

## A LOOK INTO THE HISTORY OF LANDSCAPE RESEARCH IN CZECHIA. LANDSCAPE IN NATURAL AND SOCIAL SCIENCES, ATTEMPTS AT AN INTERDISCIPLINARY APPROACH

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### ABSTRACT

Self-reflection is important for every scientific discipline and the study of landscape is no exception. Indeed, landscape is connected in some way to both the natural and social sciences, as well as the and humanities as see in art and architecture.

This review analyses the development of landscape research by scientific institutions in the contemporary Czech Republic. It is an attempt to provide a thematic and historical review of its often very complicated development. The study is organized thematically and a chronological order is used for each topic. The topics covered are: The cultural formation of the "Phenomenon of the Czech landscape"; The formation of the approach to landscape in natural sciences; "Phenomenon of the Czech landscape" in architecture; Landscape in institutionalized form in the Academy of Sciences; Landscape outside the Academy of Sciences, and; "Phenomenon of the Czech landscape" in social sciences.

Archived documents from the former Institute of Landscape Ecology of the Czechoslovak Academy of Sciences, the primary thematic studies of individual authors and secondary studies reflecting the development of the field itself were used for the development of this thematic and historical review. These sources were refined where possible through guided semi-structured interviews with eyewitnesses and written correspondence.

The results show two strong centres of landscape ecology: Institute of Landscape Ecology of the former Czechoslovak Academy of Sciences (ČSAV) in Prague formed out of its forerunners in 1971 which is associated with the name of Emil Hadač and relocated to České Budějovice, where it ceased to exist in 2010. Another centre is set up in Brno at the Geographical Institute of the Czechoslovak Academy of Sciences in Brno at the Mendel University of Brno (Antonín Buček, Jan Lacina).

The cultural character and intertwining natural and cultural components of the landscape play an important role in understanding the specific aspects of the scientific study of landscape in our country. This was the basis of the initial scientific reflections of the forerunners of landscape ecology in biological sciences (Bohumil Němec, Julius Stoklasa), in nature conservation (Jan Svatopluk Procházka) and in architecture (Karel Honzík,

Ladislav Žák). This interdisciplinary character of landscape research persists in many institutions and organizations to this day, including the Czech branch of the International Association for Landscape Ecology IALE - CZ.

It is a great paradox of our time that landscape and landscape ecology has ceased to be institutionally represented in the structure of the Czech Academy of Sciences. In conclusion, we ask the question about the reasons for this development and whether landscape research can be restored in the structure of the Academy of Sciences of The Czech Republic.

**Keywords:** landscape, Czech, landscape ecology, Institute of Landscape Ecology, synthesis, history, sciences, social sciences

## INTRODUCTION

Landscape as an object of scientific research constantly raises questions about methods and scientific approaches. Landscape, an aggregate of multi-layered time and space, transcends one-dimensional concepts of thought in its complexity and intricacy. The biological basis of landscape ecology can be interpreted not only by biology itself, but also by history, sociology, philosophy, economics, aesthetics, psychology, linguistics and other social sciences and humanities. This introduces confusion in the established single-disciplinary ownership of concepts; once established concepts often transcend their original meaning. Many terms have been introduced into ecology from the social sciences, including how their meaning is understood (community, social roles), or from completely different fields of human activity (niche - from ancient architecture or natural space - habitus in sociology of the so-called Chicago School – Park et al., 1925). On the other hand, this mutually influences the understanding and interpretation of landscape and broadens its subject matter for other disciplines.

The 19<sup>th</sup> and 20<sup>th</sup> century scientists, captivated by the vision of exactness and precision as objective conditions of truth, took the path of reductionism. Therefore, of course, the landscape must be reduced to something easier to grasp. The word landscape itself, a pre-scientific concept found in all languages and forming with several other words the archetype of man's orientation in the world, needs to be reduced, streamlined and perhaps even deleted from the vocabulary of science. For the word “landscape” refers to some painters from the Netherlands and France, the administrator from the Roman Empire, the landowner from Germany, the boundaries of a familiar home from Bohemia, and more other meanings. Man is always present with his assessment of landscape, its transformation and the cultural symbols he brings to landscape.

In the global context of landscape ecology, formulations that are close to the origins of the Czech specific interdisciplinary approach of the 1970s have been emerging since the early 1990s, at least proclaiming the awareness of the risk of reduction and the need to keep landscape open to the social sciences and humanities (Thorne & Huang, 1991), (Haines - Young, 1992; Naveh, 1990; 2000).

An important role in understanding the specifics of the scientific study of landscape in Czechia is played by its cultural character and the intertwining of natural and cultural components of the landscape. This was the basis of the initial scientific reflections of the forerunners of landscape ecology in biological sciences (Bohumil Němec, Julius Stoklasa), in nature conservation (Jan Svatopluk Procházka), and in architecture (Karel Honzík, Ladislav Žák).

In 2020 was celebrated the 20th anniversary of the founding of the Czech Society for Landscape Ecology. A reflection on the twenty years of efforts of the scientific society dealing with landscape has been provided a few times (Lipský & Šantrůčková, 2020).

Similarly, the fifteenth anniversary of the Czech Society for Landscape Ecology was analysed in Pavel Kovář's (2015a) study and in its shorter form (Kovář & Lipský, 2015). In addition to the Society itself, the history of landscape ecology in the Czech Republic includes the Institute of Landscape Ecology of the Czechoslovak Academy of Sciences and Professor Emil Hadač, its first director. Later on, many other institutions were also mentioned in this study, at least by name as far as the source documents allowed.

The former Institute of Landscape Ecology of the Czechoslovak Academy of Sciences was founded in 1971 and closed in 2010. This is a good milestone of 50 years in 2021 which directly invites you to reflect on the history of landscape ecology in the Czech Republic. If you want to understand the history and the unique interdisciplinary approach in its time (Lapka, 2012; 2019), you need to look at landscape as an object of scientific research in Czechia in a broader context that goes beyond the disciplinary boundaries and the institutional framework of the Academy of Sciences (Lapka, 2016).

The very history of landscape ecology in the Czech Republic and the development of approaches to landscape is probably most largely mapped in the extensive bibliography of Pavel Kovář, a researcher at the Institute of Landscape Ecology between 1975-89 and then at the Botanical Institute, and from 1990 a lecturer at the Faculty of Science of Charles University in Prague where he was Dean between 2003-09. In 2000 he co-founded the Czech Society of Landscape Ecology. He has always been interested in fiction and poetry and he could apply this extensive experience to research of the Czech landscape. In addition to the works cited below, it is worth mentioning the entire six-part series on landscape ecology in the *Vesmír* (The Universe) journal and the ethical problems of society and the Czech landscape after 1989 (Kovář, 1994; 2002).

A personal reflection on landscape ecology is contained in the memoirs of the first director of the Institute of Landscape Ecology, Professor Emil Hadač (Hadač, 2007).

The interpretation of landscape and landscape ecology by the social sciences, especially sociology and culture, is the subject of the work by the author of the present study (Lapka, 2012; 2019).

These authors are intertwined by their personal stories with the Institute of Landscape Ecology, providing an internal reflection in this respect. Note that they are certainly not the only ones who have reflected on the history of landscape research. In all of the text of the works of domestic authors cited below, you will find more or less extensive reflections on the development of approaches to the Czech landscape, but most of them are introductions to their own professional problems.

There are also external reflections, from authors who were not employees of academic and university institutions and yet interpreted very precisely the development of landscape ecology and of nature conservation in an environment that was not favourable to these efforts. Of particular note are Petr Jehlička, touching on the tramp movement in the context of environmental values (Jehlička & Kurtz, 2013), and the Brontosaurus Movement that originated in the history of the Institute of Landscape Ecology (Carmin & Jehlička, 2010).

Then there are a number of works from the history of specialized disciplines relating to landscape ecology and connected with the origins of the formation of this field in Czechia. Allow us to at least mention Jan Dostalík's work (Dostalík, 2016). You will find there, among others, biographies of Karel Honzík and Antonín Pfeffer and Zdeněk Lakomý, who were directly connected with the institutions that formed the Institute of Landscape Ecology of the Czechoslovak Academy of Sciences in 1971.

Despite of all these works, we have so far lacked an attempt to provide a comprehensive review of the development of the Czech landscape research no matter how difficult this attempt may be in terms of source documents due to often scarce archival documents as well

as in terms of its scope. We believe that an overall review, even if in some ways is very incomplete, could, in general, provide a new perspective to the study of the Czech landscape and landscape in general. It is not only the preferred interdisciplinarity approach, but also the political, professional and human environment in which the landscape research took place. With the passage of time, it becomes clear what roles important persons at the head of academic institutions and research teams played.

Self-reflection is necessary for any activity, especially in science. To stop for a moment and look back at what we are building on, and on what were the views of our predecessors. This helps us to find your way around. To take a step back and get an overview. What do we want to avoid in the future? What can and cannot be changed? What do we want and what do we not want to repeat? This review should at least contribute to this challenging goal.

This study analyses the development of landscape research in scientific institutions in the contemporary Czech Republic. We will try to provide a historical and thematic review of its often very complicated development. Finally, we ask the question about the reasons for this development and whether landscape research can be restored into the structure of the Academy of Sciences of The Czech Republic.

