

# FRUIT TREE IN TRANSFORMATIONS OF THE LANDSCAPE CHARACTER\*

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One of the basic methodological approaches to complex landscape territorial solutions of rural landscape is considering their present landscape and the development of new authenticity (genius loci) or landscape character. In conditions of the Czech Republic this aspect is particularly important, because it is much variable and structurally broken territory regarding the nature, economy, culture and social aspects. In the system of these values fruit woody plants are of special significance for their frequency and variability of forms. An initial methodological approach of work is generalisation of selected historical forms of pomology from aspect of their impact to the landscape character. The result of the work is to define basic pomological forms that can be applied sense of the landscape character in the complex landscape plan. The basic methodological approach is a conception of landscape character in its dynamic, i.e. creative position that is like creation of new values based on the knowledge of the past values. Topicality of the study is given by the fact that from the second half of the 20<sup>th</sup> century gradual termination in the major part of original cultivation in association with intensification of fruit-growing planting, growth of globalisation and gradual re-evaluation of functional utilisation and landscape arrangement occurred.

rural landscape; landscape planning; orchard; garden; alley

## INTRODUCTION

The task of the fruit tree as a typical component of the Czech rural landscape during its whole present development is considered almost exclusively in light of fruit production (Němec, 1995). Types of fruit plantings corresponded to this evaluation together with their cultivation technologies, assortment structure and origin of the number of more or less important fruit-growing regions (Kamenický, 1933; Rejzek, 1957). Rich variability of fruit-growing forms gradually forming in the long history of development became one of the most significant basic values of landscape character (Löw, Michal, 2003; Šýkora, 1998). Besides the economic meaning a fruit tree became step by step a part of the national culture and certain symbol of "Czechoslovak" landscape (Kocourková, 1974; Šýkora, 1998; Žák, 1947). The second half of the 19<sup>th</sup> and the first half of the 20<sup>th</sup> century can be considered the top period of this development.

The second half of the 20<sup>th</sup> century is associated with a lot of new economic and social facts that required the change in views on application of fruit-tree plantings in the present landscape (Smetáček, 1953). It was a shift from the present dominant extensive plantings and their gradual replacement by intensive plantings of plantation type, intensification of agricultural production and growth of traffic reducing traditional systems of fruit-growing alleys, etc. Increased demand for living values of the landscape character (Day, 2004; Žák, 1947), intensification of landscape ecological concepts (Löw et al., 1995), development of the above-department all-society aspects on

functionality of landscape, and growing tendency of creative concept of economically exploited landscape by the forms of agro-design and LAND ART methods become new facts requiring less the so-called productive and less polyfunctional permanent vegetation systems (Kyselka et al., 1987; Vorel et al., 2003). Complex landscape view at parallel wider landscape functionality of current landscape functions in fruit-growing plantings has not yet been processed in the Czech Republic. Rich landscape tradition of fruit-growing is now limited only by maintenance of gene pool of older fruit-tree varieties. The subject of solution is summary of existing pomological forms and their traditional relationship to landscape character of the Czech countryside and determination of general principles for use of fruit trees in present landscape associations and structures.

## MATERIAL AND METHODS

Evaluation of fruit trees in view of their value or function in landscape character was materialised particularly within regions of Central Bohemia, East Bohemia, Northern Bohemia and Southern Moravia. Cultivation types of plantings, their spatial arrangement, assortment structure and relationship to economic, ecological and cultural and social conditions were evaluated, mainly at the turn of the 20<sup>th</sup> and 21<sup>st</sup> centuries. The study used basic materials from investigators of works from the years 1954 to 2006, contemporary statistical data and local archives of different villages. The data were processed in the form of commented photo-documentation, graphical and map sources

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Photo 1. A decisive influence of large orchards, adjacent alleys and small fruit groves on relationship of rural settlement to its landscape environment. Origin of landscape character in wider spatial associations (Ježov, 2004)



Photo 2. Shape, texture and colour of fruit trees form a perfect measuring unit and one of the basic values of the detail of landscape character of the Czech village together with traditional rural architecture (village square, Odřepey, 1970)



Photo 3. Fading original richness of fruit alleys created not only pleasant scale and peculiar "interior" of roads as well as a sensation of profuse hospitality, richness and consolidating character of agricultural landscape (apple trees, Mladá Boleslav region)

and at present the issue is developed on the level of two doctoral dissertation theses. They include initial evaluation of fading state at the turn of the 19<sup>th</sup> and 20<sup>th</sup> centuries that is a general foundation for proposed solution and prospect of further development and use of landscape character in the present scenery.

