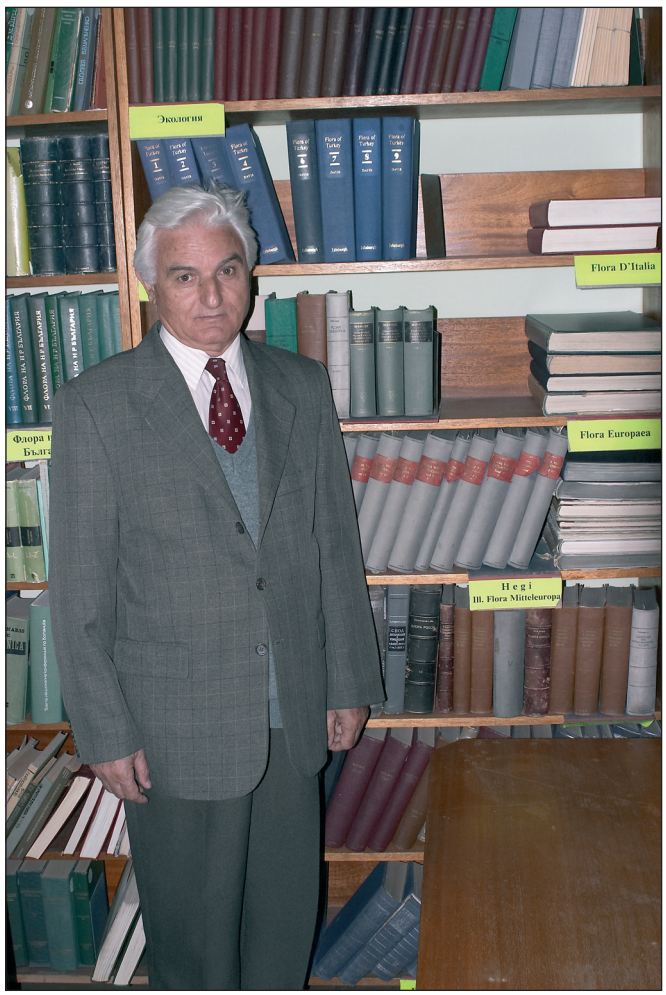


Institute of Botany of the Bulgarian Academy of Sciences dedicates this volume of Phytologia Balcanica to Prof. EMANUIL PALAMAREV, DSc, on the 70th anniversary of his birth and 45 years scientific research

In memoriam

On 28 January 2004 after short illness, suddenly, Prof. *E. Palamarev* passed away.

Bulgarian science has lost one of its most prominent representatives.

PHYTOLOGIA BALCANICA 9(1), SOFIA, 2003: 135-156

Professor Emanuil Palamarev at his 70th anniversary: his life and scientific achievements

Ana Petrova

Professor Emanuil Palamarev, Doctor of Biological Sciences and prominent Bulgarian palaeobotanist, celebrated his 70th birthday on 24 April 2003. The Bulgarian scientific community honoured his anniversary in a token of esteem for the prestigious scholar, active researcher, respected colleague, and Director for many years (1993-2003) of the Institute of Botany of the Bulgarian Academy of Sciences.

He dedicated fourty-five years of his life to profound scientific research. A person of integrity, responsible and persistent in elucidating the scientific problems of interest to him, Professor Palamarev remained loyal to his favourite field of science, palaeobotany, to which he devoted all his scientific creative efforts.

His interest in palaeobotanical research dates back to 1954, during his student years at the Biological Faculty (at that time Faculty of Biology, Geology and Geography) of the St Kliment Ohridski University of Sofia, when he started work on his Master's thesis entitled "Palaeobotanical studies of the Palaeogene in the district of Samokov." He worked under the supervision of the eminent botanist Prof. Boris Kitanov. Already at that time Professor Palamarev showed stable and intense interest in the fossil flora of Bulgaria, and after painstaking work he brilliantly defended his Master's thesis in 1957.

In the same year he became a regular PhD student at the Institute of Botany of BAS after passing successfully a competition. In the course of three years he worked on his PhD thesis "Palaeobotanical studies in the Chukurovo Coal Basin" and after successful defence in 1961 got his PhD degree in Biological Sciences. Immediately afterwards Palamarev started work at the Institute of Botany as an Assistant Professor, rising to Associate Professor (1970) and Professor (1992). He continues to work there until present.

Forty-five years of scientific research Professor Palamarev dedicated to the Tertiary flora of Bulgaria. The results of this research are summarized in 134 papers, monographs, overviews, books, and book reviews (Supplement 1).

These are rich in information, meaningful and varied scientific publications, with persistently and comprehensively worked out interesting and topical ideas, in which have been reconstructed the composition, character and evolution of the fossil flora and vegetation in Bulgarian lands millions of years ago.

An important stage in Professor Palamarev's work was marked by his Doctor thesis "Composition, structure and basic evolutionary stages of the Miocene palaeoflora" successfully defended in 1991, which gained him the scientific degree Doctor of Biological Sciences (DSc). In this fundamental work he summarises long years of study on the stages and tendencies in the development of Miocene floras and the major types of palaeocoenoses in Bulgaria during the Badenian – Late Pontian. This work became a valuable monograph on the problems of the evolution of the floras in the entire Balkan Peninsula and was translated and published in Germany as part of the monographic series *Flora Tertiaria Mediterranea* [110]*.

