A PECULIARITY OF STEM STRUCTURE IN ARECANUT

By

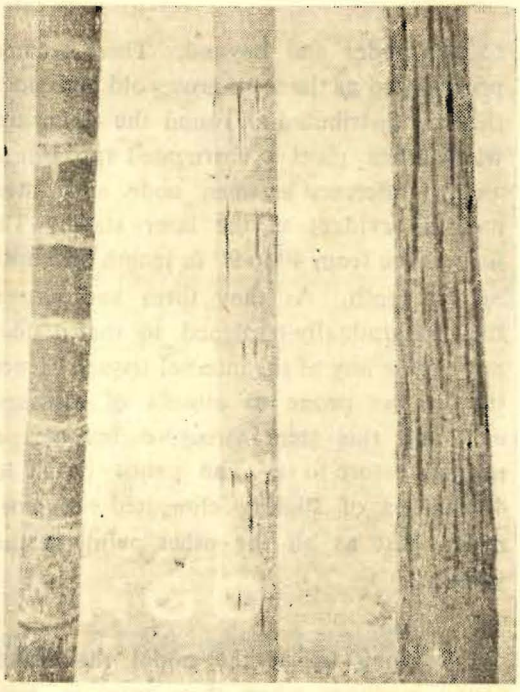
G. V. B. NAIDU, B. Sc. (Hons.)

Research Officer,
Regional Arecanut Research Station, Kyathasandra.

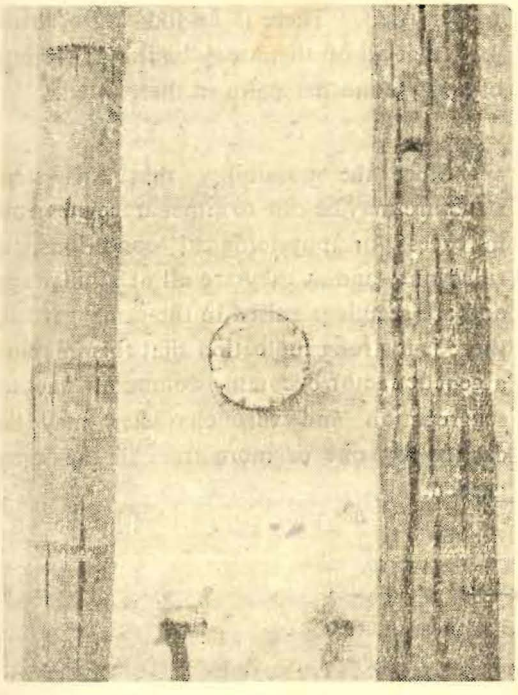
The arecanut palm (Areca catechu) is described as "trees very tall and slender reaching a height of some 60 to 70 feet. They consist of a single unbranched, whitish stem, smooth, cylindrical and annulate marked with the scars of the old fallen leaves, regularly throughout their height and surmounted by a crown of pinnate leaves". (Yagna Narayana Iyer, 1944). This description is typical for the species; the stem of young trees are green and gradually change with age to a greyish white colour but remains smooth throughout. An exception to this smooth stem structure showing longitudinal splits from 4" to 9" in length all along the stem was noticed by me in one garden at Harenahalli in Gubbi Taluk of Tumkur District. It was not a stray case, but in all, 14 palms had the same feature in the garden and hence it is described and discussed in this note.

The plant is slender, growing and yielding normally and its tender growing region at the top has a smooth greenish stem. At about the seventh node from the top, first signs of slight splitting up of the nodal region is seen, which goes on increasing as we go down. These fissures at the nodes extend on either side and in many cases join each other so that they extend continuously

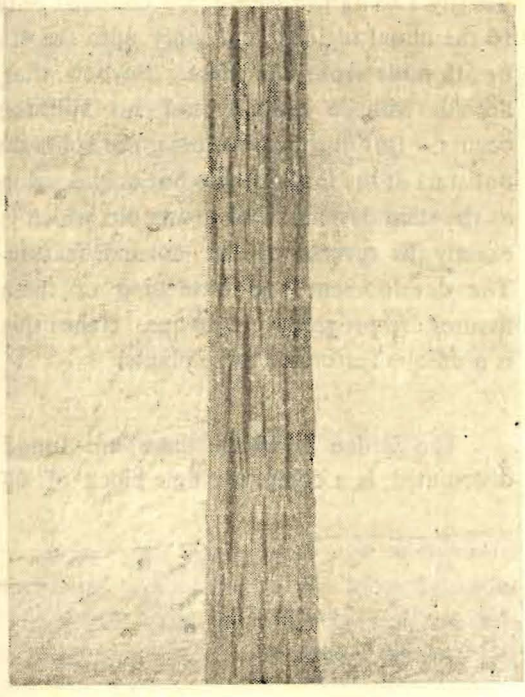
I. The "Split" and Normal plants growing side by side in the garden.



II. The Top, middle and lower portions of the plant.



III. Middle and old portions of the stem with transverse section through the old portions.



IV. Lower portion of the stem shading fissures.

to two nodes and beyond. These become pronounced as the stem grows old and since they are distributed all round the stem, the whole stem gives a corrugated appearance and no difference between node and internode is evident at the later stage. The fissures are from 4" to 9" in length and upto 3/4" in depth. As they form and extend they get gradually hardened so that it does not expose any of the internal tissues. Hence they are not prone to attacks of diseases, etc., and this stem structure becomes a normal feature to it. The palms bear 3 to 4 bunches of slightly elongated nuts normally, just as all the other palms in the garden.

Splitting up at the nodal regions of young seedlings when they grow in rich soils up to the first few nodes have been observed commonly all over. These splits, usually 1 to 1½" in length, are confined only to the nodal regions and only upto the 4th or 5th node from the base. Beyond that, growth will be normal and no splitting occurs. But in the above case, the splits do not start at the initial stages but only develop as the stem develops and grows old which is exactly the reverse of the normal feature. The development and hardening of these fissures are progressive with age. Hence this is a unique feature of these plants.

The garden in which these are found distributed, is a compact single block of 6½ acres, with about 3,000 plants in all, of all ages. It is an old established garden known for its seed production, but planting is irregular and spacing vary from 2' to 8' between plants. It is situated right in the middle of the manganese and iron ore mining area and the soil of the garden is rich in these two ores. The entire population, in this garden have the normal stem structure except 14 palms found interspersed all over the garden which have this feature in common. Hence, the possibility that this may be due to excess of these elements or may be induced by some physiological pecularity in the region is ruled out.

But during studies of these plants it was noticed that all these plants were of almost similar age. On enquiry it was ascertained, that these plants were all raised in the party's garden alone, from seeds collected from the garden itself. There is an indication, therefore, that all of them may be the off-springs of a single mother palm in the garden.

Since the possibility that this stem structure may be due to either trace elements in excess or physiological conditions, is ruled out; and as they are all of similar age and are seedlings raised in the same garden, there is a strong indication that this may be a genetic factor becoming dominant due to seggregation and this character may be carried by one or more trees in the same garden.