

COMMONWEALTH OF AUSTRALIA

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Course of Study:

(ASC287) Love, Sex and Relationships

Title of work:

Gender (2002)

Section:

Differences and bodies pp. 28--52

Author/editor of work:

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Author of section:

Connell, R.W.

Name of Publisher:

Blackwell Publishers

Differences and Bodies

At the centre of common-sense thinking about gender is the idea of difference between women and men. When pop psychologists tell us that women are naturally more emotional than men, or that our lives are ruled by 'brain sex', or that boys fight and steal cars because of testosterone, they are appealing to familiar beliefs about sex differences, especially bodily differences. In this chapter I will examine ideas and evidence about this question, and at the end I will suggest a more helpful way of thinking about bodies and gender than is usually found in discussions of difference.

Reproductive difference

Why is there any difference at all between women's and men's bodies? Humans share with many other species, plants as well as animals, the system of sexual reproduction – a method of reproducing which allows genetic information from two individuals to be combined, rather than just one to be copied. Sexual reproduction is itself a product of evolution, perhaps 400 million years old. Life forms existed earlier, reproducing in other ways – as many species still do. Some, including orchids and grasses, reproduce both sexually and asexually. Biologists debate why sex evolved, for this odd scheme has some evolutionary disadvantages. It may have evolved because sexual reproduction allows faster change, or prevents the accumulation of harmful mutations.

Sexual reproduction does not require bodies to be specialized by sex. Among earthworms, for instance, each individual is hermaphrodite, producing both sperm and ova (eggs), and thus every worm is able to perform both male and female functions. In other groups individuals produce either sperm or ova but not both. Their bodies are to some extent 'dimorphic', that is, in a given species there exist two forms. Humans are among these species.

Genetic information is encoded in DNA and carried on chromosomes, microscopic structures within the nucleus of each cell in a plant or animal. The genetic information that is combined at fertilization (in sexual reproduction) comes half from a female, in the egg nucleus, and half from a male, in the sperm nucleus. Human cells have forty-six chromosomes, which come in pairs. One pair, the sex chromosomes, influences the development of the body's male and female sexual characteristics. Women have two X chromosomes, men have one X and one Y chromosome, in this pair. Under the influence of the genetic information here, male and female bodies develop specialized organs – wombs, testes, breasts – and certain differences in physiology, such as the balance of hormones circulating in the blood, and the menstrual cycle in women.

Among mammals, females not only produce ova but also carry fetuses in a protective womb (except for monotremes such as the platypus, which lay eggs), and then feed infants with milk from specialized organs (in humans, breasts). Among some mammal species, but not all, males have extra bulk, or extra equipment: the antlers of male deer, for instance. Humans are mammals with well-differentiated reproductive systems, but modest physical differences between sexes in other respects. We do not have antlers.

In several respects human bodies are not fully dimorphic. First, there is a complex group of intersex categories, such as females lacking a second X chromosome, males with an extra X chromosome, and others. These categories have long fascinated sexologists, and do not correspond in any simple way to behaviour. The biologist Anne Fausto-Sterling (2000: 51) estimates that intersex groups, taken together, may account for 1.7 per cent of all births: a small but not trivial number.

Second, physical differences between male and female change over the lifespan. In the early stages of development male and female bodies are relatively undifferentiated; there are only small differences between a two-year old girl and a two-year-old boy. Even the obviously different external reproductive organs – penis, clitoris, scrotum and labia – develop embryonically from a common starting point. In a number of respects male and female bodies also become more similar in old age.

Third, even in early adulthood the physical characteristics of males as a group, and females as a group, overlap extensively. Height is a simple example. Adult males are on average a little taller than adult females, but the diversity of heights within each group is great, in relation to the average difference. Therefore many individual women are taller than many individual men. A more complex example is the brain – the site of a great deal of discussion of sex differences in recent years. There are some differences in brain anatomy and functioning between women and men, for instance in the tendency to use particular areas of the brain in language processing. But the differences are fewer, and less reliably established, than aggressive popular accounts of ‘brain sex’ would suggest. In many areas of brain anatomy and functioning there are no significant sex differences; and where there are differences, there is also common ground. As the neuroscientist Lesley Rogers (2000: 34) puts it: ‘The brain does not choose neatly to be either a female or a male type. In any aspect of brain function that we can measure there is considerable overlap between females and males.’ As we shall see, this is also a key point about human behaviour.

Ideas of difference

The fact of reproductive difference between male and female humans is not controversial, but its significance is. On this question, approaches to gender diverge sharply. I will outline the three most influential: the idea of natural difference, which treats the body as a machine; the idea of two separate realms of sex and gender; and the idea of gender as a discursive or symbolic system, which treats bodies as a canvas on which society paints.

The body as machine

In many discussions of gender, reproductive difference is assumed to be directly reflected in a whole range of other differences: bodily strength and speed (men are stronger and faster), physical skills (men have mechanical skills, women are good at fiddly work), sexual desire (men have more powerful urges), recreational interests (men love sport, women gossip), character (men are aggressive, women are nurturant), intellect (men are rational, women have intuition), and so on. It is widely believed that these differences are large, and that they are ‘natural’.

The idea that natural difference provides the basis for the social pattern of gender takes many forms. The nineteenth-century philosopher

John Stuart Mill, in a famous essay entitled *The Subjection of Women*, assumed that men's dominance in society was an expression of greater physical strength. More up-to-date is the idea that men dominate because, with their higher levels of testosterone, they have a hormonal 'aggression advantage' in competition for top jobs. Therefore society needs patriarchy – Steven Goldberg claims in *Why Men Rule* (1993) – to protect women from failure, and to ensure the smooth functioning of institutions.

More complex versions of the argument have been proposed by the US biologist Edward Wilson, who coined the term 'sociobiology', and a group of psychologists who have taken up Wilson's ideas and call their work 'evolutionary psychology'. Broadly, these arguments deduce social gender from reproductive strategies. Assuming that human behaviour is partly inherited, the Darwinian process of natural selection will favour those behaviours which increase the survival rates of any individual's genes into the next generation. From this starting point theorists have deduced human kinship loyalties, mothers' commitment to their children, husbands' sexual infidelity, women's coyness, men's interest in pornography, male bonding, and a remarkable range of other gender patterns (Degler 1990).