The Czech landscape is hereinbelow a geographical designation that coincides with the territory of the Czech Republic. "Phenomenon of the Czech landscape" means the overall natural and cultural character of the territory. Thus, it includes the unique character of the Moravian, Silesian and, for example, South Bohemian landscapes.

Although the text is limited to the Czech academic and cultural environment, the context of landscape ecology is markedly Czechoslovak. Ecologist mentioned in our review studied Carpathian landscapes (Vladimír Úlehla), including the Ukrainian part of Czechoslovakia in 1918-1938 borders (Alois Zlatník). In modern history the Slovak Institute for Landscape Ecology has been founded by Milan Ružička in 1974.

For the institutions and important persons from the Czech Republic referred to in this study, of course, the subject matter of research did and does not only include the Czech landscape, but also the European landscape and deserts, semi-deserts, rainforests and high mountain areas. However, this thematic and historical review is about the Czech institutions and famous people from the Czech Republic and the perception of the Czech landscape certainly affected the formation of their approaches. Moreover, the bulk of their research took place in the landscape of our country - namely in the Czech landscape as generally defined above.

## **MATERIALS AND METHODS**

Archival documents were used for the development of this thematic and historical review, mainly from the former Institute of Landscape Ecology of the Czechoslovak Academy of Sciences, including lists of publications and research reports of this Institute. The study of primary documents was supported by a number of studies published under the auspices of the Institute. The archives are currently owned by the authors of this study and have been collected since the relocation of the Institute from Prague to České Budějovice.

In general, the archival documents can be divided into two categories:

- a) Primary thematic studies of individual authors dealing with landscape regardless of their disciplinary and institutional affiliation; and
- b) Secondary studies, institutional websites, especially their histories and biographies of important persons, reflecting the development of the field itself.

These sources were refined where possible through guided semi-structured interviews with eyewitnesses and written correspondence. The interviews were more about the context of

events than listing all the names and exact dates of events. This qualitative information confirmed, without exception, the interdisciplinary nature of landscape research. Critical comparison of sources provided further valuable information.

The study is organized thematically rather than chronologically. A chronological order is used for each topic. The topics covered are 1. Cultural formation of the "Phenomenon of the Czech landscape", 2. Shaping the Approach to Landscape in Natural Sciences, 3. "Phenomenon of the Czech landscape" in architecture, 4. Institutionalized Research of Landscape in the Academy of Sciences, 5. Landscape outside the Academy of Sciences, 6. "Phenomenon of the Czech landscape" in social sciences.

More than chronological dates, the interdisciplinarity of approaches to landscape and the initial intertwining of natural and social sciences in its study are emphasized. This also accounts for the way in which the selection of names is limited to the main important persons representing the movement. We are aware that listing all the names associated with landscape research in Czechia is largely limited. The scope of this review does not allow us to provide a complete list of departments and all their personnel. The selection criteria have been determined by the efforts to reflect interdisciplinarity and are necessarily limited by the professional background of the authors and their work at the CSA Institute of Landscape Ecology.

## RESULTS

### **Czech Landscape**

#### **Cultural formation of the "Phenomenon of the Czech landscape"**

The cultural character of the Bohemian landscape having a significant impact on its layout began to manifest itself more strongly approximately 1000 years ago. The 13<sup>th</sup> century, the period of internal colonisation of the Bohemian lands, the high Gothic period and the 18<sup>th</sup> century, the Baroque period, all have made a big difference. These periods left a unique and indelible mark on the Czech landscape in the arrangement of its structures, in the network of roads/pathways, and in important landmarks. The industrial period of the last fifty to seventy years must also be added to these periods. This period also left a significant mark on the Czech landscape, characterised by levelling, and the loss of previous standards and respect for the predominantly agricultural landscape.

We recall these facts to try to at least partly understand the special and for many of us so important phenomenon that is the Czech landscape. In the life of landscape, geological time is intertwined with the time of biological evolution, and historical time, the time of the life of a society with the existential time of the individual. It is no different with the area of the Czech landscape. Landscape is a category that cannot be reduced to a mere geographical designation of a location without losing a number of other essential dimensions and the specifics forming the phenomenon of the Czech landscape.

Speaking of the Czech landscape, you also speak about a cultural phenomenon, not just a geological or biological one. For centuries, the fate of landscape in the Czech lands has been linked to the fate of mankind. This is as true today as it was centuries ago, perhaps to an even greater and more fateful extent.

#### *Rural Traditions*

In the feeling (perception) of the Czech landscape, you can find rural archetypes of thinking. Even though ruralism was often condemned in exciting revolutionary periods of modern history, and even though it became a label for the old, outdated and dysfunctional,

you cannot get rid of it. And more importantly, there is no reason to get rid of it. Czech society was historically overwhelmingly rural and until the 18<sup>th</sup> century, the vast majority of the Czech landscape was formed by agriculture. And this must and indeed does manifest itself. Adversely, as Patočka (1993) provocatively speaks about it in his conception of a small history, but also positively. In the almost deification in the relation to the land, to the farm, and in relation to the homeland as the basis of security and the measure of the home, there are archetypes of relationships to the land and the natural order. Hence the peasant's distrust and existential resistance to utopias offering work without toil, joy without worry, the new without the old, the future without history, and happiness without faith. Hence the responsibility to the land, to the livestock, and to the landscape. This implies rather strict limits, boundaries not to be crossed. The attacks against ruralism are full of irritation in relation to boundaries: peasants have limited thinking, limited horizons, they do not look beyond their limits. Let alone the attack on the limits and boundaries in the original sense of the word, those in the field! They became a symbol of the old and breaking through to them was a breakthrough to a happy future. But this "clinging" on to the limits was not only related to property, but also to society, values and ultimately, ecology.

Maintaining this system of limits and boundaries requires a fairly extensive system of feedbacks. Ruralism is full of safeguards in relation to land, forest, farming, the community, water, fire, nature, order and God. It is a quite closed, immobile and robust system. It is a system built on life in the human – nature cycle. The critique of ruralism is almost exclusively based on living and thinking outside the human - nature cycle system. Hence the great lack of mutual understanding. However, the boundaries of both systems pass through each of us to varying degrees. It can be said that we are witnessing a daily struggle between the rural origins of Czech society and its modern form. The accompanying phenomena are well known - virtual escapes to the countryside, to life in the countryside, and many phenomena described in critiques of ruralism such as a certain meanness of spirit and action, quarrelsomeness, distrust, and so on. In a way, the perception of the Czech landscape is also a reminder of life and thinking in the rural system, and life in the human - nature system.

This does not mean, however, that rural society was a golden age when everything was in some utopia of harmony, including social relationships in the village. In terms of natural forces, it was rather an enforced equilibrium, a 'secondary homeostasis' (Librová, 2001) where the farmer did not yet have the technical capacity to stop respecting natural forces.

### *Ownership*

The ownership and economic relationship are closely linked to the rural tradition. An important person of rural sociology and sociology in general, Inocenc Arnošt Bláha, emphasizes the "economization of reason" connected with the "economization of emotion" in farmers. The farmers are "egoistic... their own life interests are their primary concern. If they have an interest in their fellow men, they judge them in terms of economic utility" (Bláha, 1968, pp. 108-109). These insights must also be considered in the context of time; the "economization of reason" also has the other side, namely the relationship to the land. In the rural tradition, this is almost a relationship archetype where the land is often viewed as something living and active. In many of our own conversations with farmers, you can see expressive statements that relate more to a living being than to the land: The land "suffers". People "torture" it, "There is no healthy nation without a healthy land", "Without a close link to the land, the nation would not even be a nation, it would just exist on the surface" (Lapka, & Gottlieb, 2000, p. 67). Of course, their primary concern is to support themselves and their families and to prosper economically and socially. However, this economic relationship to the land is hindered in a special way in the rural tradition by the aforementioned relationship

to the land. It is not so much a highly spiritual relationship as a pragmatic one - without passing on healthy and fertile land to the next generation, the continuation of the farmer's family comes to an end. Thus, the relationship to the land has many cultural and symbolic safeguards that have clearly shaped the relationship to the land in history. These safeguards were only broken by the completion of collectivization and the industrial revolution that was transferred to agriculture.

### *Romantic relationship*

There is also the archetype of romantic thinking in relation to the Czech landscape. Romanticism was the breeding ground for the deification of our landscape and for the ownership of its rural heritage. And it should be noted that the Czech landscape has good prerequisites for a romantic conception. Ancient castles, mountain forests, rocks and gorges, brooding water levels, open floodplains along the lower reaches of rivers. And the historical, spiritual legacy also plays a unique role. The romantic landscape is a landscape of suddenly revived history and a mythical past, a landscape of revived destinies of many forgotten people.

The romantic relationship to the landscape highlights an important feature of landscape - its ability to be mysterious and have secrets. It is the time when Weber's disenchantment of the world begins. We use this almost overworked term, Max Weber's "Entzauberung" of 1913 (Weber, 1997) as a metaphorical expression of the advent of modern science and technology that substitutes what has hitherto transcended our understanding of the world, i.e. mystery, for rational concepts. The hidden secrets of the landscape are explained only as hitherto uncalculated partial facts which science brings on imperceptibly in its successful pursuit of explanation and control of the world.

