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## How your looks betray your personality

11 February 2009 by [Roger Highfield](#), [Richard Wiseman](#) and [Rob Jenkins](#)  
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THE history of science could have been so different. When Charles Darwin applied to be the "energetic young man" that Robert Fitzroy, the Beagle's captain, sought as his gentleman companion, he was almost let down by a woeful shortcoming that was as plain as the nose on his face. Fitzroy believed in physiognomy - the idea that you can tell a person's character from their appearance. As Darwin's daughter Henrietta later recalled, Fitzroy had "made up his mind that no man with such a nose could have energy". Fortunately, the rest of Darwin's visage compensated for his sluggardly proboscis: "His brow saved him."

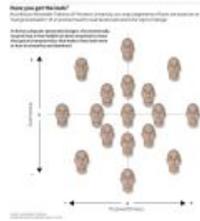
The idea that a person's character can be glimpsed in their face dates back to the ancient Greeks. It was most famously popularised in the late 18th century by the Swiss poet Johann Lavater, whose ideas became a talking point in intellectual circles. In Darwin's day, they were more or less taken as given. It was only after the subject became associated with phrenology, which fell into disrepute in the late 19th century, that physiognomy was written off as pseudoscience.

Now the field is undergoing something of a revival. Researchers around the world are re-evaluating what we see in a face, investigating whether it can give us a glimpse of someone's personality or even help to shape their destiny. What is emerging is a "new physiognomy" which is more subtle but no less fascinating than its old incarnation.

First impressions are highly influential, despite the well-worn admonition not to judge a book by its cover. Within a tenth of a second of seeing an unfamiliar face we have already made a judgement about its owner's character - caring, trustworthy, aggressive, extrovert, competent and so on ([Psychological Science](#), vol 17, p 592). Once that snap judgement has formed, it is surprisingly hard to budge. What's more, different people come to strikingly similar conclusions about a particular face - as shown in our own experiment (see "[The New Scientist face experiment](#)").

People also act on these snap judgements. Politicians with competent-looking faces have a greater chance of being elected, and CEOs who look dominant are more likely to run a profitable company. Baby-faced men and those with compassionate-looking faces tend to be over-represented in the caring professions. Soldiers deemed to look dominant tend to rise faster through the ranks, while their baby-faced comrades tend to be weeded out early. When baby-faced men appear in court they are more likely than their mature-faced peers to be exonerated from a crime. However, they are also more likely to be found guilty of negligence.

There is also a well-established "attractiveness halo". People seen as good-looking not only get the most valentines but are also judged to be more outgoing, socially competent, powerful, sexually responsive, intelligent and healthy. They do better in all manner of ways, from how they are greeted by other people to how they are treated by the criminal justice system.



Have you got the look?

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Is there any substance to such snap judgements? Are dominant-looking people really more dominant? Are baby-faced people naive? Are we electing the most competent leaders, or simply people who look the part? As psychologist Alexander Todorov of Princeton University points out, the fact that different people come to remarkably similar conclusions about a particular face is very different from saying there is a correspondence between a face and something real in an individual's personality.

There is, however, some tantalising evidence that our faces can betray something about our character. In 1966, psychologists at the University of Michigan asked 84 undergraduates who had never met before to rate each other on five personality traits, based entirely on appearance, as they sat for 15 minutes in silence (*Journal of Personality and Social Psychology*, vol 4, p 44). For three traits - extroversion, conscientiousness and openness - the observers' rapid judgements matched real personality scores significantly more often than chance.

More recently, researchers have re-examined the link between appearance and personality, notably Anthony Little of the University of Stirling and David Perrett of the University of St Andrews, both in the UK. They pointed out that the Michigan studies were not tightly controlled for confounding factors: the participants could have been swayed by posture, movement, clothing and so on. But when Little and Perrett re-ran the experiment using mugshots rather than live subjects, they also found a link between facial appearance and personality - though only for extroversion and conscientiousness (*British Journal of Psychology*, vol 98, p 111).

While these experiments suggest that our snap judgements of faces really do contain a kernel of truth about the personality of their owner, Little stresses that the link is far from clear-cut. He and Perrett only found a correlation at the extremes of personality, and other studies looking for links with different aspects of personality have failed to find any association at all. The owner of an "honest" face, for example, is no more likely to be trustworthy than anyone else.

What is also not fully understood is why we make facial judgements so readily. Is there an evolutionary advantage to judging books by their covers? Little suggests that because these judgements are so rapid and consistent - and because they can indeed reveal aspects of personality - it is likely that evolution has honed us to pick up on the signals.

