The Fame of Scientists: Does It Reflect Their Real Contribution to Science?

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Abstract: *Analysis of the factors that influenced the degree of popularity of Tadas Ivanauskas and Pranciškus Baltrus Šivickis, two famous Lithuanian biologists of the 20th century, was carried out. For the broader Lithuanian society, Ivanauskas is much better known, while biologists know that the scientific achievements of Šivickis are much greater. They both were very active organizers of educational processes in Lithuania, but the fields of activity of Ivanauskas were more visible and interesting for the broader public. Ivanauskas wrote much more items of popular scientific literature than Šivickis, which was another reason that made him remarkably popular. The most important factor was a political one: Šivickis resisted the ideologization of science, whereas Ivanauskas adjusted quite well to the new social system. Therefore, the mass media propagated his achievements and he was extremely popular during the whole Soviet period. Nearly fifty years of promoting Ivanauskas left marked prints in human memory: even today he is much better known than Šivickis by the general Lithuanian society. Our analysis showed that Ivanauskas was a great organizer, a great educationalist, but not a great scientist; his scientific achievements were exaggerated during the Soviet period. The life histories of the two famous biologists point to another common rule characteristic of all historical periods: fundamental researches are very often bound to remain unpopular as it takes a long time until they become understandable for the major part of society.*

Keywords: *history of biology, ideologization of science, popularity of scientists, Pranciškus Baltrus Šivickis, Soviet period, Tadas Ivanauskas*

Introduction

Does the popularity of scientists always reflect their real contribution to science? Very probably most people would answer: No, not always. We know very well the impact of television and other means of mass media on the formation of public opinion; our age is very often called the Age of Advertising. Maybe things were somewhat different in earlier days? Unfortunately, the same principles seem to have existed in the past, although many processes seem invisible and make lead to the wrong illusion that the most popular persons are also the most important scientists.

If you randomly ask a Lithuanian to name the most famous Lithuanian biologist of the 20th century, the majority would answer: Tadas Ivanauskas. However, most biologists would name Pranciškus Baltrus Šivickis. Petrauskienė (2006) made a prediction of this answer, which was confirmed in a nation-wide poll in 2009. That year Lithuania celebrated the 1000th anniversary of the first mentioning of Lithuania in written sources. On this occasion, 100 most famous Lithuanian persons of all times were selected by citizens. Ivanauskas was included in the list, while Šivickis was not.

Why are some persons well known while others remain little known in the society, in spite of the fact that their scientific achievements are remarkably higher? Let us try to answer this question by analyzing the life stories and scientific activities of two famous Lithuanian biologists of the 20th century – Pranciškus Baltrus Šivickis and Tadas Ivanauskas. The personal, historical and scientific reasons for the different fame of these biologists will be discussed below.

Short biographies of Ivanauskas and Šivickis

The detailed biographical data are collected in several books and articles devoted to Ivanauskas (Budrys & Prūsaitė, 1976; Zajančkauskas, 2002; Zajančkauskas & Vaitonis, 2007) and Šivickis (Petrauskas, 1980; Arnastauskienė & Jakimavičius, 1997; Jakimavičius, 2004). Here we will mention only the main facts of their lives. They both were born in 1882; they both died approximately at the same age: Šivickis in 1968, Ivanauskas in 1970.

Ivanauskas (Fig. 1) was the son of a landlord, and his way to education was straight and easy; he had no financial problems in pursuing his studies. His

Figure 1. Tadas Ivanauskas.

father was a well-educated man with a special interest in biology. The family had a rich collection of ornithological and entomological materials and many biological books in their private library. Ivanauskas studied biology at the universities of St Petersburg and Sorbonne in 1903–1910. He was one of the founders of the University of Lithuania in 1922, and in 1922–1940 professor at this university in Kaunas. When the University of Lithuania was reconstituted in Vilnius, he worked as professor at the University of Vilnius until 1964. In 1941, he was nominated Academician of the Lithuanian Academy of Sciences; in 1945–50 director of the Institute of Biology; in 1949–70 professor at the Academy of Agriculture and the Medical Institute; in 1959 he won the Lithuanian Science Award.

