INTRODUCTION

In 2001, the Human Genome Project (HGP) and Celera Genomics (the venture capital organization led at the time by the scientist, Dr. J. Craig Venter) jointly published the first working draft of the human genome. The race for fame and fortune in sequencing the three billion nucleotide bases making up the 30-40 thousand human genes now known to exist ended in a deliberately orchestrated tie.1

Race is also at stake in quite another way in the HGP. On the one hand are those scientists who point out that their long-standing assertion that 99.9 per cent of genes are shared by all human beings is fully confirmed by the HGP; the human genome project thus proves that, scientifically speaking, human races do not exist. But others equally involved with the genome project argue that the 0.01 per cent difference makes all the difference – in how individuals and groups look and behave; they maintain that the variations in sequences of nucleotide bases that constitute our genes have significant effects. The Stanford University-based molecular geneticist, L.L. Cavalli-Sforza, for instance, foresees the employment in the future of new genetic definitions of human groups, because such definitions will be very useful from a practical point of view.2 For example, knowledge of the variations in the nucleotide base sequences associated with disease in various ethnic groups would allow medical scientists to produce diagnostic tests and therapies targeted to those groups, in a new ‘pharmacogenomics’.3

So is the message of the HGP that it supports anti-racism, or racism?

Understandably, given the entanglement of the HGP with such a socially
sensitive issue as race, ethnic minorities are divided in their response. Some support the HGP because they want to be sure that their distinctive genetic variations are not left out of the potential benefits of the new genomic medicine. They worry that if their DNA is left out, the supposedly universal template of the human genome will be defined by the genetics of only a small, largely European, segment of humankind. Other minority activists, on the contrary, oppose the HGP on the grounds that it overstates the genetic determinants of identity and health in human populations at the expense of environmental, social and economic factors, and because they believe the HGP could result in new genetic definitions of groups that would, advertently or inadvertently, give biological validity to racism.

As Donna Haraway says, in debates such as the ones surrounding the HGP, race seems to be ‘at once an uncanny unreality and an inescapable presence’, something ‘whose referent wobbles from being considered real and rooted in the natural, physical body, to being considered illusory and utterly socially constructed’. Like the return of the repressed, ‘race’ is something that, however much we try to dispense with it as a concept, keeps pushing its way back into science and politics.

The purpose of this essay is not to describe in detail all the ramifications of the HGP for racial politics, but to reflect rather more generally on the science and politics of race before and after the human genome. I want to place the HGP in the context of a long-standing, Western discourse on the ‘same and the different’ in nature, in order to make the case that a science of similarity and difference can never be a reliable basis for assigning civil and political rights. This is true even when, as is the case in the general consensus that has emerged since World War II, science seems to support an anti-racist view of human variation – to show that ‘races don’t exist’ in any biologically meaningful sense.

POLITICAL LIBERALISM, THE SAME AND THE DIFFERENT

My point of departure concerns not race but the difficulties women have in achieving full citizenship rights. The reason I start with gender is that it points economically to the repetition and intractability of ‘the same’ and ‘the different’ in modern Western political philosophy. No sooner do women deny they are different from men because of their sex, and protest against their political and other exclusions, than they find themselves calling upon the very difference of sex (claiming they are not the same as men and therefore have special needs or interests) that they want to deny.

This tension between sameness and difference is not a transcendental phenomenon, produced by the timeless features of womanhood, but the result of a specific history, or more correctly, two or three or more histories, of the modern period. One of these specific histories is about liberalism and democratic theory, and it is this history that has drawn most attention from feminist scholars. Starting in the seventeenth century, and culminating in the writings of the social contract
theorists of the eighteenth century, a new concept of the political individual was
formulated – an abstract and innovative concept, an apparent oxymoron – the
imagined universal individual who was the bearer of equal political rights. The
genius of this concept was to define, theoretically at least, a human individual
who was stripped of all individual substantiation and specification; unmarked by
the myriad particularities (e.g. of wealth, rank, education, age, sex) that make
each person unique, this abstract, non-specific individual provided the theoretical
basis for articulating the concept of universal political rights.

But as many scholars have argued, the universal individual, the bearer of rights,
who seemed to be everyone and no particular one, turned out on closer inspection
to be male, European, and property-owning. The seemingly transcendental
emptiness of rights discourse was a logical possibility, but an historical illusion.
The individual of liberal theory was (and still largely is) actually masculine, a
sexual identity disguised by the language of universalism. Since the male is under-
stood implicitly to be the norm of the universal individual, women’s difference
from men presents itself as a problem, a deviation, and a challenge to the
neutrality of rights. Against the theoretical universality of individual rights, affir-
mative action on behalf of (some) women (or ethnic groups) then looks suspect,
because it seems to privilege the difference of sex. On the other hand, to claim
to be the same as men often backfires against women, because some women –
not all, not all the time – are different in some respects from (some) men.