Support for this, and the kernel of truth idea, has come from a study of 90 ice-hockey players published late last year by Justin Carré and Cheryl McCormick of Brock University in Ontario, Canada. They found that a wider face in which the cheekbone-to-cheekbone distance was unusually large relative to the distance between brow and upper lip was linked in a statistically significant way with the number of penalty minutes a player was given for violent acts including slashing, elbowing, checking from behind and fighting (*Proceedings of the Royal Society B*, vol 275, p 2651).

### Testosterone-fuelled

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They also found a link between the facial width-to-height ratio and the male sex hormone testosterone. According to the results of a recent pilot study by Carré, men with wider faces have higher testosterone concentrations in their saliva.

The critical - and as yet unanswered - question is whether people judge men with wider faces as more aggressive. McCormick and Carré are studying this, and though the results are not all in, McCormick says a preliminary analysis suggests that they do.

If this pans out, it would mean that men with high testosterone levels, who are known to be bigger, stronger and more dominant, are more likely to have rounder faces - and that we evolved to judge such faces as aggressive because their owners are more likely to attack us. Carré stresses, however, that the face is only one of many cues that we use to read the intentions of others. "It is not the be all and end all of assessing people."

The kernel of truth idea isn't the only explanation on offer for our readiness to make facial judgements. Leslie Zebrowitz, a psychologist at Brandeis University in Waltham, Massachusetts, says that in many cases snap judgements are not accurate. Our readiness to judge books by their covers, she says, is

often an "overgeneralisation" of a more fundamental response (*Social and Personality Psychology Compass*, vol 2, p 1497).

A classic example of overgeneralisation can be seen in predators' response to eye spots, the conspicuous circular markings seen on some moths, butterflies and fish. These act as a deterrent to predators because they mimic the eyes of other creatures that the potential predators might see as a threat, or are simply conspicuous in their own right.

Zebrowitz says the same thing may be true of our reaction to baby-faced men, who on first impression are generally judged to be submissive and naive. Just as an eyespot is not an eye, so a person with a baby face may not be babyish, but an observer is likely to respond as if they are, she says. It is a similar story with our reaction to unattractive faces, which she says is an overgeneralisation of an evolved aversion to people who are diseased or suffer from some genetic anomaly. There is also "familiar face overgeneralisation", whereby people are judged to have the traits of others who they resemble.

Another researcher who leans towards overgeneralisation is Todorov. With Princeton colleague Nikolaas Oosterhof, he recently put forward a theory which he says explains our snap judgements of faces in terms of how threatening they appear. Todorov and Oosterhof asked people for their gut reactions to pictures of emotionally neutral faces, sifted through all the responses, and boiled them down to two underlying factors: how trustworthy the face looks, and how dominant. They then worked out exactly which aspects of facial appearance were associated with looking trustworthy, untrustworthy, dominant or submissive.

Next they generated random faces on a commercial program called [FaceGen](#) and morphed them into exaggerated caricatures of trustworthy, untrustworthy, dominant or submissive faces. An extremely trustworthy face, for example, has a U-shaped mouth, and eyes that form an almost surprised look. An untrustworthy face has the corners of the mouth curled down and eyebrows pointing to form a V (see diagram).

Finally, they showed these faces to people and asked them a different question: what emotions did they appear to be expressing? People consistently reported that trustworthy faces looked happy and untrustworthy ones angry, while dominant faces were deemed masculine and submissive ones feminine.

Todorov and Oosterhof conclude that personality judgements based on people's faces are an overgeneralisation of our evolved ability to infer emotions from facial expressions, and hence a person's intention to cause us harm and their ability to carry it out (*Proceedings of the National Academy of Sciences*, vol 105, p11087).

Todorov, however, stresses that overgeneralisation does not rule out the idea that there is sometimes a kernel of truth in these assessments of personality. "I would not say there is no accuracy at all in these judgements, particularly in the case of dominance," he says. "It is not the case that overgeneralisation and kernel of truth ideas are mutually exclusive."

So if there is a kernel of truth, where does it come from? How exactly do some personality traits come to be written all over our faces? In the case of the ice-hockey players there are links between facial appearance, testosterone levels and personality. But there are other possibilities.

Perrett has a hunch that the link arises when our prejudices about faces turn into self-fulfilling prophecies - an idea that was investigated by other researchers back in 1977 (*Journal of Personality and Social Psychology*, vol 35, p 656). Our expectations can lead us to influence people to behave in ways that confirm those expectations: consistently treat someone as untrustworthy and they end up behaving that way.

