February 27, 1939

Dear Professor Hardy,

You may have learnt that about two years ago I felt myself obliged to resign membership of the Cambridge Philosophical Society, and, as Jeffreys has recently informed me that, on his own motion and without any suggestion coming from me, he has been interesting himself in the possibility of my rejoining the Society, I am writing this in order that you may be informed as to what took place.

In 1929 a German statistician named Behrens put forward a test of significance of the difference between the means of two samples from populations having unequal variance.   The case seemed to me of little practical importance in respect of actual experimentation, and I have, in subsequent editions of Statistical Methods, referred to it in this sentence (7th Edition, p. 130)

>   "This problem has, in fact, been solved,
> "but in relation to the real situations
> "arising in research, the question it
> "answers appears to be somewhat academic."

In December 1935 I published a collection of
examples illustrating what I have called "the
fiducial argument in statistical inference", Among
them was a demonstration of Behrens' formula, which
at that time had not, I believe, even been criticised
as inexact. Indeed it was fairly obviously exact
for the problem Behrens set himself.   During 1936
the Cambridge Philosophical Society published a
paper by Bartlett, in which he implied that Behrens'
method and the table which he had given were
inaccurate.

I thought, or I should now rather say I recognised,
that Bartlett's criticism arose from him not under-
standing the problem Behrens and I had discussed, that
his ideas of the numerical values following from
Behrens' formula were at fault, and that the distribution
on which he relied as giving the true values in contrast
to Behrens - actually, though he did not recognise it,
"Student's" distribution for paired samples - had not
the relevance he thought as providing a valid
alternative approach.

I do not know why this paper of Bartlett's was
published without either he or his referees referring
to me to ascertain if he had correctly apprehended the
argument he was criticising.   Once published, however,
it must have been clear that I should have to answer it,

if only because I had been responsible for intro-
ducing the notion of fiducial probability into
Statistics, and was concerned to take all care to
prevent the notion being misapplied. The most
suitable place for a reply was the Cambridge
Proceedings, and I was astonished to find that
hesitation was felt in the Committee about allow-
ing me to do so.

In correspondence with me Mr Wilson protested
that neither he nor the Committee based their action
on any claim to have judged the correctness of
Bartlett's criticism, or of my reply.   It seems,
however, that their action would be incredible if
they had not been most confidently advised that I
was in the wrong.   Since then a good many other
workers have examined the matter from various stand-
points, and there can, I think, be no longer any
question of an analytic error in the demonstration
of Behrens' formula. It gives, in fact, the exact
result which it sought to evaluate. Discussion might
continue, of course, on the relevance of the solution
to various practical situations. It was in view of
such a possibility of the discussing continuing that
I quoted above a paragraph from my book on Statistical
Methods. It is, in my opinion, rather seldom that the

postulated basis of Behrens' solution is exactly
justified in practice. More frequently, there is
sufficient uncertainty to make his test a useful
supplement to the alternatives available.

I think I may assume that you would never
willingly be associated with the suppression of
mathematical truth, or even with the suppression of
a point of view with which you are inclined to
disagree on a debatable issue. On this point, so
far as I can see, the Society can only put itself
right by again permitting free publication on the
subject. I published my reply two years ago,
without Bartlett raising in the meantime any question
of my not having treated his criticism courteously
and fairly. In view of the recent publication of a
adequate tables of Behrens' solution (Sukhatme,
Sankyā IV. Pt. 1) I am publishing again a fuller
explanation of exactly what the tests effect, and of
the situations to which they are appropriate. I
have recently heard that Yates of Rothamsted, who
at first agreed with Bartlett's objection, has
since ~~recently~~ made a new investigation, which leads him
to concur with my own point of view. I have
persuaded him to delay publication of this while I
ascertain whether the Cambridge Society would be
willing to publish his paper, as this seems to be the

only action they could take which would give out-
siders any confidence in their sense of propriety.

Will you be good enough to ascertain for me
what is now the attitude of the Committee.

Yours sincerely,