korean War. He graduated from Vanderbilt Medical School in 1957, ranked first in his class. After interning at the University of Iowa, he pursued his career in ophthalmology at the Wilmer Eye Institute of Johns Hopkins University (1958-1961). He continued his education in ocular pathology under the direction of Lorenz Zimmerman at the Armed Forces Institute of Pathology for 1 year. He spent his final year of training in 1963 as chief resident of the Wilmer Eye Institute.

At the last moment during his Chief Resident year, Gass decided not to enter private practice with a friend in Nashville but rather to head south to join Edward W. D. Norton, the young chairman of the Department of Ophthalmology at the University of Miami School of Medicine and Director of the newly founded Bascom Palmer Eye Institute. Encouraged by Norton and colleagues at Bascom Palmer, Gass began a 32-year career in Miami, Florida, that earned the respect and praise of his colleagues worldwide. He was a superb teacher who had the patience and kindness to introduce and run a fluorescein conference on a weekly basis. He applied the technology of stereofundus photography and fluorescein angiography to his teaching conferences in the early 1960s. This type of conference has now been adapted throughout the world. In 1995, Gass retired from the University of Miami as planned and returned to Nashville. He joined the Department of Ophthalmology at Vanderbilt University until his retirement in 2004.

Gass was considered the “Father of Macular Diseases” and made significant contributions in the field of chorioretinal diseases during his career that spanned more than 40 years. He was voted as one of the ten most influential ophthalmologists

of the 20th century by his colleagues. He authored more than 280 scientific articles in referred journals and contributed many chapters to ophthalmology textbooks. He was the author of major books on macular diseases and intraocular tumors. His classic textbook *Stereoscopic Atlas of Macular Diseases: Diagnosis and Treatment* describes several hundred congenital, infectious, age-related and inflammatory eye diseases. Illustrating those disorders with photographs and drawings, the work is widely known as Gass's Atlas. Also in preparing his book, Gass helped to pioneer the use of fluorescein angiography in detailing the subtle differences between different retinal diseases.

Gass wrote seminal articles regarding clinical features and natural history of chorioretinal diseases. His knowledge and background in pathology provided the means for detailed clinicopathologic correlations demonstrating the histopathologic features of the macula in various diseases. He collected and organized clinical case series of patients with rare and confusing diseases. This spanned the gamut from A to Z—acute posterior multifocal placoid pigment epitheliopathy (APMPPE) to acute zonal occult outer retinopathy (AZOOR). In 1966, Gass described, using fluorescein angiography, the most common cause of vision impairment that may follow cataract surgery, a type of macular oedema now known as Irvine-Gass syndrome.

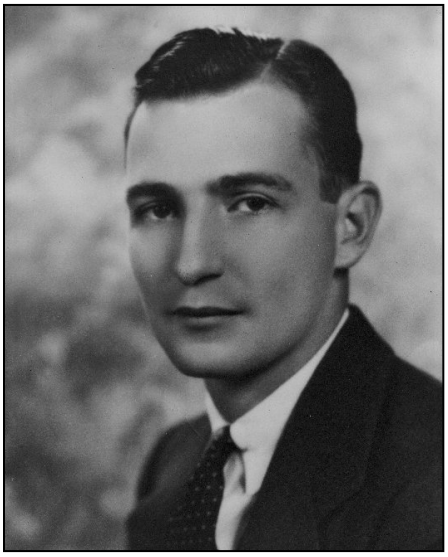
After his retirement in 1995 from Bascom Palmer Eye Institute, he moved back to Nashville, where he became a professor at the Vanderbilt University School of Medicine. He died of pancreatic cancer on 26 February 2005 in Nashville, Tennessee.

- from American Journal of Ophthalmology -

Publications from which the eponym derived:

- *Irvine SR. A newly defined vitreous syndrome following cataract surgery. Am J Ophthalmol. 1953 May. 36(5):499-619.*
- *Gass JD, Norton EW. Fluorescein studies of patients with macular edema and papilloedema following cataract extraction. Trans Am Ophthalmol Soc. 1966; 64:232-49.*

Biography of IRVINE Samuel Rodman



Samuel Rodman "Rod" IRVINE (1906 - 1999) was an American ophthalmologist known for the Irvine-Gass syndrome.

Irvine received his bachelor degree in 1928 from Stanford University and his M.D. in 1932 from Harvard Medical School. In 1936 he completed his ophthalmology residency at the Massachusetts Eye and Ear Infirmary. From 1942 to 1946 Irvine was a major in the United States Army Air Forces. For the academic year 1950–1951 he was a visiting professor at the Wilmer Eye Institute, where he performed experiments on rabbits to study the effects of steroids on corneal scarring and also taught optics and refraction to the residents. In September 1952 he reported a newly defined syndrome (cystoid macular edema aka Irvine-Gass syndrome) following cataract surgery, based upon a clinical study of 2000 patients. The pathophysiology of the condition was later demonstrated on fluorescein angiography by Don Gass in 1966.

LISCH Karl

(1907 – 1999)

Lisch nodules: melanocytic hamartomas of the iris. These iris lesions are diagnostic of type 1 neurofibromatosis.

Karl Lisch was born on 24 July, 1907 in Kirchbichl, Austria, the son of a General practitioner. After completing his schooling in Kufstein, he traveled to the famous universities of Europe to study medicine in Vienna, Zurich, and Innsbruck, graduating from the University of Innsbruck in 1931. That year he began his residency in Ophthalmology at the First University Eye Clinic in Vienna and he continued at the University Eye Clinic in Innsbruck. From 1935 to 1945, Lisch worked as an assistant and later as senior physician at the University Eye Clinic in Munich, Germany.

In 1947 he became Chief Physician of the Eye Department of the hospital of Wörgl, a small town close to his birth place. He remained in this position until his retirement in 1980. He was a well-known ophthalmologist and his patients came from all parts of Austria, Germany, and Italy. In the region of North Tyrol he was called "Ophthalmological Pope".

Besides general ophthalmology Lisch was interested in scientific research. He published more than 120 scientific papers, mostly in the German literature.

Karl Lisch received many awards, most notably the title of Senior Advisor in Medical Affairs (Obermedizinalrat) from the President of Austria in 1989 in recognition of his outstanding work as a physician. In 1992, he received the Medal of Honor of the American Neurofibromatosis Society and the First Class Cross Honor for Science and the Arts of the Austrian Ministry for Science and the Arts.

He is most recognized for the description of the iris nodules of Neurofibromatosis type 1, now termed as "Lisch nodules". In 1937, while at the University Eye Clinic in Munich, he published an article in the German ophthalmic journal *Zeitschrift fur Augenheilkunde* titled *Ueber Beteiligung der Augen, insbesondere das Vorkommen von Irisknotchen bei der Neurofibromatose (Recklinghausen)* (About the involvement of the eyes, especially the appearance of iris nodules in neurofibromatosis [Recklinghausen]).

The report described his observations in 3 patients with neurofibromatosis: The first patient was a 39-year-old male who had been affected with several nodules and pigmented lesions on the skin, typical of neurofibromatosis, since the age of 15 years. His mother and his sisters had a similar disorder. Lisch observed several brown nodules on the surface of the iris. The nodules could be seen even without the slit lamp due to the greyish-blue color of the iris. A color drawing of iris nodules of this patient was published in color. Similar cutaneous and iris lesions could be detected in another second 27-year-old patient with a family history of neurofibromatosis. In comparison to the first patient the iris nodules were much more pigmented. The third patient, a 44-year-old male suffered form bilateral optic nerve gliomas with chiasmal involvement. The slit lamp examination revealed tiny iris nodules in both eyes.

