Whittingehame Lodge,
44 Storey's Way,

26 October 1944

==55822

Dear Gray,

I have just received from Innes papers set in Sections 1 of the Mathematics papers of Natural Sciences Tripos Part I and the Preliminary Examination in Natural Sciences.

I take it that Section 2 of each paper is intended for physicists requiring rather advanced mathematics, but that Section 1 must be intended (at least it looks like it) as an examination of the mathematical prerequisites of biological studies. For this I little as,
do think the papers are very unsuitable.

Of course, it might be thought proper to include mathematics of any sort in the examination merely as a test of general intelligence or mental agility, but I suppose the time for such a test is passed when they have been accepted as candidates for the Tripos, and that what is wanted is to test candidates in their proficiency in any mathematical procedures likely to be useful in reading the biological literature critically and in prosecuting biological research.

I suppose the proposals we are to make are not confined to criticism of the examination as it stands, but also of the scope of the syllabus. I have not a copy of this, but I do think that familiarity with combinatorial ideas, of which a basis has already been laid in school algebra, notions of probability and probability-distributions, and the simple techniques used in examining experimental data should be the core of the mathematics required for biological studies. Almost the only question of this kind that I can find(Question 20 in Mathematics(II) for the Preliminary Examination) is in Section II along with questions on Legendre and Bessel functions. Of course, I don't want to exclude proof of facility in algebraic manipulation and infinitesimal calculus, but I think these should be ~~introduced~~ incorporated as means to ends in questions which have some imaginative meaning for biological students.

I expect you will be calling a meeting some time soon, and I should like to know whether in your opinion, before us can be

simplified down to this: What sort of mathematical operations do teachers of biological studies want their students to be familiar with for the purpose of facilitating their biological studies ? If this is the real problem, I think we can make concrete proposals.

Yours sincerely,