**Starting general values of fruit-growing species and their compositions in the landscape character at the turn of the 19<sup>th</sup> and 20<sup>th</sup> centuries (Photos 1–4, Figs 1–2)**

- Significant presence, i.e. landscape dispersity of different types of fruit tree plantings in majority of evaluated territory. It followed from traditional small-scale forms of management and became one of the basic characters of identity of Czech landscape and its genius loci.
- Great diversity of types of fruit tree plantings and their mutual compositions. A system of spatially wide rural orchards was created full of different types of orchards, system of accompanying plantings near approach roads, influent streams and boundaries of land possession.
- Compositional unity in wide landscape area was created in the form of replication of analogous shapes, textures and colourfulness of fruit trees, habitual and measuring values of majority of fruit tree species with slightly dissected terrain of greater part of the territory of the Czech Republic.
- Considerable, optically perceived variability during four seasons (flower, fruits, autumn coloration etc.), intensified by typically wide variety assortment. The set of these values put the finishing touches to the local identity of the territory and "emotional warmth" of the landscape as a whole and then particularly their partial localities that are significantly important for the landscape character.
- Distinct local representation of certain species, varieties and floricultural forms of fruit trees created a typical character of wider territorial units. Therefore, in consistent evaluation or formation of the landscape character not only "a fruit tree" cannot be considered but also a species, variety and the form of cultivation.
- Pomological hospitability of the Czech landscape was given by a great share of alley plantings and non-fenced orchards.
- Ecological activities in the form of the system of interactive vegetation elements. This landscape value was given by the frequency of these plantings, their dispersion in the landscape and typical spatial (line) associa-



tions of fruit-growing alleys with accompanying belt grass growths.

- Social values of fruit tree manifesting in the generally positive to personal relationship of the Czech inhabitants to fruit-growing management at all. It is a significant and for us typical cultural value that creates one of the bases of civil perception of landscape character.

## RESULTS AND DISCUSSION

In presupposed concept of further development of rural residences and their landscape environment with respecting original and further development of present landscape character the following forms of use of fruit trees can be particularly supposed.

### Rural orchards

*Basic values of landscape character:*

The widest formation of vegetation, reaching usually 50–60% of area in rural settlements of urban area. Spatial and ground plan connection with consistent sequence on ground type of a village, height level is adequate to present single-floored and double-floored buildings.

*Possibilities of present application:*

Maintenance of large-area garden plots and spatial solidarity with historical district of the village. Use of lower intensive and high-stem plantings in connection with traditionally height and weight graduated outline and image of the village. Inspiration of creative and dwelling concept should be in assortment and functional sense should start from local habits and forms of folk landscaping.

### Public areas of rural settlements

*Basic values of landscape character:*

High-stemmed fruit-growing trees with representation of species resistant to technical interventions correspond to intensive forms of operational utilisation of village squares and public approach roads – pear tree, walnut tree, cherry tree, and apple tree. Frequently grass-covered or line plantings on wider village squares of fruit-growing regions. Fruit trees growing simultaneously in orchards and adjacent public areas forming the compositional belonging of the whole space of a village, significant scale harmony with connecting built-up area.

*Possibilities of present use:*

Marked suppression of original economic operation on public areas here opens new possibilities particularly for their social utilisation where park arrangements may be stylishly solved by a suitable form. Fruit-growing genius loci of old village squares can be stylised using solitaire groups of ornamental species in great grassland areas. On the contrary, in historical part of village old, original fruit



Photo 4. Ruthless liquidation of fruit alleys and small fruit plantings in connecting landscape medium gradually destroys an original landscape pattern (unsuitable intensification of transport and agricultural production, Koloděje, 1983)

trees will have an extraordinary cultural and historical value and use of old local varieties in new plantings (municipal park in the style of outdoor museum of local varieties and species etc.). It should be appropriate in different types of plantings of this type to combine some old (local) varieties with current varieties. Dynamic relationship of the past and present should be so created.