In his work Professor Palamarev used classic and contemporary methods and methodological principles required in such type of studies as ichnophytological, palaeocarpological, palaeostomatographic, the method of standard palaeofloras and the method of chronoareas, morphoecological method for classification of leaves, method for determinination of the relative domination of taphocoenoses, the Lyal-Reed's dynamic principle, and the Lyal's actualistic principle. Professor Palamarev applied most of them for the first time in the palaeobotanical research in Bulgaria. He analysed the species composition of the Miocene macroflora comprising 62 local palaeofloras from different regions of the country. The palaeoflorotypes were analysed from palaeofloristic, palaeoecological, palaeocoenotic, palaeoclimatic, and phytogeographical viewpoint. He drew important conclusions about the palaeogeographical development of Bulgarian lands and outlined the major evolutionary trends in aquatic and forest vegetation during the different geological stages of the Miocene. He characterised the processes of transformation of different palaeoflorotypes and of their palaecoenoses, traced out the palaeoclimatic evolution in that part of the world during the Miocene, and identified five climatic phases characterised on the basis of palaeofloristic data. Professor Palamarev differentiated and proposed a new palaeofloristic subprovince called *Central Balkan Miocene Palaeophytochorion*. He suggested a new hypothesis for the evolution and origin of the sclerophylous dendroflora and the formation of the main xerophytic communities of the Palaeomediterranean (Tethys) type. He proposed for the first time a generalized phytostratigraphic scale of the Miocene sediments in Bulgaria.

1. Investigation of the Palaeogene floras

Professor Palamarev dedicated a number of scientific papers to the Palaeogene flora of Bulgaria. He presented and analysed new results and formulated his ideas about the development and evolution of the flora and vegetation during the Palaeogene.

1.1. Eocene floras

Professor Palamarev discovered rich deposits of charophytes in the Belene coal basin of Sliven district, dated back to the Upper Eocene (Priabonian) [10]. From that group, the author described three species and one variety new for science. He discussed the systematics of charophytes and their importance for stratigraphy and continental sedimentation.

*The literature is cited with number only in this article because of spatial reason.

A contribution to the Eocene flora of Bulgaria are his carpological studies of the Eocene coal basin in Bourgas district. He identified the distribution of 86 taxa, 48 of which were referred to as sporomorphs, and the rest as macrofossils [36]. The analysis of results showed floristic diversity, new taxa were discovered, and the remoteness in time of the fossil flora was identified. The systematic diversity helped to differentiate various ecological and coenotic components constituting the plant cover in the basin of the Bourgas Eocene. Several refugium geographic elements have been also identified, with special reference to the Indo-Malayan one. The author considered some florogenetic issues, suggesting that the link of the Eocene European flora with the contemporary coenoses from Southeast Asia reflects rather a process of reduction and localization of an ancient polychronous flora in the conditions of the foremountainous and mountainous belts of the tropic zone, than a migration process [36].

The palaeoecological investigation of the Hvoina Palaeogene sediments in the Central Rhodopes revealed that forest vegetation belonged to a transitory type [70]. The biostratigraphical analysis testified to a Late Eocene and Early Oligocene age of the sediments. Coniferous species of the same age were discovered in the Rhodopes [77], where the author described one species new for science: *Pinus palaeorhodopensis* Palamarev & Petkova. This species, as well as *Daphnogene rhodopaea* Palamarev, were discovered by him for the second time during the studies of the Palaeogene elements of the Borino-Teshel Graben in Western Rhodopes [117]. Some other new species were also found there and identified as Palaeocene-Eocene relicts in the Rhodopean palaeoflora. Generally, the vegetation type in the Borino-Teshel Graben could be determined as evergreen eotrigonobalanous-laurel forest of the hygromesophytic and mesophytic type. The geological stage of the investigated sediments was probably Early Oligocene.

1.2. Oligocene floras

Already in the early period of his scientific career Professor Palamarev took notice of the interesting Palaeogene sediments in the district of Samokov and discovered some species new for the country [2, 4]. He identified a number of exotic species, that together with the presence of correlative links with the Palaeogene floras in the neighbouring countries let him to deduce the conclusion of the geological age of the flora, referring it to the Oligocene.

Professor Palamarev analysed the palaeoflora from the Polkovnik Serafimov Graben in the Central Rhodopes from paeloecological and biostratigraphic of view and differentiated three palaeoecological groups. He revealed considerable species diversity that was characterised by a combination of some particularly important species. The sediments were dated to the Early Oligocene [93] and this was the first palaeontologically based decision about their stratigraphic level. From a florogenetic viewpoint, the investigations of the Tertiary flora in the Rhodopi Mts were a valuable contribution. They showed the role of that flora as a speciation centre on the territory of the Balkan Peninsula and as a Tertiary refugium of a number of Central European floristic elements [62, 75, 77, 78, 84, 89].

Professor Palamarev studied and analysed the lithological bodies from the entire depth of the sediments from Pernik and Bobov Dol basins. These studies fundamen-

1. With prof. Dieter Mai in the Botanical garden, Berlin-Dahlem (1995)

tally changed the idea of the sedimentation process and geological age of different horizons [102]. The outset of sedimentation was referred to the beginning of the Middle Oligocene, while the greatest depth of the layer was formed during the Upper – Early Oligocene. The obtained result broadened considerably the idea of the genesis of these basins and of the composition of their palaeoflora. A number of species new for the country were determined also, which tangibly changed the idea about their range structure and dynamics during Tertiary in Europe. The palaeoflora and palaeocoenoses revealed the development of a large-scale palaeosuccession with three phases, accompanying the changes from palaeotropic to arctotertiary and back to palaeotropic geoflora.

Palaeogene flora of the Boukovo-Mesta Graben was dated to the Late Eocene – Early Oligocene. Two groups of phytocoenoses were differentiated: hygromesophytic and semixerophytic [108].

A considerable floristic diversity was identified and analysed in the region of the Mesta Graben near Eleshnitsa village. As a result four types of palaeocoenoses were identified [107,112]. The investigated vegetation complex approached in composition and character two types of Westren and Central European floristic complexes: Hordle-Zeit and Bembridge-Spechbach. A unique deposit of palms was discovered there that probably formed almost pure coastal communities [83].

