

## A Change in Land-Use in Central Jutland

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### Abstract

*The following is an account of the abandoned farmland areas in Central Jutland 1870–1963 based on the geodetic maps and the author's own surveying in 1963. The abandoned farmland, mostly planted with Norwegian spruce, is gathered in a zone along the big morphological mark formed by the main stationary lines of the ice masses during the last glaciation. The localizing factors are, among others, soil with a bad water balance and farmland impoverished through a long time cultivation. Before the turn of the century the planting of the farmland in connection with establishment of bigger plantations took place. Later the abandonment of farmland became an evenly distributed phenomenon.*

The investigations of the agriculture in Denmark executed during recent years by the *Geographical Institute of the University of Copenhagen*, and especially the investigations of the wind erosion and its distribution in Jutland, have drawn the attention to the phenomenon visible at many places, abandonment of farmland leaving this disused or utilized in another way. This change in the land-use originates the establishment of many new coniferous plantations and the change from tilled land to woodland has gradually grown to such a degree in some parts of the country, that it is very necessary when estimating the future development of these parts to take this into consideration.

Since this special change in the land-use is not a phenomenon of regular occurrence in Danish agriculture it was considered a natural task for the *Geographical Institute of the University of Copenhagen* to make a survey of its extension. Means from *Professor Löffler's Foundation* made it possible to start the investigation in the autumn 1962, but only through financial assistance from *Statens Alminde-*

*lige Videnskabsfond* (The State's Foundation for Science) a more extensive field work could be carried out. This was started during the summer 1963, when an area in Central Jutland was examined, and it is planned to continue the investigation during the summer 1964. The following will only present a preliminary account for the methodology attached to this investigation and a few examples of the results obtained in the past year will be given.

#### **Procedure of analyses**

Through the statistics generally available it is possible only to a very small extent to get information about the here discussed changes in the land-use categories, as every count only covers the total area for field, meadow, heath, woodland etc. Consequently a comparison between two counts does not give any idea as to the change from one category to another as, for instance, heath areas may be cultivated and incorporated in the farmland and similar areas of former farmland simultaneously afforested, so that the result statistically is an unchanged size of the farmland. The statistic information is, furthermore, based on administrative units (parishes), which make it difficult to succeed in finding the actually stated areas and see the placing of these in the rest of the environment — and it is absolutely decisive information when trying to find reasons for the distribution of the phenomenon or for having the slightest possibility in commenting on the trend of certain areas. It was evident that a careful localization of the single abandoned areas of farmland had to be the aim of the investigation, and the analysis was, therefore, based on the maps 1:20.000. In order to obtain a relatively distinct definition of the concept of abandoned farmland, the analysis was at first concentrated on the afforested areas. During the investigation fields apparently no longer under agricultural use were often seen, but it can be very difficult to decide, if they are completely given up or perhaps later again will make part of the cultivated land. The planted sections, however, appear relatively clear. Nothing of the land-use pattern is completely certain, however, and it is possible to meet with examples, where a mixture of heather and self-sown trees covers the land, and the observer cannot be sure that the former field has been afforested. In everyone of these cases it is a matter of opinion, if the area is to be included in the very object of the investigation, or if it will fall under the introduced designation “minus field”.

A transference of tilled land to afforestation is not anything new

in Denmark and the beginning of the investigation was therefore, based on the maps and historical material available firstly the various editions of the ordnance survey maps, and here the preliminary selected area is favoured by three editions — the first survey and two later ones, in which a radical revision of the material is carried out. The first survey of the area — just as rich in information as the present ordnance survey map — was executed during the years around 1870 (1868—1874); unfortunately the first revision lasted long being executed during the years 1900—1913. Furthermore, a revision of the roads has been made in the period 1941—44. In this revision the degree of the changes in the vegetation pattern varies much from map to map, and this information about the change in land-use has not been taken into consideration in this preliminary account. The latest official correction and revision of the ordnance survey maps was executed during the years 1950—56.

A comparison between these three editions will show the trend during two periods, each of 40—50 years duration. In this connection it must be said, that some areas may evade control, if they within the period between two revisions have been reclaimed and then again given up as farmland. It may have happened at some places, and many old sayings are known about the cultivation of the heath, utilizing the land some few years, then moving to a new area abandoning the first field. Furthermore, it is possible to compare with the maps executed by Videnskabernes Selskab (The Royal Danish Academy of Sciences) about 1800, but this information must be considered tentatively as the borderlines between farmland and not agricultural land are uncertain. It must also be remembered that the agriculture at this time used the moorland for grazing and the heather as winter feed, as fuel and as thatching material for the houses. The heaths, therefore, were not unprofitable as they are to day.

