

The trial of Lucy Letby has shocked British statisticians



And shown that many Britons are woefully ignorant of statistics

It was “feeble”. It was “very unsatisfactory”. It was, in short, “terrible”. If you wish to annoy a statistician, ask them about the trial of Lucy Letby, a British nurse. Statisticians will, typically, take no view whatsoever on the guilt or otherwise of Ms Letby, who in August 2023 was found guilty of murdering seven very young babies in a hospital near Liverpool between 2015 and 2016, and given 15 life sentences without the chance of parole.

5 They do, however, have very strong views on the way her trial—which relied in part on analysis of hospital rotas—proceeded. “The conviction is unsafe,” says Peter Green, a maths professor at Bristol University. It was the kind of case “that leaves a bad taste in the mouth,” says Philip Dawid, a statistics professor at Cambridge University. Statisticians were “shocked”, another eminent professor explains, by the way the trial weighed the probability of seemingly extraordinary events.

10 Britain has a problem. Not, in fact, a murder problem (with 1.1 murders per 100,000 people, Britain is not bad by global standards). Nor does it have a problem with producing scientists who can work out such things—and considerably more besides (with eight Fields medals and around a hundred science Nobels, Britain is above average at higher-level maths). Instead, it has a problem with producing non-scientists—such as politicians or, say, lawyers in a murder case—who can understand data. When it comes to this, says Sir Adrian Smith, the head of the Royal Society, Britain is “very bad” indeed.

20 This is not a new diagnosis. In a 1959 lecture called “The Two Cultures”, the scientist and writer C.P. Snow warned that society was “being split into two polar groups”: those who understood science and those who did not. Worse, the bookish types did not even know what they did not know. Literary intellectuals smirk at the illiteracy of scientists but, Snow said, ask them to describe the second law of thermodynamics (“the scientific equivalent of ‘Have you read a work of Shakespeare’s?’”) or even to define mass (“the scientific equivalent of saying, Can you read?”) and the answer would be a “cold” negative.

25 Snow felt, 65 years ago, that this smirking incomprehension was a “joke which has gone sour”. It is sourer still in 2024. The trial of Ms Letby is one example. Covid furnished far more: such as how Boris Johnson was, as one adviser put it, “bamboozled” by science and “struggled with the whole concept of doubling times”; or how politicians failed to grasp concepts like absolute and relative risk. Dame Kate Bingham, who chaired Britain’s vaccine taskforce, was “pretty shocked” by the level of scientific ignorance in the civil service. Worse, she felt that, for some, it is almost “a badge of honour”.

30 The problem is not that A-levels are very bad. It is worse: they are very good. An A-level physics student “probably knows more physics than any other 18-year-old in any other Western country,” says Lord Willetts. Arts students are similarly specialised: when cramming for university, the would-be historians in Alan Bennett’s play, “The History Boys”, debate such arcane topics as the 14 foreskins of Christ found in medieval reliquaries. They do not touch on chemistry. This matters. To evaluate an education system, the crucial question is not whether someone who is studying physics understands it; it is whether someone who is not does.

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