Romanticism was greatly weakened under the onslaught of the last century of revolutions. At the same time, however, the respect for mystery was reduced (and positivist science contributed in no small measure). All that remained was a fabricated, averaged and universal man with universal needs and with the aspiration to become the universal master of the world. The romantic archetypes of our perception of the Czech landscape are not only manifested in the obligatory flood of genre postcards. Behind them you can find something more substantial: positive evaluation of just this type of landscape as a certain memory of an insurance feedback to a landscape that is not totally "dominated and controlled" by man, having the right to its own existence, in which something other than man's technical domination can be identified.

In Bohemia, the romantic relationship to the landscape is associated with the tramping movement. This very specific way of life was introduced into the Czech landscape by the woodcraft of E. T. Seton and the scouting of Baden-Powell with their values of freedom, wandering through nature, discovering hidden romantic places in the countryside as well as the values of observation, courage, knowledge of life in nature, reliability, and responsibility for one's settlement. These were the roots of values for wandering young people who were discovering the Bohemian landscape in a completely different way than farmers or industrialists and soldiers. This was something quite different from the very well organized Czech Tourist Club founded in 1878.

Tramps began to colonize the Czech landscape around Prague, mainly in the southern direction, upstream of the Vltava, Sázava and Berounka rivers. Often directly depending on the length of the march or the price of the return ticket - the famous "Posázavský Pacific" (nickname of the train following the flow of the river Sázava) played the role of colonizer of the Vltava and Sázava rivers from the Island of St. Kilian to the St. John's streams and to the

Stone Ferry - in the tramping terminology, it is about the colonization of the Big River (Vltava) and the Golden River (Sázava) and the Old River (Berounka).

In this first stage of colonization 1913 – 1919, the settlements of Ztracená naděje (Lost Hope) and Údolí děsu (Valley of Fear) were built, as well as water tramping originated thanks to the activities of Josef Roosler Ořovský - the chairman of the Czech Rowing Club, a tireless athlete and promoter of outdoor exercise.

Further developments include the first clashes with the state authorities, including public demonstrations. In 1931, Police President Kubát signed a decree prohibiting persons of different sexes from sleeping together in a tent or hut, and the gendarmerie had the right to enforce and oversee this at any time. His own nephew was curiously caught in this trap of the police regulation, and the tramp settlements were demolished for the first time. These conflicts with the state authorities naturally escalated with the rise of the totalitarian regimes that attempt to assert total control over the population.

In terms of landscape research, one of the earliest works, unfortunately almost forgotten as it was only published in Czech as a final research report, was presented by Miroslav Holovský (1971), a member of the former Institute of Landscape Ecology of the Czechoslovak Academy of Sciences. He aptly calls his research the method of communion (including his interviewees, from whom he demanded it) - today we would sociologically call it the participant observation method, hidden, otherwise it leads to a loss of trust and honour. Apart from the text of research, his contribution is a set of forty unique photographs and twenty maps. These are hand-made precise maps of colonization with the legend of tramp toponomastics of rivers, valleys, settlements, or tramp trails which he calls tramp geography.

Petr Jehlička (Jehlička & Smith, 2007; 2017), for example, sees a clear link between the tramp movement and environmental topics and the possibility of ecological modernization after 1989.

### *Patriotism*

A strong relationship to the land and to the homeland or the landscape is a common feature of all European rural culture. It is a specific feature of our country that after the factual loss of national independence after 1621, this relationship to the land, countryside, nature and landscape seems to have partly replaced political identity. That is why the love for the landscape, for the land, and for "Czech" nature was seen for centuries as a certain proxy for national independence. The national revival of the late 18<sup>th</sup> century to the mid-19<sup>th</sup> century naturally turned to the landscape as the bearer of the great symbols of the cultural history of the Czech lands, to rural culture, to nature, seeking for cultural sources of the national and political identity of an independent nation. The names of landscape painters such as Karel Postl and Antonín Mánes marked the beginning of the romantic conception of the landscape school enchanted by the Czech landscape whose successor is Josef Navrátil. Landscape painters of the Haushofer school such as Adolf Kosárek, Bedřich Havránek, Alois Bubák and Julius Mařák can be seen as a direct part of the movement for national identity which culminated in the work of the aforementioned Julius Mařák and Antonín Chittussi. Impressionist Antonín Slavíček need to be mention not only because of art quality, his paintings provide comparative material for today studies of landscape changes (Lacina & Halas, 2015). Contemporary distinctive landscape painter Zdeněk Daněk could by also mentioned. This process of patriotism culminated in poetry in the unsurpassed descriptions of the Czech landscape by Karel Hynek Mácha, Karel Jaromír Erben, and in the prose of Božena Němcová as well as writer of the Šumava mountain and south Bohemia Landscape Karel Klostermann.



Soon after the Czechoslovak Republic was founded in 1918, this trend of landscape cultivation was politically supported. As a result of the land reform in 1920, a strong middle class of farmers emerged who, in fact, carried the idea of cultivating the land, nature and landscape as a cultivation of national independence until the advent of harsh collectivization in 1952.

The landscape and its population are understood as one natural cultural unit, so it is difficult to separate them from each other and talk about the landscape as such without people and, on the other hand, talk about people without the background of the landscape. All this reinforced the patriotic perception of the Czech landscape, especially among those people who lived in the countryside (Lapka & Gottlieb, 2000; Stibral 2005; 2020).

### *Aesthetic Relationship*

The aesthetic relationship to the landscape is intertwined with the rural relationship, of course with romanticism, patriotism and the spiritual relationship as a kind of integral category. The topic of landscape aesthetics, however, is so distinct that it goes beyond the scope of this review. The aesthetic relationship to the Czech landscape is presented hereunder from a sociological point of view as part of the process of society and individual's identity relative to its environment which is partly inherited, transformed and partly creates the natural anchor of culture. The understanding of the landscape as a certain "home", "homescape" is also facilitated by the "human dimensions" of the Czech landscape based on its morphological structure. There is a great variety of landscape types, from forested mountains to lowlands. Various elements alternate in the open landscape, large and small sacred architecture, avenues along the roads, solitary trees, sculptures, ponds, fields, pathways, streams, forests and buildings, all in a harmony that is mostly aesthetic and often symbolic. This is the face of the landscape that the Baroque era began to shape with such imagination and panache, a face that is still evident in many places today. The uniqueness of the Czech landscape is given by the historical blend of natural and cultural diversity and variety.

Contemporary continuation and new development of the aesthetic value of Czech landscape could be fined in landscape photography. Many influential Czech landscape photographers documented disappearing rural landscapes, such as Josef Sudek, František Bučina, Vilém Reichmann, Miloš Spurný, later, for instance, Bohumír Prokůpek, Jan Koudelka.

### *Environmental Relationship*

The environmental relationship to the landscape as the landscape is threatened and disappearing in the name of scientific and technological progress, development for the future, the scientific and technological revolution, and yield and efficiency is gaining strength with the dominance of urban culture. But it is not just modern environmentalism as we have known it since the 1970s. It is about historically documented codes for the protection of trees, and forests, or watercourses right up to the first systematic reflections on nature conservation in general as you will see below in the example of Jan Svatopluk Procházka.

At present, Act 114/92, on the Protection of Nature and the Landscape, especially the definition and the protection of landscape character can be considered as the continuation of these efforts (Česká národní rada, 1992). Similarly, the accession of the Czech Republic to the European Landscape Convention 2000 (Council of Europe, 2000) represents the environmental relations at the level of government resolutions and measures.

*Spiritual Relationship*

Here the spiritual relationship is understood as space and time interconnected by human society. This dimension has its spiritual places that have nowadays become the favourite subject of more and mostly less successful esoteric books. A far more common dimension, however, is the facts of past and contemporary generations in the landscape; we always inherit something from our ancestors and leave something to our descendants, with all the discontinuities, the lost keys to symbols, or conversely the certainties of national symbols, whether in the form of rivers like the Vltava, hills like Říp and Blaník, or castles like Zvíkov. Theoretical reflection on the landscape had to consider this culturally created phenomenon of the Czech landscape, but on the other hand it could also be relied on.

In the following pages we will attempt to describe the early development stages of the interdisciplinary scientific field of landscape ecology in Bohemia. We will narrow the description to the main periods and for this reason, even the list of names cannot be complete.

**Shaping the Approach to Landscape in Natural Sciences***In Biology*

The heritage of Czech ecological thinking, which reaches beyond the framework of specialized biological sciences, includes two outstanding persons - Academician Bohumil Němec (1873-1966) (Němec, 1907) and Professor Julius Stoklasa (1857-1936) (Stoklasa, 1923). At the beginning of the last century, they published world-class works using a multidisciplinary approach as a method and natural outcome of their research activities. The geobotanical tradition at the Faculty of Science of Charles University is also related to a broader view of the landscape. Refer to the work of Jaromír Klika and Vladimír Krajina who left the former Czechoslovakia after the communist takeover and founded a respected school in Canada. We can also mention Jan Jeník, a renowned geobotanist, who had to leave the Department of Botany of the aforementioned faculty in 1970. The geobotanist Emil Hadač, who is associated with the origination of the aforementioned Institute of Landscape Ecology of the Czechoslovak Academy of Sciences, considered himself a student of Klika and Krajina, both of whom he had the opportunity to meet in person (Rejmánek *et al.*, 2004; Kovář, 2015b).