Feminists, then, argue that the difficulties women have faced in achieving full
citizenship, the feeling that women are stuck circling around the dilemmas of the
same/different/equality/inequality, without surcease, are not of women’s own
making, but a symptom of something else, namely a tension within the heart of
liberal theory itself. The abstract citizen of liberal theory has been tacitly
conceived of as male, and it is this that forces women either to make the case for
being the same as men, thereby suppressing their particular needs, or to insist they
are not-men, thereby emphasizing their special or different needs.

The value of recalling this now long-standing argument about liberalism and
gender is to point out its relevance to arguments about racial difference. The
universal liberal theory was also defined, historically, in racial and ethnic terms,
as well as sexual; the universal subject of rights was Western, European, civilized,
as opposed to non-Western, non-European, barbaric. These norms of ethnicity
were disguised, like the male norm, by the language of universality (until recently
whiteness was effaced as a race, it was the universal). Those making the argument
for racial equality have often been trapped in the same disputes concerning the
same/different/equality/inequality that have marked the history of feminism and
the demand for women’s rights.

RIGHTS AND THE NATURALIZED BODY

As we will see later, despite the limitations of the liberal concept of citizen-
ship, it remains a powerful political and intellectual framework for making
demands for political rights. There is a case to be made for the universalism of
rights, for making liberal universalism live up to its name. Yet this has proven extremely difficult to do. The question is why? Are sexism and racism basic to the very creation of liberalism and the identity of Western political subject?

At this point in my argument, I want to go beyond the story of political liberalism to look at another critical history (or set of critical histories) connected to the paradoxes of modern citizenship. This is the history of the naturalized body – the construction of race and gender as natural, biologically grounded entities, entities which apparently render their members ‘lesser’ or even ‘non’ individuals, as defined by abstract political theory. It is my argument that the historical counterpart to the disembodiment of the individual citizen of modernity – an individual imagined stripped of all substantiation – has been the ontologizing via embodiment of sex and racial difference, thereby separating groups biologically from an implicit white, male norm.

As I have said, the conception of the individual imagined stripped of all specific substantiation was critical to the formulation of our modern, abstract idea of political democracy. But not all individuals, it turned out, could free themselves from the specificities of the body; instead, they were considered a substantiated representative of a larger group, race, or gender. And it was the characteristics of the group – the very features of its natural difference from the norm – that disbarred them from the right to full citizenship. Thus some differences (within the white, male population) could theoretically be stripped away and discounted in relation to rights; but other differences could not be so discounted. If, the argument went, bodily similarity to an implicit or explicit norm of the body was found, then political similarity in rights followed; if bodily difference was found, then political difference in rights (or political inequality) also followed.

The search for embodied differences in the human species turned a political/ethical argument about equality of rights into an argument about the inequality of bodies – a move made repeatedly throughout the nineteenth and twentieth centuries.9

My point, then, is that the history of race and embodiment must be seen to be intertwined with the story of citizenship and its limits; and that it is no accident that ‘race’ and ‘sexual difference’, in their modern, primarily naturalized or biological meanings of the terms, emerged most clearly in the nineteenth century, when the new political principle of equality and rights was extended (e.g. in suffrage laws). Racism was of course not new to the eighteenth or nineteenth centuries; but the principle of political equality altered the meaning of race (and gender) by exposing the contradiction between the abstract universal and the reality of the particular – the particular, that is, of social inequality.

It was here, of course, that science and medicine came into the story. The search for measurable signs of human difference was the work of anatomists, physiologists, anthropologists and physicians. Starting with the founders of modern biology and physical anthropology, such as Linnaeus, Blumenbach, and Buffon, scientists began to apply to human beings a zoological concept of species and varieties. The ‘human’ (or humaine) became transformed through scientific
investigation into the ‘the human species’ and its zoological variations. By the mid-nineteenth century, a dense web of practices and measurements was employed to give empirical precision to race – to establish the ‘natural facts’ of human variation, facts increasingly understood not as a continuum of traits linking all members in a common human family, but in terms of categorical distinctions between groups or races (and the two genders). Physical anthropology, clinical medicine, the new bacteriology, social statistics and evolutionary biology were all at different historical periods drawn into the task of separating human populations into racial and sexual types, and weighing the meaning of such differences for social reform and social policies.¹⁰