### Vegetation accompaniment of landscape approach roads

*Basic values of landscape character:*

Marked use of high-stemmed fruit trees by the form of alley plantings creating the system of landscape lines and functional connections of rural settlements with their landscape environment. Fruit trees form a vegetation line forming shape of terrain, breaking landscape space and modifying its measuring scale. Logical continuation of rural orchards in surrounding nature created by alleys. Alleys conceived pomologically had principal meaning by their complex character of its action in forming landscape character.

*Possibilities of the present use:*

Maintenance of original forms and range of fruit tree alleys alongside the landscape roads is not objective in the present time (Development of transport, hygienic conditions, greater demands for quality of fruit etc.). These plantings are real only in minimally frequented and local approach roads using narrow-crowned species and varieties with the possibility to set the crown at the height of 4 to 5 m. The extinction of traditional fruit alleys opens now the possibility for their generous, polyfunctional landscape solution within which should be used selected wild-growing domestic fruit species.

### Orchards (Photos 5, 6, Fig. 3)

*Basic values of landscape character:*

Original high-stemmed, non-fenced parks forming a logical component of the landscape and not secluding

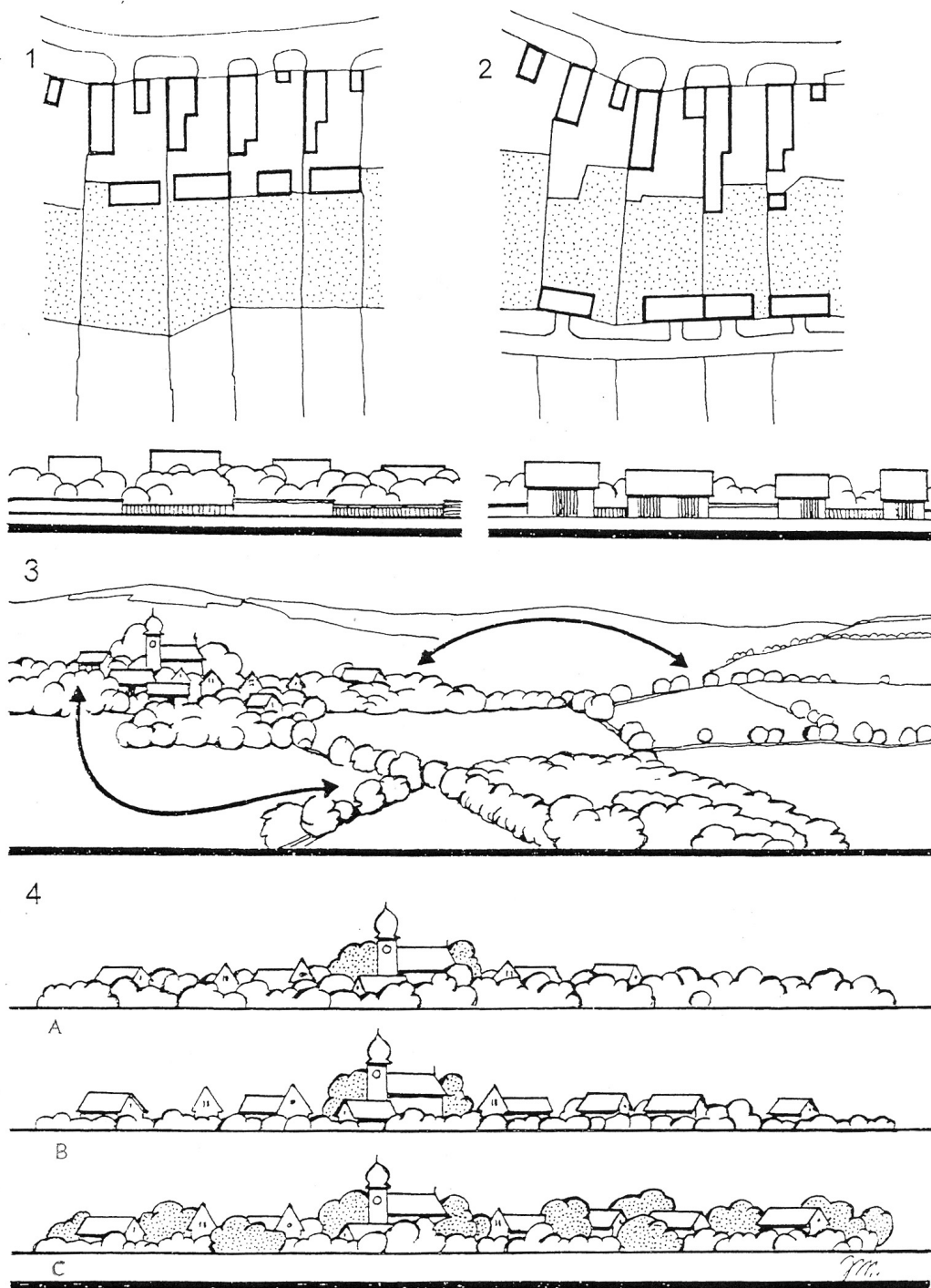


Fig. 1. Landscape character of Czech villages is still very significantly influenced by typically large orchards

1, 2 – Typically kept position inside gardens or on the external side of the village. External landscape plan is changing significantly due to this position.

3 – Continuation of orchards by fruit tree alleys and tiny fruit parks is forming compositional unity of the village and its landscape.

4 – When using compositional relationship of the village to its landscape environment, the meaning of height level of orchards is of great importance; A – original state, low-floor buildings create a unity with medium-high vegetation of fruit trees, B – arising unsuitable condition due to lowering of height level of garden vegetation (modernising and intensifying effects), C – possibility of solution of present position by systematic distribution of higher trees on public areas of town residential area.

