

The thoughts of Albert Szent-Györgyi on pedagogy

The classic idea of universities in Europe assumes freedom in the fields of research, teaching and thinking in general. Because of this, professors at a university are not only interested in their own field of study, but also show interest in the fundamental issues of university life outside their study rooms and laboratories. Professors are interested in such fundamental issues as the possibilities of teaching, training and education within the walls of the university. In the life of a scientist, such problems usually appear as an issue to be made available for the general public, when the scientist becomes a dean or a rector. (Exceptions from this reality are, of course, those professional educational researchers who are professionally required to describe these issues in a methodical and systematic way.)

Albert Szent-Györgyi, Nobel-prize winner biochemist, was one of those professors who was constantly and highly interested in university and public life. With exaggeration, we may risk saying that in his person an exceptionally versatile and generally curious late “Renaissance man” was reborn in the specialization age of the 20th century. In addition to his natural scientific research topics, he was constantly looking into the theoretical and practical issues of philosophy, social sciences and arts.¹

The adventurous biography of Szent-Györgyi suggests that he was a world citizen who preserved his inner patriotism and, although he had lived in several countries, returned when he was convinced that he was needed at home. In the 20s and 30s, as a researcher, he spent more or less time in Prague, Berlin, Leiden, Groningen and Cambridge, but in 1929, accepting a call from Kuno von Klebelsberg, contemporary minister of religion and education, to return home, Szent-Györgyi returned to Hungary for a visit and later, in 1931, he and his wife moved back to Hungary and settled down in Szeged. With the issues concerning the relationship between university and education, Szent-Györgyi was most concerned here, during his professorship (1931-1945) at the University of Szeged. Before attempting to reconstruct Szent-Györgyi's line of thoughts on university pedagogy in the given period, it is worth elaborating on the first Szeged-based decade of the university, where Szent-Györgyi became a teacher.

¹ It is well-known that at the beginning of 1941, during Szent-Györgyi's time as a rector and with his support, the play *Hamlet* was famously staged by the university students in Szeged; directed by István Horváth: a talent who died young.

1. University of Kolozsvár “temporary” located in Szeged

On 12 May 1919, the Romanian authorities used executive force to cease the operation of the University of Kolozsvár. This ended a period in the history of Hungarian education; a period which began in 1872 with the establishment of the University of Kolozsvár, the second state university following the university in Pest, and ended after almost fifty years of successful operation. This ended the development of Hungarian university education in Transylvania. The University that was expelled from Kolozsvár spent two years in Budapest and from October 1921 continued its operation in Szeged.

Law No. XXV, on the temporary location of the University of Kolozsvár, proposed by József Vass Minister of Culture and codified June 1921, ended a long dispute.² Those teachers who moved to Budapest earlier could only expect temporary placements and those who stayed in Kolozsvár also had to leave following an unsuccessful attempt to save the University.³ There was another possible location: in addition to Szeged, the town of Debrecen also expressed its willingness to embrace the university.

The newspapers in Szeged continuously followed the events of the moving in of the University. For example, in its issue on 16 January 1921, the daily: *Szeged* informs its readers that Debrecen is working in full swing to embrace the university. Szeged may easily lose the contest if the town does not make itself attractive for the teachers and leaders of the university. Satisfactory housing should be offered because nobody should expect the teachers from Kolozsvár “to come to Szeged and have only the few benches at *Stefánia* and the numerous chairs at the walkway as their only place to rest. The willingness of the teachers should be attained.”⁴ The leaders of Szeged did a lot to attain the willingness of the University of Kolozsvár. In 1920, the mayor of Szeged, Szilveszter Somogyi, had already sent the proposal of the town council to the Minister of Culture: István Haller. The proposal attempts to explain to the Minister the advantages of the town near the Tisza-river. It is in favour of the town that it can easily be approached both on land and on water from any part of the country: “It is positioned in the best possible way in the middle of an agriculturally cultivated, airy and wide plain where the town develop-

² The same law located the university expelled from Bratislava “temporary” to Pécs.

³ On the topic read: Béla Pukánszky: *Tanárképző vagy egyetem? A kolozsvári egyetem Szegedre költözésének körülményei 1919–1921. Magyar Pedagógia*, 1987. Nr. 4. URL: <http://www.pukanszky.hu/Fantom.htm> Downloaded: 20 December 2012.