In order to get an impression of the changes that have come about since the last revision of the map material, two ways have been tried, of which only the last and most demanding one as to work has been passable. Airphotos were the obvious solution for procuring the newest information, but only a few photos of this area in Central Jutland are available, and then it is not possible when it is a question of newer plantings to interpret the photos with some certainty, not even by means of fine stereoscopes.

The other solution of the problem is to examine the regions in the field, and this method proves to be the only usable one for get-

ting knowledge of the processes, and it is also the only possibility when looking for detailed information about the afforestations. During the summer 1963 a mapping of the selected area in Central Jutland was started. Every plot was visited and with the latest edition of the maps 1:20.000 as a base it was stated, which of the former farmland areas had been alienated to afforestation subsequent to 1952. The areas with status quo maintained compared to the information of the map were checked off, and the planted areas were marked on the map. Furthermore, information about the age of every single planting (rather easy to obtain as mainly Norway spruce is planted) was entered on a card index just as information about tree species, about the stand site class according to a simple scale: good, average, bad, and about the relief of the area and the soil condition according to similar simple criterions (the character of the soil: clay, sand, gravel and in addition a rough specification of the humus content). Also examined and entered on the card index were signs of a former utilization of the abandoned land, information concerning old fences still existing and partially indicating an effort made in respect to keep the land as an agricultural area, and further the localization of the area (centrally-remote) in regard to agricultural use. The utilization of the neighbouring fields was also of interest in consideration of the effect of these on the examined areas (the rounding off of old plantations, gravel pits etc.) just as also the quality of crops in the surrounding fields after the scale: good, average, bad.

It must here be added that pieces of this information could not be procured for all the areas, and the decisions are in more cases relative (as for instance in regard to the information about the quality of the returns from the surrounding fields). As the early summer 1963 was favourable for this area of Central Jutland as to climate, the returns were mostly good and the differences in soil conditions were often of rather little importance.

#### **The geographical distribution**

The preliminary results of the investigation presented here come from an area in Central Jutland between Vejle, Silkeborg and Brande. The size of this area is about 800 km<sup>2</sup> covering about 11 maps 1:20.000. The area was resurveyed in 1963 for supplementing the information from the geodetic maps. Fig. 1 A shows the total abandonment of farmland for planting through the last 100 years. The distribution pattern shows an axis through the map from south-



