

**DR. EUGEN WORELL,
ONE OF THE MOST PRESTIGIOUS NATURALIST IN SIBIU (ROMANIA)**

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Abstract. The presented material begins with a short relating of the historical data about the socio-political situation, characteristic to the Transylvanian Principality. The Leopoldine Diploma from 1691 encouraged the modernization of the province and made possible the opening towards Europe. On this base, the naturalists of Sibiu obtained notable successes, both on the scientific and editorial plan, but also on the organization one. In this context, there appeared dr. Eugen Worell, a military doctor, entomologist and collector. It is presented his activity as a doctor specialist in bacteriology and his contribution to control of the pneumonic plague in North China and Manciuria during the winter between 1910 and 1911. At that time, E. Worell was a crew member of a war navy belonging to the Austro-Hungarian Empire. His merits were recognized on international plan and the Chinese government conferred him high decorations. The rapport about the jugulation of the epidemic pneumonic plague, to the achievement of which he had one of the greatest contributions he, remained for a long period of time, as a reference material about plague. After the First World War, he was in the Romanian Army, as a military doctor and he obtained important successes mainly in controlling the epidemic exanthematous typhus in Bessarabia. On the naturalistic plan, due to his passion for research and collecting, his work stands out through the organization of his entomological collections with tens of thousands of insects, most of them of Coleoptera and Lepidoptera. All these collections are at present preserved in the patrimony of the Natural History Museum in Sibiu, the "Grigore Antipa" National Museum of Natural History in Bucharest and the Natural Sciences Museum in Ploiești. Dr. Eugen Worell completes the plead of Sibian naturalists that through their achievements placed the city of Sibiu on the map of the entomological research centers in Transylvania and in our country, too.

Keywords: Dr. Eugen Worell, naturalist, entomological collections, bibliography.

Rezumat. Dr. Eugen Worell, unul dintre cei mai prestigioși naturaliști din Sibiu (România). Materialul prezentat începe cu o scurtă relatare a datelor istorice ce caracteriza situația politico-socială a Principatului Transilvaniei. Diploma Leopoldină din anul 1691 a favorizat modernizarea provinciei și a făcut posibilă deschiderea spre Europa. Pe această bază, naturaliștii sibieni obțin succese notabile atât pe plan științific și editorial, cât și organizatoric. În acest context apare dr. Eugen Worell medic militar, entomolog și colecționar. Se expune activitatea sa ca medic specialist bacteriolog la combaterea ciumei pneumonice din China de Nord și Manciuria din iarna anilor 1910-1911. La acea dată Eugen Worell făcea parte din echipajul unei nave de război a Imperiului Austro-Ungar. Meritele lui Eugen Worell sunt recunoscute pe plan internațional, iar guvernul chinez îi conferă înalte distincții. Raportul redactat la jugularea epidemiei de ciumă pneumonică, la care Eugen Worell a participat în cea mai mare măsură, a rămas multă vreme material de referință în materie de ciumă. După Primul Război Mondial este încadrat în armata română ca medic militar și obține succese importante, mai ales, în combaterea epidemiei de tifos exantematic din Basarabia. Pe plan naturalistic, dată fiind pasiunea sa pentru cercetare și colecționare, se distinge prin alcătuirea de colecții entomologice ce cuprind zeci de mii de insecte, în majoritate coleoptere și lepidoptere. Aceste colecții au intrat în patrimoniul Muzeului de Științe Naturale din Sibiu, în patrimoniul Muzeului National de Istorie Naturală "Grigore Antipa" - București și a Muzeului de Științele Naturii Ploiești. Dr. Eugen Worell se adaugă pleiadei de naturaliști sibieni care prin realizările lor au plasat Sibiu pe harta centrelor de cercetare entomologică din Transilvania și din întreaga țară.

Cuvinte cheie: Dr. Eugen Worell, naturalist, colecții entomologice, bibliografie.

INTRODUCTION

After the military events from Central Europe in the eighties of the 17th century that gave a win to the Habsburg Empire, Transylvania became an aulic Province, subordinated directly to the Emperor, governed by an Aulic Office in Vienne. The Leopoldine Diploma (1691) functioned as a true Constitution of this Province for about one hundred-fifty years (POP & BOLOVAN, 2013).

