Prof Milgram's Experiment

Just how far are we prepared to go when acting under the orders of someone else? It is a question that has been at the centre of a number of news stories, such as the alleged mass-suicide in Uganda of hundreds of members of a religious cult.

I have to admit that my usual reaction to such stories is to think that such things only happen to people with feet of clay— and brains to match. It is certainly a lot more comforting than the alternative, which is to think that we too might be equally vulnerable to the influence of authority. But for years I have heard dark references to an experiment done years ago by an American psychologist, which allegedly proved that even the nicest people can be turned into amoral automatons with terrifying ease.

Sitting in the office of a psychologist friend, I finally discovered the source of these stories. There on his shelves was a copy of *Obedience to Authority,* published in 1974 by Stanley Milgram, a professor of psychology at the City University of New York. Prof Milgram's book is a chillingly matter-of-fact account of the outcome of that experiment of which I had heard so many tantalising reports.

The book recounts how, while at Yale University between 1960 and 1963, Prof Milgram recruited members of the public to take part in what was advertised as a "study of memory".

After being told that the study would look at the effect of punishment on learning, the recruits were led to a room to witness the "pupil", a man in his forties being strapped to a chair and wired up to electrodes. A researcher explained that these would deliver shocks to the pupil, adding that while these could be extremely painful, they would cause no permanent tissue damage.

The recruits were then told to read out a list of word associations—and to give the pupil an electric shock if he made mistakes, using a console with switches going from 15 volts to 450, and marked "Slight Shock" all the way up to "Danger: Severe Shock".

The experiment then began. The scientist in charge would instruct the recruit to deliver a shock at the next level of voltage, and to call out what voltage it was, each time the pupil blundered.

Although separated by a wall, the recruits could hear the pupil next door. And as the mistakes accumulated, so the protests from the room grew louder, turning to cries and then agonised screams. Recruits who started to demur were told that they had to continue, those who really kicked up a fuss were told they had no choice but to continue.

And despite all the screams from the room next door almost two-thirds of the recruits went all the way to the 450 volts —long after the pupil's screams had been replaced by an ominous silence.

What the recruits did not know was that the pupil was a stooge, his "screams" just tape-recordings. But the results were all too genuine, and stunned everyone, including Prof Milgram. It seemed that ordinary people—professional engineers, care workers, housewives—could be persuaded to deliver lethal shocks to a perfect stranger by someone assuming authority.

His experiment exploded many comforting myths; women, for example, proved no less likely than men to go the whole way. Indeed, about the only remotely comforting finding lay in the reaction of one recruit, who refused to go beyond 215 volts. She proved to be a German émigré raised in Nazi Germany. Asked if this might have explained her refusal to go on, she said: "Perhaps we have seen too much pain."

Would more people act like she did now, 40 years after Prof Milgram's experiment? If no more caring than people in the sixties, perhaps we are more likely to question authority. Certainly it would be comforting to think so, but the only way to know would be to carry out a similar kind of experiment.

However, it is an experiment unlikely to be repeated any time soon. For one can just imagine the law-suits that would come from all those nice, law-abiding recruits demanding compensation for the psychological trauma of being revealed for what they really are.

Sunday Telegraph

Questions

1. What was the writer's original attitude to the issue raised in the opening paragraph?

A He thinks most people can be made to do whatever they are ordered to

B He doubts all kinds of people can be persuaded to obey orders without question

C He refuses to believe reports of people following unethical orders

D He warns about the abuse of power by people in authority giving orders

2. How is Prof Milgram's book characterized?

It is...

A overly emotional in style

B too full of painful details

C factual but disturbing

D scientifically questionable

3. What was the basic purpose of Prof Milgram's experiment?

A To study how people react under severe psychological stress

B To measure the brain's responses to electric stimulation

C To test the psychological control of pain

D To investigate the effect of pain on memory

4. What is said about the recruits' attitude towards the pupil?

A They were certain the pupil did not suffer any pain

B Most of them were aware the pupil had agreed to be punished

C Some of them seemed to believe the pupil overreacted

D The majority of them refused to show any mercy to the pupil

5. What is the writer's chief conclusion?

A The results of Prof Milgram's experiment are not to be trusted

B It will remain uncertain whether Prof Milgram's results are still valid

C People have changed since the time of Prof Milgram's research

D Prof Milgram's experiment should be condemned on ethical grounds

To Err is Human

From a review of a book by Robert Youngson on scientific blunders

The former British Astronomer Royal Richard Woolley assured us "All this talk of space travel is utter bilge", five years before Yuri Gagarin first orbited the Earth. Blunders like this are made often enough in science and great fun is to be had laughing at them with the confidence that comes with hindsight.

