‘Peace’ gene in our time?

MARK HENDERSON

Modern Scandinavians have a reputation as peacemakers. Alfred Nobel was Swedish, the peace prize named after him was presented on Monday in Norway, and both countries are active mediators in the Middle East. Step back a millennium, however, and perceptions of the Nordic character were rather different, as Vikings pillaged their way across Europe. According to Henry Harpending, of the University of Utah, the reason for the change could be genetic.

This week, his team published research into recent human evolution. Far from slowing down, as many think, it has actually accelerated over the past 10,000 years,

EVOLUTION AND RACE IS ALWAYS A SENSITIVE SUBJECT

making racial groups more and not less genetically different. One example of this ongoing natural selection, he suggested, could be the Vikings’ metamorphosis into docile Swedes. “The dogma has been that these are cultural variations, but almost any temperament trait you look at is under strong genetic influence,” he said. “We aren’t the same as people even 1,000 years ago.”

If the idea that the Vikings put down their battleaxes because of evolution seems a little preposterous — that is because it is. While it is true that genetics can influence aggression, it’s a most unlikely explanation in this case.

For a “peace gene” to have spread through a population in only 1,000 years, it would have had to have huge effects and be highly adaptive. No possible candidates are known. It is far more probable that social change was responsible. Germany had a similar transformation, after all, in a single generation after the Nazis — far too short a time for evolution to have been involved.

Harpending’s example is staggeringly bad. It does not, however, invalidate his wider thesis that races have evolved apart. It may not be politically correct to argue that there are meaningful genetic differences between ethnic groups, but his data are clear and have a plausible explanation.

For much of the past 10,000 years, most human populations have been highly separated from one another. It is thus to be expected that they will have evolved in slightly different ways in response to their regional environments. While 99.9 per cent of human DNA is shared by all, the bits that vary sometimes tend to differ between races.

Most Europeans, for example, have a gene that allows them to drink milk into adulthood, which is absent in most Asians. It probably evolved with dairy farming. Many Africans have genes that protect against malaria. Variation of this sort can be medically significant; it is certainly worth studying, and it is not racist to do so. But it can be misinterpreted to serve a racist agenda, and the authors’ comments have not helped to ensure against this. Harpending’s dubious Viking proposition implies that certain ethnic groups are genetically more violent than others, an unsubstantiated idea that could feed prejudice.

His contention that the trend towards greater difference is recent and continuing is also apt to mislead. Recent is meant in terms of evolutionary time, denoting periods of thousands of years. The data say little about what is happening today, when crucial factors that affect evolution have greatly changed.

Even a century ago, most populations had little contact and shared few environmental influences. This created selective pressures that were particular to ethnic groups. But globalisation has since turned that on its head.

Greater movement and cultural transfer between continents will probably make humans more similar to one another, not more different.

Harpending’s study sheds light on human evolution. It also shows the importance for scientists of choosing appropriate language and analogies. Race and evolution is always a sensitive mixture. While that does not mean researchers should not investigate, they must handle the subject with care.

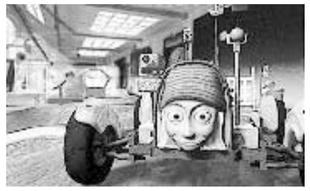
Mark Henderson is the Science Editor of The Times

Freedom of expression

Professor Simon Baron-Cohen reports on the latest advances in helping autistic kids to understand feelings

Autism comes by degrees. Sufferers of its milder form, Asperger’s syndrome, frequently display communication difficulties and obsessive behaviour. In severe cases, however, it can be as if your child is locked in a glass bubble, staring vacantly past you as you desperately try to make eye contact.

The thought of never being able to fully communicate with your child, or to know what is going on inside his or her mind, can be heartbreaking. And this is not helped by the fact that autism is still the focus of many wild claims and misconceptions. However, with a recent report stating that autism costs the UK economy £28 billion a year, a better public understanding of this condition is desperately needed.



Film therapy: one of the characters from *The Transporters* DVD

Fortunately, in my 26 years of working with people with autism and their families, and now as director of the Autism Research Centre at Cambridge University, I have seen vast improvements in the understanding of autism by the medical, psychological and educational professions, and among the public. I have also seen the growth of educational and clinical provision, and specialist techniques improve, so now we have the capability to provide excellent support for people with autism and their families. Here are the latest scientific theories on what causes autism, beneficial treatments and some commonly held myths.

WHAT ARE THE CAUSES?

According to a study in *The Lancet* last year, an estimated 1 per cent of the population come somewhere on the autism spectrum. This figure represents an increase over earlier ones but this rise is likely to be due to better diagnosis and awareness of the condition. Autism spectrum conditions result from alterations in brain development, affecting how an individual perceives, learns and communicates. The two main subgroups are autism and Asperger’s syndrome (see box).

