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Rural landscapes in Puglia – on the functional relationship between agriculture and natural resources

Henning Mørch

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A cultural landscape is influenced by many socio-economic forces, some of them being essential. Likewise ecological processes are essential. The patterns and changes of the rural landscape in Puglia (S. Italia) are summarized from a cultural-ecological viewpoint, viz. the rural landscape as it has developed from the natural resources – the physical landscape.

Henning Mørch, associate professor, Institute of Geography, University of Copenhagen, Øster Voldgade 10, DK-Copenhagen K.

Keywords: *ecological human geography; cultural ecology; rural landscape; land use; Puglia (S. Italia).*

CULTURAL ECOLOGY

Ecology is the study of the interactions between organisms – mutually and with the environment. Cultural ecology or ecological human geography more specifically studies the interaction between human systems of utilization, or production, and the natural resources, the bio-physical landscape. This interaction is characterized by more or less conscious interference in the ecological processes.

Agriculture is fundamentally a question of controlling ecological processes. When dealing with commercial agriculture – as in this case, economic conditions change, the production is likely to change too. But the change must take place within the frames set by the natural resources. These offer possibilities and limitations, to which a society – whether traditional or modern – has to adapt by its systems of production and technology. The resources cannot be defined unambiguously; changes of technology or production system might create new possibilities; the utilization might influence a resource – positively or negatively; one utilization might influence others; different utilizations might influence others; different utilizations might be in conflict; – etc. The impact of the natural resources is not to be regarded deterministically, but as a part of a functional system. The interactions might be illustrated with scheme 1, but it is not possible to make simple models of the complex processes.

The interaction could be analysed ecologically through the flows of energy and matter, and through a functional study of the production system reflected in the land use and other elements of the cultural landscape. »The landscape may be said to reveal the social and economic history of a region« (Houston 1963, p.49). It might be added as well that the rural landscape reveals how the natural resources influence the economic history. Similarities and dissimilarities within a rural landscape are not fully understandable without considering the natural environment and its functional relationship with agriculture. Isolated, local land use patterns may appear as a product of solely socio-economic factors, but in a greater perspective the influence of the resources emerge. The perspective being: chorological – through regional differences in spite of some common socio-economic conditions; and chronological – through changing, or stable, patterns under changing socio-economic conditions.

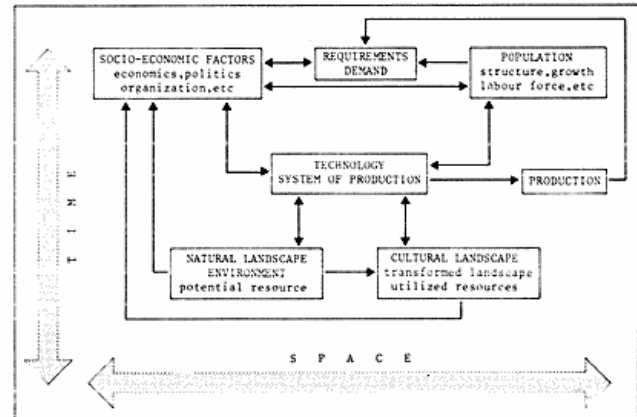
These points are well demonstrated in Puglia (S. Italia), which has several advantages: Commercial agriculture has been of relatively great importance since Roman times – at least. The relief is low-lying and fairly plain, i.e. the differences in agro-climate due to topography – so characteristic for many other Mediterranean areas – are here of little importance (apart from the Gargano, which is out of consideration here). The land use patterns are fairly simple. It will be too lengthy to explain in detail – reference is made to several of the titles in the list of literature; some main features will be summarized, supported by the two schemes 2 & 3, to demonstrate the functional interaction between environment and agriculture which creates the cultural landscape.

THE PUGLIAN LANDSCAPE

– in the beginning of the 19th century

Due to climate the agricultural systems in Puglia were – and are Mediterranean. In the beginning of the 19th century the agriculture was dominated by a commercial, extensive production of grain – especially wheat, and wool. The land use was almost limited to rotational land with grain and fallow, and to pasture for sheep stocks on waste land. The latter was a result of a severe degradation of the original Mediterranean forest, of which only little was left. Stubble and fallow were also used as pasture. The grazing system was combined with an extensive transhumance, for a part to fairly remote areas such as the Abruzzi. Large estates dominated, and their farmland was worked by share-tenants and hired day-workers – a system feudal of character, latifundia. The population was concentrated in often large, widely scattered villages or rural towns.

