females and the lower temperatures few were caught in traps. Probably *L. purbeckensis* behaves similarly at Spurn Head. The limited data provided in Figure 1 could be interpreted as showing the growth of some spiders to sub-adult size by September in 1968. However, most only reached 6.0 mm in total length, and then stopped growing until the following summer.

Summary

1. The seasonal occurrence of adults of 19 species of spiders at Spurn Head, East Yorkshire is described.

2. Ten species were active in summer and 3 more in summer and, to a lesser extent, in winter. *Agroeca proxima* was an autumn spider; *Centromerita concinna, Centromerus sylvaticus* and *Mengea scopigera* were typical of winter. *Erigone longipalpis* and *Stemonyphantes lineatus* were caught in most months of the year.

3. The growth of immature *Lycosa purbeckensis* is described. Cocoons were produced in June and less often in autumn. Juveniles mostly reached an overall length of 4.5 to 6.0 mm by winter and completed their growth in spring.

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Notes on *Ostearius melanopygius* (O.P.-Cambridge) (Araneae: Linyphiidae)

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Ostearius melanopygius was recorded for the first time in Britain relatively recently (1906) and is believed to originate from New Zealand (Jackson, 1933; Denis, 1963). It has been found here in a variety of man-made habitats, especially rubbish tips. These notes are based on observations made between 1969 and early 1971 at a large tip at Kirkby, near Liverpool, Lancashire, and on several captive specimens.

At the rubbish tip

The tip is situated on exposed peat, with *Pteris, Betula* scrub and *Molinia* grass and takes up an area of several hundred acres. It is being extended over the next few years on to surrounding farmland. The rubbish is mostly domestic refuse from Kirkby and Liverpool, spread out and covered with soil. In places the tip is about 6 m above the surrounding land. *Ostearius* is mostly found on the less disturbed parts of the tip, especially where the rubbish is old

and compact, with scattered clumps of grass.

Adult spiders and immatures were common throughout the year, except on days of hard frost when they probably moved deeper into the debris. The spider was not uniformly distributed over the tip, being concentrated on the east and south sections. The reason for this is unknown. Eggs were recorded in every month and were most commonly deposited in damp situations, especially under wet cardboard, paper, wooden planks, and less often on plants, stones, metal and the ground. It was often the only spider found on polluted mud.

Although *Ostearius* is frequently found walking about in daylight, it normally keeps under cover. In February 1970, several were observed walking across snow in strong sunlight and spinning web-strands across depressions in the surface. Individuals were observed with their abdomens turned vertically upwards as if attempting to leave the ground, but none apparently did so. Most of the webs spun by this spider seemed to be the work of females and most appeared to be related to egg-laying, although males do spin regular webs.

Melanic specimens. The abdomen of this species is usually orange with a distinct black mark encircling the spinners. Several individuals on the tip were found with yellowish abdomens and a single specimen with a light grey abdomen. Others, much darker than normal were not uncommon, but all of these had various amounts of dark red colouration about the body. In all cases the black mark around the spinners could be distinguished.

Habitat. At Kirkby, *O. melanopygius* was mostly confined to the tip and very few specimens were found away from it on the surrounding peat moss. In Liverpool, specimens have been taken in railway sidings within the docks complex. It also occurs among low herbs on cleared sites in the city centre in company with *Erigone dentipalpis* (Wider) and *E. atra* (Blk.) which are the dominant species in this habitat. On Hilbre Island in the River Dee estuary, Cheshire, *Ostearius* is frequently found only on the areas inhabited by man, whilst at nearby Moreton sand dunes, it occurs amongst recently dumped rubble. It has been recorded in numbers from a house in Oldham, Lancashire (Kidd, 1967).

In captivity

A small number of adults were kept in glass jars in pairs, but also, three pairs were kept in each of two jars. Observations were made at short intervals whenever possible throughout the day, but mostly in the early morning and during the evening. The jars were kept damp with pieces of wet blotting paper.

Cleaning. This species spends a lot of time cleaning itself and in the case of the male, 'chewing' the palpal organs was very frequent. Generally, the abdomen is cleaned with the legs, using tarsi and tips of metatarsi III and IV, one side at a time; legs II and IV being frequently brushed against legs III during the operation. Sometimes the spider would place the tips of legs III and IV in its mouth and then stroke the tip of the abdomen with them. The head region was usually cleaned with legs I and II. After cleaning, the spider usually rests in a variety of positions, ranging from upside down to lying on one side. Females with eggs often rested upright on the web or on the egg-sac.