An admirable, detailed presentation of the 'evolutionary psychology' argument on gender is given by David Geary in *Male, Female* (1998). Geary's aim is to link psychological research on sex differences with the concept of 'sexual selection' (the choice of mates in sexual reproduction) as a mechanism of evolution. After expounding biological research on sexual selection in other species, Geary works his way through the now huge research literature on human sex differences (see below). For each topic where a sex difference can be located, Geary offers an account of how it might be linked to sexual selection, that is, how humans choose, win and control mates.

Models of the body as a machine producing gender difference are mainly advanced by men, and have often been used to defend the existing gender order, to ridicule feminism or (in Geary's case) feminist ideas of 'gender roles'. Sociobiological ideas about innate difference are often presented as the scientific 'truth' about gender, which feminists deny and which societies violate at their peril. However, there are also feminist arguments which present bodies as direct sources of gender difference. Western feminists in the 1980s often saw male aggression and female peacefulness as natural. The terms 'male violence' and 'male sexuality', which became common at this time, implicitly linked behaviour to the body, and some activists directly identified the penis as the source of male power (a view discussed in Segal 1994).

The idea of natural difference runs into difficulties on several fronts. Sociobiological explanations of human kinship, for instance, foundered when the predictions from genetics failed to match the realities of kinship systems actually documented by anthropologists (Sahlins 1977). It seems that social logic works independently of genetic logic. The explanation of gender hierarchy by a hormonal 'aggression advantage' founders when it is discovered that higher testosterone levels *follow from* social dominance as much as they precede it (Kemper 1990).

Geary's argument, being recent and sophisticated, is particularly worth attention. Geary's account of sexual selection is based on individuals making choices that maximize their genetic payoff, very like firms in a free market maximizing their utilities in neo-classical economic models. Geary can't really 'see' society as a reality, so his arguments don't have any place for institutionalized gender arrangements. For instance, in discussing the higher levels of violence among men than among women, all he can see is male vs male competition for reproductive resources; he cannot see military institutions, collective struggles, gendered interests or cultural definitions of manhood and womanhood. It is characteristic of this literature that Geary speaks constantly of 'males' and 'females', not 'men' and 'women'.

Lacking any account of social process, Geary constantly falls back on evolutionary speculation to explain the facts of social life. It comes as a slight shock, after reading this 400-page monograph calling on the name of science and published by so august an institution as the American Psychological Association, to realize that the entire argument is speculation. Not one sex difference in psychological characteristics has actually been *shown* to result from evolutionary mechanisms.

Theodore Kemper (1990) argues that we need to replace the idea of natural difference with a more complex chain of social-biological-social causation. Body-machine models of gender assume that the machine runs by itself: that biological causation is independent of society. But there have been no human (or even hominid) bodies outside society for a very long time. Social processes can be traced for 2.5 million years, give or take a few weeks. (This is the approximate age of the earliest hand-tool cultures so far discovered by archaeologists (Semaw 2000). The discovery of such industries proves the social transmission of specific techniques for making stone tools, over this length of time.)

It is clear that bodies are affected by social processes. Health, child development, and sport provide abundant proof. The way our bodies grow and function is influenced by food distribution, sexual customs, warfare, work, urbanization, education and medicine, to name only

the most obvious influences. And *all* these influences are structured by gender. So we cannot think of social gender arrangements as just following from the properties of bodies. They also precede bodies, form the conditions in which bodies develop and live. There is, as Celia Roberts (2000) puts it, a co-construction of the biological and the social.

A further problem with body-machine arguments concerns the way we create scientific knowledge about difference. Two decades ago a brilliant analysis by the ethnomethodologists Suzanne Kessler and Wendy McKenna (1978) showed how much is taken for granted. The literature of research on sex differences rests on attributions of gender. In sex difference research, 'sex' is almost never tested biologically. Rather, the subjects are sorted into 'male' and 'female' by common-sense *social* judgements, as the investigators set up their experiments.

The historical research of Thomas Laqueur (1990) has shown that scientific perceptions of bodily differences change over time. The presumption that human bodies fall into two opposed, qualitatively different, types became general only in the nineteenth century. Earlier it was presumed that male and female bodies were more and less developed versions of one type. Neither view is forced on us by unequivocal evidence. It is a matter of what we presume and therefore what we 'see' when we look at a complex reality.

The widespread idea that testosterone is a 'male hormone' is the most popular current example of presumed dichotomy. Testosterone is, in fact, present in all human bodies. So is the 'female hormone' oestrogen. As Lesley Rogers (2000) points out, many women have higher levels of testosterone in their bloodstream than many men, and after age fifty, men on average have higher levels of oestrogen in their bloodstream than women. Judith Butler persuasively argues in *Gender Trouble* (1990) that the Western belief in 'opposite sexes' is a projection of the modern Western cultural pattern of heterosexual couples onto the natural world. We project this onto other species as well as our own.

The two realms

In the 1970s a number of theorists proposed a sharp distinction between 'sex' and 'gender'. Sex was the biological fact, the difference between the male and the female human animal. Gender was the social fact, the difference between masculine and feminine roles, or men's and women's personalities.

To many at the time, this distinction was a conceptual breakthrough. It cut the knot of natural difference, and showed why biology could not

be used to justify women's subordination. The effects of biological difference could be confined to the realm of biology itself. A broad realm of the social ('culture', 'roles', etc.) remained, where gender as we experience it was constructed. This was a realm of freedom, where individuals or societies could choose the gender patterns they wanted. Thus Eleanor Maccoby and Carol Jacklin, the authors of a vast and influential survey of *The Psychology of Sex Differences* (1975), concluded:

We suggest that societies have the option of minimizing, rather than maximizing, sex differences through their socialization practices. A society could, for example, devote its energies more toward moderating male aggression than toward preparing women to submit to male aggression, or toward encouraging rather than discouraging male nurturance activities.

The concept of 'androgyny' put forward by Sandra Bem (1974) and other psychologists at this time was a widely popular attempt to define an alternative gender pattern, a mixture of masculine and feminine characteristics, which an individual or a society could choose.

The 'sex vs. gender' formula obviously derives from the familiar 'body vs. mind' distinction in Western philosophy. This helped make it acceptable. At the high tide of American liberal feminism in the 1970s, the two-realms model supported an optimistic, even sunny, view of change. Oppressive gender arrangements, being the products of past choices, could be abolished by fresh choices. In the language of the day, sex role expectations could be altered, and sex role socialization would follow suit.

