
Opening Lecture

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The life and scientific activity of Professor Rudolf Stefan Weigl

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(1883–1957)

Rudolf Stefan Weigl had come from an Austrian family, but became a Pole by choice. He graduated from the Natural Sciences Faculty at Jan Kazimierz University in Lviv (Lwów) in 1907, and earned his doctor of science degree (*habilitacja*) there in 1913. In the 1920s and 1930s he devoted himself to working on epidemic typhus, which had killed millions of people over the centuries, especially during war-time (the Napoleon's expedition to Russia, WWI, WWII).

The first effective vaccine against typhus was made from stomachs of lice infected with *Rickettsia prowazekii* and the inventor of intrarectal technique of infecting these insects was Rudolf S. Weigl, an eminent Polish scientist, a professor at the Universities of Lviv (Lwów), Cracow (Kraków) and Poznań.

Epidemic typhus is caused by *Rickettsia prowazekii*. These bacteria develop in the alimentary canal of the human body lice. The chief obstacle in developing the vaccine was the insect's tiny size. Weigl discovered a method for performing an artificial intrarectal infection of lice and thus managed to cultivate the bacteria. He began his investigations on typhus in 1915. Using micro-infection and micro-preparation techniques that he himself developed, he succeeded in developing a vaccine. His studies have definitely supported the pertinence of Rocha-Lima finding that *Rickettsia prowazekii* is the etiological factor in typhus.

Weigl's vaccine, developed in its initial version in 1918, was then tested repeatedly on guinea pigs and afterwards on human volunteers, the first of them being a technician in Weigl's laboratory. Next, when the effectiveness and harmlessness of vaccine had been sufficiently tested, it was sent to the Belgian Catholic Mission in China, where it obtained an extremely high assessment. Vaccinations were also carried out in Africa. Many thousands of people were immunized with Weigl's vaccine during World War II.

Weigl not only worked to produce his vaccine, he also actively contributed to the fight against the occupying enemy forces. He worked together with the underground authorities of the Home Army in the Lviv (Lwów) district, supplying partisan fighters with the typhus vaccine. He sent many

shipments of the vaccine to the Warsaw Ghetto, to ghettos in other Polish cities and concentration camps in Majdanek and Auschwitz. During the occupation of Poland by Germans and Soviet Union during WWII, Rudolf Weigl used his research institute to protect the Lviv (Lwów) elite: researchers, artists and the intelligentsia (for example, the following people – Banach, Albrycht, Orlicz, Fleck, Kreutz, Krzemieniewscy, Kulczyński, Parnas, Skrowaczewski, Herbert, Chmielowski, Kryński, Szybalski, Tokarski etc.).

He did not have an easy life and was not respected by the Communist authorities in postwar Poland. In 1946 the Polish Government withdrew his candidacy for an almost certain Nobel Prize. The hardest thing for him to accept was the fact that some of his former associates accused him of having collaborated with the Germans, allegations that were absurd in the view of what he had done during the occupation.

After WWII, Weigl had to leave Lviv (Lwów) and he then moved to Krościenko near Nowy Targ, where he established a small laboratory. Then he moved to Cracow (Kraków) where he was employed as professor of general microbiology at the Jagiellonian University (1945–1948), and finally to the University of Poznań (1948–1951). After retirement, he died in Zakopane, Poland in 1957, reaching 74 years of age. Rudolf S. Weigl was posthumously awarded the “Righteous Among Nations” medal for saving Jewish lives during WWII.

In conclusion, I wish to say that most of these facts seem to fall into oblivion, and the insect – the human body louse, practically does not play any role in our lives today. Let us try not to forget the noble deeds, courage and scientific discoveries of Professor Rudolf S. Weigl and his associates.