This historical event induced measures and new political, economic, social and demographical structures that constituted the beginning of the modernization of the Province with a large opening to the European realities. The city of Sibiu had become the capital of the Principality since 1692, having a Saxon governor, and was connected at the highest degree in this opening programme. The Austrians established 'a rigorous evidence of the material and human resources from the Province' (POP & BOLOVAN, 2013).

Concerning the natural sciences, there were made important progresses and a closer connection to the scientific manifestations from Empire, by studying, collecting, researching and organizing the Flora and Fauna collections, and by promotion of the Darwin ideas in Europe. The most productive period of the Sibian naturalism one consider to be between the second half of the 18th century and the first half of the 19th century. In this period, the Sibian naturalists enriched the patrimony of the Province with collections of reference, scientific applied publications, with proper organizational structures for a scientific promotion in the field of natural sciences. I mention the most important personalities during the times like Michael Bielz (1787-1866), Ludwig Neugeboren (1806-1887), Michael Fuss (1814-1883), Karl Fuss (1817-1874), Karl Ungar (1869-1933), Carl Fridrich Jickeli (1850-1952), Daniel Czekelius (1857-1938). This Pleiad of Saxons naturalists placed the city of Sibiu on the Transylvanian and Central-European map of naturalism.

In 1849, it was established 'The Transylvanian Naturalist Society of Sibiu' (Siebenbürgischer Verein für Naturwissenschaften zu Hermannstadt), a scientific structure that contributed in a decisive way to the affirmation of the

city as a scientific center (ANTONIE & CIOBANU, 2004). As a press organ, it was the publication "Debates and Communications of the Transylvanian Society of the Natural Sciences in Sibiu" (Verhandlungen und Mitteilungen des siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt) (ANTONIE, 2016).

In 1887, there was added a new scientific structure: The Medical Section of the Transylvanian Naturalist Society of Sibiu (Die Medizinische Sektion des Siebenbürgischer Verein für Naturwissenschaften zu Hermannstadt). These achievements found their scientific - organizing fulfilment by the construction of the Natural Sciences Museum, an imposing building with an appearance of ancient temple, which hosted heritage collections and where almost the entire activity of Sibiu naturalists took place.

In this gallery of the impressive predecessors, there appeared another representative personality of the Sibiu naturalism, one of the most important founders, dr. E. Worell.

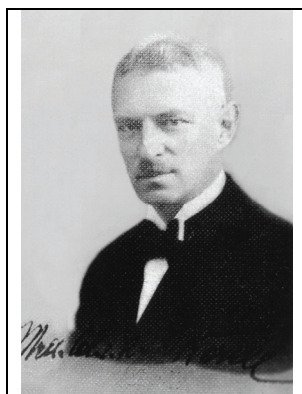


Figure 1. Dr. Eugen Worell
(Source after: Picture from
the History Museum of
Sibiu).

DR. EUGEN WORELL'S LIFE

Dr. Eugen Worell (Fig. 1) was born on 10th of October 1884 in Râșnov (Rosenau), near Brașov, in a family with a naturalist-medical tradition; his grand-father was a physician and his father was a military-physician. He followed his family because his father moved from one garrison to another on the vast Empire and so he finished his secondary school in the Kosice. He first entered the Law Faculty, but he preferred the medicine Faculty in Vienna. He specialized in international medicine and bacteriology. In 1904, at 24 years old, he was a military physician on a war Austro-Hungarian ship with garrison at Zarra on the Dalmatian coast. This was the start point of a career marked by a prying and curious, inquisitive character, completed by an admirable endeavour and modesty. His destiny was under the empire of a faude the implacable time, the infinity of the space and his own creative genius.

His life's time began at the junction of two centuries, the times him over the seas and oceans, continenets, islands, and also under two different social-of of political and state changes. His genius manifested himself in a dualist way, both in the medical-military field, but also in the entomological-naturalist one, as a research worker and collector.

He accumulated knowledge and experience as a member of the crew, scouring the Mediterranean Sea, the coasts of Asia to Vladivostok, Japan, Sumatra and the islands of Philippines. During a period of two years he became a known personage appreciated for his professionalism. And so, when the pneumonic pest had broken out in North-China (Figs. 2, 3) and Manchuria, in the winter of the year 1910, the Habsburg Empire—at the Chinese government solicitation – sent there dr. Eugen Worell, together with other specialists and material means, in order to help the jugulation of the epidemics. He participated actively in the organisation of the operations against plague, and so, in the spring of the year 1911, the plague was jugulated. The success in the control of pneumonic pest by an united international action of the medico-sanitary forces and the frequency of the pest epidemics in the world were the reasons to be organized an International Conference in April 1911 in the Chinese city Schenjyag. The theme of the debates was about the problems of prevention and control of the pest epidemics.