Whole reform agendas were constructed around this principle. Among them were media reforms (to change sex role models), educational reforms (to change the expectations transmitted to girls and boys), and new forms of psychotherapy (to help individuals make the change to new roles). A notable example is the pioneering Australian Schools Commission's report *Girls, School and Society* (1975). This described the ways girls were held back by restrictive social stereotypes, and proposed action to break down educational segregation and widen girls' choices beyond the narrow band of conventional 'women's jobs' such as secretarial work. From this report flowed a series of projects encouraging girls to work in areas such as mathematics, science and technology.

The two-realms model, however, soon ran into trouble, as Rosemary Pringle (1992) shows in a careful critique. The idea of gender as culturally chosen difference ('sex roles') was unable to explain why one side

of that difference, the masculine, was consistently more highly valued than the other. The separation of gender from bodies ran counter to developments in feminism which were placing stronger emphasis on bodies. These developments included the growing concern with men's violence and heterosexual sexuality, whose target is not a feminine role but women's bodies; and the growing influence of French theorists who highlighted bodies as the objects of social power and the sources of emotion and symbolism. Some feminist philosophers influenced by this school (e.g. Elizabeth Grosz 1994) insist there is no consistent distinction between body and mind, and that our embodiment itself is adequate to explain our subjectivity.

If the two realms cannot be held strictly apart, perhaps they can be added? A common-sense compromise would suggest that gender differences arise from *both* biology and social norms.

This additive conception underlies most discussions of gender in social psychology, where the term 'sex role' is still widely used. This very phrase adds together a biological and a dramaturgical term. Similarly, moderate sociobiologists (e.g. Degler 1990) assume that there is some social elaboration of the biological differences they believe in: for instance, that boys' natural aggressiveness is socially channelled into football, war, or peanut marketing.

There are difficulties in the additive conception too. For one thing, the two levels of analysis are not really comparable. It is almost always assumed that the biology is fundamental. Biology's reality is more real than sociology's, its explanations are more powerful, and its categories are fixed. To take just one example (though a particularly telling one), the passage from Maccoby and Jacklin quoted above continues:

In our view, social institutions and social practices are not merely reflections of the biologically inevitable. A variety of social institutions are viable within the framework set by biology. It is up to human beings to select those that foster the life styles they most value.

Maccoby and Jacklin argue for social choice, and want change, but the causal priority in their analysis is clear. Biology determines; only within its 'framework' may humans choose their social arrangements. Sex role theory and sex difference research constantly collapse into biological dichotomy. It is striking that the same collapse occurs in the 'corporeal feminism' of Grosz. Bodies, to Grosz, are either male or female, so the corporeal subjectivity she outlines is necessarily sex-specific – either female or male.

Another key problem in adding social to biological differences is that the patterns of difference at the two levels need not match. Claims about 'sex dimorphism in behaviour' reflect popular ideology rather than reality. As we have seen already, human bodies are dimorphic only in limited ways. On the other side, human behaviour is hardly dimorphic at all, even in areas closely related to sexual reproduction. For instance, while few men do childcare with infants, it is also true that, at any given time, most women are not doing this work either. There are strong gender patterns in childcare, but they do not take the shape of a dichotomy between all-women and all-men. As I will show below, in traits like aggression and intellectual skill there is huge overlap between the two groups.

Not even the categories need match. In different contexts, the social process may define one gender ('unisexual' fashion), two genders (Hollywood movies), three genders (many North American native cultures), or four genders (nineteenth-century European urban society once 'homosexuals' and 'lesbians' were sorted out). In current social life there is a whole spectrum of gender variations. These have been painstakingly catalogued by Judith Lorber in *Paradoxes of Gender* (1994). She calculates that modern Western societies distinguish five sexes (including intersexes), three sexual orientations, five gender displays, six types of relationships, and ten self-identifications. Leaving aside the five sexes, that makes, if my arithmetic is correct, 900 different gender situations one can be in. So much for 'dimorphism'.

There are times when, as additive theories propose, social processes do elaborate on bodily difference. The Wonderbra springs to mind. But there are other times when social process distorts, contradicts, complicates, minimizes or modifies bodily difference. As Thorne's study (chapter 2 above) shows, the social process in an elementary school may do several of these things in turn, in the course of an ordinary day.

For multiple reasons, then, it is impossible to sustain either version of the two-realms model of gender. Perhaps we have to look to the social realm exclusively to account for gender difference. In cultural analysis there are approaches which examine bodies as surfaces to be written on ('inscribed'), or canvases to be painted.

The body as canvas

Second-wave feminism from the start was concerned with the way women's bodies were represented and, as images, consumed. One of the first Women's Liberation demonstrations was against the 'Miss America'

beauty pageant at Atlantic City in 1968. Research on gender imagery is one of the great accomplishments of Women's Studies as an academic field. Historical research such as Lois Banner's *American Beauty* (1983) traces the shifting but powerful systems of signs through which women's bodies are defined as elegant, beautiful and desirable, or unfashionable and ugly. *The Politics of Women's Bodies* (Weitz 1998), a recent collection, shows how the analysis has been extended across diversities of race, class and sexuality, and into issues such as surgery and sport.

Analyses of the imagery of women's bodies in film, television, photography and other visual arts have reached high levels of sophistication, and have fed into mainstream art criticism. An excellent example is *Modern Boy Modern Girl* (Menzies 1998), an art show which traced the interplay between the modernist movement in early twentieth-century Japan, and gender changes in the new urban culture. This period saw the emergence of a new individualism and the images of 'mobo' and 'moga' (modern boy and modern girl) in Tokyo. As the 'modern boy' story shows, the approach can be applied to men's bodies as well as women's. Anthony Easthope showed in *What a Man's Gotta Do* (1986) how men's bodies are symbolized as masculine in the imagery of Western advertising, film, and news reports.