"Infants with masculine faces grow up to be children and adults with masculine faces," Perrett says. "Parental and societal reactions to these cues may help shape behaviour and personality. In essence,

people would be growing into the character expected of their physiognomy."

This effect sometimes works the other way round, however, especially for those who look cute. The Nobel prize-winning ethologist Konrad Lorenz once suggested that baby-faced features evoke a nurturing response. Support for this has come from work by Zebrowitz, who has found that baby-faced boys and men stimulate an emotional centre of the brain, the amygdala, in a similar way.

But there's a twist. Baby-faced men are, on average, better educated, more assertive and apt to win more military medals than their mature-looking counterparts. They are also more likely to be criminals; think Al Capone. Similarly, Zebrowitz found baby-faced boys to be quarrelsome and hostile, and more likely to be academic high-fliers. She calls this the "self-defeating prophecy effect": a man with a baby face strives to confound expectations and ends up overcompensating.

Baby-faced men are better educated, more assertive and more apt to win military medals

There is another theory that recalls the old parental warning not to pull faces, because they might freeze that way. According to this theory, our personality moulds the way our faces look. It is supported by a study two decades ago which found that angry old people tend to look cross even when asked to strike a neutral expression. A lifetime of scowling, grumpiness and grimaces seemed to have left its mark.

This takes us back to Darwin himself. He referred to how "different persons bringing into frequent use different facial muscles, according to their dispositions; the development of these muscles being perhaps thus increased, and the lines or furrows on the face, due to their habitual contraction, being thus rendered more conspicuous." Once again, Darwin was ahead of his time: in an intriguing way, we get the face we deserve.

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### **The New Scientist face experiment**

Our experiment examined whether some subtle aspects of our psychological make-up might be related to facial appearance, while offering readers the chance to appear on the cover of this issue in a composite image.

We asked readers to submit a photograph of themselves looking directly at the camera, and to complete a simple online personality questionnaire. In this they rated how lucky, humorous, religious and trustworthy they considered themselves to be. More than 1000 people were kind enough to submit their photographs and ratings.

From these personality self-assessments we identified groups of men and women scoring at the extremes of each of the four dimensions. We then took these people's photographs and blended them electronically to make several composite images.

The face-blending technique we used was pioneered more than a century ago by the Victorian polymath Francis Galton, a cousin of Darwin. The principle behind it is simple. Imagine having photographs of two people who look very different. To create a composite we manipulate digitised versions of the images to align key facial landmarks such as the corners of the mouth and eyes. This allows us to calculate an average of the two faces. For example, if both faces have bushy eyebrows and deep-set eyes, the resulting composite would also have these features. If one face has a small nose and the other has a large nose, the final image would have a medium-sized nose.

The composites all looked very different from one another, but would people be able to identify

the personalities of the people behind the images? To find out, we paired up composites from the extreme ends of each dimension and posted them online at [www.facesexperiment.co.uk](http://www.facesexperiment.co.uk). So, for example, the composite face from the women who had rated themselves as extremely lucky was paired with the composite from those who had rated themselves as very unlucky. More than 6500 visitors to the site attempted to identify the lucky, humorous, religious and trustworthy faces.

From this it seems that women's faces give away far more than men. An impressive 70 per cent of people were able to correctly identify the lucky face, and 73 per cent correctly identified the religious one. In line with past research, the female composite associated with trustworthiness was also accurately identified, with a statistically significant 54 per cent success rate. Only one of the female composites was not correctly identified - the one from the women who assessed themselves as humorous.

The results for the male composites were very different. Here, our respondents failed to identify any of the composites correctly. The images identified with being humorous, trustworthy and religious all came in around chance, whilst the lucky composite was only correctly identified 22 per cent of the time. This suggests that our perception of lucky-looking male faces is at odds with reality.

Why should these big sex differences have emerged? Perhaps female faces are simply more informative than male ones. It could also be that the men who sent us their portraits were less insightful when rating their personalities or less honest. Or perhaps the women were more thoughtful when selecting the photographs they submitted.

The results of our pilot study were fascinating and should hopefully pave the way for additional work. They show that people readily associate facial appearance with certain personality traits, and suggest that there may be a kernel of truth in their judgements.

Our findings explored some dimensions not usually examined in this kind of research, and raise the intriguing possibility that, among women at least, subtle aspects of an individual's personality may indeed be written all over her face.

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