Table 1. Sedimentation Constants and Relative Particle Weight of the Smallest Viruses

Virus particle	S (Svedbergs)	Average S	Diam. (mμ)	d^3 (in mμ^3)	$n \times 7{,}300$	Theor. No. of subunits	Theor. d (in mμ)
Foot-and-mouth disease	70 (refs. 3 and 4)	70	19·4	7,300	1	4	19·4
Lumpy skin disease	70 (ref. 5)						
Theiler's virus	160–170 (ref. 6)	169	30·44	28,220	3·78	16	30·78
Coxsackie virus	167 (ref. 7)						
Poliomyelitis *MEF*$_1$	163–180 (ref. 8)						
Yellow fever	167 (ref. 9)						
Horse-sickness, neurotropic	466–470 (ref. 10)	449	49·5	121,300	16·6	64	48·9
Rift Valley fever, viscerotropic	412–476 (ref. 9)						

Table 2. Particle Diameters of the Soluble Antigens of Influenza and Rabies

e, determined by electron microscopy; *d*, determined by diffusion measurements

Soluble antigen of:	Particle size d (in mμ)	d^3 (in mμ^3)
Influenza *e* (ref. 1)	12	1,728
Rabies *d* (ref. 2)	11–13	

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[1] Hoyle, L., Reed, R., and Astbury, W. T., *Nature*, **171**, 256 (1953).
[2] Polson, A., and Wessels, P. O., *Proc. Soc. Exp. Biol. Med.* (in the press).
[3] Elford, W. J., and Galloway, I. A., *Brit. J. Exp. Path.*, **18**, 155 (1937).
[4] Bradish, C. J., Brooksby, J. B., Dillon, J. F., and Norambuena, M., *Proc. Roy. Soc.*, B, **140**, 898 (1952).
[5] Polson, A., and Linder, A. M., *Biochem. et Biophys. Acta*, **11**, 199 (1953).
[6] Gard, S., and Pedersen, K. O., *Science*, **94**, 493 (1941).
[7] Breese, S. S., and Briefs, A., *Proc. Soc. Exp. Biol. Med.*, **83**, 119 (1953).
[8] Polson, A., and Selzer, G., *Proc. Soc. Exp. Biol. Med.*, **81**, 218 (1952).
[9] Polson, A., Naude, W. du T., and Madsen, T. (unpublished results).
[10] Polson, A. (unpublished results).

A Method of isolating Soft-rotting Bacteria from Soils

In the course of work carried out at the North of Scotland College of Agriculture on bacterial soft rot of potatoes (*Bacterium carotovorum* (L. R. Jones) Lehmann and Neumann), it was found difficult to isolate the causal organism from naturally infected tubers if infection had occurred through wounds. In most cases only secondary saprophytic bacteria could be isolated. Where infection had occurred through lenticels, soft-rotting bacteria were readily isolated. This was confirmed in laboratory experiments.

As a result, a method was devised for isolating soft-rotting bacteria from soils. 5 gm. of the soil to be tested was shaken up with 250 ml. sterile water. Eight immature potato tubers of the variety Ulster Chieftain, freshly dug and free from surface wounds, were washed in tap water, dipped in methylated spirit, surface-sterilized by immersion for 30 min. in a 1 : 20 solution of sodium hypochlorite dairy disinfectant and then washed for 5 min. in sterile water. Four of the tubers were placed in the soil suspension for 5 min. and four were placed in sterile water as controls. All tubers were then incubated separately for 48 hr. in small glass jars at a relative humidity of 100 per cent and a temperature of 26° C. To isolate soft-rotting bacteria, a visibly infected tuber was washed with tap water and cut lengthwise with a sterile scalpel. A cut was then made in the healthy tissue of the exposed surface so that the half-tuber could be split across to expose a rotted area. This course was taken to avoid contamination by the scalpel. A small piece of rotted tissue was taken from the extremity of the rot, transferred to sterile water in a test-tube and left for thirty minutes. The bacterial suspension so obtained was streaked on to nutrient agar and the bacteria from Gram-negative colonies were isolated. Each isolate was inoculated into freshly cut sterile slices of potato tuber to determine its pathogenicity.

Twenty soil samples, obtained from the Macaulay Institute for Soil Research, were tested by this method for the presence of soft-rotting bacteria. The samples were taken from different types of soil in the north of Scotland and at different stages in the normal seven-course rotation. In every case soft-rots developed in all the inoculated tubers as a result of lenticel infections, and pathogenic bacteria were isolated. The controls remained healthy. This method proved quicker and more reliable than that described by Leach[1], in which a soil suspension was inoculated into potato tubers by the 'hole and plug' method.

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[1] Leach, J. G., *Phytopath.*, **20**, 215 (1930).

The Autumn Flush of *Drosophila* (Diptera)

During routine trapping with apple bait in two mainly deciduous woods at Liberton, near Edinburgh in 1950, a sudden large increase in numbers of adult *Drosophila* was caught early in November. Two traps on the ground and exposed during October 31–November 7, 1950, gave the usual few adults, namely, 52 (38 *D. subobscura*, 7 *D. obscura*, 1♂ *D. silvestris* n.sp., 1♀ *D. tristis*, 2 *D. phalerata*, 3 *D. funebris*), whereas the two replacements exposed November 7–14, 1950, caught 970 *Drosophila* (867 *D. subobscura*, 56 *D. obscura*, 5♀ *D. silvestris*, 25 *D. tristis*, 2 *D. ambigua*, 5 *D. phalerata*, 9 *D. funebris*, 1♀ *D. cameraria*) (sex signs are given when only one sex occurred). The increase was obviously due mainly to one species, *D. subobscura*. Similar large numbers were obtained at other sites at the same time. When next exposed,