A number of factors favoured the shaping of this agricultural system and the open and arbourless landscape. The Mediterranean regime of precipitation and its variability was causing an unstable production. The soils – very heavy or stony – were difficult to handle with the



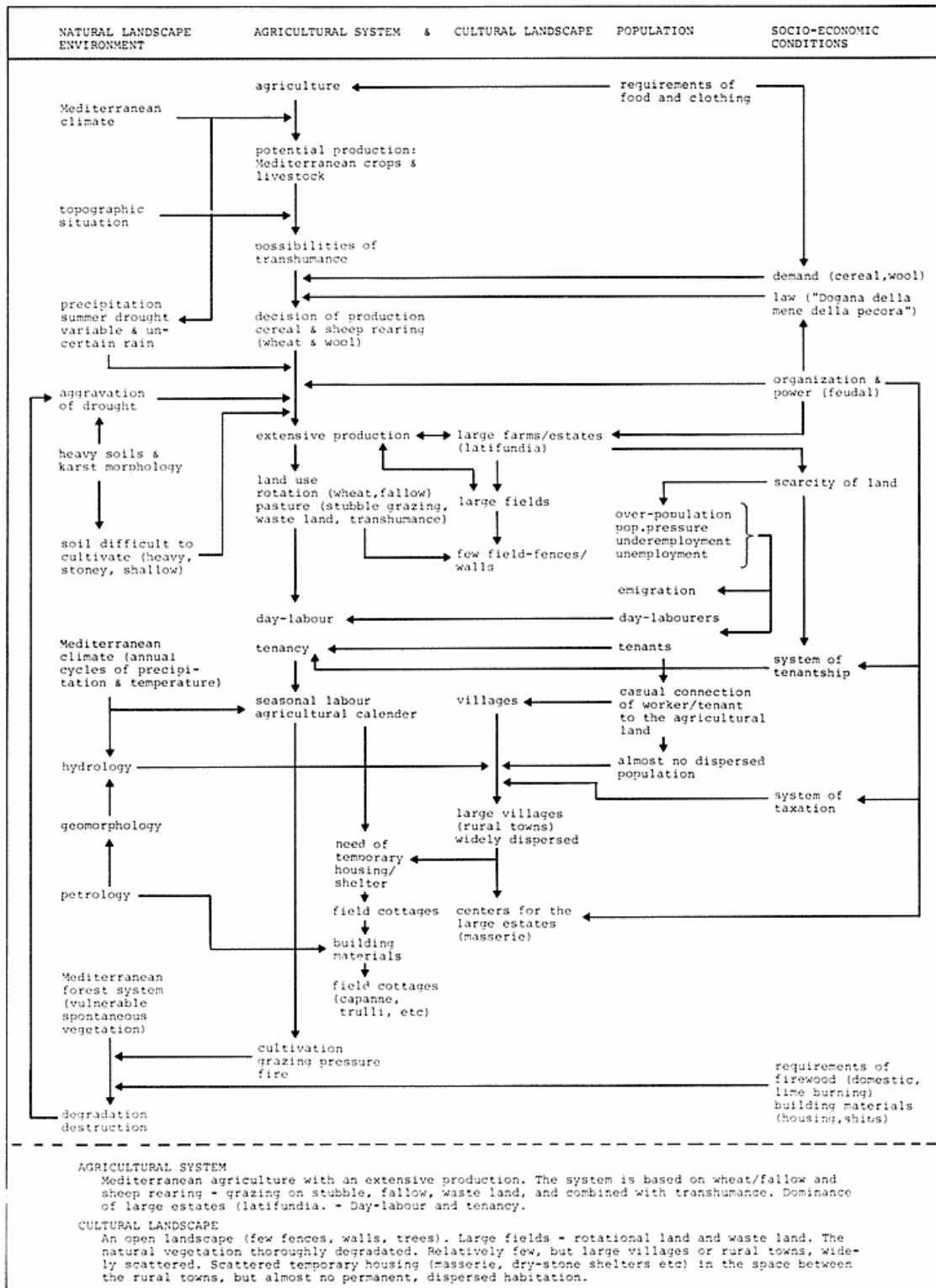
Scheme 1. The main interactions creating an agricultural landscape. The two arrows TIME & SPACE are not axes in a system of coordinates, but indicate that the system is dynamic chronologically and chorologically.

