

There are but few countries in the world which can extend their territories by peaceful means. Holland is in the fortunate position to have an area in the centre of the country in which new land could be created by draining the former Zuyderzee. This added a considerable area to the total space of land which is becoming ever scarcer. After it had been decided in 1918 that this gigantic project should be taken in hand, these plans were realized with great energy during more than 50 years. In the same period of time, the pattern of living greatly changed so that the plans of development had to be adapted to new social needs.

One of these needs, closely connected with the entire structural change, such as increased urbanization and mobility, is the essential need to go into the country.

In a rather short time, open-air recreation has therefore become an important social factor which takes up space. Space which, in the new land, is reclaimed on a large scale.

When planning, the spot on the map designated as forest can be drawn much more easily and quickly than it can actually be realized in the field.

For a forest is not a collection of trees, but a self-supporting ecological system which, in the course of many years, gradually comes into existence by a carefully-considered management.

It is the object to make good, fertile land into a high-grade forest with a great variation between open and dense spaces, and with a great variety of trees according to age and species.

A forest which, in its totality, forms a permanent enterprise with a sound biological basis and a good economic structure.

The word of Schädlein here applies: "The object is great and far away, the way there begins here and today".

With the final object, the forest, in view, we must turn back to the initial phase, the moment of afforestation.

In the phase of afforestation, tree species with a long rotation, such as oak and beech, may only cover a highly restricted area because they will determine the final destination for a very long time to come.

During successive working periods of about ten years, the area planted with tree species can increase.

Because tree species with a short rotation are used, especially poplar, which has also excellent pioneer qualities, a flexible management can be guaranteed and the afforestation of the area be regulated in successive working periods until the final stage.

By means of a concrete example, this working method will be further explained.

Because of the urbanization of Lelystad, it was decided in 1969 to afforest an area covering about 1000 ha and situated in the southwest of this new town. On the landscape project of Eastern Flevoland (1 : 50,000) a spot appeared of about 40 cm² large (fig. 1, p. 29).

Now, how will the spot on the map become a place in the landscape?

When working out the plan for the area to be afforested, we started from an intersection of the area into two zones. A northern zone for recreation, with an intensive development, and a southern zone of about 600 ha large with the emphasis on quiet. A slightly developed area and a rather dense forest (fig. 2, p. 30). After the polder had dried, the area was sown with common reed to promote ripening and accessibility, after which it was reclaimed in 1967.

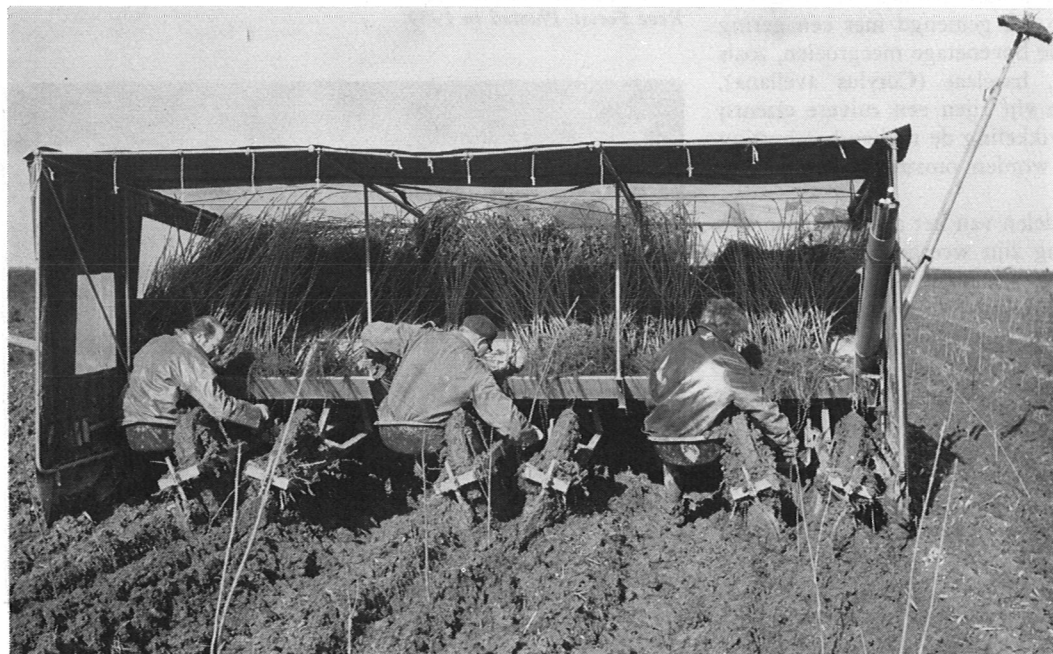
For some years, agricultural crops, viz. colza, wheat, barley, were grown in succession.

