

## Polio

## A Rotary engine

NEW YORK

Can a businessmen's club eradicate polio from the world?

IT IS a year since the last case of polio was diagnosed in India. That is not enough to pronounce the country polio-free—three clear years are the conventional period required for that to happen. But it is a good start. And if India really is clear, then what was once a global scourge will now be endemic to a mere three countries: Afghanistan, Nigeria and Pakistan. The number of people infected, meanwhile, has dropped from 350,000 in 1988 to 650 last year.

All this is in large part thanks to the efforts of Rotary International. In 1985, after a successful pilot study in the Philippines, this businessmen's club cum global charity announced a plan to eradicate polio by vaccinating every child under five at risk of catching it. The estimate then was that it would cost \$120m. Some \$800m of Rotary money later (plus a lot from other sources), the virus is still out there, but its remaining hidey-holes tell their own story: where civil disorder is rife, medicine is hard.

On January 17th Rotary announced it had raised yet another \$200m. The Bill & Melinda Gates Foundation will contribute a further \$405m, and the pressure will thus be kept up. John Germ, one of Rotary's trustees, thinks that if all goes well 2016 might be the first year when no new cases are reported. That would, though, mean spending more than \$1 billion a year between now and then.

The inspiration for Rotary's campaign against polio came from the eradication of smallpox. Like polio, smallpox was a viral disease for which effective, easily administered vaccines existed. And crucially, like polio, smallpox had only one animal host: *Homo sapiens*. In principle, then, extermination should be possible. The practice, however, has turned out rather different.

First, unlike smallpox, polio viruses can survive for long periods outside a host—for instance in sewage. Second, when the campaign began in earnest there were three main varieties of polio, each of which required a specially tailored vaccine. Focusing effort on one of these strains often led to the resurgence of another. Third, besides the inevitable difficulties of working in places that have poor medical infrastructure, the campaign ran into some specific human problems. The most notorious of these was the rumour, spread in 2003 by certain religious leaders in Nigeria, that the vaccine would sterilise girls and was part of an American plot to rid the world of Muslims. This helps explain why polio



Goodbye to all that

persists in Nigeria.

That polio can actually be eradicated is suggested by the elimination, in 1999, of one of the three strains. Whether the resources needed to do so might be better spent elsewhere, though, is a matter of debate. Some would prefer to see a shift to policies that improve overall health, including investing in decent sanitation and clean water.

The response to that is that if you remove the specific pressure on polio it will simply bounce back. Moreover, in practice, a synthesis between the two positions is emerging. According to Mr Germ there is already a debate within Rotary about what to do next. Providing clean water and improving maternal and child health are popular options.

One thing everyone wants to avoid, though, is what happened after smallpox was eliminated. Then, the infrastructure of health workers and clinics that had been created to detect and fight the disease was allowed to evaporate. Had it been used instead to focus on polio, that illness, too, might have been vanquished by now. ■

## Forensic science

## Ignorance is bliss

Forensic scientists know too much about the cases they investigate

AS ALL fans of crime fiction know, DNA is the gold standard of forensic science. Or is it? Itiel Dror, a cognitive psychologist at University College, London, thinks this doctrine of infallibility needs to be questioned. His problem is not with the technology itself, but with the way it is deployed. For he has gathered evidence that DNA examiners' interpretations of their results are, at least in complex cases, open to subjectivity and bias.

When America's National Academy of Sciences produced a report on the state of forensic science in 2009, it criticised many of the methods then in use. Citing earlier research by Dr Dror, the report's authors stated, for example, that fingerprint examiners' claims of zero error rates were scientifically implausible. DNA, however, was spared their criticism. Now Dr Dror and Greg Hampikian, a forensic biologist at Boise State University in Idaho, have published a study in *Science & Justice* that suggests all is not shipshape in the domain of the double helix either.

## Do Not Adulate

Dr Dror's and Dr Hampikian's experiment presented data from a real case to 17 DNA examiners working in an accredited government laboratory in North America. The case involved a gang rape in the state of Georgia, in which one of the rapists testified against three other suspects in exchange for a lighter sentence, as part of a plea bargain. All three denied involvement, but the two DNA examiners in the original case both found that they could not exclude one of the three from having been involved, based on an analysis of swabs taken from the victim.

As is almost always true in forensic-science laboratories, these examiners knew what the case was about. And their find- ▶▶

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Applicants should write a letter introducing themselves and an original article of about 600 words that they think would be suitable for publication in the Science and Technology section. They should be prepared to come for an interview in London or New York, at their own expense. A small stipend will be paid to the successful candidate.

Applications must reach us by February 3rd. These should be sent to: casement2012@economist.com