

**SETTING THE AGENDA FOR NEO-EUGENICS:  
AN EXPLORATION**

*Dissertation submitted to the Jawaharlal Nehru University in partial  
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**PRIYA RANJAN**



**CENTRE OF SOCIAL MEDICINE AND COMMUNITY HEALTH  
SCHOOL OF SOCIAL SCIENCES  
JAWAHARLAL NEHRU UNIVERSITY  
NEW DELHI – 110067  
INDIA  
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**CERTIFICATE**

This dissertation entitled, “**SETTING THE AGENDA FOR NEO-EUGENICS: AN EXPLORATION**” is submitted in partial fulfillment of the requirements for award of the degree of **MASTER OF PHILOSOPHY**, of Jawaharlal Nehru University. This dissertation has not been submitted in parts or full for any other degree of this University or any other University and is my own work.

Priya Ranjan

We recommend that this dissertation be placed before the examiners for evaluation.

**Prof. Mohan Rao**  
(Supervisor)

Prof. Mohan Rao  
 Centre of Social Medicine &  
 Community Health/SSS  
 School of Social Sciences  
 Jawaharlal Nehru University  
 New Delhi - 110067

**Prof. K. R NAYAR.**  
(Chairperson)

**Chairperson**  
 Centre of Social Medicine &  
 Community Health, SSS  
 Jawaharlal Nehru University  
 New Delhi-110067

*The sensuous world... is not a thing given direct from all eternity, remaining ever the same, but the product of industry and of the state of society; and, indeed, in the sense that it is an historical product, the result of the activity of a whole succession of generations, each standing on the shoulders of the preceding one, developing its industry and its intercourse, modifying its social system according to the changed needs. Even the objects of the simplest "sensuous certainty" are only given him through social development, industry and commercial intercourse... [N]ature, the nature that preceded human history... today no longer exists anywhere.*

*We know only a single science, the science of history. One can look at history from two sides and divide it into the history of nature and the history of men. The two sides are, however, inseparable; the history of nature and the history of men are dependent on each other so long as men exist.*

(Marx and Engles, *The German Ideology*)

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# INTRODUCTION

## I

*It (reservation in higher educational institutions) would lead to chaos, confusion, and anarchy which would have destructive impact on the peaceful atmosphere in the educational and other institutions and would seriously affect social and communal harmony. The constitutional guarantee of equality and equal opportunity shall be seriously prejudiced. It has been contended that a time has come to replace the "vote bank" scenario with "talent bank". The statute in question, it is contended, has lost sight of the social catastrophe it is likely to unleash ...the products would be intellectual pygmies as compared to normal intellectually sound students presently passing out.*

—Judgement of the Supreme Court of India, 29/ 04/ 2007

The above quote from the Supreme Court of India's judgment staying the implementation of reservations for Other Backward Classes (OBCs) in educational institutions run by the Central Government spells out some of the most commonly held ideas regarding talent, merit, heredity and caste. The Supreme Court has, in referring to the OBCs as 'intellectual pygmies', not only supplied the modern understanding of caste with a language couched in terms of race, but also utilised blatantly racist ideology in doing so. This judgement also stands as evidence that sections of the Indian population are seen as inherently incapable of intellectual pursuits; this is the sole prerogative of the upper castes. Likewise, 'talent' is not the end-result of socio-economic backgrounds but another characteristic that individuals are born with, or are not born with, as the case may be.

I use this instance as a prologue to my study because it not only captures some of the abuses that science and 'scientific knowledge' is put to in the Indian context, but also shows us how the plane of ideological justification of the caste system has shifted from being primarily a religious one to one in which 'science' plays an important role.

Undoubtedly, the 'racialization of caste' has its roots in the late eighteenth century colonial 'discovery' of the historical battle between the migrant settlers of the Aryan race and the indigenous Dravidian dwellers of the Indian subcontinent, and its subsequent congealment into the caste system.<sup>1</sup> This racialization of caste served many purposes. Firstly, it helped in justifying colonial dominance, as it employed the framework of ideas current to Europe then, wherein entire races were treated as 'inferior' and 'superior'. Secondly, it came to be utilized by upper caste Hindus, many of whom were exalted by the idea that they were the 'lost cousins' of the most supreme race of Europeans, namely the Aryans. Thirdly, and by far the more significant reason, is its resultant mystification of the actual exploitative nature of the caste system through essentialist and biological explanations. This use of 'scientific knowledge', moreover, was rather shaped by dialectical processes between the colonizers and various segments of the colonized population.

The continued racialization of caste is currently evident in the 'People of India Project'. Under this project, the Anthropological Survey of India until the late 1990s was still overseeing a massive exercise in caste-based data collection. This project, which has been funded by the Indian Planning Commission, aims at drawing up 'anthropological profiles' of 4635 identified caste and tribes.<sup>2</sup> It utilizes methods such as large-scale testing of DNA samples. Researchers use molecular typing techniques that are employed in human genome mapping projects in order to identify differences between individual castes and tribes. The search is not for differences in economic, social or cultural backgrounds of the castes and tribes. Rather, they look for differences in genetic make-up of the communities which are taken to be the most fundamental level on the basis of which communities can be differentiated. It is striking that this apparently modern aspect

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<sup>1</sup> See for example, Susan Bayly (1999), *Caste, Society and Politics in India from the Eighteenth Century to the Modern Age*, Cambridge University Press, New Delhi; Nicholas B. Dirks (2002), *Castes of Mind: Colonialism and the Making of Modern India*, Permanent Black, New Delhi.

<sup>2</sup> Details are taken from Susan Bayly (1999), *ibid.*

of the People of India Project is rooted in the belief that caste is a matter of essential biological and physiological differentiations.

What is of prime significance to my present study is the stakes in the increasing utilization of secular or 'scientific' knowledge for ideological ends and the processes by which they come to occupy the place of traditional ideological spheres such as religion.

## II

Marx's statement that "Rationality has always existed, but not always in the rational form"<sup>3</sup> could aptly be paraphrased today to read as follows: science has always existed, but not always in the scientific form. When human beings work in order to produce the means of their subsistence, they interact with nature and thereby transform it. But in the course of this process, nature too interacts with human beings and transforms their consciousness. Science and technology are both an expression and outcome of this interactive relationship between human beings and nature. Science and technology have been an integral part of every human civilization, even though their forms and expressions have been different in different societies and in different times.

Thus, science as we know it and is practiced today emerged only along with industrial capitalism in the West. The complexities of the initial relationship between science and religion however need to be acknowledged. Hilary and Steven Rose, for instance, write that Protestantism in Europe "was signally favourable to the development of the new experimental science... [and that] although the thesis associating science with a specific form of Protestantism holds, it has to be remembered that the key to this religious form is rationality, in itself a driving force for secularisation rather than for religion."<sup>4</sup> Later developments in the discourse regarding science have bestowed upon it

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<sup>3</sup> Quoted in Anthony Giddens (1996), *Capitalism and Modern Social Theory: An Analysis of the Writings of Marx, Durkheim and Max Weber*, Cambridge University Press, Cambridge, p. vii.

<sup>4</sup> Hilary Rose and Steven Rose (1970), *Science and Society*, Penguin, Harmondsworth, p. 15. They add that, "Having emphasized the significance of a deeply felt and intensely individualistic theology for creating



the claim of being the only form of legitimate knowledge. Science became the most respected mode of uncovering the workings of the natural and social worlds through the use of rational and objective methods. Today, most of us, including those who are directly involved in scientific practice, view science as a progressive and liberating force. We see in it the form of human being's ever increasing control over nature, and in fact their own destiny. Science is most commonly understood as a value-neutral pursuit free from social influence, engaged in the discovery of universal truths, i.e., its results are applicable across time and space, and enabling greater comforts and prosperity in human society.

However, some of the negative effects of science and technology —witnessed for example in the case of the atom bomb, Auschwitz and global warming— have also been acknowledged in the popular discourse. What is interesting is that these harmful outcomes of science have been successfully explained by invoking the dichotomy of science and technology. The ideological purity of science has been maintained by arguing that it is the practical outcome of science, or technology, which is open to use and abuse.

Even within Marxism, its dogmatic currents worship science and technology as an objective and progressive force that will liberate humanity from the shackles of natural forces. Such Marxist theorists argue that science and technology are part of the productive forces of society, and have their own internal dynamics of development. They also claim that science and technology are beyond the influence of social relations of class, caste, gender and race, and that they shape society in their own image.

In this exploratory study of eugenics and neo-eugenics, I intend to show that the above-mentioned claims of modern science are at best fallacious, and that it often serves in the hands of the ruling classes as a means of domination and legitimation of their rule. I will argue that science as an institution is part of a larger social structure, and that it has shaped, just as it has simultaneously been shaped by, the socio-economic context in which it is located and is practiced. The claims of value-neutrality and objectivity of modern science function as an ideology that legitimizes the existing social order. In the first place, the people who practice science are also part of their societies. They approach the social and natural world with certain assumptions and biases which they carry with

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the cultural environment in which science could flower, the success of the new science, like the success of capitalism itself, was divorced from the intentions which shared in its creation.”

them from being a part of a certain class, caste, gender, and/or nationality background. This does not mean that it is impossible to obtain any knowledge about the world or that such knowledge is entirely subjective, as post-modernist trends in academic scholarship would today ask us to believe. Rather, what I wish to state is that objectivity can be understood as the constant awareness that we approach the world with certain preconceived assumptions. Objectivity, in other words, is not a condition but a process. “It is the process of confronting the world with our biases, confronting our biases with our understanding of the world, confronting our biases with those of other people, and our various biases with each other. The process of objectivity is never complete.”<sup>5</sup> Thus, there is a dialectical relationship between practitioners of science who carry with them certain preconceived assumptions from their being located in a particular socio-economic context and the material world which they study.

Modern science is integral to the systems of domination of capitalism and imperialism. Scientific research is highly influenced by capitalism’s pursuit of profit. The problems which science investigates are generally the problems faced by capitalism. When science is at a crossroads, it is capital which decides which path to choose. Science is also a profession, not an altruistic or hobby-like pursuit of a bunch of eccentric but selfless human beings. “People earn their living by science, and as a consequence the dominant social and economic forces in society determine to a large extent what science does and how it does it.”<sup>6</sup> In a capitalist society, scientific knowledge itself becomes a commodity that can be bought and sold in the market. Thus, it is the market which determines what kind of scientific knowledge will be produced.

Science is not just constitutive of the productive forces of human society; it is also a part of social relations. Science is shaped by the dominant social relations that at the same time help in legitimizing and reproducing those social relations. This is most evident in how modern science has always projected the sexism and racism of upper class white European males as biological and natural. In the eighteenth and nineteenth centuries, European anthropologists located the ‘inferiority’ of women and blacks in the constitution of their bodies and brains. In the contemporary period, sociologists locate

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<sup>5</sup> Richard Levin (1986), “A Science of Our Own: Marxism and Nature”, *Monthly Review*, Vol. 38, No. 3, p. 8.

<sup>6</sup> R. C. Lewontin (1991), *Biology as Ideology: The Doctrine of DNA*, Harperperennial, New York, p. 3.

this inferiority in their genes. Modern science, particularly biological science, has successfully propagated the idea of 'biology as destiny' through which various kinds of exploitative and oppressive hierarchies have been legitimized as biological and natural.

### III

Modern science and technology came to India through colonialism. The growth and developed of modern science and technology here was shaped and influenced by the socio-economic, political, and cultural specificities of the Indian society. Mapping the trajectory of science and technology in India, especially in the post-independence period, is reflective of the model of development that India embarked on in this period. What was to be the role of science and technology in this grand strategy of the initial architects of post-independent India, so that she would be counted on par with the West in terms of 'development' and 'prosperity'?

Any discussion on science and technology cannot divorce itself from the everyday life of the people, their problems, and the ways in which they organise themselves in this process. Science, in this sense, is the realisation of the innumerable possibilities of human potential in their everyday endeavour to create and recreate a new material reality, which is the sum and substance of their labour— both mental and manual. What contributes to realise this mental and manual labour fundamentally reflects the web of scientific relations that come together to realise labour's output, and gets crystallised in the form of technology.

Thus, all labour that contributes to the production and reproduction of the material world, and hence life itself, is science in its various forms of practice. It is the simultaneous practice and reflection of the idea that whenever, through labour, the world around us is being transformed, we are also part of that transformation that demystifies our world. This can only happen when we are directly involved in the process of creating and recreating the material world. The comprehension of this material world is a direct

experience, not something mediated through a hierarchy which has the authenticity to name the world through the field of science.

Perhaps this was what reflected in the writings of D. D. Kosambi, when he insisted on the need to give more impetus to local innovations.<sup>7</sup> According to him, a local innovation is the crystallised expression of the specific material life of that particular reality. The participation of the local people in further improving and upgrading of that innovation in order to adapt it to their evolving necessities and needs was ensured by their being conversant with the innovation that they themselves had developed. Kosambi's interventions regarding the development model that a country like India ought to choose in the post-independence period placed the people at its centre. It also dealt, unequivocally, with the role of the scientists and the scientific community in this development path. Perhaps for India, on the eve of independence with the euphoria of being a new republic, the dream was to 'catch up' with the West. And without doubt, what Kosambi had to suggest was anathema to the architects of a 'modern India', who in their eagerness to catch up with the West, were looking for quick solutions.

When Kosambi talked about the need to promote localised innovations, which would work as the engine of growth in the rural areas, he had two things in mind. One, to address the question of various hierarchies that have worked as fetters in rural India, and two, the central question of democratisation of science and democratisation of society as issues not isolated but determining each other. In this vision, the dependency of the people on 'external' inputs or 'expert' interventions is minimal. This shows that Kosambi was aware of the need to liberate science from the clutches of hierarchy if it has to really serve the needs of the people, and in the process demystify all forms of labour. This, he argued, would improve the production process, enhance the purchasing parity of the people and create new markets that would become the engine of growth with small-scale industries at the centre of development. It would also lessen the burden on urban centres and improve the living conditions in the rural areas. He further argued that in order to

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<sup>7</sup> D. D. Kosambi (1994), *Science Society and Peace*, Peoples' Publishing House, New Delhi.

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nurture the right scientific temperament, there ought to be hardly any restriction on scientific research.

The contrary opinion was provided most vehemently by none other than Meghnad Saha, who had found in technology the last and only refuge for all problems ailing the Indian economy and society.<sup>8</sup> It was argued that with greater 'development', fuelled by the introduction of capital-intensive technology, problems of poverty and other sources of 'backwardness' would be dealt a final blow.

Thus, be it the urban-rural divide, regional disparities, or the divide between the rich and the poor, virtually everything was shown as the results of an absence of 'proper' science and technology. The problems of caste and religious communalism, 'backwardness', gendered relations of domination and subordination had their roots in the lack of 'technological upliftment'. And, here, technology was understood as something that has to be implanted into a society, not as something a given society is capable of generating through constant innovation and application of skill. It is tackling this 'lack of expertise' that would launch India into the orbit of the 'developed' nations, it was argued, and therefore the rationale and need to borrow expertise from the industrialised West. Thus, while the tyranny of expertise is felt in almost all societies today, in the context of India, this provided the basis for a hierarchized science and technology in which the role of the technocrat as the 'expert' became inevitable, indeed invaluable. This also resulted in new hierarchies of labour, with those who had access to high technology and its science becoming the 'experts', e.g., those who understand the world far better than agricultural labourers or the small scale sector workers who were still languishing in the muck and mire of 'backwardness'. If the latter attained the status of 'incompetence' and of 'poor intellect', what is even more pertinent was the ways in which the role of social relations was mystified.

It was Meghnad Saha who, contrary to the opinion of Kosambi, stressed that it would be not be in the interest of a newborn nation like India to allow all scientific

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<sup>8</sup> S. Mallick, E. Haribabu and S. G. Kulkarni (2005), "Debates on Science and Technology in India: Alliance Formation between the Scientific and Political Elite during the Inter-war Period", *Social Scientist*, Vol. 33, Nos. 11-12, pp. 49-73.

research to be left uncensored. It was essential for the 'national interest' to regulate all forms of research. The ideology of national interest and national security contributed heavily to the regimentation of science and its establishment, with the state becoming the patron of every kind of scientific research and experiment. In a country like India, which was already ridden with the hierarchy of caste, this further strengthened the foundations of feudal oppression and exploitation. Only those having the access and ownership of the technology and its science are considered the 'meritorious' section of the Indian population. Obviously, it is this social engineering which has provided a new sanction to the ideology of caste and the need to maintain its 'purity' by attributing to it the authenticity of technology and technocracy. Technology, especially that which was imported from advanced countries, was to be the panacea for all the problems of post-colonial India. Thus, for example, in the 1960s, it took the American scientists from the Ford Foundation and their High Yield Variety (HYV) hybrid seeds to solve the problem of food-shortage that India was bound to face as per the claims and forecasts of these scientists.

Technology thus was no less than the elixir in the moment of independence, capable of solving all the ills of the Indian economy. The shift towards a 'development model' that depended heavily on big technology, and hence projected big industries as the key vehicles, was treated as the force that would carry the economy forward. This was this understanding of technology and the role of science in society which prompted Nehru to call the big dams, and the big industries, that were constructed with borrowed technology and expertise, as the 'temples of modern India'.

## IV

The idea and practice of eugenics is squarely rooted in the immense power of modern science to control and exploit nature for the prosperity and progress of the human society. Eugenics is an attempt of the ruling class to control and manipulate the very process of natural selection in order to produce an ideal society of *Ubermench*. Eugenics

is based on the belief, legitimized by modern biological sciences, that not only physical characteristics but also intelligence and behaviour of human beings are determined by their genes and that these characteristics are hereditary. The Eugenics Movement, by discouraging mentally and physically 'unfits' from procreating, and by encouraging the 'best and the brightest' with good hereditary qualities to procreate more, seeks to create a society free from all socio-economic problems. Thus, it locates socio-economic problems in human biology.

In my first chapter, I look at the history of Eugenics and Neo-Eugenics to explore the continuities and changes that have marked this movement. I here discuss the socio-economic, political, and scientific factors that shaped the trajectory of eugenics and neo-eugenics ideas and practices in different historical contexts. In the second chapter, I look at the impact of New Reproductive technologies on present human society, dwelling here especially on its impact upon women in India. It is this section of the Indian population that bears the brunt of the misuse of technology. I hope to make clear in this chapter that it is not living women whose lives and health feel the impact of these technologies, but also the ones that are not allowed to live. If eugenics is about controlling what kinds of children are to be born and what kinds of qualities are considered desirable in human beings, then this is most clearly exemplified in the use of NRTs in female sex selective abortions. In the final chapter, I shall map the changes in the perceptions of public health in different historical contexts. I shall here discuss the means by which advancements in molecular biology and human genetics have reaffirmed existing discourse of modern biomedicine that pitch disease and illness at the level of individual biological problems. Molecular biology and human genetics propagate the idea that diseases are caused by genes, thereby effacing the crucial role of social and environmental factors in disease causation. This biological determinism provides a powerful mode of ideological legitimation to neo-liberal economic policies in contexts such as India, where the state has withdrawn from maintaining whatever prior minimal welfare expenditure on health, and leaves it completely at the hands of the market.

## CHAPTER I

### FROM EUGENICS TO NEO-EUGENICS: CONTINUITY AND CHANGE

When we speak of social movements, the most common idea that comes to our mind is the idea of *change*. A social movement is commonly understood as a sustained collective endeavor to bring about change, either partial or total, in the existing social system.<sup>1</sup> It challenges the *status quo*, and therefore the privilege and domination of the ruling classes. However, history has also witnessed social movements which have been oriented towards maintaining and reproducing the *status quo*, in other words, the movements of the ruling classes of the society to maintain and legitimize their privileges. The Eugenics Movement which emerged in the late nineteenth century Europe, is an apt example of this kind of movements.

“Eugenics was essentially a political movement, overwhelmingly confined to members of the bourgeoisie or middle classes, urging upon governments a programme of

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<sup>1</sup> M. S. A. Rao (ed.) (1984), *Social Movements in India: Studies in Peasants, Backward Classes, Sectarian, Tribal and Women's Movements*, Manohar, New Delhi, p. 2.



positive or negative actions to improve the genetic condition of the human race.”<sup>2</sup> The central concern of eugenics was to develop a better human society by raising the fertility of those people who were physically and mentally ‘fit’, and by discouraging those who were mentally and physically defective, to bear children, because eugenics believed that not only physical characteristics but also intelligence and behavior were determined by heredity. Eugenics is usually associated with the ideology of race and with the crimes committed in the name of ‘Racial Hygiene’ during the Nazi era. In the twentieth century, however, eugenics was an important aspect of various social movements and policies of governments in different countries. “It was part of such widely discussed issues as evolution, degeneration, civilization, and modernity, and touched on a wide variety of emerging fields like maternity, psychiatry, criminology, public health, and sex education ... Its main tenets were embraced by social reformers, established intellectuals and medical authorities from one end of the political spectrum to the other.”<sup>3</sup> Before I discuss and analyze Eugenics—I refer here both to the ideas and practices of Eugenics—as it emerged in the late nineteenth century, and the trajectory it took in the following decades, I shall briefly outline the historical context and intellectual discourse that shaped its form and content.

## I

If we were to identify two major events characterizing nineteenth century Europe, they would most certainly be the Industrial Revolution in England and the bourgeois democratic revolution in France. The weight of these two revolutions led to the disintegration of the old feudal social structure and to the concomitant rise of modern capitalist society in Europe. The Industrial Revolution which began in the late eighteenth century England and was confined in the early phase primarily to the cotton industry stimulated rapid economic

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<sup>2</sup> E. J. Hobsbawm (1992), *The Age of Empire 1875-1914*, Rupa & Co., New Delhi, p. 253.

