

## JÁNOS BALOGH THE FATHER OF HUNGARIAN ZOOCENOLOGY

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Certainly, I would be very happy if a book of mine could still be available in the world market 45 years after its publication. Actually, this is the case with JÁNOS BALOGH's "*Lebensgemeinschaften der Landtiere*". If someone launches a search on the Net, say with the popular "Google", and writes in the words "BALOGH" and "Lebensgemeinschaften", he/she will easily find the website of Warrior. Within a matter of moments it will be evident that the book is available for 45 USD, i.e. scarcely more than 10,000 HUF at a weak USD daily rate, and there are quite a few copies in good condition on stock. The parcel is dispatched on the day of the order, or the day after. But I have found the volume in some other bookshops on the Net, as well.

So the book is available but let us find out whether it is still "alive", i.e. used in professional circles or just connoisseurs have it on their shelves. Since it is a book written in German, no small wonder that it is unknown in the English-speaking world. In Germany, however, its popularity has not changed a jot over the past few decades. It can be found in the year 2000 bibliography of theses (GREGOR 2000) of Friedrichs-Wilhelm University (Bonn), and it is referred to in the important scientific journal of soil zoologists, in an article of Pedobiology, also in 2000 (NIKLA-SON *et al.* 2000). In addition, it also features in the bibliography of "Ökologie" published in 1989 (BICK 1989). Obviously, he would be pleased to hear that this book was recommended literature for the year 1997 biological course organised for pupils of adequate specialisation at the Secondary Technical School of Koblenz.

Where did this work of great influence come from, where can we find its roots? Evidently, the beginnings go back to his Ph.D. thesis he wrote at the age of 22 about the spider fauna of Sas Hill (Budapest). We are at the beginning of the last century when synbiology and ecology involved nothing more than the private business of a few research groups the world over. This was the time when two pronounced requirements manifested themselves in this discipline. First the basic notions had to be defined, and then, as a next step, the development and use of quantitative methods seemed to be important. By virtue of his age and place of work he set out to address these latter issues very intensely because, as a rule, young people will always be very keen on dealing with methodological problems. Since a slew of various methods were applied for collecting different animal groups at the Department of Zootaxonomy, his place of work offered ample intellectual background he needed for acquiring, applying, and further developing the methods.

It goes without saying that the basis of zoocenological analyses lies in the collection of animals, if possible, by quantitative procedures. And now when we are taking this issue into account 80 years later, we can state that – maybe on a dif-

ferent level of knowledge – that is what is needed even today. Let's collect the species, find out the components of the fauna or biocenosis (this is the problem of biodiversity in the broad sense of the word), reveal the interrelations between populations (this is the issue of functional ecology), and then in view of all that let us try to model the system and its operation (just think of the discipline of “quantitative ecology”). All these aforementioned tasks are based on the most precise possible field survey and quantitative data collection.

Throughout his research work JÁNOS BALOGH took a considerable advantage of, and developed further, the various versions of the quadrature method. In cooperation with IMRE LOKSA, when surveying Orthoptera, they used quadrates arranged in stripes, worked out the sampling size required by the optimal density estimation of soil fauna components of diverse sizes. Also, mention must be made of the BALOGH-LOKSA type Berlese-funnel, this “terrain-friendly” tool used for the quantitative collection of the soil's mesofauna. Here I need to point out that he kept showing interest in methodological problems until the end of his life. I will never forget his excitement when he produced and put together his latest foldable Berlese-funnel before one of his last expeditions.

The great deal of measurement results and the experience accrued in the course of intensive field work as well as the lively dispute going on in the literature at that time started to show its influence in Hungary, as well (Let us just think of the dispute that broke out between CLEMENTS and TANSLEY's versus GLEASON's scientific schools). Professor DUDICH (1939) was the first to write a rather extensive paper about biocenoses. The thoughts he put forward in it certainly had a great impact on the members of his school, with JÁNOS BALOGH in that number. JÁNOS BALOGH (1946) elaborated on his views concerning this subject in his theoretical work “*The structure of biocenoses*”. It is very rewarding to read about how vehemently he takes a stand for the necessity of notional clarification in the preface of the book. As he puts it: “*The lack of a uniform system of notions implies one of the biggest drags on the development of biocenosis (synbiology, biosociology, biocenology)*.” (The first name that occurs to a reader of my age is, PÁL JUHÁSZ-NAGY who, at a later stage, was obsessed with trying to get the importance of correct definitions into his students' heads.) The article then points out the following most important attributes of biocenosis:

- 1) more or less permanent,
- 2) is of a certain composition in terms of the populations of species,
- 3) is divided into synusia.