Recent cultural studies of the body often focus on language or discourse, under the influence of Michel Foucault. In a number of historical studies, most completely in *Discipline and Punish* (1977), Foucault showed how modern systems of knowledge sort people into categories, and how these categories are interwoven with techniques of social discipline that police their bodies. A key role is played by professions such as medicine, psychology and criminology that apply these techniques. Bodies have been watched and controlled in finer and finer detail, as 'power-knowledge' became more sophisticated, the professions that apply it become larger and more numerous, and the institutions in which it operates, such as factories, prisons and schools, extended their grip on Western societies. Foucault's line of thought has been generalized in the sociology of the body developed by Bryan Turner (1984) and others. Turner proposes the concept of 'body practices', observing that 'bodies are objects over which we labour – eating, sleeping, cleaning, dieting, exercising'.

Foucault, notoriously, failed to theorize gender (though most of his stuff is actually about men in masculinized institutions). However, his approach was taken up by many feminists (e.g. Fraser 1989), and is readily turned into a theory of gender by treating gendered bodies as the products of disciplinary practices. The effects are material; the canvas

has real marks placed on it. In modern society, biology bends to the hurricane of social discipline. Bodies are 'docile'; difference is produced by disciplinary practice.

Field research shows how the 'disciplining' is done. The Los Angeles body-building gyms studied by the ethnographer Alan Klein (1993) show a whole sub-culture of men subjected to a fierce regime of exercise, diet and drugs. Over years of subjection to this regime their bodies are sculpted into the ideal masculine forms desired in body-building competitions. This may be an extreme case, but more moderate disciplining of bodies is very widespread. It is undertaken by such large-scale institutions as sport, education and medicine. The introduction of 'physical training' in public school systems, traced in Australia by David Kirk (1993) and in the Netherlands by Mineke van Essen (2000), created schemes for training boys' and girls' bodies differently. Modern physical education is interwoven with competitive sport, and there is now impressive documentation of the gendered character of sports institutions. Nancy Theberge (1991) clearly shows how the different exercise regimes for men and women, the disciplinary practices that both teach and constitute sports, are designed to produce gendered bodies.

And if social discipline cannot produce gendered bodies, the knife can. Cosmetic surgery is now big business; bodies are literally carved to the shape prescribed by gender symbolism. The silicon breast implant scandal has made public the scale on which this has been done in the United States, where big breasts are thought sexy. This whole industry, one might think, flies in the face of the ideology of natural difference. Research on cosmetic surgeons and their clients by Diana Dull and Candace West (1991) shows a startling solution to this violation. Apparently cosmetic surgery is now considered 'natural' for a woman, but not for a man. The exception is penile surgery, where penis enlargement is now a considerable business.

Body-canvas approaches, though they have been wonderfully productive, also run into difficulty. The approach emphasizes the 'signifier' to the point where the 'signified' practically vanishes. With gender, the difficulty is crucial. What makes a symbolic structure a gender structure, rather than some other kind, is the fact that its signs refer, directly or indirectly, to the reproductive relationship between women and men.

This is not to say that all gender relations are reproductive, in the sense that they produce children. Far from it – even when they directly involve sex. Most heterosexual sexuality does not result in pregnancy, and homosexual relations too are gendered. As Rosemary Pringle (1992: 91) commented, 'Whether you went to bed with a man or a woman con-

tinued to matter!' Gender involves a lot more than one-to-one relationships between bodies; it involves a vast and complicated institutional and cultural order. It is this whole order that comes into relation with bodies, and gives them gender meanings.

Post-structuralist theory acknowledges that order, but often exaggerates the docility of bodies. Bodies may participate in disciplinary regimes not because they are docile, but because they are active. They seek pleasure, seek experience, seek transformation. Some startling examples of this can be found in contemporary SM (sadomasochist) sexual subcultures. People submit to corsets, chains, piercing, branding, rope bondage, and a whole spectrum of painfully restrictive clothes in rubber and leather – all voluntarily, indeed with delight, as Valerie Steele shows in *Fetish* (1996). What is seen in extreme form here is surely true, in milder forms, of the whole system of fashion.

Bodies are also recalcitrant and difficult. In *The Men and the Boys* (Connell 2000) I give some case studies of this. One is a young man whose driven performance of masculinity – partying, drinking, screwing around, taking cocktails of drugs, etc. – came to an end because the resilience of his body came to an end. Another is a man whose un-athletic body triggered a sense of difference which became sexual difference. The issue is imaginatively explored in Patrick White's tremendous novel *The Twyborn Affair* (1979). This story centres on the experience of Eddie/Eudoxia, whose body cannot settle into any of the locations intended for it – as husband, wife, soldier or pastoralist. Bodies are recalcitrant not because of an inchoate 'resistance' but in organized ways. Bodies grow, age, become sick, desire, learn and forget skills, engender and give birth. These are patterned without necessarily being 'disciplined'.

Bodies also labour. This is a material practice in which bodies are deployed and consumed, and gender meanings arise from this materiality. The point is forcibly made in Mike Donaldson's (1991) account of working-class life in an Australian steel town. The masculinity of industrial labour, as defined in this setting, consists in its heaviness, risk and difficulty. These are ways that bodies are consumed: worn down, injured, sometimes destroyed. Yet, as Donaldson remarks, 'the very destruction of the physical site of masculinity, the body, can be a method of attaining, demonstrating and perpetuating the socially masculine'. Donaldson's point applies even more forcibly to the business of demonstrating masculinity in war.

Bodies cannot be understood as just the objects of social process, whether symbolic or disciplinary. They are active participants in social

process. They participate through their capacities, development and needs, through the friction of their recalcitrance, and through the directions set by their pleasures and skills. Bodies must be seen as sharing in social agency, in generating and shaping courses of social conduct. Yet all the difficulties of biological determinism, outlined above, remain. It seems we need a different way of thinking about bodies and gender, and I will return to this question after considering the evidence on 'sex differences'.

Facts of difference: 'sex similarity' research

Bodily differences and social effects are often linked through the idea of *character dichotomy*. Women are supposed to have one set of traits, men another. Women are supposed to be nurturant, suggestible, talkative, emotional, intuitive, and sexually loyal; men are supposed to be aggressive, tough-minded, taciturn, rational, analytic, and promiscuous. These ideas have been strong in Western culture since the nineteenth century, when the belief that women had weaker intellects and less capacity for judgement than men was used to justify their exclusion from universities and from the vote.