Together with another representative, this time of nature conservation, Jan Svatopluk Procházka (1891-1933), these are quite well-known persons in Czech science. However, J. Sv. Procházka certainly has the place of honour in the history of landscape research (Procházka, 1926a; 1926b).

*In Nature Conservation*

To really appreciate Procházka's ideas on protecting nature and landscape, you must remember that a completely different concept in the spirit of the great Alexander von Humboldt prevailed in Europe at that time after 1819. Humboldt's efforts were continued by Hugo Conwentz (1855-1922) and his conservation concept became a ministerial instruction for the German countries and a model for the rest of Europe. What makes Procházka's concept of nature conservation different?

He declared nature conservation to be a scientific discipline. In this, Jan Svatopluk Procházka was probably the first. The year 1928 is often mentioned in foreign literature as the first formulation of the scientific discipline of nature conservation by J. Sv. Procházka (Procházka, 1926b). "Those who have taken a closer look can see that nature conservation is something more today. It is a new system of the modern man's thought, it is not a mere movement, but a new and ever growing doctrine of the human - nature interactions and relationship" (Procházka, 1926b, p. 30).

Nature conservation science is applied ecology at the level of the human - environment relationship.

It is one of the first real attempts at an interdisciplinary approach in landscape ecology. Procházka sees salvation not in isolationist and conservationist approaches to nature conservation, but in the study and understanding of nature as a whole. "Only the one who consciously feels himself part of the natural whole can observe nature with understanding and willingly become its protector." (Procházka, 1926b, p. 29).

"In theory, we must indeed admit that the world and the universe are a harmonious, graded and well-organized whole..., unfortunately, our education does not teach us this, giving us knowledge divided into precisely delimited fields that are limited by those 45 minutes... which also builds impassable barriers between them" (Procházka, 1926b, p. 116).

The solution to nature conservation problems lies in the connection of major human activities with the natural environment. Procházka's concept is about an astonishing range of connections and defined relationships. He defines the relationships between the quality of perception of nature, the human environment and the way of life. Furthermore, Procházka discusses the relationships between landscape management and conservation, between nature conservation and social hygiene.

"This shows how the work of scientific nature conservation is closely related to the work of farmers, and foresters, or fishermen, but also how it reaches the issues related to the construction and hygiene of human settlements, especially cities." (Procházka, 1926b, p. 117). In his concept of the science of nature conservation, Procházka comes to realize that "...nature conservation also becomes an important component of the further existence of man in general." (Procházka, 1926b, p. 117).

#### *Application of the "Phenomenon of the Czech landscape" in Nature Conservation*

Jan Svatopluk Procházka is aware of the above phenomenon and tries to use it for the benefit of nature conservation objectives. In doing so, he relies on traditional associations (e.g. ornamental associations). Tradition plays an important role in Procházka's understanding and perception of the concept of the Czech landscape.

Jan Svatopluk Procházka's ideas did not have much resonance in Czechia "Prematurely deceased and still not properly appreciated, he outlined the concept of modern landscape protection." (Vulterin, 1979; p. 165). The Warsaw-Cracow school was founded under Procházka's direct influence thanks to his close contact with Professor Szafer (Szafer & Michajłow, 1973). His ideas found support especially in Adam Wodiczko (Wodiczko, 1934). The new science of nature conservation was introduced into the school curriculum and named "soziologie", later "sozologie", which has remained in nature conservation in Poland and Slovakia to this day under the name "sozológia".

#### **„Phenomenon of the Czech Landscape” in Architecture**

Another important source of landscape ecology in Bohemia was formed in the 1920s, namely in the Czech interwar avant-garde period, especially in literature and architecture (Teige & Kroha, 1969). The play and the fast run of the subconscious mind - this method of poeticism - also brings the phenomenon of the Czech landscape out into the open in many poetic images. Avant-garde poetry in Czechia despite all the technical attributes of the time, in a way anticipates the ideal of synthesis which does not allow the whole of man to be lost in technological civilization, that the polarity of consciousness - the subconscious mind as it speaks to us from Vítězslav Nezval's *Nights Over the City*, or as it speaks to us in the purified language of Jaroslav Seifert's poetry.

Karel Teige tries to transfer from the theory of literature to the theory of architecture the tensions that are provoked by the opposites of emotion - reason, poem - construction, play - work. "The fusion of technological progress with humanism, calculation with emotion and the subconscious mind will characterize the coming life style," says Karel Honzík, the avant-garde architecture leader (Honzík, 1958). Honzík's "determinants of liveability" are followed up by Ladislav Žák in his long-prepared publication *Obytná krajina* (Being Home in Landscape). The criteria of liveability go far beyond just spatial requirements and technological security. "The landscape must also be a permanent and unbreakable base of our life, a beautiful and healthy dwelling" (Žák, 1947).

The relationship of the Czech avant-garde to technology deserves special attention. It is somewhat ambivalent and specific in the European avant-garde context. In a way, it relies on the Czech rural tradition in relation to technology and the landscape in general, although it does not do so programmatically. On the contrary, the rural relationship will be overcome by a new lifestyle. The relationship to technology also originates from that part of the Czech tradition that had never known the domination of technocracy. The technical skills of our people have become renowned; however, there was no period characterized by the state of domination of technocracy. A certain a priori lack of bias towards technology allowed "freedom of thought about technology" and about its humanistic mission. Refer to Karel Honzík's ideas about the miniaturization of technology, streamlining and turning it back to nature. Similarly, Žák's concept of being home in landscape outreaches the narrowness of the time where making the neighbourhoods better places to live was mostly identified only with technological intervention in the landscape (Gottlieb, 1970).

Let us try to summarize the distinctive elements of the Czech avant-garde in relation to the landscape:

- a) Integrity and polarity of man is preferred to the world of one-sided technological development;
- b) Technological progress results from the connection with social progress and anthropological constants;
- c) These technological, social, anthropological and ecological constants are extended to the urban environment and the whole landscape; and
- d) Aesthetics in architecture and the aesthetics of human environments are viewed as an integral category, as an expression of avant-garde ideas.

In practice, these ideas have never been implemented on a large scale. World War II and the building communism in our country became an insurmountable obstacle to their application. The Czech landscape bears deep traces of just the opposite approach. For the sake of an unbiased assessment, however, it should be noted that we do not know how the avant-garde's relationship to the landscape, in terms of respect for ecological knowledge and laws, would actually have been on the waves of fascination by technology.

Thanks to the generation of architects of the 1920s, the ideas of respect for the landscape and eco-friendly construction tendencies took shape in former Czechoslovakia. They did not vanish even after 1969, after the violent end of all modernizing tendencies of the communist regime (Dostálík, 2016). However, these ideas were deliberately and successfully ignored, with some rare exceptions, in the architectural practice from then until 1990.

### **Institutionalized Research of Landscape in the Academy of Sciences**

#### *First "academic" period of 1962–1970*

Thanks to the Cabinet of Theory of Architecture and Environmental Design of the Czechoslovak Academy of Sciences (established in 1964), the ideas of K. Honzík, L. Žák,

J. Kroha and others were developed on the scale of the city and the open landscape. These are the first formulations of the anthropo-ecological approach to landscape ecology. Let us mention at least the names of Zdeněk Lakomý, Otakar Nový, Miroslav Černý and many other researchers who you will meet later when discussing the formation of the new institute. The "Cabinet" mainly pursues activities in social ecology. The staff professions are focused accordingly: sociology, philosophy, and architecture, or methods that can be referred to as attempts at inter-disciplinarity and synthesis. Ecology began to develop at the Institute for Landscape Design and Conservation of the Czechoslovak Academy of Sciences (established in 1962), initially unnamed, with an emphasis on natural science and derived applied fields (forestry, agriculture, etc.), attempting to focus on the landscape scale and landscape problems, under the directorship of Antonín Pfeffer, a forest zoologist (Ediční komise ÚKE ČSAV, 1982).

A collective monograph by many authors under the leadership of Radovan Richta *et al.*, *Civilizace na rozcestí* (Civilization at the Crossroads) (1966), is a very unique work for its time in terms of the awareness of links between the state of nature and the state of the social system. This book also attracted attention in the West as ideological liberalization and rational reflection on the conditions of the future of humanity. It formulates the environmental topic, ecology, and suggests the relationship of ethical responsibility for the shape of the landscape. One of the co-authors is Miroslav Gottlieb who still recalls the atmosphere of mutual discussions and the interdisciplinary outcome. It is a fact that many of the expectations outlined in this work were not fulfilled and could not be fulfilled under the conditions of the ruling communist ideology. One need only look at the long list of ideological advisors who reviewed the book. However, the first impulse there were that the connections with nature that could not be ignored be given to the ruling establishment (Valenčík, 1997).

In the first "academic" period of 1962-1970, there was an effort to deal with the concept of landscape as a scientific term and to define it strictly at the biological science level as well as define the landscape in sociological terms.

