XVIII

CHANGES OF SYSTEM

Cases arise from time to time in which it may be necessary to convert from one system to another, or to introduce a recognized system in a forest hitherto treated under some primitive or faulty method of working. Changes of system may be desirable for various reasons, such as (1) changes in market demands, (2) questions of national policy, (3) failure of the existing system from one cause or another, (4) improvement of communications, (5) advance of silvicultural knowledge, (6) improvement of personnel.

In some cases changes from one system to another involve little or no sacrifice, while in others there may be considerable temporary sacrifice involved. Hence before deciding on any conversion the ultimate benefits to be derived should be carefully weighed against the temporary loss, if any, during conversion, and steps should be taken where possible to minimize this loss (see p. 158). The usual method of introducing systems of concentrated regeneration in irregular forests has been indicated on p. 63. The chief disadvantages of this method are (1) the sacrifice of immature timber in places where this has no market value, and (2) the possible difficulty of obtaining regeneration wherever it is required.

The sacrifice of immature timber can be lessened by adopting a long regeneration period as a temporary measure. Suppose, for example, that the ideal is to adopt a rotation of 120 years divided into six regeneration periods of 20 years each, but the crops are so uneven-aged that they cannot be regenerated in even-aged form without a great sacrifice of immature trees. In such a case we may, as a temporary measure during the first rotation, form double periods of 40 years during which one-third of the area would be regenerated, instead of single periods of 20 years during which one-sixth of the area would be regenerated; the oldest trees would be removed, as far as possible, during the earlier part of the period and the smaller trees during the later part. This would produce a somewhat uneven-aged young crop, but the sacrifice of immature trees in the old crop would be lessened.

In the mixed irregular forests of the tropics, in many of which only a few out of a large number of species are saleable, the introduction of concentrated regeneration will often result in a great
increase in the proportion of valuable species, and the ultimate gain
may far outweigh any temporary sacrifice of immature timber.
So far as regeneration is concerned, if natural regeneration cannot
be stimulated wherever it is required, it may be necessary to utilize
such advance growth as is already present, and to free it wherever
necessary; that is, to follow regeneration rather than to endeavour
to force it. From this point of view a method proposed by Sir Peter
Clutterbuck for the sal forests of northern India is worthy of notice.
The sal tree tends to regenerate in even-aged groups and masses,
but natural regeneration cannot always be relied on wherever it is
required, and the formation of definite periodic blocks may not
therefore lead to successful results. Under the proposed method the
rotation is fixed and the yield is regulated by volume, based on
periodical enumerations. Periodic blocks are dispensed with, but
the serial order in which blocks or compartments are to be taken
in hand is prescribed, and the fellings are carried out entirely on
silvicultural lines, the object being to encourage the development of
even-aged groups, patches, and masses of all sizes; the fellings thus
take the form of cleanings, thinnings, and improvement fellings,
as well as secondary and final fellings, according to requirements.
Each year's work closes, when the annual yield has been obtained,
at some convenient natural feature or artificial line. This method
was devised primarily for forests containing a large proportion of
the younger age-classes. It has the advantage of lessening the
sacrifice of immature timber while encouraging the natural growth
of even-aged groups and masses. On the other hand, it does not
tend towards the rapid establishment of a correct proportion of
age-classes, though it paves the way for the subsequent introduction
of the uniform or other definite system.