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Pediatric surgical contributions of Professor Aleksandrs Biezins: an analysis of clinical and academic activities abroad

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Abstract. Background. The relevance of the study of the trips of Professor Aleksandrs Biezins lies in the need to highlight the most important trips for the professor, which affected his further studies, as well as the features of the application of his methods in medicine. The purpose of the article is to study the activities of Aleksandrs Biezins, his achievements, and successes in the field of pediatric surgery, as well as other areas of medicine for a more in-depth description of the outstanding surgeon. **Materials and methods.** The main methods used in the article include historical and analytical ones. **Results.** The main results are the study of the professor's professional activities abroad, as well as within his main place of work. Medical surgeon, Aleksandrs Biezins (1897–1975), called the founder of pediatric surgery, actively practiced it and worked in the development of medicine and science, is one of the most prominent figures in pediatric surgery and medicine. The use of the information obtained in the study will be useful for a deeper and more detailed study of the work of the professor, as well as for studying the interaction of surgeons with Aleksandrs Biezins in the early and middle of the 21st century. **Conclusions.** In addition to his practical work in pediatric surgery and science, education of young physicians, for the scientific purposes of his missions, he was an active participant in medical forums, congresses, conferences in pediatrics, pediatric surgery, sports pedagogy, as well as actively trained in various foreign clinics.

Keywords: Latvian medicine; pediatrics; pediatric surgery; scientific purposes; sports medicine

Professor Aleksandrs Biezins (Fig. 1) and his life are characterized by dedication to medicine, between pediatric surgery and orthopedics. Although there are many bright personalities and outstanding physicians in Latvian medicine, including pediatrics and pediatric surgery, professor of medicine Aleksandrs Biezins is one of the most prominent pediatric surgeons in the history of Latvia. His career widely gained recognition and was based not only on active practical and scientific activities but also on the improvement of knowledge, experience, and qualifications abroad, which has been obtained as a result of the exchange of experience with leading specialists in prominent European pediatric clinics during countless foreign business trips, as well as by attending various conferences, congresses, forums in pediatrics, surgery and sports medicine.

There are several authors who have previously considered the features of the professor's scientific activities, including abroad, with various physicians of those times. They described some of the surgeon's scientific trips to European

cities, where he exchanged experiences with other scientists [1]. J. Gaujēns [2] described all the details and features of interaction and collaboration with the professor. In the work of I. Mežniece [3], the author described the professor's contribution to the development of sports medicine in Latvia, his other achievements in the field of physical culture, as well as the study of the impact of sports on the human body. Researchers described the achievements of scientist in the history of medicine in Latvia, described the features of interaction and research with foreign doctors [4, 5]. Some authors mentioned the activities of A. Biezins in the field of medicine [6], and also spoke about his co-authorship in the creation of scientific films [7].

The main purpose of the article is to study the results of Professor Aleksandrs Biezins' travels in Latvia and abroad, as well as his interaction with other scientists and physicians in achieving common goals, and the creation of books, scientific studies, and other works dedicated to pediatric surgery and medicine in general, which later became the basis

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Figure 1. Aleksandrs Biezins (1897–1975)

for study at universities and practical application by doctors. The novelty of the scientific work is explained by the necessity of studying the activities of Aleksandrs Biezins, the professor's scientific trips to different countries to learn about the new frontiers of medicine, and in particular surgery, and to highlight new areas of medicine for further own practical application, as well as by other doctors since earlier this aspect and part of the professor's life was not considered separately in full.

During the study of the medical and scientific activities of Professor Aleksandrs Biezins, the main merits, achievements and contributions to science and medicine, his career path, teaching activities and other moments of his life related to his activities and career growth in Latvia and abroad were studied. European countries, as well as his cooperation with scientists, doctors and students in the course of research, work and teaching. The article uses methods such as historical and analytical, which were taken as the basis for a better and structured study of the topic. Based on the historical method, the main stages of the life of a surgeon, the stages of his formation in the field of medicine, and the most important achievements and trips that affect the further development of Aleksandrs Biezins as a professional surgeon, teacher, and scientific writer, including those outside the country, were determined in chronological order, where the main stages of his work were carried out. On the basis of the analytical method, his main achievements, books, and other scientific and medical activities as the professor in Latvia, as well as abroad, were analyzed. In a general view, the methods give a clear picture of the professor in his activities outside his native country, his cooperation with other foreign scientists in Europe and the world, as well as personal and joint achievements.