In his work on four types of phakomatoses in 1942, Lisch described changes in the eye in neurofibromatosis. Once again, he pointed out that iris nodules might in fact be constant sign of neurofibromatosis and that a diagnosis of neurofibromatosis can be presumed from the mere presence of the nodules. His observations seem all the more remarkable today when we realize that the usefulness and prevalence of nodules in neurofibromatosis type 1. It prevalence was first investigated in 1981 in a prospective study by Lewis and Riccardi. They found Lisch nodules in 92% of 77 patients aged six or older.

He died on 5 January 1999 in Tyrol aged 92.

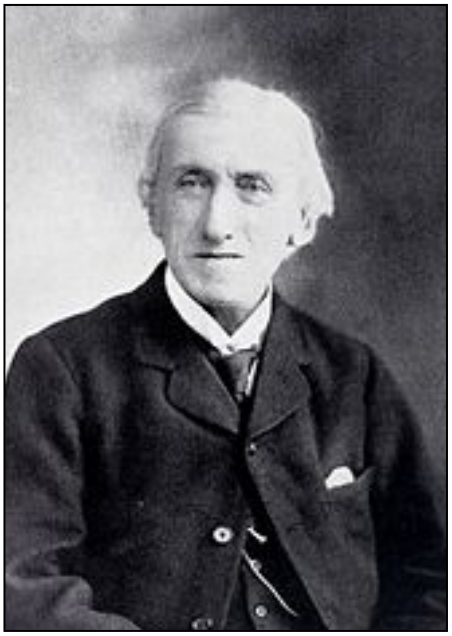
- from Ophthalmic Genetics -

Publication from which the eponym derived:

- *Lisch K. Ueber Beteiligung der Augen, insbesondere das Vorkommen von Irisknotchen bei der Neurofibromatose (Recklinghausen). Z Augenheilkd 1937; 93:137-143.*

Other eponym associated with iris lesion

Thomas BRUSHFIELD (1858 – 1937) was an English psychiatrist who worked in the field of intellectual disability. He was the medical superintendent of the Fountain Hospital for Imbeciles, Tooting, from 1914 to 1927. In 1924 he described the presence of white spots in the periphery of the iris. These spots are aggregates of iris connective tissues and appear to be more commonly found in children with Down syndrome. Studies show these spots called **Brushfield spots** are commoner in Down syndrome of European than Asians descents.



Brushfield: Arch. Dis. Childhood. 1924; 26:496-500.

PARINAUD Henri

(1844 – 1905)

Parinaud syndrome: also known as dorsal midbrain syndrome; it is characterised by a classic triad of findings: upward gaze palsy, pupillary light-near dissociation and convergence-retraction nystagmus.

Parinaud oculoglandular syndrome: a combination of granulomatous conjunctivitis in one eye, and swollen lymph nodes in front of the ear on the same side. Most cases are caused by cat-scratch disease.

Henri Parinaud was born in Bellac, Haute-Vienne. Henri's father was a locksmith, and the family was not wealthy. Henri was educated locally and from 13 years attended the Ajain Seminary. His father died young, when Henri was aged 19, so he had to provide not only for his own education but also for his widowed mother and his younger brothers. Nevertheless, from the proceeds of tutoring children, he was able to undertake medical studies at Limoges from 1865, where he became an intern in the service of Dr. Bardinet and received a merit award in 1868, following which he went to Paris for further study in 1869. In the following year, the Franco-Prussian War broke out. Parinaud served as a medical officer in a field ambulance in Metz. He showed great courage during this campaign and was later decorated by Gambetta, the Prime Minister of France. His activity in the evacuation of the wounded at Châteaudun was recorded by the writer Ludovic Halévy (1834–1908) in one of his stories.

After the war, Parinaud continued his medical studies in Paris. While in Bouchut's service at the Hôpital des Enfants-Malades in 1877, he wrote a doctoral thesis in which he concluded that papilledema in childhood meningitis was caused by obstructive hydrocephalus and not by inflammation of the optic nerve. This attracted the attention of Charcot (1825–1893), who appointed him as ophthalmologist in the Neurological Service at the Salpêtrière. In Brouillet's celebrated painting of 1887 *Une leçon clinique à la Salpêtrière (A Clinical Lesson at the Salpêtrière)*, Parinaud is depicted sitting in front of Désiré-Magloire Bourneville. He had no university appointment but he was highly respected by his colleagues. Parinaud was described as of delicate constitution but great industry. He was an active member of the scientific societies of ophthalmology and neuroscience. He was on the Council of the Société de Neurologie founded in 1899.

Despite a lack of facilities for research, Parinaud published more than 70 scientific articles and three books: on vision, strabismus, and binocular vision. Among his first contributions were physiological and clinical observations on ocular sensitivity to light. He studied hemeralopia and the role of the rods and cones and of visual purple

(rhodopsin). These studies, however, went largely unnoticed. With Pierre Marie, he first described the syndrome that later was called by Charcot ''ophthalmoplegic migraine.'' With Xavier Galezowski, he wrote on a form of conjunctivitis associated with prominent preauricular and submandibular lymphadenopathy disproportionate for the severity of the eye infection. This is often referred to as Parinaud conjunctivitis, mainly in Europe, and is now known to be mainly due to *Bartonella henselae* infections, as in cat-scratch disease. Parinaud also dealt with the impact on the eyes of multiple sclerosis and hysteria. He made contributions to surgery for strabismus, cataracts, glaucoma, and ptosis.

In 1883, he published the article *''Paralysie des mouvements associe´s des yeux,''* in which he developed the theme of central disorders of ocular motility. Associated paralyses referred to as disorders of binocular movements such as gaze paralyses (''mouvements paralle`les horizontaux et verticaux'') and convergence/divergence paralysis. He rejected the idea that they were due to lesions of the nuclei or the peripheral nerves and attributed them instead to lesions of the central nervous system. In support of his theory, he mentioned the work of Foville, Landouzy, and others. Landouzy had analyzed conjugate gaze palsies due to hemispheric lesions. Of the ten cases Parinaud published in 1883, there were two with vertical paralysis (one of upgaze and the other of upward and downward gaze). Horizontal movements were normal. Convergence was absent in both, and the pupils in one were not reactive to light. The pupillary reactions were not described in the second case, somewhat surprisingly, as syphilis was the provisional diagnosis. In the same paper, Parinaud described two other cases with convergence paralysis in whom vertical movements were normal. In one of them, with an autopsy diagnosis of a midbrain tumor elevating the colliculi, the pupils reacted feebly to light but not at all on convergence. In the second, a putative case of multiple sclerosis, convergence was very incomplete but the pupils reacted normally to light. In a paper on the same subject in *Brain,* he wrote (in relation to paralysis of convergence): ''If in this form of paralysis there be no paralytic mydriasis, the pupillary reflexes are nevertheless modified, and mostly

in a very characteristic manner. The reflex is abolished for convergence and retained for light, thus constituting a modification exactly inverse to that pointed out by Argyll Robertson as occurring in tabes''.

The eponym Parinaud syndrome has been used since the 1930s. It is ill-defined in the modern medical literature, which is not surprising since it is unlikely that Parinaud ever would have proposed and defined his own syndrome. It usually refers to paralysis of upward movement of the eyes with or without paralysis of convergence and with varying pupillary reaction patterns, but definitions given in numerous neurology texts can be quite conflicting. In fact, Parinaud was not the first to describe paralysis of upward gaze. In the 1886 article, he mentioned that Wernicke and Henoch had already described similar findings. Autopsies in those cases had revealed a tumor and tuberculoma, respectively, near the colliculi. As a result of the confusion over the definition, some have criticized the use of the eponym. Some neurologists have suggested that the features of the syndrome should more appropriately be grouped as the pretectal syndrome.