Science did not, of course, simply step in to explain political, social or economic inequalities in terms of inherent or inherited bodily differences from a European, male norm; the relations of science and medicine to social, political and economic life are surely more complicated. We should think, rather, in terms of the many histories that were linked to the shifts we see in the scientific study of human variation, especially in the crucial period of transition to industrialization and modern colonialism between roughly 1770 and 1900. These histories would include the history of work, and the new division of labour; the history of slavery and abolition; the history of the emergence of new definitions of the public and private; the history of religion and secularization; the histories of class politics and changes in political economy; the history of women and their demand for equality and the suffrage. The history of nature itself is another; eighteenth-century meanings of nature, signifying plenitude, harmony, and perfection, gave way to a sense of nature as limit, facticity, necessity; appeal to this nature, as Lorraine Daston says, was often to remind people of the impossibility of change in the places assigned to them in society, or to suggest that human variations were independent of society, or human will.¹¹ Taken together, these histories did not cause the new sexualized (and racialized) body to come into existence; rather, as Laqueur suggests, the remaking of the human body was implicated in all these developments.¹²

I do not intend to review here the long histories of racial and sexual sciences, and their intersections.¹³ I only wish to make the following two points. First, the sciences of human differences cannot be easily dismissed as something belonging to the past; evolutionary biology, modern genetics, bacteriology, and tropical medicine still provide the framework of our biology and medicine today; the race concept was thus critical to the development of modern science. Moreover, it is arguable that race is still critical to the contemporary social (and cultural) sciences that supposedly replaced the outworn biology of race after the Second World War (a point to which I will come back).

Second, the assumptions made by scientists about races – that they formed distinct types whose bodily and mental differences were the main sources of their social inequalities – were extremely widely shared. They were normative. Critics of the claims made in the racial/sexual sciences (often the people most stigmatized by the sciences of their day) found themselves stuck in the terms of ‘the same and
the different’ with which we started, as though accurate facts of difference and similarity would answer questions about rights.

Minority social groups confronting a supposedly ‘purely factual’ science, whose message was apparently ever more negative about themselves, tried to resist the process of naturalization associated with the sciences. They tried, that is, to keep to the fore the political (and/or religious or humanitarian) principles that earlier had governed discussions of rights (and which scientists now dismissed as a ‘sentimentality’ that had no place in an empirical, objective science), and to make the case that no facts in themselves had inevitable or simple social meanings, but were always part of an already political argument. But over time, the authority of science and its professionalization made this line of argument less and less effective. Resistance to racial science and racial inequality had to be carried out in the languages and terms of science to which the challengers often stood in problematic and marginalized positions (the construction of racial and gender difference being one of the ways in which groups were marginalized and made objects, not authors, of science).14

THE POST-WAR LIBERAL ANTI-RACIST CONSENSUS IN SCIENCE

But if the science of racial/sexual difference is part of the story of liberal individualism and its limitations from the late eighteenth century until well into the twentieth century, it is also true that scientific racism was eventually contested from within that same liberal framework. The pendulum swung back to universalism (to the unity of the human species, to a shared humanity, to universal rights). After the Second World War a new consensus emerged in science that ‘races don’t exist”; an effort was made to substitute for race other terms, such as ‘ethnic group’, the ‘population’, the ‘cline’, and most recently, the ‘genome’. The word ‘race’ lost its legitimacy in science, and an effort was made to sever it from its basis in biology. The idea that human races formed closed, static, biological units that determined human behaviours or entire cultures was given up; biology gave way to sociology, to the new field of ‘race relations’. New definitions of what was to count as ‘human’ in the ‘human species’ emerged, in a liberal, anti-racist moment.15

Why did the old paradigm of racial science break down? In part, the very scientific methods that produced races led to an undermining of the concept of race. As more and more measurements of human skulls, noses, hair types, and brain parts were made, scientists found it more and more difficult to agree on what the basic racial units of human societies were. The epistemological weakness of ‘race’ as a biological category was apparent in the inconsistencies of, and disagreements about, racial classifications. Within physical anthropology, indeed, there was by the early twentieth century a ‘hopeless mistrust of anthropological measurement’.16

But if science helped destabilize racial science, the larger world of politics in which science and medicine operates played the decisive role. The political made the natural, and the political undid the natural. We can date the collapse of the
morphological, anatomical, and genetic (eugenic) sciences of race to the Second World War, and to the crime of the systematic extermination of the Jews (and Gypsies) carried out at least in part in the name of racial science. In the circumstances, racial science became morally repugnant and politically unacceptable.

Though there is not space here to sketch the slow, hesitant, piecemeal and very incomplete ways in which the biological concept of race was undermined in science itself, it is worth remarking that much of the change was fuelled by the entry into science (especially in the UK and the USA where the chief critiques were made) of individuals belonging to those social groups who were themselves stereotyped as inferior in the racial sciences (e.g. Jewish scientists, such as Franz Boas, who became the most vocal opponent of scientific racism in the USA). On the relation of the political to science, it is also important to note that assumptions about race were very often challenged or reversed without any new scientific information being added to the pool of knowledge. So, for example, Mendelian genetics, which before the war had been used to support eugenics (the movement for racial improvement based on genetics), was after the war employed to dismantle racial science; the supposedly evil effects of racial hybridization were also challenged by scientists, without the addition of any new scientific data. The political valence of racial science changed, for political reasons.

