cent). This phenomenon probably represents the more rapid proliferation of some fibroblast elements left among the epithelial cells, a possibility which is being studied by cloning techniques. In addition, the number and morphology of the chromosomes, the growth characteristics, and certain biochemical properties of the two cell lines are under investigation.

It is of particular interest that the cellular morphology is significant with respect to virus susceptibility[6,7] and that a cell type with certain specific characteristics can be rapidly selected by the application of antisera to a mixed cell culture.

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Antigenicity and Survival of Cartilage Homografts

During the course of investigation of the reasons underlying the ability of cartilage grafts to survive in foreign hosts for long periods, the effects of cartilage homografts and heterografts on the regional lymph node were studied in order to determine whether such grafts were antigenic[1]. The results of this test indicated that both types of graft do evoke an active immune response in the host animal, and it was discovered, further, that heterografts do so even after having been boiled for periods of up to 10 min.[2]. This test does not, however, indicate whether the host animal becomes fully immunized by the foreign cartilage, and in order to determine whether this is so, rabbits bearing cartilage homografts have been challenged with skin homografts from the cartilage donor.

Thirty-six rabbits were used in the investigation. Eighteen control rabbits received a fitted skin homograft of 1½ in. × ½ in. Eighteen experimental animals were given 0·2 gm. of diced homologous cartilage on each of two occasions four days apart, followed by a fitted 1½ in. × ½ in. skin homograft from the cartilage donor on the fourteenth day after the second cartilage implant. A skin homograft of 0·36–0·44 gm. weight will fully immunize an adult rabbit within 14 days[3]. All 36 skin homografts were removed on the sixth day after grafting, and 7μ paraffin sections were stained by hæmatoxylin and eosin. The graft condition was assessed histologically, using the following classification: (*A*) survival, with proliferation, of the entire graft epithelium; (*B*) breakdown of proliferated or still proliferating epithelium in progress; (*C*) breakdown of non-proliferated graft epithelium in progress or complete. 'Immune' type of breakdown.

The results are presented in Table 1. They indicate that, in the majority of cases, implantation of 0·2 gm. of homologous cartilage from the same donor on two occasions is insufficient to elicit a state of transplantation immunity in the host. Only five (28 per cent) of 18 rabbits so grafted appear to have become fully immune.

Table 1

Graft condition	Control animals	Experimental animals
A	8	4
B	10	9
C	0	5

This finding raises the question of whether cartilage homografts survive because of their mild degree of antigenicity. This does not appear to be the case, since further experiments I have carried out show that cartilage homografts can survive in animals fully immunized by skin homografts from the same donor. These findings will be published in greater detail elsewhere. The ability of cartilage homografts to survive may therefore well be attributable to the peculiar physico-chemical character of the matrix, as was first postulated by Bacsich and Wyburn[4]. The matrix would appear to behave after the fashion of the semi-permeable diffusion chamber devised by Algire, Weaver and Prehn[5], which allows foreign cells to survive in an immune host.

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A Technique for the Investigation of the Competitive Saprophytic Ability of Soil Fungi by the Use of Easily Decomposed Substrates

The method commonly used to determine the competitive saprophytic ability of soil fungi consists of exposing suitable substrates to colonization by the fungus in non-sterile soil. A serious disadvantage of this method is that only relatively resistant substrates, for example, wheat straw, can be used effectively because of the manipulation to which the substrate has to be subjected after incubation. Less-resistant substrates such as portions of non-woody roots, rhizomes and cylinders or disks of storage parenchyma of carrots or potatoes, etc., are so softened by the action of soft-rotting organisms in the soil that it becomes difficult to cleanse them adequately of adhering soil, and hence to state with confidence that fungi isolated from them have actually colonized the substrate in competition with the general soil microflora. It is very important to test the suitability of any potential substrate, for, as Garrett[1] has pointed out in the case of root-infecting fungi, one is usually trying to demonstrate a negative character, that is, inability to compete as a soil saprophyte, and to obtain the strongest circumstantial evidence the killed host must be used as the substrate. A substrate such as wheat straw can probably only yield evidence relevant to fungi pathogenic to wheat or at most to cereals;