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Thoughts of a travelling ecologist, 7

## In memoriam Tibor Jermy

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My former colleague, Tibor Jermy, Hungarian entomologist, died recently, at the age of 97. He was the Director at the Plant Protection Institute in Hungary when I started my research career – many years ago – as a young scientist. That same year, having reached retirement age, he gladly resigned from the directorship and returned to the workbench, to continue a productive research career for another ca. 30 years, before he had to give up work in the laboratory, due to his declining physical condition.

By briefly describing his life path and discussing some of his ideas, I would like to support the dictum attributed to Louis Pasteur: "There are no such things as applied sciences, only applications of science."

Tibor Jermy started his scientific career after World War II, in the laboratory of the Plant Protection Institute in Keszthely, Hungary, devoted to the then-newly invading beetle pest, the Colorado potato beetle, *Leptinotarsa decemlineata*. His special area of interest was the biology and ecology of herbivorous insects, and this species was to occupy his attention for many years, on and off. While studying the Colorado potato beetle and the gypsy moth *Hyphantria cunea*,

he first proved that host plant choice is regulated not only by attractants but also by inhibitors. Later he discovered the phenomenon of induced preference, proving that insects possess learning ability, and learning and life experience will influence host plant choice (Jermy, 1987). In all these, he went against the overwhelming consensus of the day. It was widely accepted that insects are regulated by instinct only, and host plant choice is governed by attractant chemicals. Jermy also had little patience for ideas like the "balance of nature" and had serious doubts about the role in evolution of biotic interactions, like competition, or predation as a force in host plant specialisation (Jermy, 1988).

The idea of coevolution has been a much-promoted idea since the 1960ies. Coevolution has been very often invoked as a plausible process to explain the adaptation of herbivores to their hosts. There was even talk about a coevolutionary race, when a herbivore's adaptation to a host plant constitutes a new selection pressure so that the plant will gain in fitness if it can develop a new defensive mechanism, only so that in time, the herbivore will overcome even this one, and

so on. Jermy has always been sceptical about this, based on his extensive experience with herbivorous insects. He developed an alternative theory, which he called sequential evolution (Jermy, 1984). He claimed, and collected a lot of supporting evidence, that the path of plant evolution is not directed, and only exceptionally influenced by herbivores. Plant evolution responds to other selective pressures that are more important than herbivory, and herbivores have to follow and adapt to their new environment. This idea prompted a re-evaluation of coevolution, and lead to a better understanding of this much-abused concept.

He did not like administration – he was happiest when discussing, and above all, doing science, in the laboratory or the field. Nevertheless, his influence on the science of entomology and ecology in Hungary, Europe and then in wider circles, was big. In 1954, he designed a light trap that was simple to build and operate, and this "Jermy light trap" was used in the newly established country-wide network of monitoring of agricultural and forestry pests. This initiative originally served for forecasting mass gradations of agricultural pests, but it provided a lot of information about population dynamics, and built one of the most extensive, and longest time series of insect population dynamics at a time when the importance of long-term monitoring has not yet been recognised. In initiating this project, one of the trademarks of his research clearly emerges: problems in science are equal, and solving a practical problem will often lead to advances in theory.

Roughly at the time of the start of my own work in science, he instigated the start of agroecological and agrobiodiversity studies in Hungary. It was a pioneer idea. I remember the fierce debates that we had to conduct with other colleagues who believed that "proper" ecology has to be pursued by studying natural systems (see my second essay in this series, Lövei, 2011).

Today, the pendulum is almost on the other side: the ecological study of human-influenced ecosystems is nearly all what is left to us. This field has also matured since, and we now realise, more than ever, that "nature is one" – which does not equal – reader please notice – that all things have equal importance, nor that "everything is connected to everything else". No, as his debating partner, Pál Juhász-Nagy (affectionately known as "JNP"), he also took care to distinguish the ambience, things generally around us, and the ecological environment, which are the factors that make up the species' specific environment. The two are emphatically not equal – the second is a well-defined subset of the first. Unless you believe in the direct effect of heavenly bodies on all organisms, it is difficult to argue that the planet Mars influences, for example, the probability of host finding in a herbivorous caterpillar. The planet will have little such influence on the caterpillar, therefore this planet is not part of the ecological environment of the species. A species' environment has to be more carefully defined.

Jermy was more of an empiricist than a theorist. His repeated argument in discussions with theoreticians was: "Do you not see too many regularities into the world? To which JNP's retort was: "Do you not see too few of them? I am not sure that there is another world where we go after death. However, I am sure that if there is, JNP has already grabbed Jermy, and they continue their earnest and articulate debates that is one of the true joys of science.

His personality has to be mentioned, because this was an important reason why he was so much liked. He was officially well recognised, a member of the Hungarian Academy of Sciences, and had several other recognitions; yet in the last 30 years, hardly anyone mentioned him by his surname. He stopped to be "Tibor

Jermy", even less "Professor Jermy", and became "Uncle Tibor". Tibor is not a rare name in Hungary, yet everyone in biologist circles knew who this Tibor was. He was a gentle person, always respectful of others and of others' work, and always open to discussing scientific ideas, experiments and results. He used his influence selflessly to help others, especially younger colleagues, to advance in their career, and took sincere pleasure in their success. A good paper, in his eyes, always trounced badges, titles, and honours.

I fondly remember my colleague, senior in years and superior in achievements, and I am sure there are many who feel the same. You, dear reader, if you had not had the good fortune of meeting him, remember what his life in science says: there are no basic vs.

applied sciences. There are only sciences and the applications of science; they are one as the fruit and the tree which bears it.

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