History of Ophthalmology

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Volodymyr Petrovych Filatov, an outstanding ophthalmologist, Academician of the AS of UkrSSR and AMS of USSR, and the founder of the Ukrainian ophthalmology school: a life pathway

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[1] SI "The Filatov Institute of Eye Diseases and Tissue Therapy of the National Academy of Medical Sciences of Ukraine"

[2] Odesa Region State Archive

Odesa (Ukraine)

V. P. Filatov (Fig. 1) was born in the family of a doctor on February 15 (28), 1875. They say that a person born in later winter or spring will live longer than those born in summer or autumn because he/she will have one more summer to live through. It is likely that this happened to Volodymyr Filatov. Volodymyr's father, Petro Fedorovych, was a district doctor, and did any surgery (including eye surgery) in patients of his district. While assisting to his father, the young Volodymyr was impressed with the beauty of the human eye globe, and developed his keen passion for ophthalmology.

The future academician came to Odesa in 1903 and deeply attached himself to this young southern and almost European seaport city. He, together with his teacher, Professor S. S. Golovin, contributed to the establishment of the first ophthalmology department in the then Novorossiisk University. His began his career at the department as an assistant (Fig. 2), but, due to his outstanding talent, he was fast promoted to the professor rank and headed the newly established department.

V. P. Filatov's dissertation "The doctrine of cellular poisons in ophthalmology" (Fig. 3) [1] was based on an experimental study on the effect of blood serum on the eye and was successfully defended in 1908. In 1911, Volodymyr Petrovych was appointed Head of the Department and Eye Disease Clinic at the Odesa Medical Institute, and headed them until his death.

The young ophthalmologist made his first attempts at corneal transplantation for patients with leukoma in 1912, but at that time his bold idea found no support among the medical community as many believed that it was not promising. It took him many years and much effort to solve such a difficult problem. Obtaining and processing the donor material for corneal transplants was a separate question to be addressed. It was in need to demonstrate and make the medical community of that time believe that the cadaver cornea preserved at a low temperature by the method of Filatov could be used to solve the question.

Fig. 1. Academician V. P. Filatov

Filatov developed techniques of the complete corneal transplantation in 1924 and partial penetrating transplantation in 1927-1938. For this purpose, he designed special trephines with a tapered cutting blade, the Filatov and Marzinkowsky trephines (FM 3 and FM 4 trephines) (Fig. 4) [2] that allowed avoiding damage to the lens during trephination of corneal leukoma. This simplified the technique of penetrating transplantation and made it safer and less traumatic for patients [3].

Fig. 2. Young V. P. Filatov

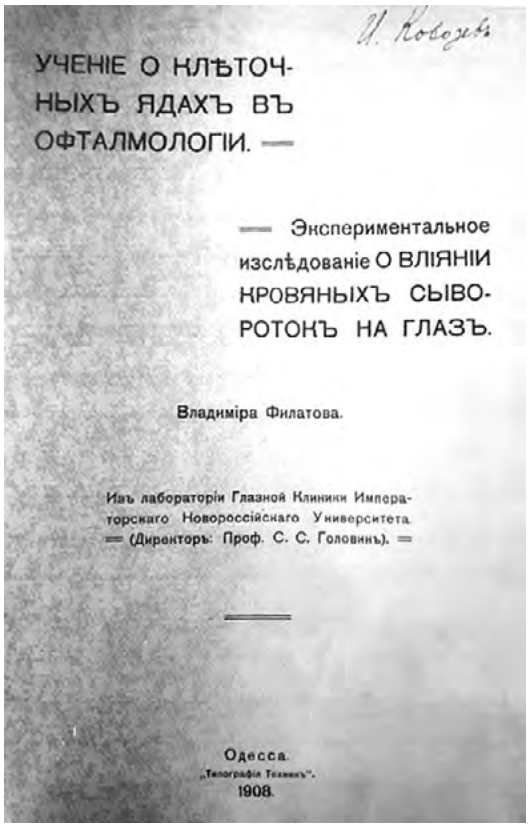

Fig. 3. Doctoral dissertation of V. P. Filatov (1908)

Volodymyr Petrovych also worked on solving other problems. He proposed a new technique for measuring intraocular pressure, elastotonometry, in 1913, and developed an innovative plastic surgery technique, "a tube pedicle flap", in 1914 (Fig. 5), and began his work on biostimulants and developing the method of tissue therapy (Fig. 6) in 1933.

The number of beds in the eye clinic of the medical institute became insufficient for the increasing number of leukoma patients requiring surgery by the new method to obtain vision. Additionally, a lot of new science problems emerged, and solving them demanded more researchers and laboratories.