⁴ The daily newspaper: Szeged, 26 January 1921.

ers ensured the healthy conditions for development with forth sight: straight and wide streets, several large 8-10 arpents of space, huge areas of trees, gardens and walkways, sewer systems, pavements, building operations in line with the strict building regulations, healthy drinking water, public baths and healthcare institutions.”⁵ After Szeged succeeded in embracing the university, the leaders of the town aimed to create an adventitious environment for the placement of the university. This did not go easily. The five secondary school headmasters whose institutes were to be evicted were especially fierce to protest. In their proposal sent to the minister of religion and education, the headmasters predict the “crippling” of the secondary education in Szeged should the town’s verbal offerings be followed by action.⁶

The teachers and students of the University of Kolozsvár began their 1921/22 school year already in Szeged. At the beginning, in spite of the town’s benevolent, but still limited support, the working conditions were very poor. A contemporary researcher of the University’s history used the following words to describe the difficulties: “The first months, even years, brought the same difficulties that were present at the time when the University was founded in Kolozsvár. At the same time, both teachers and students had the unbreakable faith to provide everyone with the most and the best, and prove that the University is necessary and worthy just in those times when, due to the difficulties in the economy, the public was about to mature a frame of mind against universities.”⁷

In the 20s and 30s, especially under Minister Kuno von Klebelsberg, the situation had consolidated and the university begin to advance. Spectacular signs of this progress were the University construction works that were carried out following the plans of excellent architects. First, between 1924 and 1929, along the bank of the river Tisza, the clinics of the University were erected. These were designed by Flóris Korb. Following the clinics, between 1929 and 1930, realising the plans of architect Béla Rerrich, the natural sciences research institutes were erected at Dóm square.

⁵ The text of the proposal can be found in the National Archives of Hungary. K 636 1920. 11.

⁶ The conditions of moving in are described in detail in a monograph by Gábor Vincze: *A száműzött egyetem; Szegedi Egyetemi Kiadó, Szeged, 2006*

⁷ Iván Vitéz Nagy: *A száműzetés évei Szegeden 1920–1940*. In: Bisztray Gyula, Szabó T. Attila és Tamás Lajos (edit.): *Az erdélyi egyetemi gondolat és a M. Kir. Ferencz József Tudományegyetem története*. Budapest, 1941.



Inaugural ceremony of the natural sciences research institutes at Dóm square. 25 October 1930.
Kuno von Klebelsberg, Ernő Foerk, Ernő Dohnányi and Béla Rerrich.

Together with the development of the infrastructure there was a significant structural development in the history of higher education in Szeged: in 1928, Kuno von Klebelsberg Minister of Culture reorganised in Szeged the teacher training college for state civil schools that was moved here from the capital. For the 10-14 year olds, the secondary level state civil schools provided useable and practical knowledge. For these schools male teachers were exclusively trained in Szeged, while female teachers were trained here and in two other institutes within a denomination. As a result of this, the teacher training college had soon become one of the most important teacher training institutions of the Hungarian higher education with a national recruit radius. By moving the new institute and the closely linked state civil school, where training practice is completed, to Szeged, Kuno von Klebelsberg wanted to realise several goals. Firstly, he established new grounds for teacher training; secondly, he assisted the University of Szeged by creating a concept of cooperation between the two institutions and facilitating the practical implementation of this concept. On their new four-year-long course, the teacher training college students had to, on one of their majors, attend lectures at the university and take part in seminars and practical lessons. The number of university study lessons varied according to subject and were around 4 to 10 lessons. At the university the teacher training students were referred to as teacher candidate student. (This is not to be confused with those university students who are to become

secondary school teachers.) The material of the attended lectures was examined by a university appointed examination committee and through a comprehensive examination. If the examination failed, the semester at the teacher training college had to be repeated automatically. An exception from this rule could only be granted in exceptional cases. Students with excellent grades were exempt from training fees at the teacher training college, while excellent grades at the university did not mean an exemption from training fees. (The names of those students who had unpaid fees were listed on the notice board.)

