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constancy of these species. For the submontane belt the ecological interpretation of the associations was primarily related to the water and nutrient supply (or soil-acidity) of the sites. The differences in water- and nutrient-supply can be referred mainly to parent material of the soils and to topography.

Measurements of the height of dominant and codominant trees showed that the rate of growth of spruce (*Picea abies*), fir (*Abies alba*) and beech (*Fagus silvatica*) in the research area depends largely on the water-supply and somewhat less on nutrition or soil acidity. The growth-rate of scotch pine (*Pinus silvestris*), however, was affected much less by these factors. In most associations, fir showed the greatest growth-rate of all tree-species.

Forest mapping according to the method of E. Schmid in the Suhren-Valley of the Canton of Aargau, Switzerland

By Alfred Saxer

By the method of E. SCHMID, vegetation is divided into vegetation belts by grouping species with similar area of natural distribution. These belts are subdivided into biocoenoses resp. phytocenoses, when—as in this paper—only higher forms of plant life and no animals are considered. Also mixed plant communities of more than one vegetation belt can be called phytocenoses as long as they are consolidated. This consolidation, of course, is not complete in our country, because there are relics of formerly existing belts, the flora is impoverished and human influence is remarkable.

In the examined area, the region of Moosleerau, Kirchleerau and Schöftland, Canton of Aargau, phytocenoses are characterised by species of groups which are typical of a certain belt and by various accompanying species. In tropical rain forests they would be characterized only by a certain combination of "growth forms" (life forms). These growth forms, which are hereditary, may also be used to specify phytocenoses. In addition to these growth forms, "representation forms" (individual forms, i.e. modifications caused by the site), may give important indications of the habitat, especially to the forester. The representation form of each species may be accurately judged in comparing the adult plants (in our examination they were not used because of special reasons explained in the original paper.) Site factors, such as soil, climate, human influence, may be analysed, when necessary.

In our vegetation surveys it is shown to which vegetation belt and to which growth form every taxon belongs. Tables show the symbols for the growth forms and their individual character.

The 12 phytocenoses occuring in the mapped area are described in detail, especially their floristical composition. They all belong to the *Fagus-Abies*-belt, though there is remarkable influence of the *Quercus-Tilia-Acer*-mixed deciduous forest-belt on the sites which are warm and rich in Calcium carbonate. The amount of species of the *Quercus robur-Calluna*-belt is higher on extremely acid sites on molasse. The influence of the *Picea*-belt is restricted to the highest elevations, but even there it is hardly detectable.

The percentage of species of these different belts and the growth forms give additional properties for the phytocenoses. Some "growth form spectra" are demonstrated with their growth form symbols. They enable us to compare easily the different phytocenoses.

As is usual in the method of E. SCHMID, the vegetation map shows the phytocenoses with the conventional colours of the chiefly occuring vegetation belts. A second (or third) colour is added in stripes when a second (or third) belt is strongly participating. As there are usually more than one phytocenosis in the same belt, they are indicated by letters. The uniformity of the colours on all the maps of E. SCHMID has the great advantage of giving a quick idea of the presented vegetation and how the vegetation belts are distributed in the region.

Further signs reflect the presence of some cultivated and favoured tree species. White stripes symbolize stronger human influence on forest vegetation. This enables us to distinguish immediately between "natural forest", "near-natural" and "artificial forest".

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