Table 1. Distribution of Carbon-14 in Various Fractions of Potato and Pea Tissue

	Run	^{14}C recovered, as mμmoles of substrate utilized							
		Potato tuber slices				Pea segments			
		CO_2	Lipid	Lipid / CO_2	80% ETOH soluble	CO_2	Lipid	Lipid / CO_2	80% ETOH soluble
Ethanol-1-^{14}C	A	0·46	0·50	1·1	3·4	1·10	7·9	7·2	73
	C	0·26	0·23	0·9	3·0				
Acetate-1-^{14}C	A	8·46	1·80	0·21	14·3	12·3	6·8	0·55	91
	C	5·53	2·23	0·40	24·2				
Ethanol-2-^{14}C	B	0·12	0·28	2·3	4·0	0·12	2·9	24	71
	C	0·05	0·15	3·0	3·7				
Acetate-2-^{14}C	B	0·95	2·52	2·7	21·9	1·63	10·0	6·1	113
	C	0·85	2·68	3·1	19·2				

The tissue was incubated for 30 min at 25° C in a Warburg respirometer. Respiratory carbon dioxide was collected as barium carbonate. The tissue was washed and fractionated; the radioactivities in each tissue fraction and in the barium carbonate were determined with a gas-flow counter. Experiments *A*, *B* and *C* were run on separate days with different batches of potato tuber slices.

since both potato tuber and pea stems contain more than one type of cells, acetate and ethanol could be metabolized preferentially by different types of cells; we do not consider this alternative as very likely, but it cannot be excluded on the basis of the available evidence.

A possible implication of our results is that ethanol may participate more directly than acetate in the biosynthesis of some compound or compounds of physiological importance. Future work will be directed toward the evaluation of this hypothesis.

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Occurrence of a Heat-resistant Species of *Aspergillus* in Canned Strawberries

Two earlier records exist of heat-resistant moulds causing spoilage in canned and bottled fruits: *Byssochlamys fulva*[1,2], which produces ascospores capable of withstanding relatively high temperatures (94° C for 2 min), and a species of *Penicillium* the sclerotia of which are reported[3] to survive exposure to 93·3° C for 9 min. We wish to record the isolation from canned strawberries of a fungus showing an even greater degree of heat resistance than these.

In September 1958, mycelium was observed growing on the contents of opened cans of strawberries after an incubation period of 5 days at 25° C. The fruits, however, appeared intact and, apart from the presence of a small amount of mycelium, no obvious signs of spoilage were noticed. The spores of the fungus had apparently survived the heat processing of 12 min at 100° C, which was the cannery's usual treatment for this product and had proved adequate on previous occasions.

The fungus on isolation was found to be an ascosporic species of *Aspergillus* belonging to the *A. fischeri* series, which includes the perithecial members of the *A. fumigatus* group. A detailed examination of this fungus has shown it to be similar to an isolate made by Smith from soil, recorded by Yuill[4] and identified as *Aspergillus malignus* Lindt.

The ascospores have been found to be unusually heat-resistant, some surviving a temperature of 100° C for more than 60 min when suspended in distilled water. Factors such as age of spores, *p*H and sugar concentration of the strawberry syrup have been shown to affect the degree of heat resistance shown by such spores.

The mould was readily isolated from soil samples taken from farms where the strawberries had been grown. Suspensions of samples in sterile water were treated at 80° C for 30 min prior to plating out. All were heavily contaminated with the fungus. It appears most probable that the strawberries had spores deposited on them in the field before harvesting, either by direct contact with the soil or from splashings of rain water.

The very few records of the isolation of *Aspergillus malignus* to be found in the literature would suggest that it is of rare occurrence. It is therefore of interest to mention that using the foregoing heat treatment method of isolation, this fungus, together with the closely related species *Aspergillus fischeri*, have been isolated from a number of soils other than those collected from the strawberry farms.

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Penetration of Tracheid Walls of *Pinus sylvestris* L. (Scots Pine) by *Chaetomium globosum* Kunz.

In the course of investigation of the induction of soft rot in pure culture in this laboratory it has been found that in wood of *Pinus sylvestris* L. mildly infected by the soft rot fungus, *Chaetomium globosum* Kunz.[1], it is possible to observe the early stages of hyphal penetration of the tracheid wall which precedes the formation of cavities.

Blocks of *P. sylvestris* sapwood (1 cm × 1 cm × 1 cm) were sterilized by exposure to an atmosphere of propylene oxide for 24 h then placed on cultures of *C. globosum* on malt agar in Petri dishes. After 6 weeks the blocks were removed, placed in formalin acetic acid for several days then washed in running tap water for 48 h before sectioning. Sections (5μ–20μ) were cut directly from these blocks on a sledge microtome, then stained with saffranin and picro-aniline blue[2]. Photomicrographs of the initial stages of hyphal penetration of tracheid walls which were observed in radial longitudinal sections are shown in Figs. 1–5.

Chains of cavities were observed in tracheids near the faces of the block which had been exposed to the fungus and also in tracheids adjoining medullary rays. Observations made in areas in the vicinity of these cavities suggested that the stages of hyphal penetration of the tracheid