The university contributed to the education of teacher training students through an in-depth academic specialization training. There was no cooperation on the training of pedagogy and methodology. The teacher training college had its own state civil school, where training practice had been completed. The model state civil school was referred to as Active School meaning that the teachers who work there identify themselves in many aspects with the principles of reform pedagogy that advocates action and self-activity.

As a result of the cooperation between the teacher training college and the university, there was an increase in the number of students at the University of Szeged from the end of the 20s:

Year	1921/22	1925/26	1930/31	1935/36	1939/40
University students	1977	2124	4393	2841	2168
Total number of university students and teacher training college students	-	-	4921	3572	3252

The results of the economic recession did not spare the university. Its effect is also shown for example on the fact that from the beginning of the 30s the number of faculties had decreased.

Faculty	1872	1918	1931	1934
Law and state science	12	16	16	11
Medical	11	17	16	14
Arts	11	16	18	13
Natural sciences	8	12	12	9
Total	42	61	62	47

(Based on the charts by Iván Vitéz Nagy.)

The recession also shows itself in the decrease in the number of assistant teachers (assistant lecturers) employed by the university. In 1921, the number of these employees was 103 and went up to 177 by 1931 (59 of them without remuneration), while, as a result of the recession, in 1934, there were only 98 paid assistant lecturers employed by the university.⁸

Therefore, Szent-Györgyi had arrived to become a researcher and professor at a university that, following a relocation procedure, had serious financial difficulties, had a noteworthy development curve in the 20s, but this velocity was broken by the beginning of the 30s.

2. The progression of the views of Albert Szent-Györgyi expressed on university education and upbringing

2.1 *Speech on the congress of the National Council of Physical Education, 1930*

Within the time period of discussion, the first speech of Szent-Györgyi, who had just returned from England, was made in 1930 at the congress of the National Council of Physical Education. He begins his speech with a dramatic illustration: "Our country is in its most tragic hours when every spark of skill is needed from its sons if our country's name is not to be wiped out from those of the living. This difficult challenge poses very new goals and demands also for our school system. Schools, as builders and creators of the youth and the future, have an imperative say in the outcome of the battle for the nation's existence."⁹ Therefore, in times of crises, we may expect the schools to bring us a brighter future through the proper education of the youth. However, the school system is in a crisis itself: "it does not meet the new and heavy demands of the times".

For present-day readers, it may be unusual that Szent-Györgyi examined the duties of an ideal school not through the school types within the general education system, but through their relevance on the university. To answer the enquiries on the goal of the university, Szent-Györgyi draws a remarkable

⁸ Reference: Vitéz Nagy: i.m. p. 366

⁹ The speech of Albert Szent-Györgyi on the congress of the National Council of Physical Education, November 1930. Full text available: <http://www.waldorfsuli.hu/index.php/wal-dorf-pedagogia/olvasosarok/396-szent-gyorgyi-albert-az-iskolai-ifjusag-testnevelese> Downloaded: 18 December 2012.

parallel between the two most famous English private universities, Oxford and Cambridge, and the contemporary European universities. He starts with the European ones: “The university, as every school, may do two things to its students: teach and educate them. In the continent most of the universities are on the opinion that they are not educators, but purely teaching institutions and training schools.”¹⁰

Albert Szent-Györgyi counterpoints the continental European, or believed to be such, model with the English model. They do prepare a small number of excellent scientists within the walls of Oxford and Cambridge, but the main role in these institutions is education: “Here they do not educate lawyers, chemists or doctors, but, first of all, form human characters” – summarizes the main point Szent-Györgyi. To highlight the main point of the English model, Szent-Györgyi recalls a personal story: meeting a Cambridge student. “The first time I got close to solving the mystery was when I made an attempt to meet a student in the afternoon in his apartment. When I rang the bell at the student’s apartment in the afternoon, the person who opened the door was surprised at my lack of knowledge that, in the afternoon, I was looking for the student in his apartment and not in the sports field. I sat down in the student’s room to wait for him. In the room it was noticeable that there were all sorts of things: paddles, hockey sticks, golf clubs, croquet mallets, etc, except for one thing: academic textbooks. When, after a long wait, the student arrived home still warm and red from the sport activity, I introduced myself and asked him what he was doing in Cambridge. He replayed that he was rowing. He was surprised when I told him that that wasn’t what I meant because I wanted to know what his major was. After a short thinking time he told me that it was philosophy and psychology. I asked him what he wanted to be and he told me that he would go to India to become a tradesman.

