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István Apáthy and his Time

We have come here to commemorate one of our most distinguished scientists, who was not only a researcher but also an extraordinary personality — we may safely say an exceptional phenomenon of our scientific past — to use a debatable modern phrase, which is more often employes to describe artists.

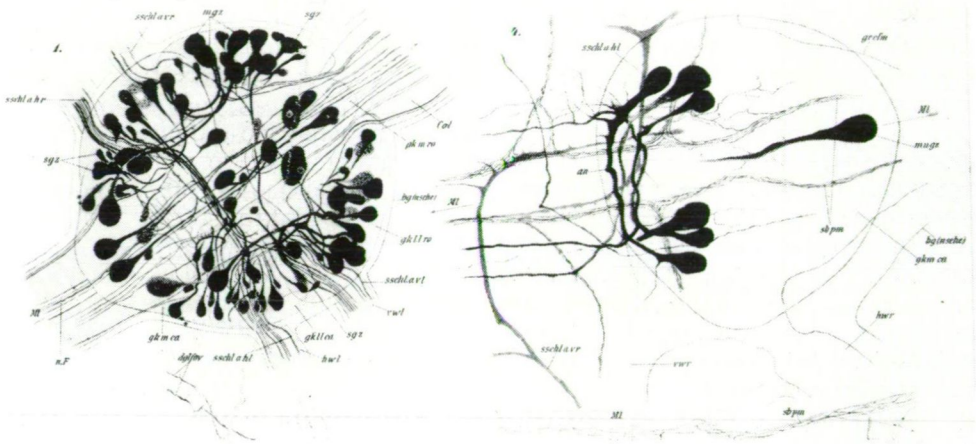
He was not only a magnificent, but also a tragic phenomenon, for the life of any research is tragic, if posterity cannot give him undivided justification of his efforts. This is the more tragic the brighter his brilliance was, and in proportion to it, great was also the expectation of posterity. István Apáthy was a tragic phenomenon also because as a researcher, but also as a public figure, he gave rise to great expectations. Such expectations as are unfortunately not usually justified by life.

Apáthy's most typical characteristic was his unparalleled technical perfectionism: he was probably a till now unequaled master of microscopy technique. Whatever he dealt with: excision and fixing of animal tissues, preparation and mounting of sections, the edge of the microtome, the setting of the angles for cutting, transfer from one medium to another which was necessary for removal of the mounting medium, for staining and covering — and I could continue the enumeration — he made something new, something better than before. Even now, more than 60 years after his death, we find his name again and again in manuals of microtechnique. Everywhere, down to the smallest microtechnical tricks, he had some useful innovation.

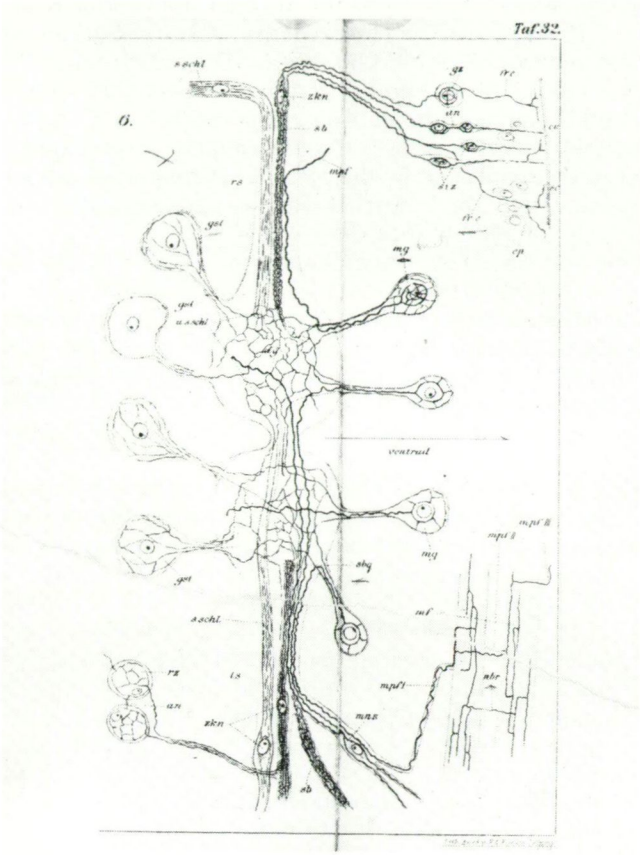
Yet ironic as life is, just his technical perfectionism became his ruin. The perfection of his preparations was the trap that for the present-day observed evidently lured him on a false track.

I have often meditated why his Hungarian rival, Mihály Lenhossék, came upon the road that was to prove right. In his autobiography, Lenhossék betrays his secret perhaps involuntarily. He writes "being a very impratical man, I recognized that I had to remain on the theoretical line". On the other hand, Lenhossék's superiority in systemic and disciplined thinking appears from almost every one of their lines. And — si licet parvi me componere magnis — in my own life course even a minimum of self criticism would be sufficient for the recognition — for I was far from impratical — that I owed my "luck" to my antiperfectionism, that is my insolent nonchalance and the romantic soaring of thought. — Yet I warn my young colleagues: they should not follow me in this — Goethe writes in the preface to the second edition of Werther, after the sentimentality vogue caused by the first edition led to a veritable wave of suicides — whom it concerns I no longer remember, but it goes on thus: "...sei ein Mann und folge mir nicht nach."