Šivickis (Fig. 2) was a farmer's son. He was forced to emigrate to America in 1906. His education was three classes of primary school (at that time Ivanauskas was already a student at the University of St Petersburg). Šivickis purposefully, with great efforts, sought education and accomplished a lot. He attended the evening classes at Pullman School and later studied at seven American universities: Valparaiso (B.Sc. degree, Biology), Illinois, Purdue (Agricultural Sciences), Missouri (B. A. degree, Medicine), Iowa (Medicine), Columbia (Chemistry), Chicago (Ph.D. degree, Zoology). He graduated from three of the seven universities he had studied at. Šivickis was very choosy: he was interested in fundamental sciences, which is why he studied at various universities, looking for the field that was interesting to him. The last university from which he graduated and where

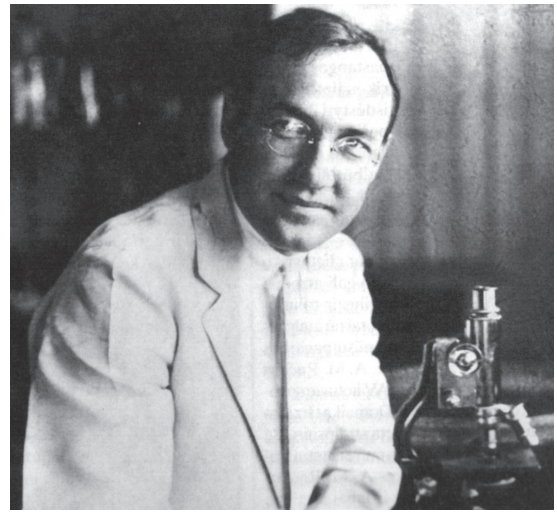

Figure 2. Pranciškus Baltrus Šivickis.

he defended his thesis on the regeneration of tissues and earned his Ph.D. degree was the University of Chicago – the most prestigious university in the U.S.A., founded by the millionaire John D. Rockefeller, who invited to the university the most famous scientists of the time. After he got his Ph.D. degree in 1922, Šivickis wished to return to Lithuania and handed in an application for the University of Lithuania. Strange as it may seem (because at that time this university had no specialist with an academic degree in Biology), the answer came too late, and Šivickis had already signed a contract with the University of Manila in the Philippines. He handed in his application for the second time in 1925; again the answer came too late, so Šivickis prolonged the term of his contract with the University of Manila. Such purposive lateness shows that some persons at the university were not interested in having such a well-educated biologist as a rival. The same opinion was expressed by Šivickis in one of his articles a few years later (Šivickis, 1935b). He returned to Lithuania in 1928, being an already hi ghly-educated experienced professor and a scientist well known in the world. In recognition of his merit, foreign scientists had named after him two animal species (*Carybdea sivickisi* and *Pleionogaster sivickisi*). Šivickis arrived in Lithuania with the only desire to honestly serve his native country:

> *While coming home from abroad I left a good post there, comfortable and beautifully established laboratories and not bad lecture rooms, the well-trained staff, a significantly higher salary and better life conditions in order that I might work in my country, and I shall work as long as I can* (Šivickis, 1935b).

In 1928–1948, he worked as professor at the universities of Kaunas and Vilnius. In 1941 he became Academician of the Lithuanian Academy of Sciences. In 1948 he was expelled from the Academy of Sciences and from the university. In 1948–1952 he worked as senior researcher at the Institute of Agriculture in Baisogala (a small town in central Lithuania). In 1952–1956 he was the head of Laboratory of Parasitology at the Institute of Animal Husbandry and Veterinary. In 1956, Academician of the Lithuanian Academy of Sciences. In 1956–1959, Šivickis was the head of the Laboratory of Zoology at the Institute of Biology. In 1959, he was awarded the Lithuanian Science Award. In 1959–1960, he was the director of the Institute of Zoology and Parasitology and in 1960–1968 the head of the Laboratory of Invertebrate Zoology at the Institute of Zoology and Parasitology.

We wish to describe in more detail only one period in the lives of Šivickis and Ivanauskas which proved fatal to their further scientific career, their future popularity, and to the whole Lithuanian science. This period is shortly mentioned in a book about Šivickis (Jakimavičius, 2004), published after the Soviet empire

disintegrated; however, the after-effects of this period have been analyzed in only two papers so far (Petrauskienė, 2006; 2008).