<sup>3</sup> Dikotter, Frank (1998), “Race Culture: Recent Perspective on the History of Eugenics”, *American Historical Review*, Vol. 103, No. 2, p. 468.

growth of England. This phenomenal growth in the cotton industry revolutionized other industries and stimulated a technological revolution.<sup>4</sup> The Industrial Revolution would not have begun without the existence of accumulated capital, and the capital required for the Industrial Revolution to commence was accumulated primarily through commerce, colonial conquest, plunder and exploitation.<sup>5</sup> The colonies of the British Empire became extremely important for its phenomenal economic growth and large-scale industrialization. The colonies provided cheap raw material for the British industries and became markets for its finished products. The other important prerequisite for industrial capitalism was the existence of 'free labour'. "The capitalist system pre-supposes the complete separation of the labourers from all property in the means by which they can realize their labour."<sup>6</sup> Thus free labour means a class of people having nothing but their labour power to sell in the market for a living<sup>7</sup>.

An interrelated set of issues emerged from the fact that nineteenth century Europe in general, and England in particular, witnessed rapid industrialization, growth of big cities and towns, and a population explosion. During this period, people from rural areas migrated on a large scale to towns and cities. "By 1850 more Britons lived in town than in country and almost one-third of Britons lived in cities of over 50,000 inhabitants."<sup>8</sup> The growth of these polluted industrial cities was haphazard and without any planning. The basic public utility services, water supply, sanitation, health services and housing could not keep pace with the rapidly growing population of the cities. The industrial working class was living in inhuman

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<sup>4</sup> E. J. Hobsbawm (1987), *Industry And Empire: From 1750 To The Present Day*, Penguin Books, London.

<sup>5</sup> Leo Huberman (2005), *Man's Worldly Goods: Rise of Western Capitalism*, Ashajyoti Bookseller and Publisher, New Delhi.

<sup>6</sup> Karl Marx (1974), *Capital: A Critical Analysis of Capitalist Production*, Vol. I, Progress Publishers, Moscow, p. 668.

<sup>7</sup> In England, the Enclosure Movement and the poor law reforms contributed significantly to the setting free of wage labourers who were hitherto tied to the feudal social structure. Under the Elizabethan Poor Law, the parish had the duty of providing relief for the indigents; this Poor Law became a hindrance to the development of industrial capitalism as it restricted the mobility of labour and resulted in a huge sum being spent on the poor. In 1834, under the pressure of newly emerging middle class, the Poor Law Amendment Act was passed. This curbed assistance to the able-bodied poor, and freed labour for economic self-interest. Also, significantly, due to the Enclosure Movement, a handful of landlords monopolized the land. The rationalization of agriculture uprooted the peasant labourers and undermined whatever traditional social security they had

<sup>8</sup> E. J. Hobsbawm (1987), *op. cit.*, p. 86.

conditions in these cities.<sup>9</sup> The most obvious consequence of the polluted and inhuman living conditions of the working class in cities was the re-appearance of communicable diseases like cholera, typhoid, intestinal diseases, and airborne, respiratory and waterborne diseases. Due to extremely adverse working and living conditions, the majority of the working class suffered from premature deaths.<sup>10</sup>

In the nineteenth century, the British economy was growing in leaps and bounds. However, this increase in the 'wealth of nation' was the result of growing exploitation of the British working class, along with the flow of resources from the colonies. Appalling poverty, prostitution, suicide, infanticide and alcoholism in the working class existed in the midst of vulgar prosperity of the rich and middle classes. However, the growing affluence of the rich and middle classes was accompanied by a growing working class movement. "The labour movement provided an answer to the poor man's cry."<sup>11</sup> The first half of the nineteenth century witnessed several strikes and protests of the working class. Resistance against oppression and exploitation, undoubtedly, had existed even before the emergence of capitalist society; what was new, according to Hobsbawm, in the labour movement of the early nineteenth century, was class consciousness and class cohesion. "A decent livelihood could not be achieved merely by the occasional protest, as it required the eternal vigilance, organization and activity of the 'movement' –the trade union, the mutual or cooperative society, the working class institute, newspaper or agitation."<sup>12</sup> In its initial period, the

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<sup>9</sup> See E. P. Thomson (1980), *The Making of the English Working Class*, Penguin Books, London, and Fredrick Engels (1987), *The Condition of the Working Class in England*, Penguin Classics, London.

<sup>10</sup> Historical statistical records show a very sharp rise in the population of England and Wales during the 19<sup>th</sup> century. There are many contending explanations for this modern rise of population in England and Wales. Thomas McKeown, a demographic historian, in his study of the modern rise of population, shows that a secular decline in mortality rate in nineteenth and twentieth century England was responsible for phenomenal population growth. He argues that this decline in mortality rate is largely due to declines in deaths from infectious diseases. This decline, he argues, was not due to the intervention of modern medicine. The most important factor, which caused a major share of decline in mortality, was improvements in the environment, including a rise in the standard of living, particularly improved diet and hygienic changes introduced by the Chadwickean sanitary reforms [See T. McKeown (1976), *The Modern Rise of Population*, Arnold-Heinemann, London]. However, due to unavailability of reliable data, McKeown does not provide a class break-up of mortality rate. It is possible, as Thompson rightly argues, that a substantial decline in infant mortality and an increase in life expectancy among several millions in the middle classes and aristocracy masked, in the national average, a worsening position in the working class [See E. P. Thomson (1980), *The Making of the English Working Class*, Penguin Books, London].

<sup>11</sup> E. J. Hobsbawm (1996), *The Age of Revolution 1789-1848*, Vintage Books, New York, p. 209.

<sup>12</sup> *Ibid.*, p. 209.

demands of the working class movement were limited to an increase in wages and improvement in the living and working conditions, along with a host of what could be called social security arrangements. In subsequent years, the overthrow of the exploitative capitalist social order and the establishment of a new socialist society became the central concern of the working class movement. The growing strength of the militant working class movement posed serious threat to the nascent bourgeois social order.

The ruling class of every oppressive and exploitative social organization in human history uses violence, and the threat of it, to curb the resistance and revolts of the oppressed masses. However, the sheer use of violence by the ruling class cannot maintain and reproduce an oppressive social organization for a long period of time. The continued use of violence, moreover, disrupts normalcy, and therefore the production process and results in adverse effects on the wealth of the ruling class. Concurrent to the use of violence and the threat of violence, the most effective and enduring mechanism to maintain and reproduce the position of the ruling class is ideological justification. This is to convince the oppressed, of the legitimacy and inevitability of the existing social arrangement: if the existing social organization is legitimate, then one should not oppose it; if its existence is inevitable, any struggle against it cannot succeed. Gramsci, in his famous essay *The Intellectuals*, develops the concept of hegemony to explain the continued survival of capitalism despite the existence of social and economic conditions for the transition to socialism. He concentrates on two major superstructural 'levels': "The one that can be called 'civil society', that is the ensemble of organisms commonly called 'private' and that of 'political society' or 'the State'. These two levels correspond on the one hand to the function of 'hegemony' which the dominant group exercises throughout society and on the other hand to that of 'direct domination' or command exercised through the State and 'judicial' government".<sup>13</sup> The function of these two 'levels' of superstructure are connected. The institutions of civil society manufacture consent of the oppressed masses. In case of failure of the civil society to manufacture consent, coercive state institutions legally enforce discipline on those groups who do not consent to the existing social arrangement. Marx and Engels wrote in *The German Ideology*,

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<sup>13</sup> Antonio Gramsci (1996), *Selection from the Prison Notebooks*, Orient Longman, Madras, p. 12.

The ideas of the ruling class are in every epoch the ruling ideas, i.e., the class which is the ruling material force of society is at the same time its ruling intellectual force. The class which has the means of material production at its disposal consequently also controls the means of mental production, so the ideas of those who lack the means of mental production are on the whole subject to it. The ruling ideas are nothing more than the ideal expression of the dominant material relation.<sup>14</sup>

In pre-capitalist feudal Europe, this ideological justification came primarily from religion, which was the main source of knowledge about the social and natural world. Everything in that society was seen through the divine light and it was by the grace of god that each person had an appointed place in society. The rise of modern industrial capitalism marked the radical reorganization of social relations and a concomitant rise of bourgeois ideology expressive of these new relations. The ideas of equality and freedom became the revolutionary rhetoric of the emergent bourgeois class in its fight against feudal aristocracy and the church.

The eighteenth century enlightenment thinkers in France had popularized the ideas of equality, freedom, and scientific rationality and prepared people's minds for the coming revolution. "Religion, natural science, society, political institutions –everything must justify its existence before the judgment-seat of reason or give up existence. Reason became the sole measure of everything."<sup>15</sup> The great thinkers of European Enlightenment strongly believed in the secular, rational analysis of both the physical and social world. The famous *Declaration of the Rights of Man and Citizens* adopted by the French National Assembly in 1781 proclaimed the natural rights of citizens, the new idea that all men are equals. Its first article says 'Men are born and live free and equal under laws'. The Declaration of American Independence had also announced that 'all men are created equal; that they are endowed by their creator with certain unalienable rights; that among these are life, liberty, and the pursuit of happiness.' However, in a capitalist society, a great deal of inequality of wealth and power exists among individuals between classes, between genders, between races, and between nations. The marginalized and oppressed sections of society like the working class, women and blacks, although they believed themselves to be so, were never part of this high sounding idea of equality: some were more equal than the others. Engels rightly points out that "this

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<sup>14</sup> Karl Marx and Fredrick Engels (1976), *Collected Works*, Vol. V, Progress Publishers, Moscow, p. 59.

<sup>15</sup> ----- (1978), *On Literature and Art*, Progress Publishers, Moscow, p. 271.

kingdom of reason was nothing more than the idealized kingdom of the bourgeoisie; that this eternal right found its realization in bourgeois justice; that this equality reduced itself to bourgeois equality before the law; the bourgeois property was proclaimed as one of the essential rights of man...”<sup>16</sup>

The ideas of equality and freedom, which were the main ideological weapons of the bourgeoisie in their struggle against feudal aristocracy, also became the ideological source of political struggles of the working class, women and blacks against bourgeois social order. The ideas of equality and freedom, which the capitalist social order claimed to be founded upon, presented a major challenge to the ruling class interests. The ruling class faced the difficult challenge of legitimizing its domination.

In modern capitalist society, subsequently, the institution of science emerged as the main source of legitimating of bourgeois social order. As Scheibinger writes, “if social inequalities were to be justified within the framework of Enlightenment thought, scientific evidence would have to show that human nature is not uniform but differs according to age, race and sex.”<sup>17</sup> It had to be scientifically proven that the oppressed groups of society were biologically inferior. The political struggle for equality, where equality was understood in the framework of the ‘natural rights’ discourse, could be successfully countered only by providing proof of natural inequality. Since the beginning of the nineteenth century, there were attempts to redefine the notion of equality in terms of ‘equality of opportunities’ rather than ‘equality of results’.

It was argued that the artificial barriers to equality in the old feudal society were removed in the new liberal democratic society, where individual citizens have equal opportunities to realize their full potential. Therefore, whatever inequalities of wealth and power exist among individual and between different groups were treated as emerging from innate deficiencies in individuals or groups. However, the argument that we differ in our natural or biological capabilities was not enough to explain the transfer of wealth and status

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<sup>16</sup> Ibid., p. 271.

<sup>17</sup> Londa Schiebinger (1993), *Nature's Body: Sexual Politics and the Making of Modern Science*, Pandora, London, p. 143.

from parents to their children. “The naturalistic explanation then stated that not only do we differ in our innate capacities but that these innate capacities are themselves transmitted from generation to generation biologically. That is to say, they are in our genes.”<sup>18</sup>

I now intend to show, after the short excursion above into the history of nineteenth century Europe, that the histories of modern science and industrial capitalism are dialectically linked. Modern science has shaped, just as it has simultaneously been shaped by, social, political and economic factors of bourgeois society. The social philosophy of methodological individualism defines the dominant perspective of industrial capitalism and modern science. The methods and modes of explanation used by modern science are reductionist in nature. The reductionist approach of science explains the properties of the units of a whole as ontologically prior to that whole. “That is, the units and their properties exist before the whole, and there is a chain of causation that runs from the units to the whole”.<sup>19</sup> This reductionist / positivist approach of modern science is most clearly articulated in biological sciences. Descartes’ analogy of the human body as a machine has ceased to be a mere metaphor. It is believed that as individuals are determined by their genes, and human society is a collection of individuals, society, and its various institutions are products of individuals’ biology. Set in such a frame, “when our biology determines our social organization, including the inequalities of status, wealth and power, then nothing can change this social organization or the position of individuals or groups within it, except advanced genetic engineering”.<sup>20</sup> Argued thus, it is no wonder that *biology is destiny*.

The dialectical relationship between the dominant perspective of natural science and social science, which is rooted in the social philosophy of methodological individualism of bourgeois social order, is visible in striking similarity between classical political economy and Darwin’s evolutionary theory. The basic premise of classical political economy believes in the fixed human nature, an idea drawn from Hobbes. Hobbes claimed that the state of nature was ‘the war of all against all’ for finite resources. This state of nature manifests in

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<sup>18</sup> R. C. Lewontin (1991), *Biology as Ideology: The Doctrine of DNA*, Harperperennial, New York, p. 22.

<sup>19</sup> R. C. Lewontin, S. Rose and J. Kamin (1984), *Not in Our Genes: Biology Ideology and Human Nature*, Pantheon Books, New York, p. 6.

<sup>20</sup> R. C. Lewontin (1991), op. cit., p. 18.

competitiveness, aggression, mutual fear, and the desire for success in human relations. Human beings enter into a social contract to regulate these inevitable features of human nature. Hobbes' view of human nature was rooted in his understanding of human biology; to him, biology is what made humans the way they were.

The perspective of classical political economy comprehends society as a collection of individuals who exchange their products in the market. Self-seeking and profit-maximization are seen as the natural characteristics of human beings. Adam Smith, the most famous classical political economist, advocated laissez-faire economy where the state does not interfere in the functioning of the market. A state of maximum benefit can be achieved when all participants are left free to pursue their own interests. Thomas Malthus, a very influential political economist of nineteenth century England, in his famous work *An Essay on the Principle of Population*, tried to show that poverty was a natural phenomenon and that the poor themselves were responsible for their poverty. He argued that "the power of population is indefinitely greater than the power of the earth to produce subsistence for man. He argued that population, when unchecked, increases in a geometric ratio, whereas subsistence increases only in arithmetic ratio."<sup>21</sup> When the population grows beyond a point where subsistence cannot be provided to everyone, its growth is controlled by two methods—one, he called the positive checks, i.e., hunger, famine and pestilence, and the other, preventive check, i.e., a foresight of the difficulties attending the rearing of a family acts as a preventive.<sup>22</sup>

Malthus was against any kind of welfare measures to alleviate the condition of poor, for, according to him, it was against the law of nature. He was an ardent critique of the Poor Laws, a welfare programme organized at the parish level for the poor and disabled people. He played an influential role in the passage of the Poor Law Reforms Bill in 1834. The rapidly growing industries in urban areas required free movement of human labour. To facilitate a free movement of labour, he favoured the abolition of parish laws, for these laws tied the poor to their respective parishes. He also recommended workhouses for the

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<sup>21</sup> Cited in Mohan Rao (1994), "An Imagined Reality: Malthusianism, Neo-Malthusianism and Population Myth", *Economic and Political Weekly*, Vol. XXIX, No. 5, p. PE41.

<sup>22</sup> Ibid.



‘deserving poor’. In short, Malthus opposed all welfare programmes to alleviate the condition of poor. According to him, poverty was a natural condition and nothing can be done about it.

The Malthusian ideas of finite resources and competition among human beings show its imprints on Darwin’s theory of organic evolution. Darwin’s theory captured the imagination of both the scientific and non-scientific world. This was not because the idea of evolution was new; the evolutionary world-view already permeated natural and social science. What Darwin did was to provide for the first time, “a satisfactory explanatory model for the origin of species, and did so in terms which were entirely familiar even to non-scientists, since they echoed the most familiar concept of liberal economy, competition.”<sup>23</sup>

Darwin himself acknowledged this fact when he wrote in his autobiography:

In October 1838...I happened to read for amusement Malthus on population, and being well prepared to appreciate the struggle for existence which everywhere goes on from long continued observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved and unfavourable ones to be destroyed. The result of this would be the preservation of new species.<sup>24</sup>

According to Darwin, the differences within species and differences among species are linked in space and time. The first kind of differences is converted into the latter difference. The mechanism of Darwin’s theory of organic evolution is based on three propositions:

- I. The principle of variation—individuals within a species vary.
- II. The principle of heredity—offspring resemble their parents.
- III. Organisms produce more offspring than can possibly survive—the principle of natural selection.

Darwin suggested that evolution occurs on the basis of these three propositions. Offspring that are better adapted to the environment will survive and propagate, and natural selection will lead to the accumulation of favorable or better adapted variations. The struggle

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<sup>23</sup> E. J. Hobsbawm (1992), *The Age of Capital 1848-1875*, Rupa & Co., New Delhi, p. 297.

<sup>24</sup> Cited in Stephen Jay Gould (1991), *Ever Since Darwin: Reflections in Natural History*, Penguin Books, London, p. 21.

for existence provides the dynamics for organic evolution. Some variants produce more offspring for they are better able to appropriate resources in short supply.<sup>25</sup> Before Darwin, Lamarck's theory of evolution argued that organisms respond creatively to meet the demands of the environment and pass acquired traits to offspring. This mechanism of evolution is termed as 'transformational', where species evolve because every individual in a species undergoes a similar transformation. Darwin's theory of evolution is variational; individuals within a species vary in physiology, morphology, and behavior. However, the theory of natural selection might "...cause the population to lose variation as the superior type comes to characterize the species."<sup>26</sup>

Darwin was aware of this problem and there was a time when he tried to flirt with Lamarck's view that acquired traits could be inherited. Mendel's theory of heredity provided a solution for this problem. According to Mendel's theory of heredity, parents pass the factors (now we call them genes) to offspring in heredity and these "genes maintain their individuality despite their interaction with other genes in the development of an organism."<sup>27</sup> These genes separate themselves in the process of sperm and egg cell formation. This is the principle of segregation. These principles of Mendelian theory guaranteed that "if different variants in a population mate, even though their immediate offspring may be uniform and intermediate between the parents, in later generation the variation will reappear as a consequence of segregation. Thus new variation will not be submerged and diluted by the process of mating but will always be available for selection."<sup>28</sup>

The cause of variation among organisms, according to Darwin's theory of evolution, lies inside the organism and is independent of outside environment. The cause of variation is genetic mutations and these mutations are random, i.e. they are not predirected in favourable ways. Thus, the mutations in genes that give rise to variations are causally independent of the environmental factors. This separation of inside from outside in the

<sup>25</sup> Richard Levins and Richard Lewontin (1985), *The Dialectical Biologist*, Harvard University Press, Cambridge, Massachusetts, and London, p. 33

<sup>26</sup> R. C. Lewontin (2000), *It Ain't Necessarily So: The Dream of the Genome and Other Illusion*, Granta Books, London, p. 80.

<sup>27</sup> *Ibid.*, p. 82.

<sup>28</sup> *Ibid.*, p. 82.



process of evolution led to the development of a reductionist approach in modern biology. Darwin's theory of evolution completed the "unfinished Cartesian revolution that demanded a mechanical model for all living processes."<sup>29</sup>

Darwin's theory of evolution influenced the structure of ruling ideas of his time; at the same time it was influenced by these ideas. Darwin, by bringing human beings into the fold of the evolutionary scheme, challenged the special status of human beings, who were believed to be created in God's image. The idea that human beings have evolved from 'lower' forms of life invited serious opposition from religious forces. Darwin's materialist explanation of the evolution of organism by natural selection further undermined religion as a source of legitimate knowledge of the social and natural world. The interpretation of Darwin's theory in terms of the well established evolutionary world view of the nineteenth century provided a very potent ideological tool in the hands of ruling classes.<sup>30</sup>

The idea that life has undergone evolution did not originate in the works of Darwin. The ideology of evolutionism was a general world view in the nineteenth century bourgeois social order. The emerging industrial society was characterized by the ubiquity of change, which was incompatible with the world view of the decaying feudal system. The world of feudal system, in which lord and peasant alike were tied to land, treated changes in the natural social world as abnormal, occasional and the result of divine intervention. The ubiquity of change in nineteenth century capitalist society gave rise to the evolutionary world view which encompasses the ideas of change, order, direction and progress. The direction of the process of evolution was supposed to be from simple to complex. "Spencer (1862) in his 'First Principles' declared that the evolution of the cosmos, of organic life, and of human society, all progress from the homogenous to the heterogeneous, from the simple to the

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<sup>29</sup> Ibid., p. 66.

<sup>30</sup> Darwin did not use the term 'evolution' to describe his theory, for in biology, evolution describes the theory of embryology that was incompatible with Darwin's understanding of organic development. He used the term 'descent with modification' to describe his theory. He rejected the idea of evolution as inherently progressive. He argued that evolution has no direction; it does not lead inevitably to higher things. Natural selection leads organisms to better adaptation to their environments, and that is all there is to the process of evolution. See Stephen Jay Gould (1991), op. cit.

complex”<sup>31</sup>, it was also argued that complexity led to stability. This emphasis on complexity and stability in evolutionary theory served an ideological purpose. After the overthrow of feudal social relation and the consolidation of bourgeois social order, change had to be tamed both in society and in science. The idea of progress was central to nineteenth century evolutionary theory. The process of evolution was understood as movement from worse to better, from inferior to superior. Spencer equated progress with change itself. He believed that progressive changes had taken place in various social institutions and the organic world. When the idea of natural selection, competition, struggle for limited resources and the survival of the fittest combined with the ideology of evolutionism, it gave rise to Social Darwinism and Eugenics. The Social Darwinism draws an analogy between unrestrained competition in *laissez-faire* capitalism and competition among organisms for limited resources, and thus legitimizes various kinds of inequalities existing in capitalist society as natural/biological.

