

Getting Human Nature Right

A Talk with Helena Cronin

HELENA CRONIN: The questions I'm asking myself at the moment are about the connections between two things. On the one hand, there's what science tells us about the evolved differences between women and men — what we know from modern Darwinian theory. And, on the other hand, there's the public perception of the science, which is largely negative and riddled with misunderstandings. Of course, when evolutionary theory gets applied to our own species, it always arouses opposition. But when it comes to sex differences ... that sparks off hostilities and misconceptions all of its own.

It all stems from muddling science and politics. It's as if people believe that if you don't like what you think are the ideological implications of the science then you're free to reject the science — and to cobble together your own version of it instead. Now, I know that sounds ridiculous when it's spelled out explicitly. Science doesn't have ideological implications; it simply tells you how the world is — not how it ought to be. So, if a justification or a moral judgement or any such 'ought' statement pops up as a conclusion from purely scientific premises, then obviously the thing to do is to challenge the logic of the argument, not to reject the premises. But, unfortunately, this isn't often spelled out. And so, again and again, people end up rejecting the science rather than the fallacy. The 'implication' that seems to worry people most of all is so-called 'genetic determinism'. It's the notion that, if human nature was shaped by evolution, then it's fixed and so we're simply stuck with it — there's nothing we can do about it. We can never change the world to be the way we want, we can never institute fairer societies; policy-making and politics are pointless.

Now, that's a complete misunderstanding. It doesn't distinguish between human nature — our evolved psychology — and the behavior that results from it. Certainly, human nature is fixed. It's universal and unchanging — common to every baby that's born, down through the history of our species. But human behavior — which is generated by that nature — is endlessly variable and diverse. After all, fixed rules can give rise to an inexhaustible range of outcomes. Natural selection equipped us with the fixed rules — the rules that constitute our human nature. And it designed those rules to generate behavior that's sensitive to the environment. So, the answer to 'genetic determinism' is simple. If you want to change behavior, just change the environment. And, of course, to know which changes would be appropriate and effective, you have to know those Darwinian rules. You need only to understand human nature, not to change it.

Margo Wilson's and Martin Daly's classic work on homicide illustrates this very clearly. Homicide rates vary enormously across different societies. When the rate in Chicago was 900 murders per million of the population per annum (for same-sex, non-kin killings) — this was in the 1970s and 80s — the rate in England and Wales was 30; and in Iceland there were hardly any murders at all. Now, there's no difference in the genes, no difference in human nature, in these places. And that shows up very dramatically when you look at the patterns of the murders. Although the rates are vastly different, the patterns are exactly the same. If you shrink the axes of the Chicago graph of the age and sex of the murderers and lay it over the England/Wales graph, the curves are an exact fit. It's overwhelmingly young men killing young men — starting, peaking and trailing off at exactly the same ages. What makes the difference to the rates is the different environments. And that's crucial for policy. We understand what it is about our evolved minds that leads to such different rates in different environments — the universal propensity of males to be highly competitive, which under extreme conditions can end up in homicide. And that tells us what conditions we'd need to create to lower the murder rates. Indeed, far from being 'genetic determinism', we can see why the Darwinian approach has even been called — with only a touch of irony — 'an environmentalist discipline'.

'Genetic determinism' fosters the notion that, if genes are part of the causal process, then in order to change outcomes you've got to tweak the genes — you've got to alter that one particular cause. That's a very odd idea. There's no reason why you can't intervene at any part of the causal process, no reason why genes should take precedence. As we've seen with murder rates, when you're dealing with the universals of human nature, the environment is the obvious place to intervene. But that can also be true even when you're dealing with genetic differences between people. There are genetic differences, for example, in the propensity to develop adult diabetes. In an environment in which people eat traditional food — low calorie-density, high fibre, low fat, low sugar — nobody develops this kind of diabetes. But expose these populations to a modern diet and the people with the greater hereditary disposition show up immediately. Similarly, there could be genetic differences in men's disposition to compete. But, in appropriate environments — more Iceland than Chicago — those differences would barely show up in the homicide statistics.

There are lots of other notions packed into 'genetic determinism' — to do with free will and responsibility, control over your life and so on. But I've yet to discover a single interpretation of 'genetic determinism' that carries any of the implications that people seem to worry so much about. On the contrary, it turns out that whatever applies to genes applies equally to 'environments'. So, if people fear 'genetic determinism', they should be worrying equally about 'environmental determinism'.

