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The Political Ecology of Disease

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This is the first issue of our health bulletin series. We have reprinted this article from 'The Review of Radical Political Economics', Spring 1977. The article is an approach to analyse the model of clinical medicine and inadequacy of medical definitions of health and disease. While considering the relation between environment, disease and man, author points how political and economic factors were rejected as irrelevant to medicine. The article also reviews the relation of health status and class struggle considering mainly England during the industrial revolution and rise of capitalism.

We have chosen this article with the hope that it will initiate a discussion on the relation of health and politics.

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Introduction

The critique presented in this article is developed from some basic propositions of a political economy of health. These propositions, in turn, are derived from an attempt to specify historically the development of health services and concepts of health and disease. The purpose is to show that, even at its most progressive limits, the paradigm of clinical medicine—which is currently the universally recognised model of medical science—persists as an individualistic, class-biased, and ideological mode of diagnosing, treating and preventing illness.

The first proposition is that the theoretical assumptions on which medicine is based are subjective This is because science is subjective and medicine is a branch of science. Science is subjective because the development of scientific knowledge is an integral part of human development. Both scientific and medical knowledge depend on material production and reflect the social organisation of that production, not an ahistorical objectivity. Expressed differently, a body of scientific knowledge such as medicine is a systematic approximation of of reality, but neither equivalent to nor the same as reality itself. One must distinguish two aspects of scientific knowledge —the degree of exactness with which science approximates its cognitive object, and the relation of science to reality, which can only be expressed in terms of adequacy, not in objective terms[1].

From this proposition follows the theory that contemporary medical definitions of health and disease are inadequate because they are abstraction derived, for specific historical reasons, from the clinical study of the individual. The definitions are inadequate expressions of the relation of medical stat illnesses) to reality, since individuals are not clinical enti In reality the human essence is the product of an e le of social relations. [2] The clinical model does not

encompass the social relations of the individuals it studies, even at its most progressive limits.

The first part of this article is built around this proposition and supports the theory by connecting the values and underlying paradigm of the medical profession to the forms of economic organisation that characterise capitalist social life. The connection between these three factors—values, the medical modes, and prevailing social relations—is dynamic and takes different shapes at specific periods of history in relation to distinct modes of production. The focus here is on nineteenth century Europe as the industrial revolution and the capitalist mode of production were transforming the connection between health and society, as well as every other aspect of life.

The second section considers the emerging public health practice in the nineteenth century in the context of industrialisation, and asseses the extent to which medical concepts of disease were designed to meet the health problems of the bourgeoisie, not the entire population and to offset the threat posed by radical public health doctrines.

The conclusion of the article speculates on the extent to which the success of bourgeois definitions of health in industrialising countries rested on the world-wide expansion of capitalism. Imperialism and medical ecology, for example, emerged as simultaneous attempts to exploit changing material relations in Europe and the third world, and they are inextricably linked.

The paradigm of clinical medicine

This section explores the limits of the clinical paradigm that has defined disease and health for centuries. This paradigm takes individual physiology as the norm for pathology (as contrasted with broader social conditions) and locates sickness in the individual's body. A typical nineteenth century variant held that every illness was the disturbance, exaggeration, dimunition or cessation of a corresponding normal function[3]. In this view, treatment readjusted the body until its physiological norm was restored, a mechanistic

approach that reduced the body to a machine whose organs could be discretely examined and regulated. Implicit in this notion was the concept of health as the absence of disease. No positive concept of health was advanced.

The clinical perception of disease could not have emerged in the nineteenth century if the science of quantification had not been developed earlier, since it depended on operational verification by measurement, clinical study and experiment, and evaluation according to engineering norms. Quantification can be traced back to Isaac Newton (1642-1727) and Rene Descartes (1596-1650), whose contributions to mathematics and mechanics became the basis of a quantitative and geometric description of the material world and of human beings[4]. The medical quantifiers of the nineteenth century placed sickness in the center of a medical system that was a mechanised framework for the investigation of the mechanical troubles of the human body[5].