But let us return to Apáthy: the breathtaking beauty of his preparations — in the 30s they were still circulated in a small box — belongs to my most delightful experiences in the enjoyment of the art of microscopy — but they were taken to Kolozsvár in 1940 I do not know by whom: since all trace of them has been lost (this is how we handle the relics of our science). — Well, it is the unparalleled beauty of these pictures — of which I can project here only two samples that induced him to believe in microscopic pictures. For a researcher like Apáthy, the rough precipitate produced by Golgi's method, which incrusted the sections, must of course have been annoying. He could not wait another 60 years for the successful removal of the precipitate in electron microscopic specime — just in the sense of the principle of "differentiation" ingeniously introduced by Apáthy — when he could have seen the remnants of the Golgi precipitate within the cell membrane in the form of fine granules well visible under the electron microscope.



In Figure 1 we can see two details of the ganglion of the leech stained by Apáthy's "gold pre-impregnation" technique. This stains the nerve cells) (in Apáthy's terms ganglion cells) uniformly, together with their processes. On the other hand, his figure, which we can see in Figure 2 and which was also used as a summary for his important work was prepared with post-impregnation gold technique. This procedure reveals the neurofibrils with unprecedented clearness against an almost unstained, light background.



The neurofibrils in Apáthy's preparations — as we now know are formed by the adhesion of microtubules and microfilaments — stood out from the pale or toned-down background with a clearness never achieved to this degree before or after him. It was from this that Apáthy developed his conception, which was indeed ingenious in its time.

Unfortunately, Apáthy, although he could use the German language well in his writings and certainly knew French, English and Italian passively at least, adopted the worst traditions of German scientific style. Lenhossék, who spoke and wrote both Hungarian and German as his mother tongue, very consciously endeavored to avoid this and also taught it to me. Apáthy, however, was not alone in this, to no little disadvantage of Hungarian Sciences. Endre Hőgyes for instance, carried it to excess even in Hungarian. Unfortunately, the extreme plasticity of the Hungarian language is a great temptation, which constitutes danger to Hungarian scientific style. Therefore, very careful study of the figures is necessary to understand the essence of Apáthy's ingenious way of thinking. The essence of his conception is: "**Nerve cells** (in Fig. 2 we see only the nuclei of the nerve cells marked Zkn, which is the abbreviation of Zellkern) is what produces the conducting substance (i.e. the

neurofibrils): **ganglion cell** is what **as a kind of generator** produces what the nervous system conducts (the impulse)." – Thus Apáthy's theory was consequent, in itself coherent, original and ingenious in its essence ... The only trouble with it was that it did not correspond to the facts. Later it became a theory surviving Apáthy's death by 25-30 years and dominated the neurological research in Europe almost till the middle of the 1950s. Thus Ambrus Ábrahám and I remained almost alone. Apáthy's theory in the hands and by the pens of his epigones – not so much the still ingenious Bethe but chiefly Bielschowsky, Boeke, and especially Stőhr and many of their followers – was completely distorted.

Only Russian and American researchers avoided the false track.

This is another case illustrating that just the perfection of a research enterprise may be its trap and the source of tragic contradictions. It is not known what induced Apáthy eventually to stop his feverish activity. Was it perhaps Ramon y Cajal's Nobel prize or a dispute with Lenhossék at an international congress is Budapest? Gentlemanly professor colleagues at that time did not dispute. What is especially ununderstandable in this is that Lenhossék was a weak polemist; Apáthy could only be better.

But it is also possible that is was the sharpening of the question of Transylvania from the beginning of the 20th century and the mencing shadow of the war in the Balkans that drove him into his even more tragic role in public life. We now know, of course, that this was a "lost case" already a hundred or even two hundred years ago. Naturally we cannot raise in history the question of „what would have happened if ..." The reform are was probaly the first historical moment when a quite different model of social development would have had a real chance, but the precondition of this would have been a different dynasty, a different upper class, and a Hungarian nation with a different mentality. After 1848, creation of a large East-Central European enlightened federation of states adopting the achievements of the French Revolution instead of insistence on St Stephen's Hungary would still have been possible. – Who knows whether from the viewpoint of the survival of the Hungarian nation this was the better solution or that which was realized?

This was what Apáthy became involved in rather late, and for him tragically, because it is obvious that he could not really do anything. – Undoubtedly he saw a few things well: it can be proved with a few quotations from his works published in 1908, 1910 and 1914, that at this time he recognized the necessity of appreciating society on the basis of qualitative rather than quantitative criteria. His thoughts predicted in many respects what 70 years later became general under the name of "Thatcherism" in socially influenced modern democratic society. Apáthy foresaw the Tisza's policy would lead to catastrophy.

In the light of the events and his sentences here quoted we can understand how mistaken we are when we think that we direct the things.

We can only dip the flag with deep respect to the memory of an honorable, enthusiastic and well-meaning man.