Skema 1. De vigtigste processer, som skaber landbrugslandskabet. De to pile TIME & SPACE er ikke akser i et kordinatsystem, men skal fremhæve, at systemet af processer er dynamisk i tid og rum.

available technology. The soil conditions also caused aggravation of drought, either due to an accelerated surface runoff on the heavy soil – e.g. on the Tavoliere, or a hyper-drainage in the karstic area of the Murge. These environmental factors favoured an extensive system of production to the benefit of large farming units. All this again favoured the establishment and spread of latifundias. On the other hand also the latifundia and the large farming units favoured an extensive production. The extensive production, the feudal character of the society with its conditions of power, and the large farming units caused lack of agricultural land, a relative overpopulation, under- and unemployment, and thus promoted a labour force willing or obliged to accept share-tenancy and day-labour, the alternatives being unemployment and emigration.

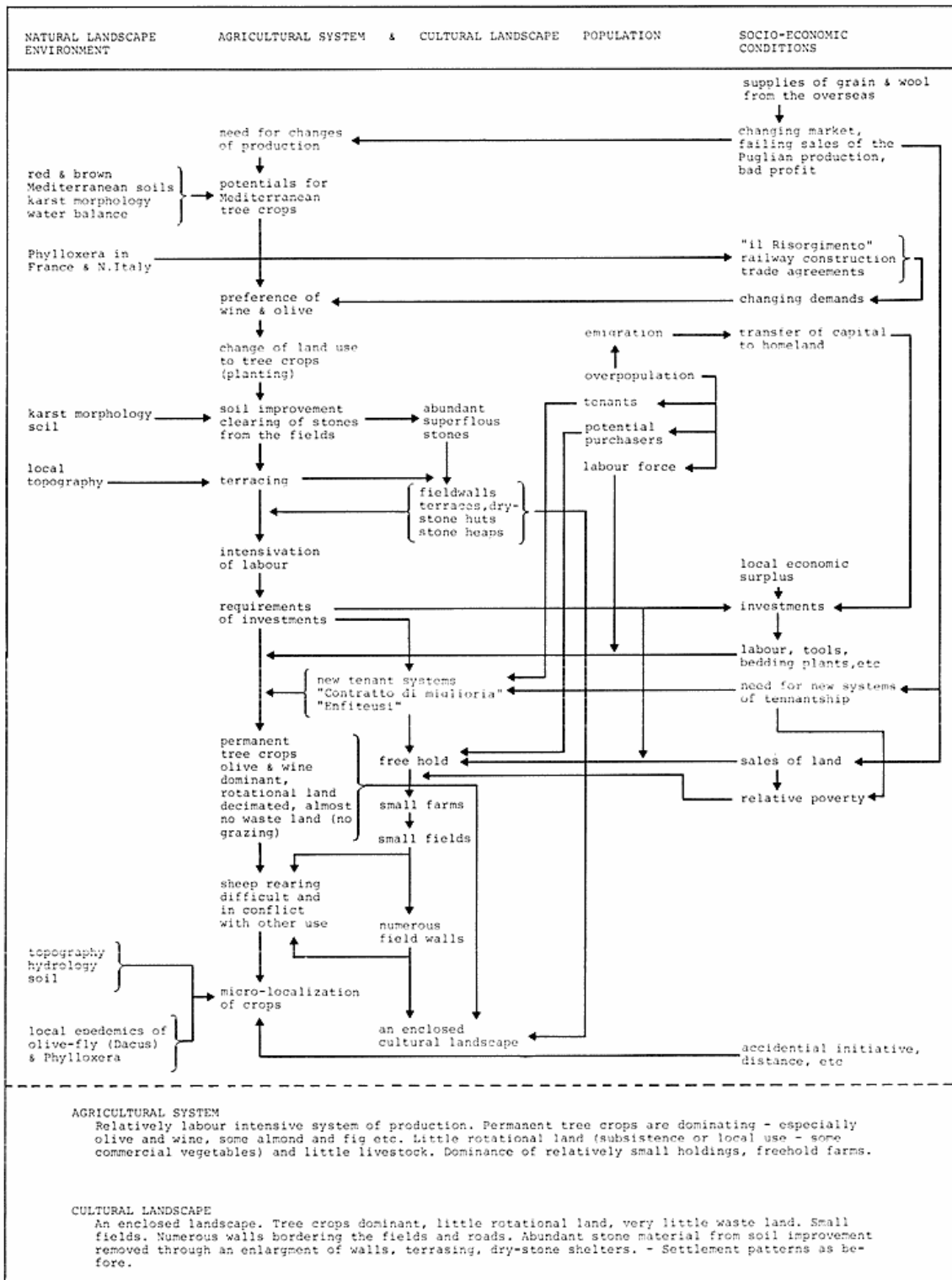
The latifundia as such was a product of the society, but it acted as an adaption to the environment. This was further stressed in the NE-part of Puglia, the Capitanata: the Tavoliere and the adjacent part of the Appennines. On the plain the big estates were worked in large units (latifondo capitalistico) by day-labourers and here the rural towns and the areas of the communes were large too. This in contrast to the adaption to the difficult terrain in the mountains through small share-tenant, peasant farms (latifondo contadino) and small villages.

