13th September, 1954.

My dear Rob,

A correspondent from Diamond's department has pointed out to me that in my paper on standard calculations for evaluating a blood group system the short cut I use in passing from the interchange probability to that of paternity is not accurate. I have re-worked the figures, which I should like to be available in your department. Perhaps also I ought to publish a correction though, of course, this is not much use as a rule. For the case where only three sera are in use there are six phenotypes with frequencies given in the first column of the following table:

20.1058	53.0303	53.0303	100	100	46.9697	46.9697	75.0919
8.0163	53.0303	28.3131	100	67.2620	46.9697	38.9489	64.6732
27.7611	76.5152	76.5152	100	100	73.4848	73.4848	87.5459
22.0553	76.5152	47.7875	100	67.2620	73.4848	53.1054	74.9310
6.8913	53.0303	53.0303	100	100	46.9697	46.9697	75.0919
15.1702	53.0303	28.3131	100	67.2620	46.9697	38.9489	64.6732

The body of the table stands for probabilities of a false paternity being undetected, for each phenotype of mother, while the last column gives the average of these frequencies for each phenotype of mother. The general average value comes to be 76.0981 instead of 72.59 given in my paper. The ~~disproval~~ detection of paternity is, therefore, somewhat weaker

than I had thought. The power of this system for paternity being 0.27315, which should take the place of the value 0.32035 in the table on page 102.

For the system with four antibodies I have now a general probability of failure to detect of 68.4263, against 66.856 previously given. The power of the test is therefore 0.37942 instead of 0.40263.

The addition of the fourth antibody thus increases the power by 38.9% for paternity instead of 25.7%, the correct value being almost the same as the 38% given for the problem of interchange. The case of four antibodies requires in principle a 10 x 10 table of frequencies of failure to detect for each combination of parental genotype, for although the two doubly heterozygous genotypes are supposed to be indistinguishable yet mothers of these two will yield different proportions of offspring who can be recognised as extra-marital. Finally, therefore I enclose this 10 x 10 table. Will have to P.K.

Sincerely yours,

Enc.

(a)	24.7172	53.0303	28.3131	32.7380	100	100	67.2620	8.0208	46.9697	38.9489	60.0260
(b)	38.8738	53.0303	40.6717	66.3690	100	100	83.6310	27.4952	46.9697	42.9593	67.5589
(a)	24.7172				100	100					
(c)	28.7276	76.5151	47.7875	32.7380	100	100	67.2620	20.5791	73.4848	53.1054	69.0029
	62.3586	76.5151	60.1461	66.3690	100	100	83.6310	39.8539	73.4848	69.4744	79.6004
	42.8842	76.5152	64.1565	66.3690	100	100	83.6310	54.0104	73.4848	57.1158	76.9484
(c)	28.7276				100	100					
(a)	24.7172				100	100					
(b)	38.8738				100	100					
(a)	24.7172	53.0303	28.3131	32.7380	100	100	67.2620	8.0208	46.9697	38.9489	

In each column of the above table the 1st, 3rd and 8th rows are alike: the same (a)
is also true of the second and ninth, and of the fourth and seventh rows. (b) (c)

General mean 68.4243