Now, this kind of thinking applied to sex differences has led to deep hostility to the very idea of evolved differences between women and men. And feminists in particular have led this opposition. Of course, 'feminism' covers a multitude of views. There's often not much in common between the unreconstructed Marxists of the British Left, the 'post-modern' jargon-generators and the CEO who's flicking shards of glass ceiling from her padded shoulders. But one thing on which most schools of feminism agree is that they're anti-Darwinian. Even the so-called 'difference' feminists, who 'celebrate' 'us' versus 'them', prefer to invent differences rather than defer to science. I find it all very dismaying — and, as a Darwinian and a feminist, doubly dismaying.

I think this retrenchment stems from a vague belief that you can't have fairness without sameness. I say 'vague' because, once you say it, you can see it's obviously false. But lots of strands of feminism have somehow got themselves committed to the view that if men and women are in any ways fundamentally different it will undermine the quest for a fair and egalitarian society. What originally inspired feminism was the idea that women shouldn't be discriminated against qua women — where it was irrelevant that they were women. Being barred from universities or owning property or whatever, not because they were incapable but because they were women. But that original inspiration gets into a terrible twist when you deny evolved sex differences. Things have got to the point where there's expected to be some kind of 50:50 representation of men and women everywhere — universities, workplace, politics, sport, childcare. So, if women are under-represented, it's put down to sexism alone. Well, whether or not sexism is operating, evolved sex differences certainly will be — differences in dispositions, skills, interests, and ambitions. So women are very likely to make systematically different choices from men. And it's that — not blanket 50:50 distributions — which we should expect fair policies to reflect.

EDGE: Is it a question of defining what is a woman?

CRONIN: No. It's not to do with definitions. For an evolutionary biologist, the defining characteristic of females and males is their sex cells: eggs or sperm. But that's just the fundamental difference from which all other sex differences proliferate. So we can leave definitions behind, move on from eggs and sperm, and ask which characteristics are sex-typical in our species — just as we ask which characteristics are species-typical or age-typical or typical of stages of development, in our species or any other. Now, unlike whether you're an egg-bearer or a sperm-bearer, this kind of characterisation doesn't cleave our species neatly into two. And people often seize on this

as anti-Darwinian ammunition. I'm sure you've heard the argument: "But the differences within the sexes are greater than the differences between them". Well, I said it's an argument. But it's usually stated just like that — as premisses without a conclusion. I think the implication is meant to be that there's so much overlap in the distributions that the Darwinian interest in differences is misleading.

But is that right? It needs thinking through — but when I try, the argument tends to fall apart. For a start, how important the difference is depends on why you're interested in it, what your aim is. If your aim is to get rich, don't try selling pornography to women or romantic novels to men; don't try selling 'Kill! Kill!' computer games to girls or 'people' games to boys. And, anyway, you can't simply generalise about how large the overlap is; it depends on the characteristic. There'll be almost no overlap if you pitch boys against girls in throwing missiles — the boys will win every time; and almost no overlap in fluency of speech — nine out of ten men will do worse than women. Then there's the fact that, even if the mean differences are small, there can be huge differences at the extremes. Men are on average only a few inches taller than women; but all the very tallest people are male. So men might end up ahead just for that statistical reason alone. There's also a curious fact — it's one that's been uncovered by evolutionary biology — about the shapes of the distribution curves for most male-female differences. Darwin remarked on it and it holds robustly across other species, too. It's that males are far more variable than females — they are over-represented both at the top of the heap and at the bottom of the barrel. For some characteristics, people might not care. But what about this implication? Fewer women are likely to be dunces but also fewer will be geniuses. When I mentioned this in a seminar in the States, I was sharply corrected by a group of feminists: "There's no such thing as genius". I later discovered that this had become a fairly standard 'feminist studies' line. I couldn't help wondering whether 'genius' had been airbrushed out because there weren't many women in the picture. Darwinian theory also suggests that it's important to look at differences in disposition and interests, as well as abilities. Will the top piano student become the international star? Being competitive, status-conscious, dedicated, single-minded, persevering — it can make all the difference to success. And these are qualities that a lot of men are far more likely to possess, often in alarming abundance.