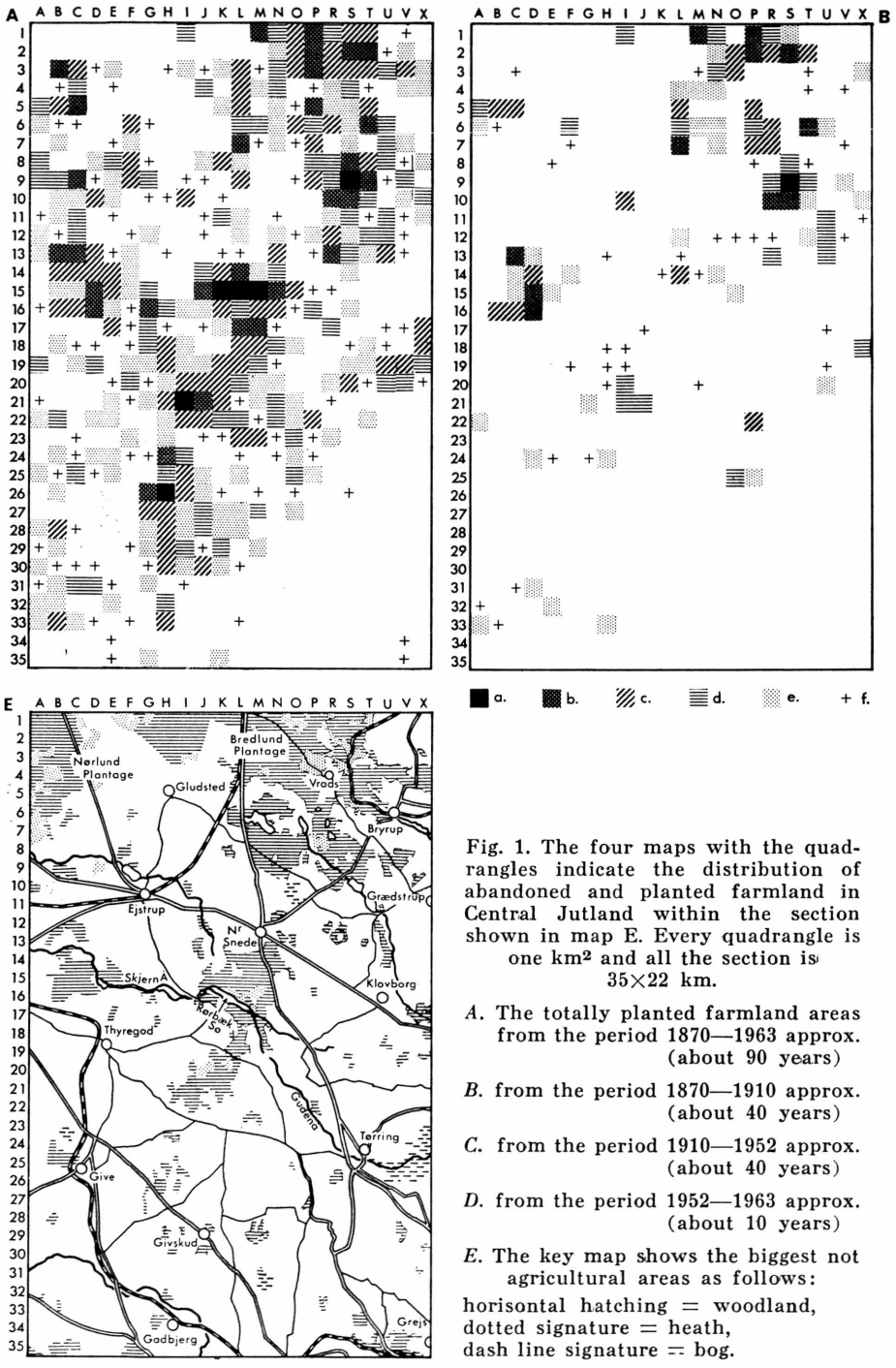
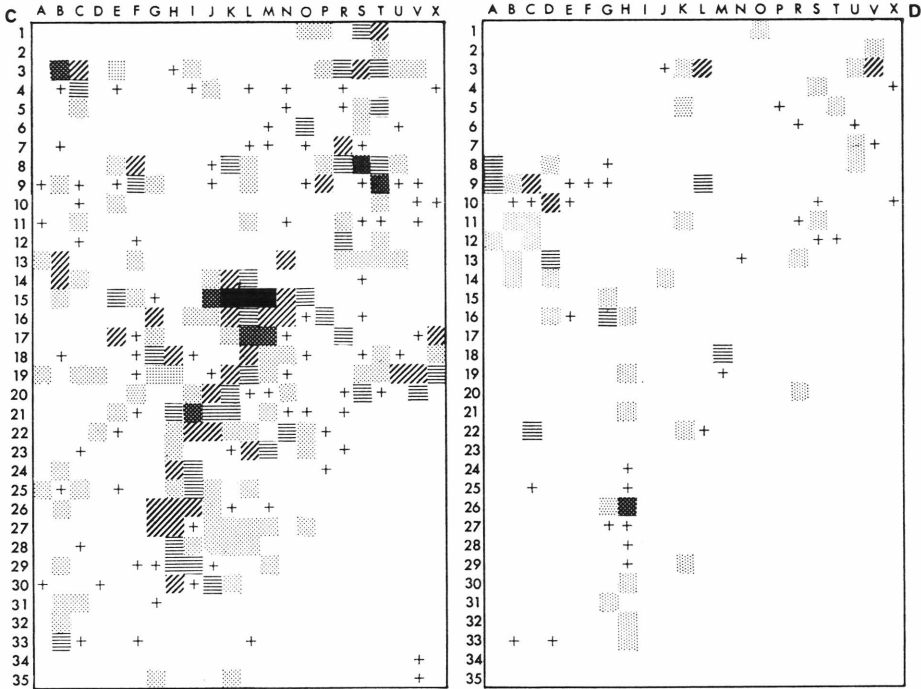


Fig. 1. The four maps with the quadrangles indicate the distribution of abandoned and planted farmland in Central Jutland within the section shown in map E. Every quadrangle is one km<sup>2</sup> and all the section is 35×22 km.

- A. The totally planted farmland areas from the period 1870—1963 approx. (about 90 years)
- B. from the period 1870—1910 approx. (about 40 years)
- C. from the period 1910—1952 approx. (about 40 years)
- D. from the period 1952—1963 approx. (about 10 years)
- E. The key map shows the biggest not agricultural areas as follows:  
 horizontal hatching = woodland,  
 dotted signature = heath,  
 dash line signature = bog.



