

the strong glare of light reflected from the planet; but such events can reveal their presence. At the time of Uranus occultation event of March 1977, systematic dimming of the star light during the planet's passage in front of the star clearly pointed to the existence of a concentric ring system encircling the planet. Many details of its structure could be estimated from the photoelectric light curve, which have been confirmed from later occultation events of this particular planet²⁰⁻²².

OTHER EVENTS

Besides the phenomena described above there are many other possibilities of occultation type of events. There are events in which both the bodies are members of our solar system; occultations of the planets, their satellites or asteroids by the moon are quite common. Solar eclipses are nothing but occultations of the sun by the moon. The satellites of the big planets regularly get occulted by the planet bodies. Each and every event has its own peculiar features and uses.

Phenomenon of a star occulting another is very common in binary star systems, when two stars rotating about their common centre of mass periodically occult each other by turns. Depending on the orientation of their rotation axes and relative sizes and separation between the components, the occultation events become noticeable as periodic light variations; the so-called eclipsing binaries have contributed more to the store of the information about star systems than any other method in astrophysics.

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ANNOUNCEMENT

INTERNATIONAL CONFERENCE ON SPACE TIME ABSOLUTENESS

The International Conference on Space Time Absoluteness will be held from 8th to 11th July 1982, at Geneva.

Further information may be had from Prof. D. V. Sathé, Member of the Programme Committee, Wagh Building, 1220 Sadashiv Peth, Pune 411 030. (Cf. NATURE, Sept 24, 1981, p. xxix).

GROWTH STRATEGIES OF TREES AND THEIR APPLICATION TO FOREST MANAGEMENT

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ABSTRACT

Phenological characteristics as related to ecosystem function of two forest types at lower and higher elevations of Meghalaya have been considered. Germination and establishment pattern of selected early and late successional species have been related to their light requirements. Tree architecture, extension growth, radial growth and leaf dynamics of early and late successional species, both from low and high elevations have been studied. These studies suggest that the early successional species have an exploitive growth strategy while the late successional species are conservative in their approach. The growth pattern has been related to biomass production and allocation pattern of early and late successional species. Early successional species have surface feeding root system with lesser allocation to root compartment, whereas the late successional species have deep root system with more allocation to it. The allocation strategy of early successional species are geared to attain more growth in height and greater allocation to the bole. On the whole, the early successional species are more productive than late successional ones. The significance of the results for forest management is discussed.

INTRODUCTION

WITH the depleting fossil fuel resources, the identification and exploitation of indigenous tree species for fuel and other energy requirements are urgently needed. With increasing population pressure, other requirements like timber are also increasing at a rapid rate. In the developing countries of the tropics and subtropics where this problem is more acute, the forests are being continuously exploited and destroyed causing serious environmental problems. According to official records the extent of forest cover in India is 75 million hectares, i.e., about 23% of the total geographical area. If one realizes that much of it is degraded vegetational types, then more than half of this forest area is not capable of ensuring ecological functions and economic usefulness.

Studies on the ecological adaptation and growth characteristics of trees are, therefore, important for the conservation and management of these forest ecosystems. Of several

important aspects dealing with adaptive features of trees, the architectural pattern and growth co-ordination of trees form a basis for the differences in photosynthetic or production efficiency of these giant terrestrial producers. Though there has been a marked increase in our knowledge of the adaptive significance of various structures in trees, like branching pattern^{1,2}, leaf shapes^{3,4} and sizes⁵ and whole tree architecture^{6,7}, there is still a strong need to find out the information regarding the reactions and adaptations of trees to varied environmental conditions and occupancy of successional niche.

Besides, an understanding of the establishment pattern of the seedlings under natural forests and the phenological adaptation of the forest community as a whole is also important from the point of view of understanding of the ecosystem function.

This account emphasizes the above aspects of the problem on the basis of extensive studies done by us in two forest types, a sub-tropical montane forest at higher elevation (alt. 1900 m)