So what you have to do for any characteristic is ask how important it is that there's much overlap, what difference it makes to the policy you're dealing with and so on. The 'differences within and between' argument somehow has a politically correct air. But it's actually useless — or downright misleading — as a guide to making decisions.

I also suspect — I say 'suspect' because 'within and between' is a bit vague — I suspect that, although this is a popular argument with feminists, it doesn't always fit happily with other feminist arguments. If there are wide 'differences within', then women aren't very homogenous — there's a wide spread of abilities and dispositions — and some proportion of women will be in the male end of the distribution. That might be for any characteristic, from hormone levels to 3D rotation (being able to imagine rotating objects in space — a notoriously male trick). But how does this mesh with the idea that women who are high achievers in traditionally male pursuits — engineering, mountaineering or whatever — are 'role models' for other women? The idea is that these women are just like the others and it's only male prejudice and self-doubt that's holding the other women back. But maybe these women are the extremes of those 'differences within' that feminists themselves emphasise — and so they're not just like the next woman? But then how can feminists confidently claim that it's only prejudice and self-doubt that's preventing any woman from achieving the same?

Worse, how can anyone confidently point to these women — as anti-Darwinians often do — as evidence against evolved sex differences? And, actually, it does turn out that this confidence is seriously misplaced. Far from undermining an evolutionary analysis, these women are probably exceptions that prove the Darwinian rule. So, for example, with 3D rotation, women exposed in the womb to high levels of androgen perform far better than normal women — indeed, almost as well as men. And with dispositions, too — women in traditionally male professions respond to challenges with a characteristically 'male' high

adrenaline charge; and it seems that their job choice follows their disposition rather than — as I wrongly guessed when I first heard this — their disposition being shaped by the job.

A final example. 'Within and between' is used routinely to remind people like me that sex differences are only statistical generalisations and that they don't hold true for all individuals — which is, of course, right. But isn't the glass ceiling 'only' a statistical generalisation? There's an overlap in men's and women's jobs, particularly in middle management; some women are higher up than the average man — and so on. But is that a reason for dismissing the glass ceiling as unimportant? Statistical generalisations are exactly what many feminist issues are all about.

I think that the statistical distribution of male-female differences is a really interesting issue, with important implications for policy. It's one of those areas that's just waiting for the marriage of the evolutionary approach — which deals with universals — and behavior genetics — which deals with individual differences. I'm really keen to see research on this. It seems to me to be something that Darwinism, feminism and policy-makers most definitely need to deal with. Meanwhile, 'within and between' gets us nowhere.

EDGE: How would your conclusions impact social policy?

CRONIN: How could responsible social policy *not* be informed by an evolutionary understanding of sex differences? All policy-making should incorporate an understanding of human nature — and that means both female and male nature. Remember that if policy-makers want to change behavior, they have to change the environment appropriately. And what's appropriate can be very different for women and for men. Darwinian theory is crucial for pointing us to those differences.

I heard an American comedian the other day taking a swipe at 'creeping neo-Darwinism'. "I don't believe in the criminal gene", he said, "but, if there was one, I think they'd find it right next to the out-of-work one". All very politically correct. But dead wrong on the differential impact of unemployment on men and women. For a woman, unemployment means loss of a job; for a man, it means loss of status. And this difference combines with other sex differences to take women and men down very different pathways once the workplace door closes on them. So, for example ... A low-status man is a low-status mate; he'll have more difficulty finding a partner. And more difficulty keeping one; couples in which the wife earns more than the husband are more likely to divorce. Domestic violence stems from male sexual jealousy; low status is a potent factor for moving the psychological machinery of jealousy into high gear. And it turns out that misattributed paternity is as minimal as 1% among very high-status American males but up to 30% among unemployed, deprived, inner-city males. What's more, as in many other species, being low on the hierarchy has a demonstrable clinical impact on men's health and longevity. And, again as in other species, when the future looks inauspicious, males are more likely to take risks. If 'criminal genes' turn up next to 'unemployment genes' in men, it's because a distinctive male psychology is making the links. Anyone who really cares about unemployment and its appalling social ramifications shouldn't be sniping at evolutionary theory; they should be embracing it. It's absolutely indispensable for getting a handle on the relevant causal connections.