A huge correspondence with multiple authorities was generated to substantiate the need for expansion of Professor Filatov's research and clinical activities, and the Ukrainian Experimental Institute for Eye Diseases and Tissue Therapy (Odesa Research Institute of Eye Diseases and Tissue Therapy, Ministry of Health of Ukrainian SSR) was established in 1936. V. P. Filatov initiated and established the institute, and headed it until his death.

It is, however, wishful to think that it was easy for Volodymyr Petrovych to prove the efficacy of his procedures. There were lots of skeptics who did not believe the benefits of these procedures. In order to convince his opponents, Filatov took a group of post-operation patients with eyes whose transplants were found to be transparent after surgery, and visited several leading universities for the presentation of live evidence (Fig. 7).

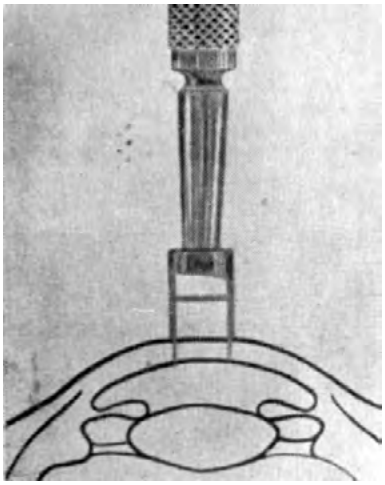

Fig. 4. Scheme of FM 3 trephine

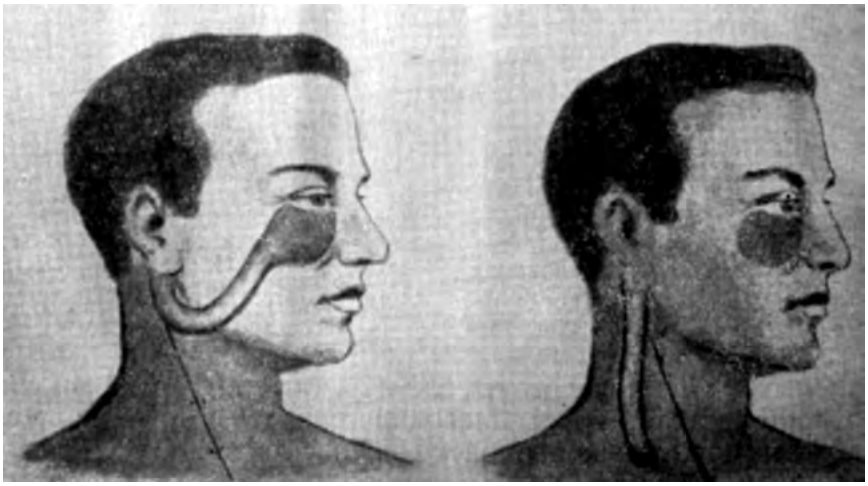

Fig. 5. A tube pedicle flap (scheme)

Fig. 6. Tissue preparations

During World War II, V. P. Filatov worked as a consultant and academic counselor for evacuation hospitals in Piatygorsk and Tashkent, where he widely used the methods developed previously (tissue therapy and tube pedicle flap for the restoration of the damaged face including the nose, eyelids, etc.) (Fig. 5). In that hard time for the country and people, V. P. Filatov sent letters of support to his pupils involved in combat actions. These short letters were written by his hand and sent through the field post office; they contained pieces of advice regarding surgical activities, words of confidence in victory, and even reports on research activities of the institute in evacuation.

In September 1944, Volodymyr Petrovych with his colleagues returned to Odesa. He headed works on the restoration of the institute that had been destroyed by occupants, and works on further research and new developments (Fig. 8). In 1946, he established a new department of pediatric ophthalmology at the institute, because there were many children with leukoma at that time, and he believed that they also may have penetrating keratoplasty (Fig. 9). Performing such a difficult surgery in pediatric patients was against the ophthalmological guidelines of that time. Filatov's pupils disproved this dogma, demonstrating a significant reduction in the rate of pediatric blindness [4]. Since then, acting in line with the teacher's precept, the department of pediatric ophthalmology has been implementing innovative technologies that disprove naysayer theories: reconstructive surgery for eye trauma, one-stage intraocular lens implantation in eyes with congenital cataract, and intravitreal melphalan injection in eyes with malignancy.

V.P. Filatov's scientific contribution includes more than 460 publications and monographs on ophthalmological issues and studies on biostimulants, including "Optical transplantation of the cornea and tissue therapy", "My pathways in science", "Corneal and sclera surgical procedures", "Selected works", etc [5].