Courtship and mating. Most of the following notes are based on two pairs in separate jars. In one of the jars, 4" across, the female spun a sheetweb spanning the jar. It was so thin as to be almost invisible in parts. The male walked on to the web and approached the female with short spasmodic movements whilst rapidly vibrating his palps. The female then slowly moved her palps and flicked her legs. On facing each other, both occasionally flicked their abdomens. The male then plucked the web with his hind legs, then again with his forelegs, during which time he drummed on the web with his palps. The female answered by plucking the web. The female had a tendency to pluck the web with her legs when the male approached. Following the female plucking, it was not unusual for a chase to ensue, both moving in circles with the male making feints at the female as she moved away. The male would often rest and 'chewed' his palps. On one occasion, after drumming on the web and receiving the return plucking of the web strands by the female, the male was observed to spin a small web on the females web. The strands were very fine and almost invisible compared with the thicker strands

of the females web. No sperm transfer was observed on this occasion. During mating, the male approached the female and crawled under her, facing her spinners; the female then appeared to grasp the male's head, or alternatively rested her chelicerae just above his head. Insertion of the stylus was a slow and repeated operation, the palps being used alternately. The parting was very sudden and the female sometimes made agressive moves towards the male after copulation and would pluck the web violently. Copulation took place at least three times each mating session.

Eggs and young. **17 June 1969**: One female laid eggs and stood guard over them. **20 June**: Same female killed a second female and mated whilst holding the prey in her chelicerae. **24 June**: Second egg-sac. On this day, the first egg-sac was moved from its original position and placed in another spot on the web. The female guarded the new eggs and when the male approached, she chased him away and plucked the web-strands. **25 June**: The female ate an immature *Zygiella x-notata* (Clk.) and killed a fly. Courtship preliminaries were engaged in with the female holding the fly in her chelicerae. **27 June**: Female observed spinning strands across a previously constructed male sperm web. She had also been observed moving fragments of prey about the web, sometimes placing these on the male's web-area. **28 June**: Third egg-sac. This was attached to the second sac (only the second and third egg-sacs were joined together). The female often rested with her chelicerae on the egg-sacs. **1 July**: Fourth egg-sac. **2 July**: Female left eggs for first time; male observed by the eggs but seeming to disregard them. **4 July**: Female mated again. Same day young hatched in first egg-sac. **9 July**: Fifth egg-sac. Another egg-sac was produced between 10 and 16 July. **17 July**: Seventh egg-sac. This and the sixth sac were irregular in shape - not roundish, as in the others - and were considerably smaller than previous sacs. **22 July**: Eighth egg-sac normal. The number of eggs were not counted, but egg-sacs examined at Kirkby tip contained between 10 and 22 eggs.

In another jar, a second female laid eggs on 19 December 1969 which hatched 50 days later on 6 February, as against 16 days for the June/July hatching. Also, young from this sac stayed inside the cocoon for several days before emerging. Most of the young from both batches died soon after hatching and none reached maturity.

Behaviour of young. On hatching, the young tended to move towards the top of the jar and were very active, moving about and spinning web-strands. When crossing the path of other spiderlings, the reaction of both spiders was to raise their forelegs at each other. Cannabalism was not recorded until at least twelve days after hatching. As was observed with adults, up to three individuals were then seen feeding on the same dead spider.

Food. The spiders were fed on small unidentified flies and springtails. They also ate several immature *Z. x-notata* spiders which were usually bitten in the abdomen. Some greenflies were taken but black aphids were rejected. Small flies were the only food recorded in the wild on the rubbish tip.

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Errata **Walker** and **Barnes**, Bull.Brit.Arach.Soc. (1971) 2 (1), page 1, title, second line, "Lyniphia" should read "Linyphia". **Dondale**, Bull.Brit.Arach.Soc. (1972) 2 (4), page 51, col. 2, line 7, "(Fig. 7)" should read "(Fig. 5)". Line 8, "(Fig. 8)" should read "(Fig. 6)".