On the basis of the established diversity of fossil fern species from the Brezhan valley the author concluded that the Palaeogene flora of the region had strongly pronounced Middle Oligocene aspect [23]. The composition and ecological specificities of the flora underlined its intermediate position between typical Lower Oligocene and Upper Oligocene floras, but with a greater affinity to the Upper Oligocene. *Qurecophyllum brezanii* Rüffle & Palamarev, a species new for science was described from that region [19].

The charophytes discovered in the Palaeogene bitumens in the region of Breznik had formed in the Breznik nonmarine Palaeogene basin a palaeocoenosis that was probably characteristic for its shallow water zones [57]. On the basis of factological analysis the author dated the bitumens to Oligocene.

Jointly with Professor D. Mai, a of world-known palaeobotanist, Professor Palamarev **for the first time** in palaeobotanic literature analysed completely the composition and main evolutionary lines of *Fagaceae* in Europe in the Palaeogene from anatomical, morphological, ecological, phytogeographical, and stratigraphic

point of view. Data on about 100 European palaeofloras from various geographic regions were analysed, including 73 species from four subfamilies. A new classification of the subfamilies and genera was proposed and two species new for science were described, *Trigonobalanopsis europaea* Palamarev & Mai and *Lithocarpus palaeorhodopensis* Palamarev & Mai. The importance of four speciation centres in the evolution of the family was also ponted out [104].

In total, Professor Palamarev's studies on the Palaeogene flora of Bulgaria cover Brezhan, Smolyan, Devin, Hvoina, Samokov, Breznik, Bobov Dol, Pernik, Mesta, Belitsa, Souhostrel, and Bourgas basins.

2. Investigation of the Neogene floras

The studies of Professor Palamarev revealed a unique Neogene macroflora in Bulgaria with respect of both characteristics and composition of European importance. Many facts about the composition and character of the vegetation were elucidated and a number of species new for science were described and new species for the Neogene flora of Bulgaria were discovered [89].

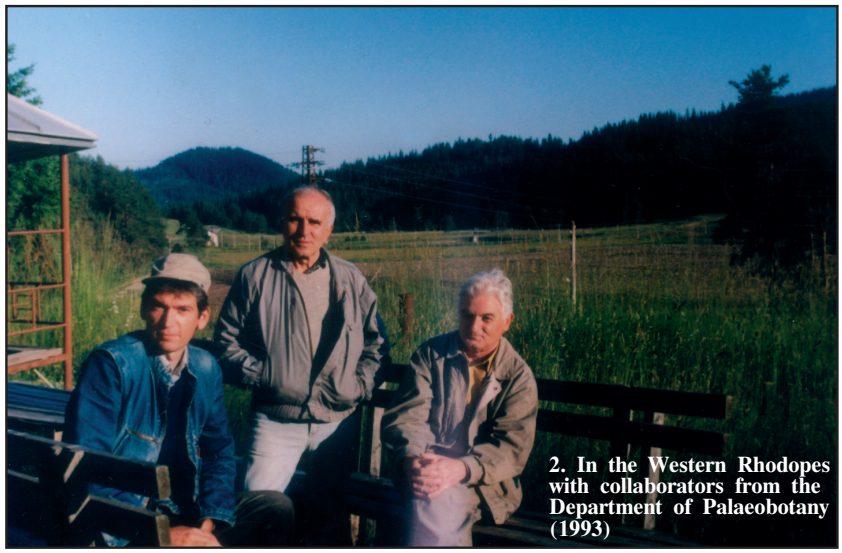
On the basis of analysis of the floristic composition, Professor Palamarev considered the problem of geochronological development of the Neogene flora in the Balkan Peninsula [13]. He identified five stages in its development and determined five macrorhythms. He found out that the vegetation complexes were determined by the climate and ecology and depended on the palaeogeographic conditions in which floras developed.

2.1. Miocene floras

The Chukurovo coal basin attracted the attention of Professor Palamarev already in the early stage of his scientific work. He dedicated a lot of time and effort to it, enriched the floristic data, and identified a number of genera and species new for the Bulgarian fossil flora [1, 11, 29, 46, 71]. The main vegetation type in the basin belonged to the mild climatic evergreen deciduous forests: the microphyllous evergreen deciduous forests.

Professor Palamarev's long years of study of the flora of the Satovcha Graben and its subsequent analysis helped to establish its role as a form- differentiating centre in the Middle Miocene and contributed to the corroboration of the hypothesis about the speciation role of the Rhodopi Mts in the Tertiary [79, 84, 94]. A diversity of coniferous taxa was discovered, including the genus *Amentotaxus* identified for the first time in the Bulgarian fossil flora [78]. The systematic composition shows that the Tertiary pines of that palaeoflora are mainly connected with the circle of affinity of the European-Canarian-Himalayan species group and to a much lesser extent with the East Asian species group.

In successful cooperation with his Polish colleagues, Professor Palamarev elucidated the Middle and Late Miocene floristic changes in the northern and southern part of the Central Paratethys [109]. The major trends in the floristic and coenotic evolution were marked. Irrespective of local floristic differences, the researchers came to the conclusion that the development of the vegetation in both regions re-



2. In the Western Rhodopes with collaborators from the Department of Palaeobotany (1993)

flected global climatic events and major palaeogeographic changes. The main trends in floristic evolution were a decrease in palaeotropical elements and an increase in arctotertiary ones.

In Southwest Bulgaria were discovered autochtonous and allochtonous fruit- and seed floras with a number of arctotertiary elements. These floristic complexes were dated to Late Miocene to Early Pliocen [88].