For all four maps A-D are used the signatures:

- a. Afforestation of more than 50 ha farmland within the km<sup>2</sup> in question.
- b. Afforestation of 25-49,5 ha. per km<sup>2</sup>
- c. Afforestation of 15-24,5 ha. per km<sup>2</sup>

- d. Afforestation of 10-14,5 ha. per km<sup>2</sup>
  - e. Afforestation of 5- 9,5 ha. per km<sup>2</sup>
  - f. Afforestation of 3- 4,5 ha. per km<sup>2</sup>
- The maps do not show quadrangles in which the area of afforested farmland does not exceed 3 ha.

west towards northeast and a certain concentration in the north-western part. The farmland in all the south-eastern corner, however, is constant, and in the southern part of map A the abandoned farmland is more or less gathered in a relatively narrow zone around Givskud. The other empty sections are due to the fact — also revealed by a comparison with the key map (fig. 1 E) — that the remaining heaths and heath plantations already fill out these regions. Empty sections are seen, too, around all the city areas, owing to a tendency not to give up farmland within a distance of some kilometres from the local centres.

Without being able to give a detailed interpretation it would not be amiss here to make a rough comparison between the distribution of the phenomenon, abandoned farmland and the principal features of the geomorphology of Jutland. From this it is seen that the most intensive afforestation is found within the young moraine landscape

just east of the main stationary line of the big ice masses, which covered the eastern parts of Jutland during the last glaciation. An examination of the geological material shows roughly accordance between the empty sections and the distribution of boulder clay, for instance in the quadrangles 11—12 D—J, 26—29 D—E, 12—16 V—X, whereas the dominating afforestations are gathered along the big valleys filled with sand and gravel and which were formed by the flow westwards from the retreating ice border during the late glacial period, for instance in the quadrangles 1—3 O—T, 14—16 J—N, 19 U—V. The rest of the planted sections are especially found at the diluvial sand- and gravel areas, where at some places the landscape is strongly marked by water erosion and at other localizations has been secondary formed by a superposition of blown sand (see the quadrangles 8—10 R—T, 13—16 B—E).

By a comparison between the three maps fig. 1 B, C and D indicating the extension of abandoned and afforested farmland during the periods from about 1870—1910, 1910—1952 and 1952—1963, a distinct difference will be noticed in the character of the plantings from the first period and in that of the later ones. At the end of the 19th century the plantings have taken place within coherent areas, whereby regular plantations were established. The size of the single abandoned farmland areas is in many cases 5—10 ha. The central region for this old afforestation lies in the northern and especially in the northeastern part of the area; it is partly conditioned by the large sand covered regions around Vrads Sande and in Hastrup plantation, partly a consequence of the earlier planting activity in Palsgaard Skov, Bredlund and Kongsø plantations. The plantations in this region are among the oldest in Denmark and date from the beginning of the 19th century. The establishment of the biggest afforestations must be attributed to *Det Danske Hedeselskab* (The Danish Heath Association), which was founded in 1866 and since then has been assisting in the afforestation of over 120.000 ha heath and farmland in Jutland. Of these big plantation areas a little more than half of them was laid out during the years 1870—1910. *Det Danske Hedeselskab* plants its own, smaller areas, but has greater importance as the main factor in the establishment of private afforestations through local planting associations.

The detailed distribution pattern of this early abandoned farmland does not show any one-sided dependence of the relief in the above mentioned main districts. Plains as well as slopes are afforested, but the size of the planting areas, however, is bigger on

the plains than on the slopes, as probably many of the slopes in these regions have never been cultivated, but have changed directly from heath to plantation. In the eastern part of the section here discussed the forrests on the slopes, however, are strongly dominating along the confluents to Gudenå, resulting in a rather splitted distribution pattern. Westwards and southwards is found one type more of older afforested farmland, as the plots here on the whole are small and in most cases attached to the farmhouses. The wish for shelter and local providing of timber and wood motivated the planting of these sections of 1—2 ha.

The afforestation during the second period from about 1910—1952 (fig. 1 C) has been of a more scattered character. The biggest plantings follow mostly two axes; one crossing the map diagonally from southwest towards northeast, the other runs from east-southeast towards west-northwest in the middle of the map, more or less along the two big rivers, Skjern Å and Gudenå.