¹⁰ It should be noted that at this point the scientist from Szeged is a bit generous in his way of dealing with the trends in university history. The fact is that the most significant archetype of the modern European university is built on the neo-humanist education thought that is the outcome of the philosophical discourse that runs from the end of the 18th century. The main representative of this thought is Wilhelm von Humboldt (1767–1835). He believes that the basic thought that determines the operation of a university is the unity of research and teaching and the formation of the human character by realizing the human content through the *Bildung* (character development through education). Parallel with this thought, and as a counterpoint, ran the French concept that emphasises the professional training role (training school) function of the universities.

The problems of the Hungarian school system begin in the secondary schools and not at the universities. Secondary schools believe that their main purpose is “to push the content of 100 or 200 kilograms of textbooks into the students’ heads and then release them.” This bleak pushing procedure kills the child. From the young person who arrives at the university “the 12-year-long conning and full pace had destroyed and killed every bit of originality and interest. Such students are only interested in having to learn the material from the bottom of which given page to the top of which given page in order to pass his examination. His only wish and hope is to have his diploma and some kind of job and, with that, to transfer the burden and annoyance of his life to the state. In our country today the same thing happens to a six-year-old as with someone who commits patricide: he is sentenced to 12 years of imprisonment and strict hard labour. In the school every virtue of a child’s soul: vigour, liveliness and joyfulness are sins. The need of a child’s spirit to learn is satisfied by conning, threats and lifeless teaching. And after 12 years of such preparation, the adolescent youth is sent to us at the university: we teach, teach, teach and teach. When, after five years, we completely deprive them of every skill to act and think freely, we suddenly push them out into the real life and we are really surprised that they cannot stand on their own, and that this poor country cannot move out of its own misery.” What do young people learn in the secondary schools? Almost nothing, says Szent-Györgyi. “...young people who leave secondary schools do not know anything about nature or natural sciences, they do not know modern languages on a level to be able to write a simple letter or speak to a foreigner.”

These words suggest a passionate and dramatic illustration. The solution is a deep educational reform that changes the learning material, and also assigns an important role to sport activities and body culture.

The overgrown secondary school learning material, the uncontrolled quantities of homework and the lack of sport activities lead to the mental overload of the youth. This criticism is not without precedent because such ideas had already been expressed by German physicians in the first half of the 19 century. In 1836 an article appeared in the German *Medizinische Zeitung* journal. Physician Karl Ignatz Lorinser warns about the overload of secondary school students.¹¹ Through the generations, the restlessness and increased exploitation of the soul had led to a growth in the weight of the nervous system. The schools have only worsened the situation. The mass of subjects and home-

¹¹ Quoted from: Plake, Klaus: *Reformpädagogik. Wissenssoziologie eines Paradigmenwechsels*. Waxmann, Münster-New York, 1991. 149.

work impede the natural growth of the body. Already in 1893 Lorinser says the following: “The ones who work the hardest are the most vulnerable and the most prone to illnesses. A physician from Breslau, Hermann Cohn, had carried out research and, based on that, suggested that the increased mental exploitation of the youth and the increase in the demands for performance have led to short-sightedness. In the 70s there was a whole line of publications on the topic and conferences were organized on the topic of school overload. By that time, experts had agreed in that overload is not restricted to school lessons. The quantity of homework is to be reduced so that in the lower classes of secondary schools the completion of such work should not take more than two hours a day. Meanwhile, several doctors have expressed increasingly critical views on the overload of children in schools. They emphasised that in addition to short-sightedness, headache, nose bleeding, digestion problems and asthma are all symptoms of illnesses that are caused by the school. Overload was also blamed for the increased number of suicides among students at the end of the century. Finally, in 1890, Kaiser Wilhelm II made a statement regarding the issue: during the opening at an educational conference in Berlin, he compared the work burden that the youth carries to an overstretched string in a bow, which calls for a significant decrease in the learning material. The Kaiser’s wish was followed by action: during the reform of the German secondary schools, the curriculum, which came into effect in 1892, had a 16 hour reduction in the weekly number of lessons and there was a significant reduction in the material regarding the Latin and the Greek subjects. Furthermore, there was a drop in the demands of the school leaving final examinations.

