the quality of the dry diets. It is possible that the flies were unable to liquefy and ingest the food at a sufficient rate, so that egg production was spread over a longer period than with milk, and thus survival became a greater limiting factor. However, at least part of the low fecundity may be due to a lowered oviposition, because many mature eggs were present in the ovaries of dissected flies. From our observations and those of Monroe[8], it appears that unless a suitable oviposition site is provided eggs are retained by the female. In this case, then, an adequate oviposition site should have been provided if full fecundity was to be recorded. However, the interest in these tests was that ovarian maturation took place and some eggs were deposited.

It is hoped that this preliminary report on the feeding of dry chemically defined diets and subsequent ovarian maturation in the house-fly will assist in defining the nutritional factors influencing reproduction or survival in adult Diptera.

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Nocturnal Activity of Black Flies (Simuliidae)

In 1957, in conjunction with Dr. Lewis Davies, I published a communication on the occurrence of large numbers of blood-sucking flies of the family Simuliidae in a light trap in Inverness-shire[1]. Trapping was continued for just over four years and a total of 17,500 flies belonging to ten species were captured. Some of the results of the work have since been discussed[2,3].

As previous observations had not suggested night activity in Simuliidae on such a scale, criticisms were made that the flies captured in the trap were merely late individuals in a dusk flight, and that real activity did not extend for any long period during darkness.

Trapping in Inverness-shire ceased in 1959, but I have recently been able to resume trapping in a new locality—Selkirk, in south-east Scotland. The trap with a 150-W ordinary bulb, instead of the previous 200-W bulb rich in ultra-violet light, is in my garden within the limits of this small town and about 200 ft. above the Ettrick Valley. Simuliidae have again come in numbers, more than 1,000 being captured during August 1963.

From mid-August to the end of October an attempt was made to settle the question of the period of activity during the night. Regular mechanical sorting of the catch, such as I used some years ago at Rothamsted, was not available, but on a number of nights I was able to change the collecting bottle in the trap after about one quarter of the night had passed.

On thirty-nine nights when Simuliidae were present, a total of 449 were captured of which 96 (or 21·4 per cent) came in the first quarter of the night. This proportion is less than (though possibly not significantly so) what would be expected with an even distribution through the night. Thus there is no support for the theory that the main catches were made shortly after dusk.

On the night of August 27 the trap was changed three times. No flies appeared between sunset (about 7.20 G.M.T.) and 8.30 p.m.; 10 between 8.30 and 9.30; 14 between 9.30 and midnight; and 9 after midnight.

On September 2, three flies were captured before 9.30 p.m.; 6 between 9.30 and 3 a.m.; and 6 between 3 a.m. and sunrise (about 5 a.m.). Both these distributions suggest a continuity of activity throughout the night when conditions are favourable.

It is also of interest to note that on 37 of the foregoing nights the catch of all Diptera, except the Simuliidae, was sorted in the same time periods. This gave a total of 19,198 of which 5,408 or 28·2 per cent came in the first quarter of the night. Thus, even in relation to other accepted night-flying Diptera, the Simuliidae show less activity in the early part of the night.

On 38 nights the flies were sexed separately for each of the time divisions. The results were as follows : males, total 165, in first quarter of night 23 (13·9 per cent); females, total 269, in first quarter 71 (26·4 per cent). Thus the males, which constituted 38 per cent of the catch, appeared in a considerably smaller proportion in the first quarter than the females. Even the females alone were, however, not in as high a proportion as were all the night-flying Diptera.

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Vectors of Sub-periodic Bancroftian Filariasis in the Samoa–Tonga Area

So far only two species of mosquitoes, both members of the day-biting *scutellaris* group, have been considered to be involved in the transmission of sub-periodic Bancroftian filariasis in Samoa and Tonga. *Aedes* (*Stegomyia*) *polynesiensis* Marks, 1951 (=*pseudoscutellaris* or var. *pseudoscutellaris* of *variegatus* or of *scutellaris* of authors) has been definitely established as an efficient vector in Western Samoa and American Samoa through natural and experimental infections by several workers[1–7]. The incrimination of *A.* (*S.*) *tongae* Edwards, 1926 as a vector has been entirely circumstantial and based on the similarity of this species with *polynesiensis*, which it appears to replace in Tonga where a high incidence of filariasis has been reported[8–10].

As a renewed effort at the control of filariasis was about to begin in American Samoa, an attempt was made during January 29–July 29, 1963, to re-examine the vector propensity of all the members of the *scutellaris* group known to occur in the area and to pay particular attention to the possible role of the night-biting *kochi* group of *Aedes* (*Finlaya*). The latter group has been demonstrated to be involved in filariasis transmission in some areas in Fiji by Symes[11,12] and Burnett[13], and has been shown by Belkin[10,14] to be composed of at least two species in the Samoan area.