The source base of scientific work should include the works of scientists, who studied the life and work of a surgeon, as well as his work and interaction with other scientists in this field [1–8]. In addition, archival materials, books on

the history of Latvian medicine, surgical pediatrics, and separately the work of Professor Aleksandrs Biezins, periodicals, as well as scientific articles, and Internet resources were identified as research materials that were necessary for a deep study of this topic.

Professor Aleksandrs Biezins, called the founder of pediatric surgery and sports medicine of Latvia, was born on August 31, 1897, in the family of farmers P. Biezins and A. Biezina in Jaundilmani, Patkule parish, Cesis country [9]. In 1917, he graduated from Riga Nikolaja Gymnasium and received a gold medal, in 1913 he enrolled in the University of Terbata for medical studies, but in 1923 graduated the Faculty of Medicine of the University of Latvia and started work at the Riga Children's Hospital.

A. Biezins' professional career started as an ordinator in the Department of Surgery of the Republican Children's Clinical Hospital, but as his career developed, A. Biezins became the head of the Pediatric Surgery Clinic of the Riga Medical Institute, a scientist and an authority recognized in medicine [9, 10].

In 1929, A. Biezins defended his doctoral thesis "Experimental studies on tendon sore healing" ("Eksperimentāli pētījumi par cīpslu pušumu dzīšanu"), but in 1931 became a private associate professor at the University of Latvia in the study course "Pediatric Surgery and Orthopedics". In 1940, A. Biezins was elected as assistant professor at the Latvian State University. In 1946, A. Biezins became a professor of medical sciences and head of the Department of Operational Surgery and Topographic Anatomy of Latvian State University [10, 11].

While performing the duties of the Head of the Department of Operational Surgery and Topographic Anatomy of the Latvian State University from 1946 to 1972, A. Biezins was also a lecturer at the Department of Operational Surgery and Topographic Anatomy of the Latvian State University [12].

A. Biezins had an internship abroad, as well as participated in various scientific conferences, went on scientific business trips abroad, and had a vision and understanding of the progress in medicine and the opportunities it provided. Aleksandrs Biezins was one of the first physicians in the Union of Soviet Socialist Republics, who put an emphasis on treatment options for children of early age in thoracic surgery and orthopedics, using medical progress and the opportunities provided by its options. The first lung resection in a child with lung compression was carried out by A. Biezins in January 1962, assisted by Professor J. Gaujens and Dr. V. Ciema [13].

In February 1962, Professor A. Biezins and J. Volkolakovs assisted in the first heart disease surgery performed in Riga, operating blue-type heart disease, performing cavopulmonary anastomosis, which Professor J. Meshalkin had come to the Children's Hospital to perform. In addition, it can be mentioned that the efforts of A. Biezins and doctor O. Staltmanis contributed to the development of heart surgery in Latvia, as a result of which an operating unit was built in 1964 [13].

On June 1, 1937, A. Biezins became the Head of the Sports Medicine Cabinet, which was established within the framework of the Latvian Physical Culture and Sports Com-

mittee. The first medical examinations of athletes in Latvia took place in the Sports Medicine Cabinet, as well as the impact of physical culture and sport on the human body was assessed [14].

During his time as a lecturer in the Department of Oper-ational Surgery of the Latvian State University, from 1948 to 1950 three of his articles were published in the collection “Protection of the health of Soviet Latvia” by the Faculty of Medicine of the Latvian State University [15, 16].

Considering the professional and scientific activities and achievements of Professor A. Biezins, as well as his unique personality and contribution to Latvian medicine — pediatric surgery, orthopedics and traumatology, as well as sports medicine, several books dedicated to his professional activities, have been published in Latvia. Several books have been dedicated and published by A. Bie-zins, his life, work, and professional achievements. In 1991, A. Vīksna and E. Platkājis [17] published the book “Golden scalpel” (“Zelta skalpelis”) about the life and work of Professor Aleksandrs Biezins. In 2017, historian A. Vīksna and Rector of Riga Stradins University A. Pe-tersons published a book “Professor Aleksandrs Biezins and Latvian Paediatric Surgery” (“Profesors Aleksandrs Bieziņš un Latvijas bērnu ķirurģija”) about the life and professional activities of A. Biezins, as well as the history of pediatric surgery orthopedics, traumatology and sports medicine in Latvia [15].