Eugenics was intimately connected to the idea of ‘race’ and racism. The origin of the modern idea of race and racism can be traced back to the framework of Enlightenment thought. The development of the idea of race which was closely connected to the social, political, economic and scientific changes taking place in Europe, has broadly two phases to it. Eighteenth century racial groupings were generally fluid, as the environment, especially climate, were seen as producing physical features and other characteristics. This idea of race, too, was used to justify colonial rule of the effeminate and fatalistic natives, made so by their tropical climatic conditions by the warlike and hardworking British, again, made so by their cold and harsh climate.<sup>32</sup>

But this idea of race came to be replaced by biologically essentialist ideas of race from the 1820s. In the second half of the nineteenth century, this so called science of evolutionism and the idea of ‘survival of the fittest supplied’ more scientific justification to the biological essentialist idea of race. Human beings, the world over, were classified into

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<sup>31</sup> Richard Levins and Richard Lewontin (1985), op. cit., p. 16.

<sup>32</sup> Pati, Biswomoy and Mark Harrison (eds.) (2001), *Health, Medicine and Empire: Perspectives on Colonial India*, Orient Longman, New Delhi

racial categories, with an assertion that physical and cultural characteristics were biologically and genetically determined—the white race of Europe, placed at the top of this evolutionary scale, therefore had a legitimate right to rule the inferior races. This provided the ultimate rationalization of colonial exploitation and dominance. It is in this context that Anthropology, Anthropometry, Ethnology, etc became important fields of knowledge.

## II

The ‘science’ of eugenics emerged in the second half of nineteenth century England, in a context when it was believed that biology was destiny. In 1883 Galton, a cousin of Darwin’s, introduced the term ‘eugenics’, derived from Greek word *eugenes*, meaning ‘wellborn’ or ‘of noble birth’. Darwin’s followers believed that the process of natural selection by eliminating unfit led to the constant improvement of organism. But in the modern human civilization, it was argued, the process of natural selection had been suspended which was leading to the degeneration of human society. Darwin himself wrote in *The Descent of Man*:

We do our utmost to check the process of elimination; we build asylums for the imbecile, the maimed, and the sick; we institute poor-laws and our medical men exert their utmost skill to save the life of every one to the last moment... Thus the weak members of civilized societies propagate their kind. No one who has attended to the breeding of domestic animals will doubt that this must be highly injurious to the race of man.<sup>33</sup>

Darwin, in his *Origin*, had discussed the artificial breeding of domesticated plants and animals by farmers to produce better strains. Galton argued that human evolution could be guided in the same fashion, by giving “the more suitable races or strains of blood a better

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<sup>33</sup> Charles Darwin (1913), *The Descent of Man and Selection in Relation to Sex*, John Murray, London, p. 159.

chance of prevailing speedily over the less suitable.”<sup>34</sup> Galton declared that ‘what nature does blindly, slowly and ruthlessly, man may do providently, quickly and kindly’. In *Hereditary Genius*, published in 1869, he attempted to show that not only physical features but also mental abilities, behavior and character were determined by heredity. In his lecture to the sociological society in 1904, Galton defined eugenics as “the science which deals with all influences that improve the inborn quality of a race, also with those that develop them to the utmost advantage.”<sup>35</sup> The other definition of eugenics by Galton, which was later accepted by the eugenics education society after lengthy debates, described it as “the study of agencies under social control, that may improve or impair the racial qualities of future generations, either physically or mentally.”<sup>36</sup> However, Galton himself preferred the first definition.<sup>37</sup>

The improvement of the quality of the human population was the central concern of the eugenicists. The best and the brightest with good hereditary qualities should be encouraged to have large number of children (positive eugenics) while those with hereditary disabilities should be discouraged from procreating (negative eugenics).<sup>38</sup> In the early twentieth century, eugenic ideas became very popular among the middle and upper classes of British society, for it legitimized their privileged position in hierarchical social relations by making it seem natural. The eugenic education society was established in 1907; “the aims of the eugenic education society in 1907 included promoting the national importance of eugenics especially in relation to the domination of parenthood by eugenic ideals, the spreading of knowledge of the laws of heredity as applied to the improvement of the race, and the furthering of eugenic teaching in schools and elsewhere.”<sup>39</sup> The majority of the members of the eugenic education society came from professional middle classes, particularly from the scientific profession.

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<sup>34</sup> Cited in Daniel J. Kevles (1995), *In the Name of Eugenics: Genetics and the Use of Human Heredity*, Harvard University Press, Cambridge, Massachusetts, and London, p. xiii.

<sup>35</sup> Francis Galton (1909), *Essays in Eugenics*, The Eugenics Education Society, London, p. 35.

<sup>36</sup> Cited in Germaine Greer (1984), *Sex and Destiny: The Politics of Human Fertility*, Seekers and Warburg, London, p. 259.

<sup>37</sup> Ann Oakley (1991), “Eugenics, Social Medicine and the Career of Richard Titmuss in Britain 1935-50”, *British Journal of Sociology*, Vol. 42, No 2, p. 167

<sup>38</sup> Donald MacKenzie (1976), “Eugenics in Britain”, *Social Studies of Science*, Vol. 6, No. 3/4, Special Issue: Aspects of the Sociology of Science: Papers From a Conference, University of York, UK 16-18 September 1975, pp. 499-532.

<sup>39</sup> Ann Oakley (1991), *op. cit.*, p. 167.

In Britain, eugenics was the ideology of the professional middle classes, and the content of the eugenic ideas reflected the social base of the eugenic movement.<sup>40</sup> In the first three decades, the advancement of the interest of the professional middle classes was the central concern of eugenic programmes. The eugenicists tried to influence the movement for family allowances throughout the 1920s and 1930s in favour of middle classes, because their stated goal was to raise the fertility rate of these classes. They critiqued the provision of flat rate payment of allowances, for it would mostly benefit the poor working class population, and therefore would be dysgenic for the whole society.<sup>41</sup> The Eugenic Society also demanded greater tax relaxation for middle classes and exemption from the payment of school fees for their children. The eugenic movement did not approve of the welfare measures of the state for poverty alleviation. During this period, various studies established the connection between ill health and poverty.<sup>42</sup> Eugenics does not see poverty as a structural problem; it understands poverty as a natural phenomenon determined by individual's biology. For instance, Paton and Findlay 'were of the opinion that the higher infant mortality and rate of disease among working-class children was due to child neglect and ignorance—the result of hereditary feeble-mindedness.'<sup>43</sup>

Eugenic ideas were central to the creation of I.Q. tests to measure individual intellectual endowments. The results of these I.Q. tests revealed that the majority of the working class population was of low intellectual capabilities and they were branded feeble minded. It was argued that most of the social problems were the product of a feeble minded working class population. As urban crisis deepened in the late nineteenth and early twentieth century, a distinction was made between respectable working class and the residuum. The residuum was treated as the 'social problem group'—this group was seen not as only dangerous for social order but also as causing physical and mental degeneration of society as a whole.<sup>44</sup>

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<sup>40</sup> Donald MacKenzie (1976), op. cit., p. 505.

<sup>41</sup> Jones, Greta (1982), "Eugenics and Social Policy between the Wars", *The Historical Journal*, Vol. 25, No. 3, pp. 719.

<sup>42</sup> Ibid., pp. 717-728.

<sup>43</sup> Ibid., pp. 720.

<sup>44</sup> Donald MacKenzie (1976), op. cit., p. 515.

The heavy losses suffered by British troops in the Boer war (1899-1902) raised serious doubts about the physical fitness of the army. In this period of fierce inter-imperialist competition, Britain could maintain her empire only through a physically fit and loyal working class. The improvement of physical fitness and moral strength of the working class population became the basis for various social reforms in the coming decades. The eugenicists argued that due to advancement in medical science, charity and sanitary reforms, natural selection was not working in British society; this had resulted in the survival of physically and mentally degenerated people. "National fitness for this (inter-imperialist) struggle was necessary. This had previously been ensured by natural selection, but under the condition of modern civilization a replacement for natural selection had to be found in conscious eugenic selection."<sup>45</sup> The solution proposed by the eugenicists included institutional segregation of genetically 'unfit' population, and prevention of procreation among this group through eugenic sterilization. The eugenic movement in England witnessed a protracted campaign for the passage of a eugenic sterilization law. It could however not succeed because of a strong working class movement.

Eugenics has been largely identified with right wing and conservative approach to the social problems. However, in the early decades of the twentieth century many progressive thinkers were also a part of it. Fabian socialists like Beatrice and Sidney Webb, G. B. Shaw and Havelock Ellis believed in the improvement of the genetic stock of the human race through selective breeding. G. B. Shaw argued that 'there is now no reasonable excuse for refusing to face the fact that nothing but a eugenic religion can save our civilization'; Eden Paul that "unless the socialist is a eugenicist as well, the socialist state will speedily perish from racial degradation' and H. J. Laski that 'the different rates of fertility in the sound and pathological stocks point to a future swamping of the better by the worst. As a nation, we are faced by race suicide.'<sup>46</sup> What is interesting is that the ideology of eugenics is incompatible with the socialist and liberal democratic ideas. Socialist ideas recognize the importance of environmental influences and believe in the equality of human beings. The ideology of

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<sup>45</sup> Ibid., p. 516.

<sup>46</sup> Cited in Diane Paul (1984), "Eugenics and the Left", *Journal of the Historical Ideas*, Vol. 45, No. 4, p. 568.



liberal democracy celebrates the rights of individuals to realize their full potential and treats procreation as an entirely private affair. However, in the early twentieth century context, progressive ideologies were able to assimilate eugenic ideas.<sup>47</sup>

In America, at the turn of the twentieth century, in a context of growing economic and social problems following the Civil War, the eugenic ideas of Galton were received by middle class scientific professionals and social reformers with great enthusiasm. They strongly believed, like their European counterparts, that most of the social and economic problems could be solved through the use of the tools of science and technology. Eugenics of Galton and Karl Pearson was based on statistical studies of variation and inheritance which was called *biometry*. Eugenics in America based itself largely on Mendelian principles of hereditary, which became popular among American biologists after its rediscovery in 1900. Davenport, the father of American eugenics, unlike Galton and Pearson, who gathered data on what geneticists came to call 'phenotype' – the observable characters of organisms, was interested in the 'genotype' – the individuals genetic make-up. On the basis of his studies of large data on the family pedigrees, Davenport concluded that human traits like insanity, epilepsy, alcoholism, pauperism, criminality and feeble mindedness were hereditary.<sup>48</sup> Henry Herbert Goddard, in his work *The Kallikak Family: A Study in the Heredity of Feeble-mindedness* (1912), showed that talent and feeble-mindedness ran in the family. In this story, a respectable Quaker called Martin Kallikak had a son from a brief illegitimate relationship with a genetically defective young woman. Later this man married a respectable woman. This legitimate line, over generations, produced many eminent personalities; the illegitimate line, however, produced notorious misfits and drunkards.<sup>49</sup> This work of Goddard, which became a classic of modern psychology, played a very crucial role in shaping the eugenic thinking of the middle classes.

In the U.S.A., the last quarter of the nineteenth century saw a massive expansion in industrial production and large- scale migration, mostly from eastern and southern Europe.

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<sup>47</sup>Michael Freedman (1979), "Eugenics and Progressive Thought: A Study in Ideological Affinity", *The Historical Journal*, Vol. 22, No.3, p. 650.

<sup>48</sup>Daniel J. Kevles (1995), *op. cit.*, p. 46.

<sup>49</sup>Harry Brunius (2006), *Better for All the World: The Secret History Forced Sterilization and America's Quest for Racial Purity*, Alfred A. Knopf, New York, p. 204.

The blatant exploitation of working class and their inhuman living and working condition created large- scale labor unrest in the country. The American eugenicists manufactured data to show that most of the blacks and immigrants from other countries carried defective 'germ plasma' which was causing the degeneration of the racial purity of the nation. Davenport expected that the new blood would rapidly make the American population "darker in pigmentation, smaller in stature, more mercurial...more given to crimes of larceny, kidnapping, assault, murder, rape, and sex-immorality."<sup>50</sup> The eugenics placed the cause of social problems in the defective germ plasma of individuals and ethnic groups, and not in the structure of society itself.

In the U.S.A., involuntary sterilization, immigration restriction and marriage regulation became the focus of eugenic programmes to restrict the reproduction of genetically defectives. In 1907, the first sterilization law was implemented in the state of Indiana; in the next two decades, more than thirty states in the USA passed sterilization laws. The procedure of sterilization was first developed in the late nineteenth century by American doctors who wanted to deprive male 'hereditary criminals' of their reproductive capabilities. Later, this rationale was expanded to include any other type of 'social undesirable' especially the feeble-minded female.<sup>51</sup> The large-scale state-sponsored eugenic sterilization programme caused outrage and invited many legal challenges. However, the judgment of the US Supreme Court in the case of Carrie Buck in 1927, upheld the sterilization laws enacted by different states to sterilize the genetically defective population.

Carrie Buck was an illegitimate child of Emma Buck and both mother and daughter lived in the Virginia Colony for epileptics and feeble-minded. Carrie Buck gave birth to a girl before marriage and therefore, "she was given the Stanford revision of the Binet-Simon I.Q. test and was found to have a mental age of nine years, well within Henry Goddard's definition of 'Moron'."<sup>52</sup> The board of directors of the Virginia Colony decided to sterilize Carrie Buck on eugenic ground and the Supreme Court of the US finally approved this decision. Supreme Court Justice Oliver Wendell Holmes wrote in his judgment, "It is better

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<sup>50</sup> Cited in Daniel J. Kevles (1995), *op. cit.*, p. 47.

<sup>51</sup> Harry Brunius (2006), *op. cit.*, p. 10.

<sup>52</sup> Daniel J. Kevles (1995), *op. cit.*, p. 110.

for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. The principle that sustains compulsory vaccination is broad enough to cover the fallopian tubes... Three generations of imbeciles are enough.”<sup>53</sup>

In the name of eugenics, several thousand Americans, mostly poor women, were sterilized against their will. The American eugenicists were convinced that unrestricted immigration had genetically deleterious effects on the population. They initiated massive campaigns for the enactment of laws to restrict immigration. Working within the Mendelian framework, they argued that defective germ plasma coming with immigration would remain in the population forever. They proposed that the family pedigrees of all immigrants ought to be investigated, and people with genetic defects not be allowed to enter the country. I.Q. tests were devised to screen immigrants. In the first two decades of the twentieth century, many states in the US passed laws to prohibit marriage of the feeble-minded and other mentally ill people, who were controlled by segregating them in asylums. The eugenicists influenced the debate on immigration restriction in the Congress. In 1924, the immigration act was passed by an overwhelming majority; this severely restricted immigration from eastern and southern Europe.

Today, the word eugenics, is usually considered a pejorative term, because of the horrendous crimes committed in Nazi Germany in its garb. Undoubtedly, the violence of the Nazi eugenics programme is unparalleled, but equating eugenics only with Nazi Germany, which is done most often, is a narrow view of the broader and diverse history of eugenics. In Nazi Germany, eugenics was overtly associated with racism and was practiced in the name of Racial Hygiene. Even before Hitler's rise to power in 1933, eugenics was part of popular political discourse in Germany. In the pre-Nazi period, the debate on eugenics bore the influence of the strong social democratic movement in Germany. The socialist movement critiqued the unrestrained *laissez-faire* capitalism and forced the German state to implement various social welfare programmes. In the first two decades of the twentieth century, well-known German eugenicists like Wilhelm Schallmayer, Otto Ammon and Alfred Ploetz

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<sup>53</sup>Cited in Harry Brunius (2006), op. cit., p. 21.

agreed with their counterparts in other countries that social welfare programmes interfered in the process of natural selection by preserving the genetically defectives, and therefore, was the cause of societal degeneration. But they were not in favour of unrestrained capitalist competition, and the eugenic measures suggested by them were not overtly coercive and racist. Wilhelm Schallmayer advocated “for a system of voluntary eugenics, in which individuals would, through education, make careful decision about the desirability of having large number of children. He insisted upon humane methods, and he saw no correlation between a biological interpretation of society and right wing politics.”<sup>54</sup>

However, by the late 1920s, with the growing political power of National Socialism under Hitler, eugenics in Germany emerged as the Racial Hygiene Movement. This was explicitly racist and anti-Semitic. The stated goal of Nazi eugenics was to create a ‘Master Race’ which would rule the world. The influence of Nietzsche on Nazi obsession with Master Race is well known. His *The Will to Power* ‘can be read as a variant of Social Darwinism, a discourse conducted in the language of ‘natural selection’, in this instance selection destined to produce a new race of ‘superman’ who will dominate human inferiors as man in nature dominates and exploits brute creation’.<sup>55</sup>

The Nazi eugenic programmes focused on preventing the genetically unfit from reproduction. The German Sterilization Law was passed in 1933. This law, in the beginning, focused only on physical problems. A bureaucratic mechanism was developed to identify hereditary defectives and a special ‘Hereditary Health Court’ was established throughout the country. Within one year of the passage of the sterilization law, tens of thousands of people were sterilized against their wish. By November 1934, the Nazi state expanded the law to cover the feebleminded. By September 1935, the Nazi state began to pass a number of new Racial Hygiene laws. First came the ‘*Law for the Protection of the German Blood and German Honor*’ which specifically banned any marriage or sexual relationship between a German and a Jew. Then, they passed the ‘*Law for the Protection of the Genetic Health of the German People*’, which made it mandatory to have a certificate of racial purity to obtain

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<sup>54</sup>Loren R. Graham (1977), “Science and Values: The Eugenics Movement in Germany and Russia in the 1920s”, *American Historical Review*, Vol. 82, No.5, p. 1136.

<sup>55</sup>E. J. Hobsbawm (1992), *The Age of Empire 1875-1914*, Rupa & Co., New Delhi, pp. 252-3.

a license for marriage.<sup>56</sup> Millions of people, which included Jews, feeble-minded, physically handicapped, communists, homosexuals, etc., were forcibly sterilized in the following years in the name of Racial Hygiene. The Nazi obsession with racial hygiene ultimately led to the Holocaust in which six million Jews were executed in various Concentration Camps.

Nazi Germany emulated the American model of eugenics sterilization. The first German Sterilization Law, the '*Law for the Prevention of Genetically Diseased Offspring*' was largely based on Laughlin's Model Sterilization Law. Harry Laughlin was a close associate of Charles Davenport. Laughlin became America's foremost expert in the field of eugenic sterilization. In 1936, Heidelberg University awarded Laughlin an honorary doctorate degree for his many contributions to 'Racial Hygiene'.<sup>57</sup> Although Nazi racial policies were critiqued by a large number of American people for its unabashed anti-Semitism, a significant number of doctors and scientists praised Germany's rigid enforcement of sterilization law. Ironically, after the Second World War, at the famous Nuremberg Trials, Nazi doctors defended themselves by citing American precedents.

The eugenic ideas prevalent in the west captured the imagination of the western educated middle class Indians. The colonial rule brought with it a sense of inferiority complex among the Indian ruling elite. Thus, the desire to build a strong nation shaped Indian eugenics. The Indian eugenicists believed that only healthy parents could produce healthy children and only healthy children could build a strong nation. In the 1920s and 1930s many eugenics associations were established across India. These associations held public meetings, opened libraries, published pamphlets and provided eugenic counseling and contraceptive advice. The Indian eugenicists differentiated themselves from their western counterparts by arguing that India had a long tradition of eugenic ideas and practices. They argued that ancient Hindu texts carried elaborate eugenic ideas. Caste endogamy was cited as an example of eugenic practices. Indian eugenicists focused mainly on caste based arranged

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<sup>56</sup> Harry Brunius (2006), op. cit., p. 282.

<sup>57</sup> Ibid., p. 17.

marriage. By the 1940s, majority of the Indian eugenicists shifted to birth control programme.<sup>58</sup>

In the 1930s, eugenics was increasingly subjected to severe criticism from both the scientific and non-scientific world for its pseudo-scientific basis and its race and class prejudices. Biologists like Haldane, Muller and Hogben argued that advancement in human genetics had completely destroyed the scientific basis of mainline eugenics. The efficacy of eugenic sterilization in reducing genetically defective population was seriously questioned. It was argued that “one could reduce the incidence of such diseases by sterilizing people who were homozygous to the recessive trait... but single recessive genes would continue to be transmitted by the more numerous heterozygous members of the population in whom the trait was not expressed.”<sup>59</sup> By then, most geneticists had come to understand that normal persons also carried defective genes which may manifest themselves in the coming generations.

In this period, a new kind of eugenics emerged which was called ‘Reform Eugenics’. Frederic Osborn in the US, and C. P. Blacker in England became champions of Reform Eugenics. Reform eugenicists argued that in a class society, it was difficult to assess decisively whether it was inaccessibility of proper housing, medical care, education, and employment opportunities or the heredity of individuals which determined their physical and mental fitness. When environmental influences would be more or less equalized for all classes, only then could eugenics help human society in any meaningful way.<sup>60</sup>

A major opposition to mainline eugenics came from the Catholic Church, which considered eugenics as an intruder into the traditional sphere of religious authority and as a competing secular ideology. The Catholic Church also campaigned against the use of sterilization and contraceptives as techniques of negative eugenics.<sup>61</sup> Stella Browne, a socialist feminist from UK, attacked the Eugenic Society for its class and gender prejudices

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<sup>58</sup> Sarah, Hodges (2006), “Indian Eugenics in an Age of Reform”, in Sarah Hodges (ed.), *Reproductive Health in India: History, Politics, Controversies*, Orient Longman, New Delhi.

