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a Quercetum lanuginosae (with scattered *Fagus, Quercus cerris, Quercus sessilis).* Analogous examples Mikyška gives from the eruptive rocks (mostly andesites) in the Štiavnické Středohoří Mts. where, however, *Quercus robur* is the dominant tree.

From a sociological standpoint, we may distinguish in this category besides the sociations already described (as for instance *Oxalis-Galeobdolon, Luzula nemorosa* sociations) especially the following:

1. *Majanthemum sociation.*
2. *Festuca ovina — Luzula nemorosa sociation* (see p. 141).
3. *Myrtillus-Homogyne sociation,* to the Sudetic-Hercynian facies of which two variants belong, namely *Struthiopteris spicant* and *Calamagrostis villosa* described by Zlatník from the Krkonoše Mts. and besides also Western Carpathian and Eastern Carpathian facies, regionally specific species of the latter are *Aposeris foetida, Hieracium transsilvanicum, Campanula abietina.*
4. *Calamagrostis villosa sociation,* as for instance described from the Krkonoše Mts. by Zlatník.

XIV. Spore plants.

In typical beech forests, the ground is wholly or practically destitute of mosses. We find them, however, on the roots, trunks, and stumps of beeches and not seldom even on stones where the soil is stony. Likewise the humid to damp beech communities are sometimes mossy (see p. 117) as may also be the «spruce» types of spurious beech forests. The epiphytic vegetation of mosses, lichens, and algae however, is usually very interesting and has been in some regions of Bohemia thoroughly studied by A. Hilitzer (2) who deals in great detail also with the ecological factors and distinguishes many sociations, some of which are specific for the beech. As far as the local distribution of these sociations on the trunk itself is concerned, we find on the beech usually on the trunk base the sociations *Pyrenula nitida, Thelotrema lepadinum* or *Pertusaria amara,* in the middle part of the trunk *Parmelia saxatilis* sociation, and on the upper part the *Evernia prunastri* sociation. Sometimes we notice on the base a differentiation of moss and lichen sociations, for instance on beech roots the sociation *Isothecium myurum* or *Pteriginandrum filiforme,* on the trunk base *Thelotrema lepadinum* or

Graphis scripta sociation, in the middle part of the trunk *Parmelia saxatilis* or *Cetraria glauca* sociation, in the upper part *Alectoria jubata* sociation.

In the most simple case, there is on the trunk only one epiphytic sociation and that of indifferent sociations *Parmelia physodes* or *Protococcus viridis*, of sociations characteristic for the beech *Lecanora subfusca* + *Phlyctis* or *Parmelia saxatilis*. Sometimes the epiphytic vegetation is restricted to only one side of the trunk, in other instances it is on both sides, in which case at the same height the following diferentiation may be observed.

Fagus

Exposed side: sociation	Protected side: sociation
Parmelia physodes	*Algae*
Parmelia saxatilis	*Lecidea parasema*
Cetraria glauca	*Lecanora subfasca*
Lobaria pulmonaria	*Parmelia sulcata*
Pyrenula nitida	*Trentepohlia.*

As examples of differentiation of the epiphytic sociations on beech Hilitzer gives the following:

1. *Beeches in the virgin forest of Boubín in the Šumava Mts.*
base: *Isothecium myurum* sociation;
lower part of trunk and protected side of the middle part: *Thelotrema lepadinum* sociation;
middle part of trunk, exposed side: *Lobaria pulmonaria* sociation;
upper part of trunk: *Parmelia saxatilis* sociation;
branches: *Alectoria jubata* sociation.

2. *Beeches in an old beech forest near Kdyně in Český Les Mts.*
base: *Dicranum longifolium* sociation;
lower part of trunk: *Pyrenula nitida* sociation;
upper part of trunk, exposed side: *Parmelia saxatilis* sociation;
upper part of trunk, protected side: *Lecanora subfusca.*

As a typical succession of the epiphytic sociations in the pure beech forests, Hilitzer gives this scheme:

Base	Exposed side	Protected side
Parmeliopsis ambigua mosses	*Lecanora subfusca-Phlyctis Parmelia saxatilis* mosses and *Lobaria*	*Lecanora-Phlyctis Parmelia saxatilis*

In his paper on the beech forests in the neighbourhood of Kdyně, Hilitzer (1) describes in detail the epiphytic vegetation of mosses and lichens and distinguishes 21 sociations as accompanying sociations of beech forests.

Very characteristic and different from that of the spruce forests is the mycoflora of the beech forests, especially as regards *Hymenomycetineae*. Numerous contributions on the fungi of our beech forests have been published, but notwithstanding, it is not possible at present to make a sociological analysis of the beech forest mycoflora of the whole state.

XV. Exclusive species of beech forests.

Beech forests are one of the rather exceptional communities in which we may perhaps distinguish faithful (exclusive) species, although even here the number of the absolutely exclusive species is insignificant when taking the whole Czechoslovak republic into consideration. Under special conditions, many beech forest species go over also into other sociations, however, avoid spruce forests with acid soils; many are at home in mixed spruce forests with fir, maple, and beech. Many species, and even whole communities, especially Caricetum pilosae and Melicetum uniflorae, penetrate beyond the limits of beech forests into mixed oak and hornbeam forests. Nevertheless, a rather great number of species is more or less confined to beech forests and these species may by therefore designated as beech forest species. With regard to the whole territory of our state, we can classify these species into three categories according to their more or less frequent occurence outside of the beech forests. The exclusive species of the beech forests are given in the first group.

A. Especially characteristic beech forest species.

Asperula odorata (generally in our beech forests, on all kinds of geological substrata, from foothills up to the mountain region).