liver and kidney lipids, whereas in the same study the thyroid lipids were 184% of the control. The USP Reference standard for TSH gave similar results.

A more complete report and discussion of the mechanism of the thyrotrophic hormone effect on phosphorus metabolism of the thyroid will be presented elsewhere.

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A "Fly Factor" in Attractant Studies

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The importance of species odors in integrating the group behavior of social insects and in the mating of insects generally has long been recognized. That similar factors may play a role in the formation of other insect aggregations is less widely known, although some evidence for such mechanisms has been reported, as, for example, for caterpillars of *Pieris brassicae* by Fabre (*1*) and for the cockroach by Ledoux (*2*).

During field tests of the possible usefulness of attractant baits as a supplement to other methods of housefly control, it became apparent that the flies themselves must produce or bear some substance attractive to others of the species (*Musca domestica* L.). In these experiments, 15 g aliquots of a stock prepared by boiling 100 g white corn meal in 100 ml water were used extensively as nonattractant, nonrepellent control baits and as a vehicle for the various substances that were to be tested as attractants. The baits were exposed in the vicinity of a dairy barn which was supporting an estimated population of about 50,000 flies, and it was observed regularly that fly counts on the control baits increased with increasing exposure time (Table 1).

The possibility that this phenomenon was associated merely with the drying of the mush or its exposure to air was eliminated by placing in the test position paired mush baits, one of which was protected from contact with flies by a screen cover. After 30 min, the screen was removed and periodic counts were made of the flies visiting each dish. Results are shown in Table 2.

TABLE 2

ATTRACTION OF FLIES TO SCREENED AND UNSCREENED BAITS

Time after removal of screen (min)	No. pairs tested	Total no. flies on baits	
		Previously unscreened	Previously screened
5	4	24	2
10	4	39	7
15	3	28	6
20	2	18	8
25	2	25	13

The further possibility that the position of the dish or memory on the part of the flies could be concerned was ruled out by experiments of the following type. Three baits in Petri dishes were placed in a row in the test position. The two outer dishes, one of which was screened, contained identical mush baits; the center dish held an attractant (Diamalt). After the dishes had been in place for 20 min, a picture was taken which showed numerous flies on the Diamalt, a moderate number on the uncovered mush, and none of course on the mush that was screened. Immediately thereafter, the screen was removed, the positions of the mush baits exchanged, and all flies driven off. A second photograph, 4 min later, recorded essentially the same distribution of insects as the first; i.e., the mush that had been screened initially was still free of

TABLE 1

FLY COUNTS ON MUSH CONTROL BAITS

Exposure time (min)	Date of test										Total flies
	9/21	9/21	9/21	9/25	9/25	9/27	9/27	10/5	10/5	10/17	
5	0	0	0	1	1	0	3	2	3	0	10
10	1	0	0	1	4	4	3	4	7	0	24
15	2	1	3	7	5	2	2	8	13	0	43
20	1	2	4	4	8	4	2	7	1	4	37
25	1	9	10	4	22	2	5	10	10	6	79
30	7	4	2	7	17	3	5	15	11	8	79
35	4	11	0	5	28	7	9	7	21	7	99
40	12	6	5	10	27	11	7	10	33	18	139
45	9	14	9	6	26	18	4	11	31	23	151
50	17	15	10	10	38	16	7	8	29	16	166

flies, whereas the other baits were being visited as before. The dishes were now shifted so that the Diamalt occupied the right-hand position and the originally screened mush bait the center. The flies were again chased away. Once again, as seen in a picture taken 6 min later, the flies chose the previously visited mush bait in preference to the one that had been covered. They also found their way back to the Diamalt bait in large numbers. The dishes were then returned to their original positions and all flies chased away. Five min later a final photograph was made, in which it was once more apparent that the mush previously visited by the flies was more attractive than the sample that originally was screened. However, one could see also that the number of flies on the formerly screened sample had begun to increase.

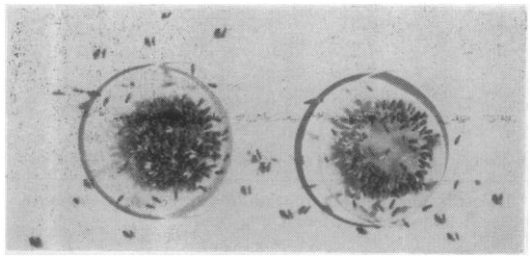

FIG. 1. Effect of previous feeding on attractiveness of proteose peptone to flies. Left-hand dish exposed 20 min, right-hand dish 2 min.

Variants of this test, in which portions of each bait were covered for a time with adhesive tape, and in which the dishes were rotated through various angles or exchanged in position through various sequences, were repeated several times with similar results, proving conclusively that it is visitation by flies and not some other factor that renders either mush or Diamalt baits more attractive. This same effect was observed also with baits initially more attractive than the foregoing materials. In Fig. 1, for example, are shown two dishes, each containing a very attractive mixture of proteose peptone and water. The dish at the left had been subjected to heavy feeding by flies for about 20 min, whereas that at the right had been exposed for only about 2 min.

It is logical to conclude from such data that flies that visit a bait contribute to it some substance which enhances its attractiveness to the species. The nature of this substance is unknown, although we have found that a material attractive to flies and soluble in 95% ethanol, but much less soluble in acetone or ether, can be extracted from the bodies of these insects. Further efforts to isolate and identify this substance, and to determine whether it is identical with that contributed to baits by flies which visit them, are planned.

Meanwhile, the observations outlined above are of obvious significance for the design and interpretation of field experiments on fly attractants. Valid conclusions in regard to the attractiveness of test materials will be possible only when experiments are so arranged as to permit a distinction between attraction exerted by the test compounds and that derived from previous contact with the insects.

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Distribution of Allergic and "Blocking" Activity in Human Serum Proteins Fractionated by Electrophoresis Convection[1, 2]

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The purpose of this investigation was to determine the distribution of allergic, or reaginic, antibodies in human serum proteins. Electrophoresis convection was chosen as the means of fractionation of these skin-sensitizing antibodies not only because of its gentle nature but also because sufficient volumes of fraction are involved to permit complete immunologic and electrophoretic characterization—objectives precluded by the small yields of conventional electrophoresis. Whereas the latter procedure led Newell *et al.* (*1*), as well as Sherman and Seebohm (*2*), to conclude provisionally that reagins for pollen resided in γ-globulin, the factors responsible for "cold" allergy appeared more disseminated. Cooke and collaborators (*3*) later concluded that the γ-globulin activity of individuals allergic to animal dander, pollen, or mold spores was about 10 times *lower* than the corresponding dilution titer of the original serum. Campbell and associates (*4*) were the first to apply the method of electrophoresis convection to the problem. They found that activity was closely associated with the α- and β-globulins in one serum, whereas it appeared to be distributed among all the globulins in another.

In the present investigation, electrophoresis convection has been extended to 7 stages, rather than 3, and the more reliable "passive transfer" procedure of neutralization with allergen *in vitro* has been added to the technique of serum dilution employed exclusively by earlier workers. Sufficient material was also available to do titrations in three normal test subjects, as well as to observe the fractions for stability during a 4½-month period. Furthermore, electrophoretic analysis and chemical assays for protein content were done on each preparation.

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