<sup>59</sup> Daniel J. Kevles (1995), op. cit, p. 164.

<sup>60</sup> Ibid., pp. 164-75.

<sup>61</sup> Donald MacKenzie (1976), op. cit., p. 22.

and argued that the more important issue was for women to have control over their own fertility.<sup>62</sup>

In the 1940s, new discoveries in human genetics exposed the poverty of the scientific basis of the eugenics movement. Herman Muller in the early 1940s discovered the mutation of genes. He showed that human genome was constantly changing due to mutation, which was random and spontaneous. Also, the Nazi atrocities on the Jews in the name of racial hygiene brought severe disrepute to eugenics. After the Second World War, eugenics became a pejorative term and was identified with racism. However, eugenics did not die out. It was in this period that the myth of a global population explosion was created and most of the eugenicists shifted to the birth control programme.

### III

The revelation of crimes committed in the name of eugenics during the Nazi period, discredited the methods propagated by eugenicists and employed by state, particularly the method of forced sterilization. The eugenic ideas of creating a better human race, however, did not die out, because the historical context of industrial capitalism, which gave rise to eugenics, remained more or less unchanged. In the post second world war period, the leaders of eugenic movement realized the difficulty in pursuing eugenic activity through traditional means. They now turned to what they called 'crypto-eugenics' or population control. In 1956, Dr. C. P. Blacker, the secretary of the British Eugenic Society, suggested that "the Society should pursue eugenic ends by less obvious means, that is by a policy of crypto-eugenics, which was apparently proving successful in the U.S. Eugenic Society."<sup>63</sup> The population 'explosion', particularly in the third world countries in the post second world war

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<sup>62</sup> Sheila Rowbotham (1977), *A New World for Women: Stella Browne-Socialist Feminist*, Pluto Press, London.

<sup>63</sup> Cited in Germaine Greer (1984), *op. cit.*, p. 278.

period, attracted the attention of the Anglo-American eugenicists. They saw the rapid growth of population in the third world as the main source of social problems. They argued that the population explosion in these countries, which suffered from large-scale poverty, unemployment, inadequate food supply, housing, education and medical care, was dysgenic in its effects. To control the high growth of population, the eugenicists advocated technology-driven, state sponsored population control programmes in the third world countries.

The emerging new world order after the second world war was characterized by a radical re-alignment of the balance of economic and political power, with the ascendancy of the United States as the dominant power of the capitalist world, and the concomitant consolidation of the Soviet Union. This restructuring of the world order also stimulated the process of political independence of many colonies including India. The western capitalist countries perceived a danger in the potential alignment of these poor and backward countries with the Soviet bloc, and thereby, of jeopardizing the economic interests of the first world.<sup>64</sup> The urgent need of controlling and directing the socio-economic social movement of the third world countries was addressed by outlining a master programme of promoting a few specific kinds of development through state intervention and international assistance, mainly from the advanced capitalist countries.<sup>65</sup>

The discourse of the socio-economic development of the third world was preoccupied with the rapidly growing population of these countries. In the 1950s, demography became a major discipline in the US. The leading demographers of this period, influenced by neo-Malthusianism, argued that over-population was the major impediment to the socio-economic development of these backward societies. According to demographic transition

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<sup>64</sup> Hamza Alavi and Teodor Shanin (1982), *Introduction to the Sociology of 'Developing Societies*, Macmillan Press Ltd., London.

<sup>65</sup> This approach to the development of the third world countries is generally called modernization theory. This approach assumes that all societies follow the same path of development. Thus, in order to become a developed society, the third world countries ought to adopt the institutions and technologies of western capitalist societies. "Modernization was viewed as a natural process rather than one linked to political projects...America assumed a new imperial role displacing earlier imperial regimes." See Nicholas B. Dirks (2002), *Castes of Mind: Colonialism and the Making of Modern India*, Permanent Black, New Delhi, p. 53.



theory, in the western capitalist societies, the socio-economic factors determined the decline of both the death rates and the birth rates.<sup>66</sup> In the third world, neo-Malthusian demographers argued that a rapid decline of mortality was achieved through technological imports such as antibiotics, immunization and insecticides rather than through socio-economic development. Therefore, fertility decline in the third world could similarly be achieved through modern biomedical technology.<sup>67</sup>

In the early 1950s, India embarked upon one of the world's biggest family planning programmes, partly funded by the Ford Foundation and the Rockefeller Foundation. The founding fathers of independent India saw the control of population growth to be a major task of the process of nation- building. Population growth was treated as an independent variable which determined the socio-economic development of Indian society. The population control programme targeted the poor, who were blamed for producing large number of children. In the 1970s, when the euphoria generated in the wake of independence evaporated, and the legitimacy of the Indian state was questioned by various people's movements, the population control programme became overtly coercive. During the Emergency (1975-77), mass sterilization programme was vigorously pursued by the Indian state, and all developmental efforts were subordinated to the population control programme. During the period of Emergency, more than eight million people were sterilized. "Most of the sterilizations carried out were vasectomies; the men rounded up for sterilization were almost always poor and many died from infections associated with the mass sterilization".<sup>68</sup> The coercive methods used by the Indian state to control the fertility rate were praised by leading international donor agencies. One of the main features of the Indian population control programme was the provision of incentives, which motivated the poor to undergo sterilization. Even in the US, the poor women, who were mostly blacks, had to undergo sterilization in order to avail state welfare provisions.<sup>69</sup>

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<sup>66</sup> Mohan Rao (1994), op. cit., p. PE-47

<sup>67</sup> Asoka Bandarage (1997), *Women, Population, and Global Crisis: A Political-Economy Analysis*, Zed Books, London and New Jersey, p. 64.

<sup>68</sup> *Ibid.*, p.75.

<sup>69</sup> Germaine Greer (1984), op. cit., p. 279.

In the 1950s, reform eugenics emphasized the need to use the knowledge of human genetics for medical purposes. The eugenic idea of improving the human racial stock guided this initiative of eugenicists. Clinics for genetic counseling were opened in different parts of the United States and Britain. In these clinics, prospective parents were informed about the risk of hereditary diseases in the case of conception of a child. By the 1950s, only a small number of genetic disorders could be identified through biochemical tests. With the development of human genetics and molecular biology, the number of identifiable single-gene disorders increased substantially in the following decades. Post-natal screening programmes for PKU, Sickle-Cell trait, Tay-Sachs and Cooley's anemia were undertaken in many American states. Finally, in 1976, "the US Congress passed the National Genetic Diseases Act, which absorbed its two predecessors (The National Sickle-Cell Anaemia Control Act, 1972, and The National Cooley's Anemia Control Act, 1972) and provided for research, screening, counseling and education in Tay-Sachs and various other disorders, including cystic fibrosis, Huntington's disease, and muscular dystrophy."<sup>70</sup> The development of amniocentesis procedure radically changed the detection of genetic and chromosomal disorders. Genetic and chromosomal disorders of fetus could now be identified with the help of amniocentesis technique. In case of serious fetal disorders, the prospective parents can even choose to abort the fetus. We now have more advanced techniques of *in vitro* fertilization and Pre-implantation Genetic Diagnosis (PGD). These technologies have made it possible to screen an embryo for genetic and chromosomal disorder outside the woman's body. It is suggested that the genetic counseling and screening have contributed significantly in the reduction of suffering from various diseases; this has become the basis for various kinds of discriminations as well. In the U.S., many companies seek the genetic profile of all applicants to jobs. The medical insurance companies either do not cover persons afflicted with genetic disorders, or they ask for extra premium. The worst sufferers are the black American population, because many of them carry sickle-cell genes.

The discoverer of genetic mutation, Herman J. Muller, popularized the idea of 'germinal choice'. In his works, Muller had shown the human genome to be constantly changing due to mutation, which was random and spontaneous. Mutation could also be induced by radiation. In modern industrial societies, he argued, deleterious genes are

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<sup>70</sup> Daniel J. Kevles (1995), op. cit., p. 256.

accumulating in the human gene pool. This was adversely affecting the natural evolutionary process. To deal with this problem, he suggested that people with high genetic loads voluntarily refrain from producing children. He also put forth the idea of germinal choice. His idea was to store the sperm of outstanding men in sperm banks, which could then be used to impregnate women through the procedure of artificial insemination. He argued that the loads of deleterious genes in the human gene pool could be reduced through germinal choice. In the 1960s, he tried to establish a Foundation for Germinal Choice; however, despite support and encouragement from various quarters, it did not materialize in his lifetime. In 1971, Robert K. Graham, from whom Muller had de-associated himself owing to the former's conservation political ideas, established the Herman J. Muller Repository for Germinal Choice. The Repository only stored the sperm of scientists, particularly of Nobel Laureates.<sup>71</sup>

The 1960s witnessed various movements for social justice across the globe, particularly, the black and women's liberation movements. In response to these movements, the ruling classes invoked the ideology of biological determinism, which claimed that blacks were genetically inferior to whites and that patriarchy was an inevitable consequence of biological difference between men and women.<sup>72</sup> In 1969, Arthur Jensen of the University of California published an article entitled 'How Much Can We Boost I.Q. and Scholastic Achievements?' in the *Harvard Education Review*. This article was based on his study of the average difference in I.Q. for identical twins reared apart. On the basis of his study, he concluded that I.Q. was genetically determined, that it had high heritability, and that the performance of whites in I.Q. tests was better than that of blacks. Thus, the inference was that the lower socio-economic status of blacks in the American society was due to their lower intelligence, this being genetically determined.<sup>73</sup> With the publication of E.O. Wilson's book

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<sup>71</sup> See *Ibid.* pp. 259-63, and Germaine Greer (1984), *op. cit.*, pp. 287-94.

<sup>72</sup> Steven Rose (1997), *Lifelines: Biology, Freedom, Determinism*, Allen Lane, The Penguin Press, London, pp. vii-iii.

<sup>73</sup> In the nineteenth century, the justification for the lower socio-economic status of blacks and women was based primarily on craniometry, the measurement of human skulls, and anthropometry. In the twentieth century, in place of measurements of skull and limb, scientists began to measure intelligence itself. The I.Q. test was created by the French psychologist Alfred Binet in 1905 as a diagnostic instrument to help teachers in their task. Since its creation, the I.Q. test has been used by the ruling class intellectuals to legitimize the existing social order. Intelligence is not a *thing*, but a mental construct that is shaped by historical context. The measure of I.Q. is a pure reification, the conversion of abstract ideas into things. See Stephen Jay Gould (1981) *The Mismeasure of Man*, W. W. Norton & Co, New York.

*Sociobiology: The New Synthesis* in 1975, biological determinism appeared in its modern avatar, called sociobiology. Sociobiology drew its principles directly from Darwinian natural selection and claimed that tribalism, entrepreneurial activity, xenophobia, male domination and social stratification were determined by human genome.<sup>74</sup> Richard Dawkins, in his book *The Selfish Gene*, argued that the unit of natural selection in the evolutionary process was genes and not individual organism or a group of organisms. In the evolutionary process, selfish genes struggle to improve their representation in population—we are ‘survival machines’, created by immortal genes. Dawkins also claimed that human culture itself operates on Darwinian principles, and that in the realm of human culture, the units of transmission were ‘memes’.<sup>75</sup>

In the 1980s, the new conservative governments, led by Margaret Thatcher and Ronald Reagan, came to power in Britain and in the United States. The ideology of this new conservative regime is often described as the New Right. “New Right ideology has developed in Europe and North America in response to the gathering social and economic crises of the past decade... There has been increasing unemployment, relative economic decline, and the rise of new and turbulent social movements.”<sup>76</sup> The New Right critiqued the efforts of previous governments to meet these challenges in the form of welfare programmes. It argued that excessive state intervention in the functioning of economy had precipitated the socio-economic crisis. The New Right advocated the *laissez-faire* economy of early capitalism and celebrated competition. Society was seen as reflection of biology and the rights of individuals were given absolute priority over the rights of collectivity. Also, the politics of sexuality, reproduction, and abortion was defining characteristics of the New Right. Initially, it defined itself primarily in reaction to the women’s liberation movement and invoked religion and tradition in its campaign against the rights of abortion.<sup>77</sup>

In their controversial book *The Bell Curve: Intelligence and Class Structure in American Life* (1994), Richard Herrnstein and Charles Murray, claimed that American society

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<sup>74</sup> R. Lewontin, S. Rose and J. Kamin (1984), op. cit., p. 74.

<sup>75</sup> Richard Dawkins (2006), *The Selfish Gene*, Oxford University Press, Oxford.

<sup>76</sup> R. Lewontin, S. Rose and J. Kamin (1984), op. cit., p. 4.

<sup>77</sup> Rosalind P. Petchesky (1986), *Abortion and Woman’s Choice: The State, Sexuality, and Reproductive Freedom*, Verso, London, pp. 241-85.

was increasingly becoming meritocratic. In America, they argued, what a person could make out of his/her life was determined by his/her inherited intelligence and not by social background. They also asserted that IQ tests were the most reliable way of measuring intelligence and IQ was determined by genes, therefore, could not be improved. On the basis of their study, they concluded that success or failure in American economy, and all that goes with it were determined by the genes that people inherit, and that poverty, unemployment, crime and dependency on government were outcome of low cognitive abilities.<sup>78</sup> They also argued that differences between 'races' were determined by genes and that the lower socio-economic status of the Black population in American society was due to their lower intelligence. This overt racist argument was made when scientific research was deconstructing myths about the biological basis of race. The scientific research "has shown that genetic variation within a group is much greater than variation among 'races' and that geographic proximity is much better marker for genetic similarity than skin color."<sup>79</sup> Like Jensen, these two authors also prescribed changes in governmental policies and programmes. Jensen wrote in his article, "Compensatory education has been tried, and it apparently has failed."<sup>80</sup> *The Bell Curve* justified radical changes in social policies and argued that the state should retreat from its responsibility to provide welfare to its people, because welfare programmes subsidized the growth of the lower intelligence population. Herrnstein and Murry's work can be seen as an attempt to legitimize the neo-liberal economic policies pursued by the U.S. government.

Contrary to the popular belief that eugenics belongs to the past history and that it disappeared after the revelation of the Nazi atrocities, eugenics continued to exist in different forms. The new avatar of eugenics is based on development in human genetics and molecular biology. The discovery of double helical structure and functioning of DNA molecule, in the 1950s, revolutionized the study of molecular biology and human genetics, and led to the development of the techniques of genetic engineering, Pre-implantation Genetic Diagnosis (PGD), pre-implantation sex selection of embryo and cloning. "Today eugenics is typically

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<sup>78</sup> Kimberly C. Welch (2002), "The Bell Curve and the Politics of Negrophobia", in Jefferson M. Fish (ed.), *Race and Intelligence: Separating Science from Myth*, Lawrence Erlbaum Associates, New Jersey.

<sup>79</sup> Betsy Hartman (2007), "Old Roots, New Shoots: Eugenics of the Everyday", *Different Takes*, Population and Development Program, Hampshire College, No. 47, p 1.

<sup>80</sup> Stephen Jay Gould (1991), op. cit., p. 244.

framed in terms of debates over the promise and perils of new reproductive technologies, from fetal genetic screening to cloning.”<sup>81</sup> In the pre-Second World War period, eugenics was generally a state sponsored social programme for the improvement of the quality of general population. The social values that guided early western eugenicists gave greater importance to the well being of social group than that of the individual. By contrast, current western values embedded in the neo-liberal ideology, concerned as they are with individual rights rather than the common goods.

Eugenics, in today’s time, is based on ‘free choice’ of individuals. In 1969, Robert L. Sinhseimer declared, “A new eugenics has arisen, based upon the dramatic increase in our understanding of the bio-chemistry of heredity and our comprehension of the craft and means of evolution... The new eugenics would permit in principle the conversion of all of the unfit to the higher genetic level.”<sup>82</sup> This new eugenics does not require large scale state sponsored programmes; it could be accomplished by individuals acting voluntarily in their own interests. Today market offers parents with greater reproductive choices. The technique of genetic screening of embryo for congenital and genetic disorders provides parents with an option to decide the genetic profile of their child. A ‘free choice’ exercised by parents results in a systematic bias against the birth of genetically disabled children. P. Kitcher calls the current situation ‘*laissez faire eugenics*’<sup>83</sup>.

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<sup>81</sup> Betsy Hartman (2007), op. cit., p. 1

<sup>82</sup> Daniel J. Kevles (1995), op. cit., pp. 267-8.

<sup>83</sup> David King (2001), “Eugenic Tendencies in Modern Genetics”, in Brian Tokar (ed.), *Redesigning Life?: The Worldwide Challenge to Genetic Engineering*, Zed Books, London and New York.

## **CHAPTER II**

### **THE NEW REPRODUCTIVE TECHNOLOGIES AND NEO-EUGENICS**

The hand-in glove existence of blatant exploitation, appalling poverty and general living conditions of the working class on the one side, and an exponential growth of the economy and wealth of capitalist countries in post-Industrial Revolution nineteenth century Europe and America generated a fierce debate. The phenomenon of poverty in a context of economic boom was, broadly speaking, provided with two kinds of explanations. The perspective influenced by working class movement saw poverty as a social and historical phenomenon, which could be alleviated by changing the existing institutional arrangements and by bringing about changes in property relations. On the other hand, ruling class intellectuals influenced by Malthusianism and Social Darwinism perceived poverty as a natural phenomenon and argued that the poor themselves were responsible for their poverty and that nothing could be done about it. We saw in the previous chapter how eugenics, embedded in the ideology of Social Darwinism and Malthusianism, comprehended various social problems, including poverty, as determined by human heredity.

The central concern of the eugenic movement was the improvement of the quality of the human population by encouraging the best and the brightest, with good heredity qualities, to have a large number of children, while discouraging or forcefully preventing the 'defectives' and 'unfit' from procreating. Wrapped in the rhetoric of scientific rationality, this venture of eugenics—with its concern with the purging of human population of all its impurities and defects—saw the appropriation and control over women's sexuality and their reproductive capacities become its defining characteristic. While feminist historians have argued that the appropriation of women's labour, reproductive and sexual capacities came into existence with the creation of patriarchy, what is new in the relation between eugenics and this appropriation is the medico-scientific mode in operation.<sup>1</sup> In the first half of the twentieth century, the most commonly used method to achieve the eugenic goal was sterilization. In the name of eugenics, hundreds of thousands of women, mostly from working class backgrounds, were sterilized against their wish. In the last fifty years, developments in molecular biology and human genetics have revolutionized reproductive technologies. The techniques of in vitro fertilization, Pre-implantation Genetic Diagnosis (PGD), pre-implantation sex selection of embryo and cloning have made it possible to manipulate the genetic make-up of the embryo. It has been argued by many scientists that developments in the new reproductive technologies would herald a new era of eugenics, where the 'perfect baby' could be designed through the genetic manipulation of the embryo. This chapter shall deal with the politics of new reproductive technologies and their neo-eugenic implications, the impact these technologies have on women's health and lives, the social, ethical and legal concerns they give rise to, and feminist debates on science and new reproductive technologies.

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<sup>1</sup> See, for instance, Gerda Lerner (1986), *The Creation of Patriarchy*, Oxford University Press, New York. For historical work on the connection between the appropriation of women's labour, reproductive capacities, and sexuality; also for a shorter introduction, see Varda Burstyn (1983), "Masculine Dominance and the State", in *The Socialist Register 1983*, The Merlin Press, London, pp. 45- 89.



# I

In most societies, women are seen principally to be mothers and wives, whose primary duty is that of childbearing, childcare and the care of other members of the household, and the everyday maintenance of the home. In most societies, before the arrival of capitalism and modern medicine, different aspects of women's reproductive lives, like childbirth, contraception and abortion, were controlled by women themselves. Childbirth was seen as a normal process and it used to take place at home. The management of childbirth was restricted to women and was regarded as a part of the feminine role. Women also have a long history as community healers in many pre-industrial societies.<sup>2</sup> In the last two centuries, with the development of modern medicine, a predominantly male professional discipline, profound changes have taken place in the management and control of childbirth. Modern medicine medicalized the process of reproduction. Pregnancy and childbirth are viewed as medical problems, which can be 'cured' by professionals trained in modern medicine. The place of childbirth shifted from the home to the hospital, where pregnant women became objects of study for medical professionals. Obstetrics and paediatrics emerged as respectable specializations within modern medicine.<sup>3</sup>

Biomedical discourses, as highlighted by post-1970s feminist critiques, have historically constituted a site of sexual discrimination, through the use of medico-scientific justification for differentiating women from men on the basis of biology, and to provide scientific evidence to prevent women from entering public life.<sup>4</sup> Firstly, the importance of the anatomical differences between men and women were exaggerated and women's destiny was shown to be no more than their biology.<sup>5</sup> Women were treated as purely reproductive beings, as creatures whose behavior was entirely controlled by their reproductive systems.

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<sup>2</sup> Ann Oakley (1976), "Wisewoman and Medicine Man: Changes in the Management of Childbirth", in Ann Oakley and Juliet Mitchell (eds.), *The Rights and Wrongs of Women*, Penguin Books, Harmondsworth.

<sup>3</sup> Ann Oakley (1987), "From Walking Wombs to Test-tube Babies", in Michelle Stanworth (ed.), *Reproductive Technologies: Gender, Motherhood and Medicine*, Polity Press, Cambridge.

<sup>4</sup> Deborah Lupton (1994), *Medicine as Culture: Illness, Disease and Body in Western Societies*, Sage, London.