The point of intersection is seen in the very big concentrations around Rørbæk Sø (the quadrangle 15 K—L—M). In the old plantation areas a rounding off has taken place, but otherwise the detail pattern in all the western part is characterized by the many small plots independant of the habitation. The single abandoned farmland areas are placed rather casually in the terrain, but as a whole they occur most frequently in the landscapes most marked by erosion. Eastwards the plantings from this period also follow the slopes of the valleys and the terrace plains of these.

The latest plantings from the period 1952—63 (fig. 1 D) have a similar scattered character, but here, too, it is possible to distinguish between different types in the detail pattern. In the eastern parts of the area the valleys with their slopes and terraces manifest themselves, while a certain fortuitousness in the distribution is shown in the terrain to the west. Compared to the afforestations of the other periods it is seen, how some planting areas gradually fill out the landscape, resulting at more places in closed plantations and so strongly reducing the potential planting possibilities in certain areas. The apparent swing of the central point to the west can also be sought in the circumstance, that the planting occurred already earlier at many potential areas in the eastern part of this region. Estimating the planting intensity in these recent years it must also be considered that this period as to time only makes one fourth of the other two, and consequently similar big areas in fig. 1 D as in fig. 1 B and C cannot be expected.

### Givskud and Ejstrup

To illustrate one of the detail pictures the parish of Givskud showing the trend within a southern part of the region has been chosen. The parish lies within the quadrangles 25—32 F—M, and forms morphologically part of the young moraine landscape about 10—20 km east of the main stationary line of the ice. One of the maps of Givskud (plate I) shows the progress of the cultivation from the survey executed by Videnskabernes Selskab about 1786 and up to 1952. It appears clearly how the old farmland was concentrated around the villages Ris, Givskud, and Harresø Gd. and that only a few other scattered sections were cultivated.

A comparison with the geologic maps brings in this case rather a good identity of the earlier cultivated farmland with the areas of boulder clay substratum into light. It is seen that the heath (forest did not exist at Givskud about 1800) and the bogs were reclaimed already before 1870. Since then only smaller sections have been taken in as farmland during the following two 40 years periods. In 1786 less than one fourth of the total area of a little over 3600 ha (or about 800 ha) has been stated as tilled land together with 150 ha bog and meadow. In 1870 the agricultural area (arable land and meadow) was about 3000 ha, which means about three times as much as in 1786. The area not at any time cultivated as far as the maps tell dropped to about 250 ha at the turn of the century and to 200 ha in 1952 (5—6 % of the total area). This map shows only the development of the farmland and tells nothing of the abandonment of agricultural areas. It becomes apparent that it is only very small areas which have not since 1786 at one time or another been under plough. The relatively high percentage of woodland, 16 % (1963), can, therefore, chiefly be put down to abandonment of the farmland. This phenomenon will appear from the corresponding woodland map (plate II) showing partly the plantations laid out on the original heath areas or sands (the dotted signatures), partly the afforestation of farmland. Heath plantations cover an area of 135 ha, 55 ha of which are planted before 1904, while the afforestation of tilled land covers an area of 440 ha, divided as follows: 15 ha from the period 1786—1870, 30 ha from 1870—1904, 295 ha from 1904—1952 and about 100 ha from 1952—1963.

The region west of Ejstrup represents another detailed example, partly illustrated by the airphoto (fig. 3), partly by the maps (fig. 2). Here the main element of the landscape is a plain with a slight gradient (1—2 ‰) to the west. The morphology is, however, not