In 1930, Albert Szent-Györgyi is looking for a solution for the problem of university overload: “Here, at the university, the first step should be a drastic reduction in the number of lessons. This step should ban every lecture after 13 p.m. to allow every student to spend at least every second afternoon with sports.”¹²

2.2. Natural sciences training and laboratory work in university education, 1936

In comparison with the previous views, when we look at the content of this text, we notice a complete paradigm shift. At the beginning of the century, Szent-Györgyi uses the English educating university model as an example to

¹² Albert Szent-Györgyi (1930): i. m.

follow, and is against the one-sided mental overload, but now he writes about three functions in balance, where, in addition to the teaching and cultivation of sciences there should be a place for professional training that prepares for a career in life. The strengthening of the university's role in professional training is reasoned by the scientist with the fact that from the end of the 19th century natural sciences had changed the lifestyle of a significant part of mankind, established new forms and created great industries. "This new situation assigns new tasks to universities, which organization and entire structure derives from an age before the modern times. While earlier, those few who wanted to gain knowledge, attended the universities and the professors there, mainly for the knowledge itself, but today the university opens its gates for a great number of young people, most of whom do not seek science, but professional training to be used in their professional life to earn their bread and be useful workers in life."¹³ Because of this, the university should have the role of a professional training school that prepares for life. Thus, young people "have the right to demand the training that that we had admitted them to and for which they had paid their fees". "It is our duty to provide them with this training." But who is to give this training for the students? A professor "refuses the idea, with righteous irritation, to stand every day for hours at the lecture table and recount the basic material, after and after again, from the aspect of various professions instead of cultivating and teaching his own scientific field." It should be the duty of the assistant lecturer staff, whose number and quality needs to be improved urgently, to run those courses that would satisfy the needs of professional training.

In the same study, Szent-Györgyi mentions three more issues that are lead factors in his earlier and later thoughts on the role of universities.

One of these thoughts has already been mentioned: criticism of mental overload. In 1936, he elaborates further on the topic that he started in 1930: The university doesn't teach young people what they need: by referring to academic values these institutions put too much weight on students. The results are depressing: "a semi-scientist with a bent back, who is useless in life."

The next topic is the misunderstood role of textbooks: "There is a misconception in the entire Hungarian education system that says that books are to

¹³ Albert Szent-Györgyi: *Természettudományi képzés és laboratóriumi munka az egyetemi oktatásban*. Magyar Felsőoktatás. Az 1936. évi december hó 10-től december hó 16-ig tartott Országos Felsőoktatási Kongresszus munkálatai. Published by: Bálint Hóman, Edited by: Károly Mártonffy. III. Bölcsészeti, Orvosi és Műszaki Szakosztályok. Budapest, 1936.

be learned. This is fundamentally wrong. If we keep the data in our heads, why do we need books? (...) What we need to learn is exactly what's not in the book: how to see and understand the bigger, inner correlations and use the book in a proper way." The head is for thinking not to store various data. This pattern also recurs later in the writings of Szent-Györgyi.

The third topic is good teaching practice. The main criterion for this is taking the personality of the students into consideration: "Teaching should get down to earth and understand that it deals not only with brains, but young people. This is to be considered especially with natural sciences where independent vision and thinking can make the student understand the already known facts and conquer the unknown."



Albert Szent-Györgyi drinking tea with his students

2.3 Inaugural speech for the Rector's office, 1940

In 1940, as a result of the Second Vienna Award, The University of Ferenc József, which was moved temporary to Szeged, was relocated to its original residence: Kolozsvár. In the school years 1940/41, in spite of the very difficult conditions, the work began in five faculties. These were the following: 1.The faculty of law and state sciences, 2.The faculty of medicine, 3.The faculty of arts, languages and history, 4.The faculty of mathematics and natural sciences and 5.The faculty of economics. Article XVIII, 1940, which relocates the run away university, also states that the town of Szeged, which was ready to make sacrifices, should be compensated with the establishment of a new university. In line with the law, at this new University of Magyar Királyi Horthy Miklós, the following four faculties are to be established: 1.The faculty of law and state sciences, 2.The

faculty of medicine, 3.The faculty of arts, languages and history, 4.The faculty of mathematics and natural sciences. Although the legal frames had created the opportunity for the two institutions to be separate, and develop in different ways, in practice, at the beginning, the university in Kolozsvár, residing in Szeged up until that time, had broken into two. Some of the professors moved back to Kolozsvár, while others stayed in Szeged and formed the core staff of the new university. Albert Szent-Györgyi was in the latter group.

