

NOTES ON THE ARGENTINE ANT AND OTHER
EXOTIC ANTS INTRODUCED INTO AUSTRALIA.

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Figs. 1-3.

The genus *Iridomyrmex* has its main centre in Australia where there are eighty forms; it is represented by ten forms in South and Central America, three in India and four in Japan and adjacent Islands. Africa, Europe and North America contain no native forms.

At least two Australian species have been transported to other places. *Iridomyrmex glaber* Mayr has been recorded from some of the Pacific Islands, Malaya and India; and *Iridomyrmex rufoniger* Lowne from Samoa.

Two forms are known to have been imported in past years into Australia, *Iridomyrmex anceps* Roger from India and Malaya, and its variety *papuana* Emery from New Guinea, both recorded from the Northern Territory and Queensland. Neither of the two forms appears to be common as few examples are received amongst the many species collected in the areas concerned.

The latest introduction and addition to the Australian list, *Iridomyrmex humilis* Mayr, commonly known as the Argentine Ant, was first recorded from Buenos Ayres, Argentine, in 1868 and since that time it has been transported to most parts of the world.

The date of its arrival in Australia is unknown, but from the evidence gathered it was first noticed in Balwyn about ten years ago. No complaints or specimens were received until early in September, 1939, when a resident of Balwyn brought specimens to the National Museum to be identified, and sought assistance to clear the ants from his property.

This pest is now widely distributed throughout the world. It has been established in various parts of South America; Southern States of U.S. America, Madeira, South Africa, Portugal and Germany.

Writing in 1913 Newell, after five years study of the ant, says:—"From an unknown and little noticed insect this ant has developed into one of the foremost household pests in the world, and its ravages affect, directly or indirectly, the

majority of crops grown in the South. Former indifference to its movements has given way to concern at its approach . . . Just how much territory this ant will ultimately infest we can not foretell with accuracy from the data at present available. It is quite safe, however, to venture the opinion that the species will eventually spread over a considerable portion of the Southern States—certainly over all of the orange and sugar-cane belts, and perhaps over all of the cotton belt.”

Referring to the small beginnings of the infestation he writes:—“The species had doubtless been introduced years before that time, but was gathering strength and establishing itself for a considerable period before its numbers become sufficient to attract attention. Since then it has increased from a few scattered and apparently insignificant specimens to armies and hordes numbering myriads of individuals. It has spread from a few blocks on the water front of the Mississippi River over practically the entire city, and has sent out vast numbers of colonists for hundreds of miles along the railways and waterways radiating from New Orleans. These pioneers have succeeded in founding scores of communities of more or less importance in the smaller cities and towns. Each of these communities is in turn furnishing its quota of migrants, and these are extending the affected territory in all directions from the original source of infestation. Thus, instead of the dispersion being from one source only, it is now taking place from hundreds of different points.”

This is exactly the position with which we are faced in Victoria to-day. A number of comparatively small outbreaks in widely separated districts are developing apace, and unless drastic action is taken immediately to prevent the dispersion of the pest and concentrated effort given to exterminating the nests at present in existence, the whole of Australia will be faced with the same colossal expenditure that the American Government has had to meet in the past with little results to show for it.

Every effort must be made to exterminate this menace while there is still some possibility of success. Without the full co-operation of the Departments concerned, and the general public, little can be done. Whatever action is to be taken, it must be done at once.

To assist in the identification of this species, detailed descriptions and figures of the worker, female and male are given in the following pages.

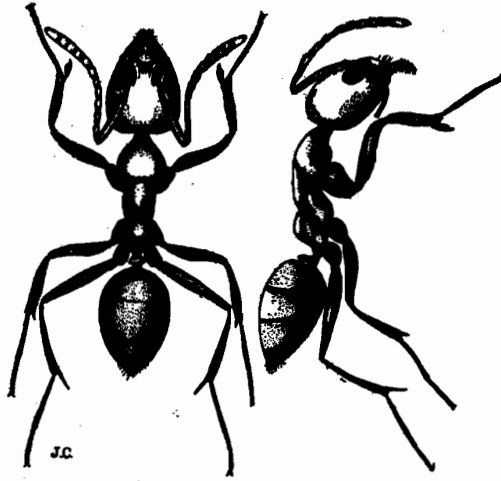


FIG. 1.