In a series of scientific papers Professor Palamarev reported the results from investigation on the Sarmatian flora, its composition, character and historical development [7, 67, 74, 121]. Distribution of a number of species in Bulgaria was reported for the first time and some species new for science were described. A total of 32 local macrofloras were studied, which belonged stratigraphically to the Volhynian and Bessarabian substage. Family *Fagaceae* followed by family *Lauraceae* showed greatest diversity. The results of this wide-scale research were summarized in a valuable monograph on the Sarmatian marcoflora [67].

The composition of the Melnik flora was studied and analysed. Many representatives of ferns, conifers and angiosperms from this flora were discovered for the first time in the Bulgarian fossil flora [58]. The main coenotic and ecological types in the plant cover were reconstructed and differentiated, with prevalence of hydro- and hygrophytic taphocoenoses. The quantitative and qualitative characteristics of the Melnik flora testified to its transitory character, combining features of Upper Miocene and Lower Pliocene European floras. The author came to the conclusion that the Melnik flora developed in a short period of time, which probably coincided with the Early Pontian [58].

2.2. The Pliocene floras

The macroflora of Beli Bryag coal basin was studied and facts were discovered in corroboration of an Early Pliocene development [69]. Based on the floristic composition, with the greatest species and genus diversity of *Fagaceae*, the existence

3. In South Poland with prof. M. Leşiak (1995)

of several ecological coenotic types of vegetation was discovered: hygrophyllous, hygro-hydrophyllous, mesophyllous, and xerophyllous. One species new for science, *Cyclobalanopsis stojanovii* Palamarev & Kitanov fil. [69], was described from that basin. The Pliocene flora from the Lom basin was also an object of study and a new species *Juglans kitanovii* Palamarev [85] was discovered. New taxa for the Pliocene flora are also reported from Southwestern part of Bulgaria [40].

In total, Professor Palamarev's investigations of the Neogene floras cover the following basins: Sofia, Beli Bryag, Choukourovo, Kyustendil, Melnik, Satovcha, Samokov, Maritsa, Elhovo, Vidin, Lom, Vratsa, Montana, and Pleven.

The excellent knowledge of the Palaeogene floras in Europe and the large amount of data obtained by Professor Palamarev in the course of his long years of research have allowed him to analyse the floristic, palaeoecological and biostratigraphic aspects in the development of these floras, emphasizing the most important features of the Bulgarian tertiary flora [62, 103]. In a number of papers he reported valuable information on the *history* and *evolution* of the flora and vegetation in the Tertiary not only in Bulgarian, but also in the Balkan Peninsula [61, 65, 76, 96].

Professor Palamarev is a prominent explorer of the unique and taxonomically diverse Tertiary flora. It is particularly the diversity of species newly described by him that outlined the important place of the Tertiary flora of the Rhodopi Mts in the Paneuropean flora complex [118]. The newly discovered species testified to the presence of several major speciation centres in the Palaeogene and Neogene in the region of the Rhodopi Mts. The Polkovnik Serafimov and Hvoina Grabens were particularly active speciation centers in the Palaeogene, while the Satovcha Graben was active in the Neogene. It was established that the speciation processes in the Palaeogene and Middle Miocene took place in mesophyllous evergreen and semi-evergreen forests. *Eotrigonobalanus furcinervis* was the main coenose-forming species for the entire Rhodopi Mts and was characterized by high variability [118].

The origin and Tertiary history of the Mediterranean sclerophyllous dendroflora [72] was also an object of Professor Palamarev's attention. The available palaeo-

botanic data showed presence of palaeomediterranean elements in the Middle and Late Palaeogene in Eurasia, which was of prime importance for the composition and structure of vegetation. According to the author, the development of sclerophyllous forest communities of palaeomediterranean elements was closely connected with aridification of the climate in various phases of the Neogene and, subsequently, with the so-called "Messina ecological crisis" [72]. He hypothesized that the distribution of the xerophyllous element was cyclic under the influence of climatic fluctuations.

Professor Palamarev studied in details the origin, morphology, ecology, history, and evolution of some fossil families, genera and species with important place in the Bulgarian Tertiary palaeoflora: *Tectochara* [33], *Acer* [43, 79], *Stratiotes* [44, 46], *Taiwania* u *Cunninghamia* [45], *Taxodiaceae* [65], *Populus* u *Alnus* [84], *Juglans* [85], *Fagaceae* [96, 104].

Among the contributions of Professor Palamarev to the investigation of the Tertiary fossil flora in Bulgaria, special place deserve the species *new for science* that were discovered and described by him independently, or in co-authorship with other specialists: algae, ferns, arboreous (coniferous and deciduous) and herbaceous species [8, 10, 12, 19, 29, 28, 29, 36, 41, 58, 67, 68, 69, 77, 79, 84, 85, 88, 89, 94, 97, 104, 108, 120, 133]. They amounted to **70 taxa** from 59 genera and a **new subfamily**, *Eostangerioideae* Kvaček, Palamarev & Uzunova of family *Zamiaceae* (Supplement 2). All of them demonstrate the floristic diversity and uniqueness of the Bulgarian flora which is reflected in its contemporary development. Professor Palamarev offered a number of nomenclatural and taxonomic corrections [4, 36, 41, 42, 67, 77, 82, 83, 84, 87, 94, 104, 107, 108, 117, 134]. These taxonomic contributions are very important for the European palaeobotany (Supplement 2).

Professor Palamarev discovered and reported more than 480 species new for the Bulgarian Tertiary flora, as well as others that were new for the Balkan Peninsula or Europe. This undoubtedly is a significant contribution towards revealing of the overall pattern of floristic diversity in that period.

He differentiated, typified and characterised over 55 palaeocoenotic groups of aquatic, marsh and forest plants from the Bulgarian Palaeogene and Neogene flora.

