The Thatched Cottage
Clement Place
Cambridge
April 9

Dear Fisher,

Thanks for your letter. The extra parameter finishes the thing off! So far I have been unsuccessful in persuading astronomers that a tenth of the time they take in multiplying by 0.6745 would be better occupied in finding χ^2. I have got a way of doing the thing by choosing a t distribution with the same mode & 2nd & 4th derivatives at the mode, thus neglecting the skewness. It's rough but perhaps not too bad & anyhow much better than astronomers are in the habit of doing.

Sorry you are having bother over finance. I don't think our department needs the Annuity often enough for its own use, but the only

libraries that have it seem to be the University & Agriculture. Current numbers aren't borrowable from the University Library, and I have sometimes got them from Irvine, but that's not a good general procedure. The Philosophical ought to take it but appears not to. Sankhya wasn't taken here till recently but Irwin has, I believe, recommended it for the U.C., with what results I don't know.
I don't know who runs Punnett's dept. at present.

I have recently compared series of estimates that should agree by computing χ^2 with the nominal standard errors. This is a bit unsatisfactory, & I think I have got something better. If you take $T = \Sigma \sqrt{\frac{\nu-1}{\nu-4}} \, \frac{\nu-2}{\nu} t_i^2$, then $ET = \Sigma \sqrt{\frac{\nu-1}{\nu-4}}$, $E(T^2) - (ET)^2 = 2n$, & a Type VI distribution can be fitted for T of the form $T^{\frac{1}{2}n-1}\left(1+\frac{T}{a}\right)^{-3} dT$. This makes the fact that the ν's are different for the separate estimates as harmless as possible. I haven't put it into the z form yet.

I haven't anything to say about Sukhatme

beyond what I said in my Ann. Eugen. paper but it is right as a method of estimation but it isn't what I should call a significance test.

By the way you are inclined to blame omissions in the older methods on the teaching of inverse probability. I should rather blame it on the fact that it took a long time for people to see that getting the right answer depends on stating the question properly. With inverse probability it can be stated rightly or wrongly, but at least it has to be stated. Without it there is a constant risk of muddle through people not seeing what the problem is. As a matter of fact in 1921 or so I did the "Student" problem using $P(dh|H) \propto dh$, but wasn't happy about it & didn't see how to put it right till "Scientific Inference". But the difference between n & $n+1$ in Student's formula is far less than the difference between you & Bartlett!

The awful problem in physics to is

to get people interested at all. They seem to like multiplying by 0.6745 if they can be bothered to work out an uncertainty at all, and any attempt to tidy up the thing rather annoys them because it restricts their liberty of guessing. So far your tables I should say that it is no earthly use putting in physical applications that involve any appreciable amount of arithmetic.

Yours sincerely

Harold Jeffreys

I have written to ask Lenox Conyngham if he has any ideas about persuading the Phil. Soc. to take the Annals.