At the beginning of the 40s, the prime officers of the university, in line with customs, had an annual rotation basis for the Rector's seat. After they were inaugurated as Rector, they welcomed the members of the university with an inaugural speech. In these speeches, which later appeared in print, the newly inaugurated Rectors mainly elaborated on their own policies regarding the university.

In the school years 1940/41, Albert Szent-Györgyi was the Rector of the University of Horthy Miklós in Szeged. As regards the content of his inaugural speech, it falls in line with the pattern that had begun a year earlier, where the author uses the criticism of general education and the university to explain what he thinks the main tasks of an ideal university are. It is noteworthy how the definition of these tasks varies in the different publications. In his inaugural speech, Szent-Györgyi describes four tasks for a university: "The oldest mission of the university is to collect, distribute and increase the knowledge of mankind. Its second task is to educate, in small numbers, scientists for the future, scientists, who shall later inherit this task from us. A third, newer, but not less majestic task of the university is to educate citizens for the country, citizens, who are equipped with intellect." Its fourth special task is "to be the centre of the great Hungarian plain: the *Alföld*."¹⁴

The first three tasks, as seen above, appear in his previous works on the topic, but the last one is a new part of the system. By reading the idea on the *Alföld* as a centre another thought comes to mind. From the history of Hungarian schools, we know very well the unique knowledge concentrating and distributing role of protestant schooling that work within a linear system: from elementary training up to the academic level. With a present day term, we can say that these schools also operated as regional knowledge centres. This happened in two ways. In the first place, these schools accommodated poor, but talented pupils, who in the facility turned into educated professionals. In

¹⁴ Albert Szent-Györgyi: *Rektori székfoglaló, 1940*. (Inaugural speech for the Rector's office, 1940) In: Albert Szent Györgyi: *Egy biológus gondolatai*. Gondolat Kiadó, Budapest, 1970. pp. 120–124.

Hungarian school history this is an early example for talent care. In the second place, it had been a century old practice that the facility sends twenty-something-year old senior students to do teaching in the schools of nearby or farther located towns or villages. These senior (toga wearing) students acted as living links when they distributed the knowledge they gained at the facility to the pupils trusted to them. This was a decentralized school system that had operated for centuries. It is possible that Albert Szent-Györgyi had something similar in his mind: the establishment of a system that distributes culture and counterpoints the capital as centre.

If we return for a moment to the third task that was mentioned in the speech, we can see that Szent-Györgyi was still interested in the old dilemma of universities: should they prepare scientists or provide professional training and prepare for civil life? Now, Albert Szent-Györgyi puts more emphasis on the latter tasks. He reasons that the university has opened its gates for the masses of young people who do not want to be scientists, but useful citizens in public life. This is one reason that suggests that the role of professional training should be given prominence. The other is that the university had given up its financial independence and accepted the financial support of the state. Because of that it cannot close itself, but has to adapt to the changed needs of society. The university has to meet both the demands of the state, which finances the university from the taxpayers' money, and the students, who have to be prepared for public professions, in line with the needs of such training. However, the training of scientists and professionals cannot be mixed without a drop in the level of quality, therefore, the two should be separated. To enable the dual channel training, it is necessary to raise the number of teaching staff members.

However, a university providing professional training is not the same as a vocational school. A university should also educate its students: it should expect a long line of “moral and mental characteristics” among which are the need to be creative and being able to take action, the feeling of responsibility, readiness to take action, clear-headed and fast judgement skills, honesty, interest and selflessness. In addition to these qualities, the university should educate people to lead a healthy life. As the newly inaugurated Rector says at the end of his speech: “...to fulfil a professional role, one also has to be healthy, so I wish to see that the university students have broad shoulders, straight backs and lively faces; our university should make sure that the opportunity is given to realise these goals as well.”¹⁵

¹⁵ Albert Szent-Györgyi (1970): i. m 123.