Iridomyrmex humilis Mayr. Worker.

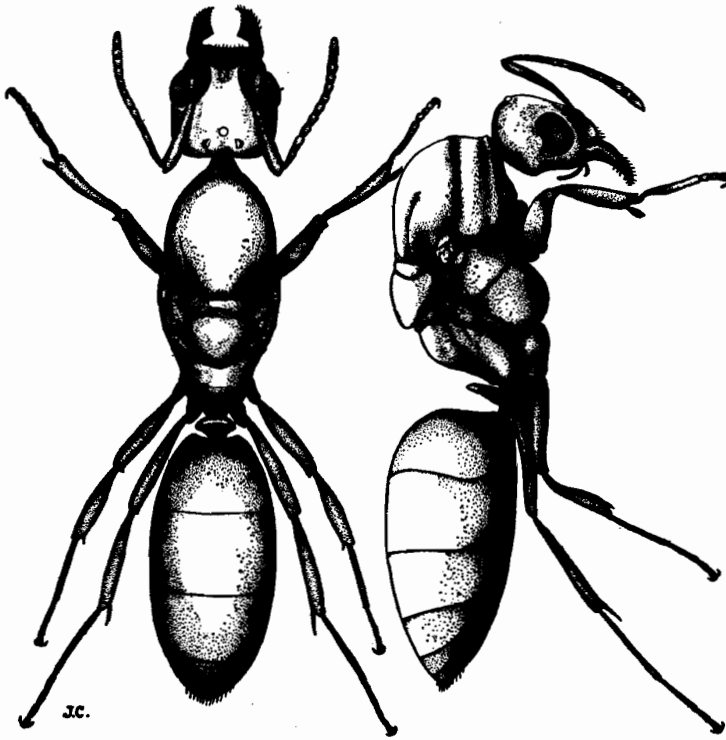


FIG. 2.

Iridomyrmex humilis Mayr. Female.

Iridomyrmex humilis Mayr

Figs. 1-4.

Hypoclinea humilis Mayr, Ann. Soc. Nat. Modena, iii, p. 164, 1868, ♀.*Hypoclinea (Iridomyrmex) humilis* Mayr, Verh. Zool. Bot. Ges. Wien, xx, p. 959, 1870, ♀.*Iridomyrmex humilis*, Emery, Zeitschr. f. Wiss. Zool., xlvi, p. 386, 1888.*Iridomyrmex humilis*, Newell, Jour. Econ. Entom., i, p. 28, 1908; ibidem, pp. 174-192, figs. 1-4, pls. 5 and 7, 1909, ♀ ♀ ♂.*Iridomyrmex humilis*, Arnold, Ann. S. Afr. Mus., xiv (1), p. 145, pl. iv, figs. 41-4a, 1915, ♀ ♀ ♂.*Worker.* Length 2-3 mm. (Fig. 1).

Brown, antennae and legs yellowish brown, mandibles yellowish.

Smooth and somewhat shining, very finely, densely and superficially reticulate. Mandibles with small obsolete punctures.

Hair very sparse, greyish, erect, confined to the mandibles, clypeus and apex of gaster. Pubescence greyish, very fine and close lying, abundant but not hiding the sculpture.

Head longer than broad, much broader behind than in front, sides and posterior angles strongly convex, occipital border straight or feebly concave. Mandibles triangular, furnished with numerous small sharp teeth. Clypeus convex, high in the middle, anterior border projecting concave, the angles rounded. Frontal area indistinct. Frontal carinae as long as broad, not covering the antennal insertions in front. Scapes extend beyond the occipital border by one-fourth of their length; all segments of the funiculus longer than broad, gradually decreasing in length from first to tenth, apical as long as first. Eyes rather flatly convex, placed dorsally in front of the middle of the sides. Thorax almost two and one-fourth times longer than broad through the pronotum, slender. Pronotum one-fourth broader than long, strongly convex in all directions, pro-mesonotal suture sharply, but not deeply impressed. Mesonotum long and slender, not bordered on sides, strongly convex laterally, dorsum twice as long as broad; meso-epinotal suture deep and wide. Epinotum as long as broad, half as long as mesonotum, convex in all directions; in profile the dorsum of pronotum and mesonotum evenly convex, highest at pro-mesonotal suture, epinotum short and convex, rounded into the declivity. Node thin, scale-like, convex transversely, top edge sharp. Gaster twice as long as broad. Legs long and slender.

