Field Notes: Three male specimens were collected in April, 1928. They were found resting on the under surface of stones in a rather damp situation. A single female specimen was found at the same locality in August of the same year and was also taken from the under surface of a stone.

Fig. 9. Tetro lavicanus (sp. nov.). 9.
A. Ephyraea. B. Tibia and mentum of lar (1).

Types: The type specimens of spiders described in this paper will be placed in the Queen Victoria Museum, Launceston.

REFERENCES TO LITERATURE.

EXPLANATION OF PLATES.
PLATE XV.

Fig. 9. Tetro lavicanus (sp. nov.). 9.

A. Ephyraea. B. Tibia and mentum of lar (1).

Types: The type specimens of spiders described in this paper will be placed in the Queen Victoria Museum, Launceston.

REFERENCES TO LITERATURE.

EXPLANATION OF PLATES.
PLATE XV.

Megas nitens 9.

PLATE XVI.

Fig. 1.-Heterotheca montana. Entrance to nest showing network of silk.

Fig. 2.-H. montana. Nest in the side of a log and showing pillow-shaped egg sac.

PLATE XVII.

Menasurus audax, sp. nov. 9.

THE INHERITANCE OF SEX IN AN ABNORMAL (CARPELLODIC) WALL-FLOWER.

By

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Plates XVIII.-XX.

(Read 12th November, 1928.)

In wall-flower (Cheiranthus cheiri, L.) a curious floral abnormality has long been known. The plant is quite normal until it blooms. In the flower, however, while the sepals are normal the petals are reduced to narrow strips equal in length to the sepals or slightly shorter. The stamens are as usual six in number, but adhere together, forming a closed ring round about the normal ovary. Sometimes in individual rings the line of adherence between the stamens is more or less lacking, and a split takes place and the ring is not complete. The lines of adherence are what might be regarded as the margins of the leaves which normally grow together to form the cavity within which the pollen is produced. The total effect of this form of growth is that a ring is formed with the spangogenous tissue facing into the space between the ring of adherent stamens and the normal ovary. This spangogenous tissue produces not pollen but ovules which lie within the space between the stamen ring and true ovary. The stamens are thus spoken of as carpellod, as they produce ovules, and each has a functioning stigmatic surface at its distal end. On pollen being applied to the stigmatic area of the carpellod stamen the ovules mature into viable seed. The flowers of any plant are all affected; one never finds normal and abnormal flowers on the same plant. We may regard the abnormal as completely female as distinguished from the normal hermaphrodite.

De Candolle (2) describes the abnormal as a distinct variety under the name Cheiranthus cheiri gynanthus. How far this is valid may be questioned, as the abnormal can only set seed when pollinated from the normal hermaphrodite, and is, therefore, not self perpetuating.
A number of somewhat similar aberrations are known in other species. The Opium Poppy (Papaver somniferum) sometimes shows metamorphosed stamens tending more or less completely towards the carpellodic type, but rarely is the whole androecium affected, and never all the flowers of one plant completely. Weatherwax (5) has noted a case of carpellodcy in Maize (Zea mays) resulting from the metamorphosis of the rudimentary stamens of the pistillate flowers. The metamorphosis in this case seems to depend for full development on the fertilisation of the adjacent ovary. The same author (6) finds that though the style and stigma of the carpel-like stamens are similar to those of the normal organ, there is no true ovarian cavity and no ovules are formed. The cases of maize and wall-flower described above are interesting in comparison, as in the latter functioning ovules are produced and the change is from functioning male organ to functioning female organ rather than from obsolescent male organ to non-functioning female organ. A number of cases of suppression of one or other of the sexes of normally hermaphrodite flowered plants are known. The flowers of the Sweet Pea (Lathyrus odoratus, L.) are normally hermaphrodite, but occasionally plants are found in which all the stamens have aborted. Bateson, Saunders & Punnett (1) investigated this case, and have shown that the condition is definitely hereditable and passed from generation to generation on a simple Mendelian scheme, the abnormal being recessive to the normal. There are a number of other cases in the literature more or less clear cut where suppression or abortion of the stamens is definitely inherited.