#### *Second "academic" period of 1971–1993*

In 1971, the two institutes merged into the new Institute of Landscape Ecology of the Czechoslovak Academy of Sciences (ÚKE ČSAV) that was active with this name until May 1993. In the first years after the Institute was founded under the leadership of Emil Hadač, a common problem and a common interdisciplinary language were systematically sought. Sociological and demographic studies of the Broumov, Třeboň and Most regions were compared with botanical and hydrobiological studies of the same areas. The relationship between the historical development of settlements and natural structures in the landscape was sought. The so-called "anthropoecological approach" was developed (Skupina Antropoekologie, 1976; Gottlieb, 1977; Blažek, 1977). A certain culmination of this period was Hadač's Introduction to Landscape Ecology from 1977 (Hadač, 1977). There is a large number of very important researchers associated with the Institute. Let us mention at least a few names: Antonín Pfeffer, Emil Hadač, Václav Mejstřík, Bohuslav Blažek, Miroslav Gottlieb, Otakar Bureš, Václav Valter, Jaroslav Stoklasa, Eliška Nováková, Martin Šíma, and Jan Vaněk also played a role; and to mention some of the younger generation, certainly Pavel Kovář, Ota Rauch, Eduard Brabec, Pavel Cudlín, Michael Bartoš, Jan Těšitel, Drahomíra Kušová, Eva Cudlínová, Irena Hanousková, Hana Rambousková, Jaroslav Boháč, and other names, for example, from the present independent Institutes of Hydrobiology (Milan Straškraba, Věra Straškrabová, Josef Hejzlar, Jaroslav Vrba and

others) and the Institute of Soil Biology of the Czechoslovak Academy of Sciences (e.g. Josef Rusek, Miloslav Šimek and others).

The first director of ÚKE ČSAV, Professor Emil Hadač, was a scientist and personality who defies a one-sided evaluation. A highly committed and convinced member of the Communist Party of Czechoslovakia, he was one of the few academics who publicly approved of the occupation of Czechoslovakia in 1968, and he was given the opportunity to build a completely new interdisciplinary institute. However, he allowed there many researchers who would otherwise have had to say goodbye to science for a long time and perhaps forever (Bohuslav Blažek, Miroslav Gottlieb and others). He did not abuse his position, and even though it hurts him in the eyes of the ruling party, he never stopped endorsing his teachers such as Professors Bohumil Němec, Vladimír Úlehla from Masaryk University Brno, who influenced generations of scientists and ecologists engaged in landscape conservation, Karel Domin, Jaromír Klika, and especially Professor Vladimír Krajina who emigrated to Canada where he founded a renowned bioclimatic landscape classification school. He did not let himself be restricted in his ideas and had a broad overview and interests. He never stopped being interested in the protection of nature and landscape. The activities of ÚKE ČSAV under his leadership soon became very controversial as they set a mirror to the ruling party and it being incapable of any sensible management that respected the landscape and people's lives. After his forced departure from ÚKE ČSAV by moving - relocating - to the Institute to České Budějovice, Professor Emil Hadač did not slacken in his efforts and activities, to name but a few seminars of the Ecological Section in the Botanical Society of the Czechoslovak Academy of Sciences where controversial topics of large projects versus landscape protection were raised (Kovář, 1993, 2001; Kovář *et al.*, 2015; Jeník, 1992; Krahulec, 2015; Hadač, 2007; Rychnovská, 1995).

The Institute was moved from Prague to České Budějovice during the 1980s. This fact is marked by the departure of many senior staff. Bohuslav Blažek (psychologist), Markéta Todlová and Margit Maršálová (sociologists), Otakar Bureš and Josef Pavlů (architects), Jiří Petz (hygienist), Olga Vidláková (lawyer), Miloš Legner and Pavel Punčochář (hydrobiologists), Eduard Brabec, Pavel Kovář, Hana Rambousková (geobotanists), and many others left. This short list alone shows how the Institute professionally weakened as a result of the transfer. The great discussions between biologists and representatives of the social sciences in 1971-1980, influencing each other's thinking and approaches, gradually ceased.

In the early 1970s and later in the 1980s, the ideas of Vladimir Ivanovich Vernadsky (1863-1945), a Russian geochemist and natural philosopher, the founder of the concept of the biosphere in a systemic view of planetary phenomena, including humans, began to enter the Czech environment. His teachings (studies, “utschenije” in original Russian) on the biosphere (Vernadsky, 1967; 1988) inspired especially natural scientists (Jan Jeník, Bedřich Moldan, Igor Míchal and others) (Moldan *et al.*, 1979).

These ideas did not escape the social scientists represented in the Institute. On the contrary, the dissertation of the author of this study, defended at the then Institute of Philosophy and Sociology of the Czechoslovak Academy of Sciences in 1988, was directly related to Vernadsky's conception of the biosphere in terms of the landscape, man and society, and the topic was later formulated in a number of papers (e.g., Lapka & Gottlieb, 1994). A certain culmination of these efforts was the organization of an exhibition about V.I. Vernadsky in Prague and České Budějovice in 1989, (Jehlička & Smith, 2007), based on the scenario of Miloslav Lapka and Miroslav Gottlieb.

It soon became clear to the authors of this study what complementarity existed between the work of Vernadsky and Teilhard de Chardin. Unfortunately, this was not published at that

time. The official ideological line of the Institute is clearly expressed in the afterword to Paul Duvigneaud's *Ecological Synthesis* (1988) where the concept of the noosphere is rejected from a spiritual and Christian point of view and reduced to material substance. V. I. Vernadsky and T. de Chardin are placed in the popular scheme of irreconcilable opposition (Procházka *et al.*, 1988).

A short period of hope for ÚKE ČSAV was the period after 1989 when Václav Mejstřík became the director of the Institute after Jaromír Pospíšil (appointed to the head of the Institute in 1977). He was an honourable exception who tried to restore the interdisciplinary tradition of the Institute despite all the organizational confusion and struggles associated with the restoration of free science in Czechia, with the transformation of the Academy of Sciences from the Czechoslovak Academy of Sciences (ČSAV) into the Academy of Sciences of the Czech Republic (AVČR), and the transformation of the Institute itself when the Institute of Hydrobiology of AVČR and the Institute of Soil Biology of AVČR became independent. Unfortunately, this period of time was short-lived and was replaced by a struggle to preserve the interdisciplinary concept of landscape, the subject matter and the function of landscape research in general.

Pavel Kovář became an important successor of Emil Hadač's tradition. He worked at ÚKE ČSAV for ten years until it was relocated to České Budějovice when he moved to the Institute of Botany of the Czechoslovak Academy of Sciences (BÚ ČSAV). Thanks to his efforts in a complex power struggle that favoured the attitude of Slavomil Hejný, the then director of BÚ ČSAV, BÚ ČSAV avoided relocation to the Biology Centre of ČSAV in South Bohemia.

In the second "academic" period of 1971-1993, the landscape as an object of ecological research attracted attention outside the academic structure. Traditional interest in the landscape was taken up by agricultural colleges, faculties of science, architecture, public nature conservation structures and many conservation NGOs. Their theoretical reflection on the phenomenon of the Czech landscape is somewhat different than that of the predecessors mentioned above and is more focused on specific and more detailed landscaping problems according to their specialization. This period was perhaps the most productive and it is this very period that later foreign reviews and monographs of landscape ecology refer to (Mejstřík & Gottlieb, 1987; Naveh & Liebermann, 1984).

The biologically and culturally shaped "phenomenon of the Czech landscape" influenced the choice of topics, studies and their methods as well as the overall concept of landscape ecology at ÚKE. During the 1970s, there was an opportunity to build a certain national school of landscape ecology based on the link between the natural and cultural subsystems of the landscape, based on the exploration of analogical strategies between the two systems, and based on the elaboration of the information flow between them as the intersection of nature and society (Blažek *et al.*, 1973).

#### *Third "academic" period of 1994–2010*

From 1993, after the merger of the Institute of Landscape Ecology of the Czechoslovak Academy of Sciences with the Institute of Systemic and Ecological Biology of the Czechoslovak Academy of Sciences, landscape ecology was represented in the Academy of Sciences by the renamed Institute of Ecology of Landscape of the Academy of Sciences of the Czech Republic and, paradoxically, the same official name of the former Institute remained in English - the Institute of Landscape Ecology. Since 2006, this Institute has been renamed the Institute of System Biology and Ecology of the Academy of Sciences of the Czech Republic, v.v.i. (v.v.i. means public research institution - veřejná výzkumná instituce in Czech) where all attempts to emancipate the landscape as a scientific object of research

from the ecological and socio-economic point of view stagnate and live in the shadow of specialized sciences on completely different scales than landscape, with their laboratories and rapid experimental results and high impact publications. In 2010, the representation of landscape within the Academy of Sciences of the Czech Republic came to an end as did the tradition of interdisciplinary collaboration. Since 2011, the Institute of System Biology and Ecology of the Academy of Sciences of the Czech Republic, v.v.i., under the leadership of Michal Marek, has been split and renamed the Centre for Global Change Research of the Academy of Sciences of the Czech Republic, v.v.i., CzechGlobe, and the Institute of Nanotechnology and Structural Biology of the Academy of Sciences of the Czech Republic, v.v.i., where the landscape as a sociological and cultural phenomenon is no longer represented.

In the development of the Czech landscape research, you often see a chain of transmission of a certain type of thinking, even in whole schools. The school of geobotany, reaching in its effect into many fields of human activity, has already been mentioned in connection with Emil Hadač's teachers. The team that Hadač brought to the Institute gradually branched out into topics to study, on the one hand, the use of different types of vegetation maps for spatial planning, typology and regionalization, and on the other hand, the atmospheric deposition of pollutants in different types of vegetation, as well as natural ways of reclamation ("ecological restoration" in today's terminology) of anthropogenic formations in the landscape. At ÚKE ČSAV, the members of this team were Irena Hanousková, Jana Möllerová, Ota Rauch, Eduard Brabec, Hana Rambousková, and others (Sklenář *et al.*, 2012).