In *Scientific Blunders*, Robert Youngson makes hay of scientific howlers in this impressively wide-ranging collection of some of the most egregious errors that scientists, technologists and even philosophers have made over the past 2500 years. So that we thoroughly understand each story, he throws in quite a bit of history.

The lessons of the past teach us that, in their search for truth, scientists have made a virtue of error. Whenever they publish what they claim is an important new idea or experimental result, they know their colleagues will take it to pieces looking for logical or experimental errors. This ruthlessness towards mistakes has been one of the engines of scientific enterprise.

Not that the engine always runs smoothly. Far from it. There is often plenty of room for disagreement over what is a scientific fact. And there are ample opportunities for bullies and ignoramuses to win arguments through rhetoric rather than reason. The entire history of science is full of tales of rows, wild-goose chases and ill-fated predictions by people who can't conceive of knowledge beyond what they already know.

From the book's title, Youngson appears—wisely—to have narrowed down his subject from the vast area of common-or-garden scientific error to the comparatively small domain of blunders, that is, stupid or careless mistakes. But it turns out that he interprets "blunder" so broadly that it includes now-defunct theories.

Aristotle, arguably the first scientist, is one of the most eminent victims of this condescension. Youngson implicitly invites us to scoff at his naiveté for suggesting, for example, that the human embryo arises only from sperm, and that fossils are failed attempts at spontaneous generation from mud. I'd class these as the misconceptions of a pioneering genius, not as blunders.

Nor is George Bernard Shaw shown any mercy. The great Irish wag used his jesting to tease and annoy just about everyone, including scientists and especially medical doctors. So when Shaw says that he mistrusts results scientists get in laboratories because, if it is unexpected or unaccountable, it is liable to be "re-manufactured until it proves what the laboratory controller wants it to prove", does he not have a point?

Youngson has done a good job of collecting tales of error and misjudgment, but he has lost sight of his purpose by serving them with too much pop history. It is a pity, too, that he doesn't give proper references for some of his most telling quotations, making them unusable as references and, in some cases, undermining our confidence in their veracity.

The concept of the scientific blunder is a great theme for a popular book. Youngson has responded with some splendid howlers. But by failing to illuminate how scientists continually exploit their errors in their quest for truth, he has squandered his original idea. Bit of a blunder, really.

New Scientist

Questions

6. What is the main purpose of the quotation in the first paragraph?

A To suggest how far scientific research has advanced in recent years

B To demonstrate the difficulty of making predictions in astronomy

C To indicate how easy it is to be wrong in scientific matters

D To show that researchers' claims should never be trusted

7. What are we told about scientists' general views on mistakes in research?

A They tend to be too intolerant of them in fellow researchers' work

B They are likely to overemphasize their scientific relevance

C They sometimes underestimate the problem of providing solid proof

D They usually do their utmost to detect them in other scientists' research

8. What general criticism of Youngson's book is expressed by the reviewer?

A The book's title does not correspond to the field actually covered

B Youngson has defined the aims of his study too restrictively

C Youngson has partly misunderstood Aristotle's ideas

D The book pays too little attention to the failure of earlier explanations

9. What is said about George Bernard Shaw?

A His views on scientific matters cannot be taken seriously

B He is criticized by Youngson for his views on scientific progress

C His attitude towards laboratory research may be partly justified

D He was always prepared to see both sides of a scientific argument

10. What does the reviewer say about Youngson's book in his closing remarks?

A Despite a promising subject it is something of a lost opportunity

B It should have been more clearly aimed at the scientific community

C More should have been said about the unethical side of much research

D It is too much focused on the researchers' own insider perspective

AND HERE ARE SOME SHORTER TEXTS:

A Good Laugh

Herbert Kelleher was the founder and chief executive of Southwest Airlines. Southwest enjoyed both profits and labor peace even in the worst years for the industry. Always a showman, Mr. Kelleher settled a minor trademark infringement dispute in 1992 by arm-wrestling his adversary. He lost—and was carried off on a stretcher with an intravenous line connected to a bottle of Wild Turkey. It was one of the few good laughs heard in the industry in years.

Question

11. Why did people laugh?

A Mr. Kelleher had drunk too much liquor
B Mr. Kelleher solved a problem in an unusual way
C Mr. Kelleher got a punishment he deserved
D Mr. Kelleher had made a fool of his competitor

Scientific Progress

The majority of scientists bask in the surviving afterglow of the Enlightenment, with its optimistic attitude about the all-conquering power of human reason supplemented by the methods of empirical inquiry. In particular, the hubris of many 20th-century theoretical physicists seems to know no bounds. "A theory of everything" is just round the corner, needing only one more bundle of money to finance the ultimate particle accelerator or super-powerful telescope, to put the last pieces of the puzzle in place.