Figure 2. Corpses gathered from the houses of Fuchiatien,
before the pestilence hospital
(Source after: Picture from the History Museum of Sibiu).



Figure 3. The sanitary staff
(Source after: Picture from the
History Museum of Sibiu).

Dr. E. Worell participated actively in the Conference works and finally he elaborated a rapport with his conclusions of the gained experiences in the control of pest epidemics in 1910. The Chinese government appreciated the effort and the contribution of Dr. Eugen Worell and conferred him the decorations: 'The Dragon Order' and 'The Gold memorial medal'. His rapport constituted the substance of his future paper, elaborated over the years, entitled: "The epidemic pneumonic pest in Manchiuria and North China during the winter of the years 1910-1911" (WORELL, 1925).

The paper of Dr. Eugen Worell maintained its scientific validity, being exposed at the 'Military Sanitary Circle' of the Army Corps VII in Sibiu and was published in the Military Sanitary Review, number 2, in the year 1925

and it was awarded a prize by the Romanian Academy. At that time, dr. E. Worell worked at the Military Hospital of the Army Corps VII in Sibiu as a colonel-lieutenant. The newspapers of that time emphasized the scientific importance of the data contained in his Rapport, taking into consideration the news of that time about plague cases in Constantinople. It was also emphasized the international cooperation with a great successful result in the jugulation of the epidemic plague. Many European States contributed with specialists and material means, but the heaviest contribution was made by China and Japan. The epidemic plague was jugulated in six months. In his Rapport there were mentioned data and evaluated about between 50,000 and 60,000 human losses.

Within vast regions in Siberien, North-Mongolia, Manchuria and North China the pest existed as a form of endemic epizooty. The incriminating animal as a source of the bacterium *Yersinia pestis* (Lehmann & Neumann, 1896) van Loghem, 1944, the cause of plague, was not the rat, as the people thought, but the marmots (*Marmota bobac*) (Müller, 1776), rodent animals, intensely hunted for their valuable furs. There were investigated more than 300,000 rats, without being discovered the bearer animals and the transmitter fleas. The form of the plague was the pneumonic one and secondary septicaemic, having severe forms with a mortality of 100%. In the period of the plague climax, they were registered more than one thousand deceased in a single day. Among the preventions and control means, Eugen Worell recommended vaccination. He was himself vaccinated three times with a vaccine prepared with dead cultures of *Yersinia pestis* and the fourth time with a vaccine prepared with an active pathogen agent. Dr. E. Worell worked in laboratory and at the pest Hospital in Mukden.

After the First World War, dr. E. Worell integrated in the Romanian Army as major and he worked at the Military Hospital in Sibiu where he worked in this branch for 15 years (1919-1934) as a specialist in internal diseases, bacteriological laboratory and radiologist. Two times he was the manager of the Hospital, between 1926 and 1927 and 1929 and 1934. He improved the material base of the Hospital and he contributed to raise up the medical activity level. As a recognition of his merits and as a representative of the medical community in our country he was delegated to participate – from the medical leadership of the Army – to the ‘International Congress of Medicine and Pharmacy’ in London.

Since 1934, for a period of four years, he was transferred to Chișinău as a manager medic in the 5th Division with the principal task to control the epidemic exanthematous typhus in Bessarabia.

The Romanian State conferred him high orders and medals, such as: ‘The Romanian Star’ Grand Officer Rank, ‘The Sanitary Merit Cross’, the First Class, The Romanian Crown in Grad of Officer.

At the age of 54, in 1938, Dr. E. Worell retired as a reserve officer.

The destiny did not let him to enjoy his pension. Soon after his retirement, as a doctor colonel, officer in reserve, between 1938 and 1941, he was, sent with different tasks to inspect the military hospitals and commissariats.

The Romanian State and the Romanian Army recognized the Eugen Worell’s efforts and his significant realizations on the military-medical plan and conferred him, on the 22nd of March 1947, the Grad of brigade general S.M. He was 63 years old.

Since 1948, after his own confession in memories, he had the symptomatology of a cardiac disease, namely ischemic cardiopathy with total obstruction (block) A – V that hindered him from continuing and finishing his works; after 13 years of suffering, he passed away in Sibiu, in 1961, at the age of 77 years.