He offered a detailed scheme of the palaeosuccessive cycles and palaeoclimatic phases, which accompanied the development of Bulgarian Miocene flora. Professor Palamarev established the role of the Balkan flora and its components as an important refugium for a number of species, as well as speciation centres of essential importance for the evolution of the European flora. In this respect he showed the extremely important role of the Rhodopi Mts and the Central Balkan territory, on the basis of which a new palaeofloristic phytochorion was suggested and called by the author "*the Central Balkan Miocene subprovince*".

For the first time six palaeofloristic cycles in the historical development of biodiversity have been indentified in terms of the palaeoflora of the Balkan Peninsula, namely: Chatt-Aquitanian, Badenian-Volhynian, Bessarabian-Cherssonian, Maeothian-Middle Pontian, Late Pontian, Dacian-Middle Villafranchian.

The investigations of Professor Palamarev found a wide response in the scientific literature: they were quoted over 500 times in monographs, scientific papers and textbooks.

Another line in the creative work of Professor Palamarev was the stomatographic analysis of fossil and recent plants. The *anatomical* and *morphological* characteristics of the leaf epidermis of members of the family *Fagaceae*, which are of particular importance in the determination and investigation of the fossil representatives of the family, have provoked his scientific interest and gave rise to a series of scientific papers [59, 63, 80, 81, 86, 96]. In the course of the investigations have been used materials from the entire Balkan Penninsula, which made it possible to cover a wide range of variability of the taxa and to draw conclusions regarding the anatomical changes and evolutionary trends in the leaf epidermis of recent and fossil members of the genus *Quercus* and the entire family *Fagacea* [81, 96].

4. In front of the Institute of Botany, Kraków with prof. Felix Velichkevich (Belarus) and dr. Z. Szeląg (Poland) (1995)

3. Reviews, thematic articles and general botanical works

A specialist of vast experience and erudition, familiar in detail with the problems of Bulgarian botany, with professional and public commitment towards that science, critical and invariably reacting on the arising problems, Professor Palamarev published a series of review and thematic articles related to the biological diversity of the Bulgarian flora and vegetation, its importance and protection [98, 124], the achievments, the present and future of Bulgarian botany [90, 95, 106, 119], the contributions and creative ideas of Bulgarian botanists [91], and the problems and tasks of palaeobotanical research in the country [15, 17, 31].

Professor Palamarev took part in the preparation and publication of the *Atlas of Plants in Bulgaria*, which underwent two editions [73, 92]. The Atlas is a major and valuable aid for students and teachers in biology that helps them to acquain with the Bulgarian flora. He worked out the tree species in the bulgarian flora for the purposes of the book *How to Identify the Plants in Our Nature. Excursion guide* [101], which brought him the *award of the Bulgarian Academy of Sciences in the field of popularization of science* for 2000. He analysed the main stages in the development of the flora and vegetation during the all geohistorical stages for *Geography of Bulgaria,* which underwent three editions [60, 100, 123].

An excellent expert on the dendroflora, he took part in the elaboration of a number of families and genera with tree representatives for the purposes of the *Flora of the Republic of Bulgaria* [21, 26, 47, 48, 49, 50, 51, 52, 53, 54, 55], including the families *Ulmaceae*, *Cornaceae*, *Aceraceae*, *Anacardiaceae,* etc. He is author of the palaeobotanical data on the families and genera included in that publication.

4. Popular science works and translations

In 14 popular science articles and books Professor Palamarev has skilfully and in an entertaining and intriguing way presented interesting facts for the history of the flora and vegetation, and for some rare plants in Bulgaria (Supplement 1).

Credit for the translation from German into Bulgarian of three books dedicated to the Bulgarian botanical literature goes to him (Supplement 1).

5. Teaching activities

A scholar of remrkable biological culture and knowledge, Professor Palamarev is a much-sought lecturer by the higher education institutions in the country. He read lectures on *Fundamentals of Palaeobotany* (1973-2002) and *Evolution and Phylogeny of Plants* (1998-2002) at the Department of Botany of the St Kliment Ohridski University of Sofia, and on *Evolution and Phylogeny of Plants* at the Department of Botany of the Paissy Hilendarski University of Plovdiv (1995-1998).

He also supervised the work of a number of graduate and PhD students, who successfully defended their theses.

Professor Palamarev taught as visiting professor at the University of Frankfurt-on-Main, Germany (1996), the University of Tübingen, (1996), and the Humboldt University in Berlin (1996).

He participated at 15 international symposia and congresses, mostly at the invitation of the organizers to present plenary lectures.

Undoubtedly, his specializations at prominent German institutes have contributed greatly to his high professionalism: in 1963 at the Department of Palaeobotany of the German Academy of Sciences (Berlin) and in 1967-1968 at the Institute of Palaeontology of the University of Bonn with a Humboldt Fellowship.

6. Administrative work

In the course of 14 years Professor Palamarev has been of the head of the Palaeobotany and Pollen Analysis Department (1989-2003) and was Scientific Secretary of the Institute of Botany (1989-1993). For ten years (1993-2003) he has been Director of the Institute of Botany of BAS. Under his scientific and administrative guidance the Institute advanced in its scientific work and achieved considerable successes. In spite of the difficulties, he managed to restructure the Institute and to direct its research activities in line with the requirements of the European and world science. Throughout the years he has followed persistently his programme for the development of the human resources, for attraction of young and reliable scholars to the field of botany. During that period, with his undeniable prestige of scholar, administrator and person, he has contributed to enhancing the Institute's prestige and imposed a behaviour of collegiate tolerance, thus ensuring a good creative atmosphere which is so necessary for a successful work.