Volodymyr Petrovych trusted in God, tried to save the religious monuments of Odesa, and had correspondence with prominent religious figures of that time, Saint Luke the Blessed Surgeon, Archbishop Nikon, and others. After the destruction of the Savior and Transfiguration Cathedral in Odesa in 1936, Filatov designed a fine fountain with

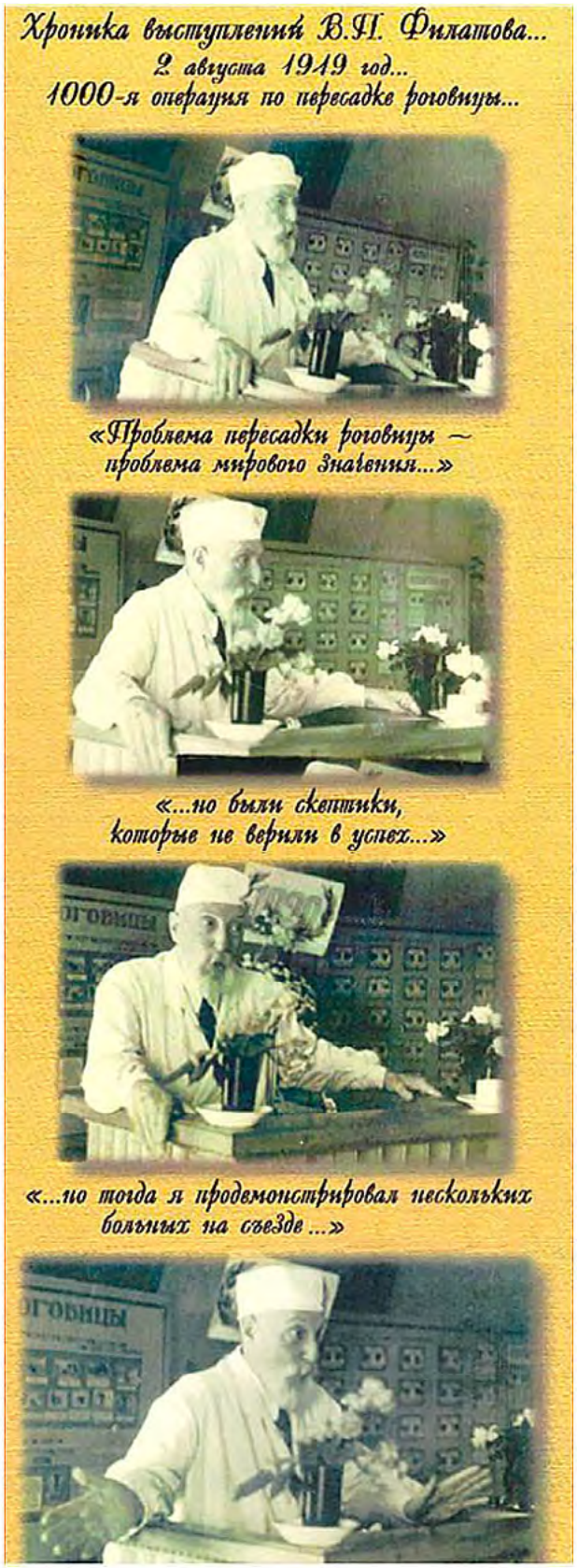

Fig. 7. Photographs of V.P. Filatov delivering a speech on the occasion of the 1000th penetrating keratoplasty procedure

Fig. 8. V.P. Filatov sitting at his writing table

Fig. 9. V.P. Filatov at the bed of a child who has had a penetrating keratoplasty

"Filatov's vase" – a marble bowl in the shape of the flower he loved most of all, morning glory, – and made sure that it was installed in the place of the altar [6, 7]. It is thanks to his efforts that the Saint Demetrius of Rostov Church at the Second Christian Cemetery was saved from destruction, and the Saints Adrian and Natalia Church in the French Boulevard worked throughout his life. He regularly visited the church to pray, and subsequently people called it Filatov's church.

Academician Filatov was a creative person and enjoyed painting, mostly landscapes, flowers, and trees (Fig. 10). His pictures were highly appreciated not only by well-known Odesa artists Kostandi, Nilus, and Kuindzhi. In 1911, Filatov was even elected deputy head of the Odesa Society of Artists. Additionally, he wrote memoirs, describing events from his childhood and adult life, as well as philosophical essays [8].

Filatov was also engaged in poetry - his poem "Children of darkness, children of night" was written as some kind of an instruction for young ophthalmologists: "Someone young will come to you to destroy your heavy darkness …". Volodymyr Petrovych wrote the prophetic poem, "Goodbye, the Earth", at the end of his life. In this large poem, Filatov thanked the Earth for "moments of insight" and "saint outburst of inspiration"; the poem was read at the celebration of the 80-th birthday of the academician at the Odesa Opera and Ballet Theatre.