Foucault, in his study of the origins of modern medicine[6], makes the interesting observation that, until the end of the eighteenth century medicine was more concerned with health, with qualities of vigor, suppleness and fluidity that were lost in illness and had to be restored, than with normality, an analysis of regularity, the search for functional deviation, and the return to an equilibrium. Foucault suggests that, from this early concern for health there followed not only an interest in nutrition but also the possibility of self-help, since the sick person could treat himself or herself by following a certain diet. Nineteenth century medicine, by contrast, with its emphasis on the normal functioning of an organic structure, required a knowledge of physiology for its practice. In this view, the life sciences in the nineteenth century were built, not on the comprehensive and transferable nature of biological concepts, but on the opposition of health and illness.

The proximate source of the clinical paradigm was the hospital base of the medical perception of reality. During the nineteenth century, the hospital became the place where

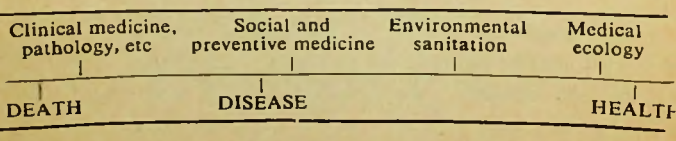
diseased people were housed, diseases were identified and a census of diseases was kept. Along with sickness, health acquired a clinical status, becoming the absence of clinical symptoms[7].

Since the nineteenth century, medical knowledge has been expanding rapidly, and, undoubtedly, clinical medicine accounts for the largest part of that expansion. Two other major developments are discernible : the opening of new branches of medical science and, simultaneously, the absorption by clinical medicine of older disciplines that were not traditionally medical. The first trend is best exemplified by microbiology, which has its roots in the seventeenth century discovery of the existence of microscopic organism the second by psychiatry, which was traditionally a branch of philosophy. These developments have in common the use of the paradigm of clinical medicine.

In the past few decades, and with increasing momentum, the clinical paradigm has come under attack on medical and social grounds[8-11] specific attaks on its use by psychiatry now appear frequently[12-14]. Regrettably, its application to nutrition has been attacked by only one major critic Josue de Castro[15]. Despite criticism of the practice of medicine, the cost and distribution of medical services and the power of providers[16-19], few analysts have exposed the political component of the clinical model or the ideological assumptions on which it rests. As a result, there is no adequate account of why the clinical paradigm has had such pervasive influence on contemporary society.

One way to approach the spread of the clinical medical paradigm—a phenomenon sometimes referred to as the medicalisation of society—is to arrange various medical disciplines on a continuum extending from death at one end to health at the other (see diagram). The reason for selecting this gamut

DIAGRAM



is that it reveals an interesting trend about the individualistic bias of thd model. Initially, the clinical paradigm appeared in association with disease, but eventually it came to dominate the entire spectrum. The placement from left to right is both chronological, in terms of the historical development of the selected disciplines, and spatial, in terms of moving from single organs to the world.

Social and preventive medicine extended the clinical model in the direction of health, expanding its application from the individual to his or her family and immediate environment. Environmental sanitation reflects a further extension to the wider physical milieu : environmental sanitation is the study of disease based on bourgeois epidemiology, i.e, the classical triad—host, disease agent, and environment. It is in no sense a study of collectivities. Insofar as these disciplines remained dominated by the clinical model, none seems to grasp the notion of collectivity, without which there can be no adequate difinition of health. The discipline that comes closest is medical ecology, and perhaps here is where the limits of the medical model might best be explored.

The Limits of Medical Ecology

The dictionary defines ecology as the ' science of the economy of animals and plants ; that branch of biology which deals with the relations of living organisms to their surroundings, their habits and modes of life, etc.[20]. The relations are clearly two-day : surroundings affects plants, animals, peoples and institutions, and these organisms have an impact on their surroundings. The study of people's impact on their environment has dominated discussions of ecology in the last decade.

The idea that the human environment is a complex interacting web has been accepted in the biological and social sciences since the time of Darwin. Use of the concept entails analysing natural phenomena in the context of their total environment. This theory of holism rarely directs studies of human ecology[21], because many hidden assumptions preclude the consideration of cardinal social and political factors.