Using the latest brain scanning methods (known as fMRI, functional magnetic resonance imaging), studies from labs in Cambridge and London, and confirmed in labs around the world, have revealed that certain brain areas are underactive in autism sufferers. The amygdala (sometimes thought of as the emotion centre) and the medial prefrontal cortex (involved in social behaviour) are underactive in people with autism spectrum conditions when they are trying to decode another person’s facial expression.

Studies from San Diego suggest that the autistic brain is also growing too fast in early childhood, and researchers in Carnegie Mellon University have found that different regions of the brain are not connected in the usual way. New work from Cambridge suggests that elevated testosterone levels in the foetus, in the second trimester of pregnancy, is associated with a greater number of autistic traits. This finding may help to explain why many more boys than girls develop an autism spectrum condition. In New York, researchers are experimenting with boosting levels of a different hormone, oxytocin. This is sometimes called the “love hormone”, as levels increase in intimate relationships. Elevated levels of the hormone are associated with being more trusting and better able to read emotional expressions. It may be relevant that women produce twice as much oxytocin as men.

Autism and Asperger’s syndrome run in families. If there is one child who has a diagnosis on the autistic spectrum, the likelihood of another child also having a diagnosis is about 5-10 per cent, which is higher than the general population rate. Molecular genetic studies are focused on identifying the key genes that might play a role in increasing the risk of a diagnosis. Studies of twins have established that it is not 100 per cent genetic, since even among identical twins, when one has autism, the likelihood of both twins having autism is only about 60 per cent. This means there must also be an environmental component, but what it is remains unknown.

WHAT HELPS?

People with autism or Asperger’s syndrome need family and individual support, delivered by social services, special education, sheltered employment and sheltered living (where necessary). Schools such as TreeHouse in North London are excellent examples of what can be provided: small class sizes, at times even one-to-one teacher-child ratios, where teaching is aimed at building simple skills and rewarding the child for every small step they make. Specialist teachers shape such skills into more complex ones, giving the child the experience of success and thus self-confidence. Such schools have to be highly organised because such children have problems in coping with unexpected change.

Recent work has shown that tailor-made children’s animation may benefit children with autism. Among the more unusual nominations at this year’s Bafta Children’s Awards was *The Transporters*, a children’s animation D VD, with tram, train, tractor and cable car characters, in which human faces have been grafted on to the vehicles. It was created with government funding to help autistic children improve their emotion recognition. The idea behind it was that the child with autism is drawn to watch the predictable, mechanical movement of the vehicles. Putting faces on to vehicles means that the child is exposed to human faces showing emotions. This year the Government gave 40,000 free copies of the DVD (see www.transporters.tv) to families with a child on the autistic spectrum under the age of 8. This animation builds on other specialist educational software (for parents and teachers to use), such as *Mind Reading*, a DVD that shows actors expressing every human emotion in the face and the voice, to teach people with autism the skill of emotion recognition (www.jkp.com/mindreading).

The message is that a diagnosis of autism does not mean there is no hope for learning and development. Parents, therapists and teachers wanting to know which methods to try should visit a wonderful new website (www.researchautism.net) that provides impartial summaries of the evidence for or against a different method.

What’s the difference between autism and Asperger’s syndrome?

Differences in IQ
In autism the person may have additional learning difficulties (below average IQ), while with Asperger’s the person has average or above average IQ.

Language development
In autism there is language delay (a child not using words by the age of 2) whereas in Asperger’s syndrome a child’s speech develops normally.

Social difficulties
Autism is easier to recognise than Asperger’s: an autistic child may be so avoidant of others that it is plain to see his or her social difficulties. A child with Asperger’s, in contrast, has more subtle social difficulties. He or she may question people intrusively. Or talk about their favourite topic (for instance, the names of all lizards in Africa) long after their listener has disengaged from the conversation.

MYTHS ABOUT AUTISM

The MMR vaccination causes autism
There is no strong evidence for this claim. In Japan, for example, although the rates of autism were rising (as they have been worldwide), they continued to rise even after the withdrawal of the MMR public health programme.

Autism is caused by poor parenting
This idea has been disproved. Autism is found in families where other children have been raised successfully, and the fact that autism involves atypical neurological development from the earliest stage shows that it is not a reaction to parental behaviour. It is hoped that agencies will learn to listen to parents, and to conduct an expert assessment when parents are concerned that their child has an autism spectrum condition.

For more information, The National Autistic Society, www.nas.org; the Autism Research Centre at Cambridge University, www.autismresearchcentre.com. Professor Baron-Cohen has written a number of books on autism, including Autism: The Facts *(OUP, £15)*

PROF OF THE WEEK