The most public expression of these shifts in the politics and science of the human species were the well-known UNESCO Statements on Race, the first of which was published in 1950. By this time, as Donna Haraway notes, the Cold War struggles and colonial independence movements gave further urgency to the racial issue:

Perched on the cusp between the Allied victory over the Axis powers, the ideological contest for defining human nature waged by socialism and capitalism in the Cold War, and the struggles for third world decolonisation that sharpened after World War II, the U.S.-sponsored documents were intended to break the bio-scientific tie of race, blood, and culture that had fed the genocidal policies of fascism and still threatened doctrines of human unity in the emerging international scene.

Ashley Montagu, a British-born Jewish anthropologist who had been Boas’ student and was a committed anti-racist, organized the first statement. Based on a draft prepared by a group of twelve scientific experts, with emendations by several others, the Statement opened with a ringing endorsement of human universalism. The human species, it said, was one; there was mental equality between all human groups; and all humans were bound to each other by a fundamental instinct for cooperation. ‘Equality as an ethical principle’, it added, ‘in no way depends on the assertion that human beings are in fact equal in endowment’. Finally, the Statement declared that ‘for all practical purposes, “race” was not so much a biological phenomenon as a social myth’; as a consequence, it was proposed that scientists replace the word ‘race’ by the more neutral ‘ethnic group’.
To many more conservative physical anthropologists and geneticists, however, this was going far too far; they believed that the first Statement was too socio-logical and cultural. They were dubious about the evidence for racial mental equality, rejected any notion of an instinct of cooperation, and believed ‘race’ was a valid term in science. These views were reflected in the second UNESCO Statement on Race (1952), which advanced only the negative argument that no evidence existed for inherited mental inequality between races. Despite this caution, the second statement, signed by ninety-six prominent scientists, is usually taken to represent a considerable public move away from the old certain-ties of racial science, and a reassertion of the claims of human unity.

In the 1950s and 1960s, as the civil rights movement gained ground in the United States, the new population genetics that emerged from the old eugenics was put to use in support of the non-essentialist position in science. Many popu-lation geneticists, for example, claimed, as Ashley Montagu had argued, that the word ‘race’ was unnecessary in science, since everything that needed to be said about human variation could be said without reference to a word and a concept so weighed down with negative connotations. The genes distributed differen-tially in different human populations were viewed not as marking out ‘races’, but as characterizing assemblages of individuals showing successful, evolutionary, genetic adaptations to specific environments.

A good example of the change in emphasis was the interpretation of the excruciating, and usually fatal, genetic blood disease, sickle cell anaemia. The sickling of blood cells was a phenomenon identified by physicians before the Second World War. Labelled a ‘black’ condition because it was found mainly in African-Americans, so strong was the racial identity of the disease that when on occasion physicians found white individuals with the condition, their ‘whiteness’ was questioned, rather than the racial view of disease. After the war, however, sickling of the blood was recast as an example of the new genetics; the molec-ular geneticist, A.C. Allison, showed that sickling was a result of a gene causing variant haemoglobin which, when present in the heterozygous condition, was associated with increased resistance to malaria (though in the homozygous condi-tion the gene causes an illness that can be fatal). Sickling was therefore re-conceptualized in terms of an adaptive mutation found in populations subjected over evolutionary time to malarial environments. Since the sickle cell gene is selected in populations where malaria is intense, it is found in people in quite different parts of the world (West Africa, the Mediterranean) where malaria has been historically prevalent; though recessive diseases like sickle cell disease occur more frequently in certain populations, it is not exclusive to a defined population, and is not a racial disease in the old sense of the word.

**SCIENTIFIC POPULATIONS AND EVERYDAY RACES**

Of course, racism did not disappear because scientists apparently no longer provided the biological-ontological grounding for racial thinking (post Second World War South African apartheid is an obvious case in point). With race and
ethnicity we are dealing, after all, with political and historical definitions of ‘the self’ and ‘the other’ that derive from social relations of inequality and inequalities in power, not scientific argument, for their continued currency. Even if the majority of scientists claim to prefer to avoid the term race, race was (and is) commonly used to designate groups of people in politics and the law; it undergirds, explicitly or implicitly, contemporary debates on citizenship, nationality, immigration and naturalization; in the U.S. it is used regularly in affirmative action policies. The U.S. Census is another example of the political relevance, inconsistency and power of race categories; today, Cambodians and Laotians are lobbying the government to change their classification from Pacific American to Asian. Some African-Americans wish to claim a new mixed race identity for the offspring of black and white parents; the difficulty of deciding who will qualify for this racial designation brings us back to the extraordinary debates about fractions of ‘colouredness’ that preoccupied the census-makers early in the twentieth century, when four out of the eight categories employed in the Census referred to fractions of blackness. Any examination of contemporary usages of the term ‘race’ usually shows it to be mired in these kinds of confusions.

