PLAN FOR THE CONTINUATION OF TRIALS ON SENILE PATIENTS.

At the meeting of the guiding group held on September 10th, 1943, I was asked by the Chairman to draw up for immediate consideration concrete proposals for the continuation of the experimental trial after the first period devoted to vitamin dosage. In doing this I shall not attempt to comply with all the desiderata which have from time to time been put forward, since some of these are valid and inconsequential, or would require more experimental material than is available, while others seem to spring from a mere misunderstanding of the experimental method.

I should however like in advance to make clear one principle, which I have elaborated somewhat fully elsewhere under the title of the factorial method, namely that the groups of individuals in an experiment used for some comparisons should be subdivided and regrouped to make comparisons of a different kind, without the one set of comparisons interfering with the other and without diminishing the size of the groups or the consequent precision available for the second comparison.

It will make clearer at the meeting that the patients have been divided into five clinical classes, and that within each class equal numbers have been assigned to treatment with and without vitamins. The actual numbers within these classes were not available. The first proposal I make is that, for comparison of effects of hormones, those who have received vitamins and those who have not within each clinical class shall again be divided equally between

* [of the Club for Research on Ageing]
groups assigned to receive, and not to receive, hormone treatment. It is clear that the numbers within each clinical class, as at present assigned, are all even. It is probable that they are not all divisible by four. This inconvenience could have been avoided, but as it has not been I am prepared to assign the individuals who cannot be paired to groups in such a way as to minimise the statistical inconvenience. To do this, it is necessary to know what the actual numbers are.

In consequence of the subdivision proposed above, half of the experimental material surviving will be available for comparison with the other half in respect to response to hormones, these two moieties having received comparable previous treatment.

The treatment in the second period of experimentation in respect of vitamins should of course be alike in the hormone and no-hormone groups. It need not however be alike for all the patients in the experiment. I suggest that the treatment in the second period should depend on the apparent results of the treatment in the first period. There are three possibilities:

(a) If statistically significant results for response to vitamin-administration in the first period can be claimed, then all patients still in the experiment in the second period should receive vitamin-treatment, for it would then be clear that the response to hormones would otherwise be obscured by the presence in varying degree of vitamin deficiencies.
(b) If there appears to be a positive response to vitamins but that this is not statistically significant, the vitamin treatment should be continued throughout the second period as in the first. In this case the effect of vitamins in this material cannot be so large as to obscure any satisfactory second response to hormones, and the second period may usefully be employed in ascertaining whether the apparent response to vitamins is confirmed by longer experience.

(c) If there appears to be no response to vitamins in the first period, then the administration of vitamins may be omitted in the second period.

So far as practical convenience allows, the second period of treatment should follow the first as soon as possible. The main objection to the resting-period previously proposed is that it is bound to lead to further dissipation of the experimental material by death and dispersal, and that it delays the attainment of preliminary results suitable for guiding further researches, without alleviating the expenditure being currently occurred. I do not think such a resting-period can in any case increase the cogency of such results as may be attained.