The composition of the soil is highly homogeneous and consists of fertile clay.

In accordance with the above-mentioned starting points, directives were drawn up for the choice of tree species. Besides, stipulations were made as to how the tree species should be distributed over the forest.

In these directives, the following distribution is indicated:

- 60 % *Populus*
 - clones of the groups Aigeiros and Tacamahaca:
 - cv. Robusta 35 %
 - cv. Dorskamp and cv. Flevo 20 %
 - cv. Oxford and Geneva 20 %
 - clones of the group "Leuce", such as
 - 'Witte van Haamstede', 'Limbricht', 'De Moffart' 5 %



Plantmachine.
Rijenafstand 1,50 m.
Planting machine.
Spacing 1.50 m.

Foto: A. J. van der Poel

Bosbeeld in het Abbert (1960).
Forest Abbert (1960).

Foto: Rijksdienst
 IJsselmeerpolders



– other varieties ('Rochester', 'Androscoggin', 'Fritzi Pauley' and experimental clones) 20 %

By experimental clones are meant the clones released in 1972, such as 'Barn', and 'Donk'.

In the years to come these will more and more take the place of 'Robusta'.

7 % Salix

– clones of *Salix alba* 'Drakenburg', 'Tinaarloot', 'Polsdonk' and 'Belders'

7 % *Fraxinus*

7 % *Acer*

3 % *Quercus*

3 % *Fagus*

3 % *Ulmus*

– clones of *Ulmus hollandica* such as 'Commelin', 'Groeneveld' and experimental clones

10 % Other varieties: *Alnus*, *Prunus avium*, softwood.

On places where this may be desirable for esthetical reasons, the edges of poplar stands will be planted with auxiliary species up to 9 rows deep.

All stands are mechanically planted with a machine; the row-spacing has been fixed at 1.50 m. The planting space in the row is at least 1.25 m. The row spacing in poplar, willow, and elm plantations must always be a manyfold of 1.50 m.

The plant-spacings used for poplars are linked with the previously stipulated rotation.

For a short rotation (10–15 years) – 70 % of the total poplar area – a dense spacing is chosen, viz. 4.5 x 5 m. This area is not thinned so that the final number of stems (450/ha) is equal to the initial number of stems.

The poplar plantations with a longer rotation (about 30 years) – 30 % of the total area – are thinned from the 10th to the 15th year. This last group is planted in a wider spacing of 6 x 7 m (fig. 3, p. 30).

In case of underplanting with alders, these are planted in rows between the poplar rows. Because alders, after a number of years, are cut back with a rotary cutter, they are not planted in the rows of poplars.

In stands with a long rotation, the middle row of alders can presumably be maintained until the final cutting.

For the other stands, such as oak, beech, ash and alders, planting schemes have been made up to restrict future maintenance to a minimum.

The following planting scheme is, for instance, used for the afforestation of land with oaks: 5 rows of oaks mixed with a small percentage of bushes which do not grow into the upper storey, such as black alder (*Rhamnus frangula*), hazelnut (*Corylus avellana*), cornel tree (*Cornus mas*).

Every five rows a pure row of alders which, in the initial phase of the development, give the necessary protection. This pure row of alders is cut back with the rotary cutter in about the sixth year.

One of the parts of the area to be afforested has been further worked out in figure 4 (p. 30). The drawing gives the main tree species, the plant spacing of poplar, willow and elm, the size of the section, the planting direction, the place of the edges to be made and the section-letters for the plan of management and any other special species to be planted.

After laying out the sections in the field used for afforestation, the planting material is supplied and distributed over the area to be planted. The tractors can be started, the planting machine be manned and loaded and the forest plan becomes reality. Every year 1000 ha of new forest in a new land.

The forest will contribute to the improvement of the living climate of the growing town; it will give opportunity for recreation, it will play an important part in the landscape and it will also produce wood.

It is with purpose that, in afforestation, this versatility has been aimed at.