computations. All that I ask is that they should be more careful what they publish in textbooks. It is not only students who are misled by this mania for putting dimensional constants equal to unity. Eddington once published the absurd statement that the Sun's mass can be measured in kilometres.

Yours faithfully,

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Matthew's Chance: Probability and Prejudice

SIR, — Concerning the statistical paradox quoted in the book review "Probability and Prejudice" (*Nature*, 221, 291; 1969) and commented on by Pierre E. Nel (*Nature*, 222, 201; 1969), may I submit an analysis of the problem which firmly pinpoints the flaw in Matthew's reasoning and the fallacy of his optimism?

It may be expedient briefly to restate the problem. Of three prisoners, Matthew, Mark and Luke, two are to be executed, but Mark is not allowed to know which. He asks the jailer "since either Mark or Luke are certainly to be executed, you will give me no information about my chances if you name one man, either Mark or Luke, who is going to be executed". Accepting this argument, the jailer truthfully replied "Mark is to die". Matthew now feels happier, because whereas earlier he took (quite rightly) his chance of survival of $1/3$, he now knows that the choice of the survivor is only between him and Luke and has consequently increased to $1/2$. Is Matthew right to feel happier?

If two of the three prisoners are to be executed they may be dispatched in three possible combinations: (a) Matthew + Mark, (b) Matthew + Luke, (c) Mark + Luke. Without further information each of these has clearly equal probability. Since Matthew's chance of survival is with (c), is it $1/3$?

We are told that the draw has taken place and its result is known to the jailer. Note that this statement is important because, if the situation were otherwise, the story would have a different end.

We (and Matthew) know that the jailer named Mark as a certain victim and with this knowledge option (b) is removed as a possibility, but we still cannot distinguish between the two remaining options which therefore must be taken to be equally probable, each having now a probability of $1/2$. The reader will note that so far we agree with Matthew's reasoning. However, what we must now consider and what Matthew unfortunately (not of course for his own peace of mind) forgot are the chances in this situation of the jailer actually naming Mark rather than Luke. By the rules of the game he was not permitted to name Matthew if he was one of the two chosen victims. We must assume that the jailer had no preference otherwise, and if the actual draw would have been (c), there was an equal chance of him either naming Luke or Mark. If the draw would have been (a), on the other hand, the jailer had no choice but to name Mark. It is in this inequality of the options open to the jailer that we find the clue to the problem.

Because the probability of the jailer naming Mark in case (a) is 100 per cent and in case (c) only 50 per cent, the fact that Mark's name was chosen—apart from removing option (b)—also implies that it is twice as likely to have come from option (a) than from option (c). We had noted earlier that each of these two options has a probability of $1/2$; it follows that the probability of option (c) being suggested by the jailer's disclosure is $2/3 \times 1/2 = 1/3$. This is, of course, the same probability that Matthew had to allocate to this option (his only

survival chance) before the apparent indiscretion by the jailer. We arrive, of course, at exactly the same answer if we assume that the jailer names Luke.

Yours faithfully,

W. J. G. PINSKER

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Bedford.

University News

Mr D. R. Bland, University of Manchester, has been appointed professor and head of the department of mathematics at the **College of Aeronautics** (proposed Cranfield Institute of Technology).

Dr F. C. Kafatos has been appointed professor of biology at **Harvard University**.

Dr C. C. Lamberg-Karlovsky has been appointed professor of anthropology at **Harvard University**, and curator of Near Eastern archaeology in the **Peabody Museum**.

Mr D. G. Anderson, Harvard University, and **Mr R. W. Brockett**, Massachusetts Institute of Technology, have been appointed Gordon McKay professors of applied mathematics at **Harvard University**.

Dr J. G. Buchanan, University of Newcastle upon Tyne, has been appointed to the chair of organic chemistry at **Heriot-Watt University**.

Dr H. Allred has been appointed to the chair of conservative dentistry tenable at the **London Hospital Medical College**, University of London.

Mr D. J. Neill has been appointed to the chair of dental prosthetics tenable at **Guy's Hospital Medical School**, University of London.

The title of professor of surgical science has been conferred on **Dr D. G. Melrose** in respect of the post held by him at the **Royal Postgraduate Medical School**, University of London.

The title of professor of experimental and preventive dentistry has been conferred on **Dr D. C. A. Picton** in respect of the post held by him at **University College Hospital Medical School**, University of London.

The title of professor of pharmacognosy has been conferred on **Dr E. J. Shellard** in respect of the post held by him at **Chelsea College of Science and Technology**, University of London.

The title of professor of haematology has been conferred on **Dr J. W. Stewart** in respect of the post held by him at the **Middlesex Hospital Medical School**, University of London.

The title of professor of optical design has been conferred on **Dr C. G. Wynne** in respect of the post held by him at **Imperial College of Science and Technology**, University of London.

Dr F. C. Neidhardt, Purdue University, has been appointed professor and chairman of the department of microbiology in the Medical School at the **University of Michigan**, in succession to **Dr W. J. Nungester**.

Professor S. D. Drell has been appointed deputy director of the **Stanford Linear Accelerator Center (SLAC)**, Stanford University.

Appointments

Dr N. S. Grace, Dunlop Research Centre, Ontario, has been elected president of the **Chemical Institute of Canada** for 1969–70. **Dr J. W. Tomecko**, Industrial Research Institute, University of Waterloo, Ontario, has been elected chairman of the institute's board of directors.