Women have now entered universities and polling-booths, but the belief in *character dichotomy* remains strong. This is sometimes to women's advantage: for instance, the argument that there should be more women in management and government because they will bring their distinctive traits (e.g. empathy and relationship skills) to these tasks. More often it is to men's advantage: for instance, the belief that women can't be top managers because they lack the necessary aggressiveness and analytical skills; or the belief that when men engage in predatory or selfish sexual conduct they are only doing what is natural for men and cannot be expected to change.

The belief in *character dichotomy* is so important that it was one of the first issues about gender to be addressed in sustained empirical research. Starting in the 1890s, generations of psychologists have measured various traits with tests or scales, and compared the results for women with those for men. This body of research, long known as 'sex difference' (sometimes 'gender difference') research, is now huge. When Maccoby and Jackson (1975) published their survey of *The Psychology of Sex Differences*, they included more than 1,400 separate studies; and that was on top of another massive compilation, *The Development of Sex Differences*, published a few years earlier (Maccoby 1966). Probably

at least as many new studies have been published in the quarter-century since. 'Sex difference' is one of the most-researched topics in psychology. There is also a large parallel literature in sociology and political science, looking in the same way at sex differences in attitudes and opinions, voting, violence and so forth.

The beginning of this research is described in a fascinating historical study by Rosalind Rosenberg, *Beyond Separate Spheres* (1982). The first generation of psychological researchers found, contrary to mainstream Victorian belief, that the mental capacities of men and women were more or less equal. It is an interesting fact that this finding of 'no difference' was rapidly accepted by men as well as women in the mental-testing field. Indeed, as they developed standardized tests of general ability or intelligence (the so-called IQ tests) during the first half of the twentieth century, psychologists incorporated the 'no difference' finding as a given, choosing and scoring test items in such a way that males and females would have equal average scores. Later attempts to find sex differences in this field have come to nothing (Halpern and LaMay 2000). It is now very widely accepted that in general intelligence, there are no significant sex differences.

An even more interesting fact is that *this is the usual finding in the sex difference research as a whole*. In table after table of Maccoby and Jacklin's book, the commonest entry in the column for the finding about difference is 'none'. Study after study, on trait after trait, comparing women's results with men's or girls' with boys', finds no significant difference. In summarizing their findings, the first thing Maccoby and Jacklin (1975: 349) did was list a series of 'Unfounded Beliefs about Sex Differences'. On the evidence they compiled, it is *not* true that girls are more social than boys, that girls are more suggestible than boys, that girls have lower self-esteem, that girls are better at rote learning and boys at higher-level cognitive processing, that boys are more analytic, that girls are more affected by heredity and boys by environment, that girls lack achievement motivation, or that girls are auditory while boys are visual. All these beliefs turn out to be myths.

Maccoby and Jacklin were not alone in this conclusion. Hugh Fairweather (1976), after an extensive examination of the research on sex differences in cognitive skills, concluded that sex differences were too few and uncertain to be worth bothering about. Mark Hogrebe and colleagues (1985), in a very large study of US high school students' reading achievement, concluded that sex differences accounted for just 1 per cent of the variation in scores – compared with 20 per cent accounted for by 'demographic' (social class related) variables. In a

recent survey of sex difference research on moral orientation, Sara Jaffee and Janet Hyde (2000) found that 73 per cent of comparisons between men and women on 'care' orientation found no statistically significant difference, and 72 per cent of comparisons on 'justice' orientation found no significant difference. These are just a few examples from many that could be given.

So the overwhelming conclusion from a hundred years of 'sex difference' research is that men and women are not very different at all, across a wide range of traits examined in psychology and related social sciences. To put it more positively, the main finding is that *women and men are psychologically very similar*, as groups. We should long ago have been calling this field 'sex similarity' research. We should have massive tomes on 'The Development of Sex Similarities', conferences on the evolutionary and biological background of sex similarity, and fierce debates on whether nature or nurture best explains the specific sex similarities that have been found.

The psychological similarity of men and women might be regarded, on the volume of evidence supporting it, as one of the best-established generalizations in all the human sciences.

It is therefore intensely interesting to find that this conclusion is widely disbelieved. The acceptance of gender similarity in the field of intelligence testing turns out to have been exceptional. Now pop psychologists, in books selling millions of copies, insist that women and men have different desires, speak different languages, have different capacities and express different attitudes. In the academic world generations of researchers, in the teeth of the evidence their own disciplines have produced, have gone on relentlessly searching for, and writing about, sex differences. The actual tomes, conferences and debates are, of course, about how to explain sex differences, not similarities. The gap between the main pattern actually found, and the widespread belief about what *should* be found, is so great that Cynthia Epstein (1988) entitled her admirable book about dichotomous thinking and gender reality *Deceptive Distinctions*.

Why the reluctance to accept similarity? A large part of the explanation, I am sure, lies in the cultural background. Dichotomous gender symbolism is very strong in Western culture (see chapter 4), so it is not surprising that when researchers (and others) think about sex and gender, what they 'see' is difference. Within our usual mindset and our usual research design, gender similarity is not a positive state; it is merely the absence of proven difference (literally, the 'null hypothesis'). Nature abhors a vacuum, and so do researchers; true difference might always be

revealed by improved methods; so, one goes on searching for ever This way, madness lies.

But there are also more substantial arguments. Conventional psychological tests, it is sometimes said, are too superficial to detect the underlying patterns of gender. The real character differences between women and men may be lodged at a deeper level in personality – say, in the unconscious (as in the currently popular Jungian dichotomy of the ‘deep masculine’ and the ‘deep feminine’). This could be true. Certainly most quantitative tests in psychology measure only the immediately apparent aspects of behaviour, often through self-report. But if the ‘deep’ differences don’t show up at the level of everyday life, and keep on not showing up across a wide range of behaviours – which is what the quantitative research demonstrates – then one wonders how important such deep differences really are. (My opinion is that they too are mythical. Unconscious dynamics are important in understanding human emotion, but they do not fall into a dichotomous pattern.)

A second issue is that the finding of ‘no difference’ is not uniform. Maccoby and Jacklin also pointed to a small number of traits where sex differences *did* exist, according to the bulk of the evidence: verbal ability, visual-spatial ability, mathematical ability, and aggressiveness. (They entered an open verdict on some other traits, regarding the evidence as inconclusive.) It is these findings, not the ‘no difference’ findings, which have gone into the textbooks, and have been emphasized and debated by most subsequent writers.