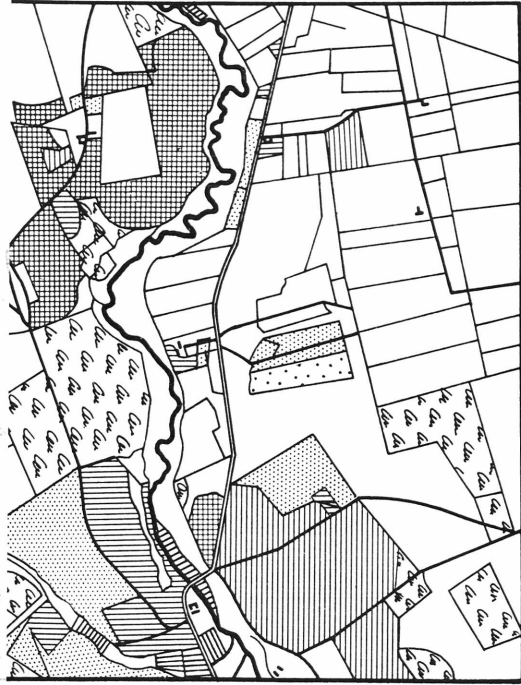
completely regular, as a little river cuts the region from east towards west and, furthermore, is the plain at more places covered by sand deposits as a consequence of a strong wind erosion, which has caused regular dune formations to develop — especially on the plain south of the river. In this region the reclamation began much later than at Givskud. As appearing from the map showing the trend of tilled land (fig. 2 A) only a few areas along the river were cultivated in 1873 and only rather small changes have occurred since the area about 1800 was surveyed by Videnskabernes Selskab. Later the heaths were brought under plough in successive stages and as time went on only the most dune marked areas were never tried cultivated. The most widespread reclamation here occurred in the last decades of the 19th century. Also in this century cultivation of heath has taken place, but at the same time a similar abandonment of farmland occurred. Parts of the farmland became again overgrown with heather or changed into plantation. Mostly it is areas subjected to agricultural use during a long time that have been planted, but there are many other examples showing fields reclaimed in the end of the 19th century and now again already abandoned. In this section it applies to the fields A, B and C (see fig. 2 A). All the phenomenon resembles the concept of shifting cultivation, where from time to time new land is taken under plough and in return old cultivated land abandoned. Nothing can yet be said of the time usually passing between cultivation and abandonment, but it will be an interesting problem to study, as the area of usable heath for reclamation is rapidly diminished; the continued shifting is thus very limited and only in rare cases will it be profitable to return to already abandoned farmland areas after a clearing of the plantations.

#### **The afforestation 1952–63**

By studying the land-use indicated by the maps and by exploring in the fields it is possible to show certain principal features of the distribution of the afforestation in Central and East Jutland. There is a main region in a south-north going zone beginning to the west of Kolding (Vejen-Brørup) on the south to Silkeborg on the north. The zone, however, continues to a smaller extent northwest of Silkeborg and along the Gudenå valley unto Tange Sø. The limits towards west and east seem to fall rather closely to the physio-geographical mainlines; the western limit is nearby where the ice masses were greatest extended during the last glaciation, and eastwards the easternmost distributions of the plantings are in accordance with







4. Planting of abandoned farmland 1913—1951.
5. Planting of abandoned farmland 1951—1963.
6. Abandoned farmland alienated to heath and later partly to plantation.

Fig. 3. Aerial photograph of the region around Over Harild west of Ejstrup covering an area of about 4 km<sup>2</sup>. The photo reveals nearly all forms of abandoned farmland, as also indicated in the maps (fig. 2). Only the river valley along Holtum å and certain recently reclaimed areas are still used for agriculture. In the river valley the trout pond farms — a new industry replacing the meadows — are seen. Now the water earlier utilized for irrigation of the meadows, so helping to secure the surrounding agriculture, is used for these piscicultures. The localization of this air photograph corresponds to the area lying in and west of the quadrangles A, 8—9 in fig. 1. The Danish Geodetic Institute copyright.

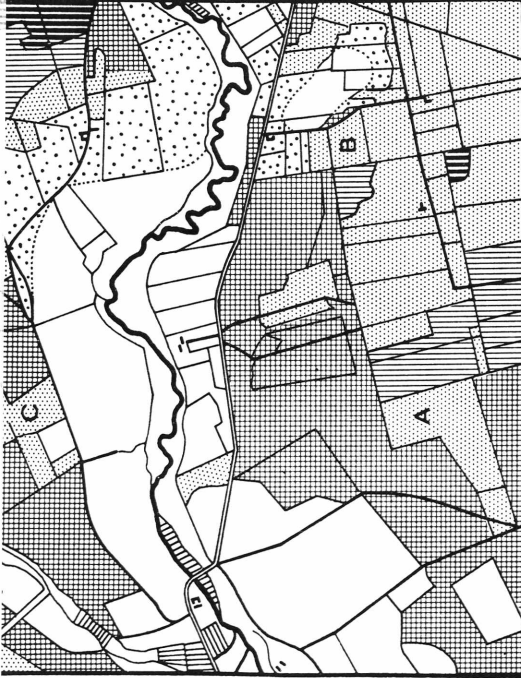


Fig. 2. Maps corresponding to the air photograph fig. 3. The map to the left (A) indicates the trend of the farmland. The white area represents tilled land or meadow about 1800, the other signatures indicate the trend of the reclamation during the said periods. The cross-hatched areas are the regions which have not been tilled or used as meadows since 1800. The A, B and C marked areas are according to the ordinance maps those reclaimed relatively late and already alienated to heath or plantation.

