BOOK REVIEWS

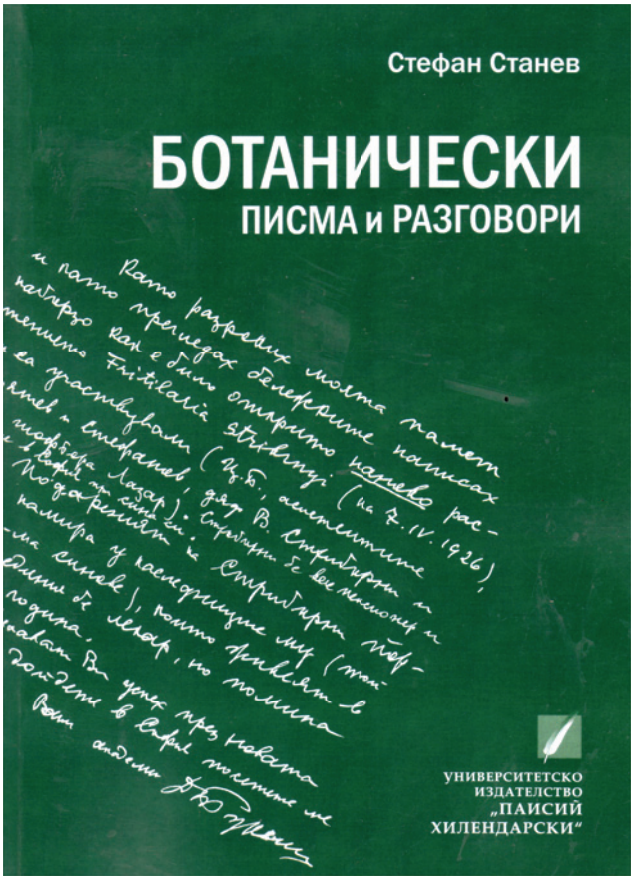
Ana Petrova

Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Acad. Georgi Bonchev Street, bl. 23, 1113 Sofia, Bulgaria.
e-mail: ana_petrova@abv.bg

Stanev, S. 2021

Botanical Letters and Conversations

Paisiy Hilendarski University Publishing House, Plovdiv. 249 pp. Paperback. ISBN: 978-619-202-705-6 (in Bulgarian)



I am holding in my hands the latest book by Prof. Stefan Stanev, *Botanical Letters and Conversations*. I have heard from him that he was writing it, but when he phoned me to say that he is sending the published book to me, I was utterly surprised – such a fast work! I should not have been so astonished, though, I know him for many years and am well aware of his working capacity: a true workaholic! He dedicates to each of his projects so much love and responsibility, strong passion and eagerness to carry his ideas through that he invites envy on the subject!

The book is the first of a kind in the field of Bulgarian biological science: published letters, conversations and encounters with eminent scholars. It hints on the profound research work carried out by the author, on the path he trod before publication of a number of his articles and books on the history of Bulgarian botany, on well or not so well- known Bulgarian botanists. These publications include: *Stars Fade in the Mountains*, which underwent six editions across the years (1975, 1982, 1993, 2000, 2006, and 2013, fig. 1), *Eminent Bulgarian Botanists* (1982, 1995, 2013, fig. 1), *Some Little Known Names in Bulgarian Botany* (2001, 2015, fig. 2), *The Green World of Plovdiv* (2003, 2017), *Founders of Bulgarian Botany* (2008, 2015, fig. 2), *History of Bulgarian Botany* (2010, fig. 3), biobibliographies of eminent Bulgarian botansts, such as Prof. Stefan Georgiev – the first Bulgarian Professor in Botany (1985, 1991, fig. 4), Academician Daki Jordanov (1987), Academician Boris Stefanov (2006), Prof. Boris Kitanov (2018), Prof. Velcho Velchev (2019), Prof. Nikola Arnaudov (2020), etc.