<sup>5</sup> Anatomists, anthropologists and natural historians in the eighteenth and nineteenth century, working under the banner of scientific neutrality, declared that women and blacks were biologically inferior to white men. It

As the implications of these ideas are important for later-date developments, I shall dwell at some length on their plausibility. What is striking about this reduction of women to their wombs, and the projection of child-bearing and rearing as their sole contribution to human history is that it completely negates, to use Lerner's phrase, 'the majority of women'.<sup>6</sup> The very lives of working class women, who work day in and day out—far more than men do, in fact—stand as clear evidence of the fact that most women work, and are not just baby-producing machines.<sup>7</sup> We could perhaps trace the need for equating women to their reproductive organs, and the subsequent emergence of a range of knowledge doing precisely this, to the changes brought about by the introduction of the family wage system in the nascent capitalist phase. The family wage system created the conditions where women's work changed in some aspects, and became hidden and undervalued immensely; first of all, it required that new and powerful discursive practices come into existence in order to suddenly recreate the image of 'the woman' as a homemaker, the epitome of the middle class idea of wedded bliss.<sup>8</sup>

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was argued that women and other non-European 'races' were incapable of dealing with abstract ideas and therefore unfit for practicing science. Of much greater significance to everyday life and geopolitics was the claim of the organic intellectuals of the emerging bourgeois society that women and blacks were mentally and physically inferior to white men, and therefore incapable of ruling themselves effectively. In anthropological studies, Africans were always described as apes, and sometimes both were portrayed as 'missing links' in the great chain of being. Anthropological knowledge justified the European colonial conquest by projecting it as a civilizing mission. The dominant discourse emanating from Anthropology, Anatomy and Natural History in the eighteenth and nineteenth century made it clear to everyone that all women and non-European races were inferior. Most people concluded that this inferiority was natural, and therefore unalterable. For further elaboration, refer Londa Schiebinger (1993), *Nature's Body: Sexual Politics and the Making of Modern Science*, Pandora, London, and Stephen Jay Gould (1981) *The Mismeasure of Man*, W. W. Norton & Co., New York.

<sup>6</sup> Gerda Lerner (1981), *The Majority Finds its Past: Placing Women in History*, Oxford University Press, New York.

<sup>7</sup> Burstyn makes an interesting argument regarding the nature of women's work itself. She argues that women's labour has a the two-fold character, with its subsequent embodiment in two kinds of entities—the first aspect of women's labour is productive, and is embodied in things that make life livable; the second aspect of women's labour is reproductive, and is embodied in people. The people in whom women's labour comes to be congealed are not just children, but also men-as-a-group (both as children and as adults), and the old and the sick (economically non-productive people of society). Thus, the treatment of women as mere reproductive beings conceals the immense amount of labour that is extracted from them; women's labour is both different from and much more extensive than men's labour. See Varda Burstyn (1983), "Masculine Dominance and the State", in *The Socialist Register 1983*, The Merlin Press, London, pp. 45- 89.

<sup>8</sup> Strangely enough, later-date feminist theorizations of the dichotomy of the private and the public spheres strengthen this image of the woman as someone engaged only in domestic production, and prevented from participating in social production—these theories too ignore the long historical presence of women as workers.

The image of the woman as driven by her reproductive system, as physically and mentally weak, as prone to hysteria, and therefore needing to be confined to the home, became a pervasive idea. Slowly, pregnancy, childbirth and menopause were made medical problems that required specialized attention. This medicalization of pregnancy, childbirth and menopause took away from women, the control over their own bodies. However, the positive contributions of medical science in improving the health of women have also been recognized. “Medical advances have made pregnancy and childbirth a much less hazardous process for both the mother and the child.”<sup>9</sup> Although this decline in maternal and infant mortality was influenced in large parts by the overall improvement in standards of living, diet and hygienic conditions, the contributions of medicine cannot be ignored.

Some feminists have also argued that the ideological function of biomedicine, especially in the field of reproductive health, has become heightened in response to the second-wave feminist movement in the 1970s. Mary Daly, for instance, writes that there is “every reason to see the mutilation and destruction of women by doctors specializing in unnecessary radical mastectomies and hysterectomies, carcinogenic hormone therapy, psychosurgery, spirit killing psychiatry and other forms of psychotherapy as directly related to the rise of radical feminism in the twentieth century.”<sup>10</sup>

The equation of women’s health to reproductive health is also caused by the deep rooted mystification of women’s reproduction. This mystification is a structurally determined phenomenon and continues to exist in spite of major advancements in the medical knowledge of human bodies. The mystification of women’s reproductive health helps capitalism and patriarchy in two ways. Firstly, it causes women to fear their own bodies. They come to treat their bodies as a container of various dangerous body fluids and hormones. The image of women’s bodies as a battlefield where germs and cancer lurk in every nook and corner is fed into their minds everyday. It then causes women, or those who can afford it, to turn to the medical establishment for specialized services out of their own volition—at least, it renders these decisions as ‘choices’ made by ‘free’ women. Various studies have shown that

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<sup>9</sup> Himmelweit, cited in Pamela Abbott and Claire Wallace (1997), *An Introduction to Sociology: Feminist Perspectives*, Routledge, New York, p. 177.

<sup>10</sup> *Ibid.*, p. 182.

reproductive health is a lucrative business. The market for contraceptive pills and other devices alone is worth billions of dollars.

Women are more or less seen by the state as well as the medical industry as machines for the reproduction and the care of children. If not put in such crude terms, it can safely be said that women's single most important role has been identified as reproductive. In India, a popular government saying goes, 'only healthy women can produce healthy babies'. Thus, a close examination of various policies on women's reproductive health reveals that women do not exist as beings whose health is important in its own right. Women's health becomes important only because children's health is influenced by it. In the Indian context, we can see that the beginning of reformist concern over women's health in the colonial period was argued in terms of racial health. For the reformists, the necessity to address the issue of women's health was clinched by the logic that the racial health of Indians could improve only with betterment in Indian women's health.<sup>11</sup>

Likewise, there is an overall patriarchal appropriation of women's reproductive capacities. Women are not allowed to exercise their own choice in controlling their fertility. It is families, communities and states that make these decisions for women. Be it decisions on how many children to have, whether to have fewer or more children, when to have children, decisions regarding sterilization, or abortion, all of them are dictated by families and states under which women live.

## II

Michelle Stanworth divides reproductive technologies in four groups.<sup>12</sup> The first group includes technologies which deal with fertility control. Throughout history, women

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<sup>11</sup> Mohan Rao (2004), *From Population Control to Reproductive Health: Malthusian Arithmetic*, Sage Publications, New Delhi, pp. 19-23.

<sup>12</sup> Michelle Stanworth (1987), "Reproductive Technologies and the Deconstruction of Motherhood", in Michelle Stanworth (ed.), *Reproductive Technologies: Gender, Motherhood and Medicine*, Polity Press, Cambridge, pp. 10-1.

have used the technologies of fertility control like contraception and abortion.<sup>13</sup> However, the twentieth century witnessed new inventions in contraceptive technology like hormone suppressing contraceptive drugs. In the last 200 years, in many societies particularly in America and Europe the place of child birth shifted from home to hospital. This shift in the management of labour and child birth has been accompanied by the development of a second group of technologies such as instruments to access deliveries, caesarian sections, episiotomies, etc. The third and fourth groups of technologies, which have created controversies and generated fierce debates, deal with monitoring of fetal development in the early period of pregnancy like ultrasound and amniocentesis, and artificial conception like in vitro fertilization, artificial insemination and PGD.

The conceptive technologies of in vitro fertilization (IVF), Intra-Uterine Insemination (IVI) and PGD are collectively referred to as Assisted Reproductive Technologies (ARTs). After the birth of Louise Brown, the world's first successful test tube baby in 1978, the technology of IVF has become central in the medical treatment of involuntary infertility. It is an invasive and painful procedure. The woman who goes through the IVF procedure is put on drugs to stimulate her ovaries to produce several ova in one menstrual cycle which have harmful side effects for her health. Once ovulation occurs, she is admitted to the hospital for egg removal. "After the eggs are removed by tearing them from the ovarian walls in procedure like TUDOR (Trans Vaginal Ultrasound Directed Oocyte Recovery), they are finally mixed with sperm. After further hormone therapy, the resulting embryos, sometimes three or four at a time are placed in the woman's uterus through a tube which is inserted through her vagina. Other embryos may be frozen for use in a later procedure if the first is unsuccessful. More often than not, none of the embryos implant and the woman must undergo this three-week process several times over."<sup>14</sup> The patriarchal construction of biological motherhood as women's destiny has legitimized this medical violence on women's

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<sup>13</sup> Rosalind P. Petchesky (1986), *Abortion and Woman's Choice: The State, Sexuality, and Reproductive Freedom*, Verso, London, p. 1.

<sup>14</sup> Zoe C. Meleo-Erwin (2001), "Reproductive Technology: Welcome to the Brave New World", in Brian Tokar (ed.), *Redesigning Life?: The Worldwide Challenge to Genetic Engineering*, Zed Books, London and New York, p. 197.

body. The promoters of new reproductive technologies argue that if an infertile woman<sup>15</sup> wants to fulfill the definitive role of biological motherhood, she has to go through the invasive and painful IVF procedure.

The NRTs have generated intense debate because of their intervention in those processes of human life which until recently, belonged to the realm of biological givens. On the one hand it has been argued that these technologies assist infertile couples to fulfill their desire to have a child and those they shall prevent the birth of children with genetic and chromosomal abnormalities. On the other hand, critics have argued that they shall further medicalise infertility and pregnancy, that they shall cause new dangers and unknown risks to women exposed to these techniques and to children born thus, and that it shall usher in a new era of eugenic practices.<sup>16</sup>

Bio-medicine treats infertility as a 'disease' which can be 'cured' with the assistance of new reproductive technologies. The powerful reproductive technology industry, with the help of media, is propagating the idea that infertility has become an epidemic, particularly in the West, requiring immediate medical intervention. Doctors have been projected by the media as benevolent souls helping desperate infertile couples with the assistance of conceptive technologies to fulfill their most important marital duty, which is, to have children. A couple is considered infertile when, despite their efforts to have a child, they are unable to do so even after a year of unprotected coitus. "The argument that infertility was 'created' to bolster the use of ARTs is further strengthened if we look at the frequently changing definition of infertility. Prior to 1975, a couple was declared infertile if they did not conceive after five years of unprotected coitus. In 1975, however, the World Health Organization (WHO) reduced the time to two years and by 2005, reduced it, even further, to one year."<sup>17</sup> According to WHO estimates, the world over, around 8 to 12 percent of couples have difficulty in conceiving a child. In India this figure is between 10 and 15 percent.<sup>18</sup>

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<sup>15</sup> Even in the case of husband's infertility, it is the wife who goes through the IVF procedure. This is one of the rare situations in medicine where a person without any problem goes through the treatment.

<sup>16</sup> Michelle Stanworth (1987), op. cit.

<sup>17</sup> Sama (2006), *ARTs and Women: Assistance or Subjugation?*, p. 10.

<sup>18</sup> <http://www.who.int/reproductive-health/infertility/11.pdf>.

The medical construction of infertility as a disease has obscured the social and historical context of the condition of infertility. The effects of environmental hazards, hormonal contraceptives, and nutrition on fertility are never examined<sup>19</sup>. The way we conceptualize a problem determines what kind of intervention is required to solve that problem. Within the biomedical paradigm, involuntary childlessness is seen as a biological condition that can thereby be treated with the help of ARTs.

NRTs have been presented to women in a language couched in terms of rights and freedom. Viewing these technologies as women's right to bodily self determination is embedded in Western liberal ideology. This ideology posits freedom as an individualized condition or attribute, and celebrates value neutrality. "Technological reproduction is sometimes defended as part of the pro-choice platform. Borrowing from the abortion defense, reproductive liberals contend that feminists must support these technologies and contracts (surrogacy) as part of a woman's right to choose."<sup>20</sup> The focus on women's right to choose obscures the patriarchal social context in which those choices are made. The concept of 'rights' is inherently static and abstracted from social conditions; it does not challenge the social structure, or the social relations of production and reproduction.<sup>21</sup> The corporate sector has appropriated the rhetoric of 'women's right to choose' to sell their products and women's right to choose has been transformed into the right to consume. What we need to assert in this context is that women's control over their own bodies must be seen as an individual and social need that exists within a concrete social and historical context.

The advancement in new reproductive technologies and human genetics offers the possibility of eugenic improvement of the human stock through genetic engineering. With the help of PGD techniques, embryos can be screened for genetic and chromosomal abnormalities before its implantation in the woman's uterus. If the embryo is found to be genetically defective, such defects can be corrected or the embryo can be discarded. The new

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<sup>19</sup> Naomi Pfeffer (1995), "The Stigma of Infertility", in B. Davey, A. Gray and C. Seale (eds.), *Health and Disease Reader*, Open University Press, Buckingham and Philadelphia, pp. 111-4.

<sup>20</sup> Janice G. Raymond (1993), *Women as Wombs: Reproductive Technologies and the Battle over Women's Freedom*, Harper San Francisco, New York, p. x.

<sup>21</sup> Rosalind P. Petchesky (1986), *Abortion and Woman's Choice: The State, Sexuality, and Reproductive Freedom*, Verso, London, pp. 1-21.

reproductive technologies, however, have the potential to be used for other purposes altogether. They can be used for producing babies with desirable physical and mental characteristics. Technologies to produce 'designer babies' require far more difficult technical maneuvers. Scientists claim that such designer baby technologies shall be available within the next few decades. Currently, many ART clinics claim to provide 'high quality' sperm and ova from intelligent and beautiful men and women. Such propagandist claims of assured high quality sperm and ova make a potent marketing tactic. Fertility clinics such as "the Bionetics Foundation, Inc. and Repository for Germinal Choice, offer 'elite' ova and sperm which have supposedly come from the best, brightest and the most beautiful in the society. These fertility clinics not only sell biological materials and reproductive technology, but market the notion that characteristics such as beauty, intelligence, athletic ability and economic success...are genetic in origin and able to be passed onto future generation."<sup>22</sup>

The technique of Pre-implantation Genetic Diagnosis (PGD), which is performed in conjunction with IVF, provides the possibility of genetic selection. In IVF technique, several embryos are created in Petri dish, which are then screened with the help of PGD. Then, only two or three genetically sound embryos are implanted. "(PGD) allows not merely the elimination of clearly harmful alleles, but the selection of embryos carrying the 'best' combination of alleles. This is equivalent to shift from negative to positive eugenics."<sup>23</sup> Another point is that access to new reproductive technologies is limited to a small section of the human population who come from sound economic backgrounds. The services provided by the ART clinics, which are mainly concentrated in the private sector, are very expensive. ARTs provide wealthy couples, both fertile and infertile, the possibility to have genetically 'healthy' children. This market driven eugenics creates a genetic divide between the rich and the middle class on the one hand, and the poor and the working class on the other. In the present context, when governments of most of the countries are withdrawing their responsibility from health services, the care of disabled children born into poor families shall cause even greater economic burdens.

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<sup>22</sup> Zoe C. Meleo- Erwin (2001), op. cit., p. 197.

<sup>23</sup> David King (2001), "Eugenic Tendencies in Modern Genetics", in Brian Tokar (Ed), *Redesigning Life?: The Worldwide Challenge to Genetic Engineering*, Zed Books, London and New York, p. 172.



Contrary to popular understandings, which are shaped by the mainstream media, human genetic engineering is still in its infancy. “The only kind of genetic engineering currently practiced on human beings is experimental, and involves efforts to fix the genes of somatic (or body) cells in patients with relatively rare health problems that reflect the functions of single genes.”<sup>24</sup> Despite technical difficulties involved in genetic engineering, many genetic scientists in the 1990s started promoting human ‘germline engineering’, the technique which will ultimately produce the much desired designer babies. Unlike the manipulation of somatic cells to cure diseased persons, the technique of germline engineering uses embryos at the early stage of their development. It involves genetic manipulation in an early stage, which is to be replicated in every cell in the body of the child. The ultimate ends towards which germline engineering strives is not just for each child that is born out of such process, but to actually transform entire future generations that these children shall subsequently give birth to. Critics have argued that when this technique becomes reality, it shall herald a new era of eugenic practice when affluent parents shall be able to select their children’s genes, and provide them with an edge in the quest for success. Lee Silver, a molecular geneticist and developmental biologist at Princeton University, argues that germline engineering shall progressively divide humanity into genetic *Übermenchen* and *Untermenchen*. He predicts that in year 2350, “The GenRich—who account for 10 per cent of the American population—all carry synthetic genes...The GenRich are a modern day hereditary class of genetic aristocrats... All aspects of the economy, the media, the entertainment industry and the knowledge industry are controlled by members of the GenRich class.”<sup>25</sup> The remaining 90 per cent, whom he calls the ‘Naturals’, shall work as low paid labourers. In his prognosis there is continuity between today’s rich and the future’s GenRich; even more chilling is the way in which the future rich and poor shall be different. If science and technology are allowed to follow this prescribed path of development, the future rich and the poor might, for the first time, actually have two completely different gene pools.

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<sup>24</sup> Mary Darnovsky (2001), “The Case against Designer Babies: The Politics of Genetic Enhancement”, in Brian Tokar (ed.), *Redesigning Life?: The Worldwide Challenge to Genetic Engineering*, Zed Books, London and New York, p. 135

<sup>25</sup> Cited in *Ibid.*, p. 137.

### III

In order to understand the current social phenomena like the use of new reproductive technologies, female sex selective abortion (SSA)<sup>26</sup>, and the female to male sex ratio in India, I shall begin this section by looking at a period closer to our own times. Although it is difficult to name a 'watershed' moment in the history of the women's movement, the 1970s would nevertheless qualify as one for the contemporary urban women's movement in India.<sup>27</sup> Elsewhere too the 1970s saw the re-emergence of a strong women's movement. But more important to the Indian women's movement than the women's liberation movements in the US and in Britain were political processes and social movements that were closer home. The Emergency, the naxal movement, and various other social movements shaped the context for the comeback of 'women's issues'. This time, the 'woman question' was much less a reformist concern or a nationalist one than it had been during the colonial period. Even though it might seem otherwise to us today, issues against which the women's movement's campaign were led—such as rape and dowry murder—were simultaneously expressions of resistance against the repressive powers of the Indian state.

While the context in which it emerged was different from the context in which the western women's movements arose, their primary concerns were also different from each other. As part of the preparation for the United Nations Decade for Women (1976-1985), a Committee for the Status of Women was set up; the report of this committee caused immense

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<sup>26</sup> The term Sex Selective Abortion is used by people who recognize women's right to abortion. On the other hand, the religious Right, opposed to abortion, uses the phrase female foeticide. Those who use the phrase female foeticide believe that life begins at conception and that fetuses have rights that transcend those of the mothers.

<sup>27</sup> Lerner forcefully makes the point that women have been agents of history, and not just mute acceptors of patriarchy from its beginning. See Gerda Lerner (1986), *The Creation of Patriarchy*, Oxford University Press, New York. In naming the 1970s as a watershed decade, I am following the set convention of historians of the Indian women's movement, e.g., Radha Kumar (2002), *The History of Doing: An Illustrated Account of Movements for Women's Rights and Feminism in India, 1800-1990*, Kali for Women, New Delhi. For various reasons I shall specify later in the chapter. On the other hand, I wish to emphasize the validity of holding on to the distinction between individual resistance to system of oppressions, and social movements against them.

shock for many activists and academics.<sup>28</sup> Each of the ‘indicators’ of women’s status showed a drastic decline in the post-independence period.

One of the major data that stood out from the findings of this Report was relating to the sex ratio in India. The 1901 census data provided the sex ratio figure as 972 women to 1000 men; 1971 returned the sex ratio as 930 women to 1000 men.<sup>29</sup> The implications of such a drastic decline in the sex ratio are worrying, but what is even more worrying is the Indian state’s projection of ‘overpopulation’ as the root cause of some of the most pressing social and economic issues and the most blatant and crudest forms of exploitation that exist in the country.

The sex ratio has been described by various scholars as the principle indicator of the level of women’s oppression in a society. Early studies have typically understood the low sex ratio to be ‘a marker of the “general neglect of little girls”... (or) the “most stark index of the oppression of women.”’<sup>30</sup> However, the problems with approaching the question of gendered dominance-subordination through the conceptual lens of ‘status of women’—in the lexicon of which the sex ratio occupies central space—has been widely commented upon. It is not enough to say that the declining sex ratio in India is owing to lack of women’s education, adequate state planning and implementation (all of these ‘reasons’ emerge from the larger modernization paradigm), or even a purely economic explanation that seeks its principle cause in the devaluation of women’s labour (for example, in studies by Bardhan; Miller; Gulati; and Reddy; cited in Mayer).<sup>31</sup> Indian feminist scholarship in the current period is far more cautious regarding the use of such concepts, and would look at the practice of female SSA in its location in a wider structural framework. Thus, female SSA—and from a period

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<sup>28</sup> Neera Desai and Usha Thakkar (2001), *Women in Indian Society*, National Book Trust, New Delhi.

<sup>29</sup> [http://www.censusindia.net/data/ppt\\_t10.PDF](http://www.censusindia.net/data/ppt_t10.PDF). The latest female to male sex ratio is 933 (2001 census data).

<sup>30</sup> Pranav Bardhan and Gail Omvedt, cited in Peter Mayer (1999), “India’s Falling Sex Ratios”, *Population and Development Review*, Vol. 25, No. 2, pp. 322-43.

<sup>31</sup> *Ibid.*, pp. 327-8. Mayer himself suggests that ‘it is not appropriate to use sex ratios or trends in sex ratios as indicators of women’s relative position in society; we should rely instead upon direct measures of education, employment, mortality, life expectancy, and so forth’, *Ibid.*, p. 337. But my arguments are based on a different understanding of the structure of Indian patriarchy, and subsequently, of different strategies to fight it.

prior to this, the practice of female infanticide—comes to be one of the outcomes of the particular intermeshing of the systems of caste, class and gender in Indian society.