The corresponding map to the right (B) comprises the abandonment of the farmland and afforestation of heath.

1. Plantation from the period about 1800—1913 covering former heath area
2. Plantation on heath 1913—1951.
3. Plantation of abandoned farmland 1870—1913.



the so-called Harder's stationary line — a younger stagnation line for the ice during the late glacial period.

Another important area is in Djursland. This region is not yet resurveyed, but regarding the earlier planting the biggest areas are around the marginal moraines dominating the landscape in the southern part of Djursland. The recent abandonment of farmland is, however, also widespread in the north of Djursland. Concerning the afforestation of the rest of Jutland not much can be said yet. The big heath plains seem to escape the planting, but on the older moraine landscapes (the Riss moraine) in Western Jutland planting occurs and apparently most frequently in regions long exposed for wind erosion and with big sand coverings.

Concerning the planted fields 1952—63 it is possible from the resurveyed areas to make a certain analysis on account of the year of planting and the size and composition of the tree species planted. All the resurveyed area, approximately corresponding to the region represented by fig. 1 E, covers about 800 km<sup>2</sup>. Of these are since 1870 planted well over 50 km<sup>2</sup>, allocated as follows: 15 km<sup>2</sup> during the period 1870—1910, 27 km<sup>2</sup> during 1910—1952 and 8 km<sup>2</sup> during the ten years 1952—63. Comparing these three periods it will be seen that the afforestations of the farmland have increased since the turn of the century and apparently continued with unabated intensity in the last period fig. 4 shows, furthermore, that much more areas have been planted during the last half of these ten years, while the plantings from 1953—57 only make one third of the total amount, those of the last 5 years make two thirds. The figures from the single years are encumbered with a certain insecurity as to the determination of age, but the tendency seems after all to be clear.

The number of planted fields 1952—63 in the resurveyed area is about 420, and of these is well over 40 % of a size not exceeding 1 ha (fig. 5 B I), about one third is smaller than 2 ha and only 10 % of the single fields have a size more than 5 ha. As also appearing from fig. 5 B II this last group, however, covers more than 40 % of the planted area and forestally it will probably be the most returning. In fig. 5 A is entered the absolute area for every size category and a clear impression of the predominance of the small fields is received; an even dividing of the total area on all categories would give about 40 ha to each, and the fig. 5 A shows how the plantings smaller than 6 ha all are predominating, and the categories < 1 ha and 1—2 ha represent two to four times the average.

In far the greatest part of the afforestation Norway spruce has

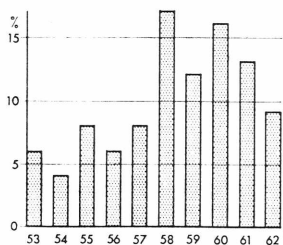


Fig. 4. The figure expresses in percentage the distribution by the year of the approximate 420 afforested farmland areas dealt with in the newest survey (abandoned farmland 1953—1962).

been planted. Of the total number of resurveyed areas the plantings of Norway spruce represent more than 95 %, and it is intended from many of these to deliver Christmas trees in the course of 10 years so that from a forestal point of view a rapid return is obtained. In 10—15 % of the plantings pine or larch, and in some cases also deciduous trees mix with Norway spruce. The deciduous trees are also seen in mixtures without spruce, but then normally only covering smaller areas.

#### Some factors determining afforestation

It is natural to ask for the causes for this change in land-use. This problem is not yet carefully worked out as the greatest importance