THE NATURALIST ACTIVITY

This was the second passion of Eugen Worell that he honoured all his life long; he became well-known as an impressive entomologist and collector.

His passion for the study of insects manifested early in his life, since he was 14 years old, being essential for his future activity for research and collecting. During his life he collected about 100,000 samples that belong to 18 Insect Orders, as he specified in his Memories in 1957 (WORELL, 1957). He is considered ‘zealous, hardworking and successfully entomologist’ (SCHNEIDER, 1996), collecting insects from vast areal, because of his numerous travels on duty or private. The rich entomological material came from Dalmatia, many Alps regions, the Mediterranean coasts and also from different parts of Asian and Polynesian region. The predominant part of his collection came from Romania: Herkule’s Bath and surroundings, the Cerna Valley, Bessarabia, the Black Sea Coast (Eforie South) and Sibiu zone. His collection reflects his entomological activity during a period over 60 years and it emphasizes his total opening towards the naturalist sciences, his collaborators, researchers, entomologists or who wanted this. His collection was named by the entomologist Eckbert Schneider to be ‘a chronicle’ of the entomologist E. Worell’s life.

In the year 1849, at the establishment of the ‘Transylvanian Society for Natural Sciences’, only one medic was a member of it. In 1887, an entire Pleiad of Sibian doctors were active, and so it was possible the establishment of a the medical section of this Society. The Sibian doctors beside their basic profession, excelled also as entomologists and botanists that worked in the organizational structures and they contributed decisively to the formation of numerous collections that make the fame of the Natural History Museum in Sibiu. Their members increased progressively, and so, in the year 1920, among 276 members, 74 were doctors. I mention among the famous naturalist doctors dr. Daniel Czekelius (1857-1938), dr. Karl Ungar (1869-1933), dr. Viktor Ernst Weindel (1887-1966). This was the spirit of the time that permitted E. Worell to become a collector and, a member of the ‘Transylvanian Society for Natural Sciences’ in 1920, and as part of it, he received the function of the custodian of the entomological collections (1938-1949) and he was elected even the president of the ‘Society’.

In the year 1957, the most of his collection was bought by Brukenthal Museum, the Natural History section, in exchange for a life pension. The collection contains more than 96,000 insects belonging to 12 Orders Coleoptera and Lepidoptera orders having the greatest share. The Lepidoptera collection of E. Worell contains 11,651 specimens that belong to 1,637 species; among them, 9,066 specimens are Macrolepidoptera that belong to 1,096 species. Microlepidoptera have 2,585 specimens that belong taxonomically to 541 species (SCHNEIDER, 1996). The collection contains besides the common species from Romania, also many rare less known species and endemic species. Of this last category, I mention the following species of Lepidoptera: *Parnassius apollo jaraensis* Kertész, 1922; *Parnassius apollo transsylvanicu* Schweitzer, 1912; *Parnassius mnemosyne transsylvanica* Schmidt, 1930 (Papilionidae) (TÖRÖK & CUZEPAN, 2012; CUZEPAN et al., 2015); *Pieris bryoniae carpathensis* Moucha, 1956 (Pieridae), *Erebia epiphron transsylvanica* Rebel, 1908; *E. manto trajanus* Hormuzachi, 1895; *E. sudetica radnaensis* (Rebel, 1915); *E. cassioides neleus* (Freyer, 1833); *E. gorge fredericikoenigi* Varga, 1999; *E. pandrose roberti* Peschke, 1920; *Boloria pales carpathomeridionalis* Crosson & Popescu-Gorj, 1963 (Nymphalidae); *Glacies canaliculata schwingenschussi* Wehrli, 1919; *G. coracina dioszeghyi* Schmidt, 1930; *Elophos dilucidaria carphatica* (Soffner, 1932) (Geometridae); *Coscinia cribraria pannonica* Daniel, 1955 (Arctiidae) (TÖRÖK & CUZEPAN, 2013; CUZEPAN et al., 2015).

Another part of his collection went to the Natural History Museum "Grigore Antipa" in Bucharest, over 12,000 insects and 1,500 insects entered the patrimony of the Natural History Museum in Ploiești (ANTONIE, 2015).

Many schools in Sibiu received collections of insects with a didactic purpose. E. Worell elaborated a popularized material and he presented lectures in schools and school reunions, having an important role for guiding young people.