Briefly turning to the older practice of female infanticide, we note that its existence has received wide comments from the colonial times.<sup>32</sup> Most of the reports of female infanticide during the colonial period, were based on regions in the ‘North-West Provinces’, present-day Punjab, Haryana and Rajasthan, and Uttar Pradesh. Starting from the late eighteenth century, certain castes were noted by travelers and British Residents as practicing female infanticide.<sup>33</sup> It is evident from historical studies that the practice of female infanticide occurs in north India owing, at least significantly, to kinship and caste structures. North India is known for its hypergamous model of marriage, where clans and sub-castes married their daughters to groups above them in the social hierarchy. The typical colonial reading of the practice of female infanticide was connecting it to a general decadence of society, and specifically to the enormous costs of marriage. The argument went that parents killed their daughters at birth, because of the financial burdens of future dowries to be given at the time of marriage. There have been various interpretations of the failure of the British to prevent this practice, even though it was used as a pretext for the governance of those regions.<sup>34</sup>

Sangari and Vaid have argued that, for all their avowed concerns with the ‘woman question’, neither the colonisers nor the indigenous reformists were concerned about such issues, which have more or less functioned as smaller pawns in bigger designs. More important to my study is their point that “the implication of the reconstitution of patriarchies

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<sup>32</sup> See for example, Lalitha Panigrahi (1972), *British Social Policy and Female Infanticide in India*, Munshiram Manoharlal, New Delhi. Also see L. S. Vishwanath (2004), “Female Infanticide: The Colonial Experience”, *Economic and Political Weekly*, May 29, 2004, pp. 2313-18, and Rashmi Dube Bhatnagar, Renu Dube and Reena Dube (2005), *Female Infanticide in India: A Feminist Cultural History*, State University of New York Press, Albany, New York.

<sup>33</sup> See L. S. Vishwanath (2004), *ibid.* For an account of documents beginning from the reports of Jonathan Duncan, see Rashmi Dube Bhatnagar et al (2005). For a nineteenth century report, refer to Renu Dube and Reena Dube (2005) *ibid.* and for Sleeman’s writings from ‘Oudh’. Both Duncan and Sleeman had been appointed British Residents.

<sup>34</sup> Bhatnagar, *et al* (2005), *ibid.* Some have even suggested that the root cause of female infanticide were the British themselves, who, by freezing political boundaries, and imposing different land tenures, lessened venues for social mobility, and increased the financial burdens on people. L. S. Vishwanath (2004) provides a useful critique of such views.

in the colonial period bear significantly upon the present.”<sup>35</sup> Exactly how earlier practices of female infanticide is connected present day practices of female SSA is a complex issue and how we wish to analyse these processes is not just a matter of methodology, but also has relevance to social movements that try to address the declining sex ratio in India.

If it is true that the ways in which ‘tradition’ intermesh with ‘modernity’ in India makes it a difficult task for social scientists to use history as a mere background against which to gauge current phenomena, then the case of sex selective abortion in recent times stands to prove this point. Like with many other social phenomena, it is the case with the declining sex ratio that two conflicting view overshadow its analyses. One, is that, the modernisation paradigm, through an *abuse* of history—that is, by positing the ‘traditional’ as a pre-modern practice that can be rectified through the process of modernisation—deems the current declining sex ratio as an outcome of the ‘traditional’ practice of female infanticide. On the other hand, romanticised views posit the same as the result of completely modern scientific processes, such as sex selective abortions in particular, or larger modern phenomenon like the family planning programme of the independent Indian state.<sup>36</sup> What I take to be a closer understanding of these practices and phenomena borrows heavily from feminist historians in India who have pointed out the impossibilities of fixing the ‘traditional’ and the ‘modern’ as two separate historical periods or theoretical concepts. In other words, my thesis is that it is impossible to understand modern practices such as female sex selective abortions, or scientific phenomena like New Reproductive Technologies and Assisted Reproductive Technologies, without foregrounding it in a theoretical framework of ‘continuity and change’.

Vishwanath analyses historical sources and contemporary census data to understand that the regions having some of the lowest and consistently declining sex ratios today (Punjab and Haryana, as well as Gujarat, Rajasthan and Uttar Pradesh) are the same regions that figured principally in colonial accounts documenting the occurrence of female infanticide

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<sup>35</sup> Kumkum Sangari and Sudesh Vaid (eds.) (1989), *Recasting Women: Essays in Colonial History*, Kali for Women, Delhi.

<sup>36</sup> For all their attempts at a nuanced feminist history of female infanticide, Bhatnagar *et al* (2005) epitomize this view.

among certain upper or upwardly mobile hypergamous castes. His analysis of this phenomenon is useful because he shows the connection between caste, caste mobility and female infanticide and present sex selective abortion practices. He writes, “there is no getting away from the fact that the practice (of female infanticide) is embedded in the social structure of certain dominant castes. Unfortunately, for reasons of status mobility, and possibly other reasons that we can guess, the other non-dominant castes are following their bad example.”<sup>37</sup>

But if historical regional and caste-specific practices of female infanticide are morphing into something more far reaching than ever before, we need to understand how and why the decline in sex ratio has become a phenomena cutting across castes and regions in India. For scholars like Bhatnagar, Dube and Dube, ‘female feticide’ is just one part of a continuum of violence against women in India, where the primary culprits for the conditions of postcolonial Indian women are the modernization processes. To them, “it is social forces of our own modern times that introduce the practice of female infanticide in regions and communities that hitherto had no tradition of girl-child murder. It is in the 1970s, 1980s, and 1990s that the violence of femicide is generalized and universalized among all classes, regions, and communities of postcolonial India...Female infanticide (traditional methods of killing new-born female infants practiced in northwest India) reappears as modern femicide (scientific methods of aborting female fetus combined with traditional methods of killing through neglect and discrimination.”<sup>38</sup> While not agreeing with the disproportionate weight they place on the Neo-Malthusian population policies of the Indian state, or with the romanticisation that shapes their work, I think they are correct in pointing out that “Reproductive technologies imported from the West not only solve the problem of the unwanted female child for individual families, science also quick-fixes the nation’s problem of overpopulation through mass female sterilizations.”<sup>39</sup> When the Indian state puts forth, supports and legitimizes the discourse that overpopulation is the biggest problem of our times, and when it aggressively implements it population policies, it takes little to wonder why its target of ‘fewer children’ invariably results in ‘fewer female children’.

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<sup>37</sup> L. S. Vishwanath (2004), *op cit.*, p. 2316.

<sup>38</sup> Bhatnagar *et al* (2005), *op cit.*, p. 11.

<sup>39</sup> *Ibid*, pp. 15.

However, approaching the issue of New Reproductive Technologies not only requires us to use the lens of the social structure of India, it also requires an understanding of the relation between science and society, or more specifically, between science and gender.

With rapid advancement in reproductive technologies during 1970s, the question of women's relation to science and technology became a major occupation of second wave of the western women's movement. In the initial period, it was the under-representation of women in scientific and technical institutions that was the major concern of feminist scholarship of science. A large number of studies focused their critique on the differential access of men and women to science. These feminist critiques arose at a moment when the social conditions and cultural prescriptions that had virtually closed the doors of the field of science to women, were mystified by commonsensical arguments and IQ tests that projected the absence of women in scientific community as an outcome of women's intellectual inability to and disinterest in pursuing these disciplinary and career choices. The feminist responses, apt to their times, was to show that it was social constructions of femininity and masculinity (combined with other material phenomena) that conditioned girls from believing that the 'hard sciences' were masculine pursuits, and that they were better suited to pursue softer, more 'feminine' disciplines. The gist of these critiques was that a radical redefinition and reordering of the practices and uses of science was unnecessary; what was important was to open the doors for women. Such liberal feminist critiques were problematic because they shared with the dominant paradigm of their times, an uncritical acceptance of the value-neutrality and objectivity of science. They therefore equally contributed to the effacing out of the complex 'inter-relationships between science, technology and society'.<sup>40</sup>

Whereas these studies stopped at the question of gendered access to science, the ways in which the emergent women's liberation movement in the West focused on women's health issues soon led to fuller critiques of the relationship between science, technology and gender. As we have seen, a large part of these criticisms were directed against reproductive technologies and the related issue of who actually controlled women's reproductive and

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<sup>40</sup> I borrow the term from Hilary Rose and Steven Rose (1970), *Science and Society*, Penguin Books Harmondsworth, p. xiv.

sexual capacities. Within this vast body of feminist scholarship, there were essentially two kinds of theorizations of the effects of science and technology on women's lives.

In the early period of the second wave women's movement, a few feminists saw reproductive technology as progressive for women's interest. Shulamith Firestone<sup>41</sup>, in *The Dialectic of Sex*, saw new reproductive technologies as liberating and having immense potentials to free women from the tyranny of reproduction. The control over women's bodies, especially their sexuality and fertility, by men, was seen central to patriarchal system. If women's oppression was located in their biology, it could be overcome with the help of technology. On the other hand, radical feminist and eco-feminist theorizations projected technology as the ultimate tool at the service of patriarchy, as it helps in the exploitation of women and nature, and in the appropriation of women's sexuality and fertility. Radical feminist theories saw reproductive technologies as the congealment of an age-old male fear and jealousy of women's capacity to reproduce. They argued that these new technologies were men's attempt to co-opt that which biology denied to them; thus, be it hospitals, birth clinics, or new reproductive technologies, all of these were tools used by men to intrude into a private and powerful women's world. For example, "The radical feminist group FINRRAGE (Feminist International Network of Resistance of Reproductive and Genetic Engineering) saw the development of reproductive technologies as a form of patriarchal exploitation of women's bodies."<sup>42</sup>

Of course, as with all other 'schools' of thought, there were variations even among those scholars who agreed on the basic premise that technology per se was harmful and exploitative.<sup>43</sup> Maria Mies, for instance, had argued that irrespective of exactly which gender it is that controls it, the very form of technology is such that it cannot but exploit nature,

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<sup>41</sup> Shulamith Firestone (1973), *The Dialectic of Sex: The Case for Feminist Revolution*, Paladin, Frogmore, pp. 161-82.

<sup>42</sup> Judy Wajcman (2004), *TechnoFeminism*, Polity Press, Cambridge, p. 19.

<sup>43</sup> For a brief survey of the various feminist responses to reproductive technologies, see Martha E. Gimenez (1991), "The Mode of Reproduction in Transition: A Marxist-Feminist Analysis of the Effects of Reproductive Technologies", *Gender and Society*, Vol. 5, No. 2, pp. 334-50.



women and other people. Thus, for feminists like Mies, “Reproductive and genetic technologies are about conquering the ‘last frontier’ of men’s domination over nature.”<sup>44</sup>

While the trenchant analysis in these feminist works brought to the forefront the question of power and the embeddedness of science in society, with its gendered power relations, they also ended up reproducing some of the most basic ideas regarding gender and its social constructedness. In celebrating women’s so-called inherent tendencies towards peace, nurture, and protection of nature, they equally contributed to an essentialisation of womanhood. What is more, often, these theories romanticized lives of poor women in third world countries who had to eke out a subsistence living out of sheer poverty, and not necessarily because they were lovers of nature.

On the other hand, the responses of socialist and Marxist feminists was directed, both, to remedy the problems with such ‘conspiratorial’ theories of male interests in appropriating women’s capacities to reproduce via the use of new technologies and the casting of all women as victims in this design and game plan, as well as to show the need to develop a greater understanding of the connections between science, social structure, and modes of production and reproduction. Ginsberg and Rapp, for example, wrote that “we see the “politics of reproduction” as synthesizing two perspectives—the local and the global—by examining the multiple levels on reproductive practices, policies and politics so often depend.”<sup>45</sup> Gimenez, on the other hand, opts to analyse the new reproductive technologies as “sources of transformation of the material conditions of reproduction...an example of the capital-intensive approach to medicine typical of advanced capitalism, which treats medical care as a commodity just like any other.”<sup>46</sup> For her, the larger implications of NRTs is that they cause the creation of a mode of procreation that is separate from the mode of social reproduction, and that, thereby, like the case with other technologies, the effects of the NRTs can be studied only by firstly acknowledging, and secondly, by analyzing the new kinds of social relations they create between human beings.

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<sup>44</sup> Judy Wajcman (2004), op. cit., p. 21.

<sup>45</sup> Faye Ginsberg and Rayna Rapp (1991), “The Politics of Reproduction”, *Annual Review of Anthropology*, Vol. 20, p. 313.

<sup>46</sup> Martha E. Gimenez (1991), “The Mode of Reproduction in Transition: A Marxist-Feminist Analysis of the Effects of Reproductive Technologies”, *Gender and Society*, Vol. 5, No. 2, pp. 335-6.

One of the factors that these works share with more recent works in other social sciences, for example, in the anthropological understanding of kinship, is the recognition that new reproductive technologies have at least one progressive potential—they render any assumptions regarding the biological essentialism and the taken-for-granted assumptions about women and motherhood to be futile and false ones.<sup>47</sup>

However, what most of these feminists fail to foreground in their analysis is that the implications of new reproductive technologies are felt differently not only across class, race and ethnic divisions amongst women living in the first world, but also that they often carry an entirely different set of implications for women in third world countries such as India. This is precisely the reason why someone like Gimenez can, even as she writes that “there is no gender inequality in general; gender inequality has causes and structural supports specific to each mode of production and is intrinsically related to other historical forms of inequality”<sup>48</sup>, gloss over contrary evidence of how the NRTs in India has not given even the slightest respite to women from the oppressive weight of social constructions of femininity, motherhood, fecundity and fertility, in order to celebrate at least the capacity of the NRTs to bring into question all our assumptions about biology, the process of procreation, mothering, parenting and the relationship between parent and child.

The wide range of ethical, legal and social concerns the use of New Reproductive Technologies raise have not yet been fully worked out; indeed, they have not yet been fully felt by human society. As Gimenez correctly pointed out, “Women and men using these technologies are caught between two worlds, entering into relations of procreation, isolated from social relations of reproduction, whose corresponding forms of consciousness are still in the making.”<sup>49</sup>

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<sup>47</sup> For the uses of new reproductive technologies to feminists working in the field of kinship, gender and anthropology, see Janet Carsten (2000), “Introduction: Cultures of Relatedness”, in Janet Carsten (ed.), *Cultures of Relatedness: New Approaches to the Study of Kinship*, Cambridge University Press, Cambridge, pp. 1-36. Also refer to Linda Stone (1998), *Kinship and Gender*, Westview Press, Colorado, Chapter 8.

<sup>48</sup> Martha E. Gimenez (1991), op cit., p. 339.

<sup>49</sup> Ibid., p. 348.

What I wish to emphasize here is that it might be easier for feminists situated in Western capitalist societies to be more ambivalent about the effects of reproductive technologies, allowing them to write, for instance, that “they also challenge long established assumptions about sexuality, reproduction, marriage and the family. Depending on the context, they can be used to subvert the aims of state population policies”;<sup>50</sup> or, in the context of amniocentesis in the US, that “as reproduction is increasingly understood as cultural not natural, and social not private, the technocratic promise of prenatal diagnosis might be redeemed through the radical demedicalization of scientific literacy and the development of humane social services for all.”<sup>51</sup>

The context of India rules out the possibility of optimism about the NRTs; what is more, given the fact that the first and most common attack is directed here, not against foetuses with Down’s syndrome or sickle-cell anaemia but against those who are simply female<sup>52</sup>, there is no doubt about the fact that these technologies spell out nothing more than eugenic implications for the Indian population. Thus, we need to remember Ginsberg and Rapp’s assertion that we need to develop an understanding of “local reproductive relations (as) both constituted by and resistant to more global forms of power.”<sup>53</sup> The reasons western feminist theorizations on the ‘science question in feminism’ does not suffice for contexts such as ours is that, contrary to expectations, modernity has failed to deliver its promises of ‘freeing’ us from the clutches of pre-modern institutions such as communities. That this is felt most strongly by, and has the most oppressive effects on women ought to be clear by now.

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<sup>50</sup> Martha E. Gimenez (1991), “The Mode of Reproduction in Transition: A Marxist-Feminist Analysis of the Effects of Reproductive Technologies”, *Gender and Society*, Vol. 5, No. 2, p. 335.

<sup>51</sup> Rayna Rapp (1993), “Reproduction and Gender Hierarchy: Amniocentesis in America”, in Barbara Diane Miller (ed.), *Sex and Gender Hierarchies*, Cambridge University Press, Cambridge, p. 123.

<sup>52</sup> I am not trying to dismiss the problems with the neo-eugenic implications of the first kinds of effects of the reproductive technologies, but pointing out that perhaps their most wide reaching neo-eugenic implications are those felt in countries such as India where an entire gender feels the implications of these practices.

<sup>53</sup> Faye Ginsberg and Rayna Rapp (1991), *op. cit.*, p. 313.

## CHAPTER III

### THE GENES MARKET AND PUBLIC HEALTH

The last two decades have witnessed the global hegemony of the ideology of neo-liberalism which advocates a free play of market forces, the withdrawal of the state from production and productive investment and cutting of state expenditure on social services like health and education. This new economic world order, where finance capital flowing from the first world countries is ruthlessly exploiting the human and natural resources, particularly of the third world countries, has been seen as a resurrection of *laissez faire* capitalism of the nineteenth century. Classical political economists had argued that the separation of the state from self-regulating market economy would lead to social prosperity. A state of maximum economic benefit for all participants would be achieved if they were left free to pursue their own interests; thus, the individual pursuit of selfish interests would lead to an ordered universe, an order brought about not by deliberate political action, but unconsciously by the actions of many individuals<sup>1</sup>. Earlier, I have argued that classical political economy was premised on fixed human nature, an idea drawn from Hobbes. Hobbes' view of the war of all against all was rooted in his understanding of human biology.

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<sup>1</sup> Meghnad Desai (2000), "Political Economy", in Tom Bottomore (ed.), *A Dictionary of Marxist Thought*, Maya Blackwell, New Delhi, pp. 426-8.

Social Darwinism drew heavily from the ideas of classical political economy. It believed in the survival of the fittest and saw society as the reflection of biology. It has been argued that neo-liberalism is also based on the idea of biological determinism; quite often, it involves the arguments of 'biology as destiny' to legitimize the existing order.<sup>2</sup> The hegemonic ascendancy of neo-liberalism in the last two decades has been accompanied by a rapid advancement in human genetics which has consequently changed the understanding of human health and illness. Ill health has come to be increasingly seen as an outcome of genetic disorders, while the influence of social, economic and environmental factors on human health has been relegated to an inconsequential position.

In this chapter I shall deal with the implications of the development of human genetics in the context of a global hegemony of neo-liberalism for public health, with a special focus on India.

## I

Human beings across societies and historical periods have perceived and reflected upon the status of health and illness in their society. Through these conscious observations and reflections, they have also developed certain mechanisms to deal with ill health. The structure of a given society not only shapes the health status of its members but also their perceptions of it. This social structure, in addition, determines the kind of health services—which deal with the mechanisms for prevention and treatment of illness—the society has, as well as the access of these services by its members. To 'commonsense', shaped by the dominant ideology of industrial capitalism, ill health appears to be an individual biological problem that can be solved by the use of modern bio-medicine. Kenneth Newell, in his paper 'Selective Primary Health Care: The Counter Revolution', draws an interesting parallel

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<sup>2</sup> Steven Rose (1997), *Lifelines: Biology, Freedom, Determinism*, Allen Lane, The Penguin Press, London.

between the popular understanding of health and success<sup>3</sup>. Owing to the difficulty in reaching a universal definition of it, success is usually understood as the situation reached after the overcoming of failures. Similarly, health is what is reached after eliminating disease. This negative understanding of health in the dominant bio-medical paradigm is rooted in germ theory.

The germ theory model believed in and propagated the doctrine of specific etiology of disease. In the late nineteenth century, Louis Pasteur and Robert Koch showed, through their laboratory experiments, that disease is caused by a specific micro-organism such as a germ. The germ theory focused on the internal environment—how do the microbes affect cells, organs and tissues to produce disease? In this clinical approach, external environmental factors were relegated to a secondary position in understanding the causes of disease.<sup>4</sup> The germ theory model was based on Descartes' analogy of the human body as a machine. Descartes' mechanistic view treats the human body as made up of different parts so that when a problem arises in any one part, it affects the functioning of the entire body. Modern medicine, based on the germ theory model, looked for 'magic bullets' to cure diseases. The germ theory promoted linear therapeutic disease control programmes and individualistic and institutional care.<sup>5</sup>

Despite WHO's broad definition of health, provided fifty years ago—a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity—the biomedical model of health still holds sway over international agencies, national governments and the policies of both, and commonsense. The critiques of this model have argued that the health and illness of a population is an outcome of complex interaction between social, economic, political and biological processes. "Health and disease are the products of the way society is organized, of the way subsistence is produced, as well as

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<sup>3</sup> Kenneth W. Newell (1988), "Selective Primary Health Care: The Counter Revolution", *Social Science and Medicine*, Vol. 26, No. 9, pp. 903-6.

<sup>4</sup> Rene Dubos (1979), *Mirage of Health*, Harper Colphan, New York.

<sup>5</sup> Imrana Qadeer (2001), "Impact of structural adjustment programs on concepts in Public Health", in Imrana Qadeer, Kasturi Sen and K. R. Nayar (eds.), *Public Health and the Poverty of Reforms: The South Asian Predicament*, Sage Publications, New Delhi.

surplus, and the way subsistence and surplus are distributed among the members of society.”<sup>6</sup> The Alma Ata Declaration of 1978 also reinforced the structural characteristic of health. The radical approach of the Primary Health Care adopted then demanded fundamental changes in the existing socio-economic and political structure. Its emphasis on social justice, equity, and community participation threatened the ruling elite. The ramifications of this threat was also felt in the level of discourse, and the ruling classes have continued to sideline this approach to health, instead preferring to promote the biomedical model which is firmly rooted in the existing institutional arrangement and is suited to their own interests.