This debate has centered on a third issue. Maccoby and Jacklin had a huge amount of data, but most of it came from hundreds of small studies with ill-defined samples. It may be that the number of ‘no difference’ findings reflects the methodological weakness of the individual studies. If a way could be found to strengthen the method by combining the results of many studies, the picture might change.

Exactly this became possible when a new statistical procedure, known as ‘meta-analysis’, was introduced to sex difference research in the 1980s – and was called by some proponents a ‘revolution’ in the field. The procedure relies on finding a large number of separate studies of the same issue: for instance, many studies attempting to measure sex differences in aggression, or intelligence, or self-esteem. In meta-analysis each study (rather than each person) is taken as one data point, and the task is to make a statistical analysis of the set of studies taken as a group. Obviously before this can be done their findings have to be expressed on a common scale. Unless all the studies have used exactly the same measurement procedures (which in practice is rarely the case), this is a

problem. The ingenious solution is to define a common scale based on the variability of individual scores in the original studies.

The usual procedure in sex difference meta-analysis is this. For each study, the difference between the average scores of women and men (on whatever test is being used) is obtained, and this is rewritten as a fraction of the overall variation in people's scores found in that study on that same test. (Technically, the difference between means is divided by the mean within-group standard deviation.) This resembles a familiar way of 'standardizing' scores in psychological measurement. The standardized sex difference, known as ' d ', found for each individual study is the measurement taken forward into the meta-analysis. (The convention is that d values above zero indicate that the men's average is higher, values below zero indicate that the women's average is higher.)

In the meta-analysis proper, the d scores for all the studies are examined as a group. An average d score is computed, which is usually called the 'effect size' for that group of studies. A check is made whether the group of d scores is homogeneous – so tightly clustered that probably only one underlying effect is present. If it is not, then the studies can be classified into sub-groups, and statistical checks are run on the influence of 'moderator' variables. For instance, the researcher might check whether the effect size differs between older and newer studies (which might suggest that the size of sex differences is changing over time), or between studies using different tests, or between studies of different age groups, and so on. (There are variations in meta-analytic procedure; for a comprehensive text see Cooper and Hedges 1994.)

The first impact of meta-analysis was to revive confidence in the existence and importance of sex differences generally, as can be seen in Alice Eagly's *Sex Differences in Social Behavior* (1987). Even when many or most studies in a group individually show non-significant sex differences, meta-analysis may find an effect size significantly different from zero in the group as a whole. A few examples from the many effect sizes reported are: +.21 across 216 studies of self-esteem (Kling et al. 1999), -.28 across 160 studies of 'care orientation' in moral choice (Jaffee and Hyde 2000), zero across 22 studies of 'meaning orientation' in learning styles (Severiens and ten Dam 1998), +.48 across 83 studies of aggression (Hyde 1984).

The question then arises, what do these effect sizes mean? An effect may be significantly different from zero (which means it is not a result of pure chance) but may still be so small that it does not tell us much about the world. And here meta-analysis has its limits. By convention, an effect size of .20 is called 'small', .50 is called 'medium', and .80 is

called 'large'. But there is no unequivocal way to interpret this convention. Eagly (1987) argues that even small effects may be practically important; but other meta-analysts are less convinced. Kristen Kling and her colleagues (1999) try to get a handle on this issue by comparing their sex difference effect size with the effect sizes that have consequences in other types of research on self-esteem. They conclude that 'the gender difference in self-esteem is small when compared against effect sizes that have been shown to have important consequences in the laboratory'.

As the sex difference research has gone on, and meta-analyses have piled up, there has been a renewed scepticism about the size and universality of sex differences. Maccoby and Jacklin in the 1970s considered that 'verbal ability' was one of the traits where a difference (favouring women) was definitely established. But Hyde and McKinley (1997), reviewing meta-analyses of research since then, report effect sizes clustering around zero. They conclude that 'gender differences with regard to general verbal ability appear to be so small that they are now essentially nonexistent'. Mathematics ability, another claimed area of difference (favouring men), proves to have only a very small effect size, $+0.15$, across 254 studies. Kling et al. (1999: 487) observe that even with a consistent tendency for men's averages to be higher, and a statistically significant effect size of $+0.21$ for sex differences in self-esteem, there is great overlap between women's and men's scores. They note that 'fully 92% of the area under each curve is shared with the other. This substantial overlap of the distributions indicates that males and females are more similar than different on measures of self-esteem'.

Meta-analysis has also increasingly emphasized that sex differences may be specific rather than general. Hyde and McKinley (1997), for instance, though reporting that general verbal ability shows no sex differences, acknowledge that specific language difficulties do reveal gender differences (more boys show difficulties than girls). Science achievement also shows specific patterns. Biology shows no gender difference, while physics shows a persistent difference with an effect size about $+0.30$. Studies of aggression often show a sex difference, as Maccoby and Jacklin reported – but not in all circumstances. Bettencourt and Miller (1996) find an overall d of $+0.22$ in experimental studies of aggression, but report that this effect depends on whether or not there are conditions of provocation. Unprovoked, men have a modest tendency to show higher levels of aggressiveness than women (mean effect size $+0.33$); provoked, men's and women's reactions are similar (mean effect size $+0.17$).

A similar method reveals that sex differences in masculinity/femininity, as measured by tests such as the 'Bem Sex Role Inventory',

change over time. A meta-analysis by Twenge (1997) finds that men and women (in samples of US undergraduates) became more similar in their responses on these scales over a period of twenty years, from the 1970s to the 1990s. Not, as many people fear, because men are becoming feminized – both groups' scores on the femininity scales changed little. It was rather because the women increased their scores markedly (and men a little) on masculinity scales over this period.

Meta-analysis has not exactly revolutionized the study of sex differences, but it has certainly helped clarify what this body of research is saying. The broad conclusion from earlier research, as summarized by Maccoby and Jacklin, is confirmed. Across a wide range of the traits and characteristics measured by psychology, sharp gender differences are rare. Small differences, or no differences, are common. The concept of character dichotomy, as a basis of gender, is decisively refuted. Broad similarity between women and men is the main pattern.

Meta-analysis adds to this a clearer recognition that specific and situational sex differences often appear. Very specific skills (e.g. in one science rather than another), specific social circumstances (e.g. provocation), specific times and places (e.g. US colleges in the 1990s), and specific ways of measuring traits, all affect the extent of sex differences recorded in the research.