The undercutting of the old certainties of racial science turned the issue of human inequality back to the realm where it started – the realm of the political, the economic, and the social. The factors that create group identities and social inequalities, that increase hostilities between groups, or that make people divide the world into ‘us’ and ‘them’, are extremely varied, and our new terminologies do not always add clarification. ‘Ethnicity’ is not the same kind of thing everywhere, and the term ‘ethnic’ is often only a convenient, and in my view not always useful, shorthand for extremely diverse political, social, religious and economic groups and/or phenomena. Generally speaking, it is used to escape from a biological definition of race, in keeping with the anti-racist consensus in science; but the inconsistencies in its usage parallel the inconsistencies of the term race itself. The same might be said of many uses of ‘cultural difference’, a term which like ‘ethnic difference’ is also used to escape from the biological connotations of race. Yet again, much of what is meant when culture is used to explain differences between groups or communities of people was in the past expressed by the term ‘race’. Indeed, the literary critic Walter Benn Michaels maintains that every effort to come up with an anti-essentialist account of cultural identity fails – it is either banal (because a cultural identity simply defines what people are presently doing), or relies ultimately on a genealogical (descent or racial) definition.

At the same time, of course (and most importantly), the scientific denial of the reality of race – the claim that ‘races don’t exist’ – flies in the face of everyday political experience, and can cause anger on the part of groups who know the weight of racial discrimination in their own lives. As an example, we might take the National Sickle Cell Anemia Control Act of 1972 in the United States. Legislated during the new post-war anti-racist era, with an apparently non-racial definition of the disease, the reaction to the programme revealed the gap between
scientists’ understanding of genetics and that of politicians and minorities. The screening of blacks in schools and the workplace was received with hostility by many African-Americans because they believed that its main purpose was to target genetically an already disenfranchised and discriminated group, causing an ethnic profiling that resulted in loss of jobs and insurance. The case for screening was not helped when politicians and administrators persisted in calling sickle cell a ‘black disease’, confused the sickle cell trait (which does not cause illness) with the sickle cell disease (the homozygous condition which does), often mandated screening in the workplace and in schools without adequate attention to individual consent, and in general did not consult adequately with the African-American communities involved. In the circumstances, the meaning of a genetic screening programme was determined not by science, but by the larger social realities in which race was lived and experienced.

In other circumstances, of course, as an oppositional strategy, claiming a racial identity for a disease will often make sense (e.g. when British blacks pushed for screening programmes for themselves in the UK and protested against the neglect of sickle cell disease by the National Health Service). People thus find themselves positioned within the framework of the same/different, equality/inequality with which this essay began.

THE UNRAVELLING OF THE POST SECOND WORLD WAR CONSENSUS ON RACE? FROM THE 1970S TO THE HUMAN GENOME

A further word of caution is in order here. For if there is a lesson to be drawn from this history of science, race and liberalism, it is that the human – all too human – sciences of ourselves are social products and tend to reflect in general terms the political and social values of the times. Racial science came into being as a systematic, scientific endeavour in the late eighteenth century, and came into prominence in the nineteenth century, in a period of nation-building and nationalism, conflict and differentiation, and reflected the values of national homogeneity, social differentiation (ethnic, class), and exclusion. It was challenged in mid-twentieth century only after a murderous world war of destruction against selected human populations made racial science politically and ethically unacceptable.

Today, however, the period of the Cold War has ended. Is it possible that the post-war scientific anti-racist consensus will end also? One certainly does not have to look hard to find evidence of growing political illiberalism in nearly all the European countries and the United States. A racial backlash was already evident in the anti-immigrant (anti-coloured) legislation passed in the UK in the 1970s; similar changes in attitudes to minorities and immigrants occurred in France. And even at the height of the anti-racist consensus in the 1980s, surveys showed that 50 per cent of the biological anthropologists working in graduate departments in U.S. universities claimed that race was a meaningful concept in human biology (in this regard, going against the anti-racial view in science).
In the thermidorian climate in which we now live, is it conceivable that new scientific knowledge will be given political interpretations that are harmful to groups? If so, the comfort that science offers the anti-racists may be short-lived. The huge attention given in the United States to Herrnstein and Murray’s book, *The Bell Curve: Intelligence and Class Structure in American Life* (1994), which argued that class inequalities (and by implication race inequalities) are due to inherited differences in intelligence, suggests a move in this direction. The success of this book (it sold over 400,000 copies) indicates the appeal such arguments have in a period of white backlash and growing neo-conservatism.30