Female. (Deälated) Length 4.5-5.5 mm. (Fig. 2).

Colour and sculpture as in the worker.

Hair sparse but more abundant than on the worker. Pubescence longer and much more abundant.

Head very slightly longer than broad, slightly broader behind than in front, occipital border and sides straight, angles rounded. Mandibles larger, the teeth stronger and more numerous than in the worker. Scapes extend beyond the occipital border by one-fifth of their length. Eyes large and convex, occupying fully one-third of the sides. Ocelli large and convex, the two posterior at a sharp angle, facing sideways and outward. Thorax fully twice as long as broad. Pronotum almost hidden from above by the mesonotum, strongly convex in front. Mesonotum one-eighth longer than broad, sides and front strongly convex, parapsidal furrows sharply impressed.

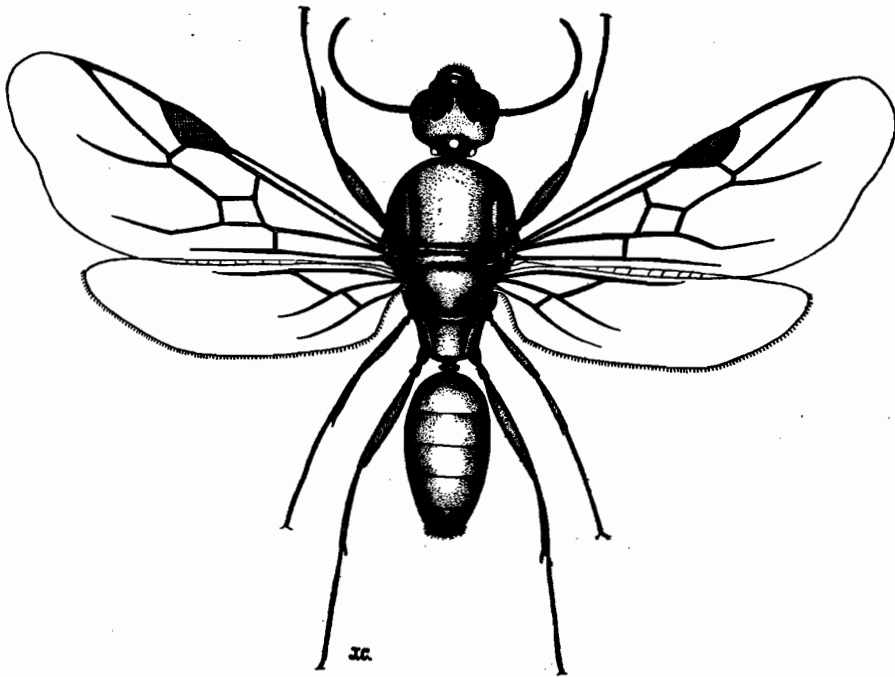
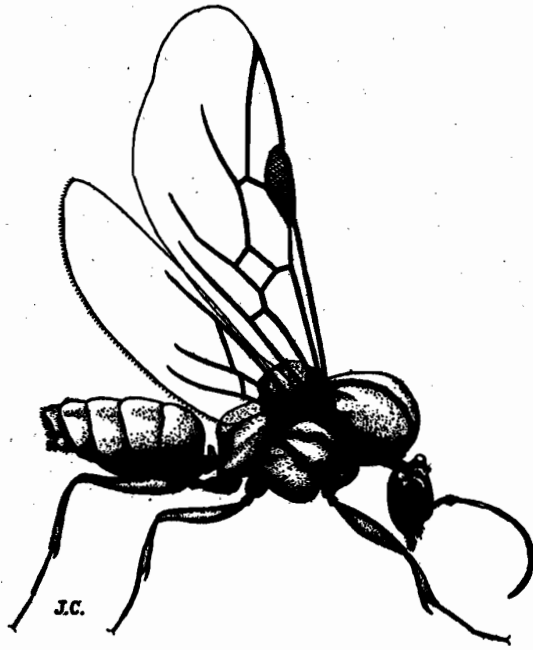


FIG. 3.

Iridomyrmex humilis Mayr. Male.