A special session of the Academy of Sciences of Lithuania together with the Ministry of Higher Education of the Soviet Union was held in Vilnius in 1948. The aim of this session was to reform Lithuanian science according to "the most advanced" Soviet science. In fact, this session was the final stage of the ideologization of science, orchestrated by the Communist Party of the Soviet Union. Before the session, many biologists were made to publicly condemn genetics and their pioneers Gregor Mendel, Thomas Morgan and August Weismann, and to propagate the ideas of the "great" Russian biologists Ivan Michurin and Trofim Lysenko. They were forced to publish the new "progressive" scientific view in press. Most people agreed to behave according to the new rules because they knew that disagreement would result in a loss of job or even deportation to Siberia. However, Šivickis refused to condemn genetics and had the courage to tell the officials from Moscow (in 1948, the undersecretary and other officials of the Ministry of Higher Education of the Soviet Union came to Lithuania to organize the special session) that Mendel's, Morgan's and Weismann's contribution to science was noteworthy, and we should still wait to see what the achievements of Michurin and Lysenko would be (LMAA, 1948). After this session, Šivickis lost his job and was expelled from the Lithuanian Academy of Sciences. Ivanauskas, on the other hand, was the main local accuser in this special session. He delivered a long speech condemning the propagators of genetics and especially Šivickis. The speech was published in *Tiesa*, the major newspaper of the Lithuanian Communist Party (*Kūrybingasis tarybinis darvinizmas…*, 1948). Besides, Ivanauskas published several articles that exalted Stalin and Michurin (Ivanauskas, 1950a & b; 1951). After this "contribution" to the Soviet power, Ivanauskas was very popular during the whole Soviet period: he was often invited to various meetings and events, mass media propagated his achievements, and he was featured in a long documentary film. As mentioned above, Šivickis returned to the Academy of Sciences several years later and became the director of the Institute of Zoology and Parasitology, organized new laboratories, wrote several fundamental books, and received the Lithuanian Science Award. However, the mass media did not propagate his achievements because the Soviet authorities regarded Šivickis as disloyal.

Educationalists

The contribution of both biologists to education processes in Lithuania is solid and epoch-making. As mentioned above, Ivanauskas was one of the organizers of the University of Lithuania in 1922. Later he was the main founder of the Museum of Zoology (now named after him, and a sculpture of Ivanauskas stands in front of the museum) and one of the organizers of the Zoological Garden. He accomplished a lot in the field of nature protection: established various societies (of naturalists, fishers, hunters, etc.), and was an initiator of various journals and nature reservations. He was the organizer of the Bird Day – a festive day in spring when pupils, students and various communities gathered together, with songs and music, and went to parks and forests to put up nest boxes (Fig. 3).

In a book about Ivanauskas it is written that he was an initiator of the Arbor Day as well (Zajančkauskas & Vaitonis, 2007). The Arbor Day was also a festive day in spring when people planted trees together. However, it is known that the initiator of the first Arbor Day in 1921 was Ivanauskas' wife, Honorata Ivanauskienė, who was a highly-educated and self-starter woman (Vailionytė, 2002). Only later, in 1923, Ivanauskas became the president of the organizing committee of the Arbor Day. Ivanauskas organized many zoological expeditions in Lithuania and in twelve foreign countries (even to such exotic places as Brazil) to collect exhibits for the museum. All these

Figure 3. The Bird Day organized by Ivanauskas. Ivanauskas stands in the middle of the crowd (with a dark-coloured hat). 1922, Kaunas, Freda.

Figure 4. International malacological expedition organized by P. Šivickis in Lithuania. From the left: J. Maniukas, assistant from Kaunas University, Dr. C. Krausp from Tartu University, Dr. H. Schlesch from Copenhagen, Prof. P. Šivickis. 1937, Molėtai region.

expeditions were very well advertised in the Lithuanian press and described in several books. Ivanauskas had a gift of writing, so his activities were very well known to Lithuanian society.

Šivickis resided in the Philippines when the University of Lithuania was established. He donated a large sum of money (1,385 French francs) to purchase books for the university (Petrauskas, 1980). Šivickis also sent very valuable collections of sea animals, birds and other tropic animals from the Philippines to the newly-opened Zoological Museum of the University (everything was sent at his personal cost). After his death, a great collection of mollusks (23,462 shells) gathered by Šivickis throughout his life was also presented to the Museum of Zoology (Gurskas, 2002). It is evident that the contribution of Šivickis to the Museum of Zoology is quite great; however, all merit is ascribed to Ivanauskas. Šivickis organized a number of scientific expeditions together with his students to investigate the fauna of Lithuania; many investigations were performed for the first time and were thus very important for the Lithuanian science and for students' training (Fig. 4). These expeditions, however, were not as interesting for the broad public as the exotic impressions from Brazil.