Of even greater importance is the HGP, in part because of the enormous excitement the project arouses. The genome promises to be our ‘book of life’, telling us what we ‘really’ are. Indeed, scientists, politicians, doctors, and the media seem to have adopted an almost completely genetic view of human beings, attributing behaviours, sports ability, group identities and diseases to our genes, leaving the environment with little explaining to do. Nevertheless, like all human sciences, the HGP is open to multiple interpretations, a racial one being balanced by a non-racial one, as the opening pages of this essay indicated. The most commonly used metaphor of the genome, for example, is of a ‘genetic data bank’; this suggests not so much the categorical distinctions of race, as a picture of humans made up of endlessly computable ‘bits’ of information (literally bankable assets for the scientific and medical industry).

On the other hand, though, because scientists and physicians tend to use ‘race’ as crude shorthand in scientific discourse, the new genomic research sets traps for the unwary. This was especially evident in the controversy that erupted around the Human Genome Diversity Project (HGDP). Set up in 1991 by the molecular geneticist, L. Luigi Cavalli-Sforza, the aim of the proponents of the HGDP was to focus on diversity within the genome, something they believed the much larger HGP was neglecting.31 They proposed to collect DNA (e.g. from blood, or hair) from as many ethnic groups as possible, perhaps some six or seven hundred, with special attention to be paid to small, isolated, or ‘indigenous’ groups that they feared might disappear before scientists had a chance to study their interesting genetic characteristics.32

Cavalli-Sforza himself was aware of the dangers of confusing notions of genetic diversity with race, but he believed that the results of the HGDP would give support to scientific anti-racism, not provide the racists with ammunition; his approach was that of a liberal who was convinced that science was a social good, and that HGDP would demonstrate that the important genetic traits in human beings vary less between groups than within them.

Nevertheless, the HGDP was vehemently resisted, especially by the indigenous peoples from whom the DNA samples were to be taken, precisely because it raised the possibility of distinguishing groups by genetic traits, in ways that could turn out to be to the group’s disadvantage.33 At stake were issues of who owned the genes collected, whose consent was needed to take bodily tissues, and who was going to profit from the commercialization of genetic information. The
Rural Advancement Foundation International (RAFI), a Canadian organization that monitored agricultural and pharmaceutical research by multinational corporations in developing countries, picked up news of the project. RAFI proceeded to use the Internet to alert indigenous groups to the project. They accused the HGDP of racism, colonialism, the theft of genetic information, and the commercialization of human genetic data without people’s proper consent. By a piece of good timing (or bad, depending on one’s viewpoint), in 1993 RAFI learned that the U.S. Secretary of Commerce was trying to patent a cell line taken from a Panamanian Guaymi woman with leukaemia; the publicity given the case by RAFI led the Guaymi to defend their rights to their own tissues, and the patent application was eventually withdrawn. Since then, the HGDP has been more or less stalled through lack of public funding.

Human genetics will always be a terrain of struggles over its social meaning; this is especially the case when genes are used to provide answers to what are essentially questions of social and/or political identities. A good example provided by Sheldon and Marks are the tests for ethnic identity offered commercially. One such test has been developed to identify certain Native American stocks on the basis of genetic markers indicating ancestry. The problem is, however, that the test sometimes ‘proves’ that some members of the Native American stock in question lack the genetic marker; they are not, the test indicates, who they think they are; they don’t have the ‘right’ genes. At the same time, some individuals who have never been members of a Native American community are identified as having the genes. The trouble with such tests is that they usually rely on a highly selective sample of genetic information (e.g. reflecting only the maternal line); the genes in question are also found in non-Native American groups; and the tests are associated with high rates of false positive and false negative answers. More importantly, they are problematic because a genetic definition of a population is not the same thing as a social definition; being a Native American is a matter of social history and politics, not biology.

Just as complicated and potentially divisive are genetic-racial definitions of disease. As we have already seen in the case of a disease of known genetic causation, such as sickle cell anaemia, doctors often use the term ‘race’ as a rough and ready guide to refer to disease in a particular population. Another example would be Tay-Sachs disease, a hereditary metabolic disorder causing retardation and death in children that is often described as a ‘Jewish’ disease because of its high rates in the offspring of people of Ashkenazi Jewish descent. But in employing ‘race’ as a guide to medical genetics, doctors may overlook the disease altogether in individuals that do not fit the racial profile (e.g. non-Jews with Tay-Sachs). Similarly with ‘black diseases’; as a basis for medical and social policies, using race as a diagnostic guide may be quite misleading, especially given the crude rule used to define blackness in the US (i.e. the ‘one drop’ rule by which a person with the slightest appearance of ‘blackness’, or with any ‘black’ ancestry, is classified as ‘black’).
So should we follow a racial/ethnic strategy, or not? The answer will surely depend on the political circumstances, especially the relative political standing and rights enjoyed by the groups involved. Ashkenazi Jews in the USA, for instance, have supported their own genetic screening (using genetic testing and counselling to reduce the numbers of children with Tay–Sachs disease), because on the whole they are able, as a well-educated and politically powerful group of citizens, to control the process and meanings attached to medical and genetic interventions.40