Anthropoecology, the founders of which were Miroslav Gottlieb, Bohuslav Blažek, Margit Marsálková, Markéta Tódllová and Jaroslav Stoklasa, influenced the next generation of the former aspirants Michael Bartoš and others, and has become another tradition passed down at ÚKE ČSAV. Miloslav Lapka and his own students and PhD students – especially Jan Vávra, Josef Maxa, or Zuzana Dvořáková-Líšková – became their successors and together with the environmental and ecological economics team (Jaroslav Stoklasa whose work was followed up by Eva Cudlínová and Jan Těšitel at ÚKE ČSAV), have been an active team at the Faculty of Economics of the University of South Bohemia in České Budějovice till now.

Similarly, there have been efforts to continue the tradition of mycorrhiza research by Václav Mejstřík, the director of ÚKE ČSAV after 1989, and a group of his students led by Pavel Cudlín (Mejstřík, 1982).

In the third "academic" period of 1994-2010, the original focus of landscape research was gradually replaced by the increasing specialization determined by, among other things, the policy of research projects that have over time become the main source of income for the Institute. The evaluation of scientific production according to the impact factor of publications, not comparing like with like there in terms of interdisciplinary representation of sciences, also played a major role.

### **Landscape Outside the Academy of Sciences**

The energy invested in the broad, multidisciplinary ecological approach to the landscape as it gradually took shape in the original Institute of Landscape Ecology, however, did not go unanswered in the Czech academic and university community. This was not always due to the Institute, but the honest interest of biologists, environmentalists, economists and sociologists in the environment in which we live.

The landscape is now an object of research in departments of applied ecology, geography and other geographical and natural science-based departments as well as in faculties of environmental science (Josef Seják, the economist). Many of the research workers are former members of the expired ÚKE ČSAV such as Pavel Kovář, Vladimír Bejček, Karel Št'astný,



František Sedláček, Jaroslav Boháč, Roman Fuchs, Tomáš Kučera, and others. Prominent supporters of the interdisciplinary approach and practical landscape ecologists going beyond the borders of the Czech Republic include Jan “Hony” Květ and Jan Pokorný, both from Třeboň. Zdeněk Lipský, Petr Maděra, Dušan Romportl, Tomáš Chuman, Petr Kučera and Alena Salašová, whose scientific and organizational work at the Institute of Landscape Planning at the Mendel University of Brno in Lednice is a continuation of the legacy of landscape ecology and builds on the work of Igor Míchal, Antonín Buček, Jan Lacina and others as well, as it is close to Slovak landscape ecologists. The incoming generation of Ivo Machar, Markéta Šantrůčková and others ensure the continuity of landscape ecology in the Czech Society for Landscape Ecology as do its hundred members.

Students and study programs are proof of the development of the field of landscape ecology. Here, landscape ecology is maintained and developed in doctoral study programs, often very broad. In this way, applied and landscape ecology has its representation, for example, in the doctoral study programs of the Faculty of Agriculture, University of South Bohemia, České Budějovice, at the Faculty of Environment, University of Life Sciences, Prague. at Charles University Faculty of Science now a broader environmental science program, Prague and at Mendel University of Agriculture and Forestry in Brno.

Geocology is represented, for example, in the following study programs: Physical Geography and Geocology Faculty of Science Charles University, Prague and Environmental Geography Faculty of Science University of Ostrava.

We have divided the ecological approach to landscape planning into three branches which, however, are intertwined and the criterion is the main profession of the author rather than strict adherence to the field of science.

#### *Natural Science Branch*

Professor Alois Zlatník grew up in Moravia (Faculty of Forestry at the University of Agriculture in Brno, Mendel University of Agriculture and Forestry in Brno since 1994) to become an important person in Europe. The founder of the school of geobiocenology without whose approach you cannot imagine the typological maps that have become an important basis for the nature-based management in landscapes where the forest is the original ecosystem and for spatial planning. He was actively involved in proposals for nature and landscape conservation and drew up a proposal for a network of forest reserves in Moravia and Silesia where all forest types in all forest vegetation stages would be represented. However, due to the communists taking power in 1948, this proposal as a whole was never implemented (Vrška & Hort, 2008). Professor Zlatník is the author or co-author of the first landscape ecology textbooks (Zlatník *et al.*, 1973; Zlatník, 1978).

His direct successor is Antonín Buček. It is to his merit that the idea of preserving natural or nature-like segments of the landscape has been integrated into a functional network - the territorial systems of ecological stability (ÚSES), without which you cannot imagine landscape planning today, as well as the protection of landscape character of Igor Míchal (Plesník, 2018). Zlatník's efforts were followed up by Antonín Buček (the Institute of Geography of the Czechoslovak Academy of Sciences in Brno and then MENDELU) and Jan Lacina, his close co-worker. Antonín Buček founded Veronica, the organization of the Czech Union for Nature Conservation, the Veronica Foundation and the Veronica Journal which still functions today (Lacina, 2018). Antonín Buček educated many students, and his successors include Petr Maděra and many others, as well as Alena Salašová and others in landscape character matters. Miroslav Kundera, first editor in chief, among founders of the Veronica Journal (1986), the Veronica Ecological Institute (1991), and the Veronica Foundation (1992) and many others.

Professor Jaromír Demek, an important representative of the geographical concept of landscape ecology, is associated with the name of the Geographical Institute of the Czechoslovak Academy of Sciences. He later worked at J. E. Purkyně University (now Masaryk University Brno) and Palacký University in Olomouc (Demek, 1974; 1999).

Geoecology is associated with the emergence of landscape ecology, when the German geographer Karl Troll described the field of landscape ecology. From his point of view, this scientific activity should combine geographical and ecological principles in the study of ecosystems. From the point of view of landscape research, it is a matter of convergence of geography and ecology, where geoecology studies the impact of man on nature in different geographical conditions and changes over time, models forecasts using geographic information systems. This separate branch of the development of landscape ecology since the 70's is now represented at a number of universities in our country, where it is part of physical geography. Professor Jaromír Kolečka Masaryk University, Brno, has extensive international experience in geoecology landscape research, he is involved in geographic information systems and remote sensing of the Earth in landscape ecology and environmental management.

According to his own words (Dušan Romportl), many students of geography grew up with Zdeněk Lipský's textbook of landscape ecology (Lipský, 1998). A geographer studying cultural landscape changes (Lipský, 1995) follows the tradition of broadly conceived cultural landscape interactions as seen in the original definition of cultural landscape by C. O. Sauer (1973). He has been working for years at the Faculty of Science of Charles University in Prague and is one of the founding members of the Czech Society for Landscape Ecology IALE - CZ.

All of these founders show their interest in the links between their field of science and the landscape, overlapping with nature and landscape conservation, and they are often keenly interested in social sciences and arts, and they do not shy away from struggles for new paradigms of thought. Many of them have not shirked activities related to nature and landscape conservation, leading before 1989 to conflicts with the state authorities that had jeopardized their careers and sometimes interrupted them for a long time.

Igor Míchal, in his work "On Responsible Relationship with Nature", tries to move from an anthropocentric view through the biosphere to the noosphere and find "the first stage of ecological awareness." Míchal's work is a valuable and brave attempt by an ecologist to tackle the challenges of ecological ethics at a time when speaking faith, hope and love was ideologically highly suspect and practically impossible. Yet by the end of the book, the author takes an essentially theocentric position, carefully expressed as one approach to the biosphere (Míchal, 1988).

Furthermore, his large and unfortunately last work together with Jiří Löw, *Krajinný ráz* (Landscape Character), (Löw & Míchal, 2003), leaves the reader in no doubt about his expertise in natural science and at the same time, it overlaps with practical questions of legislation, but also ethics and philosophy. The issue of landscape character and the methodology of territorial systems of ecological stability was studied (unfortunately, in the past tense) by Antonín Buček from Mendel University in Brno. His work with frequent co-author Jan Lacina belongs to the fund of Czech landscape ecology (Buček & Lacina, 1984).

Let us have a look at the way of discourses on the landscape as presented by Václav Cílek (Cílek, 2005). The solid geological grounds of the landscape are also represented by the solid grounds of the landscape of the Czech Republic, the concept of geological diversity combines geological subsoil with the surface, moving into the inner landscape as it lives and changes in our own spiritual worlds and symbols. Cílek does not programmatically follow

Dansereau (1975) and his "inscape," but he tries to go back to the roots of the pre-scientific concept, referring to the English poet G. M. Hopkins in the very beginning to continue with Josef Holeček, the ruralist, in the post-1868 period. Increasingly drawn to experiencing the landscape from within, its many layers, many languages and many faces, he returns to inscape in his book of essays titled *Macom: Kniha míst (A Book of Places)* (Čílek, 2007). Čílek invokes Capra, historical and prehistoric reminiscences, and thinking through landscape as a living and holistic system where the beacon of philosophy and humanism shines in the geological foundation of his profession whenever he touches on his favourite subject of landscape.

As regards the topic, he is not alone, to name but a few, the provocatively insightful papers of Jiří Sádlo (Sádlo *et al.*, 2005), the broad-based reflections on landscape of Pavel Kovář (Kovář, 2018), or Ivan Dejmal (Dejmal, 2009) and others as well as workplaces directly focused on environmental education - Martin Braniš (Braniš, 2006).

