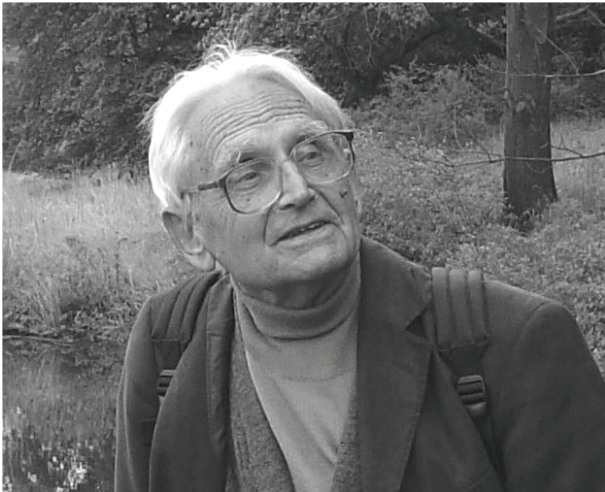


## Jaroslav Hrbáček (1921 – 2010)



Jaroslav Hrbáček

This summer Czech limnology lost its most prominent personality: Doc. RNDr. Jaroslav Hrbáček Dr.Sc. (89). He was a member of the British Royal Entomological Society; an honorary member of the Ecological Society of America; honorary member of the International Society for Limnology (SIL) and holder of the SIL's Thienemann's medal "for merits in limnology"; a member and former president of the Czechoslovak Limnological Society; member of the Czechoslovak Zoological Society; Scientific secretary, Czechoslovak participation in the "International Biological Program"; scientific secretary of the Czechoslovak Committee for the Project "Man and Biosphere". He passed away after a short illness.

Born 12 May, 1921 in the Moravian town Brno, he had to postpone university studies from 1939 to 1945 because the 2<sup>nd</sup> World War. During the war he was employed in various unskilled positions, and eventually as a worker in a pharmaceutical laboratory. During those years of limited opportunities, he intensively followed his interest in entomology and collected aquatic beetles of the families Dytiscidae and Hydrophilidae and of the genus *Hydraena*. He published several articles dealing with the behavioral strategies (breathing ecology and physiology) of aquatic beetles and their taxonomy. Based on those publications, he was accepted into the Brit. R. Entomol. Soc. (Hrbáček 1950)

In 1945, he decided not to follow his pre-war interest in medical studies and selected instead to study biology at the Faculty of Science, Charles University. He defended his doctoral thesis as soon as 1948 and was accepted as an assistant professor of hydrobiology in the

same faculty. In search of an interesting topic for his future research, he considered repeating, after more than half a century, an introductory study by Prof. A. Frič and his colleagues of the hydrobiology of Czech lakes, fish ponds and backwaters. The easily accessible backwaters of the river Labe, northeast of Prague, became the object of his detailed, long-term research and field experiments. He was able to raise the interest of his enthusiastic colleagues and students in the problem of declining fish catches and the high productivity of the backwaters. He showed that these backwaters in the study area were overstocked with fishes and not deprived of them as most fishermen believed. Between 1949 and 1959 he formulated the hypothesis of the impact of fish predation on the species composition and abundance of zooplankton, based on whole ecosystem manipulation: the removal of fish and evaluation of the resulting changes within the system of backwaters and a comparative study of fish ponds in which the numbers of fish were known due to the fish management practice. The results are part of the fundamentals of the theory, formulated later as top-down regulation of freshwater ecosystems (Hrbáček *et al.* 1961; Hrbáček 1962). With his team, Hrbáček revitalized the activities of the faculty's hydrobiology department, as well as of its two field facilities: one a simple cabin in the River Labe region (borrowed from an interested local owner) and the faculty field station near Blatná town (SW Bohemia). What is amazing, from the perspective of recent times, are the primitive equipment and relatively low cost, and thus the high efficiency of all those research activities, paid partly by Hrbáček from his own pocket.

In the late 1950s, the faculty milieu was not too favorable for such long-term and broad-minded research programs and thus Hrbáček took up the opportunity offered to manage a newly organized Hydrobiology Laboratory within the former Czechoslovak Academy of Sciences. Again, his team built up a completely new lab facility in Prague and a large field station on Slapy Reservoir (a new water body filled up in 1955). His team aimed at long-term studies of changes in a series of newly-built artificial reservoirs on Czech rivers and creeks (Slapy, Lipno, Orlík and Kličava reservoirs) (Hrbáček 1984). For the next two decades, Dr. Hrbáček also continued his former interest in zooplankton in a series of experiments with the genus *Daphnia*, a dominant grazer within the zooplankton and, together with his wife Marta, published experimental data on the rate of zooplankton development in relation to temperature and food availability. He also stressed the need to study

modern taxonomy of the genus and differences in ecology among individual species. For instance, he contrasted the requirements and life strategies of two local species: *Daphnia pulex* and *Daphnia pulicaria* s. lat. (Hrbáčková & Hrbáček 1978, 1979). His other field of interest was the input of nutrients (N and P) from agriculture to the reservoirs and their long-term changes and effects.

