WHAT IS CONTROL?

THE application of insecticides is now called control by the vast majority of entomologists, as is that of fungicides by practically all mycologists. Formerly the medical terms, remedy, treatment and preventive, prevailed. The writer has checked over more than a hundred of the most recent Experiment Station bulletins on insects and fungi and finds less than 5 per cent. of the writers using the latter terms in the place of the term control.

The reason for the change was perhaps a reaction against the idea that remedies are, or should be, effective as eradicative measures. It became very evident that what could be accomplished was not a cure of the trouble, but only sufficient mitigation to make it possible to obtain a satisfactory crop, so the term control was introduced and has finally practically displaced the older terms.

In a few of these publications, the term control is made to include the action of parasites and predators, just as in the days of Riley they were spoken of as natural remedies, as contrasted with artificial remedies.

The term control carries the thought of definite conscious action of a rational being, something done by man for his own benefit. It may be indirect through a mechanism he has set up, but it is always something that carries out his will. According to the older thinking, certain actions of nature were also conceived as controlled by an intelligence who ordered everything for the benefit of man and of individual men, and thus we had natural remedies administered by this higher power who used parasites and predators as his agents. Either the retention of this conception of nature, or more likely, the unthinking retention of this form of statement gives us now natural control.

Contrasted with this is the use of the word uncontrolled, which is almost universally expressive of the action of nature where a control by man is not exercised. Natural control is thus a contradiction of terms, because it is equivalent to non-control, and should disappear from the literature of entomology.

C. W. WOODWORTH

OESTRUS FOLLOWING THE REMOVAL OF ONE OVARY

IN a recent number of SCIENCE[1] it was pointed out by Nelson that a pregnant rat had copulated several times during the gestation period and that young were born and suckled. After the lactation period oestrus again occurred but subsequent matings were infertile. These observations are interesting not only from the standpoint of oestrus during pregnancy but also because in this case one ovary had been previously removed. It is well known[2] that the removal of one ovary results in the so-called hypertrophy of the remaining ovary with the formation of many large follicles. These changes may be accompanied by disturbances in the various phases of reproduction.

During the past year the writer has studied more than a hundred rats with respect to oestrus before and after semioophorectomy. It was found that the oestrus cycle was slightly shorter during the first few weeks following the removal of one ovary and that the usual cornified cell stage representing the heat period occurred at quite regular intervals. After two months the remaining ovary had considerably increased in size and the cornified cells in the vaginal smears occurred more frequently. The number of these cells and the frequency of their occurrence were variable. Some animals had normal cycles, while others were in heat most of the time. Indeed, with a few rats one could not tell with certainty when one cycle ended and another began.

TABLE I

FREQUENCY DISTRIBUTION FOR LENGTH OF THE OESTRUS CYCLE OF FIFTY RATS. A, BEFORE OPERATION; B, AFTER REMOVING ONE OVARY

Length in days	No. of cycles		Total days involved	
	A.	B.	A.	B.
2	0	34	0	68
3	6	71	18	213
4	116	256	464	1024
5	314	249	1570	1245
6	117	97	702	582
7	22	23	154	161
8	11	11	88	88
9	3	1	27	9
10	1	1	10	10
11	0	2	0	22
12	0	2	0	24
13	1	2	13	26
14	0	1	0	14
Total	591	750	3046	3486
Mean			5.15	4.65
Probable error			± .0272	± .0344

As shown in Table I the average oestrus cycle of fifty rats after the removal of one ovary was significantly shorter than the normal period. The mean difference in this case was 0.50 days, a figure more than ten times the probable error of the difference, which is ± 0.044. These figures, although indicating

[1] W. O. Nelson, SCIENCE, 70: 453, November 8, 1929.

[2] C. G. Hartman, *Am. Jour. Anat.*, 35: 1, March, 1925.