The book comprises some letters received from close friends or members of the families of some of our eminent botany scholars, as well as transcripts of the conversations with many of them. They testify to the eagerness, consistency and perseverance in the preparation of each publication by Prof. Stanev on their life and work. We already have had some very interesting and still unknown information about them all in the numerous books dedicated by the author to them. When one reads his latest book now, it becomes clear how all that information was collected, how much effort it cost to the author, how many relatives and close friends he had contacted to interview, in order to finalize their images. Considering also that many of them had died a long time ago and that the archives were incomplete, his work stands out even more prominently, as well as his patience and perseverance to get in touch and meet each of his respondents, who knew and have retained memories of them.

Besides the concise biographical data, the book also contains information about the encounters an person-

Fig. 1. Eminent Bulgarian Botanists (left) and Stars Fade in the Mountains (right).

Fig. 2. Founders of Bulgarian Botany (left) and Some Little Known Names in Bulgarian Botany (right).

al conversations, exchanged letters with answers and questions put by the author to the relatives and friends of 20 Bulgarian eminent scholars, chiefly botanists: Stefan Georgiev, Dimcho Mihaylov, Vladimir Dyakovitch, Petar Kozarov, Sava Kazandzhiev, Bozhimir Davidov, Todor Nikolov, Boris Ivanov, Nikola Arnaudov, Nikolay Stojanov, Bosis Stefanov, Ivan Buresh, Daki Jordanov, Mihail Hristov, Boyan Barzakov, Kiril Popov, Boris Kitanov, Nikolay Vyhodtsevski, Stefan Kozhuharov, and Bogdan Kuzmanov. Compilation of such a book is such an outstanding idea, because it elucidates to a great extent many interesting facts and details, otherwise generalized or not included by the author in the earlier books dedicated to them.

To me, as a reader and also as a person who is familiar both with the work of Prof. Stanev and half of the botanists, some of whom were my university teachers or colleagues at the Institute of Botany, BAS, it was of paramount interest to read the numerous letters and conversations by Prof. Stefanov had, in order to write this book. They throw light on many unknown aspects of those scholars. I am certain that everybody who reads the personal conversations the author had with our eminent scholars would manage to glimpse some interesting moments of their lives, and the book will make him familiar with numerous facts, relating to the work of other botanists, as well as to their characters, unknown to the later generations.

The author presents some long and interesting conversations he had had with Academician Ivan Buresh, a prominent zoologist, who was closely bound to the Bulgarian botany and was Director of the Royal Natural Science Institutes, whose Botanical Department marks the beginning of the future Institute of Botany, Bulgarian Academy of Sciences, and as a contemporary of many Bulgarian botanists. The exchanged letters, in many of which he answered some questions posed by the author, contribute to or supplement many unknown facts on the subject. His rich archives, especially the folder *Buresh and Botany*, contain many