To commemorate Professor A. Biezins, in 1987 the Lat-avian Association of Pediatric Surgeons founded the Alek-sandrs Biezins Award, which is presented for outstanding achievements in pediatric surgery and is the highest award given to a pediatric surgeon for the achievements in the pro-fession. Applicants for the Aleksandrs Biezins Award are nominated by the Latvian Association of Pediatric Surgeons, while it is awarded by a specially established awards com-mission. The Aleksandrs Biezins Award has been awarded to such outstanding personalities in Latvian pediatric surgery as Doctor of Medicine, professor, surgeon H. Voskis, pro-fessor, pediatric surgeon J. Gaujens, 2019 it was awarded as

a professor, rector of Riga Stradins University A. Petersons and others [17].

The beginnings of Professor Aleksandrs Biezins’ sci-en-tific trips abroad coincide with the time when he started his career at the Children’s Hospital. A. Biezins has been in ex-change for experience in such countries as Germany, Aus-tria, France, Switzerland, Belgium, Great Britain, Canada, and others [16–19].

It should be noted that in order to go on a scientific trip, it was necessary to write an application to the dean of the relevant institution, for example, the Dean of the Faculty of Medicine of the University of Latvia with a request (sub-mission) to grant a scientific mission, specifying the destina-tion — a specific country, as well as the expected duration of the business trip. The responsible person of the educational institution, for example, the Rector of the University of Latvia, examined it and approved it with a resolution, thus confirming that the person concerned is granted a scientific mission. In addition, in order to get abroad, it was neces-sary to obtain a foreign passport issued by the Ministry of Foreign Affairs. For the Ministry of Foreign Affairs to issue a foreign passport, it was necessary to present and submit to the relevant authorities that the university is sending its per-sonnel on a foreign mission, for example, a Mission Certifi-cate issued by the Rector of the University of Latvia, which confirmed that its bearer was commanded abroad for sci-en-tific purposes, indicating specific countries and period [20].

Since A. Biezins, during the time when he actively went on business trips to various countries of the world for sci-en-tific purposes, did not only practice as a doctor but also worked as a teacher, so that it does not interfere with his pro-fessional activities, among the activities of the teacher, his business trips mainly took place during the summer holidays (Table 1).

As can be seen from Table 1, A. Biezins was most active on foreign scientific trips in the period from 1932 to 1939. In ad-dition, using the university’s funding, within the framework of which scholarships were awarded, in several countries A. Bie-zins has gone on scientific trips several times, for example, to

Table 1. Professor A. Biezins’ most notable scientific trips [18–24]

Time period	Destinations
July 20 — September 1, 1935	Sweden, Norway, Denmark, Germany, Lithuania, Estonia, Finland
July, 1936	Germany
March 20–25, 1937	Kaunas, Lithuania
June 15 — September 1, 1937	Great Britain, Scandinavian countries
July 1–30, 1937	Germany, Austria, and Italy
July-September, 1938	Germany, France, Italy, and Scandinavian countries
June 1–15, 1939	Germany
July 1–30, 1939	Great Britain
July-September, 1939	Great Britain, Scandinavian countries
September 1–15, 1939	Belgium
July 8–12, 1957	The 1 st International Poliomyelitis Conference in Geneva, Switzerland
July 19–25, 1959	The 9 th International Pediatric Congress in Montreal, Canada Pediatric clinics in Ottawa, Toronto, and Montreal

countries such as Germany, and Great Britain. Describing the most notable work and scientific trips of A. Biezins, went on a trip to Germany from June 1 to 15, 1939, for scientific purposes, but in the same year from July 1 to 30 — to Great Britain, and from September 1 to 15 — to Belgium [24].