Enzensberger, in his critique of ecology, points out how recent studies (e.g., the hasty global projections of the club of Rome) fail to consider the complexity of relations between people and their environment. He traces this failure to the use of narrow biological methods in the analyses of problems that are broadly social. "For in the case of man, the mediation between the whole and the part, between subsystem and global system, can not be explained by the tools of biology. This mediation is social, and its explication requires an elaborated social theory and at the very least some basic assumptions about the historical process[22]. Some biologists recognise these same limits and have resisted demands for biological solutions to essentially social problems[23].

A relationship between environment and disease has been asserted since at least 400 BC. According to the Hippocratic doctrines, "the well-being of man is influenced by all environmental factors : the quality of the air, water and food ; the winds and the topography of the land ; and the general living habits..... Health is the expression of harmony among the environment, the ways of life, and the various components of man's nature[24]". But little attention has been paid to this social aspect of hygiene, especially since the scientific advances of the nineteenth century gave the practice of medicine a solid, though theoretically narrow, foundation. It has remained at the level of philosophical speculation, finding expression in the critiques of men like John Ryle, Rene Dubos and Henry Sigerist[25–27]. The one branch of biology that has taken it up is medical ecology.

Medical ecology "conceives of disease as a convergence in time and space and within the person of the patient of environmental stimuli (organic, inorganic, or sociocultural). These stimuli are a challenge which induces a tissular response that is disease (communicable, degenerative, or behavioral), which in its turn eventually results in ecological adaptation and survival or in total maladjustment and death[24]". Culture, defined as ' the sum total of the concepts and techniques that human groups use and abide by in the environment in which

they are placed, in order to survive," is also assigned a role[29].

Medical ecology thus asserts a relation between environment, disease, and man, but selects only biological and socio-cultural factors as relevant. It looks at the convergence of environmental and community factors only within the person of the patient. At no point is it concerned with the collectivity as such. By dismissing political and economic factors as irrelevent, it suffers from a failure to consider the relation of people to their environment in all its complexity. As with ecology and biology, the methodology of medical ecology is too limited to solve the problems of public health. It is constrained by the individualistic and ideological bias of the clinical paradigm which medical ecology reflects.

These points can be illustrated with a brief example from Vietnam. In discussing the influence of culture on human disease occurrence in northern Vietnam, J. M. May, a prominent medical ecologist, wrote in 1953 : "From the water the people get their food, also their cholera, their dysenteries, their typhoid fevers, their malaria ; from the earth they get their hookworm ; from the crowded villages they get their plague and typhus ; and from the food .. their protein deficiencies, their beriberi.' [30]

May, who worked as a surgeon in the French colonial service, recognized the direct influence of scarcity and starvation on the pathology he described, but dismissed any examination of their causes : "We will not discuss here the fantastic edifice of mortgages and debts which rises above the fraction of an acre of land on which family life is built. Nor shall we describe the land tenure laws and customs that have resulted in the reduction of the size of property through the years to insignificant proportions"[31]. To discuss and describe in these circumstances was dangerous, for no intelligent observer could escape the conclusion that the origins of indebtedness and land tenure laws were the key to the ecology of disease in Vietnam. The etiology was no 'cultural maladjustment' ; it was the dislocation of the Vietnamese political

economy by French colonialism, which imposed a system of land classification and taxation that impoverished the peasantry[32]. Medical ecology could not take political and economic factors into consideration without challenging the legitimacy of colonial rule.

The record of North Vietnam after liberation from France in 1954 provides empirical evidence of the limits of Medical ecology. In ten years after independence, North Vietnam constructed a health service that reached every village in the country. This service was grounded in the agricultural cooperatives that were established following the land reforms which radically changed the relations of production. The network of cooperative farms and villages met the people's need for food, and with the improvement of nutrition, the decentralization of the health services made a real impact on disease. In addition to linking public health measures to agricultural needs, the rural health service domonstrated its concern for the collectivity in its emphasis on disease prevention, its attack on social diseases, and its reliances on the masses for the implementation of health campaigns[33]. The achievements are stunning ; the eradication of small pox, cholera and plague, the virtual extinction of typhoid, diphtheria and polio ; the substantial reduction of malaria, tuberculosis and trachoma ; and the control of leprosy. Infant mortality (deaths of children under one year old), usually considered a sensitive indicator of the state of public health, fell from 400 per thousand live births in 1945 to 33.7 in 1968[34].

