



Mathematical Institute
16 Chambers Street
Edinburgh, 1

May 5, 1937.

Dear Fisher,

It is very kind of you to offer a proportion of W. S. Sheppard's offprints to my department. I possess a few myself, but would very gladly accept any that the Lyalton Laboratory might spare.

W. G. Cochran wrote to me not long ago concerning the problem of finding the roots of $|a_{ij} - \lambda b_{ij}| = 0$, and said it entered into some work of your own on attributing a metric to variates

not usually regarded as susceptible
of metrical order. I look forward with
expectation to this work of yours. The
letter turned my thoughts to the question
of the practical solution of $|a_{ij} - \lambda \delta_{ij}| = 0$
and I have just lodged a paper with the
R. S. Edin. on the solution of this equation
for all types of matrix a_{ij} . Fortunately
in practice the symmetrical and/or
positive definite is the usual.

Yours sincerely,

A. C. Aitken.

May 7, 1937

Dear Aitken,

Thanks for your letter. I will have the Sheppard offprints divided up, probably next week, and send you a selection.

I am very glad to hear that you have published the valuable notes which you sent to Cochran on the matrix problem. Actually, in my own work I found I could do quite well by trial values. The equation being of the fourth degree, five trial values supply an exact solution. Equations of this type arise in general for problems in which you may choose to maximise the ratio of one set of sums of squares to that of another for variations of any chosen parameters. In this form I think it may arise quite frequently in statistical work in future.

Yours sincerely,