Being aware of the highly limited possibilities of the University of Lithuania, Šivickis bought a little island in Lake Grabuostas, where he established a base for the practical studies of his students (at his personal expense). So, Šivickis was very altruistic, his educational activities were highly necessary for the Lithuanian science and for the students' education, but they were not as demonstrative as the activities of Ivanauskas. On the other hand, the main investigation objects of Šivickis were water invertebrates, while those of Ivanauskas were birds and vertebrates. It is quite understandable that the numerous stories written by Ivanauskas about birds and other animals were much more interesting for the general public than stories about invertebrates or about such complicated things as tissue regeneration.

Another very important event for education and scientific investigations was the establishment of the Experimental Biological Laboratory, the first one at the University of Lithuania. Šivickis prepared very thoroughly for establishing this laboratory: he visited many scientific institutions, museums and libraries in Western Europe (also at his own expense) to get the knowhow for setting up a very modern laboratory. Moreover, he engaged a laboratory assistant at his own expense. He carried out, by himself, scientific investigations on the regeneration of tissues and involved his students in these experiments. Šivickis encouraged employing experiments in zoology; this was very new and unusual for zoologists and for biologists in general at the University of Lithuania (as descriptive approach had been more common in zoology). He was a pioneer of experimental zoology in Lithuania.

Šivickis, as mentioned above, studied at the best universities of America. He saw many drawbacks in the teaching methods and scientific work at the University of Lithuania and was anxious about the future of the university. In 1935, he wrote the polemic article 'Mūsų universitetas' (Our University). In this article, he presented an analysis and comparison of studies at the universities of small countries and proposed methods to improve teaching methods (Šivickis, 1935a). He wrote only a few sentences subjecting some professors to criticism. Although he did not mention any names, many professors immediately recognized themselves and a whispering campaign and machinations were started against Šivickis (*Neįvykęs garbės teismas*, 1935; *Kas teis prof. Šivickį*, 1935; *Prof. Šivickis Universiteto teisman nestosiąs ir išvažiuosiąs?*, 1935; Y-kas, 1935; Čėsnys, 1936). The honorable professors failed to see the future guidelines for the university in the article, and only saw the few lines devoted to their persons. Šivickis was head and shoulders above the rest of the academic world who could never forgive and forget him.

Scientific activities

Some aspects of the scientific activities of both biologists are described in the chapter above (scientific expeditions, new laboratories) because educational and scientific activities are closely connected. The two biologists were interested in many fields of biology. They were initiators of many investigations that were launched for the first time in Lithuania. Their fields of investigations are listed in Table 1; the list is made according to the data found in the biographies of Ivanauskas (Budrys & Prūsaitė, 1976) and to Šivickis (Petrauskas, 1980).

Table 1. Ivanauskas' and Šivickis' fields of investigation according to their biographies (Budrys & Prūsaitė, 1976; Petrauskas, 1980).

IVANAUSKAS	**ŠIVICKIS**
Ornithology	Morphogenesis
Theriology	Hydrobiology
Herpetology	Malacology
Entomology	Parasitology
Hydrobiology	Pedobiology
Dendrology	Entomology
Pomology	General biology, physiology, morphology
Horticulture	

The number of published articles (the total number and number of articles according to the fields of investigations) is presented in Table 2.

Table 2 shows that the total number of scientific articles by both researchers does not differ greatly: Šivickis published only two more than Ivanauskas. However, the total number of articles published in foreign journals or proceedings differs markedly: Šivickis published 16, while Ivanauskas only 5 articles in foreign publications. From this it is possible to conclude that in the scientific world Šivickis was much better known and more appreciated than Ivanauskas. Furthermore, Ivanauskas had his articles published only in two neighboring countries (Germany and Estonia), while those of Šivickis have been published in various countries (U.S.A., Great Britain, Italy, Spain, Hungary, the Philippines). Šivickis published some articles even in *Nature* and *Science*, the most prestigious science journals in the world. In general, Ivanauskas had fewer publications in

scientific journals than Šivickis (29 and 37, respectively). We think that the latter figures (the number of articles in journals) are a more informative index than the total number of articles because many of Ivanauskas' articles were published in the proceedings that were edited by him.