Empirical evidence is presented in order to rule out the possibility that some immutable geographic or climatic condition was the obstacle to the improvement in public health in Vietnam during the French colonial era. Clearly, the French colonialists lacked the political will to improve the lot of the Vietnamese, and besides, the underdevelopment of Vietnam was at once an effect and a requirement of French capitalism. Furthermore, a collectivized approach to public health would have undermined French economic and political

control of the country. The clinical medical model is imbued with the ideals of classical liberal philosophy which emphasises individual enterprise and the self-regulation of the economic system. A medical philosophy that put the concerns of the collectivity above those of the individual was potentially subversive.

The Ideology of Individualism in Medicine.

The general assumptions of classical liberalism about the world and people are marked by a pervasive individualism described well by Hobsbawn : "The human world consisted of self-contained individual atoms with certain built-in passions and drives, each seeking above all to maximize his satisfactions and minimize his dissatisfactions. In the course of pursuing this self-interest, each individual in the anarchy of equal competitors found it advantageous or unavoidable to enter into certain relations with other individuals, and this complex of useful arrangements —which were often expressed in the frankly commercial technology of 'contract'— constituted society or social or political groups"[35]

It is important to distinguish between individualism and individuality. Individualism is a political and economic theory that asserts the rights of the individual as against those of the community. Individuality refers to a separate or distinct existence. The public health consequences of individualism are obvious in the case of birth control in a developing country. So long as each family perceives the need for large numbers of children in order to survive, no appeal to social conscience about overpopulation and the need to reduce high rates of population growth will succeed. The government contradicts the dominant ideology of individualism when it calls for family planning in the interest of the nation.

The overwhelming concern with the individual is a major limitation of the paradigm of clinical medicine. No medical discipline can evolve on the basis of this paradigm to study holistically the total interaction of groups of people with their economic, political and social circumstances. Yet life, and

the reproduction of human life, are viable only within the context of an economic structure, social organisatian and political system. A medical paradigm that is not holistic and collective produces only an inexact and inadequate body of medical knowledge.

This suggests an additional proposition : that medicine's failure to develop a positive definition of health results from the individualistic and ideological bias that pervades medical research and medical practice, structures relations between practitioners and patients, shapes the approaches selected for treatment (eg, chemical or surgical intervention) and the technology employed, and rejects the initiation of collective social action by communities. I examine in the next section whether this ideological bias conforms to capital's needs, and whether the practice of medicine under capitalism reflects the capitalist mode of production, by tracing the historical development of the paradigm of clinical medicine in the context of the economic, social and political changes through which the capitalist system emerged.

The Political Ecology of Disease under Capitalism.

The place of the individual in society is determined by the forces of production and the social relations of production. As Engels put it in the preface to the first edition of 'The Origin of the Family, Private Property and the State",

"According to the materialistic conception, the determining factor in history is, in the final instance, the production and reproduction of immediate life. This, again, is of a two fold character : on the one side, the production of the means of existence, of food, clothing and shelter and the tools necessary for that production ; on the other side, the production of human beings themselves, the propagation of the species. The social organisation under which the people of a particular historical epoch and a particular country live is determined by both kinds of production : by the state of development of labour on the one hand and of the family on the other[36]".

In the "German Ideology", Marx held that mode of pro-

duction also determines the relations of individuals to one another with respect to the materials, instruments and product of labour. Thus, the various stages of development involve different forms of property.

Prior to capitalism, there were three forms of property : tribal property, the communal and state property of antiquity, the feudal and estates property.[37] The place of the individual differs in each form of property. In the precapitalist forms, as Marx observes, "personal dependence characterises the social relations of production[38]" —in the tribal form, the division of labour is an extension of the natural division occurring within the family ; in ancient Greece and Rome, citizens held power over their labouring slaves ; and in the feudal form, there was landed property with serf labour chained to it and small capital commanding the labour of journeymen.