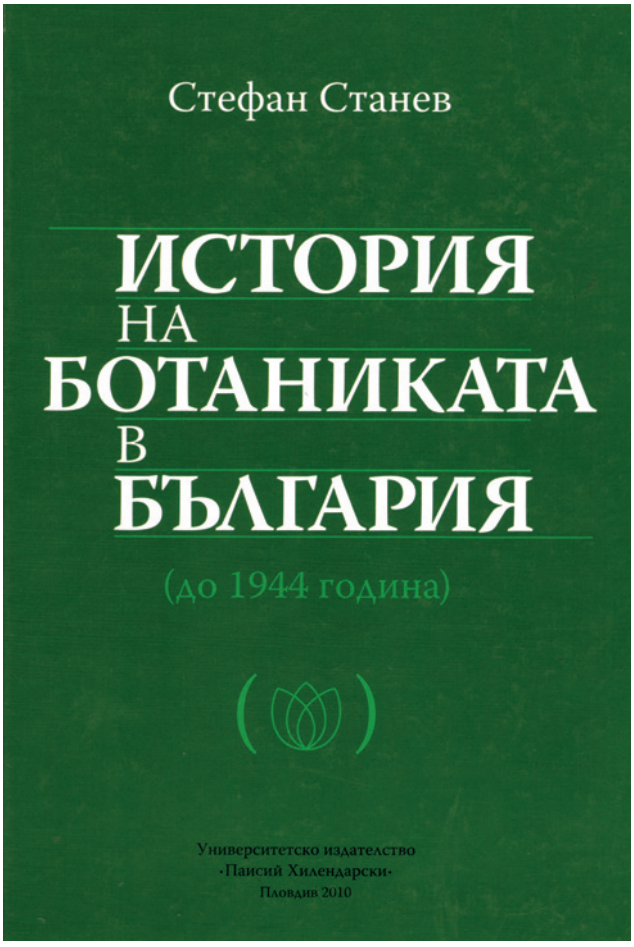


Fig. 3. History of Bulgarian Botany.

Fig. 4. Stefan Georgiev. Biobibliography.

facts related to Bulgarian botanists, who had laid the foundations of the Bulgarian botanical science and to their work, and have provided Prof. Stanev with the great chance to describe and leave to us and to the future generations many curious and interesting stories.

The book includes many conversations with Academician Daki Jordanov and prof. Boris Kitanov, whom Prof. Stanev had known particularly well as his teachers at the university, and Acad. D. Jordanov as a scientific supervisor of his diploma work. And not only, he had accompanied D. Jordanov in many field studies. Nevertheless, he sought further information from their close friends and relatives, in order to offer a complete picture of their life and scientific work.

Each page of the book will provoke the interest of the reader, because the conversations and letters were not from just anybody. Interest merits the opinions and assessments of the Bulgarian scholars about their contemporaries: some critical, others laudatory, but interesting! Mention also deserve the detailed author's notes at the end of each entry on the various scholars included in the book, in which he explains, comments and specifies the information, so as to make everything clear to the readers.

Very impressive are the acknowledgements of the interviewed relatives and friends of our botany scholars of the selfless work done by Prof. Stanev in elucidating some unknown details of the latters' lives. And he well deserves it, because he never tired across the years to explore and fill in the gaps about them.

Anybody interested in the history of Bulgarian botany and in those who had been building it across the years and now are deceased, will find something of interest in the book, will add something new and unknown to their images. And the author of the book, Prof. Stanev, deserves our congratulations and gratitude for enabling us once again to probe deeper into their intellectual characters so that they would undoubtedly remain forever alive in the memory of future generations!

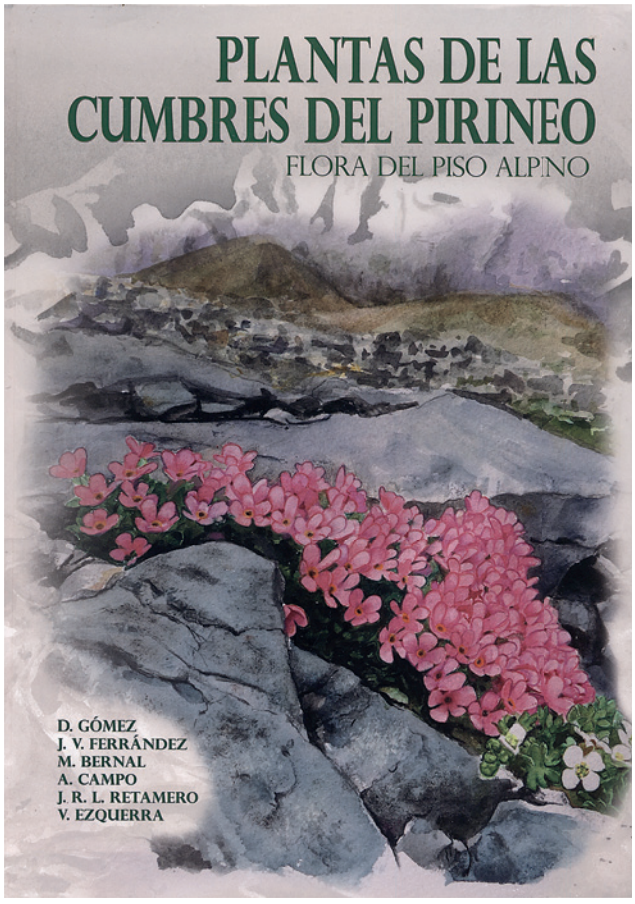
I also strongly congratulate and am thankful to Prof. Stanev! ■

