July 5, 1941

Dear Dr Peters,

Thanks for identifying the two Leipers.

The top line of my revised table 5 refers to one degree of freedom, and not to two. It is, therefore, a part only of the corresponding line of your table. If <u>a</u>, <u>b</u> and <u>c</u> are, for example, the experimental responses to three levels of application, then one may verify the identity of

$$\tfrac{1}{2}(c-a)^2 + \tfrac{1}{6}(2b - a - c)^2 = (a - m)^2 + (b - m)^2 + (c - m)^2$$

where $3m = a + b + c$.

Thus if $a = 2064$, $b = 1297$, $c = 1184$

we have the parts

$\tfrac{1}{2}(c-a)^2$	387200
$\tfrac{1}{6}(2b - a - c)^2$	71286
	458486

Dividing each of these by the number of sheep on which it is based

No. sheep		
6	387200	$64533.\dot{3}$
6	71886	11881 .
		$76414.\dot{3}$

The total is $76{,}414.\dot{3}$, corresponding with 76,414 of your table.

On your second point, the test of the variance ratio reduces to a t test, if you are testing only one degree of freedom. The variance ratio 3.7166 corresponds with a value of t rather more than 1.9, and the probability of z table gives the frequency with which random samples will give you values of t exceeding + 1.9 or below -1.9, these two events being equally frequent. Since their total is ~~less~~ less than 10%, the positive excess on which alone an anthelmintic effect would be claimed, and which has, in fact, occurred, would happen by chance in less than 5% of trials.

As to the use of spearate components from experimental data, you might find it useful to look up my book on the Design of Experiments, where this sort of whing is illustrated fairly fully,

Yours sincerely,