During the period from October to December 1925, Professor A. Biezins took part in various experience exchanges and training trips in European cities such as Vienna, Paris, and Berlin [10]. From July 5 to 30, 1932, A. Biezins went on a scientific trip to Germany, Austria, and Italy [18]. In 1935 during the summer holidays — from July 20 to September 1, A. Biezins went on a scientific trip to Sweden, Norway, Denmark, Germany, Lithuania, Estonia, and Finland for scientific purposes [19].

During the summer holidays of 1938 and 1939, he went abroad for scientific purposes, including countries such as Germany, France, Italy, and the Scandinavian countries. The first scientific trip of Professor A. Biezins to Britain and Scandinavian countries took place between June 15 and September 1, 1937. Professor A. Biezins also went on nearby business trips for scientific purposes during his career, for example, in the period from March 20 to 25, 1937, he visited Kaunas [21–23].

From June 1 to 15, 1939, he went on a scientific trip to Germany and in the same year from July 1 to 30 — to Britain, but from September 1 to 15 — to Belgium [24].

The scientific trip to Germany was also not the first for Professor A. Biezins in 1939. During the summer holidays from July 25 to September 1, 1936, he was commandeered to Berlin for scientific purposes [20].

During the Second World War, Professor A. Biezins took over from R. Girgenson, the previous head of the Children's Hospital, and became its leader, but he did have difficult times in this position because of intrigues in the hospital. In particular, his colleagues did not want to accept and acknowledge him as a manager. Therefore, in 1944, Professor A. Biezins had the choice to stay in Latvia or go to work abroad, however, he decided to stay and continue his professional activities in Latvia.

The most significant and notable business trips of Professor A. Biezins may be indicated as trips and participation in the 1st International Poliomyelitis Conference held in Geneva in 1957, as well as participation in the 9th International Pediatric Congress in Montreal, held in 1959 in Montreal.

From July 8 to July 12, 1957, A. Biezins visited Geneva, where the 1st International Poliomyelitis Conference was held, but in 1959 he went on a scientific trip to Montreal, as part of the USSR pediatricians led by Professor M. Maslov, where the 9th International Pediatric Congress.

Over 2,400 participants, including 600 delegates from 70 different countries, took part in the 9th International Pediatric Congress in Montreal in 1959. At the 9th International Pediatric Congress in Montreal, a total of 528 papers were presented by its participants, as well as 52 scientific films were shown. Members of Congress were allotted 15 minutes to read each paper, while 10 minutes were intended to answer questions and discuss questions from other members of the convention.

The USSR delegation to the 9th International Pediatric Congress in Montreal was led by academician M. Maslov.

The USSR delegation consisted of 16 participants, who read 14 papers and demonstrated 2 scientific films at the congress. It should be noted that the co-author of these scientific films in medicine was Professor A. Biezins.

The presentations of the participants of the USSR delegation at the 9th International Pediatric Congress received the attention of the other participants of the congress and were very highly appreciated, as they very well reflected the achievements of Soviet medicine.

It can be pointed out that an additional benefit for the USSR medical practitioners from the trip to the 9th International Pediatric Congress in Montreal, was the opportunity to visit children's hospitals in Ottawa, Toronto, and Montreal.

Considering the unpredictable large audience that the 9th International Pediatric Congress, which took place in Montreal in 1959, as well as the numerous positive feedbacks received on the presentations read at the congress, the topics presented therein, the paper summaries, the opinions expressed therein, there is still a deal of interest among medical practitioners and scientists [8].

The participants of the 9th International Pediatric Congress from other countries, such as Doctor, pediatrician Ch.D. May, have also had positive impressions about it, with particular emphasis on its careful and thoughtful organization of it, as well as the presentation of the results of excellent, inspiring research on trends in pediatrics.

Since A. Biezins was not only an outstanding medical practitioner, but also was interested in sports, physical culture, and its impact on human health, during his career he not only worked in the field of sports medicine and headed the Sports Medicine Cabinet established by the Latvian Committee on Physical Culture and Sports, but also actively increased his knowledge in the field of sports medicine. For example, A. Biezins was delegated to represent the Faculty of Medicine of the University of Latvia at the International Sports Congress, which took place in Berlin in July 1936 [19]. In general, this once again proves that the professor worked not only on aspects of pediatric surgery but also in other areas, such as sports medicine, where he also had high achievements and honorary titles.