The issue may be quite different with more politically vulnerable communities. In the UK, for instance, there is at present only ‘targeted’ screening for sickle cell anaemia, meaning that screening is focused on people identified as black. Such targeted screening can be a quick way of getting answers about specific social groups; it is also cheaper than universal screening. But in multi-ethnic places where universal screening of newborns is the norm (as in many of the states in the US today), thousands of ‘non-white’ children are identified each year as carriers of the sickle cell trait or the disease. So we have to ask whether a race-based approach does not risk missing such children, while at the same time giving Afro-British citizens a genetic profile that may be disadvantageous to them.

RIGHTS AND HUMAN VARIATION IN THE NEW MILLENNIUM

So will the Human Genome Project ultimately support the idea of human similarity and equality, or human difference and inequality? Or is this the wrong question?

For what this brief history of the rise and (perhaps temporary) decline of racial science suggests is that science is not a reliable guide to issues of human morality and politics. This point was made over a hundred years ago, and brilliantly, by the black abolitionist Frederick Douglass in a little known address on anthropology. In an argument that could hardly be bettered today, Douglass first reviewed for an audience of young African-American college students what was known at the time of the facts of human racial differences, according to science. He attacked the claims of the race scientists of his day, by questioning their logic, the quality or accuracy of their data, and their conclusions concerning the supposed gulf separating white and black races. He argued that anatomically and craniologically the similarities between African-Americans and the white race far outweighed the differences, that the human species was one, and that the African-American could therefore claim full membership in the human family.

But at the end of his address Douglass made a crucial move from the discourse of anatomy to the discourse of ethics, politics and rights. ‘What’, he asked, ‘if the case [of anatomical similarity] is not made out? Does it follow, that the Negro should be held in contempt?’ He answered his own question with a resounding ‘No’, because the title to freedom, liberty and knowledge was not a question of ‘natural’ difference or similarity, but a matter of rights and morality.41 Douglass here asked a question that would virtually disappear from science and politics from that time to this: What difference does difference make to human rights?
His answer was that it made no difference, because equality and rights are moral, religious and political issues. The silence on this matter within most scientific work, then and now, suggests the power of science to occupy the terrain of political and/or moral discourse, while disguising the political projects that help constitute the scientific field.

This is not an argument that science has nothing to offer our understanding of the human body, or to deny the positive gains we have made in our understanding of human variation. Science is a productive form of knowledge that allows us to manipulate the material world in which we live for good and ill. It is to argue, however, that the social meanings or conclusions we derive from nature are not the predictable outcomes of the inherent content or logic of science; that nature, or the science that as a human practice produces it, does not escape the value conflicts existing in its social surroundings. Inferences from nature are therefore not merely extrapolated, but are themselves always a matter of values and interpretation – are, that is, socially constructed. At issue here is the complicated circle of meanings that tie the natural human body to the political.42

This is not – I emphasize not – to argue that scientific knowledge is irrelevant to human experience, or without consequences in men and women’s lives. Nor is it to mire us in pure scientific relativism. No one would deny that we can, and do, know more about the human body today than in the past, or that science has contributed much knowledge that is useful to men and women.

My project in this regard would be two-fold – to demonstrate the lack of coherence in many representations of racial groups’ supposed ‘nature’, and to use science to get an accurate picture of actual, specific individuals and/or populations’ biological realities. A particular group of people may, for example, share certain biological characteristics (e.g. an increased risk of genetic disease) that could provide an appropriate basis for devising social policies (e.g. genetic screening). The aim of the analysis here is different – it is to avoid reducing complex populations to simple dichotomous groupings or seeing the world only by or through such groupings; and above all, it is to separate arguments about rights (or social policies concerning citizenship more broadly) from any simple view of the ‘natural’. Recognizing the interlaced histories of politics and biology, recognizing that there is never going to be a nature of ourselves out there that can arbitrate among the political meanings of our human variations, recognizing that this is the wrong question to ask, we can ask different questions: how have political meanings already been written into race and sex, so that we cannot go to a neutral ground of ‘natural facts’ to answer questions of meaning? Why have we been so preoccupied by small biological variations amongst ourselves? Why have these small variations been translated into notions of inequality? And why cannot real biological variation, in disease, in height, in strength, be accommodated in the notion of political rights and equality? Asking these kinds of historical questions will perhaps allow us to acquire a deeper understanding of the significance of embodiment in our political histories, and in the long run, to construct a more adequate model of citizenship, equality and rights.
NOTES

ACKNOWLEDGEMENTS: This is a somewhat different and expanded version of the argument I developed in ‘Race, Gender, Science and Citizenship’, Gender and History, 10(1), 1998, pp. 26–52. Here I have concentrated more specifically on race and science.