Adam Boratyński

Institute of Dendrology, Polish Academy of Sciences, 5th Parkowa Str., 62-035 Kórnik, Poland

Daniel Gómez Garcis, José Vincente Ferrández Palacio, Manuel Bernal Gálvez, Antonio Campo González, José Ramón López Retamero & Victor Ezquerra Rivas. 2020

Plantas de las cumbres del Pirineo. Flora del piso alpino.



The Pyrenees were formed during the Alpine orogenesis. Situated between the Iberian Peninsula and Europe, the Pyrenees spread out between the Mediterranean Sea and the Atlantic, covering a distance of about 490 km. This mountain ridge is the third highest on the Iberian Peninsula, culminating in Pico de Aneto (3404 m), with more than hundred summits with elevation above 3000 m and many other somewhat lower, but still forming a high mountain environment. The highest parts of the Pyrenees are composed of metamorphic rocks, mainly granites and gneisses, with local addition of shales and limestones. The ridge of the Pyrenees forms the border between the Mediterranean and the temperate climate.

In the area southwards to these mountains, Mediterranean climate dominates, with warm and dry summers and cool winters with relatively high precipitation, while northwards, the summer is not so warm and with relatively higher precipitation. The western part of the Pyrenees is under the influence of the Atlantic climate, with yearly precipitation reaching 1500 mm, which lowers significantly to the east. Similarly, the northern slopes are more humid than the southern ones. The climate of the Pyrenees is differentiated depending on elevation. The average yearly temperatures diminish by 0.6 °C at every 100 m upwards, and the lowest temperatures, highest precipitation and shortest growing season are at the summits.

Climate altitudinal stratification causes vertical differentiation of the flora and vegetation, with montane forest, subalpine and alpine vegetation belts, and only very narrow subnival belt at the highest summits, and small glaciers on the northern slopes of Mt Maladetta, the highest massif culminating in Pico de Aneto. The alpine vegetation belt, *piso alpino*, develops above the subalpine forests formed mostly of *Pinus uncinata*, and occasionally with *Betula alba* and *Sorbus aucuparia*. Timberline depends not only on the climate conditions, but also on local orography and historical human activity, mainly pastoralism. The authors of the book mention it at 2300 m a.s.l. on the average. The alpine belt in the Pyrenees is characteristic with mean yearly temperatures between –1 and around 3 °C and with yearly precipitation of about 1700 mm, snowfall in late autumn, winter and spring, and relatively high precipitation during the vegetation season.

The book comprises 15 chapters. The above-stated data are presented in the first three: 1. Introduction, 2. Alpine belt in the Pyrenees and its delimitation, and 3. Characteristics of the alpine environment. Every chapter is amply illustrated with high-quality photographs of plants in their environment, as well as with maps presenting results of different analyses. Of these, most interesting is the map of distribution of the al-

pine vegetation belt and data on areas at every 100 m of elevation above 2300 m a.s.l. The following chapters deal with the flora, vegetation and their conservation in the Pyrenees, with a review of the history of botanical recognition.

Chapter 4 – *Characteristics of the alpine flora* (*Caracteristicas de la flora alpina*).