The concentration of the population in (large) villages was due to the feudal character of the society, and its mainly peasant population of day-labourers and tenants with a weak and insecure connection to the land. But also the widespread difficult conditions of groundwater have played a great part. – The generally long distance from the



Scheme 2. The main interactions shaping the Puglian landscape as it appeared in the first half of the 19th century.

Skema 2. De vigtigste processer, der formede kulturlandskabet i Puglia, som det fremtrådte i begyndelsen af det 19. århundrede.



Scheme 3. Interactions changing the landscape of Murgia Bassa after the middle of the 19th century. - The scheme is to be seen in continuation of scheme 1.

Skema 3. Processer, der ændrede kulturlandskabet i Murgia Bassa efter midten af det 19. århundrede. Skemaet skal ses i forlængelse af skema 1.

villages to the agricultural land gave rise to the scattered working centers for the large estates – masserie, often quite impressive mansions, even fortified, and the numerous very simple huts or dry-stone shelters – capanne, casedde, etc. These dispersed settlements were inhabited during the short periods of intense agricultural work, and in the rest of the year the space between the rural towns was almost deserted.

Summing up, the agricultural system in the beginning of the 19th century was Mediterranean with an extensive production of cereals (wheat/fallow) and sheep-rearing (grazing on stubble, fallow, and waste land combined with transhumance). Large estates worked by share-tenants and day-labourers were dominating. – The cultural landscape was open and arbourless (few fences, walls, and trees); the fields were large; the land use consisted of rotational land (cereals and fallow) and pasture for sheep on waste land. There were relatively few, but large and widely scattered villages (rural towns) and in the space between a scattered settlement of dry-stone shelters and masserie.

The interactions between the factors such as sketched above are summarised in scheme 2.

THE LANDSCAPE OF MURGIA BASSA – after the middle of the 19th century

In the mid-19th century the grain and wool prices decreased in Europe, due to imports from the overseas. As in many other regions, the production in Puglia became unprofitable, and new types of production had to be found. This showed up only to be possible in Murgia Bassa and in a few other zones. In Murgia Basse – with its relatively deep, red and brown Mediterranean soils, the karstic limestone topography, and the Mediterranean climate – the conditions were well-suited for Mediterranean tree crops. To exploit these, however, relatively much labour and capital were needed – for planting, soil improvement and in the long run for a cropping system more intensive than the previous one. For the large, extensive estates with a weakened economy, a reorganization of production presented a severe problem. Thus a great part of the owners preferred to sell or to offer new systems of tenancy – such as the »contratto di miglioria« and »enfiteusi«, which were much more favourable for the tenants and in long run led to more freehold farms. The overpopulation of landless peasants represented numerous potential purchasers; and as they were relatively poor the new farms – owned or tenanted – had to be small. In this way 'however' the reconstruction was made possible through low investments in cash, but by an immense, hard work with the planting of the tree crops and soil improvement through removing the many stones from the karstic soil. The reconstruction was supported by improved sales possibilities by »il Risorgimento«, the build-

