You might imagine that you have done up to say a thousand trials and if that is the sort of thing you had in mind before you started experimenting you will probably be satisfied to use as a distribution when $p$ is not a half, something roughly uniform, though possibly concentrated in a narrow interval covering $p = \frac{1}{2}$. I do not think you can use a uniform distribution going the whole way from $p = 0$ to $p = 1$, if it is a question of the bias of a coin; for example, you might use something uniform in a rather narrow range or something like $p^{\alpha}(1-p)^{\alpha}$ to make it smooth. But at the back of your mind you have the idea that you are going to do an experiment of reasonable size. However, if you were told that the experiment might become enormously large, and if you can imagine some possible results of an experiment of that size, you may decide that you would accept E.S.P. even if $p$ were very close to $\frac{1}{2}$. Now if the sigma-age were greater than, say, 10, or something like that, you would have to think awfully carefully. If you were really doing this experiment you would have to think of a great many possible results of the experiment to make sure that you were being consistent; and if you did that, then it may well be that you would decide to use a very curious sharply peaked prior distribution. But I think you might well come round to advance the view that if on tail area probabilities the chance was as small as $10^{-10}$ this would still not be evidence in favour of E.S.P. But after it really happened, you might begin to doubt your original judgements. So you must try to think out in advance and decide on a prior distribution which would enable you to be consistent whatever happens. That is in theory. It might be very difficult. You do not need more than one test depending on the intentions of the experimenter. In principle you must think of all possibilities and then decide on a single test which will depend on a single prior distribution.

Mr C. B. WINSTEN: What I was going to say is so closely related to what Dr Good was saying that I hasten to follow him as closely as I can. I, too, want to emphasize that one often may learn about 'initial probabilities' from final probabilities, and I feel this affects the argument quite considerably. Sometimes, as in simple urn experiments, one deduces final probabilities from initial probabilities. On the other hand, one can imagine a situation like that Dr Good has just described