This chapter provides characteristics of the influence of the specific environment at high altitudes in the mountain, such as solar radiation, UV radiation, aridity, high amplitudes of daily temperatures, up to plants' biology and their physiological mechanisms. The authors have described the specific morphological features of plants resulting from adaptation to such harsh conditions. These are frequently a cushion-like form of growth and longevity, frequent leaf pilosity, intensive pigmentation, large and expanded root systems with frequent presence of storage organs, also pollination by insects and relatively frequent auto pollination and vegetative reproduction. The chapter contains numerous photographs and drawings, presenting examples of plants in their alpine environment.

Chapter 5 – *Delimitation of the Pyrenean alpine flora, its spatial distribution and ecological characteristics* (*Delimintación de la flora pirenaica, distribución especial y characters ecológicas*)

In this chapter, the authors have analysed and compared the level of floristic diversity and its distribution in some particular regions of the Pyrenees, as well as the taxonomic and phytogeographic connection of the alpine flora of this mountain ridge with the floras of other mountains in Europe. They have analysed the alpine flora of the Pyrenees from the phytogeographical, chorological and altitudinal viewpoints, distribution of plants considering the types of pollination, seed dispersion and site preferences. This part of the book is illustrated with several originally drawn diagrams, tables and maps.

Chapter 6 – *Vegetation of the alpine belt* (*La vegetación alpina*)

Vegetation of the alpine belt in the Pyrenees has developed depending on the elevation, but also on the local orographic conditions. The authors have recognized nine main types of vegetation and have divided then into several subunits. They give lists of the plant species for every particular vegetation type, and also illustrate them with photographs. The biogeographic synthesis of these data is presented in the form of a table with percentage of the species of alpine, boreo-alpine, Mediterranean type of distribution, and species endemic for the Pyrenees, for the Pyrenees and Cantabrian mountains, and for the Iberian Peninsula in recognized types of vegetation.

Chapter 7 – *Background of botanical exploration of the Pyrenees* (*Antecedentes en la exploración botánica de los Pirineos*)

This chapter presents bibliographic notes of those, who had collected herbaria and had published data on the plants of the high mountain belt of the Pyrenees, starting with Jean Prévost and Joseph Pitton de Tournefort, and up to the more recent ones as Pedro Montserrat, Luis Villar and Robert Nègre.

Chapter 8 – *Conservation of the alpine flora in the context of climate change* (*La conservación de la flora alpina elm arco del cambio climatico*)

The alpine belt in the Pyrenees covers a very shrunken area, where some especially valuable species and plant communities are concentrated, with many taxa endemic to these mountains and/or reaching the southern limits of their distribution. The possible climate changes up to 2100 would very strongly reduce the area of the alpine layer in the Pyrenees and would exclude the potential niches for alpine species in a large part of these mountains, especially in the massifs which do not attain elevations above 2700–3000 m. This process would cause a great loss of biodiversity in the Pyrenees.

Chapter 9 – *Alpine plants of the Pyrenees* (*Plantas alpinas de los Pirineos*)

This is the main chapter of the book, where the authors present data on 632 species selected as typical for the alpine vegetation belt of the Pyrenees. Each species is presented in one column on the page. Material for each of them starts with its scientific name and synonym(s). This is followed by basic data on their biological form (after Raunkier), types of flowering, flowers and inflorescences and flower sexuality and pollination, and finally mode of seed dispersion. All these data are presented in the form of standardised pictograms. Presented are al-

so a scheme of vertical plant distribution in the Pyrenees, data on habitat type and edaphic preferences, drawings of specific morphological characteristics, schematic map of occurrence in the Pyrenees and frequency in the particular regions, periods of flowering, diagnosis of the entire geographic range and a list of the mountain ridges in Europe, where they grow. The described data are supplemented with very good photographs of each species on their site and some characteristics of morphology of their flowers or fruits in addition.

Chapter 10 – *Keys to identification* (*Claves de identificación*)

Keys are prepared separately for the genera represented by numerous species, such as *Androsace*, *Carex* with *Kobresia*, *Festuca*, *Luzula*, *Pedicularis*, *Poa*, *Potentilla*, *Ranunculus*, *Saxifraga*, *Silene*, and *Veronica*. This part of book is illustrated with very detailed drawings which facilitate the species' determination.