1 The Human Genome Working Draft Sequence was published simultaneously in Science (16 February 2001) and Nature (15 February 2001).
7 Post-1989 Eastern Europe is especially important to our understanding of women’s citizenship; there, the opening of the spaces of civil and political society almost paradoxically created new kinds of gender inequalities. The persistence of women’s inequality of citizenship in democracy is confirmed when we look to Western Europe and North America (where women have long had the vote and other political rights), but where they are significantly under-represented in national legislatures, earn less than men even when in the same line of work, and in general do not enjoy the same degree of autonomy of the self (e.g. bodily autonomy) as men. On Eastern Europe, see Peggy Watson, ‘The Rise of Masculinism in Eastern Europe’, New Left Review, I/198, 1993.
8 The references for this and the next sections are found in the original article cited above in the acknowledgements. It draws on the work of several well-known feminist scholars.


17 Racial inequality and discrimination towards African Americans in the United States did not produce a similar critique until after the war.


19 Haraway, *Modest_Witness@Second_Millenium*, p. 239.


Leonard Lieberman, Blaine W. Stevenson, and Larry T. Reynolds, ‘Race and Anthropology: A Core Concept without Consensus’, *Anthropology and Education Quarterly*, 20, 1989. Their study shows that the greatest support for race in biology came from physical anthropologists in the private universities; they suggest that in state universities, where students and faculty tended to be drawn from a wider range of social classes and ethnic (often immigrant) groups, the concept of biologically-based differences had less appeal.


The well-known anti-racist and Marxist population geneticist, Richard C. Lewontin, points out in his book, *Biology as Ideology: The Doctrine of DNA*, New York: Harper, 1991, p. 68, that the sequence of DNA will be a mosaic of some hypothetical, average person that may correspond to no one; given polymorphism, every human genome is unique, and ideally we should sequence the same part of the genome from many different individuals for an adequate picture.


Karen Young Kreeger, ‘Proposed Human Genome Diversity Project Still Plagued by Controversy and Questions’, *The Scientist*, 10(20), 14 October 1996; David B. Resnik, ‘The Human Genome Diversity Project: Ethical Problems and Solutions’, *Politics and the Life Sciences*, 18(1), March 1999. A similar project to the HGDP, called the ‘Biological History of European Populations’, which aims to study European genetic diversity and paleo-anthropological history, has been funded by the European Union; apparently, this project is proceeding without controversy.


The paper by A. Arnaiz-Villena et al., ‘The Origin of Palestinians and their
Genetic Relatedness with other Mediterranean Populations’, *Human Immunology*, 62(9) 2001, pp. 889–900, showing that Jews and Palestinians in the Middle East are genetically indistinguishable, was ‘deleted from the scientific literature’, in the words of the editors of the journal (‘Editorial’, 62(10), October 2001, p. 1063), not for its scientific conclusions about the historic, genetic similarity between the two populations divided sharply by politics and religion, but for the pro-Palestinian and anti-Israeli political views expressed by the authors. One wonders…. This is obviously sensitive stuff.

38 On disease differentials between African-Americans and whites in the United States, such as the much higher morbidity and mortality rates in African-Americans in cancer and heart disease, the dangers of implying genetic causes, and overlooking social and economic causes (such as low rates of medical insurance, second-rate medical care), are very clear; see on this point Joseph L. Graves, Jr., ‘Race and the Disease Fallacy’, in his *The Emperor’s New Clothes: Biological Theories of Race at the Millenium*, New Brunswick/New Jersey: Rutgers University Press, 2001, ch. 11; and Tom Reynolds, ‘Panel Grapples with the Legacy of “Race Medicine” in Research’, *J. of the National Cancer Institute*, 89(11), June 4, 1997, pp. 758–61.


40 In fact, carrier screening and genetic counselling have reduced the incidence in the high risk population to such an extent that a high percentage of the babies born today with Tay-Sachs disease are the offspring of couples who have not previously been considered at high risk (i.e. are not self-defined as Ashkenazi Jews); genes for Tay-Sachs, that is, do not map in their distribution the group we call ‘Ashkanezi Jews’.

41 The speech was a commencement address before the literary societies of Western Reserve College (Rochester, New York, 1964); reprinted in P. S. Foner, ed., *The Life and Writings of Frederick Douglass*, New York: International Publishers, vol. 2.

42 This argument also extends to gender difference and its meanings in contemporary society.