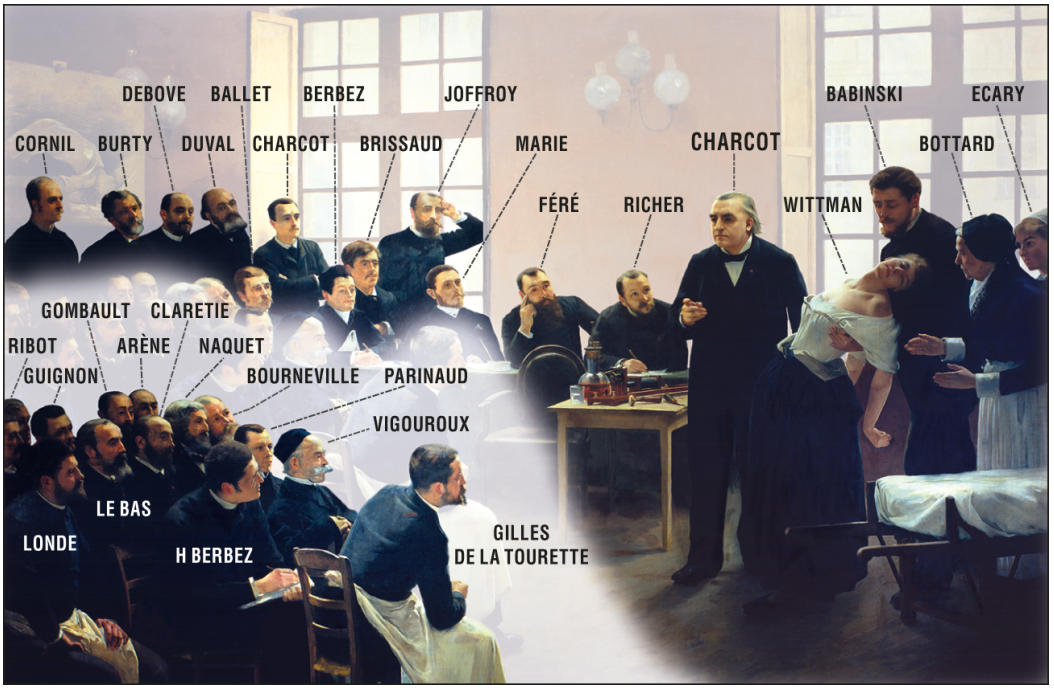
Parinaud had a philanthropic attitude all his life and for many years maintained a free clinic in a populous part of Paris. In his spare time he composed music, which he published under the pseudonym of Pierre Erik. After his wife died in 1904, he became depressed, his health deteriorated, and he died from bronchopneumonia in 1905. In his obituary, he was described as ''a reliable and devoted friend so perfectly sound and professionally correct that one could not find a better example. He was for all his confrère the kindest and most respected adviser.''

- from Journal of Neurology -

Publications from which the eponym derived:

- *Parinaud H. Paralysie des mouvements associe´s des yeux. Archives de Neurologie 1883; 5:145–172 7.*
- *Parinaud H. Paralysis of the movement of convergence of the eyes. Brain 1886; 5:145–172.*

A Clinical Lesson at the Salpêtrière *("Une leçon clinique à la Salpêtrière") by Pierre Aristide André Brouillet (1857-1914). The painting can be presently found hangs in a corridor of the Descartes University in Paris. The painting contains the most doctors who have been immortalized eponymously including Charcot joint and disease, Charcot-Marie-Tooth disease, Bourneville disease (tuberous sclerosis), Parinaud syndrome, Gilles de la Tourette syndrome to name just a few better known ones.*



PARKS Marshall

(1918 – 2005)

Park three-step test: a clinical test used to isolate the paretic muscle in acquired vertical diplopia.

Marshall Parks was an American ophthalmologist known to many as the “Father of Paediatric Ophthalmology". During his life times he trained 160 fellows in pediatric ophthalmology and strabismus. Many of these former fellows have gone on to leadership positions within the field themselves.

Parks was born in Old Mission, Michigan to Ruth E. and Reuben Elvin Parks. Parks graduated from St. Louis University School of Medicine in 1943 before entering the United States Navy during World War II. He interned at the U.S. Naval Hospital, San Diego, CA, and served Sea Duty as a medical officer on destroyers in the South Pacific arena. He completed his ophthalmology residency at the U.S. Naval Hospital, Great Lakes, IL. After being honorably discharged from the Navy, he studied paediatric ophthalmology under his mentor and preceptor, Frank D. Costenbader, the first pediatric ophthalmologist, and together they initiated the first fellowship-training program of any ophthalmology subspecialty at Children’s Hospital in Washington, D.C.

Parks' scientific contributions include:

- Elucidation of monofixation syndrome
- Description and refinement of numerous eye muscle surgical techniques, particularly the fornix incision approach to strabismus surgery
- Recognition of the benefits of very early strabismus correction (by age 1 year)
- Innovation in surgical techniques for pediatric cataracts

Parks was honored for his distinguished career and contributions to ophthalmology. He was voted by a worldwide survey of ophthalmologists as one of the ten most influential ophthalmologists in the world during the twentieth century.

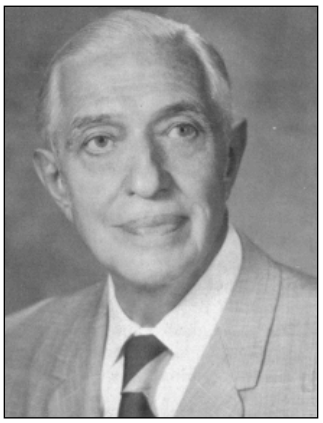
Parks and his late wife, Angeline Miller Parks, raised eleven children. Following the death of his first wife, Parks and Martha McSteen Parks married and resided in Washington, D.C. for 14 years prior to his death. He is a devout Catholic.

- from American Journal of Ophthalmology and Wikipedia -

Publication from which the eponym derived:

- *Parks MM. Isolated cyclovertical muscle palsy. AMA Arch Ophthalmol. 1958; 60:1027–1035.*

Other eponym associated with vertical muscle disorder



Harold Whaley BROWN (1898 – 1978) was a American ophthalmologist who specialized in strabismus. He practised in Park Avenue, New York. In 1950, he described superior tendon sheath syndrome which is now commonly known as **Brown syndrome**.

Brown HW. Congenital structural muscle anomalies. In Allen JH(ed): symposium on strabismus, Transactions of the New Orleans Academy of Ophthalmology, p 205, St Louis, CV Mosby, 1950.

Philip KNAPP (1916-1991) was the son of Arnold Herman Knapp (1869 – 1956) and grandson of Herman Jacob Knapp (1832 – 1911). The Knapp family is unique in ophthalmology in that members of three generations gain international prominence and recognition. **Philip Knapp** underwent ophthalmology training in Iowa University. He practiced in New York. His primary interest was ocular motility and is eponymous known for **Knapp classification** for superior oblique palsy.

Knapp P: Classification and treatment of superior oblique palsy.Am Orthopt J 1974; 24: 18-22.

SCHWALBE Gustav Albert

(1844 – 1916)

Schwalbe line: an anatomical structure seen in the interior of the cornea of the eye; it represents the termination of the Descemet membrane of the eye.

Gustav Albert Schwalbe was a German anatomist and anthropologist. He was the son of a physician. He attended the universities of Berlin, Zurich and Bonn, obtained his doctorate at Berlin in 1866 and subsequently went to Max J. Schultze (1825-1874) in Bonn, where he discovered the taste buds also known as Schwalbe corpuscles. In 1868 he became assistant at the physiological institute in Amsterdam with Willy Kühne (1837-1900), in 1870 he was habilitated as Privatdozent for anatomy at Halle (Saale).

Following promotion to doctor he was a subordinate physician at the military hospital (stehendes Kriegslazarett) in Reichenberg in Bohemia. He was also a court counsellor and privy medical councel. Durig the Franco-Prussian war he was an assistant physician in the No 7 Kürassier-Regiment.

After the war, he first became assistant professor of histology at the University of Leipzig then professor of anatomy successively at the universities of Jena (1873) Königsberg (1881) and Strassburg (1883).