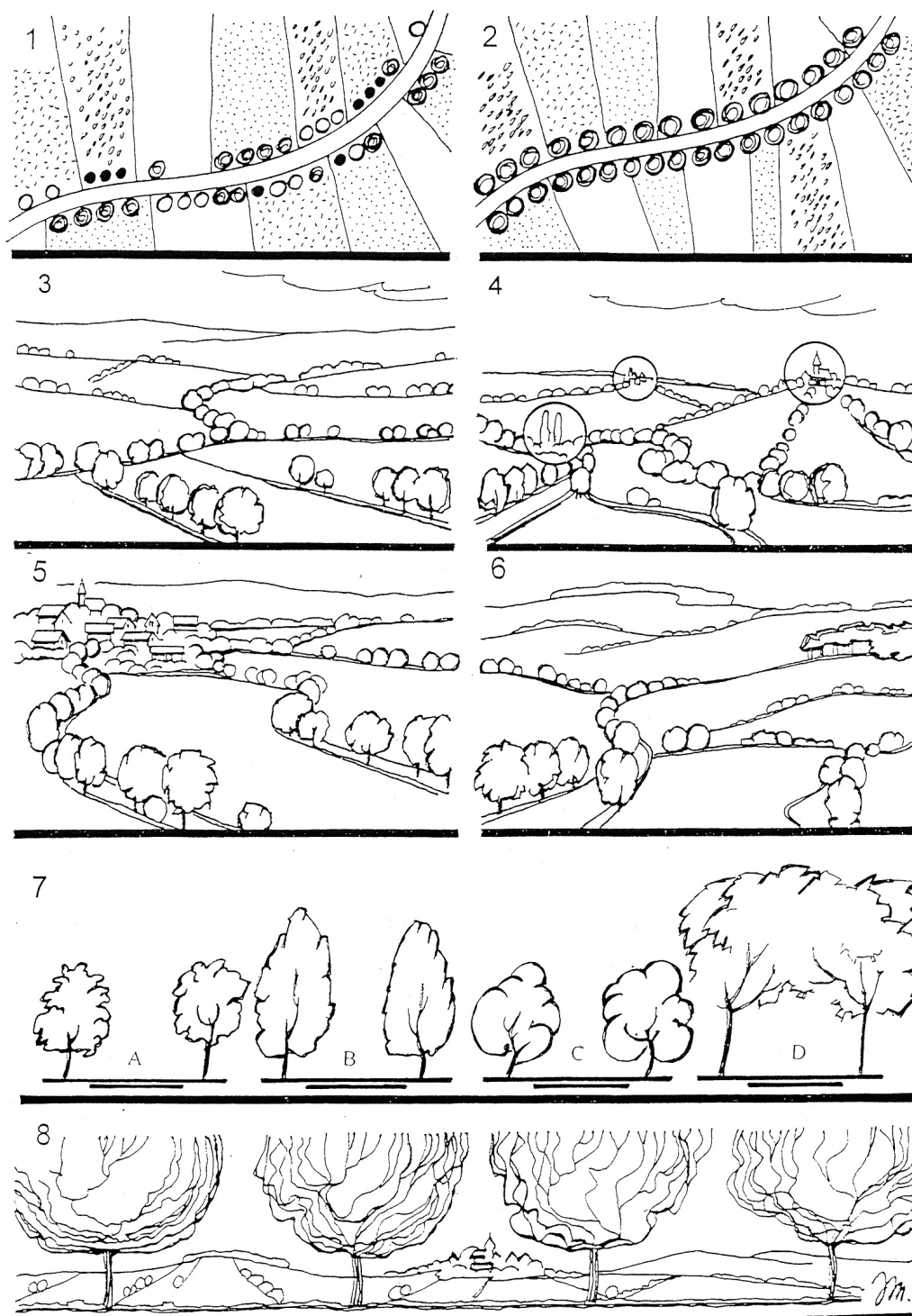


Fig. 2. Fruit-tree alleys represented one of the most important vegetation formations and had a significant effect on the landscape plan of the Czech countryside; 1, 2 – different forms of origin of alleys

1 – Species-heterogeneous alleys arisen as a result of individually planted out trees on margin of the plot.

2 – Species-uniform production alleys without peculiar relationship to different plots.

3 – Segmentation of the landscape, formation of its scale and emphasizing of its shape abundance.

4 – Formation of the so-called “points of special interest” in intersections of landscape lines.

5 – Alleys-emphasized access roads underlined unity of rural settlements with their landscape environment.

6 – Rounded shaping of the terrain together with prevailingly rounded shapes of the majority of fruit trees created a prerequisite for origin of non-contrast, picturesque and beautiful of Bohemian landscape.

7 – Fruit alleys formed also very varied “interiors” with a peculiar scale; A – plum trees, B – selected pear tree varieties, C – apple trees, D – walnut trees.

8 – Fruit alleys were a gallery of framed prospects into landscape. A fruit tree perceived together in detail and in wider landscape context was a significant compositional principle.