V. P. Filatov received a first class Stalin Prize in 1941 – for his work "Optical transplantation of the cornea and tissue therapy". For his outstanding achievements, he was awarded numerous decorations, including the title of Honored Worker in Science and the Order of the Red Banner of Labor (1935), the Order of Lenin (1944), the first class Order of the Great Patriotic War (1945), the title of Hero of Socialist Labor and the second Order of Lenin (1948), and the Mechnikov Gold Medal of the Academy of Sciences of the USSR (1951).

Filatov died at the age of 81 years on October 30, 1956, and was buried across the church at the Second Christian Cemetery which he had saved from destruction. The Odesa Research Institute of Eye Diseases and Tissue Therapy was named after him.

Filatov's memory is honored every year by ophthalmologists in Ukraine and beyond with the conference Filatov Memorial Lectures.

Natalia Kovalenko, former director of the Acad. Filatov Museum and Exhibition Complex, managed to preserve Volodymyr Filatov's written legacy, with the book of short stories "A life-long story" [9] published in Odesa. In these stories, he shared the reminiscences of his childhood, humorously described the events of his life, surgery-related events, business trips, the surrounding world, etc. The book "The Sense of Life … and Thoughts … and Love" was a long-awaited for collection of poems by a representative of an epoch at the turn of the century who had introduced the best traits of the 19th century intelligentsia into the 20th century. The collection of memoirs "Don't Say with Anguish: "They Are Gone", But Say with Gratitude:

Fig. 10. V.P. Filatov at the easel

"They Were…" [11] depicts some members of a large family of the Filatovs, including not only such prominent figures of medicine as pediatrician Professor Nil Fedorovych Filatov but also embryologist Professor Dmytro Petrovych Filatov, biologist Professor Borys Mykhailovych Zhytkov, general of the fleet and naval engineer, Professor Oleksii Mykolaiovych Krylov, etc. This collection also includes memoirs of relatives, colleagues and acquaintances of Volodymyr Petrovych Filatov. In the book "Pages of our history" [12], Natalia Kovalenko tells about the life of the academician, the people that lived around him for years and became his friends, and the pupils that continued his research and followed his ideas.

It has been managed to restore numerous paintings and sketches by V.P. Filatov, to hold an exhibition of his artworks, and to publish a de luxe edition of the color album of his best paintings [13].

In the year of the 150th birthday of the academician, the February Meetings-2025 ophthalmology conference was held at the Filatov institute. In addition to theoretical and practical reports presented by ophthalmologists, lectures on the creative pathway of V.P. Filatov were held by Professor G.I. Drozhzhyna ("Contribution of Academician V.P. Filatov to Ophthalmology") and N.B. Bobrova ("Pictorial Legacy"). An ophthalmology conference of a larger scale, Filatov Memorial Lectures, will be held in May, and include the reports by world-known experts in the field, satellite symposia, master classes and demonstration of surgery videos. On February 27, 2025, the painting exhibition "Beauty for the Sake of Health" (Fig. 11) was opened at the Acad. Filatov Museum and Exhibition Complex to commemorate the 150th birthday of the academician and feature current artworks by the member artists of Odesa Maritime Art Association and National Union of Artists of Ukraine from various cities of the country. Many of the paintings feature bushes of rosy peony, one of V.P. Filatov's lovely flowers. He admired rosy peony at his dacha and believed that this is one of the best and most curative flowers available. He also believed that peony tincture could be used as sedative, made it himself and presented to his acquaintances.

The art community of Odesa (G. Kravchenko et al) and Filatov institute staff members (Iu. M. Vylkun) used unique photographs made by Eugene Shaier during V.P. Filatov's lifetime and designed a tourist map for visitors of academician's memory locations (the study room, the house he lived in, and museum complexes) which may be helpful for understanding the depth of creative research, level of education, noble manner and spirit of the genius person.

A. M. Martyniuk, a Filatov institute staff member, and O.G. Androsov, an Odesa Region State Archive staff member, restored the tombs of Acad. V.P. Filatov and his family.

Of note is the garden surrounding the Filatov institute which blossoms mostly in May, just before the Filatov Memorial Lectures (Fig. 12). N. V. Pasyechnikova, Doctor of Medical Science, Professor, Corresponding Member

Fig. 11. Poster of the painting exhibition "Beauty for the Sake of Health"

of NAMS of Ukraine and the current acting director of the institute, not only solves current research and practical issues, but also takes care about this blossoming environment, and finds some time for flowers.

Acad. V.P. Filatov said that "… a human being is born to introduce something useful into and not to take something from this world". Generally, it can be said that he "introduced" Ukrainian ophthalmology "into the world". His followers respect and follow his instructions:

- "Pessimism at the patient's bed … is unproductive, and the future does not belong to pessimistic people" and
- "Everyone should see the sun!"

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Fig. 12. Filatov institute with a blossoming garden

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Disclosures

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