His research activity was reflected also in his scientific work. The most important of these is 'Contributions to the knowledge of the Coleoptera and Lepidoptera Fauna in Transylvania, mainly in the surroundings of the city Sibiu'. This paper was presented to the Romanian Academy in the year 1951 and it was published in the "Scientific Bulletin of the Academy" in the Section of Biological, Agronomical, Geological and Geographical Sciences (WORELL, 1951). The recommendation for publication was given by the great lepidopterologist Aristide Caradja himself.

The numerous data from the great treatise 'The Romanian Fauna', elaborated and published by the Romanian Academy were taken over from the research and papers written by E. Worell.

The entomological collection of E. Worell was studied by many specialist entomologists, such as: AGAPI & PLATTNER, 1965; UNGAR, 1981; VLAD-ANTONIE & RUICĂNESCU, 1996; VLAD-ANTONIE, 2000; ANTONIE, 2015; STANCĂ-MOISE, 2001, 2015a, b, c, 2016a, b.

The collection of E. Worell was a base for numerous studies and specialized research of entomologists from Romania and abroad. They studied the species of Hymenoptera Order, Formicidae Family (BÁLINT & SÁNDOR, 2002), Cephidae (PASCU, 1978), Diprionidae (PASCU, 1978), Halticidae (PASCU, 2004), Melittidae (PASCU, 2004); Diptera Order, the Families Stratiomidae, Therevidae, Sciomyzidae, Conopidae (WEINBERG, 1970a, b), Syrphidae Family (STĂNESCU, 1975, 1976, 1983); Coleoptera Order, the Families Lucanidae (CUZEPAN & TĂUȘAN, 2013), Cerambycidae (TĂUȘAN & BUCȘA, 2010a), Rhynchitidae, Atteblidae (ANTONIE, 2007); Lepidoptera Order, the Families Pieridae (TÖRÖK & CUZEPAN, 2013), Papilionidae (WEINDEL, 2000; TÖRÖK & CUZEPAN, 2012, 2013), Lycaenidae (MOISE, 2011a, b, c, d; TÖRÖK & CUZEPAN, 2014); Nymphalidae (MOISE, 2011c); Trichoptera Order, Limnephilidae Family (BOTOȘĂNEANU & SCHNEIDER, 1978).

In the year 1972, one collaborator of E. Worell, Hans Plattner declared: "it is not possible nowadays, when it is presented the insect fauna of Romania, to ignore data from Worell collection" (PLATTNER, 1972).

One year after the death of Dr. E. Worell in an homage article by the Academician Aurelian Popescu-Gorj, published in Bulletin of the 'Grigore Antipa' National Museum of Natural History in Bucharest it was written: "The death of Dr. Eugen Worell, this modest and persevering man in the study of nature is a great loss for all naturalists in our country. The image of this entomologist with a generous and passionate heart will always persist in the memory of those who knew him" (POPESCU-GORJ, 1962).

Concerning his passion for collecting the art objects, this was materialized in a special collection preserved in the patrimony of the "Brukenthal National Museum" in Sibiu.

CONCLUSIONS

Dr. Eugen Worell appeared in the first half of the 20th century as a bright personality, open to science and scientific research, and also for practical mostly in his profession as military doctor. His devotion to a humanist cause helped him surpass the dramatic situations provoked by pneumonic plague in North China and Manchuria, although he was only 26 years old. The Rapport presented by E. Worell after the jugulation of the epidemic plague, was the object of discussions at the International Conference at Mukden, in China in the year 1911.

One of the principal side of his personality manifested at the end of the First World War when he was appointed in the Romanian Army, at his express request, as military doctor. With the same devotion he was very active on duty and excelled as a good organizer and high professional in the Military Hospital in Sibiu.

The memory of E. Worell resists over time also because of his activity of a naturalist entomologist and collector. His collections contain mainly insects of the Orders Coleoptera and Lepidoptera. They are present at an honour place in the patrimony of the Natural History Museums in Sibiu, Ploiești and 'Grigore Antipa' NM.N.H. - Bucharest.

With much to my regret that till the present there is not any material or manifestation in order to render homage to Dr. E. Worell, about his activity and his work as a military Sibian doctor, although he contributed directly to the organization and endowment of the Military Hospital Sibiu, acute necessary in the period of his takingover by the Romanian administration in 1919

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