of completely light coloured adults. This effect was similar to that following JHA application. Again, taking pigmentation as an index of CA activity, thiotepa appears to activate these glands to secrete hormone if injected in last nymphal instar. Though impairment of neuro-endocrine functioning by chemosterilants is noted for *Ephistia kuhniella*[5,6] and *Periplaneta americana*[7], probable 'allatotropic' effect has not been suggested so far. For both isolated rearing and thiotepa treatment females showed less sensitivity towards change in pigmentation. The reason for this is not clear since gonads were not found to play any role in influencing adult pigmentation.

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ON THE APPLICATION OF DYAR'S RULE TO THE LARVAE OF *HENOSEPHACHNA VIGINTIOCTOPUNCTATA* (FABRICIUS)

DYAR[3] (1890), while studying the head-capsule width of 28 species of lepidopterous larvae, found that width was relatively static during a stadium and grew in geometrical progression in successive stages of a larva. This growth ratio is constant for a particular species and by using this ratio it was possible to determine the exact number of instars of species. On the other hand Taylor[8] (1931) and Richards[7] (1949) mentioned that progression is rarely regular. Taylor[8] (1931) also suggested a modification of Dyar's Rule. In the present investigation the applicability of Dyar's Rule and Taylor's modification of it in the larvae of *Henosepilachna vigintioctopunctata* (Fabricius) (Coleoptera : Coccinellidae), which is a serious pest of many vegetable crops in India, was tested.

Materials and Methods.—Field collected adults were kept in jars and potato leaves were provided for egg laying. The first instar larvae (0–12 h old) hatching from these eggs were reared individually on potato leaves in plastic petri dishes (10 cm in dia.) at 27 ± 1° C with 60 ± 5% r.h. and photoperiod of 12 h photophase and 12 hr scotophase was also maintained. Head-capsules of each larva were collected and stored in homeopathic vials. The width of the head-capsule was measured across the greatest width of the head, *i.e.*, at the base of mandibles with a stereomicroscope fitted with an ocular micrometer. Modification suggested by Taylor[8] (1931) was also applied. In addition to these, the data were also subjected to regression analysis, *viz.*, linear, exponential, modified exponential and logistic to find out the better fit

Results and Discussion.—Perusal of Table I reveals that the size of the head-capsule varied greatly but there was no overlapping of sizes between instars. Size of one instar, therefore, cannot be confused with that of another instar. However, the sizes of head-capsules of the two sexes of a particular instar did not differ significantly. When log values of the mean head-capsule width were plotted a linear relationship was not obtained indicating that the head-capsule width

TABLE I

Observed and calculated head width of different instars of H. vigintioctopunctata

Instar	Observed head width (mm)			Calculated head width*
	Range	Mean	Growth ratio	
I	0·369–0·469	0·420	1·44	0·452
II	0·530–0·692	0·603	1·47	0·613
III	0·803–0·953	0·887	1·15	0·782
IV	0·968–1·107	1·018	..	1·180

* Average obtained by applying Taylor's modification.

TABLE II

Analysis of variance of observed head width of H. vigintioctopunctata

Source of variation	Degrees of freedom	Sum of squares	Mean square	F
Replications	87	0·126	0·001	..
Treatments	3	19·312	6·437	7152·22**
Linear	1	18·965	18·965	21072·22**
Quadratic	1	0·062	0·062	68·89**
Cubic	1	0·282	0·282	3·1333**
Error	261	0·242	0·0009	
Total	351	19·680		

** Significant at 1% level.

TABLE III

Observed and calculated values for linear, exponential, modified exponential and logistic curves

Observed value of Y	Estimated values of Y							
	Linear regression	Deviation from linear	Exponential	Deviation from linear	Modified exponential	Deviation from linear	Logistic	Deivation from linear
0·4202	0·4206	0·0004	0·4384	0·0182	0·4089	0·0113	0·4186	0·0016
0·6033	0·6282	0·0249	0·5941	0·0092	0·6402	0·0369	0·6018	0·0015
0·8869	0·8358	0·0511	0·8051	0·0818	0·8473	0·0396	0·8409	0·0460
1·0177	1·0434	0·0257	1·0910	0·0733	1·0324	0·0117	1·0491	0·0314
Deviation from regression	0·0039		0·0125		0·0032		0·0031	
$1 - R^2$	0·0177		0·0569		0·1492		0·1416	
R^2	98·22%		94·31%		98·51%		98·58%	

