so far as it hibernates for a fairly long period. But during the period of activity its general behaviour is very similar to those of the other two species. In 1944 and 1945, the time at which the pupæ entered into hibernation was not very variable. Caterpillars collected from field or bred in laboratory in the first fortnight of October or later entered into hibernation as they pupated. The date of emergence of moths from hibernating pupæ, however, varied. In 1945 the first moth emerged on 20th March, the last one on 27th May, the largest number of them emerging in the first fortnight of May; during 1946 the first moth emerged on 26th March, the last on 5th May with the majority emerging in the second fortnight of April.

Further, it was possible to rear this species, generation after generation, all through winter, at two constant temperatures, 86° F. and 80° F. At both these temperatures the insect remained active and did not show any sign of hibernation. At 86° F. the total life-cycle was completed in about 23 days, while at 80° F., it took about 28 days. The total duration of life-cycle of this series is thus longer than that of *E. fabia* by about 3 days at 86° F.[10] At other temperatures too this species takes somewhat longer than *E. fabia* to complete its life-cycle. Butac's (1933) observation fully supports this conclusion.

Therefore, temperature appears to be the main factor, if not the only factor, that brings about hibernation. With a view to studying the influence of low temperature on hibernation, some observations were made. A number of freshly formed pupæ from larvæ bred at 86° F. were exposed to 70° F., and moths emerged from all of them within three weeks. Again, fully-fed larvæ reared at 86° F. were exposed to 70° F., where they pupated within two days, and from these also moths emerged within three weeks. On the other hand, pupæ got from larvæ kept at 70°F., when transferred to a high temperature of 86°F., took longer to emerge as moths as compared to the pupæ from the larvæ at 86° F. It is hence evident that low temperature acting on the larval stage and not the pupal stage bring about hibernation.

Humidity, which is another important ecological factor, does not appear to have any marked influence on hibernation; and during March-May when the hibernation ends, humidity generally remains very low; at high temperatures, as stated above, it was possible to rear generation after generation throughout winter months.

At Delhi *E. cuprioviridis* has been found only on *Sida grewioides* which is a common weed in this locality. Lefroy[2] and Fletcher and Misra[1] recorded some species of *Hibiscus* and jute as its hosts, while in the Punjab it has been bred from *Sida cordifolia* and *Malvestrum tricuspidatum*,[5] two weeds commonly found in several parts of the province, and also rarely from two cultivated plants, *Hibiscus esculentus* and *Althea rosea*. In the laboratory this species was bred all along on *Hibiscus esculentus* without difficulty. With some difficulty the insect was also bred on flower-buds and bolls of cotton; and later, three consecutive generations were reared on the same food-plant. Moths of the first generation as also of subsequent generations behaved quite normally and laid viable eggs. These observations suggest that the insect is a potential pest of *Hibiscus esculentus* (*bhindi*) on which it is found even under field conditions in parts of the Punjab, and it is also possible that it may at any time start attacking cotton. With the rapid extension of cotton and the evolution of numerous varieties of different texture there is every danger that this insect may divert its attention to cotton in India also.

The writer is indebted to Dr. Tashkir Ahmed, Imperial Entomologist, for giving all facilities for this work and to Mr. Sadiq Khan for help in rearing and other routine work.

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April 18, 1947.

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DIASPORE WITH PYROPHYLLITE FROM HAMIRPUR DISTRICT, UNITED PROVINCES

MISRA[1] has recently shown that the long-known deposits of steatite of Hamirpur district in U.P. are deposits of pyrophyllite. The main deposit occurs at Gorahri (79° 37′-25° 27′) associated with quartz reefs traversing Bundelkhand—granites and gneisses. In no case is the mineral found in the granites and gneisses; it is invariably restricted to the quartz reefs. Three new deposits were subsequently discovered in the quartz reefs at Turra (79° 27′-25° 29′), Girwar (79° 29′-25° 31′) and Pahari Garhi (79° 31′-25° 32′). A hydrothermal origin has been advanced for the origin of these deposits.

At Gorahri where regular mining is being done diaspore was discovered in the form of geode-like bodies in the veins of pyrophyllite. The average diameter of these bodies measures about 5″. The mineral shows compact masses, purple radiating crystals, and well-developed greyish-white pearly crystals up to 1·25″ in length. The second variety is extremely brittle. The average specific gravity and hardness are 3·22 and 6 respectively.

Under the microscope thin sections show elongated blades and needles, and one set of fine cleavage lines are very characteristic, though sometimes traces of another set of cleavage lines are seen. Almost all sections show straight extinction with respect to the cleavage lines. The length of the mineral is

fast, and the optic axial angle appears to be very great. The average and maximum refractive index of the mineral are 1·70 and 1·74 respectively.

(1) By Ordinary light × 39. Showing blades and needles of diaspore.

The purple variety had the following composition :—

Constituent	Per cent.
SiO_2	3·71
Fe_2O_3	0·07
Al_2O_3	82·09
H_2O	14·53
Total	100·40

Analyst : C. P. Sood.

The impurities are evidently due to contamination from the associated pyrophyllite.

(2) Specimen of diaspore; 2/3 natura size. The prismatic crystals are arranged round a core of pyrophyllite.

In India diaspore has been reported in traces in the sillimanite gneisses of Bihar and corundum-bearing rocks of Rewah State.[2] The extensive aluminium ore of the Kashmir State is probably a diaspore and boehmite rock.[3] The present communication is perhaps the first record of diaspore occurring as an independent mineral in the form of well-developed crystals. Its association with pyrophyllite is also noteworthy. In Japan it occurs at Shokozan in Bungo Province with alunite, pyrophyllite and kaolinite as a hydrothermal alteration of porphyrite.[4]

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THE ALKALOIDS OF *XANTHOXYLUM BUDRUNGA* WALL.

Xanthoxylum budrunga Wall. (Fam. *Rutaceæ*) is a well-known indigenous drug valued as a remedy for intestinal complaints and general debility.. Dieterle[1] traced an alkaloid in its bark, but could not isolate the base or its salts in the pure state.

The bark of *X. burdunga*, procured from Dacca, has been examined, and the results are given in this note. Two crystalline, coloured alkaloids were isolated in the pure state from the alcoholic extract of the bark. This offered considerable difficulty as the separation of the bases and their salts could not be effected by fractional crystallisation from pure or mixture of solvents. They could only be separated by hand-picking. The bases isolated from the bark appear to be new compounds, and have been called *Budrungain* and *Budrungainin* respectively.

Budrungain (yield 0·0025 per cent.) forms yellow rods from methyl alcohol and ethyl acetate, and chars above 180° C., but does not melt.

Budrungainin (yield 0·005 per cent.) crystallises from methyl alcohol and chloroform in slender shining orange needles which melt at 155° C.

The alkaloids are being further investigated.

I am thankful to Dr. S. Sen for kindly supplying me with the *budrunga* bark, and to Dr. A. Chatterjee for her interest and kind advice during the progress of this work.

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May 12, 1947.

1 *Arch. Pharm.*, **1919**, **257**, 260.