Schwalbe was the first to demonstrate the cerebrospinal fluids were absorbed mainly through lymphatic pathways by injecting Berlin-blue dye into the subarachnoid space of a dog. The subarachnoid or subdural spaces between the internal and external sheaths of the optic nerve are also referred to as Schwalbe spaces. His name is lent to several other anatomical structures, including Schwalbe nucleus (vestibular nucleus) and Schwalb foramen (a triangular shaped fossa situated in the midline of the base of the brain stem, at the pontomedullary junction). In ophthalmology, he is forever remembered for Schwalbe line which is the peripheral termination of Descemet membrane and an important landmark during gonioscopy.

Schwalbe is also remembered for his anthropological research of primitive man. He considered the Neanderthal to be a direct ancestor of modern humans. He also wrote an influential treatise on Java Man. He died in 1916.

- edited from whonamedit.com -

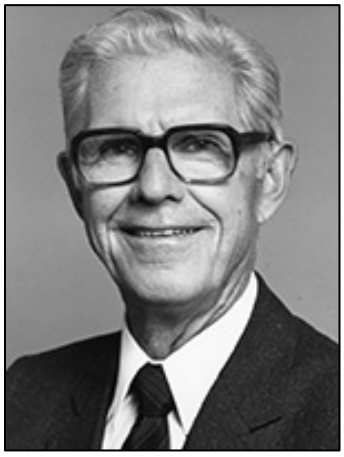
Publication from which the eponym derived:

- *Schwalhe, G. Lehrhichl der Anatomlie (ler Sinnesorgane. Edwar(d Bcsold, Erlanigen,1887.*

Eponyms associated with gonioscopy

Harold Glendon SCHEIE (1909 – 1990) was born in Brooking County, North Dakota. He graduated from the University of Minnesota School of Medicine and did his ophthalmology training in University of Pennsylvania. He was a pioneering surgeon in adult and paediatric glaucoma. He founded The Scheie Eye Institute in Philadelphia. The **Scheie grading system** is based upon visibility of the anatomical structures of the angle. They are graded Wide through IV, with Wide being the most open.

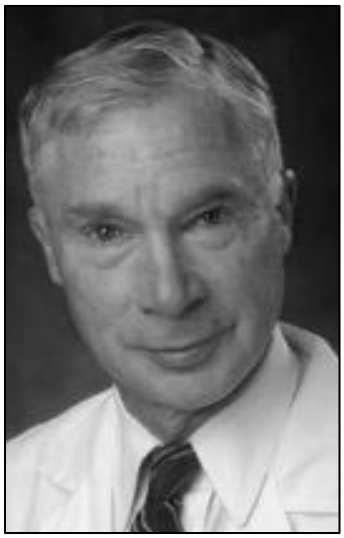
Scheie HG. Width and pigmentation of the angle of the anterior chamber. A system of grading by gonioscopy. Arch Ophthalmol 1957; 58:510–514.



Robert Nesbit SHAFFER (1912 - 2007) was born in Cockranton, Pennsylvania. He qualified in Stanford Univeristy Medical School and did his ophthalmology residency in Stanford. He was an early innovator in glaucoma and a Clinical Professor Emeritus in Ophthalmology at University of California San Francisco. He founded the Glaucoma Research Foundation in 1978. The **Shaffer grading system** is based on angularity. It also uses a number system, but is in reverse of the Scheie

system. For example, a Grade 4 angle in the Shaffer system is wide open, while a Grade IV in the Scheie system is anatomically closed with no structures visible.

Shaffer RN. Gonioscopy, ophthalmoscopy and perimetry. Trans Am Acad Ophthalmol Otolaryngol 1960; 64:112–127.

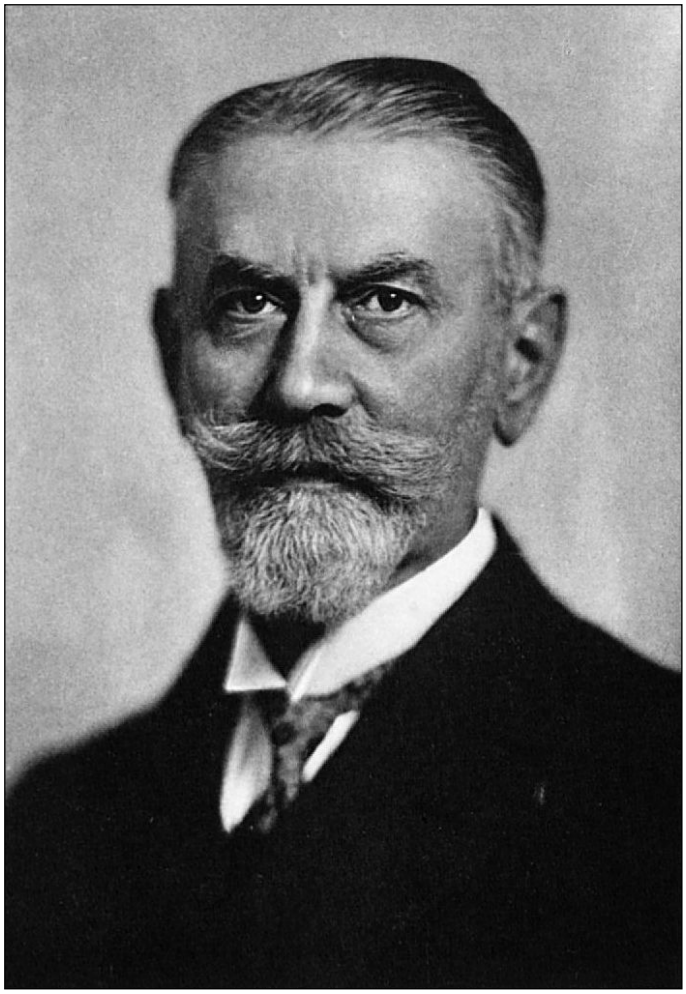


George SPAETH (1932 -) is an American ophthalmologist specializing in glaucoma at Wills Eye Institute. He graduated in Harvard Medical School and did his ophthalmology residency in Wills Eye Hospital. He is widely regarded as one of the world's leading glaucoma specialist. The **Spaeth grading system** is much more complex and describes each detail of the anatomic angle such as iris insertion, angularity, configuration, and pigmentation of the posterior trabecular meshwork.

Spaeth GL. The normal development of the human anterior chamber angle: a new system of descriptive grading. Trans Ophthalmol Soc U K 1971; 91:709–739.

VON HIPPEL Eugene

(1867- 1939)



Von Hippel-Lindau syndrome (VHL): an autosomal dominant condition associated with retinal angioma, hemangioblastomas of the brain, renal cell carcinoma, phaeochromocytoma etc.

Eugen von Hippel was born in Königsberg, Germany (now Kaliningrad, Russian Federation) in 1867. His father, Arthur von Hippel (1841-1916) was professor of ophthalmology in that city and a pioneer in the field of corneal grafting.

The younger von Hippel pursued formal education in some of the most prestigious institutions of his day. He studied in Giessen, Freiburg, Berlin, Heidelberg, and Göttingen, receiving his doctorate in medicine in 1890. Following medical school, he first pursued the study of pathology under the mentorship of Professor Arnold in Heidelberg. However, undoubtedly influenced by his father's example, Eugen began to specialize in ophthalmology in 1892 under the guidance of Professor Theodore Leber.

While working with Leber, von Hippel became interested with disorders in the formation of the eye, notably hydrophthalamus, corneal defects, cataracts, corectopia, and finally angiomatosis of the retina. Given his background in pathology, he was fascinated not only with his anatomic observations of these conditions but also in a broader understanding on their pathogenesis and embryonic origins. His work led to his seminal publication in 1904. The work described in detail a very rare disease of the retina that von Hippel termed "angiomatosis retinae."