does not increase in geometrical progression. Dyar's Rule was, therefore, not applicable in this case. This rule was also found inapplicable in the female larvae of *Porthetria dispar*. Linnaeus (Keler[5], 1933), *Heliothis obsoleta* (Fabricius) (Gains and Cambell[4], 1935), *Spodoptera littoralis* (Boisduval) (Prasad[6], 1973; Bhat[1], 1974) and *Diacrisia obliqua* Walker, (Deshmukh[2], 1976). Growth ratios calculated by diving each mean by the mean preceding it indicated that head-capsules do not grow in the same proportion from instar to instar as the ratio of head width between III : IV instars was quite low as compared to others. Modifications suggested by Taylor[8] (1931) did not provide a perfect fit. However, the data were more close to Taylor's modification than original Dyar's hypothesis.

To know the actual relationship, the data were statistically analysed in a randomized block design considering instars as treatments and number of head-capsules observed in each instar as replications. The treatment sum of squares was partitioned into linear, quadratic and cubic to find out the greatest contribution of a particular function. From Table II, linear seems to be a good fit, as the variation explained by fitting additional terms are relatively very small. Estimation of values for linear, exponential, modified exponential and logistic (Table III) further revealed that head-capsule width does not increase in geometrical progression as suggested by Dyar because exponential was not found giving closest fit in any instar of this insect. Performance of linear is better than exponential. Best ones are modified exponential and logistic. Seeing the ease of computation and non-significant gain by fitting the modifiel exponential and logistic functions, linear function may be regarded as satisfactory fit.

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NEW RECORD OF PREDATORY BEETLES ON *CHILO PARTELLUS* (SWINHOE)

THE maize and *Jowar* borer, *Chilo partellus* (Swinhoe) (Pyralidae : Lepidoptera) is the most destructive pest of maize *Zea mays* Linn. and sorghum *Sorghum bicolor* Moench. in India. While studying the population dynamics of this insect at Ludhiana during 1975–76, four species of beetles including a carabid namely, *Chlaenius, hemifer* Chaudoir, and three coccinellids, *viz., Brumus suturalis* Fabr., *Coccinella septumpunctata* Linn. and *Menochillus sexmaculata* (Fabr.) were recorded preying upon larval and pupal stages of the insect. Black, elongated larvae of *C. hemifer* were found feeding on the larvae and pupae in the tunnels of maize and sorpgum plants. The brownish black beetles have two prominent brownish spots on elytra connected by semi-circular line.

The adults of *B. suturalis, C. septumpunctata,* and *M. sexmaculata* were found feeding on the larvae in the whorl of the maize and sorghum plants. Earlier *C. undecimpunctata* and *M. sexmaculata* have been reported as predators of larvae of *C. partellus* (Jotwani and Verma[6], 1969 ; Jotwani *et al.*[1], 1972). Rathore[3] (1969) reported *Gonocephalum depressum* Fabr. a tenebrionid beetle breying upon the adults of *C. partellus*. The record of three species of beetles, *viz., C. hemifer, C. septumpunctata,* and *B. suturalis* as predators of maize and *jowar* borer larvae and pupae is the first report from India.

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ACHLYA CAROLINIANA COKER— A NEW RECORD FROM INDIA

DURING the course of an investigation on fungi associated with fish diseases, *Achlya caroliniana* Coker was isolated from the infected *Channa punctatus* fishes captured from Ramgarh Tal, Gorakhpur, during January 1975. Pure cultures of the fungus were obtained by standard methods and the description corresponded to the bacteria free cultures growing on hemp seed halves in sterile water at 22–25°C. The identity of the isolate was confirmed with the help of monograph of *Achlya* by Johnson[1] (1956).

The cultures have been deposited in Mycological Laboratory of St. Andrew's College, Gorakhpur, at No. F/R-30.

A perusal of the literature had revealed that it is the first report of this fungus from India.

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ON TERMINAL SCLEREIDS IN THE COTYLEDONARY LEAVES OF *MEMECYLON UMBELLATUM* BURM. f. (MELASTOMATACEAE)

ON the basis of the published data[1-3], one can conclude that terminal foliar sclereids of monomorphic and polymorphic groupings *sensu* Rao and Bhupal[4] are typical of the genus *Memecylon* as a whole. This generic feature led us to examine the cotyledonary photosynthetic leaves of the seedlings of *M. talboteanum* Brandis and *M. umbellatum* Burm. f. collected in the vicinity of Coondapur.