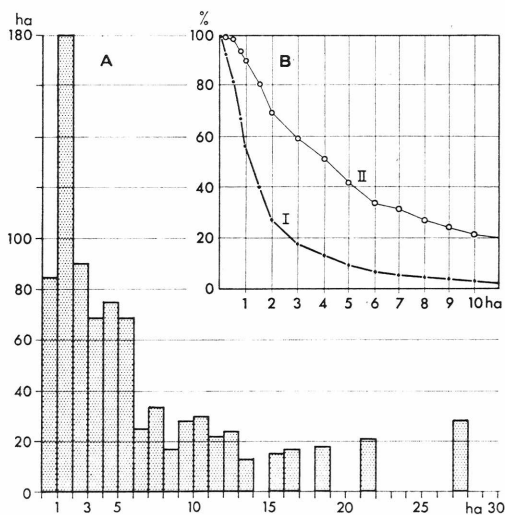


Fig. 5. The columnar diagram shows the distribution of the total afforested farmland area on the size categories (0—1 ha, 1—2 ha, etc.). A clear impression of the predominance of the small categories is received. An even distribution of the total area on the represented categories would give about 40 ha per category. B. I. A cumulative curve for the number of afforested farmland areas distributed on size categories ( $< \frac{1}{4}$  ha,  $\frac{1}{4}$ — $\frac{1}{2}$  ha,  $\frac{1}{2}$ — $\frac{3}{4}$  ha,  $\frac{3}{4}$ —1 ha, 1— $1\frac{1}{2}$  ha, etc.). B. II. A cumulative curve for the areas within every of the categories mentioned in fig. B. I. B. II. represents a summation of the columns in fig. A.

first has been attached to the surveying. The most evident causes may be divided into the following: terrain and soil, economy and man-power, social and recreative reasons.

On account of the form of the terrain a few areas are unfit for cultivation by means of modern implements. The cultivation is when the gradient becomes too big partly impeded technically, as it is more difficult to drive with tractors than with a team of horses, partly too expensive as to working time. The true morphological dependence is revealed by the many slope woods of East Jutland; in the previous description about the distribution of the afforestation the landscapes marked by erosion have been emphasized and the slopes are also here among the planted sections, but it is difficult all over to distinguish the morphology from the material in the slopes as a reason.

Often, just as on the plains, the condition of the soil and the subsoil will be the decisive factor, and the sections of sand and gravel in the diluvial landscapes are among the obvious planting areas. As a cause attention will here alone be called to the bad water economy of these deposits; such regions are often in case of a drought very open to an agricultural catastrophe. In connection with the mentioned shifting cultivation attention has also been directed to the soil. By cultivation of the old heath soil an accumulated amount of humus will be found. By a careful preparation of the soil and by additioning the necessary fertilizing agents in proportion to the removed crops it has at many places been possible to maintain a balance in the soil in regard to humus content and nutrient reserves or even to increase these. If the unstable soil condition in these regions is not considered in the treatment of the soil, a strong leaching, a change in the soil structure and a widespread wind erosion will be a consequence; the final result is then that the farming is less profitable and that the returns may be object of great variations. Such regions are predisposed for abandonment of farmland and after a year or two of drought, for instance, an afforestation may take place.

The economic situation of the agriculture will also be an important factor in this connexion and will in many cases be the stimulus of the change in the land-use. Bad economy together with extreme climatic conditions have without doubt greatly influenced the increase of afforestation in the end of the fifties and the beginning of the sixties. The economic consideration includes also the relation between the return of the land when used as farmland and as

woodland. From forestry-economical side it is in part agreed, that planting of former farmland is profitable if the present prices are maintained and perhaps main because the establishment of plantations is supported economically by the state by a subsidy for the first planting covering about half the total expense for the establishment. The supplying of the Christmas trees, including the export of these, has been an important factor in the optimistic economic considerations, but this possibility is reduced during the last year.

Another important incentive for abandoning the farmland is the shortage of man-power in the agriculture during the later years. The number of farm workers has dropped from about 200.000 in 1950—54 to about 85.000 in 1963 for the whole country, and many of the farm owners have planted the poorest or the most remote parts of the farmland in order to compensate for this change in the work situation. During the years before the second world war the utilization of the man-power also played a part by the establishment of the plantations, but at that time the idea was to make the most of the man-power in the periods the agriculture was unable to employ the workers. In this connection it must be said, that alienation of heath or farmland to afforestation often has been started in order to be able to employ workers during periods with unemployment, and both the purchase of the plants and the planting work have been subsidized.

The last reason — the recreative one — refers to the many smaller (and some bigger) holdings bought by the townspeople, planted and used as country houses. In some cases such a purchase is made for pure economic reasons and the buildings are left to decay — the so-called derelict farms — but many places are used as summer- or permanent habitation.

It is too early to put forward a prognose on the basis of these investigations. An analysis of the figures from the last decade showed the afforestation of the farmland to be only half as frequent in the first five years as in the last five ones. In the last mentioned period the economy has been especially bad for the agriculture and the weather conditions have been against the agriculture for instance in 1959—60. The economy, however, has now grown better during the last year (1963—64), which perhaps may reduce the abandonment of the farmland; but the constant big decline in man-power is sure to stimulate the planting of unprofitable areas. It will, therefore, be difficult to indicate, how the balance between agriculture and plantation will turn out on the many marginal farmareas in Central Jutland.