provided by the graft, or their descendants. This would correspond to adoptive immunity in the experiments of Billingham[12,13].

The second explanation would be along the lines proposed by Miller[16] in his investigations on thymus grafting in neonatally thymectomized mice. The implanted donor thymus after losing most or all its own lymphoid cell population then provides a suitable environment in which host cells could gain or regain chorioallantoic membrane in the absence of a constant source of tolerance maintaining chimeric antigens. This alternative implies that the tolerant state in these chickens is associated with at least temporary colonization of the hosts' thymus by multiple chimeric cells. The existence of chimeric cells in tolerant mouse thymuses has been reported by Billingham[17], but we are not aware of any experiments to determine whether thymic isografts could break down an established chimeric system in mice.

Choice between the alternatives may need to wait on the development of satisfactory means of distinguishing chorioallantoic membrane reactive cells of host and donor origin.

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Sensitization of Guinea Pigs to Chromium Compounds

A well-established fact in clinical dermatology is the frequent occurrence of dermatitis caused by bichromates (hexavalent chromium), while dermatitis caused by trivalent chromium compounds (for example, chromium sulphate) is very rare or non-existent. This seems to be in contradiction with the prevalent opinion that protein-affinity enhances for a given substance its sensitizing capacity. It appeared to me from a large number of experiments with guinea pigs that it is relatively easy to sensitize guinea pigs for chromium with trivalent chromium compounds.

Confirming some observations of Mayer *et al.*[1], sensitization was performed with 3 intracutaneous injections, given every second or third day, of 0·1 ml. of a 0·04 per cent chromium sulphate solution. Nearly 60 per cent of these animals developed a contact dermatitis when brought in contact with non-toxical hexavalent chromium solutions whereas no reaction occurred when chromium sulphate was used as test solution.

Sensitization with potassium dichromate solution is possible in the same manner, but the degree of sensitization is markedly inferior. In contrast 100 per cent of the animals are sensitized when with the potassium dichromate Freund adjuvant is used[2].

In a series of 60 of the latter animals I was able to demonstrate in two animals circulating antibodies against trivalent chromium compounds with the passive cutaneous anaphylaxis test.

In the light of the results of these experiments, it is possible or even probable that:

(1) Trivalent chromium compounds penetrated the skin, and gave rise to the contact-type chromium allergy. This good sensitizer in itself lacks the capability to elicit reactions after the sensitization has been achieved. The chromium allergy can only be demonstrated with hexavalent chromium. It is possible that the chromium compound in the test-solution has to enter the 'sensitized' lymphocyte to elicit the reaction[3]. Perhaps this can only be achieved by the more diffusible hexavalent chromium.

(2) Circulating antibodies in guinea pigs are directed against trivalent chromium. This agrees with the results of the experiments of Cohen[4] performed with rabbits.

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Compound Mouse Diets

No single compound diet available in Great Britain is universally satisfactory for breeding mice of different strains in different laboratories. Moreover, formulæ developed in one country are not always useful in others because of the different availability of ingredients. It is therefore desirable to have a ready means of assessing a diet, to ensure that it is capable of supporting optimum growth and reproduction and of sustaining health in all strains and in all conditions likely to be encountered in the laboratory.

We have used as our experimental system groups of monogamous pairs of adult inbred *CBA* mice observed over a period of 110 days; that is, five gestation periods plus one œstrous cycle, giving a possibility of five litters being born during the period. We chose *CBA* mice because it had been our experience that diets commonly regarded as satisfactory for mice, unspecified, would not support good reproduction in *CBA* mice unless supplemented. Our diets, both test and control, were unsupplemented: they were given, together with water, *ad libitum*. We noted the number of litters born during 110 days, size of litters, weaning rate, economic breeding life of females, and, in the young, weight gain and age of first onset of œstrus and of first fertile mating. Fig. 1 shows 4 male *CBA* mice, 152 days old, fed respectively on 4

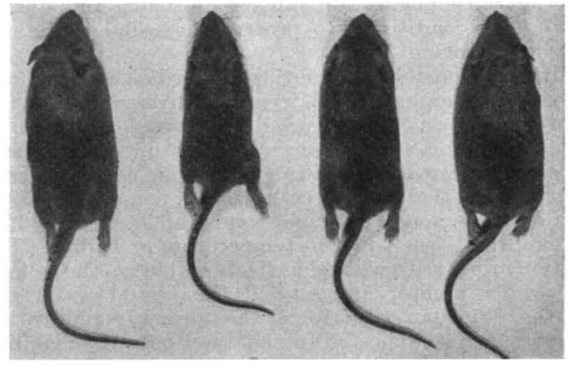

Fig. 1. Four male *CBA* mice, 152 days old, fed respectively on four commercially available mouse diets