Sex-blind social policy isn't impartial, it isn't more fair — it's less so. Why, for example, assume that girls and boys learn in the same way? If you look, say, at maths — the academic area in which sex differences are most extreme — the boys' advantage apparently rests on their innate superiority in mechanical and 3D thinking. Now, there's some evidence that girls improve considerably if they're taught in ways that circumvent this. That's the kind of thing that a fair education policy should be concerned with. And the same goes for the law, for the workplace, for economic planning ... for whatever field social policy is being devised. We're not an androgynous species. Fair policies should reflect that fact.

We're living in a rapidly changing world. There's the increase in male unemployment. There's women finally having the resources to go it alone as parents. And women finding that, as their own status rises, the pool of potential partners shrinks. There are

increasing inequalities, consigning substantial proportions of men to permanently low status in a 'winner-take-all' game. How will our Stone Age minds react to these changes? What will be significant for men and for women? Does Darwinian theory have an impact on social policy? How could it not?

EDGE: Obviously you're controversial?

CRONIN: Yes. But I shouldn't be. I'm just doing standard science. In fact, it should be the other way round. It's people who are prepared to talk about policy and society without knowing the first thing about human nature that should be considered controversial.

EDGE: How do you deal with relativism?

CRONIN: Post-modernism and its stable-mates — they're obviously all complete balderdash, not to be taken seriously intellectually. But as a social scourge they have to be taken very seriously. Apart from the sciences, which have built-in immunity, they've taken a frightening hold on academia — on people who are influential and who are teaching future generations of influential people. It's the resulting attitudes to science that I most deplore — the view that there are no universal standards by which to judge truth or falsity or even logical validity; that science doesn't make progress; that there's nothing distinctive about scientific knowledge; and so on. One of the reasons why so much logic-free, fact-free, statistics-free criticism of Darwinism has been able to find an audience is this attitude that science is just another view so I'm free to adopt my view, any view.

EDGE: There's a lot of scientists and science writers out there communicating with the public and there's no central canon of science. When you use the word science in public discourse aren't you trying to beat somebody over the head?

CRONIN: No, absolutely not. First, there is a central canon — a very robust one. The disagreements — especially those that attract public attention — are rarely to do with core theories. They're usually about the elaboration of those theories — healthy disagreements about a core that's fundamentally agreed on. But second, and more important, the canon of science, what gives it authority, is above all its method. So, when scientists have those disagreements, there are objective ways of deciding between them. Theories must be testable and then must pass the tests. On a day-to-day basis things won't always be clear-cut; it's not an instant process. Neither, of course, is it infallible. But it's by far the best we've got and it's done a breath-takingly impressive job so far. As for "trying to beat somebody over the head" ... It's not individual scientists being authoritarian. It's science being an authority — and rightly so because it is indeed authoritative. So, once people understand that there's a vast distinction between science and non-science, and the distinction lies in scientific method, they'll understand the status of current disagreements and how to assess them.

EDGE: What would Charles Darwin have thought if he knew that he was being used today as an excuse to fool around?

CRONIN: I think he'd say the same as I'm saying, which is that there's a difference between what science tells us are our evolved propensities and the moral status of our behavior. And it's fallacious to go from facts to values. So evolved propensities don't constitute an excuse.

EDGE: There are certainly no lack of critics of the "Darwin-made-me-do-it school." Many scientists doing lab work, messing around with the brain, physical body, don't seem persuaded.

CRONIN: Yes, a century and a half after the publication of the *Origin* and still Darwinian theory hasn't penetrated into many areas of biology. And, even among biologists who do take an adaptationist approach, all too many of them drop it rather hastily when it comes to our own species — particularly when it comes to our psychology and our behavior — and most of all when it comes to sex differences. I'm often reminded of the anti-Darwinian attitudes of the nineteenth- and early twentieth-century — the period that's been called 'the eclipse of Darwinism'. Biology was rife with vulgar empiricism — dismissing adaptationist explanations on the grounds that they were teleological, going beyond the evidence, and so they weren't genuine science. The problem's not only with the public's perception of Darwinism and sex differences. Many a scientist has also yet to be persuaded. They seem to have learned from the mistakes of the past how to make new ones. But while the earlier rejection of Darwinism was rather tragic, this one's looking increasingly like farce. It's clear which way the history of science is going from here.