Hotel Vatel
Curepipe (CUREPIPE)
9.3.62
MAURITIUS.

Mr G. Davidson
The Ross Institute,
Kepple St.
London WC,

Dear Mr Davidson,

I have just received your recent WHO/Mal report and have read it with the greatest interest. I have also had the privilege this week of discussing the work we have been doing on gambiae with Peter Mattingly. May I say that I agree with you that your evidence is best interpreted as indicating that your two groups are separate species, especially when one takes Coronels evidence of the presence of both at Diggi. I believe that it will be shown that at Muheza, Tanganyika, both forms are present. When I performed my crosses with SW gambiae I used a colony from Muheza which I started & which, unfortunately, is now extinct, as well as the Kisumu colony (presumably the one which you place in group A). If you look at my figures for egg lengths & sex ratios for my crosses (Amani Annual Report) and also Kuhlows figures, you will notice there is some evidence of differences between the two freshwater colonies. Kuhlows Muheza colony (the one you tested, perhaps?) agrees better with the Kisumu figures for sex ratio in the F_1 generations. I have further evidence that my Muheza colony might have been group B. When I read Holstein's gambiae chromosome paper I noticed his remarks that certain

Colonies from Tanganjika when crossed gave rise to sterile offspring. For this reason I crossed my two FW colonies. I do not have my notes here but I remember that in the F_1 I got an excellent hatch (± 90%) and that the larvae reached the pupal stage with no mortality & looked most vigorous but that the emerging adults were very feeble. Unfortunately I was snowed under & did not examine these adults closely so I do not know whether the testes were reduced. I believe I have the sex ratio figures though. Notice also the differences in egg size between the two FW colonies.

May I make a few suggestions and remarks about your paper?

I should very much like to see details of your crosses when you write up this work: sex ratios & spot measurements for F_1's & backcrosses, egg measurements for colonies (not pools from colonies), notes on the feebleness or otherwise of your hybrids when they emerge from the pupae. I should like to see these details for the crosses in both directions. It is not quite clear to me, though I assume it is so, that the both F_1 males of your crosses A × D & B × A are with atrophied testes. Coronel's figures in her table I are presumably pooled figures. It would be nice to have these measurements & egg measurements for separate colonies.

Your data on p 3 allows a second possibility namely that you may be dealing with a "super

gene" – a group of closely linked factors (possibly held together by an inversion) affecting fertility in the male. It will not be possible to distinguish between these possibilities at this stage but it should be realized that the evolutionary implications of the two are rather significantly different (the "Super gene" being evolved).

I have looked at a small sample of Fw gambiae from Mauritius & they appear to be group B (range 141–192 microns $\bar{x} = 166$ $n = 6$).

With kind regards and my congratulations on a most interesting piece of work.

Yours Sincerely

H. E. Paterson.