Based on the study, it can be said that the trips abroad for the exchange of experience gave Professor A. Biezins the opportunity to get acquainted with the conduct of surgical practice abroad, gain valuable experience, improve knowledge and improve qualifications for use in the work of a doctor working at home. It should be noted that Professor A. Biezins went abroad for scientific purposes during his career mainly at his own expense and was granted a working place. However, in order to finance these trips, scholarships awarded by the University of Latvia, Riga Medical Institute, and Children's Clinical University Hospital were also used.

R. Carachi, D. Young, and C. Buyukunal [1] in their work described that the professor, together with other doctors, made a contribution to pediatric surgery in Latvia, where Aleksandrs Biezins made an important contribution and developed this particular area in the territory of Latvia, and also transferred his knowledge to other professors who worked with him. Indeed, it is worth agreeing with the opinion that Aleksandrs Biezins made a contribution to the first children's hospital in Latvia in Riga, namely the De-

partment of Surgery, but it is still worth noting that here the professor was not the first to head the Department of Surgery and introduce his own methods of treating children, but his contribution is considered one of the most significant. J. Gaujēns [2], noted that Aleksandrs Biezins mainly focused on the development of thoracic surgery, urology, and orthopedics for children of an earlier age, which was a rather difficult task, which, in turn, had not yet been so well studied before the work of the professor. Such a statement about the professionalism of the professor puts him an order of magnitude higher than all his predecessors, who were guided by the process of surgical treatment of children in Latvia. In the work of M. Pozemkovska [4], many various thesis, papers, studies, books, and monographs that were created by A. Biezins, including jointly with other professors, which indicates a fairly large distance traveled by the surgeon in the aspect of medicine and surgery, were pointed out. Professor A. Biezins is the author of more than 220 scientific papers in such fields of medicine as pediatric surgery, traumatology, orthopedics, monographs, and several textbooks on pediatric surgery. It should be noted that the works of the professor have become a support for further research by scientists in the future since the materials have enough information necessary to continue the development and research of pediatric surgery, as well as sports medicine.

An equally important contribution to pediatric surgery was made by professor to sports medicine, as I. Mežniece [3] points out in his article. The author pointed out that Aleksandrs Biezins can be considered the founder of sports medicine in Latvia, as well as the first head of the Sports Medicine Cabinet, in which he was the first to conduct examinations of athletes of that time. Based on the results obtained from examinations of various athletes, the professor made conclusions about the influence of sports on a person. Indeed, this was a significant contribution to the development of sports medicine not only in Latvia but also abroad, since based on his work, many other doctors who were engaged in research in this area used his materials in their further research.

Another evidence of Aleksandrs Biezins' high contribution to medicine was the award of a professor in the field of pediatric surgery, which is described by R. Rimša [6]. Considering the presence of a separate award, which is issued only to truly recognized doctors of pediatric surgery, the work done by Aleksandrs Biezins is highly valued all over the world, since the scientist also helped other surgeons around the world in the treatment of children, and also made new ones together with them, research and development in this area.

J. Salaks and K. Antonovičs [7] in their work showed achievements in the delegation of pediatricians, in which A. Biezins also took part, where his teachings were appreciated along with other foreign pediatricians. The authors also noted that at the congress in Montreal, the professor became one of those who presented the report accompanied by the corresponding film, which shows the professionalism of the surgeon. In addition, participation in various congresses also demonstrates that the professor often traveled abroad, where he shared and gained experience with his colleagues and professors of pediatrics, which made it possible to increase his contribution to the development of pediatric sur-

gery and medicine in general. A. Priedīte [5] also noted the participation of the professor in work on the improvement of pediatric surgery outside Latvia, as he collaborated with his colleagues and students from all over the world, conducting new research, writing books, as well as reports, which gave even more achievements in the field of pediatric medicine. The author also pointed out that many of his colleagues and admirers came to Latvia to the professor to learn from him or to offer joint work, which became a new impetus for the knowledge of new materials in surgery.