ing of railways, and a trade agreement with France; the epidemics of Phylloxera in the wine-growing areas of France and N. Italia had a bearing. Gradually small freehold farms became dominant. The agricultural system changed to a relatively intensive, commercial production of Mediterranean tree crops, especially olive and wine, but also almond, fig and other. The rotational production was reduced to a very small area for subsistence or local use – and some commercial vegetable-growing. As the farms were small, the fields became small too; the many superfluous stones from the fields were placed in stone-walls around every tiny field, along roads, dry-stone huts, and local terracing; furthermore, they were disposed of by enlarging these constructions, or stones were collected in huge heaps. The waste land was reduced to almost nothing. So, sheep-rearing was made extremely difficult in this closed landscape, and as it was in conflict with the new utilization, it ceased and came to an end. – Tree crops had already existed from Roman times or even before – along the Adriatic and in some local zones (e.g. around Taranto). Now Puglia gradually became the region in Italia with most area under tree crops, and the greatest production of olive and wine – in relative and absolute terms. The reorganization of the Puglian agriculture turned out to be a most effective, spontaneous land reform; the previous domination of large estates was now gradually replaced by one of small farms.

In all, the agricultural system in Murgia Bassa after the middle of the 19th century changed into a relatively intensive, commercial production of Mediterranean tree crops – especially of olive and wine, with only little rotational production mostly for subsistence or local use, and very little commercial livestock. Relatively small, freehold farms became dominating too. – The cultural landscape became closed by the planting of tree crops and the numerous dry-stone walls bordering every field. The settlement pattern remained almost unchanged.

The development in Murgia Bassa is demonstrated in scheme 3.

OTHER ZONES

The main part of the Salento-peninsula largely consists of different types of limestone, and experienced developments similar to that of Murgia Bassa. The complex patterns of land use and settlements of the Salento, are reflecting the complex environment: soil depth, permeability of parent rock etc.

Though being a part of Murgia Alta (see below) the Murgia dei Trulli had a development similar to that of Murgia Bassa – even accentuated. Here too, the unique phenomenon of the dispersed trulli-farmsteads appeared. They were induced by several socio-economic factors, but are likewise only to understand by taking into account the very specific natural conditions.

On the Tavoliere, where wild pastures for sheep were of relatively great importance, the agricultural system only changed slowly – apart from islets with crosta-soils. The reason was that the plain's mainly heavy alluvial soils, were difficult to handle before modern agricultural machinery was introduced. But nowadays, most of the plain is used for the cultivation of grain (hard wheat) with spots of tree crops, mainly wine. It deserves mention that since the Middle Ages (Federico II) a law – Dogana della Mene della Pecora – for centuries favoured sheep grazing with transhumance at the expense of agriculture. – In the southeastern part of the Tavoliere and other lesser zones of the plain – e.g. around San Severo and Torremaggiore – with crosta soil (light soil on a calcareous crust) experienced a development similar to that in Murgia Bassa.

In the karstic zone of Murgia Alta (Murgia Petrosa = the stoney M.) the soil is extremely stoney and often very shallow except in the dry-valleys and dolinas. The land use here has remained almost unchanged until present; the main part consists of meager pasture, and agriculture is almost limited to the dry-valleys. – With its fairly heavy soils and troublesome, hilly topography also the Appennine zone of the Capitinata has kept its agricultural system – small grain-growing tenant-farms – almost unchanged until now. – In these two zones, Murgia Alta and the Appennines, the troublesome natural conditions have, so to say, had a blocking or at least delaying effect on the change of agriculture, and many of the old features are still seen. And thus the very open character of the landscape has prevailed. The feudal features have lost their base, not much of the former practice survives.

The land reform of 1950 was guided to the extensive zones (i.e. not Murgia Bassa and the areas with a similar development). Locally the reform had great influence, but in general it has been of minor importance compared to the spontaneous change in Murgia Bassa.

