

Malaria problems in Lithuania

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Local malaria outbreaks, with about 2000 local malaria cases per year (Fig. 1), were recorded in Lithuania in the post war period. Prior to the Second World War there are no data concerning the morbidity of malaria in Lithuania. The malaria situation began to improve after the malaria station was created (Fig. 1) and, although imported malaria cases are recorded every year, there has been no locally transmitted malaria since 1956. Up to 1980 the disease was reported most often among sailors returning to Lithuania infected mainly by *Plasmodium falciparum*. During the war in Afghanistan (1981-1989) soldiers returned to Lithuania infected with *Plasmodium vivax*. Since 1989 cases of imported malaria have been registered all over the country. The patients are usually tourists, tradesmen and sailors. In the period between 1992 and 1998 52 cases of imported malaria were registered, 34.6% of which were *P. vivax*, 53.8% *P. falciparum*, 7.7% *P. malariae* and 3.8% *P. ovale*. Of these, 82.7% were infected in their journeys in Africa, 15.4% in Asia and 1.9% in South America.

Since 1992 Lithuania has been faced with a new problem, that of illegal migrants. These people come from countries where malaria is endemic and have brought the disease into Lithuania.

There are suitable conditions for the development of mosquitoes in Lithuania: 41% percent of all permanent water bodies have been found to contain anopheline mosquitoes with *Anopheles maculipennis* s.l. dominant, adults being observed from April to October.

Each year the likelihood of malaria transmission is studied and the duration of the sporogonic cycle calculated using the methods of Oganov & Rajeovski (1986). From Table 1 it is apparent that climatic conditions in Lithuania are usually favorable for *P. vivax* to mature in long-lived mosquitoes. The transmission season for malaria in Lithuania, which is dependent on temperature, ranges from 31 days (1997) (see Table 1, column 2) to 111 days (1992). However in 1993 and 1998 conditions were not favorable for malaria transmission: in both these years summer temperatures were too low for the completion of sporogony.

It is concluded that with high populations of *An. maculipennis* mosquitoes, together with a gradual warming of the climate and the influx of people from malarious countries, the possibility of autochthonous malaria transmission in Lithuania is increasing.

Reference

Oganov, L.I. & Rajeovski, G.E. (1986) Sbornik instruktivno-metodicheskikh materialov po malyarii, kleshtshevomu entsefalitu, gemorragitsheskim likhoradkam. 1. Ministerstvo zdravookhraneniya SSR. Moskva.

Table 1. Seasonal observations on malaria transmission in Lithuania

Year	Malaria transmission season	Duration of sporogony (<i>P. vivax</i>) (days)	Number of days when average temperature exceeded 15°C
1992	01.07 - 11.10	42	95
1993	-	-	56
1994	19.07 - 10.09	24	59
1995	14.06 - 03.10	21	99
1996	22.08 - 02.10	29	76
1997	08.09 - 10.10	33	87
1998	-	-	73