Moving one step backwards in the history of ideas shows us how a much weaker concept of the same has gained currency in public health policies and studies. This weaker concept, which has existed from the time of nineteenth century epidemiological studies, does not really correlate health of the population and the wider social structure. What it does instead is to draw a correlation between the health of an individual and his/her socio-economic status. There is a strong basis to believe that the hidden and actual unit of analysis in conventional epidemiological studies is the individual, wherein the causes of disease in population are simply taken to be the sum total of the risk factors for diseases in individuals.<sup>7</sup> In the words of Hilary Graham, “social epidemiology had identified a cluster of individual-level factors which link individuals’ socio-economic circumstances and their health.”<sup>8</sup> These factors are inclusive of material factors, psycho-social factors and behavioural factors. But epidemiology does not move beyond, in order to show how unequal socio-economic status of individuals are produced and maintained.

The widespread understanding that the introduction of specific medical measures and the expansion of the modern medical services are generally responsible for the decline in mortality rate and the rise in life expectancy in the modern period, was challenged in the

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<sup>6</sup> Turshen, cited in Richard Levinson (1998), “Issues at the Interface of Medical Sociology and Public Health”, in Graham Scambler and Paul Higgs (eds.), *Modernity, Medicine and Health: Medical Sociology Towards 2000*, Routledge, London.

<sup>7</sup> *Ibid.*, p. 69. The reason for this could be that *individuals* sit more easily in the framework of social reform than social groups, and the need for a radical restructuring of society can be obscured.

<sup>8</sup> Hilary Graham (2001), “From Science to Policy: Options for Reducing Health Inequalities”, in D. Leon and G. Walth (eds.), *Poverty, Inequality and Health: An International Perspective*, Oxford University Press, Oxford, p. 298.

1960s and 1970s by the studies of medical sociologists, historical demographers and historians of medicine.<sup>9</sup> It was observed that the secular decline in the mortality rate due to infectious diseases occurred before the introduction of vaccines and antibiotics. Dubos studied the history of tuberculosis and observed that the mortality rates from disease were declining prior to the discovery of the TB bacillus and long before the availability of any form of biomedical intervention. As I had outlined in my earlier chapter, McKeown argued that decline in mortality rate in the nineteenth and twentieth century from infectious diseases was mainly due to the improvements in the environment which included a rising standard of living, particularly improved diet and hygiene changes introduced by the sanitary reforms. The doctrine of specific aetiology of disease of germ theory model was critiqued for its narrowness and simplicity. It was argued that micro-organisms may be a necessary but not the sufficient causes of most diseases.

Long before the advent of the germ theory in the late nineteenth century, health and illness was understood, in most of the civilizations, in terms of harmony and disharmony between individuals and their environment. The idea of health as a condition of perfect equilibrium between organisms and its environment can be found in ancient Greek medicine as well as in *Ayurveda*. The idea of 'harmony' led to the conclusion that illness was caused by an imbalance in the ideal state of equilibrium and that the task of the medicine was to identify the sources of these imbalances and aid the return to a condition of equilibrium. Greeks in the ancient period recognised that the illness producing disharmony could be found in sources outside the human body.<sup>10</sup> Hippocrates argued in *The Air, Water and Places* that human health and well being were influenced by the totality of environmental factors, living habits, climate, topography of the land and the quality of air water and food.<sup>11</sup>

In the eighteenth century, Rousseau had asserted that civilization had corrupted human beings physically and mentally, and that in their original state of nature, human beings were happy and healthy. Since illness was the result of straying away from the natural

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<sup>9</sup> For examples, see Rene Dubos (1979), op. cit. Also see T. McKeown (1976), *The Modern Rise of Population*, Arnold-Heinemann, London.

<sup>10</sup> Vijay K. Yadavendu (2001), "Social Construction of Health: Changing Paradigm", *Economic and Political Weekly*, Vol. 36 No. 29, pp. 1284-95.

<sup>11</sup> Hippocrates (2007), *On Air, Water and Places*, The University of Adelaide Library, Adelaide.



environment, he argued that the original state of health and happiness could be achieved only through a return to nature. Dubos argues that the longing of human beings, throughout history, for the attainment of a state of perfect health and happiness is illusory. According to him, health is an outcome of human beings adapting to their environment. Since environments go through continuous change, an inevitable amount of mal-adaptation occurs, which results in disease. The attainment of a state of perfect health, therefore, is a mirage.<sup>12</sup>

The public health approach to health and illness of a population was a product of the rise of industrial capitalism in Europe. The rapid industrialisation in the nineteenth century stimulated the growth of crowded cities and towns which lacked basic public utility services, water supply, sanitation, health services and housing. The early nineteenth century also witnessed the reappearance of communicable diseases like cholera, typhoid, intestinal diseases and airborne, respiratory and water borne diseases.

The various social problems which arose in the wake of rapid industrialisation led many to investigate the influence of poverty, occupation, housing and other factors on health. In France, Louis René Villermé studied the health condition of textile workers. His report, *Survey of the Physical and Moral Condition of Workers Employed in Cotton, Wool and Silk Factories*, published in 1840, showed that morbidity and mortality rates in Paris were closely related to the living conditions of the different social classes.<sup>13</sup> In 1839, Chadwick and his collaborators started a survey to study the health problems of the working population throughout England, Wales and Scotland. The report of this survey showed that “disease, especially communicable disease, was related to filthy environmental condition, due to lack of drainage, water supply and means for removing refuse from houses and streets.”<sup>14</sup> The 1842 report ‘*The Sanitary Conditions of the Labouring Classes of Great Britain*’ compiled by Chadwick, recommended implementation of what he called ‘the sanitary idea’, beginning with the creation of a central public health authority to direct local boards to provide drainage, cleaning, potable water and sanitary regulation of dwellings, nuisances and

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<sup>12</sup> Rene Dubos (1979), op. cit.

<sup>13</sup> George Rosen (1958), *A History of Public Health*, M. D. Publications INC., New York, pp. 192-3.

<sup>14</sup> Ibid., p. 215.

offensive trades.<sup>15</sup> Chadwick's central utilitarian idea (since of course Chadwick was a pupil of Bentham's), which resonates today in institutions such as the World Bank, is that it makes economic sense to provide a measure of public health, without which the society would have to bear a bigger economic burden. Public health was not to be provided, not as a matter of right or justice, but as a result of dismal economic calculations, the cost-benefit analysis. Nevertheless the Chadwickean sanitary reforms of the 1840s led to a substantial decline in mortality from water and food borne diseases like cholera, diarrhoea, dysentery, typhoid and typhus.<sup>16</sup> The Chadwickean sanitary reform was premised on the miasmatic theory of disease aetiology which believed that infectious diseases were caused by harmful gases in the atmosphere.

In Germany, Rudolf Virchow studied epidemic in the industrial districts of Upper Silesia and showed that the origin of the epidemic was closely linked to unfavourable meteorological conditions. In 1848, he started a new journal '*Medizinische Reform*', in which he argued that poverty was the main cause of disease and that society should be reconstructed in a way that would ensure health of human beings. According to him, the treatment of individual cases was only a small aspect of medicine. The control of disease in a population was more important, and this required social and political action<sup>17</sup>.

As we have seen, various studies in the nineteenth century showed that the health status of a population was determined by socio-economic and environmental factors and therefore recommended socio-economic reforms and improvement in environmental conditions to control high mortality rate. However, with the advent of germ theory in the late nineteenth century, the role of socio-economic factors in shaping the health status of the population became obscured. The germ theory became the basis of modern bio-medicine, which understands and treats disease as a biological problem of the individual. The diagnosis of illness is made on an individual basis, and treatment is also individually prescribed. Clinical bio-medicine treats individuals as abstract beings and does not take into

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<sup>15</sup> Dorothy Porter (1999), *Health, Civilization and the State: A History of Public Health from Ancient to Modern Times*, Routledge, London, pp. 111-27.

<sup>16</sup> T. McKeown (1976), op. cit.

<sup>17</sup> Rene Dubos (1979), op. cit.

consideration their social and historical location. Modern medicine squarely falls into the reductionist and mechanistic worldview of modern sciences. "It has been observed that this version of the natural world was a victory of the industrial bourgeoisie, which established the positivist conception of science and of medicine."<sup>18</sup>

## II

The market has always existed in the realm of healthcare services. In pre-capitalist societies, health-care services were provided at home or at the community level. While elite classes used the services of healers with some formal training, the others availed the services of laypersons.<sup>19</sup> With the emergence of industrial capitalism in Western Europe and North America and the concomitant colonisation of many Asian and African societies, the market became predominant in all spheres of human activities, including that of health. In the nineteenth century, market economy, along with the ideology of economic liberalism, became the founding stone of the capitalist social order. In Western capitalist societies of the nineteenth century, most human activities were defined in relation to the market. The bourgeois state of these capitalist societies classified citizens first and foremost as economic, rather than as political or civic agents. The social and political rights of the citizens were subordinate to the interests of the capital.

In neo-classical economics, the market is seen as ruled by the mechanism of demand and supply, with the price determining decisions on what and how much to produce and consume. The relevant question here is, can we treat health care services as any other economic good and leave its provisioning to the mechanism of demand and supply? Health care services do not behave like any other commodity. There exists the asymmetry of

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<sup>18</sup> Vijay K. Yadavendu (2001), op. cit., p. 1287.

<sup>19</sup> Rama V. Baru (1998), *Private Health Care in India: Social Characteristics and Trends*, Sage Publications, New Delhi.

information between the sellers (physicians), who have the specialised knowledge, and the buyers of health care services, who do not have access to this knowledge. The individual's need for health care is involuntary and arises in the case of illness. The consumer's free and rational choice from a set of goods and services in the market to maximise his/her satisfaction does not exist in the sphere of health care services.<sup>20</sup> This is so because here, doctors, who have specialised knowledge, decide the quality and quantity of health services.

Within health economics itself, there is an extensive debate over what exactly the role of the state should be in the production and distribution of health services, and which of the two—the state and the market—have greater efficiency in this field. Broadly, two trends exist in this debate. Paternalists treat health care as a good with uncommon characteristics, and which require a departure from the usual understanding of competitive market functioning. They argue that health care, given its special nature, should come under the functioning of the state, which should provide free health care services. However, liberals do not see health care as any different from other commodities and services, and argue that it should be left to the whims of the market. But, as Narayana argues, both these streams are embedded in neo-classical economics.<sup>21</sup> They both agree in essence with *laissez faire* capitalism, but differ with respect to whether or not the state's intervention in certain areas is required in order to maximise the profits of the market forces.

The historical experience of capitalism in the first half of the twentieth century severely undermined the neo-classical paradigm, which believes that the mechanism of demand and supply would automatically lead to stability and prosperity of capitalist economies. The first few decades of the twentieth century witnessed periodic economic crises in the western capitalist economies. The most acute manifestation of this crisis of *laissez faire* capitalism was The Great Depression of the 1930s not only witnessed immense poverty and reduction in the purchasing power of a large number of consumers, but also affected capitalists, who were unable to find sufficient markets for their goods. The Great Depression resulted in mass unemployment, fall in production, and social and political unrest

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<sup>20</sup> Kethineni Veeranarayana Narayana (1991), "Political Economy of State Intervention in Health Care", *Economic and Political Weekly*, October 19, 1991, pp. 2427-32.

<sup>21</sup> *Ibid.*

that threatened the very survival of the capitalist world order. J M Keynes' theory of welfare state arose as a response to this situation. He argued that "in a market economy there is an inbuilt trend towards stagnation, that is, the effective demand tends to be less than what is required for full utilisation of productive capacity and as a consequence the sources of capital accumulation tend to dry up."<sup>22</sup> To counteract these inherent tendencies of capitalist system, he advocated large-scale state expenditure on social sectors like health, education, housing and transportation, which would ensure full employment and maintain effective demand in the economy.

At the same time, of course, there was the example of a backward agricultural society transforming itself, which believed that health care, education and social security—along with minimum and decent wages—was a right of citizens, irrespective of gender. The massive transformation in revolutionary Soviet Union was inspiring not just to communists but people like Sidney and Beatrice Webb, architects of the welfare state and of the London School of Economics. In short, ideas of a welfare state, of state responsibility for the universal provision of comprehensive health care, were part of the zeitgeist in Europe.<sup>23</sup>

The Keynesian revolution in economics kick-started the ideological basis for the emergence of welfare states in the post Second World War period in many capitalist societies. However, the degree and nature of state expenditure in social sectors varied across countries depending on their historical specificities. Britain, for instance, set up the National Health Services (NHS) which provided free health care services to all at the point of delivery. The NHS was primarily funded by direct taxation.<sup>24</sup> In Germany and Scandinavian countries, the state played the main role in the financing and provisioning of health services and education.

The expenditure of welfare state in social sectors, however, was not intended to transform the structure of capitalist world; rather, it complemented the interests of market forces by raising the demand. "A welfare state does not call into question the societal

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<sup>22</sup> Ibid., p. 2429.

<sup>23</sup> E. J. Hobsbawm (1995), *The Age of Extremes: The Short Twentieth Century 1914-1991*, Abacus, London.

<sup>24</sup> Allyson M. Pollock (2004), *NHS-PLC: The Privatisation of Our Healthcare*, Verso, London.

processes of creation and appropriation of wealth. It merely invests a certain proportion of the national surplus into welfare to harness its political legitimacy.”<sup>25</sup> The threat of communism after the Second World War forced the ruling class of the First World countries to introduce certain welfare measures. This was done primarily to diffuse the revolutionary potential of the working class in these countries.

The U.S., however, remained a market- dominated society, although there too, the ‘New Deal’ initiated massive state involvement in the economy. Health care in the US, then as now, was to remain outside this domain. Throughout the twentieth century, the working class in the US was largely unorganised and lacked consciousness and solidarity. In America, the labour-capital relation has been one where the second totally dominates the first.<sup>26</sup> To overcome the economic crisis of the 1930s, the US resorted to imperialist exploitation of the third world countries, particularly the Latin American countries. Greg Grandin, in his *Empire’s Workshop*, argues that Latin America has served as a workshop for the US in its rise to global power.<sup>27</sup> In the nineteenth and the early twentieth century, the US directly intervened in Latin America, which gave rise to a protracted anti-imperialist struggle. During the Great Depression, the US, under the leadership of Franklin D Roosevelt, abandoned its militarism and adopted the policy of ‘good neighbour’, which was “required to protect America’s expanding geopolitical interests and to create a stable climate that would benefit the general interest of the overseas investors.”<sup>28</sup> For big American corporations, Latin America provided a large market for their manufactured goods and became a source of cheap raw materials.

The two decades of economic prosperity after the Second World War was followed by the economic crisis of the 1970s in the western capitalist world. The onset of inflation in the late 1960s, in the wake of the Vietnam War and the Oil Crisis resulted in deep economic recession and budgetary deficits. In this period, the ideology of neo-liberalism gained

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<sup>25</sup> Imrana Qadeer (1994), “The World Development Report 1993: The Brave New World of Primary Health Care”, *Social Scientist*, Vol. 22, No. 9-12, p. 27.

<sup>26</sup> Rene I. Jahiel (1998), “Health Care System of the United States and Its Priorities: History and Implications for Other Countries”, *Croatian Medical Journal*, Vol. 39, No. 3, pp. 316-31.

<sup>27</sup> Greg Grandin (2006), *Empire’s Workshop: Latin America, the United States, and the Rise of the New Imperialism*, Metropolitan Books, New York.

<sup>28</sup> *Ibid.*, p. 161

strength and ultimately resulted in the ascendancy of the new conservative governments to power in Britain and in the United States, led by Margaret Thatcher and Ronald Reagan respectively. The ideology of the welfare state came under severe attack from the New Right, which was the ideology of this new conservative regime. The state expenditure of the previous governments on various welfare programmes were projected as being responsible for the economic crises of that period. The advocates of neo-liberalism argued that excessive state intervention in the functioning of economy had precipitated the socio-economic crisis. The new right advocated the laissez faire economy of early capitalism and opposed state expenditure on welfare programmes. The new right framed the debate in terms of individual right and freedom. The redistributive measure of the welfare state, libertarians argued, curtailed inviolable individual rights.<sup>29</sup>

To overcome the economic crisis, neo-liberalism advocated unregulated operation of the market forces, withdrawal of the state from productive activities and cuts in the state expenditure on welfare programmes like health, education, housing, and transportation. Once again Latin America became the workshop for the implementation of these neo-liberal economic ideas emanating from the United States. The neo-liberal economists from the University of Chicago tried to provide solutions for the crisis ridden economy of Chile which was then ruled by the military government of Augusto Pinochet. They recommended what Milton Friedman called 'shock treatment'—cut back in state spending, retrenchment of tens of thousands of government workers, end of wage and price control, privatisation of state industries and deregulation of capital market. Based on these recommendations, the military junta of Chile initiated economic reforms in the late 1970s. These reforms, however, could not solve the economic crisis, except for a brief period of three years when the economy registered a moderate growth. Instead, it led the Chilean economy to the verge of a total collapse in the early 1980s. Chile then turned to the IMF for loans in order to save its economy.<sup>30</sup>

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<sup>29</sup> Nirja G. Jayal (1994), "The Gentle Leviathan: Welfare and the Indian State", *Social Scientist*, Vol. 22, No. 9-12, p. 19.

<sup>30</sup> Greg Grandin (2006), *op. cit.*, pp. 159-95.

In the 1980s and 1990s, however, the imperialist forces led by the US, with the help of the IMF and the World Bank, imposed these neo-liberal economic policies on the Third World countries. The reduction of the role of the state and free play of the market forces constituted the core of the Structural Adjustment Programmes (SAP) in the Third World. The SAP in the Third World has been 'accompanied by the triumph of the ideology of individualism, competitive wealth seeking, and unbridled consumerism among the rich'.<sup>31</sup> The advocates of neo-liberalism argue that economic growth would lead to trickle down effect and, therefore, would bring overall development. Prabhat Patnaik argues that SAP in fact serves the interest of the metropolitan finance capital. "The deflation-privatisation-liberalisation package which these policies (SAP) encompass create extremely favourable conditions for asset acquisition by metropolitan finance capital in the Third World."<sup>32</sup> In this new economic world order ruled by finance capital and characterised by unequal trade relations, Third World countries have increasingly become exporters of primary goods and importers of manufactured goods. These economic policies have led to further increase in poverty, unemployment, food insecurity, and privatisation of health and education in the Third World countries.<sup>33</sup>

### III

The global hegemony of finance capital and the concomitant ascendancy of neo-liberal ideology in the last four decades have shaped, just as it has simultaneously been complemented by, the assumptions and practices of science, particularly the biological science. In the 1970s, biological determinism reasserted itself in the form of socio-biology

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<sup>31</sup> Mohan Rao (2004), *From Population Control to Reproductive Health: Malthusian Arithmetic*, Sage Publications, New Delhi, p. 169.

<sup>32</sup> Prabhat Patnaik (1994), "Notes on the Political Economy of Structural Adjustment", *Social Scientist*, Vol. 22, No. 9-12, pp. 10-11.

<sup>33</sup> Utsa Patnaik (2005), "Theorizing Food Security and Poverty in the Era of Economic Reforms", *Social Scientist*, Vol. 33, No. 7-8, pp. 50-80. Also see Mohan Rao (2004), *op. cit.*, pp. 158-202.



which claimed that capitalism, aggression, racism, patriarchy and xenophobia are human universals, and inevitable products of evolutionary history. “This modern version of biology as destiny, which goes under the rubric of socio-biology, has provided ideological legitimation for the New Right and neo-conservatives’ insistence that our unjust society, divided by class, race and gender, is in some way forced upon us by our biology.”<sup>34</sup>

The discovery of double helical DNA structure in the 1950s revolutionised the study of human genetics and molecular biology. It was revealed by the molecular biologists that each cell of the human body contains in its nucleus, two copies of a very long molecule called deoxyribonucleic acid (DNA). One of these copies comes from male and one from female. DNA is composed of basic units called nucleotides. There are four kinds of nucleotides—adenine, cytosine, guanine and thymine. These nucleotides are strung one after another in a long linear sequence of nucleotides, which performs separate function, and is called gene. A particular DNA sequence, that is, the gene, provides the code for the making of proteins. Proteins shape all aspects of the organism, from the structure of individual cells and organs to the complex metabolic processes by which organisms survive. Thus, the *genotype* of an organism which contains all the instructions necessary for its survival and growth, determines the organism’s *phenotype*. In the reductionist scheme of molecular biology, environment plays a passive role in the development of an organism. When abnormal functioning of genes affects the production of proteins, it disrupts normal growth of the organism’s phenotype. In simple language, it is the gene which causes most of the diseases in organisms. We often hear of some breaking news about the discovery of a gene for a particular disease, for example, gene for obesity, gene for breast cancer or gene for homosexuality. The language of this news convinces us to assume that social and environmental factors are not important in the causation of a disease. Or in short, that nature prevails over the nurture.

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<sup>34</sup> Steven Rose (1986), “DNA and the Goal of Human Perfectibility”, *Monthly Review*, Vol. 38, No. 3, p. 49.

