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Contributions and other communications should be addressed to:

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A prize of 10s. is offered for the first correct solution to reach the Editor.

A Fable

by

F. M. HALL

ONCE upon a time there were four friends: a scientist, an economist, an historian and a mathematician. They had been friends at school, and went up to Cambridge together, all determined to make their mark there.

For the scientist life was easy. With lectures and practicals and supervisions his days were filled, and he soon lost himself in the enormous amount of work to be done, having no time for much else. As he had never experienced anything different, he was very happy, worked well and was fairly certain to gain a good degree. The economist, on the other hand, concentrated on sport. He just missed his rowing blue, but got ones for soccer and cricket. He was always very tired after his athletic activities, but found that he could work at his economics without concentrating too much, and being naturally intelligent did not foresee any difficulty in his examinations. The historian was a social type. He sat on numerous committees, and more or less managed several flourishing societies, even becoming President of the Union. Of course this left no time for work, at any rate in term time, but his society activities helped him with his essay writing technique, and as he did manage to read one or two history books in the vacations he thought that he would be all right.

But the poor mathematician could not settle down. In his first year, fired by the example of his scientific friend, he tried to work all day long at his books. Such labour in mathematics is too much; by the end of the first term he had become thin and pale, and the year ended with him just avoiding a breakdown and his doctor insisting on three months' complete rest. So in his second year he tried to take more part in sport and started playing hockey. But he was so fatigued after his games that he found it impossible to concentrate

on his work, and so learnt hardly anything during the whole year. For his final year he decided to learn from the historian, took part in several societies and was elected to one or two committees. Now, however, he had no spare time, and as his committee work could hardly help his mathematics, he again learnt very little.

The day came when the friends sat for their final triposes. The scientist knew his subject, and quickly worked right through his papers, answering without difficulty the questions set, which he thought were rather routine and very dull. The economist went along quite happily, guessing some things and making up others, and knew that with his natural insight he would gain good marks. The historian by now had a very polished style, and as he was careful to avoid mentioning facts which could be checked easily he too was confident of a happy outcome.

The mathematician was not so successful. He didn't know very much mathematics by this time, and he always attempted the wrong question, got stuck and spent an hour or more hopelessly trying to see his way through before abandoning the attempt and passing on to another problem. A few questions he did answer, or so he thought, only to discover shortly afterwards that slight mistakes at crucial points had completely invalidated his reasoning. He had slight hopes of much success, and was very depressed for some days after.

At last the time arrived when the four friends left the quiet courts of Cambridge and went out into the wide world. Now about this time there had been an abrupt change in the attitude of the various states towards one another. War had been abolished, all countries were quickly disarming, and everybody was afire with a feeling of world-wide brotherhood. The cessation of armament development produced a great surplus of scientists, with the result that our scientific friend found that he was unable to obtain work except as a washer of bottles, and by the time that scientists were again needed he had grown used to this, and would probably have been unable, even if he had wanted, to resume serious work. So he remained a bottle-washer, and ended his days at the top of his profession, as chief laboratory assistant in a fairly large laboratory.

The absence of research on warlike projects had resulted in increased drive to mechanise everyday life, and the economist found that work which he could previously have been involved in was now done by machine. He fell back on his sport, became a professional footballer, had to retire at the age of 40 and then started as a publican.

The historian had always intended a career in politics. He had visions of gradually coming to the forefront of his party, and ending

as Prime Minister, or at least in the Cabinet. He thought that the times when his party was in power would amply compensate for those when it was out. However, he chose the wrong party. It was in opposition for most of the time, and our friend, at the age of 45 having become rather frustrated and therefore rash, quarrelled with his leader and ended his career where he had begun—on a back bench in the House of Commons.

Now how did our mathematician fare? He had scraped a third class degree, and hadn't much hope of a good job. However, the increase of automation had resulted in a great demand for men to work on the new computers and other elaborate machines which were being brought into use. Our friend was snapped up as a programmer by a very large industrial concern and soon became their head programmer, as the work didn't really require much mathematics, and he wasn't unintelligent. He and his firm discovered that he had great talents on the management side, and he gradually drifted away from computing and towards the executive. By the time he retired he had risen to one of the top positions in the concern, being also a director, and he continued to serve as a highly respected member of the board until his death at a great age.

The moral of this tale is left to the reader.

Traffic Jams

by

ANTHONY BAYES

THE Highway Code, part 2, paragraph 18, states

"Never drive at such a speed that you cannot pull up well within the distance you can see to be clear. Always leave yourself enough room in which to stop."

From the information given at the back of the Highway Code, under the heading "Vehicles cannot stop dead," we may deduce that if in dry weather a vehicle is travelling at x m.p.h., then the stopping distance in feet is $x + \dfrac{x^2}{20}$.

We suppose that the road can only take a single line of vehicles, and that each vehicle is y feet long. We define the capacity C of the road to be the number of vehicles per second capable of passing a given point on the road.