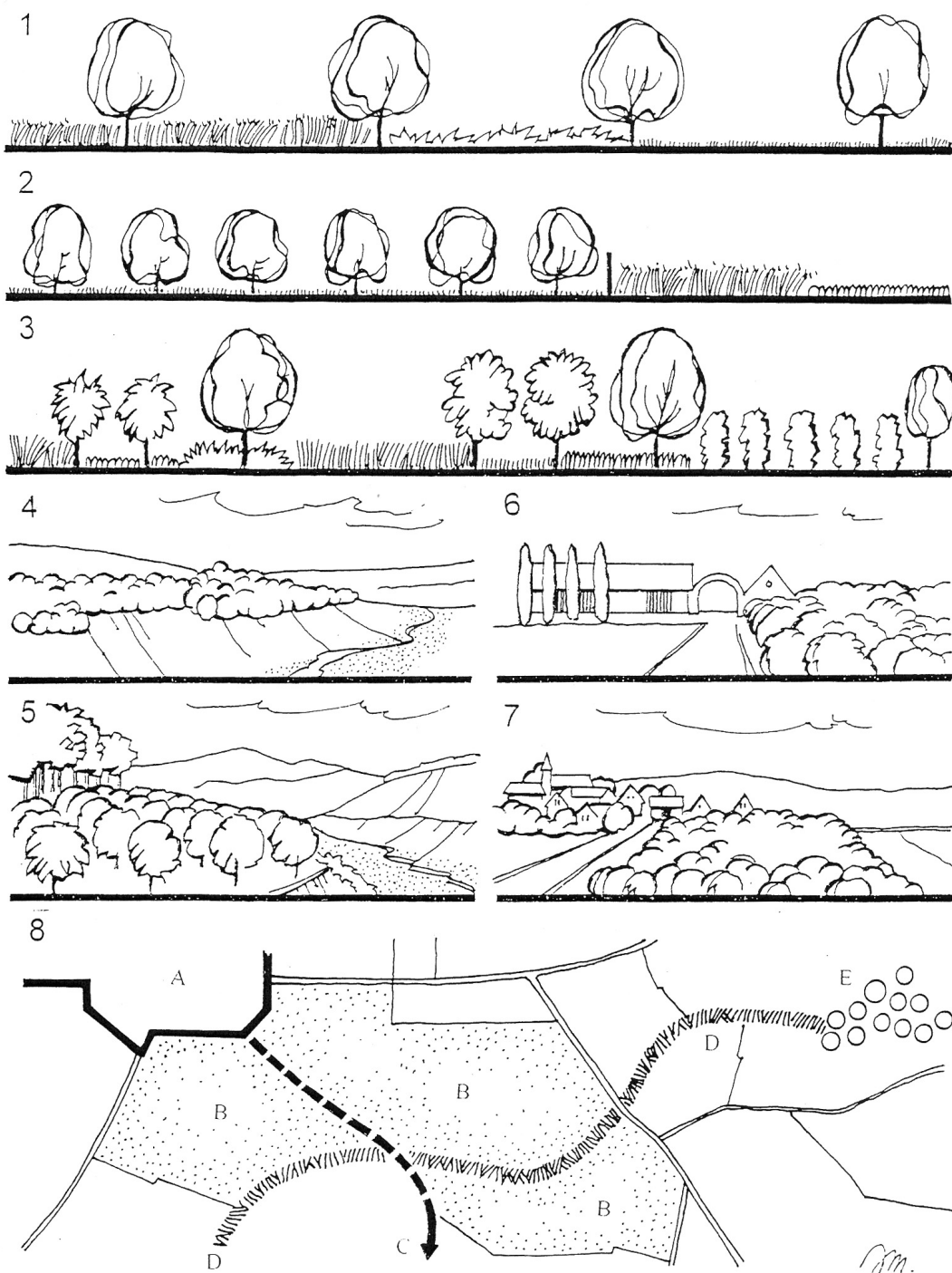


Fig. 3. Basic types of orchards and their relationship to the landscape character

1 – Non-fenced field fruit parks combined with cultivation of agricultural crops were a form of perfect fusion of orchard with surrounding agricultural landscape.

2 – Fenced intensive orchards without intercrops. An example of full economic, ecological and compositional division of planting into surrounding scenery.

3 – Characteristic Moravian “orchard-field” where different forms of fruit plantings, vineyards and cultivation of garden and field crops are combined.

4, 5, 6, 7 – Landscape selfness was not created only by an individual structure of the park but also by a typical position in the countryside; 4 – position on elevated places, outside the frost valley, 5 – segment of historical mansions, 6 – use of lower-quality soils (suitable for cherry trees), 7 – position in direct bond on margin of the village (operational reasons).

8 – Intensive orchards of plantation type by their position in the landscape have to take into account wider territorial relationships, particularly by civil clearness and ecological associations; A – village, B – fruit plantations and areas for their rotation, C – pedestrian recreational passage, D – biological corridor, E – local bio-centre.



Photo 5. Characteristic pattern of southern Moravia – “orchard-field” where fruit plantings blended together with farm crops. Rich biodiversity of the territory was an ecological value, value of landscape character was shape and colour richness and measuring harmony of the size of fruit trees and different plots (Kyjov region, 1958)



Photo 6. One of the possibilities of the use of fruit plantings in present landscape concepts. The system of intensive orchards in connection with other farm crops and ecologically important vegetation of the valley flood plain in the background and dry thurst with oakwood in the foreground. The evidence of possible present measuring unity of the size of areas of plots and size of vegetation structures. Pomology comprehended as integrated part of the landscape plan creates a new quality of the landscape character (Kyjov region, 1980)

from its context. Complex landscape activity applied by longevity, territorial position, limitation of monoculture at parallel use of culture crops, by using of cultivation and optimal locations and optical or civil continuity. Together with fruit alleys they represented one of basic forms of landscape character of often very extensive territories.