The critiques of this biological determinist approach, have argued that environmental factors also play an important role in the development of an organism.<sup>35</sup> A dialectical interaction takes place between the genes of an organism and the environment during its development. Organisms are not determined only by their genes. Scientists have, however, identified certain diseases caused by single genes, like sickle cell anaemia or phenylketonuria (PKU), cystic fibrosis, Huntington's disease and Duchenne muscular dystrophy. But such single cell disorders are relatively rare; they constitute only 2 percent of disease morbidity.<sup>36</sup> Even in the case of single cell disorders, environmental factors play an important role. In the genetic disease PKU, the affected person lacks a gene responsible for the coding for a particular protein, an enzyme necessary for metabolism of a normal dietary component, the amino acid phenylalanine. The child affected with PKU, if untreated, develops mental retardation. However, if the condition is detected at birth, it can be treated by providing the child with a diet devoid of phenylalanine. In an environment that is free of phenylalanine, the gene responsible for PKU does not produce mental retardation. What this essentially means is that the same gene in different environments produces different effects on an organism.<sup>37</sup>

The developmental history of an organism is shaped by the complex interaction between the internal and external forces. The external forces themselves undergo continuous change. Partly, this change in external forces is an outcome of the activities of the organism itself as it produces the conditions of its own existence. The external environment in which organisms develop is not a static entity; by working on the external environment, they continuously change it. Similarly, the DNA of an organism is not an autonomous entity, but acts in response to external forces. "For example, the enzyme that breaks down the sugar lactose to provide energy for bacterial growth is only manufactured by bacterial cells when they detect the presence of lactose in their environment."<sup>38</sup>

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<sup>35</sup> For example, Richard Levins and Richard Lewontin (1985), *The Dialectical Biologist*, Harvard University Press, Cambridge, Massachusetts, and London; R. C. Lewontin (1991), *Biology As Ideology: The Doctrine of DNA*, Harperperennial, New York; Steven Rose (1997), *Lifelines: Biology, Freedom, Determinism*, Allen Lane, The Penguin Press, London; R. Lewontin, S. Rose and J. Kamin (1984), *Not in Our Genes: Biology Ideology and Human Nature*, Pantheon Books, New York.

<sup>36</sup> Peter Conrad (2002), "A Mirage of Genes", in S. Nettleton and U. Gustafsson (eds), *The Sociology of Health and Illness*, Polity Press, Cambridge.

<sup>37</sup> Steven Rose (1986), op. cit.

<sup>38</sup> Lewontin, R. C. (2000), *It Ain't Necessarily So: The Dream of the Genome and Other Illusion*, Granta Books, London, pp. 148.

Despite the complex relationship between genes and its environment, the reductionist and deterministic approach of human genetics and molecular biology exert a hegemonic influence both on modern medicine as well as on lay persons. The similarities in the structure of arguments between the germ theory and the dominant theory of human genetics constitute the main reason for the easy acceptance of genetic explanations in medicine and in popular discourse. "At least on the level of assumption and structure, gene theory does not challenge common conception of (disease) aetiology but rather shifts its focus. In this sense, at least, genetics is a complementary rather than a challenging paradigm in medicine."<sup>39</sup> The popular belief of molecular biology and human genetics that organisms are determined by their DNA culminated in the Human Genome Project. It was argued that the mapping and sequencing of human DNA would greatly enhance our understanding of disease causation and would lead to therapeutic programmes. The multi-million Human Genome Project in the US is jointly run by the National Institute of Health (NIH) and the Department of Energy. The use of knowledge generated by the genome project in the rapidly growing biotechnology industry has given rise to conflicting commercial interests. Most of the molecular biologists have financial stakes in the biotechnology industry. "The huge investment in biomedical funding for genetics and the vast international scientific industry which it supports creates an apparatus continually producing new genetic findings. Professional collaborations between scientists, industry and physicians have put genetics on the cutting edge of medical-scientific thinking."<sup>40</sup> The development in human genetics and molecular biology has revolutionised the technology of assisted reproduction in the form of in vitro fertilisation and 'genetic engineering'. The social and medical construction of infertility as a health problem and the desire to have the 'perfect baby' have greatly expanded the markets for the ART industry in the last two decades.

The predominant assumption of biomedicine that disease is caused by genes has percolated down to general public consciousness through the strata of the state, the university and the media. This assumption has shifted the blame for ill health from social structure and environments to individual 'biology'. The development in molecular biology has been

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<sup>39</sup> Peter Conrad (2002), "A Mirage of Genes", in S. Nettleton and U. Gustafsson, (eds.), *The Sociology of Health and Illness*, Polity Press, Cambridge, p.79.

<sup>40</sup> Ibid.

accompanied by a shift in the object of study of epidemiology from population to individual's genetic profile<sup>41</sup>. Since the health of individuals is determined by their genes irrespective of their social location, socio-economic changes for the improvement of their health status would be deemed a futile exercise. Thus, the basic premise of genetic determinism of modern biomedicine legitimises the withdrawal of state from welfare programmes and privatisation of curative health services.

## IV

In the 1990s, the Indian state initiated health sector reforms as part of the Structural Adjustment Programmes. The main features of health sector reforms include (a) cuts in the state expenditure on health, (b) limiting state intervention to the level of preventive measures, that is, in providing infrastructure like sanitation and other Public Works,<sup>42</sup> (c) transfer of curative part of health services to the private sector, (d) introduction of user fee in State-run health institutions, and (e) introduction of health insurance by multinational corporations. The most important aspect of the health sector reforms in India is that on the one hand, the World Bank and the IMF are pushing for cuts in the state expenditure on health, and on the other hand, are funding several health related programmes. The only way to understand this paradox is to see that it is a temporary cushioning provided by them for the transitional

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<sup>41</sup> See Nancy Krieger (2001), "Theories of Social Epidemiology in the 21<sup>st</sup> Century: An Ecosocial Perspective", *International Journal of Epidemiology*, Vol. 30, pp. 668-77; George Davey Smith and Ebrahim Shah (2003), "Mendelian Randomization: Can Genetic Epidemiology Contribute Understanding Environmental Determinants of Disease?", *International Journal of Epidemiology*, Vol. 32, pp. 1-22; Vijay K. Yadavendu (2001), "Changing Perspective in Public Health: From Population to an Individual", *Economic and Political Weekly*, Vol. 38, No. 49 pp. 5180-8.

<sup>42</sup> In the 1980s, the policy of blanket privatisation under SAP caused widespread socio-economic unrest in many Latin American countries. With the experience of the 1980s, the World Bank and the IMF starting deliberating on the method that would ultimately and in the long term benefit the interests of the market forces. Calculated thus, in extremely utilitarian terms, the arguments put forth were that they were better off shelving a blanket privatisation drive. Instead, they then called for state intervention in a few select areas. In the field of health care, they realised that the preventive measures of health care, which were not very profitable, were better off in the hands of the state; the secondary and tertiary health care, on the other hand, were to be opened up for reforms.

period. The move, definitely, is to fully privatise the health sector. The main reason the Indian state did not immediately cut its expenditure in the tertiary health care institutions was the need to maintain the interests of the middle classes. The middle class, in the 1990s, was still mainly dependent on the tertiary institutions.<sup>43</sup> In the period that followed, however, a radical shift in public discourse on health, the mushrooming of corporate hospitals and the introduction of private health insurance schemes has led us to a point where privatisation of the state-run tertiary health care institutions seems imminent.

These reforms in health sector are reversing whatever little gain was achieved in general health services in the first four decades after independence.<sup>44</sup> Even prior to the introduction of structural adjustment programmes in the 1990s, government health services programmes had failed to satisfactorily address the health needs of the majority of the population. After independence, “despite a policy commitment to primary health care, India witnessed the birth of a series of vertical programmes such as those for the control of small pox, cholera, malaria and, what was soon to be seen as a major disease, population growth.”<sup>45</sup> These vertical programmes “not only failed to meet their goals but restricted the development of general health services.”<sup>46</sup>

It has been argued that despite the claims of its policy documents, the Indian state has never been a welfare state in the sense in which western political theory and practice defines it.<sup>47</sup> The idea that the state should be responsible for the provisioning of healthcare services did not entrench itself in the Indian political culture. The focus of post independence Indian state on industrialisation rather than on welfare programmes was an outcome of the ‘growth first, then equity’ mentality of the government. In this context, public health “fared

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<sup>43</sup> Imrana Qadeer (1994), op. cit.

<sup>44</sup> Health planners in independent India accepted in principle the recommendations of the Bhore Committee, which saw ill health as a product of poverty and emphasised the need of an integrated approach to deal with health problems.

<sup>45</sup> Mohan Rao (1999), “The Structural Adjustment Programme and the *World Development Report 1993: Implications for Family Planning in India*”, in Mohan Rao (ed.), *Disinvesting in Health: The World Bank's Prescriptions for Health*: Sage, New Delhi, p. 18.

<sup>46</sup> *Ibid.*, p. 18.

<sup>47</sup> Nirja G. Jayal (1994), op. cit.

poorly in the competition for political attention and funding”<sup>48</sup>, and the government looked for international funding for its public health programmes. The various vertical programmes, particularly the Family Planning Programme, in India hampered the growth of health services by channelling funding that might have otherwise been more effectively used in the development of primary health care into vertical programmes that rarely address the health needs of the population. The widespread international disillusionment with vertical programmes led to the declaration of the goal of ‘Health for all through Primary Health Care’ at Alma Ata in 1978. However, with the emergence of neo-liberalism in the international economic discourse, the optimism of Alma Ata was short lived. The importance of WHO declined and the World Bank came to increasingly set the agenda for public health in the Third World countries. The health sector reform in India in the 1990s witnessed a return to an emphasis on medical technology as a ‘magic bullet’, both in everyday public health and in the new vertical programmes for polio and tuberculosis.

It is usually assumed that the health sector in India only saw the entry of private players in a significant way after the introduction of Structural Adjustment Programmes in the 1990s. But the presence of the private sector in health care services can be traced back to the time of independence.<sup>49</sup> The Indian state’s investment in infrastructure, training of medical and paramedical personnel and medical research provided the base for the growth of the private sector. Till the 1980s, the private sector was largely limited at the level of primary health care in the form of private practice by doctors. Since the late 1980s, the health sector in India witnessed the rise of big corporate hospitals and the entry of big business groups in health care provisioning. In the last two decades, the Indian state’s policies of privatisation and liberalisation have brought the public health system to the verge of collapse and resulted in a concomitant expansion of the market for the corporate medical industry. Health care has become a commodity that can be bought in the market. The increasing privatisation of health sector has adversely affected the people from the lower socio-economic background who cannot afford to pay for the private treatment. The last two decades have witnessed growing foreign collaboration and consequent growth in two related industries—the corporate

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<sup>48</sup> S. Amrith (2007), “Political Culture of Health in India: A Historical Perspective”, *Economic and Political Weekly*, Vol. 42, No. 02, p. 119.

<sup>49</sup> Rama V. Baru (1998), op. cit.

biomedical industry and the biotechnology industry. The Indian state perceived the potential of corporate hospitals to earn foreign exchange and has therefore given various kinds of subsidies for its growth.<sup>50</sup>

Moreover, the catering to the health needs of patients of foreign origin by high-speciality corporate hospitals has been termed as 'medical tourism'. The concept of medical tourism was legitimised by the National Health Policy 2002 with its suggestion that by

capitalis(ing) on the comparative cost advantage enjoyed by domestic health facilities in the secondary and tertiary sector, the policy will encourage the supply of services to patients of foreign origin on payment. The rendering of such services on payment in foreign exchange will be treated as 'deemed exports' and will be eligible for all fiscal incentives extended to export earnings.<sup>51</sup>

In the last few years, the Indian corporate hospitals, apart from catering to the health needs of the indigenous rich, have also attracted a large number of patients from developed countries where the cost for the same kind of treatment is relatively very high. Within this phenomenon, the growing number of Assisted Reproductive Technologies Clinics in India has greatly extended the market for medical tourism. The unregulated and loosely monitored ART clinics are mainly concentrated in the private sector. In 2005, the ICMR issued guidelines for accreditation, supervision and regulation of ART. However, this guideline, as of now, does not have any legal binding on ART clinics. In the absence of legal regulations and informed debate on new reproductive technologies in civil society, ART clinics indulge in many unethical practices for commercial gains.<sup>52</sup>

The use or abuse of technologies is always shaped by the cultural construction of biological motherhood where women are primarily seen as mothers. The ART clinics market

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<sup>50</sup> S. K Godwin (2004), "Medical Tourism: Subsidizing the Rich", *Economic and Political Weekly*, Vol. 39, No. 36, pp. 3981-3.

<sup>51</sup> Quoted in Amit Sengupta (2004), "Medical Tourism and Public Health", *People's Democracy*, Vol. XXVII, No. 19.

<sup>52</sup> Sama (2006), *ARTs and Women: Assistance or Subjugation?*, Sama, New Delhi.

this powerful socially constructed anxiety of infertile women. The onus of bearing a child lies on the woman. She is even held responsible for not being able to bear a child of the desired sex, a boy. The success rate of IVF technology is very low; ART clinics in India, however, always quote high success rate in their brochures and websites as marketing tactics. The ART clinics have commodified human reproductive parts like sperm, ova, uterus and embryos. Given the high growth of the ART industry and stem cell research world wide, the demand for human reproductive parts has vastly increased. In the absence of legal regulation, India has emerged as the major exporter of embryos, ova and sperm for the international market. Likewise, India has emerged as the world leader in the contractual market of surrogacy. In India, women from low socio-economic backgrounds are available at cheap rates for contractual surrogacy. There is an apprehension that the ART industry would lead to exploitation of an already vulnerable section of the Indian population, particularly women from low socio-economic background. The above mentioned factors have made India the favourite destination for the infertile couple of other countries and have contributed in the rapid growth of the ART industry.

Biotechnology is one of the fastest growing industries in India. The ruling class in India sees great potential for economic growth in the biotechnology industry. In the mid 1980s, the Indian government created a dedicated central department of biotechnology and since then, has invested huge sums of money in research and manufacturing activities. The last few years have also witnessed the emergence of many private biotechnology companies which are doing research in collaboration with multinational biotechnology companies and international research institutes. India has emerged as a major player in embryonic stem cell research. "With tight restrictions imposed on funded research in the United States, and only marginally less restrictive regimes in the United Kingdom and elsewhere, India is increasingly being seen as 'filling the void in stem cell research', prompting speculation in segments of Indian news media that this has effectively opened up a new 'pot of gold' for Indian science and business."<sup>53</sup>The advancements in stem cell research in India have been

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<sup>53</sup> Aditya Bharadwaj (2005), "Cultures of Embryonic Stem Cell Research in India", in W. Bender, C. Hauskeller and A. Manzei, (eds.), *Crossing Borders: Cultural, Religious and Political Differences Concerning Stem Cell Research*, Agenda Verlag, Munster.



complemented by the growing ART industry. In the absence of any legal regulation, the unused embryos created in IVF clinics are sold to biotechnology institutes for stem cell research<sup>54</sup>.

The embryonic stem cells have been called ‘The Holy Grail’ of modern biology. “Undifferentiated, pluripotent (capable of developing into any bodily tissue), and able to proliferate indefinitely in culture, they (embryonic stem cells) promised to revolutionise medicine in this century.”<sup>55</sup> Stem cells may be used, it has been argued by molecular biologists, to cure many diseases; for example, it can be used to replace damaged cardiac tissue or cure spinal cord injuries. Critics have argued that most of the therapeutic claims of biotechnology research have been mere speculation to heighten public expectations, which will result in allotment of greater public funding for research. The relevant question we need to ask at this juncture is whether it is politically and economically motivated to prioritise biotechnology research and to promote corporate biomedical industry, when a large number of people are suffering from malnutrition, poverty, anaemia, tuberculosis, etc. On the one hand, the Indian state is cutting expenditure on public health and other social services, and on the other hand, it is investing in biotechnology research and providing various kinds of subsidies to corporate biomedical industry. It does not take too much of an imagination to guess who will own these new technologies and who will use it.

While it is possibly true that these new developments may promise relief for some individuals, it is also nevertheless the case that India is burdened with the vast problem of pre-transition diseases, diseases of poverty and hunger. The new developments in biotechnology thus portend two systems of medical care. The majority of the Indian population, which is suffering mainly from diseases emerging from poverty and malnutrition, is being forced to access underfinanced, ill equipped and badly managed public health

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<sup>54</sup> In IVF techniques, a number of eggs are retrieved from the woman undergoing treatment through hormonal stimulation. These eggs are then fertilised in Petri dish. Several embryos are created for engineering a successful pregnancy. However, not all of these embryos are used in the process. The surplus embryos created in the process of IVF have raised a number of legal and ethical questions, such as whether there can be ‘ownership’ of such entities, whether they can, for example, be bought and sold in the market, or whether embryos can be the subject of research and experimentation.

<sup>55</sup> Ronald M. Green (2001), *The Human Embryo Research Debates: Bioethics in the Vortex of Controversy*, Oxford University Press, New York.

services, and seeking help from local healers, or buying health services from both trained and untrained private practitioners. On the other hand, high quality health care services, in the form of corporate hospitals, are being made available for those who can afford to pay for these expensive services.

## CONCLUSION

The global shift in the ideology of capitalism from welfarism to neo-liberalism resulted in the metamorphosis of state sponsored eugenics into *laissez faire* neo-eugenics. This is precisely why understanding neo-eugenics merely as the genetic manipulation of embryo with the help of ARTs blinds us from comprehending it as part of the larger implications of the neo-liberal economic policies. Neo-liberalism sees human social order as a reflection of the organic world. Just as the 'unfits' in the organic world are eliminated in the struggle for limited resources, neo-liberalism believes that economic competition would result in the elimination of the less capable and the less deserving human beings. It invokes Social Darwinism and Malthusianism to justify poverty. Poverty, of course, becomes naturalized, and is deemed incapable of being amenable to any kind of relief and welfare programmes.

In the Indian context, political change, in the shape of independence from British rule, did not translate into change in the social and economic structure. The state in independent India continued to be predominantly controlled by the landlords, capitalists and the bureaucrats. There was also a structural presence of imperialist forces, in the form of financial institutions and multinational companies. The ruling classes continued to strengthen their position and their class interests through the maintenance and manipulation of the existing power relations in the society. The Indian state failed at large in addressing pressing

problems of poverty, unemployment, caste and gender discrimination, disease and illiteracy. The inevitable outcome of the continued exploitative and oppressive social structures, even after the independence from the colonial rule, was the ideological congealment of the same in 'the problem of overpopulation'.

The issue of overpopulation was projected by the state and its policy makers as the biggest impediment in the path of socio-economic development of Indian society. Thus, fertility control of Indian women became a precondition for India's 'tryst with destiny'. In the early 1950s, India embarked on the world's biggest family planning programme, with the sole aim of reducing the fertility rate of Indian women through the use of modern contraceptive technologies. The Family Planning Programme (FPP), which was embedded in neo-Malthusianism, focused particularly on reducing the fertility of poor men and women, who, it was believed, breed indiscriminately and were the main cause of India's overpopulation. The FPP in India is marked with successive failures in achieving its goal of population control. The population of India kept on rising at an ever-increasing rate. Intoxicated by neo-Malthusianism, the Indian policy makers saw reproductive behaviour of people and population growth in isolation as natural phenomenon that could only be controlled with the aid of modern technology. This techno-centric approach of the Indian state failed to see the links between the issue of population growth and poverty, unemployment, inequitable distribution of resources, and differential access to health and education.

Currently, the New Economic Policies (NEP) pursued by the Indian state since the 1990s is reversing whatever little gain was made with the limited welfare measures of the state in poverty reduction, employment generation, public health and education. The NEP has adversely affected a large part of the Indian population by causing an increase in poverty, unemployment, food insecurity, and the privatization of health services and education. The Indian state, at the same time, is promoting the ART and corporate medical industry as part of these NEPs. It has been argued that these industries shall bring in foreign exchange via the growth of medical tourism, and thereby further propel the growth of the economy.

The services provided by the ART clinics, which are mainly located in the private sector, are very expensive, and only the people from higher economic background shall be able to access these services. On the one hand, the Indian state is trying hard to reduce the fertility of poor women through coercion, incentives or disincentives through its family planning programmes. On the other hand, it is promoting the ART industry, which shall enhance the fertility of the rich population.

The project of eugenics and neo-eugenics of purging the human population of all physical and mental defects has been based on the power of modern science to control and manipulate. Modern science has not only justified, but also provided technologies for eugenic practices. In the first phase of the eugenics movement, the procedure of sterilization was extensively used to prevent 'inferior' people from propagating their breed. Neo-eugenics only differs in its methods—by its use of the techniques of PGD, IVF and amniocentesis, and hopes to use human germline engineering and cloning in the near future, its ends are to produce mentally and physically superior children. It also differs from eugenics in that it is said to be a "choice" exercised voluntarily by parents. Just as some parents invest in their children's future by paying for high-cost education, health care, games and so on, others could make investment in seeing that their children come into the world genetically better-endowed. As in the case of amniocentesis, here is another case of the use of medical technologies for non-medical purposes. It raises a whole new set of ethical questions, distinct from those raised by the pro-lifers. While these ethical issues are yet to be resolved – indeed the debate is to be commenced in many Third World countries which are already embroiled in the global bio technology industry, often as suppliers of body parts, ova or embryos for research – the agenda is being set globally by the powerful biotechnology industry, the corporate media and scientific entrepreneurs who are often share-holders in the bio-tech companies.

Some criticisms of eugenics and neo-eugenics, like those put forth by radical feminists and environmentalists, see science and technology as means in the hands of the male ruling classes to dominate and exploit nature, women and other marginalized people.

These groups virtually reject modern science and technology in toto as anti-nature, anti-women and anti-people.

As a conclusion to my study, I raise a set of questions that are pertinent to our situation. Can the harmful effects of modern science and technology lead us to its total rejection? Can we really go 'back to nature' as Rousseau believed, and many others continue to believe? What I wish to reiterate finally is that science and technology are not above human society; they are part of social and economic relations and have developed historically in the productive interaction of human beings with nature. The simple rejection of science and technology in favor of some ideal state of nature reeks of a romanticisation that we would be better off without. The harmful effects of science and technology can only be successfully countered by political and ideological struggles that strive to change existing exploitative social and economic relations in a direction where human beings do not exploit either other human beings or nature.

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