coracidium but appeared as a ciliated ring at one end of the egg; such coracidia could not be hatched by pricking.

Histological examination of cultured worms showed that, even in worms giving 85 per cent egg embryonation, the receptaculum seminis was still devoid of spermatozoa. Since the receptaculum of worms matured naturally in a bird gut (the normal environment) was always filled with great masses of spermatozoa, it is tentatively suggested that eggs from worms matured *in vitro* undergo parthenogenetic development. It is possible that the 5 per cent normal self-hatching eggs may have been fertilized, but that the small number of spermatozoa concerned could not be distinguished in histological sections.

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Completion of Mitosis after Death

It has been shown that when sugar and phosphate are unavailable, mitotic activity in the mouse is severely depressed. Such a depression develops rapidly after injections of insulin or phloridzin[1] and during ischæmic shock[2]. In these circumstances the significant observation can be made that sudden sugar-lack has no effect on the completion of any mitosis already under way. It has been suggested that the great importance of sugar in cell division may be for the production of energy; but if this is correct it is also evident that such energy is required only at the very beginning of the process[3].

The independence of the later stages of mitosis has now been strikingly demonstrated in the following manner. Sleeping mice were killed at 13.00 hr. in order that their tissues should contain a maximum number of mitoses[4], males being used in preference to females in order to avoid the effects of the œstrous cycle. Pieces of ear were removed at the time of death and at hourly intervals thereafter, and in this way it was possible to discover the fate of the many mitoses present in the epidermis. The results of an experiment, performed with ten mice, are given in the accompanying table.

Average numbers of mitoses present per unit length (1 cm.) of sections of ear epidermis (cut 7 μ thick) in a group of ten male mice killed at 13.00 hr.

Time of day	Numbers of mitoses	Phases of division
13·00	6·5 ± 0·14	*PMAT*
14·00	2·7 ± 0·19	*MAT*
15·00	1·5 ± 0·11	*AT*
16·00	0·6 ± 0·15	*T*
17·00	0·5 ± 0·14	*T*
18·00	0·6 ± 0·17	*T*

In the phases of division, *P* represents the prophase, *M* the metaphase, *A* the anaphase, and *T* the telophase.

This shows clearly that almost all the mitoses present at the time of death continued without interruption, and since it is known that in a male mouse the normal time taken for the completion of an epidermal mitosis is about 2½ hours, it is evident that the process was not even significantly delayed. The stoppage of all cell division shortly after 15.00 hr. may perhaps indicate that the epidermis itself died at about this time.

Results similar to these have been obtained from bodies kept at a room temperature of 20° C. or in an oven at 38° C., and they have also been seen in a variety of internal tissues. Evidently, so long as the cells themselves remain alive, the lack of a blood supply is no bar to the completion of cell division, and even in isolated pieces of tissue the same result has been obtained. This last observation has made possible a re-examination of the effects of oxygen-lack. Medawar[5] has already shown that oxygen is essential for the development of mitotic activity in the rabbit epidermis, and this observation has now been confirmed in the mouse. However, it has also been shown that oxygen, like sugar, is necessary only for the initiation of a mitosis, and that when a division has progressed far enough to be recognizable as a prophase, it can be completed in an atmosphere of pure nitrogen[6].

Thus the experiments so far performed with mammalian epidermis indicate that both sugar (or glycogen) and oxygen are essential for the initiation of a mitosis, but that neither is necessary for its completion. This suggests that the beginning of cell division involves the development of a significant amount of energy obtained by the aerobic destruction of sugar (or glycogen), and the evident importance of phosphate strengthens this hypothesis. The fact that sugar, phosphate and oxygen have no further importance once a division has entered the prophase suggests either that energy is consumed only at the very beginning of the process, which seems unlikely, or that at this time energy is stored to be released as required during the course of the division. This latter theory is now being investigated. These results are to be published in full elsewhere.

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Sodium Fluoroacetate as a Systemic and Contact Insecticide

It has been shown that many fluoroacetates are extremely toxic to mammals[1–3] and that some are powerful systemic and contact insecticides[4,5]. The salts of fluoracetic acid (notably sodium fluoroacetate) have been used as rodent poisons[5,6]; but it appears that the insecticidal properties of these salts have not been recognized, since Schrader[5] states regarding them that "No contact insecticide action has yet been observed". Sodium fluoroacetate occurs in the poisonous South African plant gifblaar (*Dichapetalum cymosum*), and it seemed possible that it might be tolerated by other plants. For the above reasons, sodium fluoroacetate was tested as a contact and systemic insecticide. The material was prepared and kindly supplied by Dr. B. C. Saunders[3].

As in previous experiments[7], the biological tests were carried out in a greenhouse kept at about 15–25° C. The test insects were *Aphis fabæ* on broad beans.