

PROFESSOR A. N. MAKLAKOV AND THE MOSCOW SCHOOL OF OPHTHALMOLOGY

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Introduction: Russian ophthalmology

The first more or less reliable data concerning the development of ophthalmology in our country can be traced back approximately to the time of adoption of christianity (988). Christianity as an official state-supported religion was decreed by the Prince Vladimir of Kiev, who was later canonized as Saint Vladimir for that. There is an old tale that Vladimir was miraculously cured of a long-standing eye disease immediately after he was baptised.

Official documents concerning an ophthalmic service in Russia exist from the seventeenth century. The first *factory for surgical instruments* (including those for ophthalmic surgery) began production in 1721 during the reign of Peter the Great. In 1783, i.e. in the time of Ekaterine the Second, a hospital was opened for "*surgery, gynecology and ophthalmology*".

The medical faculty of the Moscow University was first established in 1764. The first specialized eye clinics opened in 1805 and approximately at the same time as in England.

A specialized and separate course on eye diseases was started in Petersburg in 1783. It should probably be mentioned that ophthalmology was taught at the University of Paris in 1762 but there the same professors lectured on other branches of medicine, as well. Therefore, it is possible that the specialized course in ophthalmology at the Petersburg University was unique and the first in Europe.

A scientifically-based ophthalmology, in the contemporary meaning of this word, began to develop in Russia in XIX. century, as was the case in other countries. A special chair of ophthalmology was created at the Moscow University in 1862 and here we come to the main events of our narrative.

A. N. Maklakov

ALEXEY NICOLAYEVICH MAKLAKOV was born in 1837. As far as chronology is concerned, he was not the founder of the chair but the second in the row of its succeeding directors. He became the chief in 1892. Under his rule, however, the chair became famous as one of the outstanding centers of European ophthalmology. The chair and its clinic moved to a separate building, which up to this day has remained basically unchanged. A whole constellation of famous Russian ophthalmologists came from this place, and that is why the term *Moscow school of ophthalmology* was born and became gradually adopted. The author of the present communication has the honour currently to be head of this chair.

In the history of medicine it seems rather unusual, that men with outstanding scientific abilities are at the same time very active in their educational work, lecturing and management. This, however, was the case with Professor MAKLAKOV. He organized the chair library and the chair museum, and worked out a detailed programme of theoretical and practical study for students in ophthalmology.

Two of MAKLAKOV's scientific achievements are certainly outstanding. They are the development of *applanation tonometry* and of *fistulizing surgery* for glaucoma. The first of these discoveries is generally recognized. The second is far less known, although MAKLAKOV published many of his papers in West European scientific journals. Professor FELIX LAGRANGE is universally recognized as the founder of fistulizing surgery. He described sclerectomy in 1905. MAKLAKOV performed it in 1886. A short story relating to this is worth recollecting. Sometime in the first decade of the XX. century, professor LAGRANGE spoke of fistulizing surgery in glaucoma at a meeting of the French Ophthalmological Society. Among those present in the audience was the famous Russian ophthalmologist S. S. GOLOVIN. In the discussion that followed he immediately pointed out the fact that the priority in fistulizing surgery belongs to MAKLAKOV, who had practised such operations twenty years before LAGRANGE.

A short dialogue followed. Prof. LAGRANGE answered: "*I do not read Russian journals.*" — "*How very interesting!*" retorted GOLOVIN, "*but Maklakov has*



Fig. 1: Alexey Nicolayevich Maklakov

also published this in the Archives d'Ophthalmologie and, of course, in French!" No comment followed.

The technique of MAKLAKOV's fistulizing procedure (cf. MAKLAKOV, 1892) is evident from a simple sketch published in the same article in the Archives d'Ophthalmologie. It appears that LAGRANGE had not even noticed this small picture.

As to MAKLAKOV's *applanation tonometry* (MAKLAKOV, 1885, 1892), its fundamental theoretical advantages were recognized quickly and widely. A few years later, however, the SCHIÖTZ tonometer was brought forward. The very foundations of its principle made it much less accurate. On the other hand it was simple to use. Be it logical or not, but this quality can easily become a decisive factor from the standpoint of an average ophthalmic practitioner. This is exactly what happened. Simplicity of use of the SCHIÖTZ tonometer outweighed by far all the principal advantages of the applanation method according to MAKLAKOV. Once again an old saying was confirmed that it is not enough to make a discovery, you must make it at the right moment.