Perhaps, what makes this work so impactful was not only von Hippel's description of the physical manifestations in great detail but also his observations of a linkage to a possible hereditary cause through his documentation of the presence of this rare condition in members of the same families. These keen strengths of observation, documentation, and attention to detail made Eugen von Hippel a very well-respected professor and teacher in his own right. He was known to create a very rich learning environment in his clinic and in his laboratory. He was well respected by his students and staff for encouraging discussion and debate while maintaining an inclusive interaction, which was unusual for the time. He retired for reasons of failing health in 1934 and died in Kӧnigsberg in 1939.

- from The Person behind the Syndrome –

Publication from which the eponym aries:

- *von Hippel E. Vorstellung einer Patientin mit einem sehr ungewöhnliehen Netzhaut beziehungsweise Aderhautleiden. Ber Ophthal Ges Heideib 1895; 24: 269.*

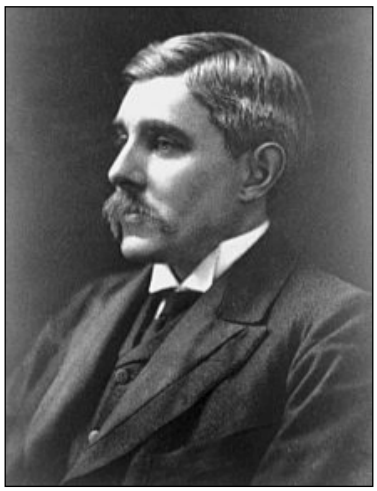
Other eponyms associated with phakomatosis

Arvid Vilhelm LINDAU (1892 – 1958) was a Swedish pathologist. In 1926, Lindau was the first to describe a coherent link between the retinal, cerebellar and visceral components of a disease he called "angiomatosis of the central nervous system" now termed **von Hippel-Lindau syndrome**.

Lindau A. Angiomatosis retinae. Acta pathologica et microbiologica Scandinavica, Copenhagen, 1926, supplement 1: 77.

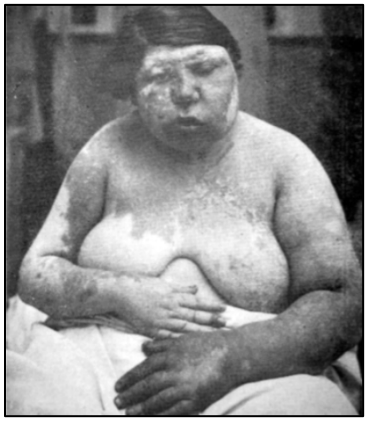
William Allen STURGE (1850–1919) was an English physician from Bristol and personal physician to Queen Victoria. In 1879 he described a disorder in a six-year-old child with encephalotrigeminal angiomatosis now commonly known as the **Sturge-Weber syndrome**.

Sturge WA. A case of partial epilepsy, apparently due to a lesion of one of the vasomotor centres of the brain. Trans Clin Soc Lond 1879; 12:162.



Frederick Parkes WEBER (1863 – 1962) was an English dermatologist in London. In 1922, **Weber** reported the first radiologic features of brain calcification and atrophy in **Sturge-Weber syndrome**.

Weber FP. Right-sided hemi-hypertrophy resulting from right-sided congenital spastic hemiplegia, with a morbid condition of the left side of the brain, revealed by radiograms. J Neurol Psychopathol (Lond) 1922;3:134–9.



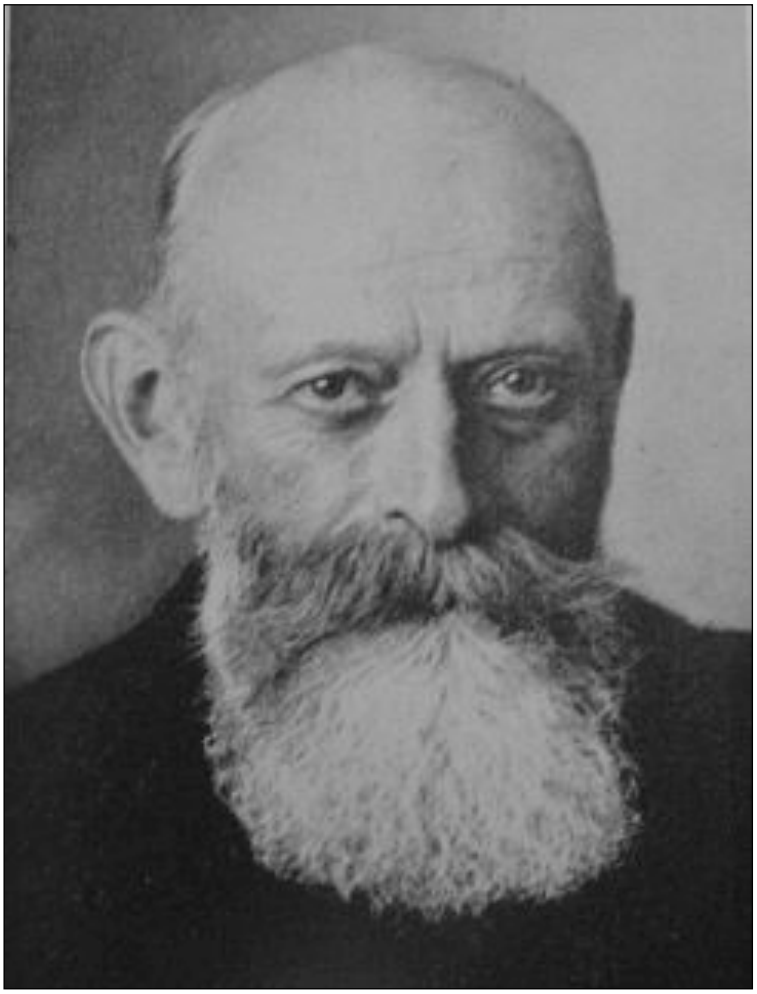
The original patient first described by Weber in 1922 with port-wine stain and cranial calcification shown on X-ray.

Denise LOUISE-BAR (1914 -?) was a Belgium psychiatrist who specialized in mental handicap. In 1940 she described a 9-year old girl with progressive ataxia, mental retardation and conjunctival telangiectasia that developed in early childhood. This condition is now termed ataxic telangiectasia or **Louise-Bar syndrome**.

Louis-Bar D. Sur un syndrome progressif comprenant des telangiectasies capillaires cutanees et conjunctivales symetriques, adisposition naevoide et des troubles cerebelleux. Conlin Neurol (Basel) 1941; 4: 32-42.

WILBRAND Hermann

(1851 – 1935)



Wilbrand knee: inferonasal fibres of the optic nerve which go into the contralateral optic nerve for a short distance before crossing over to the opposite optic tract.

Hermann Wilbrand was a German ophthalmologist born in Giessen. He earned his doctorate at the University of Strassburg in 1875 and became a resident to Carl Friedrich Richard Förster (German ophthalmologist and inventor of photometer and perimeter; 1825-1902) at Breslau. Under Förster, he learned to use the perimeter and received the incentive to study the course of the optic pathways in the brain. Later he moved to Hamburg, where he became head of the department of ophthalmology at Allgemeines Hospital in 1905. The unusually rich material in nervous diseases at the St. Georg Hospital interested him in the neurology of the eye.

Wilbrand specialized in the field of neuro-ophthalmology and demonstrated that homonymous hemianopia was caused by lesions in the occipital lobe and optic radiation as well as the optic tract.