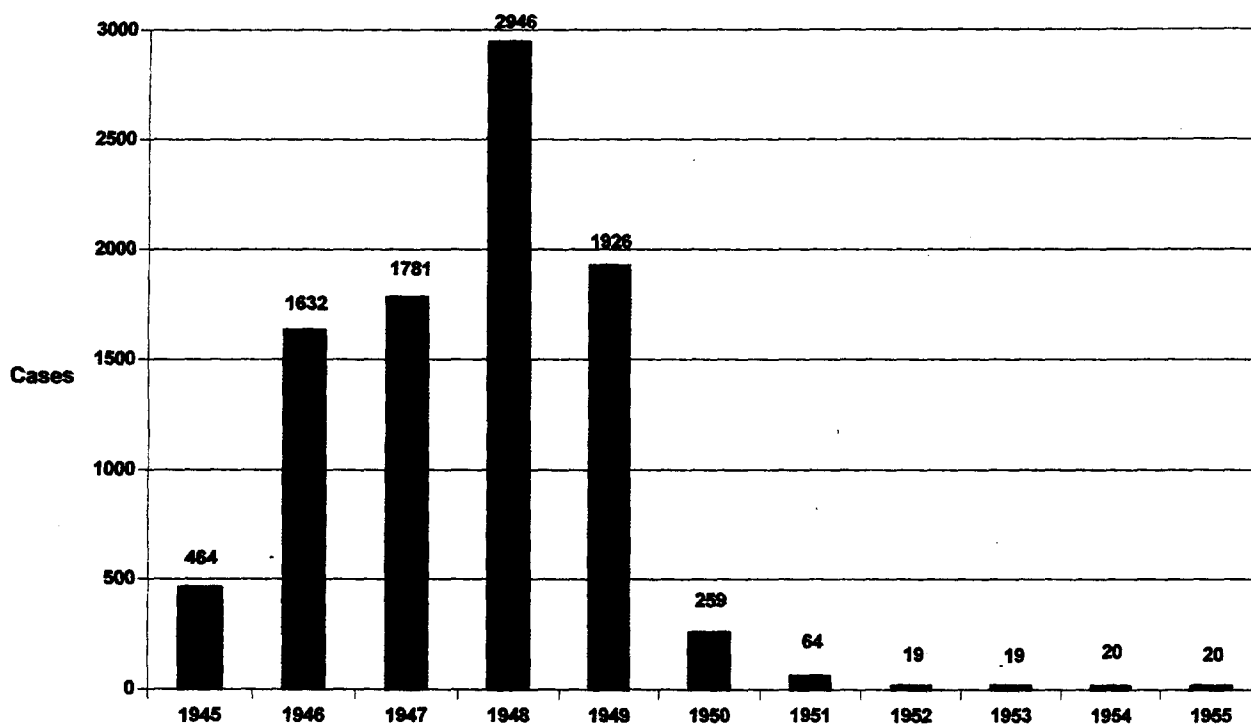


Fig. 1. Cases of Malaria in Lithuania, 1945-1955

Professor William Robert Horsfall 1908-1998

Dr William R. Horsfall, Professor Emeritus of the Department of Entomology, University of Illinois passed away at the age of 90 at his home at the Clark-Lindsey Village, Urbana Illinois on 18 November 1998. He is survived by his wife of 68 years, Annie Laurie Ellis Horsfall and was preceded in death by a sister and two brothers. Dr Horsfall was born on 11 January 1908 in Mountain Grove, Missouri, but spent most of his formative years in south-western Arkansas where his father served as President of what now has become the University of Arkansas at Monticello and his mother served as this Institution's first Dean of Women. After receiving his Bachelor of Science degree in Biology from the University of Arkansas in 1928 and his Master's Degree in Agriculture from Kansas State University in 1929, Dr. Horsfall entered into study under Professor G.W. Herrick at Cornell University and earned his doctorate degree in Entomology in 1933. He subsequently taught at Cornell for a time and then, up until World War II, he held faculty positions at the University of Arkansas-Fayetteville and at South Dakota State University-Brookings, where he was also Head of the Department of Biology.

During World War II, Dr. Horsfall served in the Pacific Theatre as the Commander of the U.S. Army's 17th Malarial Unit. After 3 years of service, he was discharged as a lieutenant colonel and rejoined the Entomology Faculty at the University of Arkansas-Fayetteville. Dr Horsfall remained active in the U.S. Army Reserves after his discharge and retired from this activity in 1965. In 1947 he joined the Department of Entomology at the University of Illinois-Urbana-Champaign as an Assistant Professor in Medical Entomology, a position he held until his retirement as Professor in 1976.