Even in our country the SCHIÖTZ tonometer was the preferred instrument for many years, and as the adage goes the prophet is not heard in his own land. But in the Soviet Union, the MAKLAKOV tonometer was revived fairly soon. To the present time, it remains the main instrument for measuring the intraocular tension in the routine practice of the average ophthalmologist.

Currently, however, applanation tonometry seems to be more and more utilized in many countries. MAKLAKOV's tonometer was marketed in the USA almost in its original form. HALBERG's tonometer is actually a replica of the MAKLAKOV instrument, except with direct observation of the applanation area. The MACKAY-MARG instrument is also based on the same principle, although electronics are employed for the actual measurement. With the development of pneumatics the applanation pneumotonometers have become possible (TOMAIR system, LANGHAM, etc.). One of the greatest achievements, of course, was the invention of slit-lamp tonometry by GOLDMANN. At times this method is even considered synonymous with applanation tonometry.

As has already been mentioned, the range of MAKLAKOV's scientific interests was exceptionally wide. Although some of the concepts adopted by the medicine of the last century may now at times seem naive, this was not MAKLAKOV's fault. He was a child of his time, as each of us is now. MAKLAKOV was one of the first to introduce the method of so-called *stagnation hyperemia* for inflammatory diseases of the eye. Later this hypothesis was thoroughly studied by BIER.

MAKLAKOV worked on the treatment of glaucoma by *vibrational massage* of the eye. He also studied the role of the photoreceptors when the eye was illuminated by luminescent light. He was actually the first in Russia to point out the *occupational danger* of visible radiation that is used in certain technological processes.

It should particularly be mentioned that MAKLAKOV, who was the head of a University hospital, also worked daily as a regular practitioner at a Moscow eye hospital until his death in 1895. Scientific interests were for him inseparably linked with the tasks of every day routine.

It was indeed unusual that a person such as he was could even find time to take an interest in social activities. Yet he founded the *Moscow Ophthalmological Society* and was an active member of many other medical societies. He was even a deputy of the Moscow civil council. One of his speeches against the limitations of the parliamentary rights, made in 1892, became widely known. In his free time (one may ask, how he managed to have any) he was interested in painting and bee-keeping.

In 1895, MAKLAKOV died at the age of fiftyeight of pneumonia. Many European ophthalmic journals published obituaries in his memory.

In 1897, the *International Congress of Ophthalmology* was held in Moscow. Perhaps one of the best tributes to MAKLAKOV's memory was the unanimous acclamation of his clinic by the delegates as one of the best (possibly the best) of the time in Europe.

MAKLAKOV himself would have been happy to know that his son, ALEXEY ALEXEYEVICH MAKLAKOV, would step into his shoes a few years later and become professor of ophthalmology and head of the ophthalmological chair of the Moscow University.

Summary

A. N. Maklakov (1837–1895), who occupied the chair of the Moscow School of Ophthalmology and founded the Moscow Ophthalmological Society, is well-known for his fistulizing operation in glaucoma, which was published in 1886, and for his applanation tonometer, upon which the tonometers of Halberg and Mackay-Marg are based.

References

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KRASNOV, M.M. — A.N. Maklakov et l'Ecole Moscovite d'ophtalmologie**Resumé**

A.N. Maklakov (1837–1895), qui a occupé la chaire de l'Ecole Moscovite d'Ophtalmologie et fonda la Société d'Ophtalmologie de Moscou, est bien connu pour son opération fistulisante dans le glaucome, qui a été publiée en 1886, et par son tonomètre par aplanation, dont les principes ont été à la base des tonomètres de Halberg et de Mackay-Marg.

KRASNOV, M.M. — A.N. Maklakov und die ophthalmologische Schule von Moskau**Zusammenfassung**

A.N. Maklakov (1837–1895) hatte in Moskau den ophthalmologischen Lehrstuhl inne und gründete die ophthalmologische Gesellschaft von Moskau. Bekannt wurde er durch die Beschreibung einer fistulierenden Glaukomoperation, die im Jahre 1886 veröffentlicht wurde, und durch die Entwicklung seines Applanations-tonometers, dessen Prinzip die Geräte von Halberg und Mackay-Marg verpflichtet sind.

KRASNOV, M.M. — A.N. Maklakov y la escuela oftalmológica de Moscú**Resumen**

A.N. Maklakov (1837–1895) que ha ocupado la cátedra de la Escuela de Moscú, es bien conocido por su operación fistulizante en el glaucoma, que ha sido publicada en 1886, y por su tonómetro de aplanación, del cual los principios han sido la base de los tonómetros de Halberg y de Mackay-Marg.

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