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Scutellum as long as broad in front, somewhat cone-shaped, widest at base, overhanging the metanotum and epinotum. Metanotum narrow, ridge-like. Epinotum short, convex, rounded into declivity. Node scale-like, sharp above, strongly convex transversely. Gaster fully twice as long as broad. Legs long and slender.

Male. Length 3-4 mm. (Fig. 3).

Sculpture and pilosity as in the worker. Colour darker, the antennae and legs paler, more yellowish. Wings hyaline with a yellowish tinge, veins brown.

Head as broad as long, posterior angles rounded. Mandibles short, strongly curved, apex sharply pointed. Clypeus short, convex, broadly produced and convex in front. Antennal fovea deep. Antennae slender. Scapes one-third shorter than second segment of funiculus, first segment globular, longer than broad and broader than the other segments. Eyes large, flatly convex, occupying all of front half of sides. Ocelli large and prominent, the posterior pair forming strong angles on occipital border. Thorax large and robust, about one-third longer than broad. Mesonotum large and globular, one-fifth broader than long, overhanging the pronotum and head in front, parapsidal furrows deeply impressed. Scutellum large, hemispherical, shaped similar to that of the female, but higher. Epinotum broader than long, convex laterally; in profile mesonotum strongly arched from apex to base, overhanging pronotum and head. Scutellum twice as long as high, slightly overhanging behind, hiding metanotum. Epinotum level with mesonotum, straight in front, strongly convex and overhanging declivity behind, declivity concave. Node thicker than in female; in profile shorter and more bluntly pointed. Gaster shorter than thorax, slender, twice as long as broad. Genital valves external, small and rounded. Legs long and slender.

Locality.—*Victoria:* Widely distributed around Melbourne.

Apparently established first at Balwyn, about ten years ago, it is found now as far east as Dandenong (20 miles), and at Caulfield and St. Kilda. South-west it is found through Footscray to Williamstown (12 miles); northward it is found in Essendon and Brunswick.

This species cannot be confounded with any of the eighty native forms of the genus found in Australia.

In size and colour it is nearest to *Iridomyrmex darwinianus* Forel and its variety *fida* Forel. The anatomical structure, however, is different. In general appearance it is somewhat similar to *Tapinoma minuta* Mayr.

In his paper on this species, Newell gives a description of the ant written by the late Dr. W. M. Wheeler. The description of the female is misleading as Wheeler states that the "*thorax is nearly three times as long as broad,*" also that "*the scutellum projects above the mesonotum and epinotum.*" Actually the thorax is little more than twice as long as broad and the scutellum overhangs the metanotum and epinotum. In front it is level with the dorsum of the mesonotum. Newell's figure

on page 182 in the second volume of the same journal shows the correct details.

The wing development of the female is weak, and in comparison with the size of the body the wings are small. They would be of little use for flight, but could possibly carry her a short distance from the original nest.

Following the information received regarding the presence of the ant at Balwyn, a tour of inspection was made of the district. This inspection was greatly facilitated by Mr. A. C. Thomas, a resident of Balwyn, and also Constable Barbour of the local Police Station. They supplied the approximate time of arrival and subsequent distribution of the ant in the district. The assistance of both gentlemen is greatly appreciated.

The ant was found to be abundant and active over an area of one mile square. Although the weather at the time was cold and unfavourable for ant life, this species was causing a lot of annoyance and inconvenience in the houses. As a house pest this is as bad as any of the previously introduced species and very much worse than any of the native species. It is, however, to be dreaded most as a serious pest to farmers, orchardists, poultrymen and bee-keepers.

A study of the distribution of the ant around Melbourne suggests that the species is spread by division of a large nest, the workers and females foraging far afield. The chief method of distribution appears to be by garden plants and pot plants taken from one locality to another, but the cartage of fire-wood and such material throughout the districts is also a big factor. The dispersion of the ant to Dandenong was traced to a nursery where plants had been transferred from Balwyn.

The nests are typical of most species of *Iridomyrmex*, but, generally, on a much larger scale. Nests were located in the ground, at the foot of fence posts, under bark on trees, in holes in trees, in the brickwork of houses and walls and in flower-pots in a plant nursery. One large nest was opened and from a section of the nest about eighteen inches long by four inches wide, thirty-seven females were obtained. As this nest extended the full length of the fence, about one hundred and eighty feet, it must have contained many hundreds of fertile females or queens.