Table 2. The number of scientific articles by Ivanauskas and Šivickis in various fields of research. The number of articles published abroad in parentheses (Petrauskienė, 2006).

IVANAUSKAS	**ŠIVICKIS**
Total no. of scientific articles published in proceedings and scientific journals	
36 (5)	38 (16)
No. of articles published in scientific journals	
29 (4)	37 (16)
No. of scientific articles according to the fields of research	
23 (5) ornithology	12 (7) morphogenesis
4 faunistics	9 (5) hydrobiology
2 hydrobiology	6 parasitology
3 fur farming	4 (1) malacology
2 pomology	2 (1) pedobiology
2 ecology	5 (2) general biology, physiology, morphology

The analysis of publications according to the field of investigations showed that Ivanauskas as a scientist was known abroad only in the field of ornithology; all his other scientific articles were published in Lithuania. Moreover, a comparison of the fields of research of Ivanauskas that are mentioned in his biography (Table 1) and the publications presented in Table 2 shows that in several fields (herpetology, horticulture, entomology, dendrology) he had no scientific publications at all. So, the scientific merit of Ivanauskas was exaggerated in the Soviet period, and still is. The interests of Ivanauskas that were only his personal hobby have been described as his marked contribution to the Lithuanian science (Budrys & Prūsaitė, 1976; Zajančkauskas, 2002).

Comparing data about Šivickis, presented in Tables 1 and 2, reveals that he had no publications only in the field of entomology, but it does not necessarily mean that Šivickis had no merit in the field. In fact his doctoral students had publications in this field (Arnastauskienė & Jakimavičius, 2005), and Šivickis

did not always add his name to his doctoral students' papers. Table 2 shows that in every field (except for parasitology) he had publications in Lithuanian and in foreign journals. Strange as it might seem, it is for his parasitological research that Šivickis received the highest Lithuanian scientific award in 1959. To those who know the life history of Šivickis this is not strange. In 1948, after he was forced to leave his job and the Academy of Sciences, being already 66 years old, he began investigations in a new field of biology – parasitology – and achieved a lot: he founded a parasitological laboratory and wrote the fundamental book *Parazitų apibūdinimas* (Definition of Parasites; Šivickis, 1956). It is quite understandable that after the events of 1948 he was no longer allowed to publish his articles in foreign journals. Thus, in every field he worked, Šivickis left indelible marks on Lithuanian, and not only Lithuanian science.

Interestingly, while considering the merits of Ivanauskas in Lithuanian science, some of the achievements of Šivickis are ascribed to Ivanauskas. For example, in his biography (Budrys & Prūsaitė, 1976) it is written that Ivanauskas was the first scientist in Lithuania who in 1949 emphasized the necessity of investigating the Baltic Sea fauna and of establishing the Baltic Sea Biological Station, whereas Šivickis had introduced the problem twenty years before that (in 1929). Moreover, Šivickis organized the first scientific expedition to investigate the Baltic Sea fauna in 1934 and another expedition in 1935 (Petrauskas, 1980).

Šivickis was a leader in training the new generation of scientists. He was the founder of the first biological scientific school in Lithuania. The school was called 'Ecological and faunistic studies of invertebrates'. Under his supervision, 28 candidate and 7 doctoral theses (in present terms, 28 doctoral and 7 habil. doctoral theses) were defended. One generation of Šivickis' disciples and two generations of their successors can be distinguished (Arnastauskienė & Jakimavičius, 2005). A scientific school is an extraordinary phenomenon in the scientific world: while there are many leaders heading laboratories, only a few are capable of forming and leaving behind their own scientific school. Scientists know how much time, effort, knowledge and capability are needed to found a scientific school. However, the non-scientific public does not find it very interesting; such a great scholarly achievement does not contribute to a scientist's popularity, especially if it is not propagated by the mass media. We already know why the mass media did not propagate Šivickis' achievements.

Ivanauskas did not found his scientific school. He was the supervisor of 11 candidate theses in different fields of biology (Petrauskienė & Valentienė, 1971). In some of them he was a supervisor by name only, i.e. he was asked to be a supervisor when dissertations had already been written.