FUTURE DEVELOPMENTS

The greatest possibilities for the Puglian agriculture are presumably to be found in an extension of irrigation, such as outlined in the plans. This will no doubt initiate a growth of the areas with fruit and vegetables (primeurs). – The use of heavy machinery – for tilling in the Tavoliere and now also for soil improvement to remove the abundant stones from the fields – in the karstic zones, the advanced technology (f.i. for irrigation) demand great investments and are further difficult to use rationally on small farms. This will make it hard now for the lesser farms to survive, and a general growth of farm size may thus appear. – The production of quality wine (DOC) may be expected to increase, whereas in an EEC with permanent overproduction the low-quality wine has to be substantially reduced. – Olive requires more labour and is more difficult to handle with machinery as compared to other oil crops; in Puglia, however, the environment appears to

be close to optimal for olive, and other oil crops may not be profitable without a necessary and expensive irrigation etc; none the less, shifts to other crops are likely to some extent. – Thus several changes of the agriculture in Puglia will appear even in the nearest future, caused by economic factors, but guided by the specific kind of natural conditions.

CONCLUSION

The different agricultural systems and landscapes evidence adaptation of the society to the environment. Economic forces initiate the processes of reconstruction and have great impact on the result. Isolated, the socio-economic factors may appear decisive, but in a wider perspective – time and space – the role of the environment is obvious. The two sets of factors interplay in a functional system.

»La géographie humaine ne s'oppose pas à une géographie d'ou l'élément humain serait exclu; il n'en a existé de telle que dans l'esprit de quelques spécialistes exclusifs« (Vidal de la Blanche 1921, p. 3). This may as well be formulated: »La géographie humaine ne s'oppose donc pas à une géographie d'ou l'élément de la nature serait exclu«.

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Resumé

Kulturlandskabet i Puglia (S. Italia) – den funktionelle sammenhæng mellem landbrug og ressourcer.

Et kulturlandskab er under indvirkning af mange socio-økonomiske kræfter, af hvilke nogle er essentielle. Også økologiske processer er essentielle, da kulturlandskabet fremkommer på basis af og ved forandringer af naturlandskabet. Dette forstås ikke deterministisk, men som et funktionelt samspil mellem ressourcerne og den landbrugsmæssige udnyttelse. – Dette dokumenteres i Puglia (S. Italia), hvor kulturlandskabet efter midten af 19. århundrede er væsentligt ændret i visse dele, men i andre kun lidt. Mønstrene og deres ændringer rides op ud fra et kulturøkologisk synspunkt: kulturlandskabet som det er fremkommet på basis af og ved ændring af naturlandskabet (ressourcerne). Forandringerne foranlediges af økonomiske forhold, men de forskellige mønstre – stabile eller ændrede, kan ikke forklares uafhængigt af naturforholdene. – Mørch (1980) er en mere omfattende behandling af emnet på dansk.

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Location of rural settlements and geology – a case study of the Salento peninsula (S. Italia)

Henning Mørch

Mørch, Henning: Location of rural settlements and geology – a case study of the Salento peninsula (S. Italia). *Geografisk Tidsskrift* 87: 42-49. Copenhagen, April 1987.

The survey area is characterized by a level topography and a population largely concentrated in agglomerations. The spacing of the agglomerations is examined by nearest neighbour method and formally found to be random – not uniform. The localization is then analysed for connection with geology; the connection is confirmed statistically by a chi-squared test. The relation of settlement location to micro-topography, agricultural system, historical factors etc. is to be analyzed and also how the old pattern of localization is influencing the development of an emerging system of service centers.

Henning Mørch, associate professor, Institute of Geography, University of Copenhagen. Øster Voldgade 10, DK-1350 Copenhagen K.

Keywords: location, rural settlements, geology, Salento (S. Italia).

An agricultural population is likely to be fairly uniformly distributed; if agglomerated, the agglomerations may also be expected to be uniform. This so when conditions influencing settlement are isotropic. The distribution, however, is influenced by the local kind of agricultural system and a spectrum of natural and socio-economic factors. When economic conditions change the agricultural system may change too, but the pattern of settlement survives and changes only slowly, as the population seldom redistributes immediately. Thus the old pattern of rural settlement is part of the preconditions when a new system of central places develops. A rising system of service centers will not develop strictly after central place theories, but has to change, or adapt itself to the former pattern of settlement. The object of this paper is the distribution of rural settlements in a concrete case – the southern part of the Salento peninsula in SE Italia.