#### *Possibilities of the present application:*

Analogy of original high-stemmed, non-fenced orchards is real particularly in marginal agricultural regions and within ecologically specialised pomological farms

(Drobný, 2001). In combination with alley and line high-stemmed plantings and under respecting special species and variety assortment fully functional analogous original orchard character of Czech landscape, particularly in sense of characteristic “spatial dispersion” in the landscape environment may arise in selected territories. The basic production fruit-growing meaning in harmony with global activity and line structured vegetation blocks. Negative values are increased monoculture of use of territory, intensive chemisation, dense new of bearing vegetation constructions and block of landscape continuity. With regard to these facts their long-term concept of solution should be a part of complex landscape plan.

#### **Fruit trees as a part of landscape polyfunctional vegetation systems**

##### *Basic values of landscape character:*

Integrated occurrence of wild growing domestic species of fruit trees in original or nature-close vegetation systems as a typical feature of a number of landscape localities. In assessed territory it is particularly *Prunus avium* Mill., *Prunus spinosa* L., *Pyrus communis* L., *Cornus mas* L., *Coryllus avellana* L. etc. (Culek et al., 1996). Participation of these fruit trees in the systems of settlements and landscape vegetation is generally a positive phenomenon extending their biodiversity and scale of variable values of social and compositional character.

##### *Possibilities of the present application:*

Wider application of domestic species of fruit trees in newly formed systems of settlements and landscape vegetation should become one of the basic landscape approaches. Based on dynamically, and not statistically comprehended landscape character on quantitatively new level can occur a liberal comeback of fruit trees into present and future landscape. Original values of landscape character may be developed into new very effective forms.

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#### **Ovocný strom v proměnách krajinného rázu.**

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Jedním ze základních metodických přístupů ke komplexnímu územnímu řešení venkovské krajiny je respektování její stávající a rozvíjení nové autenticity (*genius loci*) čili krajinného rázu. V podmínkách ČR je toto hledisko zvláště významné, protože se jedná o území přírodně, hospodářsky, kulturně a sociálně značně variabilní a strukturálně členité. V soustavě těchto hodnot mají pro svoji četnost a proměnlivost forem zvláštní význam ovocné dřeviny. Výchozím metodickým přístupem práce je zobecnění vybraných historických forem ovocnění z hlediska jejich vlivu na krajinný ráz. Z tohoto hlediska lze za všeobecně uplatňované formy považovat zejména bohaté systémy ovocných alejí a drobnou držbu ovocných sadů. Významným rysem krajinného rázu bylo dále krajové (lokální) uplatnění určitých ovocných druhů či odrůd a rozsáhlost původních selských ovocných zahrad. Ovocné stromy tak svojí všudypřítomností vytvářely jednotící kompoziční systém českého venkova jako celku. Tyto tradiční krajinářské hodnoty lze v současné době v důsledku hospodářských i společenských skutečností považovat za do značné míry překonané. Možnosti soudobého uplatnění ovocných dřevin na českém venkově je možno shrnout do těchto forem:

Zahrady venkovských sídel – zvýšené uplatnění ovocných výsadeb v návaznosti na soudobé tendence obytného využití těchto ploch, zachování velkých zahradních pozemků.

Veřejná prostranství venkovních sídel – širší uplatnění zejména okrasných odrůd ovocných stromů při utváření venkovské identity veřejných ploch zeleně.

Vegetační doprovod krajinných komunikací – omezení pouze na extenzivní formy ovocnění a na využití druhů a odrůd s vysoko založenými korunami. Plné otevření možností novodobých krajinářských úprav s převahou neovocných dřevin.

Ovocné sady – uplatnění původních vysokokmenných výsadeb formou polních sadů, zejména v marginálních oblastech. Intenzivní ovocné sady řešit s ohledem na některé negativní vlivy na obytné hodnoty krajiny jako součást komplexního krajinného plánu.

Ovocné výsadby jako součást soudobých krajinářských úprav – uplatnění zejména planě rostoucích ovocných druhů lze považovat za nejvýznamnější formu soudobého krajinářského uplatnění ovocného stromu. Může tak být vytvořeno pojitko mezi minulostí a současností české krajiny.

venkovská krajina; krajinné plánování; ovocný sad; zahrada; alej

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