Question

12. What is the writer's attitude to the promises of scientific progress?

A Factual
B Optimistic
C Ironic
D Uncritical

St Pancras in the Early 1990s

St Pancras is the terminus that time forgot. For years the Victorian fairy tale castle has stood half deserted in its Gothic sleep, while the Midland Hotel that fronts it, is rotting from the roof down, a decaying masterpiece marooned in a sea of sleaze. In a few years' time, however, all that will have changed. According to the Government's new cost-saving plan, Eurocrats will descend on the station in Continental expresses. What a sublime reversal of fortune for the once-derided redbrick pile that was so nearly bulldozed 30 years ago!

Question

13. What is said about St Pancras Station?

A It will soon play as important a role as it did in the past
B It has always been admired for its fairy tale beauty
C It will now make place for a more modern station building
D It will be remade into a European conference centre

Small Enterprises

Small-scale enterprises common in the private, rural and informal sectors of the economy are relatively unaware of occupational safety and health. The latest issue of the ILO's African Newsletter on Occupational Safety and Health contests the view that it is better to spend money on job creation than on improved safety and health for small enterprises. ILO programmes like WISE (Work Improvements in Small Enterprises) can create immediate improvements in working conditions, productivity and environment while expenditure on improvements even creates job opportunities.

Question

14. What is stated in the newsletter from the ILO?

A Job creation is an effective way to make work in small companies safer and healthier

B Small companies are often more interested in occupational safety and health than large companies

C Efforts to improve working conditions may pay off in terms of more jobs

D Working conditions have improved in small-scale enterprises

Healthy Fats

If any nutrient could use an image makeover, it's fat. Often forgotten in our anti-fat frenzy is the fact that some fats are crucial for proper brain function. Among the good guys: the omega-3 fatty acids, which include linoleic acid—found in soybeans, canola oil, and nuts—as well as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), both plentiful in fish. Researchers have long known that infant brains require omega-3s, but now they say it appears these fats influence our behavior long after we've shed our diapers.

Question

15. What *recent* information about omega-3s does the writer give?

A They are good for our health

B Adults' health may benefit from them

C Children's health may benefit from them

D They are found in fish

No Sex Bias

Women of child-bearing age are routinely excluded from drug trials, to prevent damage to fetuses if any women become pregnant. Women's groups have campaigned for a change, arguing that for some life-threatening illnesses, such as AIDS, enrolment in a clinical trial offers the best hope for a patient.

Question

16. What new information in relation to drug trials is presented here?

A Women who take part risk the health of their unborn children

B Women who have taken part have fallen ill

C Women's groups now have a right to enrol

D Women's groups want women of all ages to be included

In the following text there are gaps which indicate that something has been left out. Look at the four alternatives that correspond to each gap and decide which one best fits the gap. Then mark your choice on your answer sheet.

Plagued by Cures

The feather in the cap of 20th-century medicine is the prevention of infectious diseases, especially in childhood. Smallpox was eradicated 25 years ago. Thanks to extraordinary international **17**_____ (including cease-fires in wars just so that vaccinations could be administered), polio is on the verge of going the same way. Measles, mumps and whooping cough can also be prevented with vaccines, and their incidence has declined dramatically in the past 50 years. Even some less tractable diseases, such as malaria, have started to bend to interventions. Covering more beds with nets has proved to be remarkably effective, perhaps as effective as vaccinations, at reducing the incidence of this disease.

18_____ the triumph is by no means complete. It is, of course, well known that preventing or treating an infectious disease can have profound effects on the pathogenic organism that causes it. The evolution of drug resistant strains is the most famous example of such an effect. But now a new worry has emerged. It appears that intervening in infections may have undesirable effects on the hosts—that is, on people—as well as on the pathogens themselves.

The first possible effect is the replacement of one disease by another. As the incidence of childhood infections has fallen, chronic ailments, such as diabetes and asthma, have become more **19**_____. In parts of the world where childhood diseases are still common, these chronic ailments are rare.

A direct link between these two phenomena is not yet proven. This may be because there isn't one. Doctors in rich countries have the experience to detect, and the money to treat, chronic disease. In poor countries, such diseases—if detected at all—are low on the list of priorities, and may therefore go unreported. However, a number of studies suggest that this is not the whole explanation. Instead, childhood **20**_____ do indeed seem to reduce the probability of chronic disease—an idea known as the "hygiene hypothesis".

The Economist

Alternatives

17.
A efforts
B research
C conflicts
D funding

18.
A So
B Consequently
C Furthermore
D Yet

19.
A uncommon
B harmless
C frequent
D deadly

20.
A experiences
B vaccines
C problems
D infections

END OF ENGLISH TEST. IF YOU HAVE TIME LEFT, CHECK YOUR ANSWERS.