Šivickis prepared and defended a thesis on the regeneration of tissues of Triclads in 1922 (in those days, experimental zoology was a very new field of biology) at the University of Chicago. Ivanauskas did neither prepare nor defend any dissertation. He received the doctor's degree for publications in the field of bird migration in 1940, just after the onset of Soviet occupation, and was nominated Academician of the Lithuanian Academy of Sciences by the Soviet People's Commissar. This means that the Soviet authorities knew of Ivanauskas' loyalty to the Soviet power. However, these facts are known only to those who have thoroughly studied the biography of Ivanauskas; they are usually concealed in many biographical publications about him.

Šivickis was elected (not appointed) Academician at the Academy of Science of Lithuania.

Popularization of sciences

Ivanauskas was a gifted writer: he published many stories, articles, booklets and books about animals and about expeditions to exotic places. He wrote many practical recommendations for farmers, hunters, and fishermen.

Šivickis also very actively popularized scientific news and tried to explain the mechanisms of various phenomena. The popularization of sciences by Ivanauskas was of descriptive character, while Šivickis went deeper: he tried to explain the background of various things. Šivickis used to deliver popular-scientific lectures over the radio during the first independence period of Lithuania (before 1940); therefore, before the Second World War he was a very well-known person in Lithuania. However, after the events of 1948, his activities in popularizing science virtually stopped.

In general, the significance of Ivanauskas as a science popularizer is greater than that of Šivickis. The total number of publications (scientific and popular scientific) by Ivanauskas is 610, while that by Šivickis is 280 (Budrys & Prūsaitė, 1976; Petrauskas, 1980). The popularization of science made Ivanauskas a very well-known person in Lithuania.

The aspect of character traits

Ivanauskas was very communicative and easy-going; he was welcome in many circles where he used to tell interesting stories about his hunting or traveling adventures. He was an active atheist; this was a fashionable credo during the Soviet period. He was very well adapted to the new social and ideological system. As mentioned above, he wrote several articles extolling Stalin and Michurin, agreed to be the accuser during the 1948 session, and agreed to condemn genetics and the many scientists in Lithuania who seemed to be less enthusiastic about the "great" achievements of Lysenko and Michurin. This does not mean that he really adored the Soviet regime. According to the reminiscences of his friends about him and the ideas in his autobiography (Ivanauskas, 1996), which was published after his death and after the Soviet power collapsed in Lithuania, it is evident that he hated the Soviet power. His beloved native estate in Lebiodka (now Belarus) was ravaged; the remains of his parents were removed from the graves and strewn, some of his relatives died on their way to Siberia. Nevertheless, he adapted to the new social system very well. As a reward, he was appointed to high professional positions and his activities were constantly propagated by the mass media which made him a very popular scientist in Lithuania.

Šivickis was a very hard-working, reserved, modest man, and did not like to waste time in non-academic circles. He was religious and lived according to the Ten Commandments; he dared to reprove those professors who set a bad example to students, therefore some people disliked him. Šivickis was a high-principled man not only in his personal life: the above-described events during the 1948 session showed him to be a very brave and unwavering person. He had a family of five children and dared to resist the Soviet ideology, knowing what the consequences might be. His adherence to principles exacted a heavy price: the loss of job, the loss of popularity.

Conclusions

The difference in the popularity of the two famous twentieth-century Lithuanian biologists, Tadas Ivanauskas and Pranciškus Baltrus Šivickis, depended on many factors: personal, historical and scientific. They both were very active organizers of educational processes in Lithuania, but the fields of activity of

Ivanauskas were much more visible and more interesting for the broad public. Ivanauskas wrote more items of the popular science literature than Šivickis, and this is another reason for his popularity in Lithuania. The most important factor was a political (and a historical) one: while Šivickis resisted the ideologization of science, Ivanauskas adjusted very well to the new social system. Therefore, the mass media propagated the achievements of Ivanauskas, who was extremely popular during the whole Soviet period, while the activities of Šivickis remained unnoticed. Almost fifty years of constant promoting of Ivanauskas has left a deep mark in collective memory; even today he is much better known to the general Lithuanian society than Šivickis. However, the scientific achievements of Šivickis are much more important than those of Ivanauskas. Ivanauskas was a great organizer, a great educationalist, but not a great scientist; his scientific achievements were exaggerated during the Soviet period. The analysis of the life histories of both famous biologists revealed another common rule characteristic of all historical periods: fundamental researches are very often bound to remain unpopular, for it takes a long time until such studies become understandable (*popularis*) for the major part of society.

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