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Sept. 24, 1932.

Dear Dr Fisher,

Many thanks for your kind letter. I shall do my best, in writing up the paper, to attend to your recommendations. As you say, the programme is difficult, the more so as in this case I wish to use ordinary and central factorial polynomials, operations and moments, and at the same time to bring out the complete and valuable analogy with the corresponding entities in the continuous case, utilizing all that is standard and known about the Legendre polynomials. Now I have found almost as many notations in these matters as there are authors ; and most of them are unsuitable for my purpose. Usually I write out drafts of a paper five or six times in successive revisions, and then submit to a devastatingly candid friend who lives not far away, as a result of which I generally have to recast large sections in deference to his suggestions.

I should think however that an equally great difficulty is the following. Matters concerning discrete equidistant data belong to the calculus of finite differences and sums, and symmetry can be gained by using central and mean central differences and sums. If we remain within the limits of

these calculi, we can derive all the expressions and properties of the Tchebycheff polynomials, and for that matter a more general set, referring to data weighted with the binomial terms in the expansion of $(p+q)^n$, using little else but summation by parts and the properties of ordinary factorial polynomials under differencing and summation. Here the trouble is that most of one's readers, however familiar with differentiating a product or integrating by parts, are unfamiliar with the finite difference analogues of such operations; what is more, they are unfamiliar with the various extraordinarily rapid ways in which the required factorial moments can be obtained by different adaptations of successive summation.

Do not trouble to answer this informal note, or to look further into the much too condensed indications I gave in my former letter. In the interval between now and the beginning of term I shall write out and send you some account of the theory, numerical practice, and tables I propose to use. It is perfectly possible that, when you have leisure to consider it, you may see opportunities for improvement or better adaptations. Methods that suit me may not be the best for others.

Yours sincerely,

A. C. Aitken