Summing up all the opinions of researchers about the activities of Professor A. Biezins in Latvia and abroad, as well as about the surgeon's scientific trips abroad, we can conclude that most of all studies, including those conducted jointly with foreign doctors, were successful and became the basis for writing scientific papers that have become the most important contribution to the development of pediatric surgery, sports medicine and medicine in general for all countries of the world. The work and research of the professor abroad had a special character due to the interaction with professors who had their own experience in this field, which in general were able to expand knowledge in medicine. Further development of the topic can be continued by studying his work on the treatment of children, as well as the features of training and teaching students at the Institute of Surgery. In addition, research can be done using the professor's work and methods in medicine to project them into modern technologies, which can be useful for creating more modern treatment options for children. It is also possible to study in more detail the features of creating conclusions in the aspect of sports medicine in order to use the materials of the professor's work on the examination and treatment of athletes in modern conditions.

Professor A. Biezins not only operated a lot, but also gave lectures to medical students, led practical classes for medical students, as well as their scientific work, engaging and promoting the addition of new pediatric surgeons to Latvian medical institutions. The bet was also an active participant in surgical forums, and doctors' conferences, and actively went on experience training trips to clinics in different countries of the world, supplementing his theoretical and practical knowledge, and experience, taking it over from other leading European and other physicians, leading European clinics. Thus, adopting the positive experience of the more developed countries, as a result, introduced a lot of initiatives and innovations into Latvian pediatric surgery and orthopedics. Professor A. Biezins has left an invaluable contribution to current and future medical students — his publications, monographs, and textbooks in pediatric surgery, operative surgery, and topographic anatomy, from which several generations of medical students have acquired medical knowledge.

Aleksandrs Biezins was the first in Russian-language literature to describe (in 1937) the subepiphyseal osteochondropathy of the tibia, known in science as the Blount-Erlacher-Biezins-Barber syndrome, Erlacher-Blount disease, or Mau-Nilson syndrome. Biezins was the first in the Soviet Union to perform a transplantation of preserved bone to a child whose shin was affected by a malignant tumor. Biezins also explored the challenges of early-age surgery, studying

the feasibility of performing operations during the child's first years and even months of life. Under his leadership, the pediatric surgery clinic of the Riga Medical Institute became the first in the Latvian SSR to perform heart surgeries on children. Biezins mentored numerous students and scientists, including the head of the surgical dentistry department of RMI I. Bakulis, orthopedist K. Kruminsh, Doctor of Sciences O. Margulis, Ya. Gauens, and Ya. Volkolakov. In total, Biezins prepared 10 doctors and 34 candidates of sciences. Biezins is the author of more than 300 scientific works, including 4 monographs.

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Внесок професора Олександра Бієзінша в дитячу хірургію: аналіз клінічної та академічної діяльності за кордоном

Резюме. Вступ. Актуальність дослідження подорожей професора Олександра Бієзінша полягає в необхідності висвітлити найважливіші для професора поїздки, що вплинули на його подальше навчання, а також особливості застосування його методів у медицині. **Метою статті** є вивчення діяльності Олександра Бієзінша, його досягнень та успіхів у дитячій хірургії, а також інших галузях медицини для більш поглибленої характеристики постаті видатного хірурга. **Матеріали та методи.** Основними методами, використаними в статті, є історичний та аналітичний. **Результати.** Головним результатом є вивчення професійної діяльності професора за кордоном, а також за основним місцем роботи. Лікар-хірург Олександр Бієзінш (1897–1975), якого називають основоположником дитячої хірургії, активно займався нею та

працював над розвитком медицини та науки в цілому. Він є однією з найвидатніших постатей дитячої хірургії та медицини. Використання отриманої в дослідженні інформації буде корисним для більш глибокого та детального вивчення діяльності професора, а також взаємодії хірургів з Олександром Бієзіншем на початку та в середині ХХ століття. **Висновки.** Крім практичної роботи в галузі дитячої хірургії та педіатрії, виховання молодих лікарів, для досягнення наукових цілей у відрядженнях він був активним учасником медичних форумів, конгресів, конференцій з педіатрії, дитячої хірургії, спортивної педагогіки, а також активно стажувався в різних закордонних клініках.

Ключові слова: латвійська медицина; педіатрія; дитяча хірургія; наукові цілі; спортивна медицина