Sustainability as conceived in natural science, or sustainability, or also sustainable development, has its own – however, we guess that sceptical - representation in the latest work of Lubomír Nátr (Nátr, 2005). Let us mention at least Zdeněk Neubauer, Stanislav Komárek and other authors belonging to this system-inspired branch. Josef Fanta is an inspiration for the Czech landscape ecology in terms of the ecosystem concept of forest and landscape (Fanta, 2020).

The topic of sustainability has become, in a way, a continuation of the tradition of Czech landscape research. Here it is necessary to mention at least the Czech University of Life Sciences with its Smart Landscape project and Petr Sklenička, the project leader. The goal of Smart Landscape is to retain water in the landscape, and it builds on the traditions of the Czech landscape ecology through interdisciplinary teams within the Centre for Water, Soil and Landscape. Some follow-up of the geographically conceived landscape research in the structures of the Academy of Sciences of the Czech Republic can be seen in the work of Antonín Vaishar.

The Institute of Applied and Landscape Ecology, Faculty of Agronomy, current Mendel University of Agriculture and Forestry in Brno was founded in 1990 on the initiative of prof. Vlastimil Vaniček famous for one of the first interdisciplinary projects in the 1970s on the Fryšávka River under the name Fryšávka Strategy. Under the name Institute of Applied and Landscape Ecology, the first and for a long time the only university workplace in the country with this name, now led by Milada Šťastná and Antonín Vaishar.

Excellent example of contemporary synthesis in Landscape ecology is possible to consider the work *Atlas of Landscape of the Czech Republic* (Hrnčiarová *et al.*, 2009). A unique atlas of the Czech Republic, which was declared the "best map of the world" at the 25<sup>th</sup> World Cartographic Congress in Paris in 2011.

### **"Phenomenon of the Czech Landscape" in Social Sciences**

#### *Philosophical Branch*

Erazim Kohák is a well-known representative (Kohák, 1998). Kohák's characteristics of environmental / ecological ethics alone seems enough to place him in the ecological system context. It is "a set of principles that indicate to man how he should behave in his dealings with the non-human world." (Kohák, 1998; pp. 14-15). We believe that if you want to squeeze ecological ethics between cosmocentrism and anthropocentrism on the one hand, and theocentrism and biocentrism on the other, you have to admit that it has some of each approach and produces intermediate types in particular cases. But the anthropocentrism of ecological ethics is self-evident only in so far as you look at man as the bearer of these ethics, but it is very misleading on the question of source, or knowability, etc. Ecological ethics, in

order to be at all concerned with the values of natural things beyond mankind, must also include the values of some transcendent system. Whether this is God, the Universe, the biosphere, or the rights of landscapes, rocks, animals and plants, to name just some of the themes of the authors above, from deep ecology to sustainable development, is not the key in this context (Kohák, 1998). The open topic of ecological ethics after 1989 have attracted the natural and social sciences to lead a dialogue (Kovář & Hašková, 1991).

The drama of evolution in the book of the same name by Josef Šmajš (Šmajš, 2000) is a drama about the understanding of evolutionary ontology and about the race against the time of evolution: Are we able to convert our anthropocentric illusion into a biocentric view before the anti-natural and anti-environmental layer of culture is swept away by the natural processes of evolutionary feedback? Let us at least mention some names of environmentally inspired philosophers, especially Václav Bělohradský or Robert Kolářský.

### *Sociological Branch*

All the places in Czechia where the seeds of ecological system thinking could potentially have emerged in the past, i.e., Prague, Brno, Olomouc, Ostrava, were severely affected by the overall joyless development of this country after 1948. For 15 years (1948 to 1962), sociology as a distinct discipline was silenced and institutionally liquidated, and many capable sociologists found themselves in the margins of not only academic, but also normal life. The holders of the sociological tradition such as Josef Král and Arnošt Inocenc Bláha were forced to quit their activities in 1950. After 1962, the peripeteia of warming and the subsequent normalization took place with all the personal and ideological repression, and the whole sociological scene entering 1989 was, of course, affected by all this. For example, a monothematic issue of the Sociological Journal (*Sociologický časopis*, 2004) is devoted to this pressing and open-ended history of our sociology. An ecological-sociological branch, if it can be simply called so in our scheme, was successfully formed in Brno (perhaps also thanks to the surviving spirit of A. I. Bláha?). Hana Librova can be considered a representative of this branch. The "domestic" ethics model is a group that Hana Librova describes in her book "Pestří a Zelení" (The Colourful and the Greens) (Librová, 1994a). These are mostly strong individuals who, of their own free will, decided to live in a way that can be described as environmentally friendly. The Colourful and the Greens represent one world, a largely individual and isolated world (the individual, the family) where belief in the rightness of one's own actions is primarily subjected to the critique of reason and conscience.

For the modern Colourful and Greens, "the lifestyle decision is individually based as the authentic and creative outcome of intellectual labour" (Librová, 1994a, p. 121) and it also presupposes individual ethical norms. It is a cultivated belief that what I am doing is right. The change in lifestyle amongst the Colourful and the Greens is usually motivated by their awareness of the ecological crisis. For the Colourful and the Greens, environmentally friendly behaviour is the result of voluntary modesty, and therefore a certain act of self-sacrifice although they might consider the term of self-sacrifice too pathetic. In the context of sociological discourse on the landscape, we should at least mention Social Need and Value of Landscape and Love of Landscape? and the book *Vlažní a váhaví* (The Half-hearted and the Hesitant) (Librová, 1987; 1988; 2003). Not to forget the work published in "our" proceedings of the Ecology and Democracy conference that generated international acclaim (Librová, 1994b) and attracted authors, among others, including Henryk Skolimowski, for example.

Jan Keller, who later worked in Ostrava, can also be ranked among the Brno branch of sociology. However, he does not study directly the landscape, but rather provides an overview of contemporary environmental thinking. With his critique of the loss of choice

against consumerism and his conception of the relationship between sociology and ecology, he is one of the "angry" defenders of the ecological paradigm (Keller, 1993; 1996; 1997).

The latter piece of work in particular can serve as guidance for the discourse between ecology and sociology, refuting their mutually irreconcilable positions. The chance of sustainability becomes a memento and a yardstick. Libor Musil, another representative of the Brno branch, approaches the environment and the landscape through social policy and the organization of work (Musil, 1997).

A special place in this sociological branch belongs to Bohuslav Blažek, not only because he found refuge for quite a long time in the then Institute of Landscape Ecology of the Czechoslovak Academy of Sciences where we enjoyed meeting him. It is above all his renaissance insight and spirit fully at the service of knowledge. Worth mentioning is his little known and now almost unavailable work "Method of Explication of Concealed Assumptions in Ecology" (Blažek, 1977) where he undertook to fight the "dataists" (as he calls the followers of the mechanistic paradigm) by intelligently exposing the process of falsification and confirmation of scientific theory. He then completes this move towards an ecological system approach through the analysis of the media and tending towards the rural community as well as through practical organizational work in the Society for Rural Renewal. From his rich and journal scattered legacy which has unfortunately come to an end, let us mention at least Venkov, města, média (Rural, Urban, Media) (Blažek, 1998).

Interesting view on the landscape show small quite but important actors: small gardeners, owners of allotments. We are witness of situation in Central European, where academically and socially fashionable market-based food initiatives co-exist with socially more widespread and economically and environmentally more significant networks of home food production and sharing. Spaces of quiet sustainability: self-provisioning and sharing is a three-year research project (2019-2021) aiming at the understanding of food self-provisioning and the sharing of food and other things (Jehlička, 2021).

Naturally, environmental issues are also addressed in the production of rural sociology at the University of Agriculture in Prague, and at the Czech University of Agriculture from 1995. Despite all the above-mentioned difficulties in the development of sociology in the years 1948-1989, with the peripeteia in seeking avenues for rural sociology at the Research Institute of Agricultural Economics (VÚZE), at the Institute of Rural History and Sociology (later a department of VÚZE), rural sociology found its tireless advocates in Professors Jan Tauber and Hanus Schimmerling, Professor Věra Majerová and other important persons.

The ecological paradigm also has its place at the Faculty of Social Sciences in Prague. Let us mention at least the Filipov project - Transformation Processes and the Exploration of Local Government by Jiří Kabele, Josef Kandert and Michal Lošťák (Kandert, 1999) and other publications of this department, through the polished summary and methodological works of Miroslav Petrušek. There is also a Centre for Environmental Issues focused on environmental economics and the application of "sustainable development" in our conditions - Bedřich Moldan, Milan Ščasný, Tomáš Hák, Jana Dlouhá, and others. This group also includes Ivan Rynda from the Department of Social and Cultural Ecology at the Faculty of Humanities, Charles University in Prague who as a social ecologist is a successor of Bohuslav Blažek in terms of broad activities, public appearances and personal commitment to the idea of sustainability of our life on this planet. (Hák & Rynda, 2001). Environmental issues also have a place in other sociology departments and workplaces in various forms, to name but one, Oleg Suša focusing on environmental sociology and sociology of globalization.