7. Participation in scientific and editorial boards, national and international commissions, organizations and projects

Professor Palamarev is the founder and organizer of the international journal *Phytologia Balcanica* and its Editor in Chief since its foundation in 1995. He also was member of the Editorial Board of the periodicals *Proceedings of the Institute of Botany* (1973-1974) and *Fitologija* (1975-1995) and Editor in Chief of the latter (1996).

5. The President of the Bulgarian Academy of Sciences Acad. I. Juhnovski bestows on Prof. E. Palamarev the award *Marin Drinov on ribbon* decoration (24.04.2003).

Professor Palamarev is the chairman of the Scientific Council at the Institute of Botany (1994 – until present) and was Chairman of the Specialised Scientific Council for Structural and Functional Botany (1994-1995). He is members of the Specialised Scientific Council of Botany and Micology with the Higher Attestation Commission, the Scientific Council of the Forestry Institute of BAS, the Specialised Scientific Council of Forestry Research with the Higher Attestation Commission, the Medical and Biological Commission with the Higher Attestation Commission, the Commission on Biology of Organisms at the National Council for Scientific Research with the Ministry of Education and Science, the Management Board of the National Council for Scientific Research with the Ministry of Education and Science, the National Scientific Coordination Council for Biodiversity with the Management Board of BAS, the National Council for the Environment with the Ministry of Environment and Waters, the National Council for Biological Sciences with the Management Board of BAS, and the Expert Council for Publications of BAS.

Professor Palamarev is also member of the International Organization of Palaeobotany, Bulgarian Botanical Society, Bulgarian Phytosociological Society, and the Union of Scientists in Bulgaria. He was honoured as a honourable member of Bulgarian Botanical Society (2003).

He organized, headed and participated in a number of national and international scientific projects (Supplement 3). He received a Diploma of the Ministry of Education and Science for "*considerable achievments in elaboration of the scientific project during 1997-2000"*. He was also awarded by the Bulgarian Academy of Sciences with an Honours Badge for active scientific research (1973).

For his contribution to Bulgarian science Professor Palamarev was awarded THE MARIN DRINOV ON RIBBON decoration of Honour of the Bulgarian Academy of Sciences, the most prestigious award, bestowed on him by the President of BAS, Academician I. Yuhnovski, at the official honouring of Professor Palamarev's 70th anniversary. Along with this, Professor Palamarev enjoyed the highest award from his colleagues and associates: respect, acknowledgment and gratitude for his long years of work.

Seventy years of worthy and complete life, a road of confident advancement, often accompanied with many difficulties, is marked by the tangible presence in Bulgarian botanical science of Professor Palamarev, who still continues his creative work.

We wish him health and believe that he will continue to take an active part and be a corrective in the scientific life of the Institute, and that we could rely on his selfless support in moments of need.

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Supplement 1

Publications of Prof. Dr E. Palamarev: 1960–2003

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2. **ПАЛАМАРЕВ, Е**. 1961. Материали по проучване на терциерната флора от Самоковско. [Materials on the study of Tertiary flora in Samokov region.] – Изв. Бот. инст., БАН, **8:** 175-208 (in Bulgarian with summaries in German and Russian).
3. **ПАЛАМАРЕВ, Е**. 1962. Върху *Castanopsis furcinervis* (Rossm.) Kr. et Wld. в палеогена на България. [On *Castanopsis furcinervis* (Rossm.) Kr. et Wld. in the Bulgarian Palaeogene.] – Изв. Бот. инст., БАН, **9:** 161-176 (in Bulgarian with summaries in German and Russian).
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13. **Паламарев, Е**. 1992. Живот, отдаден на науката. (По случай 80-тия рожден ден на проф. Б. Китанов.) [A life devoted to science. (On the occasion of the 80th birthday of prof. B. Kitanov.)] – Биология, **3:** 49-54 (in Bulgarian).
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Translator's activity *(from German to Bulgarian language)*

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2. Енгелман, М. 1994. Растения, богословени от бога. [Engelmann, M. 1987. Heilende Kräfte aus der Natur (Pflanzen, gesegnet von Gott). Verlag W. Ennsthaler, Steyer, Austria.] С., Бонкомерс, 66 с.
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New taxa described and new combinations made by prof. E. Palamarev (independently or in coauthorship)

New taxa

I. CHAROPHYTA

1. *Chara palaeobalcanica* KITANOV & PALAMAREV, 1963 (**10**: 5)*
2. *Chara palaeobalcanica* KITANOV & PALAMAREV *var. major* KITANOV & PALAMAREV, 1963 (**10**: 5)
3. *Chara palaeofoetida* KITANOV & PALAMAREV, 1963 (**10**: 6)
4. *Sphaerochara bulgarica* KITANOV & PALAMAREV, 1963 (**10**: 4))

II. POLYPODIOPHYTA

5. *Blechnum palaeorhopaeum* PALAMAREV, in coll.
6. *Gleichenia rhodopaea* PALAMAREV & PETKOVA, 1990 (**75**: 11)

III. PINOPHYTA

7. *Angiopteris ruzinciniana* PALAMAREV, PETKOVA & USUNOVA, 1975 (**41**: 25)
8. *Pinus palaeorhodopensis* PALAMAREV & PETKOVA, 1991 (**77**: 24)
9. *Sequoiadendron breviauriculatum* PALAMAREV, 1994 (**89**: 23)