He believed to have found the biocenosis' smallest territorial unit of a certain composition in minimiareal. The minimiareal is supposed to be the “molecule” the biocenosis consists of, whereby all the species are present in the rate that is charac-

teristic of the entire biocenosis. He devotes quite a great amount of time to synusia, maybe because, as a follower of OTTÓ HERMAN, he researched the life of real spiders when he was young, and this group of animals is especially characterised by synusia. Within the confines of these biocenosis synusia he discovered smaller units, so called life form groups, as well. The life form groups differentiate on the basis of life-style, and nutrition, in particular.

All the above structure-related theoretical considerations necessitated the collection of accurate data and their statistical evaluation. Consequently, when he incorporated the lessons learnt from the literature on biocenosis and his own ideas in a rather extensive volume, he added some chapters of detailed methodology to the material. That is how one of the most important works of synbiology came about, his book entitled “*The basics of zoocenology*” (1953), of which Mr. KOVÁCS wrote a review (1954). The book was translated into German, as well, and the original plus the translated version were bound in one and the same volume. This idea turned out to be very effective. Thanks to this solution the work set out on the highway of success, and became so popular amidst researchers that it came out again under a different title, in the significantly enlarged and revised edition of 1958. This is the work already referred to in the introduction, “*Lebensgemeinschaften der Landtiere*”, for which F. J. TURCEK and B. HEYDEMANN wrote an article each, on the zoocenological examination of vertebrata, and the test methodology of agricultural areas’ biocenoses, respectively.

JÁNOS BALOGH’s ideas on biocenoses triggered lively reactions in Hungarian scientific circles. We remember this nearly two decade-long polemic as the BALOGH–SZELÉNYI dispute. In fact, BALOGH tended to emphasise the role of structural factors, while SZELÉNYI leaned towards underscoring that of functional ones, which, however, did not prevent either of them from acknowledging each other’s arguments and valid points. JERMY (1956) and KOPPÁNYI (1961) also enriched the dispute with their remarkable arguments. Today it is especially worth mentioning that, based on the participants’ recollection and the rather modest amount of written material coming down to our time, this dispute was conducted under really civilised circumstances. At the session of the Department of Zootaxonomy GUSZTÁV SZELÉNYI, for example, welcomed JÁNOS BALOGH on the occasion of the latter’s Kossuth Prize, and pointed out that if it was not for the honoured scholar, there would be no zoocenology in Hungary (TOPÁL 1964). All this happened in 1964.

The world has taken a big turn ever since. The clarification of the notions of synbiology is not completed yet, the disputes are still going on. Although the term “zoocenology” is hardly ever used, its blood brother “community ecology” enjoys ample use. There is a substantial methodological arsenal available for the struc-

tural analyses of biocenoses. Just to mention a few, the methodological family of capture-recapture made a fantastic career for itself, there is an extensive assortment of collecting paraphernalia and Berlese-funnels, and the sudden changes that have occurred since his books were published. It is enough to think of the whole slew of ordination and classification methods, the calculation-aiding software packages, and the entire IT background.

Anyone who has ever seriously investigated JÁNOS BALOGH's zoocenological activity is well aware of the fact that he was most of all interested in the patterns that could be detected in natural animal communities. The detection, description, and analysis of these patterns involved undoubtedly the most crucial element of his early work. As we would put it today, he kept looking for co-existential patterns. What kinds of population, when and in what amount can be found at a given spot? If we open the latest issue of any journal addressing the subjects of community ecology, we will see that the majority of papers are still dealing with these issues, of course by way of taking advantage of a much more sophisticated statistical arsenal. Being aware of this state of affairs, I can safely say that JÁNOS BALOGH's zoocenological work was undoubtedly epoch-making. His scientific publications and books made a major contribution to the present golden age of the area.

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