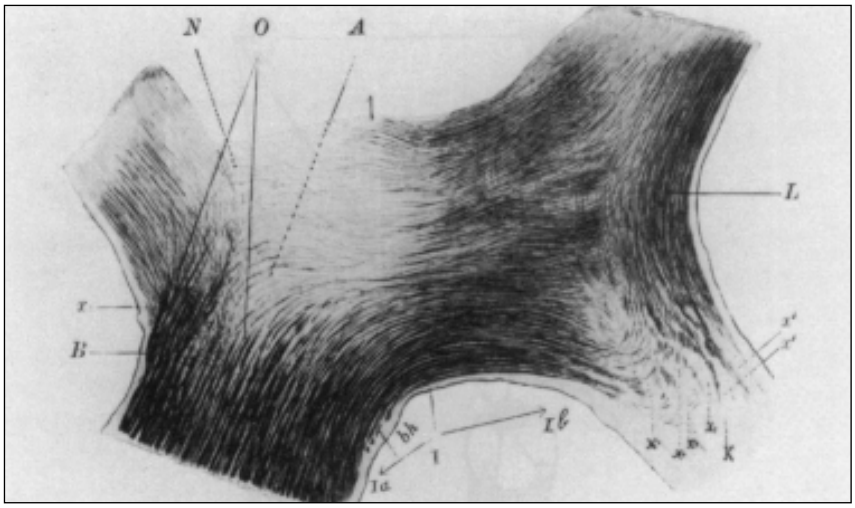
The loop of optic tract eponymously called Wilbrand knee was described in 1904 in Volume 3 of Wilbrand monumental 10-volume handbook, *Die Neurologie des Auges*, written with Alfred Saenger from 1899-1927. He reported 2 specimens: case NN sectioned coronally and case E sectioned horizontally. The interval in his subjects between loss of the eye and death was not specified, but it must have been considerable, judging from the severe optic nerve atrophy visible in his illustrations. In both cases, Wilbrand observed that crossing fibers took a detour of 1 to 2 mm backwards into the atrophic contralateral optic nerve before entering the optic tract. He called this errant loop of fibers the "knee" of the optic chiasm. Wilbrand was also the first to associate the loop with characteristic patterns of visual field loss produced by parasellar lesions. He stated that "lesions compressing the inferonasal aspect of the optic nerve just before the chiasm result in a temporal hemianopia from injury to crossing fibers" "A smaller temporal hemianopia appears in the other eye because of injury to the 'knee' fibers of the other nerve. If the lesion is large enough, complete blindness in 1 eye will be accompanied by a temporal hemianopia in the other eye".

He died in Hamburg, Germany in 1935 aged 84.

- edited from Archive of Ophthalmology -

Publication from which the eponym derived:

- *Wilbrand H, Saenger A. Die Neurologie des Auges. Wiesbaden, J Bergmann, 1904, vol 3, part 1, pp 98-120.*

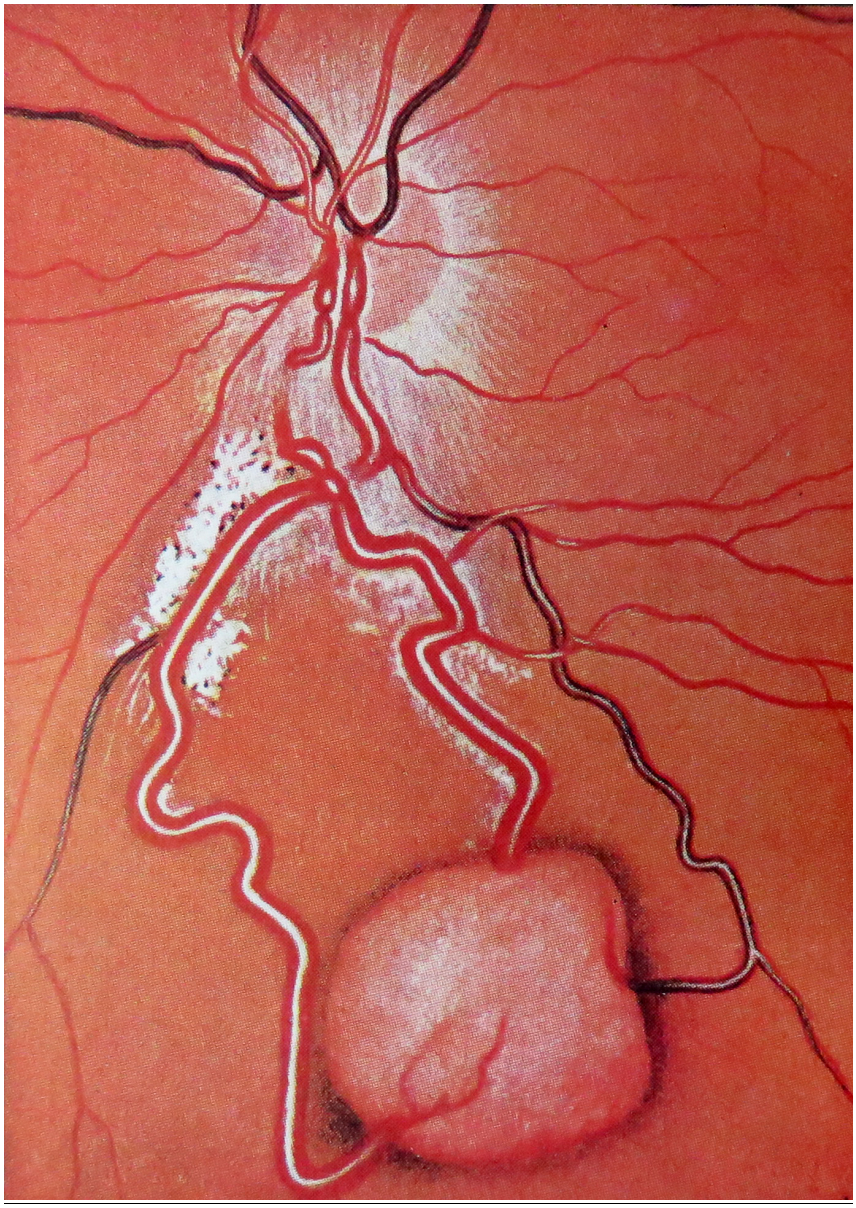


Original drawing of Case E by Hermann Wilbrand, showing a loop of fibers (K) from the intact optic nerve (lower left) detouring into the atrophic optic nerve before proceeding to the contralateral optic tract (upper right).

Other eponym associated with visual pathway

Adolf MEYER (1866 – 1950) was a Swiss-born American neurologist and psychiatrist. In 1907, he detailed configuration of the optic radiation and stated the anterior fibers of the optic radiation detour from the lateral geniculate body into the temporal region before reaching the occipital cortex. This loop is also termed the **Meyer loop**.

Meyer A: The connections of the occipital lobes and the present status of the cerebral visual affections. Trans Assoc Am Physicians 22:7–16, 1907.



von Hippel tumour after Eugene von Hippel (1867- 1939).

Mythological Eponyms in Ophthalmology

Many figures in Greek mythology have given their names to various disciplines of medicine such as anatomy, medicine, surgery, psychiatry and many others. The following are some examples:

- **The atlas vertebrae:** atlas is the first and hence the most superior part of the cervical cervical vertebra that support the head. In Greek mythology, Atlas was a Titan who was condemned to hold up the sky (usually represented by the globe) after the Titanomachy which was a series of battles in which he was on the losing side.
- **Achilles tendon:** the structure that connects the calf muscles with the heel bone. Achilles was a Greek hero of the Trojan War. He was invincible because as an infant his mother Thetis tried to make him invulnerable by dipping him into the river Styx, which flowed through the underworld. However, the water did not touch the heel by which she held Achilles, and this spot remained vulnerable. He was killed when his heel was hit by enemy poisoned arrow.
- **Caput Medusae:** caput Medusae means head of Medusa and refers to the appearance of distended superior epigastric veins radiating from the umbilicus across the abdomen seen in portal hypertension. Medusa was a female monster who had living snakes in place of hairs.
- **Amnesia:** the loss of memory is made up of two words "a-" which means not and "mnesia" memory. Mnesia is derived from Mnemosyne who was the goddess of memory.

We introduced 6 mythological figures eponymously linked to ophthalmology.