The two following chapters – 11. *Flora of the peaks and summits ridges* (*Flora de crestas cimereas ycumbres*) and 12. *Plants occasionally present in the alpine layer* (*Plantas de presencia occasional en el piso alpino*) – supplement the data presented in Chapter 9, providing altitudinal maxima of the alpine and other plants. Chapters 13 – *Glossary*, 14 – *References* and 15 – *Taxonomic index* complete the book and facilitate the necessary information finding.

The book offers a synthesis of information of great interest on the flora of the Pyrenean alpine vegetation belt by a team of six authors, who are professional or passionate botanists working in the Pyrenees for several decades. The materials presented by them will be useful to students and advanced botanists, biogeographers and professionals in plant ecology, as well as to those interested in plants, and to mountaineers interested in exploring the nature of the mountains. The book is richly illustrated with high-quality photographs and many drawings of the plant species. It also includes panoramic photographs of several mountain summits and ridges. The book *Plantas de las cumbres del Pirineo* is edited and published by Instituto Pirenaico de Ecologia (IPE, CSIC) in Jaca together with Diputacion Provincial de Huesca. ■

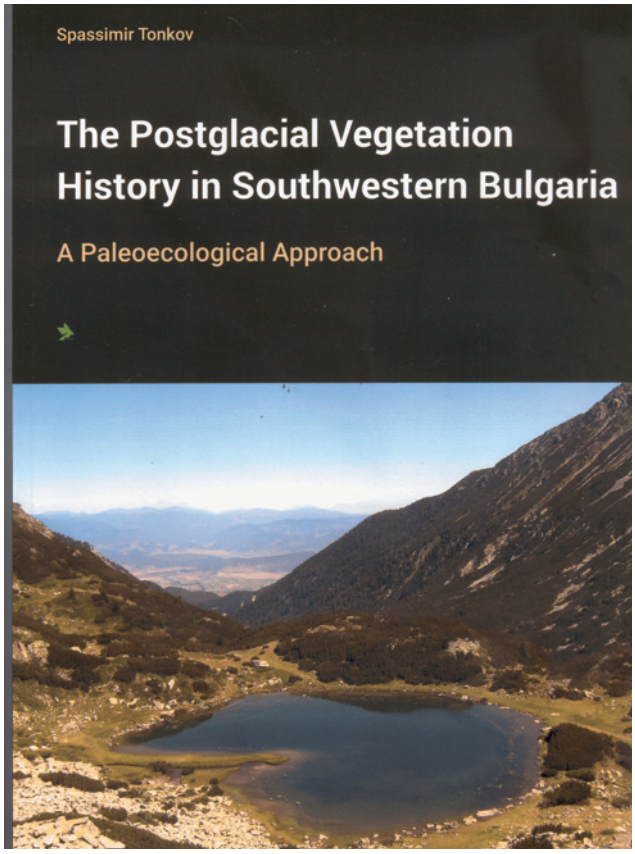
Ana Petrova

Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Acad. Georgi Bonchev Street, bl. 23, 1113 Sofia, Bulgaria.
e-mail: ana_petrova@abv.bg

Tonkov, S. 2021

The Postglacial Vegetation History in Southwestern Bulgaria. A Paleoecological Approach

Pensoft Publishers., Sofia. 167 pp. Paperback. ISBN: 978-619-248-043-1; E-book, ISBN: 978-619-248-044-8



The book contains the results of 35 years of palynological and paleoecological studies in the period 1985-2020 into the Late Quaternary vegetation in Southwest Bulgaria. The author, who is Professor at the Botany Chair of the Biological Faculty of St Kliment Ohridski University of Sofia, independently or in cooperation with other scholars has been studying the vegetation in seven mountains in the southwestern part of the country: Pirin, Rila, Mt Konyavska, Osogovo, Mt

Maleshevska, Mt Vlahina, and Belasitsa. In the book, he subjects to critical revaluation the obtained results applying the advanced methods of research in the latest decades: pollen analysis, radiocarbon dating, determination of plant macrofossils, and analysis of the development of post-glacial vegetation in the last 18 000-15 000 years. The presented information is very well organized and structured. The book was excellently designed by Pensoft Publishers, Sofia.