IV. MAGNOLIOPHYTA

10. *Acer protohyrcanum* PALAMAREV & BOZUKOV, 1992 (**79**: 68)
11. *Adinandra palaeorhodopaea* PALAMAREV & BOZUKOV, 1995 (**94**: 179)
12. *Alnus palaeorhodopaea* BOZUKOV & PALAMAREV, 1992 (**84**: 15)
13. *Apocynophyllum rauwolfoideum* PALAMAREV, in coll.
14. *Broussonetia intermedia* PALAMAREV, 1987 (**67**: 59)
15. *Caesalpinites inaequalis* PALAMAREV & PETKOVA, 1987 (**67**: 117)
16. *Celastrophyllum mirabile* PALAMAREV & PETKOVA, 1975 (**42**: 213)
17. *Celtis praebalcanica* PALAMAREV, in press (**133**:)
18. *Ceratophyllum balcanicum* Palamarev, 1982 (**58**: 11)
19. *Cercidiphyllum macrophyllum* PALAMAREV & PETKOVA, 1987 (**65**: 50)
20. *Cladiocarya maxima* MAI & PALAMAREV, 1997 (**97**: 493)
21. *Cladium quinquesulcatum* PALAMAREV, 1994 (**88**: 149)
22. *Corylopsis palaeorhodopensis* PALAMAREV, 1994 (**89**: 23)
23. *Cotinus orbiculatus* (HEER) BUDANTSEV *var. microphyllus* PALAMAREV, KITANOV fil. & BOZUKOV, 1999 (**108**: 34)
24. *Crataegus integrifolia* PALAMAREV, 1966 (**20**: 61)
25. *Cyclobalanopsis stojanovii* PALAMAREV & KITANOV fil., 1988 (**69**: 191)
26. *Daphne schweitzeri* PALAMAREV, 1994 (**88**: 141)
27. *Daphnogene rhodopaea* PALAMAREV, 1975 (**42**: 209)
28. *Decodon triangularis* PALAMAREV, 1987 (**67**: 118)
29. *Dodonaea salicoides* ANDREÁNSZKY *var. multinervis* PALAMAREV, 1963 (**8**: 80)
30. *Eriophorum sarmaticum* PALAMAREV, 1987 (**67**: 151)
31. *Eurya angularis* PALAMAREV, 1987 (**67**: 92)
32. *Gordonia praecox* PALAMAREV, in coll.
33. *Gordonia stefanovii* PALAMAREV & BOZUKOV, 1995 (**94**: 183)
34. *Hartia palaeorhodopensis* BOZUKOV & PALAMAREV, 1995 (**94**: 185)
35. *Hartia serafimovii* PALAMAREV, in coll.
36. *Hyndrangea palaeopirinica* PALAMAREV, 1966 (**20**: 61)
37. *Juglans kitanovii* PALAMAREV, 1993 (**85**: 301)
38. *Kadsura palaeorhodopaea* PALAMAREV, in coll.

* The paper number and a page where the taxon was originally described.

39. *Kadsura singularis* Palamarev & Petkova, 1987 (**67**: 33)
40. *Lithocarpus palaeobalcanica* Palamarev & Petkova, 1987 (**67**: 67)
41. *Lithocarpus palaeorhodopensis* Palamarev & Mai, 1998 (**104**: 237)
42. *Litsea attenuatfolia* Palamarev, in coll.
43. *Lychnis slavotinica* Palamarev, 1987 (**67**: 91)
44. *Matudaea palaeobalcanica* Palamarev & Petkova, 1987 (**67**: 51)
45. *Meliosma pakelskoi* Palamarev, in coll.
46. *Michelia palaeobalcanica* Palamarev, 1973 (**36**: 77)
47. *Myrsine rhodopaea* Palamarev, in coll.
48. *Myrtus palaeomestensis* Palamarev, Kitanof fil. & Bozukov, 1999 (**108**: 34)
49. *Ocotea oblanceolata* Palamarev & Petkova, 1987 (**67**: 37)
50. *Omalanthus paraeuxinus* Palamarev, 1973 (**36**: 86)
51. *Pasaniopis protobalcanica* Palamarev, in coll.
52. *Passiflora kirchheimeri* Mai *subsp. bulgarica* Palamarev, 1971 (**29**: 156)
53. *Persea multinervis* Palamarev, in coll.
54. *Persea protobalcanica* Palamarev, 2001 (**117**: 282)
55. *Platanus rhodopensis* Palamarev, in coll.
56. *Platycarya palaeostrobilacea* Palamarev, 1964 (**12**: 129)
57. *Prunus attenuatifolia* Palamarev & Petkova, 1987 (**67**: 111)
58. *Quercophyllum brezanii* Palamarev & Rüffle , 1965 (**19**: 149)
59. *Rubus mucronatus* Palamarev, 1987 (**67**: 109)
60. *Schefflera chandlerae* Palamarev, 1988 (**68**: 97)
61. *Skimmia tortonica* Palamarev & Usunova, 1970 (**28**: 835)
62. *Stewartia praemonodelpha* Palamarev, in coll.
63. *Stewartia stefanovii* Palamarev & Bozukov, 1995 (**94**: 185)
64. *Stratiodes suborbiculatus* Palamarev , 1979 (**46**: 17)
65. *Stratiodes tuberculatus* E. Reid *var. curvicarinatus* Palamarev, 1979 (**46**: 11)
66. *Stratiotes acutispermus* Palamarev, 1994 (**88**: 147)
67. *Stratiotes hantonensis* Chandler *var. bulgaricus* Palamarev, 1979 (**46**: 13)
68. *Symplocos brezanii* Palamarev, 1966 (**20**: 60)
69. *Trigonobalanopsis europaea* Palamarev & Mai, 1998 (**104**: 235)
70. *Viburnum cukurovense* Palamarev, 1971 (**29**: 159)
71. Subfam. *Eostangerioideae* Z. Kvaček, Palamarev & Uzunova, 2001 (**120**: 184)