We begin to get a picture of psychological sex differences and similarities, not as fixed, age-old constants of the species, but as the varying products of the active responses people make to a complex and changing social world. In this way, with the aid of meta-analysis, psychology has gradually moved towards the way of understanding gender that has also gradually emerged in sociology.

How far can we generalize from the existing sex similarity research? It is often observed that the modern science of psychology is mainly based on the behaviour of white middle-class students in Psychology 101 courses in US universities – not quite a representative sample of humanity. Given the impressive evidence of cultural and historical variations in gender arrangements (see chapters 2 and 4), we cannot simply assume that the psychological patterns documented for one place and time are also true for others. Yet this very possibility, variation in sex differences between different circumstances, has been emerging as an important conclusion in meta-analytic research. The sex similarity research also includes increasing numbers of large-scale studies with much more adequate samples of the population of Western countries, and some studies in other parts of the world. I think the conclusions outlined above are at least a solid starting point for understanding gender.

Social embodiment

Now that sex similarity research has decisively refuted the concept of character dichotomy, we must reject all models of gender that assume social gender differences to be caused by bodily differences producing character differences. Then how should we understand the relation between body and society in gender?

Bodies have agency *and* bodies are socially constructed. Biological and social analysis cannot be cut apart from each other, as the two-realms model tried to do. But neither can be reduced to the other, as the body-machine and body-canvas models tried to do. Within a 'difference' framework, these conclusions sit as paradoxes. To resolve the paradoxes we must move towards another framework.

'Difference' theories of gender respond to one pattern of bodily difference, the distinction between female and male. Of course there are many other differences among the 6.2 thousand million human bodies in the world. There are large and small, old and young, sick and well, plump and starving. There are skins permanently stained with soil and skins softened with expensive creams; backs ramrod straight and backs stooped over desks and benches; hands cracked from washing and hands spotless and manicured. Each has its trajectory through time, each changes as it grows older. Some bodies encounter accident, traumatic childbirth, violence, starvation, disease or surgery, and have to reorganize themselves to carry on. Some do not survive these encounters.

Yet the tremendous multiplicity of bodies is in no sense a random assortment. The bodies are interconnected through social practices, the things people do in daily life.

Bodies are both objects of social practice and agents in social practice. The same bodies, at the same time, are both. The practices in which bodies are involved form social structures (see chapter 4) and personal trajectories (see chapter 5) which in turn provide the conditions of new practices in which bodies are addressed and involved. There is a loop, a circuit, linking bodily processes and social structures. In fact, there is a tremendous number of such circuits. They occur in historical time; and change over time. They add up to the historical process in which society is embodied, and bodies are drawn into history.

I will call this process *social embodiment*. It might also be seen from the point of view of the body as 'body-reflexive practice', that is, human social conduct in which bodies are both agents and objects.

Bodies are addressed by social processes and drawn into history without ceasing to be bodies. They do not turn into signs or positions in discourse. Their materiality continues to matter – including their material capacities to engender, to give birth, to give milk, to give and receive pleasure. At the same time, social process must be understood as including such bodily activities as childbirth and infant care, growth and ageing, the pleasures of sexuality and sport, the bodily effort and injury of labour, death from AIDS and equally the struggle to live with AIDS. There is no paradox in the ‘social – biological – social’ chain of causation identified in Kemper’s investigation of testosterone, mentioned earlier in this chapter. This is a typical example of social embodiment.

Social embodiment may involve an individual’s conduct, but also may involve a group, an institution, or a whole complex of institutions. For instance, subcultural marking of gender via fetish clothes, in the sexual subcultures mentioned earlier, has meaning only in the life of the group; that is why we speak of a ‘leather scene’, etc. This is not peculiar to sexual minorities; straight versions of gender are also sustained collectively.

Consider the body-reflexive practice that goes into the exemplary masculinity of a sports star – for instance, the ‘iron man’ Steve whose situation I describe in *The Men and the Boys* (Connell 2000). The star’s practice includes the training routines worked out by coaches, drawing on the professional expertise of physical education and sports medicine. It includes the practice of the sport itself, which is organized by multi-million-dollar corporations (sports associations, franchise businesses). It includes participating in publicity and managing finance via other corporations (commercial media, advertisers). A major sports star, like other media figures, practically turns into a one-person corporation, employing lawyers, accountants, marketing agents, public relations personnel, and others. There is an elaborate social process here. Yet all of this specialized work is based on, and refers back to, the body’s physical performances.

Gender always involves social embodiment in this sense. Gender relations form a particular social structure, refer to particular features of bodies, and form a circuit between them.

Gender refers to the bodily structures and processes of human reproduction. These structures and processes do not constitute a ‘biological base’, a natural mechanism that has social effects. Rather, they constitute an *arena*, a bodily site where something social happens. Among the things that happen is the creation of the cultural categories ‘women’ and ‘men’ (and any other gender categories that a particular society marks out). I will call this the *reproductive arena* in social life.

Biological reproduction does not cause gender practice, or even provide a template for it. There are many fields where strongly gendered practice occurs which has not the slightest logical connection with biological reproduction. This becomes abundantly clear in the case of new industries.

Miriam Glucksmann's detailed study of the electrical engineering and food processing industries in inter-war Britain, *Women Assemble* (1990), provides an abundant demonstration. Gender segregation in the new factories, and differential pay between women and men, were introduced on a massive scale. This was neither for biological nor for technical reasons. Nothing about the workers' bodies, nor about the technology of chocolate biscuit production, required segregation, any more than the technology of frying burgers in a contemporary McDonald's fast food outlet requires gender segregation. Segregation was introduced in the biscuit factories for quite a different reason. To have integrated the workplace would have broken down the existing social dependence of women and the gender division of labour at home. Preserving the overall gender division of society mattered more to the men making the decisions, than equity, profit or efficiency.

Social embodiment also applies in cases where the properties of bodies obviously do matter – for instance, gender patterns in health and illness. A body-machine approach would see 'men's health' and 'women's health' as issues constituted by the biological differences of male and female bodies. But that is not the way the women's health movement began. Rather, this movement was concerned from the start with the relation between women's bodies and the gendered structure of health services. Activists criticized the way that the power and ideology of men, especially in medical professions dominated by men, interfered with women getting the health services they needed (Schofield et al. 2000). Some of the health needs of women are different from those of men, some are the same as those of men, but all were affected by the location of women and men in the gender division of labour, and by gender ideologies (for instance, religious ideologies opposed to women having choice about abortion).