De Vries (4) discussing the carpellodic wall-flower surmised that the condition was hereditable, but offered no evidence. A number of writers, for example Schaffner (3), have stated that sex reversal is primarily dependent on physiological states, and these are subject to change and reversal through ecological factors.

The present writer discovered growing in a crop of wall-flower in East Scotland one plant which was of the abnormal carpellodic form and pollinated it with the normal hermaphrodite. (This hermaphrodite, self-pollinated, and the seed sown, produced only normals, so it may be regarded as being homozygous.)

The seed from the abnormal (so pollinated) when saved produced an F1 generation, all normal. Close examina-
Cross section of flower showing stamen ring "ovary" around normal ovary.
Fruits, some showing developmental curvature due to selective pollination on the stamen ovaries.
tion of the flowers of this generation showed no trace of abnormality except that there seemed to be rather less pollen produced by the stamens. The F1 self-fertilised produced an F2 in which normals and abnormalities occurred in the ratio of 3 : 1. The actual figures were 266 normal and 85 abnormal, which agrees very closely with expectation, though the figures are somewhat small. This F2 was grown partly in West Scotland and partly in S.E. England. Since then an F3 generation has been grown in Tasmania and the abnormal appeared as expected.

In this case it would seem clear that the sex reversal is not due to environment, but to a simple factor pair inherited on a simple Mendelian basis, the abnormal form being recessive.

To throw some light on the relationship of the various parts of the stamen ring the stigmatic area of various members was cut off and the remaining members pollinated. The pollen had its usual developmental effect on the ovarian tissue only on the portions which carried stigmatic tissue. Those portions originated from stamens whose stigma had been cut off did not develop. Development following on pollination was limited to the metamorphosed stamen significantly pollinated, and did not spread to unpollinated neighbours. Pollination of the true ovary had no effect on the "stamen ovary" and vice versa. The effect of differential development following on pollinating these different parts of the stamen ring caused bending and twisting of the composite fruit as is shown in Plate XX.

DESCRIPTION OF PLATES.

PLATE XVIII.
Carpellodic Wall-Flower in full bloom.

PLATE XIX.
Cross section of flower showing stamen ring "ovary" around normal ovary.

PLATE XX.
Fruits, some showing developmental curvature due to selective pollination on the stamen ovaries.
LITERATURE REFERRED TO.


2. De Candolle, 1924. *Prodromus systematis naturalis regni vegetabilis*.


6. Weatherwax, 1925. *Notes on Grasses II*. *Proc. Indiana Acad.*, Sec. 34.

CHIPPED STONE TOOLS OF THE ABORIGINAL TRIBES EAST AND NORTH-EAST OF LAKE EYRE, SOUTH AUSTRALIA.

By

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(Communicated by R. W. Legge.)

Plates XXI.-XXIX.

(Read 12th November, 1928.)

Most of the tools picked up by collectors are worn out and have been discarded—it was so easy to make a tool that directly one failed to work satisfactorily it was discarded and a fresh tool made, a supply of stone material always being kept handy for this purpose.

Usually the younger blacks got the rough material from the quarries—these were usually in some exposed place, so the young men, who had all of the wild animal’s dread of being caught out in the open, would beter off as much stone as they could carry and would take it to where the old men waited, in some sheltered place, sometimes in a hollow in the sandhills, sometimes in the shelter of a timbered creek. Here the rough stone was chipped up, all pieces that were suitable for tools were then taken to the main camp to be worked up, the rough flakes that were of useless shape were left lying on the ground, and the cores were also discarded, unless, as sometimes happened, the cores were of suitable stone from which to chip small knives; they were then taken into the camp to be used up.

These cores have been variously described as upright scrapers, as planes, as skin scrapers, and Tartar’s Cap scrapers, but they are really only discarded cores from which it was no longer possible to chip useful tools.

When the stones reached the camp the flakes were sorted out. Some were suitable for use as tublas (chisels), others were suitable for kala (scrapers), other narrow flakes with a fairly high keel and about three-quarters of an inch