The significance and of the research and its goals, as well as the applied techniques are mentioned in the Foreword. The author provides a review of the palynological and paleoecological studies of the Late Quaternary vegetation in Bulgaria, since their beginning in the first half of the 20th century and until now. He mentions the leading role of paleobotanical methods in studying the history of flora and vegetation, pointing out that the fossil pollen grains and spores provide direct and reliable information on the subject. The insetting changes in the flora and vegetation in the result of the latest glaciation were especially dynamic and varied in Southeast Europe, a territory including Bulgaria. They are particularly important in relation to climate changes and human activities in the latest millennia, on which have focused the author's studies. He points out that the southwestern part of Bulgaria contains the most suitable sites for paleobotanical studies of Late Glacial vegetation: peat bogs, lakes and peat marshes, the sediments in which like archives of a kind indiccate the biotic and abiotic changes in time. The author mentions in the book all 26 study sites: 10 lakes, 13 peat bogs, three mires, marshes and swamps. A map on their location is provided.

In the chapters to follow, original paleoecological data and reconstruction of vegetation for each region are presented identically and consistently. First, comes analysis of the high mountains: Rila (Northwestern, Central and Southwestern), and Pirin (Northern and Southern), followed by Mt Konyavska, Mt Osogovo, Maleshevska and Vlahina mountains, and, finally, Mt Belasitsa.

Each mountain is presented with its physical and geographical characteristics, modern vegetation, study sites, and history of vegetation. The results are documented with numerous pollen diagrams for the studied sites and radiocarbon dating. The ample information on each mountainous study site is interpreted and referred to extensive literature, comprising 245 entries.

A special chapter deals with the millennium-long anthropogenic impact on the natural vegetations and environment, since Neolithic times. Human activities are indicated in the different places in relations to the inset of agriculture, livestock breeding and various other activities.

Paleoecological studies occupy an important place in the elucidation of the establishment and analysis of these processes in the past. This is one of the goals of the author's researches, generalized an analyzed in the book.

Data on the appearance of pollen diagrams of cultured and medicinal plants are supplemented and compared to other archaeological and ethnopaleological evidence. The exert use of all data enables the author to offer a reliable picture both of agriculture across the different historical epochs, and of the anthropogenic impact on natural vegetation. The ample information presented in that chapter about the various study sites, contentions and analyses are of particular interest in relation to the modern invasion of various plant species threatening the natural flora and vegetation, not without man's interference. Which is particularly important in the exploitation of natural resources.

In the Conclusion, the author draws general conclusions from the information on the studied mountains presented in the above chapters. He outlines the trends and objective laws governing the development of their vegetation, climate changes and anthropogenic impact.

The book contains original scientific information which undoubtedly will contribute to the knowledge about that territory of Bulgaria as part of the Balkan Peninsula. It will be of interest to those working in the domain of paleobotany, palynology, paleoecology, paleogeography, paleoclimatology, landscape ecology, forestry and archaeology. It will be also of good help to taxonomists, who study the modern richness of the flora, but they should be acquainted with the history of different taxonomic groups. The book will also benefit those who study the flora and vegetation not only in Bulgaria, but also of the Balkan Peninsula and other parts of Europe.

And finally, I cannot but mention the author's touching dedication of the book to his teacher Prof. ***Elisaveta Bozhilova***, who, as I do note with great pleasure and gratitude, was also my teacher. And not only mine, but of a number of other colleagues, who took the path of science! ■