Four species of *Iridomyrmex* had been plentiful where this ant now holds control, but at present there is no sign of them in these areas, although many were abundant where

the Argentine Ant had not appeared. It is interesting to note that in each country where *humilis* has been introduced it has displaced the native species.

The following is a list of the various ants found in the immediate neighbourhood, but not found in the area invaded by the Argentine Ant.

PONERINAE.

1. *Chalcoponera metallica* (Smith).
2. *Chalcoponera victoriae* Andre.

MYRMICINAE.

3. *Monomorium cincta* Wheeler.
4. *Pheidole yarrensii* Forel.

DOLICHODERINAE.

5. *Iridomyrmex rufoniger* (Lowne).
6. *Iridomyrmex domestica* Forel.
7. *Iridomyrmex nitidiceps* Andre.
8. *Iridomyrmex punctatissima* Emery.
9. *Technomyrmex albipes* (Smith).
10. *Technomyrmex jocosus* Forel.

FORMICINAE.

11. *Paratrechina (Nylanderia) obscura* (Mayr).
12. *Camponotus (Tanaemyrmex) consobrinus* (Erichson).

Of the above, the first two are beneficial as they destroy other insects. Both, however, sting severely and on that account are not always welcome in the garden. Numbers three and four are pests in the garden as both species are harvesting ants. They gather seeds which they carry to their nests as food. Numbers five and six are well-known house pests in most parts of Australia, but rarely appear in large numbers. Seven and eight are common in gardens but rarely enter houses. Nine is an introduced house ant which gives a lot of trouble, and as a house pest is almost as bad as the Argentine Ant; it is found in most of the coastal cities of Australia. It is generally known as the black house-ant. Ten and eleven rarely enter houses and are not abundant anywhere. Twelve is the common Sugar Ant, found abundant everywhere in Australia and Tasmania. It can be controlled with ease.

With very few exceptions, all the ants which cause serious trouble in houses and stores in Australia have been introduced

from abroad. As all are introduced with plants and merchandise, it appears that our Quarantine Laws relating to insect pests require a stricter application at all shipping ports and overseas postal parcels departments.

Following is a list of the ants introduced into Australia, showing their known distribution at present, and indicating the probable country of their origin.

PONERINAE.

1. *Odontomachus haematoda* (Linne). (Cosmopolitan in Tropics.)

Northern Territory: Darwin, Point Charles.
 Queensland: Cooktown, Cairns, Townsville, Brisbane.
 North Western Australia: Broome, Derby.
 New South Wales: Sydney, Newcastle.
 Tasmania: Port Arthur.

MYRMICINAE.

2. *Cardiocondyla nuda* (Mayr). (India, Malaya.)
 Queensland: Cairns, Mackay, Brisbane.
 New South Wales: Sydney.
 Victoria: Melbourne, Irymple.
 Western Australia: Perth, Geraldton, Broome.
 South Australia: Adelaide.
3. *Cardiocondyla wroughtonii* Forel var. *hawaiiensis* Forel. (Hawaii Island.)
 Queensland: Mackay.
4. *Monomorium (Parholcomyrme) destructor* (Jerd). (India. Cosmopolitan in Tropics.)
 All States. Serious house and store pest.
5. *Monomorium (Parholcomyrme) gracillimum* (Smith). (Cosmopolitan in Tropics.)
 Northern Territory: Darwin, Adelaide River.
 Queensland: Brisbane, Cairns.
 New South Wales: Sydney.
 Victoria: Melbourne.
 South Australia: Adelaide.
 Western Australia: Fremantle.
 House and store pest.
6. *Monomorium (Monomorium) floricola* (Jerd). (India. Cosmopolitan in Tropics.)
 Northern Territory: Darwin.
 Queensland: Cairns.
 House pest in North Australia.