The Survey Area – delimitation

Salento is a part of the Italian region Puglia – a region, which may among others be characterized by two features of special relevance: topography and population distribution.

The topography of Puglia is fairly level (cf. Dickinson 1955, fig. 9). This implies that slope – often an important factor for the location of rural settlements – may here be of little consequence.

On the Tavoliere, where wild pastures for sheep were of relatively great importance, the agricultural system only changed slowly – apart from islets with crosta-soils. The reason was that the plain's mainly heavy alluvial soils, were difficult to handle before modern agricultural machinery was introduced. But nowadays, most of the plain is used for the cultivation of grain (hard wheat) with spots of tree crops, mainly wine. It deserves mention that since the Middle Ages (Federico II) a law – Dogana della Mene della Pecora – for centuries favoured sheep grazing with transhumance at the expense of agriculture. – In the southeastern part of the Tavoliere and other lesser zones of the plain – e.g. around San Severo and Torremaggiore – with crosta soil (light soil on a calcareous crust) experienced a development similar to that in Murgia Bassa.

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The land reform of 1950 was guided to the extensive zones (i.e. not Murgia Bassa and the areas with a similar development). Locally the reform had great influence, but in general it has been of minor importance compared to the spontaneous change in Murgia Bassa.

FUTURE DEVELOPMENTS

The greatest possibilities for the Puglian agriculture are presumably to be found in an extension of irrigation, such as outlined in the plans. This will no doubt initiate a growth of the areas with fruit and vegetables (primeurs). – The use of heavy machinery – for tilling in the Tavoliere and now also for soil improvement to remove the abundant stones from the fields – in the karstic zones, the advanced technology (f.i. for irrigation) demand great investments and are further difficult to use rationally on small farms. This will make it hard now for the lesser farms to survive, and a general growth of farm size may thus appear. – The production of quality wine (DOC) may be expected to increase, whereas in an EEC with permanent overproduction the low-quality wine has to be substantially reduced. – Olive requires more labour and is more difficult to handle with machinery as compared to other oil crops; in Puglia, however, the environment appears to

be close to optimal for olive, and other oil crops may not be profitable without a necessary and expensive irrigation etc; none the less, shifts to other crops are likely to some extent. – Thus several changes of the agriculture in Puglia will appear even in the nearest future, caused by economic factors, but guided by the specific kind of natural conditions.

CONCLUSION

The different agricultural systems and landscapes evidence adaptation of the society to the environment. Economic forces initiate the processes of reconstruction and have great impact on the result. Isolated, the socio-economic factors may appear decisive, but in a wider perspective – time and space – the role of the environment is obvious. The two sets of factors interplay in a functional system.

»La géographie humaine ne s'oppose pas à une géographie d'ou l'élément humain serait exclu; il n'en a existé de telle que dans l'esprit de quelques spécialistes exclusifs« (Vidal de la Blanche 1921, p. 3). This may as well be formulated: »La géographie humaine ne s'oppose donc pas à une géographie d'ou l'élément de la nature serait exclu«.

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Resumé

Kulturlandskabet i Puglia (S. Italia) – den funktionelle sammenhæng mellem landbrug og ressourcer.

Et kulturlandskab er under indvirkning af mange socio-økonomiske kræfter, af hvilke nogle er essentielle. Også økologiske processer er essentielle, da kulturlandskabet fremkommer på basis af og ved forandringer af naturlandskabet. Dette forstås ikke deterministisk, men som et funktionelt samspil mellem ressourcerne og den landbrugsmæssige udnyttelse. – Dette dokumenteres i Puglia (S. Italia), hvor kulturlandskabet efter midten af 19. århundrede er væsentligt ændret i visse dele, men i andre kun lidt. Mønstrene og deres ændringer rides op ud fra et kulturøkologisk synspunkt: kulturlandskabet som det er fremkommet på basis af og ved ændring af naturlandskabet (ressourcerne). Forandringerne foranlediges af økonomiske forhold, men de forskellige mønstre – stabile eller ændrede, kan ikke forklares uafhængigt af naturforholdene. – Mørch (1980) er en mere omfattende behandling af emnet på dansk.

Literature

Baldacci, O. (1967): Il paesaggio nuovo di Tavoliere di Puglia. L'Universo 68, 1: 71-102.