Most mosquito people will remember Dr Horsfall as the scholarly master of the bionomics and management of mosquitoes, particularly floodwater varieties. He actually began to develop his basic philosophies about insects and their control while he was working on such insects as grapevine sawfly, *Erythraspides pygmaeus* (Say) as a student at Cornell University. His conception of insect bionomics was strengthened and fine-tuned while working on

meloid parasitoids of grasshoppers at South Dakota State University. Dr Horsfall's favourite quote to his students stemming from that era of his career was "Effective control measures are dictated by the bionomics of the insects". Unfortunately this critical concept was lost to us during the 'chemical age' of 1945 to 1965, but now considered a novel approach with the advent of the integrated pest management paradigm of the 1970s.

Many having known Dr Horsfall personally as well as professionally point to his military experience during World War II as the time when he began to see the potential for applying his basic philosophy to manage mosquitoes and mosquito-borne diseases. Armed with the bionomic information he had gathered on the mosquitoes of New Guinea and oil as his only larvicide, he was able to lead his malaria survey unit to accomplishing the near elimination of malaria as a problem on that island.

Dr Horsfall's scholarly potential became fully kinetic when he joined the entomology faculty at the University of Illinois. In this atmosphere, he developed and taught a variety of courses focusing on insect bionomics, insect control and medical entomology. His research efforts were centred on mosquitoes, mosquito-borne diseases, and their control. In the process of accomplishing his teaching and research responsibilities Dr Horsfall also mentored some 21 doctoral degree and 20 master degree students in the field of medical entomology. Over his career, Dr Horsfall published five books and more than 140 scientific papers and bulletins. An active member in the American Mosquito Control Association, the Entomological Society of America and many other professional organisations, he also served as a consultant to several governmental and academic agencies world-wide to include the World Health Organization, National Science Foundation, Department of Defense, U.S. Public Health Service, U.S. Environmental protection Agency, U.S. Department of Agriculture and the Tennessee Valley Authority to name a few. Dr Horsfall was also one of the Founders of organised mosquito control in Illinois and was an organiser, charter and first honorary member of the Illinois Mosquito and Vector Control Association.

Dr. Horsfall received many honours for his scholarly achievements and contributions to entomology and science in general. He was the first recipient (along with Maurice Provost) of the AMCA's Harold Gray Memorial Medal of Honour and received such other prestigious awards as AMCA's Distinguished Service Award, the American Society of Tropical Medicine and Hygiene's Harry Hoogstraal medal, the Finnish Zoological Society's Award of Merit and the University of Illinois' Wakefield Award for Excellence in Teaching. Also, in recognition of his loyalty to the affairs of the University of Illinois, the institution which had provided him an academic home for so many years, he was honoured with membership into the President's Council, and the Centuria Circle, the University's highest donor recognition award. Dr Horsfall and his wife, Annie Laurie, were also recognised by the University of Illinois for their generous support to the University Library and the Spurlock Museum of World Culture.

Despite all the awards and other forms of recognition Dr Horsfall received for his scholarly achievements, he found his greatest sense of satisfaction and reward in the students his academic programme produced. He took great pride in his entomological pedigree, which began with Professors Comstock and Herrick and extended on through him to the students he mentored. As a mentor, Dr Horsfall was a demanding taskmaster and the stories lovingly abound among his former students as to who had it the toughest. However, his gruff nature was only a veneer, for underneath the rough exterior there was a true humanitarian who cherished his association with students. He understood that, for a student to become a competent professional entomologist, he or she had to be tempered with hard word and discipline both in and out of the classroom. The Horsfall pedigree, known as the "Horsfall Mafia", now extends to the third and fourth generations. To a person, Dr Horsfall's former students will agree that, while he was capable of such detailed and erudite work as embryonic development of mosquitoes under thermal stress, he, at the same time, kept a strong connection to the practical roots of entomology. Considering Dr Horsfall's clear communication skills, acute scientific instinct, total honesty, curiosity and warm humility, he was the ideal model of an entomologist for his students to have. He will be sorely missed but his legend and legacy will continue to live on in his students and their memories of him as teacher, mentor, counsellor and friend. "Rework" no more! The "Doc" has laid down his red pen.

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