7. *Monomorium (Monomorium) pharaonis* (Linn.). (Cosmopolitan in Tropics.)
All States. Serious house and store pest.
8. *Pheidole megacephala* (Fabr.). (Cosmopolitan in Tropics.)
Queensland: Cooktown, Cairns, Townsville, Brisbane.
Northern Territory: Darwin.
New South Wales: Lismore.
Western Australia: Perth.
Victoria: Melbourne.
Serious pest in North Australia.
9. *Pheidole oceanica* Mayr. (Samoa, Tonga.)
Northern Territory: Darwin.
Queensland: Mackay, Cairns.
General pest in North Australia.
10. *Solenopsis geminata* var. *rufa* (Jerd.). (India.)
Northern Territory: Darwin.
North Western Australia: Broome.
General pest in North Australia.
11. *Triglyphothrix striatidens* (Emery). (Burma, Ceylon.)
Northern Territory: Darwin.
Queensland: Mackay, Townsville.
House and store pest.
12. *Tetramorium guineense* (Fabr.). (Cosmopolitan.)
All States.
13. *Tetramorium simillimum* (Smith). (Cosmopolitan.)
All States.
14. *Tetramorium pacificum* subsp. *subscabra* Emery. (Ceylon, India.)
Northern Territory: Darwin, Batchelor.

DOLICHODERINAE.

15. *Iridomyrmex anceps* (Rogers). (India, Malaya.)
Northern Territory: Darwin.
Queensland: Cairns.
Western Australia: Geraldton, Albany.
16. *Iridomyrmex anceps* var. *papuana* Emery. (New Guinea.)
Northern Territory: Darwin.
Queensland: Cooktown, Cairns.
House pest.
17. *Iridomyrmex humilis* Mayr. (Argentine.)
Victoria: Balwyn, Brunswick, Caulfield, Dandenong,
Williamstown.

18. *Tapinoma (Micromyrma) melanocephalum* (Fabr.). (Cosmopolitan.)
Northern Territory: Darwin, Point Charles.
Queensland: Cooktown, Cairns, Townsville.
Western Australia: Broome.
Serious pest in houses.
19. *Technomyrmex albipes* (Smith). (Cosmopolitan.)
All States.
Serious house and store pest.

FORMICINÆ.

20. *Anoplolepis (Anoplolepis) longipes* (Jerd). (Cosmopolitan in Tropics.)
Northern Territory: Darwin.
General pest.
21. *Paratrechina (Paratrechina) longicornis* (Latr.).
Queensland: Cairns, Brisbane.
Western Australia: Geraldton, Fremantle.
General pest.
22. *Paratrechina (Nylanderia) vividula* (Nyl.). (Cosmopolitan.)
New South Wales: Sydney.
General pest.
23. *Lasius (Lasius) niger* (Linne). (Europe.)
Tasmania: Known only by one doubtful record.
24. *Polyrhachis (Myrmhopla) bicolor* Smith. (India, Malaya.)
Northern Territory: Darwin.
Probably not a pest.

Forel has recorded the European ant *Lasius (Lasius) niger* Linn. from Tasmania. Although several large collections of ants from that State have been received and examined at the National Museum, this species has not been represented in any of them.

The following species are known to be carried in plants of Orchids and Cacti:—*Odontomachus haematoda* (Linne); *Phidole megacephala* (Fabr.); *Iridomyrmex humilis* Mayr; *Technomyrmex albipes* (Smith); *Monomorium floricola* (Jerd.); *Monomorium pharaonis* (Linn.); *Paratrechina longicornis* (Latr.).

Several of our native ants give a certain amount of trouble during the summer months when they invade the house and attack foodstuffs. Most of them are small black ants (*Irido-*

myrmex) and have a nasty smell more or less like rancid butter. As a general rule the visits of these ants are short. The nests being small, they are not difficult to eradicate.

The only species causing serious inconvenience is the common "meat ant" (*Iridomyrmex detectus* Smith) when it establishes a nest near a dwelling. As well as being the type of the genus, it is the largest species, being three or four times larger than the ordinary black house-ant. The following articles have been written about this ant and its control:—

1. Clark, J. "Ants as Pests." Jour. Dept. Agric. W. Aust., i, pp. 317-319, 1924.
2. Froggatt, W. W. "Domestic Insects : Ants." Agric. Gaz., N.S. Wales, xvi, pp. 861-866, Sept. 1905. Reprinted as Miscellaneous publication No. 889, with catalogue of Australasian species, 1906.
3. Greaves, T. "The Control of Meat Ants." Jour. Council Sc. & Ind. Research, xii, (2), pp. 109-114, 1939.
4. Summerville, W. A. T. "The Control of Meat Ants." Queensland Agric. Jour., xxxi, pp. 111-113, 1929.