His influence on the trends in Czech, and partly Slovak, hydrobiology was crucial. Both in the Academy and in the Faculty of Science, Hrbáček's hydrobiology groups became established and his students took part in the formulation of details, enlargement or application of his hypotheses in related fields of interest, and in water management institutions. What was probably even more important for local scientific activities was that he introduced and taught modern methods in limnology, the most recent ecological ideas. Last but not least, he considered the necessity of hard and tedious long-term field research combined with lab and in situ experiments as the only way to successfully present our results on the international "science market", in contrast to research based on the use of sophisticated equipment, which were not available in those times in Czechoslovakia. He published about 150 scientific papers and popular articles for interested amateurs; one among his well known papers (Hrbáček *et al.* 1961) is cited more than 500 times including in many handbooks in limnology.

In the late 1970s, political authorities decided to move part of the Czechoslovak Academy's biology oriented institutes from Prague to České Budějovice, a regional center in South Bohemia. For the third time, his team had to build up new lab facilities and a new field station, on the nearby Římov Reservoir. Dr. Hrbáček did not accept the new, politically selected, management of the institute and had to retire. Nevertheless, he co-operated with his former colleagues in several projects and after 1990 was employed as an external expert. In that new situation, J. Hrbáček was interested mainly in general questions of reservoir limnology and published results from long-term sets of data on the prevalence of dominant plankton groups like cladocerans and copepods (Brandl *et al.* 1989; Hrbáček *et al.* 2003). He was

very active until his final days: his last manuscript was delivered for publication only several months before his death (Hrbáček & Albertová, in press).

*Vladimír Kořínek*

Professor Emeritus Faculty of Science, Charles University, Prague, Czech Republic

*Pavel Blažka*

Professor Emeritus Faculty of Science, University of South Bohemia, Č. Budějovice, Czech Republic

## REFERENCES

- Hrbáček, J. 1950. On the morphology and function of the antennae of the Central European Hydrophilidae (Coleoptera). *Transactions Royal Entomol. Soc. London*, 101 (7): 239-256.
- Hrbáček, J., M. Dvořáková, V. Kořínek & L. Procházková. 1961. Demonstration of the effect of the fish stock on the species composition of zooplankton and the intensity of metabolism of the whole plankton association. *Verh. Internat. Verein. Limnol.*, XIV: 192-195.
- Hrbáček, J. 1962. *Species composition and the amount of the zooplankton in relation to the fish stock*. Rozpravy ČSAV 72, 10: 116 pp.
- Hrbáčková, M. & J. Hrbáček. 1978. The growth rate of *Daphnia pulex* and *Daphnia pulicaria* (Crustacea: Cladocera) at different food levels. *Věstník Čs. spol. zool.*, 42 (2): 81-84.
- Hrbáčková, M. & J. Hrbáček. 1979. Rate of the postembryonic development in several populations of the group of the species *Daphnia hyalina* Leydig at various concentrations of food. *Věstník Čs. spol. zool.*, 43(4): 253-259.
- Hrbáček, J. 1984. Ecosystems of European man-made lakes. In: Taub, B.F. (Ed.), *Lakes and Reservoirs*. Elsevier Sci. Publ., Amsterdam: 267-290.
- Brandl, Z., J. Hrbáček, J. Komárková, V. Vyhnaněk, J. Sed'a & M. Straškraba. 1989. Seasonal changes of zooplankton and phytoplankton and their mutual relations in some Czechoslovak reservoirs. *Arch. Hydrobiologie, Beih. Ergebn. Limnol.*, 33: 597-609.
- Hrbáček, J., Z. Brandl & M. Straškraba. 2003. Do the long-term changes in zooplankton biomass indicate changes in fish stock? *Hydrobiologia*, 504 (Special Issue): 203-213.
- Hrbáček, J. & O. Albertová. (2010). The variation in length of two co-occurring *Daphnia* (Crustacea) species in the Hubenov Reservoir in years with a low chlorophyll-phosphorus ratio. *Acta Societatis Zoologicae Bohemicae*: (in press).