newly formed cells showed angular constriction which might be due to mutual pressure[2] (figure 1c). Coenobia are embedded in smooth, nonfibrillar and wide mucilaginous envelope (figure 1A).

Reproduction is solely by autospores. Normally the contents of individual cells divide to form four autospores (figure 1B). However, unusual divisions resulting in one- (figure 1D), two- (figure 1E) and even eight- (figure 1F) celled stages have been observed but rarely. The remnants of mother cell wall which may be clearly seen till the autospores develop into mature coenobium (figure 1B).

Eutetramorus was first described by Walton[3]. Since then this genus has suffered many vicissitudes. Smith[4] assumed this to be a stage of *Sphaerocystis*. Schiller[5] also collected this alga which was identical to Walton's *Eutetramorus* but without pyrenoid. Meanwhile Korchikoff[6] described a new genus and named it *Coenococcus* which resembled *Radiococcus* in all respects except that it differed from latter in not having a radially striated mucilaginous envelope. Lund[7] did not consider this character to be of taxonomic importance and merged it with *Coenococcus*.

According to Korchikoff[6] the cells of *Coenococcus* were liberated by gelatinization of the mother cell wall whereas in *Radiococcus* pieces of the wall of the parent cell were seen faintly after the liberation of the autospores. This point of difference was not considered to be strong enough to separate the two genera. Therefore Lund[8] merged *Radiococcus planctonicus* into *Coenococcus planctonicus*.

Bourrelly[9] and Komarek[10] did not agree with such minor differences to be of taxonomic significance. So they proposed the placement of *C. planctonicus* Korch under *Eutetramorus* and named it as *E. planctonicus* (Korch) Bourr. Komarek[10] further gave a comparative account of five species of *Eutetramorus* i.e. *E. polycoccus* (Korch) c.n., *E. globosus* Watton, *E. fottii* (Hind) c.n., *E. planctonicus* (Korch) Bourr, *E. tetrasporus* Kom. In addition Komarek also collected and described *E. tetrasporus* and *E. fottii* from Cuba. These species differ from the species described earlier wherein autospores are released by gelatinization of mother cell wall. Our alga agrees with *E. planctonicus* in its structure dimensions, mode of division and occurrence and has not been reported from India so far.

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A PENTATOMID BUG CAUSES TENDER NUT DROP IN ARECANUT

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ONE of the serious maladies affecting arecanut cultivation in India is the tender nut drop or button shedding resulting in heavy losses in yield. It has been observed that 10–20% of the palms around this Regional Station show this malady irrespective of the management practices[1]. Several insects, mites and pathogens are reported to be associated with the damage to inflorescence, bunch and tender nut[2–4]. Apart from these, the symptoms of punctures on the pericarp and rotting of kernel are also reported[5]. Though these investigators suspected the punctures to be caused by some insect, they could not locate any. Subsequent studies also revealed the presence of pin-prick like punctures on the surface, but all

attempts to isolate fungi or bacteria from the affected tender nuts were more or less negative[5]. The foregoing account clearly shows that there is no report so far on the precise nature of the damage and the causal agent of the tender nut drop in arecanut. Hence we undertook to investigate this malady systematically. For the first time in August 1985, we have identified *Halyomorpha marmorea* F (Pentatomidae: Hemiptera) (figure 1) as the insect responsible for this serious malady. It was observed that the bug pierces the tender nut with its long proboscis and sucks the sap. Feeding continues for several hours. Due to continuous feeding the developing kernel was depleted of the most vital sap leading to the shedding of developing nuts.

Feeding activity is very intense during the morning and evening hours in comparison to hot hours of the noon. Perhaps, this may be one of the reasons why no insect could be located by the earlier workers. We have been able to reproduce the damage symptoms viz pin-prick like marks on the pericap, with necrosis and depletion of the fluid in the kernel under controlled conditions with these Pentatomid bugs over an experimental period of three months. Moreover, these insects have been reared for two generations on a collateral host, cowpea, *Vigna sinensis*.

Figure 1. An adult bug feeding on tender arecanut.

A survey of the literature has revealed that *H. marmorea* has not been reported hitherto as a pest on any crop in India. Therefore, this is the first record of *H. marmorea* as a serious pest of arecanut causing tender nut fall. Another species of this genus *H. picus* F has been reported as a serious pest of beans in China[6] and *Indigofera arrecta* in Ceylon[7].

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INFLUENCE OF *AEROBACTER AEROGENASE* ON *IN VITRO* MORPHOGENETIC BEHAVIOUR OF *PHILONOTIS LANCIFOLIA* MITT

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THE present work deals with the effect of an infectant on protonemal growth and bud initiation in *Philonotis lancifolia* grown on tryptophan-supplemented medium.

P. lancifolia, a dioecious moss of the family Bartramiaceae, was collected from Shimla during October 1981 and its aseptic cultures were estab-