New combinations

1. *Berberis berberidifolia* (Heer) Palamarev & Petkova, 1987 (**67**: 47)
2. *Brassaiopsis jatrophaefolia* (Unger) Palamarev & Petkova, 1987 (**67**: 128
3. *Caricoidea johnstrupii* (Hartz) Palamarev, 1987 (**67**: 152)
4. *Cassiohyllum ambiguum* (Unger) Palamarev, Kitanov fil. & Bozukov, 1999 (**108**: 37)
5. *Cedrela attica* (Unger) Palamarev & Petkova, 1987 (**67**: 119)
6. *Celastrophyllum andromedae* (Unger) Palamarev, Kitanov fil. Bozukov & Staneva,1999 (**107**: 17)
7. *Cyclosusrus dalmaticus* (A. Braun) Palamarev & Petkova , 1975 (**42**: 216)
8. *Dryophyllum intermedium* (Friedrich) Palamarev & Mai, 1998 (**104**: 241)
9. *Eostangeria ruzinciniana* (Palamarev, Petkova & Usunova) Palamarev & Usunova, 1992 (**82**: 288)
10. *Eotrigonobalanus sprengelii* (Heer) Palamarev & Mai, 1998 (**104**: 244)
11. *Gordonia hradekensis* (Kvaček & Walther) Bozukov & Palamarev, 1995 (**94**: 182)
12. *Lindsaea freyeri* (Unger) Palamarev & Petkova, 1975 (**41**: 30)
13. *Neolitsea apicifolia* (Saporta & Marion) Palamarev, 2001 (**117**: 281)
14. *Nitellopsis palaeobalcanica* (Kitanov & Palamarav) Palamarev, in press (**134**:)
15. *Pasaniopsis debilinervis* (Andreánszky & Kovács) Palamarev & Mai, 1998 (**104**: 245)
16. *Pasaniopsis decurrens* (Andreánszky & Kovács) Palamarev & Mai, 1998 (**104**: 246)
17. *Pasaniopsis moluccoides* (Andreánszky & Kovács) Palamarev & Mai, 1998 (**104**: 245)
18. *Pasaniopsis palaeotruncata* (Andreánszky & Kovács) Palamarev & Mai, 1998 (**104**: 245)
19. *Pasaniopsis vittata* (Saporta & Marion) Palamarev & Mai, 1998 (**104**: 246)
20. *Pinus palaeoeuropaea* (Unger) Palamarev & Petkova, 1991 (**77**: 24)
21. *Pinus palaeopinaster* (Friedrich) Palamarev, 1962 (**4**: 15)

22. *Pleiomeris formosa* (Heer) Palamarev & Petkova, 1987 (**67**: 105)
23. *Populus balsamoides* Goeppert *f. jarmolenkoi* (Iljinskaja) Bozukov & Palamarev, 1992 (**84**: 12)
24. *Sobal longirachis* (Unger) Palamarev, Petkova & Gogov, 1992 (**83**: 4)
25. *Thevetia sophiae* (Weber) Palamarev & Petkova, 1994 (**87**: 41)
26. *Ushia diplodon* (Saporta & Marion) Palamarev & Mai, 1998 (**104**: 234)
27. *Zanthoxylum bognorense* (Chandler) Palamarev, 1973 (**36**: 87)
28. *Zanthoxylum rugosum* (Chandler) Palamarev, 1973 (**36**: 87)

Supplement 3

Participation of prof. E. Palamarev in Internatioanal and National Scientific Projects

İ. International Projects

I.1. *Head of the Projects:*

1. Family *Fagaceae* in Europe during the Palaeogene – biodiversity and basic lines of evolution – Foundation A. von Humboldt (1996–1998).
2. Correlation of the Tertiary floras of Bulgaria and Poland. – International agreement between BAS and PAN, № 5 (1996–2001).

I.2. *Participant of the Projects:*

3. Palaeogeographic and palaeoecological evolution of the Paratethys basins in the Neogene and its correlation on a global biostratigrarphic scale. – UNESCO project № 329 (1991–1996).
4. Global biological events in the Earth history. – UNESCO Project № 216 (1994–1997).
5. Climatic evolution in Eurasia during the Neogene. – DFG Project (1990–2004).
6. Dynamic of the environment and ecosystems in Eurasia during the Neogene. – ESF Project (2001–2004).

II. National and Academic Projects

II.1. *Head of the Projects*

7. Studies of the fossil flora of Bourgas Coal Eocene. – Academic Project (1972–1974).
8. Studies of the fossil Palaeogene flora of Brezhan Coal Basin. – Academic Project (1976–1979).
9. Studies of the composition, structure, palaeoecology and evolutionary trends of the Neogene flora in West Bulgaria. – NFSI Project B-2 (1991–1994).
10. Palaeobotanical study of the Neogene sediments from the Satovcha Graben. – Academic Project (1993–1996).
11. Comparative taxonomic, palaeoecological and biostratigraphic analysis of the palaeofloras from the Pernik and Bobov Dol Tertiary basins. – NFSI Project № 403 (1994–1997).
12. The flora from the Polkovnik Serafimov Graben in the Central Rhodopes and its biostratigraphic importance. – Academic Project (1995–1996).
13. Comprehensive palaeobotanical and palynological studies of the Rhodopi Mts as an important speciation centre and refugium of Tertiary and Quaternary floras in the Balkan Peninsula. – NSF Project № 701(1998–2001).
14. Composition and evolutionary trends of *Fagaceae* in Bulgaria during the Neogene. – Academic Project (1998–2002)

II.2. *Participant of the Projects:*

15. Analyze of the postalpine basins in Bulgaria and neighbouring countries – stratigraphy, palaeogeography and correlation of the Neogene in Bulgaria – NFSI Project NZ-235 (1992–1995).
16. Biodiversity in the Toundzha and Karlovo basins – species composition, palaeoecolgy and evolutionary trends. – NSF Project № 1101 (2001–2004).