ATROPOS

(Goddess of fate and destiny)

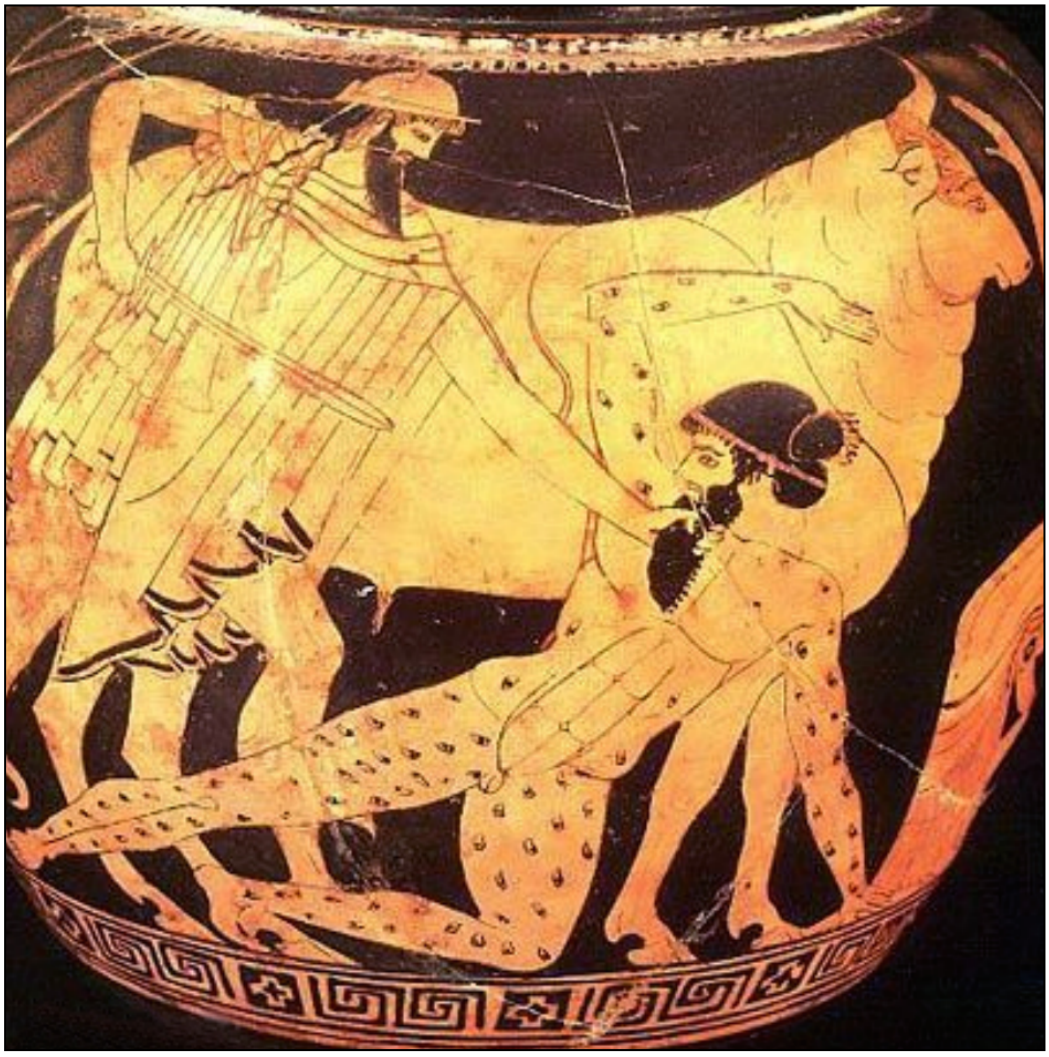
Atropinization: the application of atropine to the eye is used in children in the treatment of amblyopia (penalization). It is also used to prevent amblyopia in eyes with cataracts involving only the central portions of the lens. Recently, weak dosage of atropine has been shown to reduce the progression of childhood myopia.

In Greek mythology, Atropos was the oldest of the three Fates who controlled human destiny from the time they were born to the time they died. The three fates were sisters and were daughters of Zeus and Themis. Each Fate had a task: Clotho (Spinner), Lachesis (Allotter), and Atropos (Inflexible). Clotho spun the "thread" of human fate, Lachesis dispensed it, and Atropos cut the thread (thus determining the individual's moment of death). Therefore, Atropos was regarded as the most deadly of the three Fates.

Atropos lends her name to atropine; an alkaloid compound found in Solanaceae plants especially the Deadly Nightshade (*Atropa belladonna*, see picture insert). Atropine has a long history of use as poison especially during the Roman time. The wife of Emperor Augustus and the wife of Claudius were rumoured to have used it for murder. It was also used to make poison-tipped arrows. However, atropine had also been used as a cosmetic. The latin name for Deadly Nightshade contains the word belladonna which is Italian for "beautiful lady" because the plant was used by women as eyedrops to dilate their pupils to make them look seductive.

PANOPTES Argus

(100-eyed giant in Greek mythology)



Panoptic: it is made up of two words "pan-" means all and "-optic" means vision, the whole word means showing or seeing the whole at one view.

Argos Panoptes was a hundred-eyed giant and servant to Hera, the Queen of the heaven and God. The word “Panoptes” means all seeing due to his many eyes. As a result of having so many eyes, Argus Panoptes was said to be always awake for only two eyes went to sleep at any one time, ensuring that 98 eyes were always functioning. Hera used him as an invaluable guard.

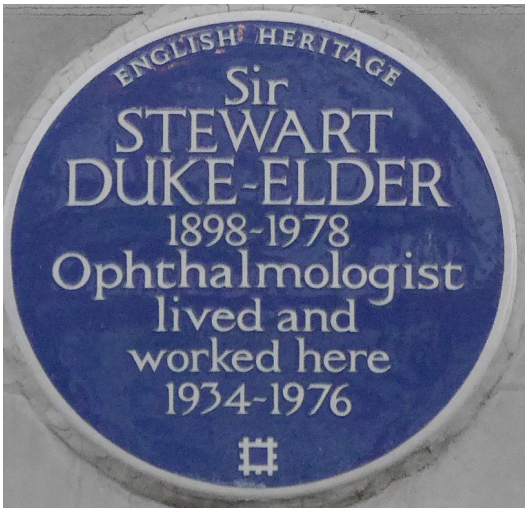
One day, Hera caught her husband Zeus having and affair with Io, the virgin priestess of Hera. Zeus then turned Io into a heifer in order to hide her from Hera. However, not to be fooled, Hera asked for the heifer as a gift which Zeus could not refuse. Hera then appointed Argus Panoptes as a herdman for the heifer, preventing Zeus from visiting Io or transforming her back to her original form.

Zeus sent Hermes to rescue his lover. Hermes disguised himself as a fellow heardsman and played soothing music which so hypnotized Argus Panoptes that all his eyes were closed. Hermes then struck and cut off the giant head and rescused Io.

After the death of her favorite servant, Hera took the eyes of the deceased Argus Pantoptes and used them to decorate the feathers of her pet bird, the peacock. The painting inserted here is *Juno and Argus* by Flemish painter Peter Paul Rubens (1577 - 1640). Juno being the Roman term for Hera.

Great Ophthalmologists without Eponyms

Jules GONIN (1870 – 1935) was born in Lusanne and obtained his medical degree in the University of Lusanne. He is widely regarded as the pioneer of retinal detachment surgery. He presented his ground breaking theory that retinal detachment was related to retinal tears in the 1904 International Congress of Ophthalmology held in Lusanne. In subsequent years he presented clinical evidence that retinal detachment can be treated by closing the retinal holes using cautery. His studies made him internationally renowned and ophthalmologists from all over the world came to Lusanne to learn his techniques. He was considered for the Noble Prize of Medicine prior to his death in 1935.