Here we have large-scale circuits of body-reflexive practice, involving medical institutions, markets and ideologies. They produce material effects on women's bodies but are also called into play by the material needs of those bodies. The same pattern can be found in 'men's health'. In a recent survey of men's health research in Australia (Connell et al. 1999) one of the strongest gender differences appeared in a study of rural people's eyes. Of the patients with penetrating eye injuries 88 per cent were men. This is not because men's eyes have weaker surfaces

than women's. It is because women in rural Australia are rarely given jobs involving hammering on metal or stretching fencing wire, the main sources of this kind of injury. It is the social division of labour that is crucial to understanding these effects – but it is the bodies which bear them.

Bodies are transformed in social embodiment. Some changes are familiar: lengthening expectation of life, as a result of social changes; also rising average height and weight (as nutrition and child health care improve), and changing patterns of disease (e.g. polio declining, TB declining but now reviving).

The transformation of bodies is structured, in part, on gender lines. The demographic indicators themselves show this. In the rich industrial countries women's average life expectancy has now reached 109 per cent of men's. In India, women's average life expectancy is 101 per cent of men's; in Bangladesh and Nepal, men on average outlive women. The gendered industrial economy impacts differently on men's and women's bodies. There are higher rates of industrial and vehicle accidents among men, who are the majority of workers in heavy industry and transport. There are higher rates of repetition strain injury (RSI) among women, who are the majority of keyboard workers.

The idea of social embodiment, involving long circuits of practice, allows us to recognize an important but un-theorized aspect of gender. Many gender processes involve bodily processes and capacities that are *not sex-differentiated*, that are in fact common capacities of women and men.

Among the most important is the bodily capacity to labour. There are almost no sex differences of any consequence in capacities to work, apart from those created by different training, the treatment of pregnancy as a disability, etc. Most production processes in modern industry involve the co-operation of very large numbers of men and women in an intricate flow of work. Ironically, the shared labour of large numbers of men and women creates the material equipment and institutions through which images of gender difference themselves are circulated. The Super Bowl, the faces of Madonna and Mike Tyson, Kylie Minogue and Mel Gibson, go out around the world in their hundreds of millions only because of the shared work of the women and men who build the TV sets, make the paper, and labour for the media corporations which hire the stars and buy the air-time.

As large-scale production assumes, capacities for communication are also shared between men and women. There is a minor industry attempting to define differences between 'women's language' and 'men's

language'. An American best-seller assured men that *You Just Don't Understand* what women say, and the author, Deborah Tannen (1990), became a media celebrity.

Most of this is froth. The weakness of the two-cultures approach to language and gender is shown by an excellent critique in the psychologist Mary Crawford's *Talking Difference* (1995). Language use is situational, and is shaped by relations of power. There are no fixed differences between men's and women's language use. As the meta-analyses discussed in the previous section show, there are also no broad gender differences in verbal ability. Specific and situational differences do sometimes appear. But they pale in comparison with the huge overlap in language use between women and men, and the common capacity for language learning. The capacity for language learning is a species characteristic which underpins the whole of culture – including the ideology of gender difference. Strangely, both women and men are able to read and understand the same books about gender difference in language.

Recognizing social embodiment also allows a new view of the relation between bodies and change in gender. In sociobiology, sex role theory, liberal feminism and popular ideologies of natural difference, bodily difference is understood to be a conservative force. It holds back historical change, limits what social process can accomplish, or defines an original state from which society has departed at its peril. By contrast, to radical interpreters of psychoanalysis such as the philosopher Herbert Marcuse (1955), bodily needs could be a subversive force. They could pit the person against social control, or provide energies that might crack open the social order.

Social embodiment indicates a third possibility. Bodies as agents in social practice are involved in the very construction of the social world, the bringing-into-being of social reality. The social world is never simply reproduced. It is always reconstituted by practice.

Gender as a structure of relations is constituted in this historical process, and accordingly can never be fixed, nor exactly reproduced. The strategic question is not 'can gender change?' but 'in what direction is gender changing?' Any situation admits of a range of possible responses.

Even in highly oppressive situations, social groups actually generate a range of responses. For instance, the married women in the cigarette factory studied by Anna Pollert in *Girls, Wives, Factory Lives* (1981) faced a relentless grind at home and at work. From the continuous labour, heavy-handed management, poor wages and broken shifts in the factory they escaped only to a round of cooking, cleaning, childcare and other labour at home. The result was fatigue, strain and depression,

according to one respondent: 'Sometimes I think I could throw all this work out of the window. Sometimes it gets on top of you . . . I just feel I want to pack it all in. I want to get miles away. I just can't go on any more. I don't want to go home and start getting the tea, but I do.' The pressure is much the same for all. However the responses of different women ranged widely, from stoic acceptance, through fantasy escape (notably colourful holidays, in the imagination), to resistance by creating a shop-floor culture, to trade union militancy. (At least for a time: their union happened to be controlled by men, and when the women went on strike it let them down.)

The reproductive arena is not fixed, it can be re-shaped by social processes. Indeed it constantly is being reshaped; there is social struggle over this as well as other aspects of gender. For instance, the fertility of a woman's body means something different where contraception is effective and small families are planned, from what it means where women are designated lifelong breeders and nurturers – barefoot, pregnant and in the kitchen, as the saying goes. There is social conflict over the potential meaning of women's fertility. 'Right-to-Life' militants are not just attempting to outlaw abortion: they seek to push the whole reproductive arena into the pattern they call 'the traditional family'. It is no accident that very few Right-to-Life activists campaign for the one straightforward and practical solution to the problem of abortion – effective contraception.

It is possible for social practice to move gender orders in different directions, and create different relations between bodies and social structures. The liberal-feminist idea expressed by Maccoby and Jacklin (quoted above), that a society can choose the gender order it wants, is sociologically naive. A society divided by conflicting interests does not 'choose' as a unit. But Maccoby and Jacklin were not mistaken in seeing a range of historical possibilities in gender relations. There are different futures towards which contemporary societies might be moved, by mobilizing social forces on a sufficiently large scale. I will return to this issue in chapter 8.