Spatial ecology and its representatives such as Jiří Musil (1991), Martin Hampl, Michal Illner and others provide inspiration to consider the landscape as a potential factor of social

cohesion even if it is urban sociology and not directly the landscape. Worth mentioning is *Krajina domova* (The Home Landscape) (Svobodová, 1996) and, of course, the whole group centred around Hana Librová at the Faculty of Social Sciences in Brno where Zbyněk Ulčák, Bohuslav Binka, aesthetician Karel Stibral and others are involved in landscape research. However, this necessarily incomplete list of names is not meant to give the impression that, apart from these authors, no one else in the Czech Republic is involved in landscape research.

## CONCLUSION

Fifty years since the Institute of Landscape Ecology of the Czechoslovak Academy of Sciences was founded is a long time. It was the first and so far also the last scientific institute focused on the landscape on an interdisciplinary basis in the structure of the former Academy of Sciences (ČSAV). In 1971, the institute whose mission was the landscape, landscape research, protection and sustainable use was established. By a fortunate coincidence, this Institute under the leadership of Professor Emil Hadač was profiled as interdisciplinary from the very beginning. And right from the start, it also had to face unqualified, stupid, short-term and bad political decisions that damaged the landscape for generations to come. The interdependence of the biological and social systems of the landscape was established and the Institute made bold and quite far-reaching steps in this direction even on an international basis.

More than ten years since the demise of the Institute of Landscape Ecology and its successor institutions is quite a long time to realize what actually happened. The idea of a holistic approach to the landscape was weakened until it disappeared altogether, the Institute was again inconvenient to the sudden boom of developers after 1989, and its management was unable and, even under the pressure of circumstances, apparently unwilling to defend this approach. An honourable exception in this period is the brief tenure of Václav Mejstřík immediately after 1989. After that, the name of the Institute and its focus changed. Eventually, the scope of the scientific field of landscape ecology became incomprehensible to the Academy, too complicated and inadequate to the structure of the single-discipline evaluation of science.

It is a great paradox of the times that landscape has ceased to have its institutional representation in the structure of the Academy of Sciences in a free society while on the other hand, it has successfully spread to many university departments and institutes where interdisciplinary ideas of landscape research were developed independently of the Institute. The landscape as an object of research also permeates through to government departments; the Silva Tarouca Research Institute for Landscape and Ornamental Horticulture under the Ministry of the Environment under the leadership of its director, Ivan Suchara, has become important.

There were many factors at play for the representation of landscape in the Academy of Sciences of the Czech Republic, including professional, human, and political through the rivalry of academic institutes and measuring them against the single criterion of publication impact factor. This favoured specialization and reductionism with high impact factor and single-discipline supported projects. However, this review shows the opposite trend towards synthesis and crossing disciplinary boundaries from the very beginning of scientific landscape research. Unique conditions for this have been set up in Czechia by the cultural 'phenomenon of the Czech landscape'. After 1989, however, this tradition remained unused and the Czech society began to have completely different economic interests and concerns. Anti-environmentalism began to be applied in politics and everything green only hindered the development of business. The ecological discourse in this country has been distorted,

including the denial of global climate change where economists, led by Václav Klaus, have played a negative role.

The question is whether institutions representing the landscape at the level of the Academy of Sciences are lacking in Czech society. We believe this is not the case from a scientific point of view. There is not much public awareness of academic institutions, even of the existing ones, let alone those expired more than a decade ago. However, in our opinion, something else is missing. Reassuring the public that there is still interest in the landscape. That there is a social need for non-political umbrella institutions not beholden to a newly appointed minister and their political outfit. The scientific societies provide an excellent platform, but they suffer from a serious lack of funding for their own research and human resources. Universities have a great deal of autonomy, and the landscape is the subject of extensive research within that framework, but there is no interdisciplinary university focused on landscape research and a comprehensive concept of the landscape.

An obstacle is the difficulty in defining the subject of research and the interdisciplinary approach to the landscape. Yet science proceeds in both directions, towards analysis and synthesis, towards both a Cartesian approach and Comenius approach in which man is an actor in the world, not just a disinterested observer and repairer of its mechanical machinery.

However, the technocratic concept of landscape as the space for our needs and plans still prevails. It is about the development of society and the region! Under this populist slogan, however, it is often all about money at any price, and the inability to see anything other than one's own interests or field of expertise.

In our opinion, such an institute cannot be restored today. Speaking in terms of the traditional organizational form of another institution within the structure of the Academy of Sciences. The organizational difficulties, the obstacles in evaluating science and comparing disciplines, the definition of the landscape as an object of research, all that remains. However, there are more advanced forms of how to set up excellent interdisciplinary teams working on long-term basic and applied research grants, including the open possibility of recruiting international scientists to such a team without the need for a brick-and-mortar institution.

However, this requires a societal order as outlined above and political will and, of course, large funds mostly from the EU. Besides, the centres of excellence model was applied in AVČR under the Operational Programme Research and Development for Innovation in the period 2007-2013 when large Czech research centres called European Centres of Excellence were established or extensively modernized. Their listing clearly indicates that interdisciplinary research would not stand a chance in this technological, information and medical competition. The closest to the landscape research is CzechGlobe - Institute of Global Change Research of the Academy of Sciences of the Czech Republic (Ústav výzkumu globální změny AV ČR, v.v.i.) established through multiple transformations of the former Institute of Landscape Ecology of the Czechoslovak Academy of Sciences and its successor organizations. According to its own presentation, the Institute is a European centre of excellence that investigates ongoing global change, its manifestations in the atmosphere and its impacts on the biosphere and human society using state-of-the-art instrumentation and techniques (CzechGlobe, 2021).

It is surely no coincidence that the interdisciplinary concept of landscape did and does also require appropriate personalities. The forerunners of landscape ecology in the Czech lands (Bohumil Němec, Julius Stoklasa, Jan Svatopluk Procházka, Karel Honzík, Ladislav Žák) are were very active and interested in the events in society as well as they reach out into other fields for inspiration.

The same is true of the founders of landscape ecology, Emil Hadač, Bohuslav Blažek, Antonín Bučková, Igor Míchal, Ivan Dejmal, and Hana Librová, Miroslav Gottlieb of sociology and many others. They are no strangers to art and polite literature. And their followers, to name but a few, Pavel Kovář, continue this bridging between the world of science, society and art.

In addition to their considerable personal bravery to stand the consequences of their attitudes, these important persons share another characteristic. And that is the physical presence in the landscape on expeditions and research, or long-term stays. To be out there is to observe the landscape, to be curious, coexist, and respect it. They were neither isolated from the landscape by instrumentation and research methods, nor were they isolated by their human relationship to nature and the landscape. It may be that they have also shown us, through this physical attitude, the way to understand the landscape with our own senses, especially by walking in the landscape.

The great hope for the renewal of comprehensive landscape research lies in the aforementioned cultural roots of the Czech landscape, intertwining natural and human activities over millennia, and the growing awareness of environmental connections. This is fostered by global climate change and its clear manifestations in the landscape. For many people, Covid-19 has revealed the landscape beyond their homes and beyond their cities. It is also supported by the younger generation, at least the inquisitive part of it, who are asking what is happening to our landscape and who realize that it is the heritage that will inevitably be passed on to them one day. And such heritage makes a big difference.

**Fig. 1: Photo of research workers from Malá Plynární, (around 1971), the staff of the former Institute of Landscape Ecology – ÚKE ČSAV. Apart from the co-author of the study, Miroslav Gottlieb, none of them alive anymore. Photo: ÚKE ČSAV 1971**



Source: Zdenka Linhartová. Place: Park on the Orten Square. Archives, Miloslav Lapka



From left to right Bohuslav Blažek, psychology, sociology, methodology of science, Markéta Todlová, sociology, Margit Maršálková, sociology, Josef Pavlů, architecture, Marie Sobotková, secretary, Věra Bílá, technician, Jiří Petz, hygiene, medicine, Olga Vidláková, law, Otakar Bureš, architecture, Veronika Kalčíková-Gottliebová, informatics, Jaroslav Stoklasa, economics, Bohunka Princová, internship, Miroslav Gottlieb, philosophy, sociology.

**Fig. 2: Photo of research workers from the Průhonice Department of the former Institute of Landscape Ecology – ÚKE ČSAV.**



Source: Zdenka Linhartová, around 1971. Place: Průhonice Park. Archives, Miloslav Lapka

From left: Jaroslav Švácha (chemist, ecotoxicologist), Roman Valach (chemist), Libuše Černá (agriculture), Hana Habrová (assistant director), sitting in front - Pavel Kovář (geobotanist, vegetation and landscape ecologist), Pavel Cudlín (geobotanist, forest ecosystems), Pham-hoai-Duc (intern from Vietnam, plant physiologist), Jiří Petz (physician, ecotoxicologist), Miloslav Michl (driver), Veronika Kalčíková (computer science), Ota Rauch (geobotanist, soil chemist), Marie Dvorská (lab technician), Eduard Brabec (geobotanist, statistician and my friend) in the back, the ladies before him could not be identified. Sitting below them Alena Krajičková (agriculture, environmental pollution), Jana Holubová (lab technician), Jiří Spalený (chemist), in front of him newcomers to the department could not be identified, Marie Skořepová (assistant), a gentleman, newcomer to the department, could not be identified as well as the lady before him, in the back could not be identified, Vladimír Říha (agriculture, pedology), standing on the far right Václav Mejstřík (head of department, mycologist, soil biologist).

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## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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