2.4. *Lecture on correct and incorrect pedagogy, 28 February 1941*

In the examined period, the line of publications on university pedagogy is closed again by a lecture that was held by Albert Szent-Györgyi to the audience of the *Szegedi Egyetembarátok Egyesület* and the transcript of which was published in *Magyar Nemzet* on 28 February 1941. For today's readers, it may seem strange that there is a paradigm shift that is apparent from the text of the newspaper. In his lecture, Albert Szent-Györgyi says (*expressis verbis*) that the main goal of the university is professional training: "the main goal of the university is not to train scientists, but primarily to prepare young people for public careers. The university owes a great and new responsibility towards the nation that sustains it. The university has to make sure that the masses of young people coming to the institution become useful members and citizens of life and the nation."¹⁶ Before we draw the conclusion that in this speech the scientist admires only the down to earth utilitarianism, it is worth reading further: "It is not the aim of the school to serve theoretical pedagogical ideas, but to educate useful, happy and healthy citizens. [...] It is not enough to train people for a profession because without a line of values in character, morals and body, profession in itself is valueless or directly harmful." Here, the principle of usefulness is complemented with the aspiration to fit into a community and become happy, which is impossible without success in social life. All these are supplemented with the task of educating the character and preserving health. Here, the reader faces a complex idea on man that bears both the effects of the antique Greek harmonic ideas on man and the modern English philosophy that strives to be practical.

Albert Szent-Györgyi was an excellent speaker: he was able to convey his thoughts by adapting the qualities of live speech and use the means of rhetorical forms. This feature of his becomes especially noticeable when he, in a vitriolic style, criticises the contemporary education system. The following citation illustrates this: "I look at our 12-year-old boy scouts. We can hardly find so much talent, pleasantness, selflessness and spirit elsewhere. This is not the easy high-flying spirit of the youth; here the spring of our national spirit flows undisturbed. And what becomes of these values? Where do they get lost? The young man who leaves the secondary school is apparently tired and worn-out, while the 25 year old, who enters life, only dreams about a job until retirement, where he doesn't have the burden of any sort of responsibility on

¹⁶ Albert Szent-Györgyi: *Előadás a hibás és a helyes pedagógiáról*. (Lecture on correct and incorrect pedagogy) *Magyar Nemzet*, 28 February 1941

his shoulders. There must be a fundamental error in education, teaching and the ways of teaching, as these, squeeze the most precious qualities of the soul out of the 10 to 20 year olds; qualities that are the most needed ones in doing creative work. Our youth go to university with a great ballast of unnecessary knowledge.” This is a striking to-the-point evaluation of the contemporary (only contemporary?) school system...



Albert Szent-Györgyi with his students

3. The university pedagogy of Albert Szent-Györgyi

In Albert Szent-Györgyi's publications on the topic of university pedagogy, the constant and changing patterns are highly noticeable. In this respect there are three topics:

1. It is noticeable that in the period between 1930 and 1941, Albert Szent-Györgyi's notions on the duties of the university had changed. His notions on the tasks of training scientists, researchers and professionals have changed, and, by the end of the decade, the emphasis was on training practical professionals.

2. On the other hand, his thoughts on the duty of the university to improve character and shape personality have not changed. With this distinctive idea, Szent-Györgyi has created an important trend in the history of Hungarian thinking on the role of universities.
3. A constant topic of these publications, which is elaborated on with a more and more critical attitude, is school criticism. This not only refers to secondary level schools, but to the university itself.

As mentioned above, Albert Szent-Györgyi did not express his thoughts on pedagogy as an official representative on the field of education, or a writer on pedagogy, but as a scientist who is very much interested in several issues in public life, and as a university member who feels responsibility for the fate of the university. The intellectual environment, where he formed his thoughts on education, shaped the change of his ideas. In his publications and published speeches on the topic, there is a distinctive and new pattern, which, as far as we can judge, makes Szent-Györgyi's pedagogy unique, and for today's readers illuminating: the need for an education that prepares people with full values and the establishment of such a program also in higher education that shapes harmonic personalities. Because of this, we may risk saying that, within the walls of the university, Albert Szent-Györgyi, the late Renaissance man, wanted to see the education of the ideal Renaissance man.

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