Before Jack Kanski, the ophthalmology textbook most consulted by eye surgeons in-training was the seven volumes of Textbook of Ophthalmology and fifteen volumes of System of Ophthalmology by **Sir Stewart DUKE-ELDER** (1898 – 1978). Duke-Elder was a Scottish ophthalmologist who obtained his medical degree in St. Andrew. He was the best known British ophthalmologist in the world for almost one quarter of a century for

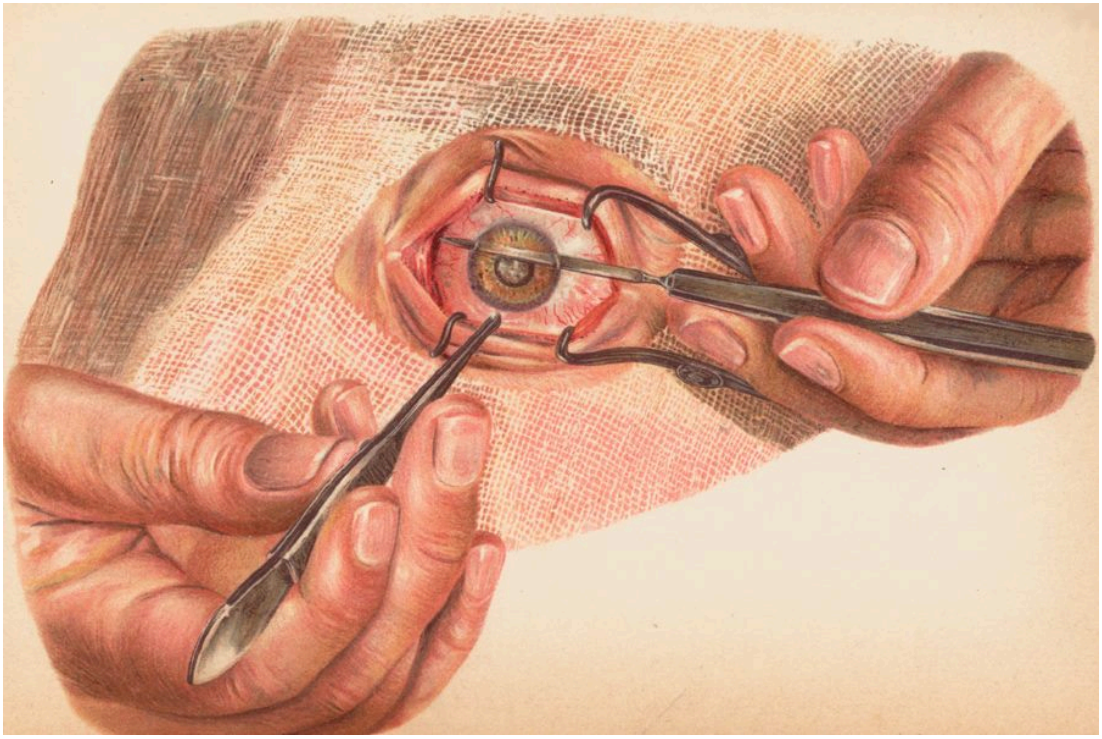
his contributions as a scientist, clinician and author. He founded the Institute of Ophthalmology, now part of the University College London. He was knighted in 1933 for successfully operating on the British prime minister, Ramsey MacDonald for his glaucoma and was ophthalmologist to King Edward VIII, King George VI, and Queen Elizabeth II of Great Britain. His face appears in medals: the Duke-Elder International Gold Medal awarded by International Council of Ophthalmologits every four years to the most deserving ophthalmologist and Duke-Elder Undergraduate Gold Medal awarded by the Royal College of Ophthalmologists to winner of the Duke Elder Undergraduate Prize in Ophthalmology. His former residence in 63, Harley Street, London was marked by English Heritage with a plaque.

Alternative Ways to Fame without Eponyms

It's the dream of ophthalmologists to have their names immortalized by eponyms. Unfortunately, only a handful can achieve that. However, immortality may also be gained by pursuing an alternative careers. Below are some ophthalmologists who did just that!

Sir Arthur Conan DOYLES (1859 – 1930) studied medicine in Edinburgh and became an ophthalmologist in London. However, his career did not flourish and the money was poor. In his spare time, he wrote mystery stories and hit the big time with the creation of Sherlock Holmes which gained him fame and fortune.

Jose RIZAL (1861-1896) was a national hero of Phillipines. He obtained his medical degree in Madrid and trained as ophthalmologist in France and Germany before returning to Phillipines. At the time, Philippines was under the brutal colonial exploitation of Spain. He became a writer and a key member of the Filipino Propaganda Movement which advocated political reforms for the colony under Spain. In 1896, Rizal organized an independence movement but was arrested by the Spanish government and executed in Luneta Plaza in Manila by firing squad at the age of 35.



von Graefe knife for cataract surgery after Albrecht von Graefe (1828 – 1870).

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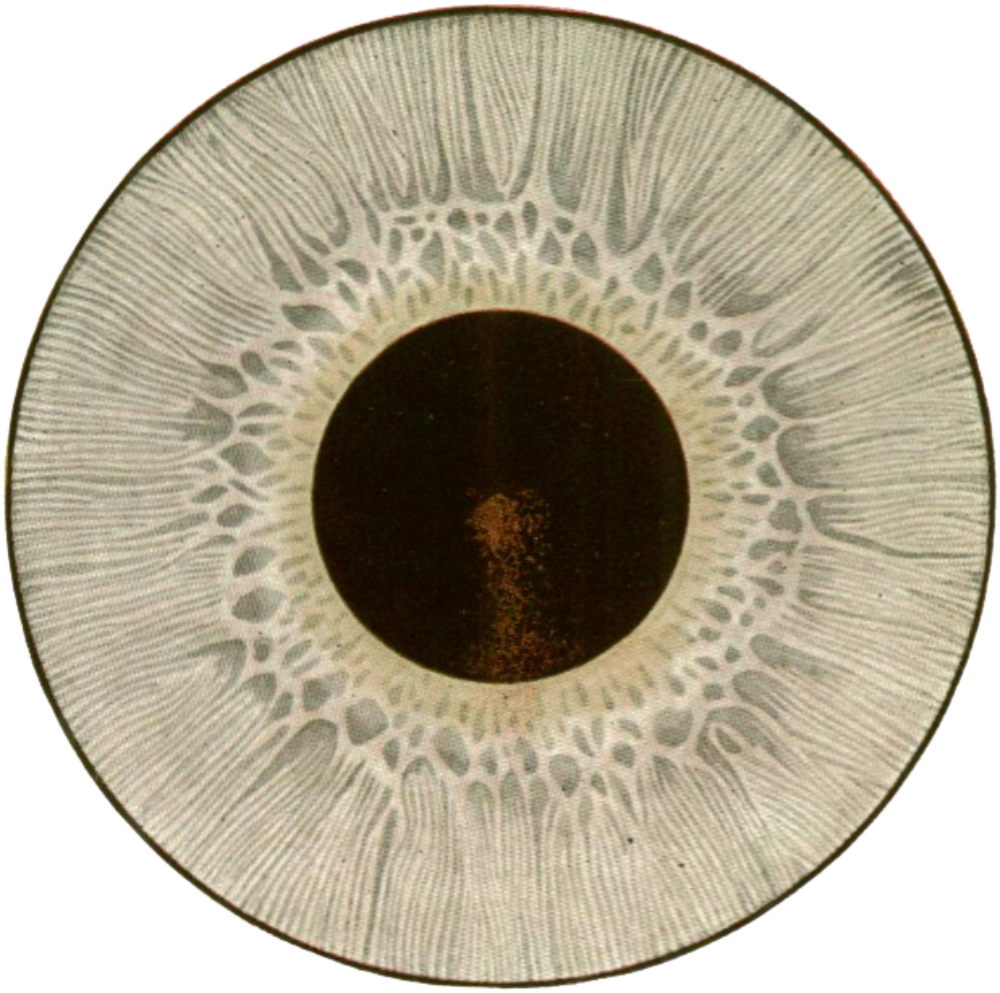

Krukenberg spindle after Friedrich Ernst Krukenberg (1871 – 1946).