The advent of capitalism marks the separation of labourers from control over, or personal relation to the means of production. In this sense, the individual becomes 'free". Cooperation is no longer based on commercial ownership of the means of production and membership in the tribe, or on direct relations of dominion and servitude ; it is longer merely a necessary concomitant of all production on a large scale ; capitalistic cooperation is a method employed by capital for the more profitable exploitation of labour, for increasing labour's productiveness Cooperation becomes external to the labourers who are isolated persons, independent of each other, entering into relations with the capitalist, but not with each other. Far from cooperating, labourers are now in a competitive situation that intensifies in accordance with the progressive production of a relative surplus population or industrial reserve army. And not only are the labourers in competition with each other, but the capitalists compete as well, leading to the centralisation of capitals—the destruction of their individual independence, expropriation of capitalist by capitalist, and the transformation of many small into few large capitals.[39] In addition, labourers and capitalists are

in conflict with each other.

With caustic sarcasm, Marx wrote in 'Capital". "This sphere that we are deserting, within whose boundaries the sale and purchase of labour-power goes on, is in fact a very Eden of the innate rights of man. There alone rule Freedom, Equality, Property and Bentham. Freedom, because both buyer and seller of a commodity, say of labour-power, are constrained only by their free will They contract as free agents, and the agreement they come to is but the form in which they give legal expression to their common will. Equality, because each enters into relation with the other, as with a simple owner of commodities, and they exchange equivalent for equivalent.' Property, because each disposes only what is his own. And Bentham, because each looks only to himself. The only force that brings them together and puts them in relation with each other, is the selfishness, the gain and the private interests of each. Each looks to himself only, and no one troubles himself about the rest, and just because they do so, do they all, in accordance with the preestablished harmony of things, or under the auspices of an all-shrewd providence, work together to their mutual advantage, for the common weal and the interest of all."[40]

This brief review of Marx's analysis of social formations demonstrates the qualitative difference between the place of the individual in capitalist society and in all previous ones. The location of the individual is necessary to the next step ; to show a coincidence between the individualistic and ideologically biased clinical paradigm that dominates medical science and the changing roles required of individuals by an emergent capitalism. This coincidence can be shown by tracing changes in the formulation of public health problems and in prescriptions to deal with them, through the period of transition from mercantilism to capitalism.

In the period preceding the industrial revolution, the mercantilist school of political economy prevailed ; in Europe during much of the seventeenth and eighteenth centuries, emphasis was placed on the economic, political and military

advantages of a large and growing population which, under the control of the government, could be turned to whatever use public policy dictated "Population growth would augment national income and at the same time depress the hourly wage rate, giving the workers an incentive to work longer hours and widening the margin between national income and wage costs."[41] Since population was a factor in production, it became essential to know not only the number but also the economic value of people, especially of the most productive population groups. In the seventeenth century, "efforts were made to ascertain the basic quantitative data of national life in the belief that such knowledge could be used to increase the power and prestige of the state."[42] Thus, a new field was founded by William Petty (1623-1687) who called it 'political arithmetic', it is known today as vital and health statistics.

The mercantilists were not interested in raising individual worker income or standards of living, but they were concerned with any loss of labour productivity through illness and the decrease in the number of workers through death. In Germany, Ludwig von Seckendorff (1626-1692) recommended that means be taken to guard the health of the people so that their numbers would increase. He proposed a government health programme to be concerned with 'the maintenance and supervision of midwives, care of orphans, appointments of physicians and surgeons, protection against plague and other contagious diseases, excessive use of tobacco and spirituous beverages, inspection of food and water, measures for cleaning and draining towns, maintenance of hospitals, and provision of poor relief."[43] Von Seckendorff was ahead of his time; his programme was only partially introduced and is still pertinent three centuries later.

By the end of the eighteenth century, a health programme to serve the ends of the German mercantile state had been perfected by Johann Peter Frank (1745-1821). In a nine-volume treatise, he developed the idea of 'Medical police" as the core of the medical system. In the introduction to his

book he worte, "The internal security of the state is the aim of the general science of police. A very important part thereof is the science which will enable us to further the health of human beings living in society."[44] His aim was to promote health through legislation and to enforce health laws through the state organs.

Frank was aware of the economic determination of disease. While serving as Director General of Public Health of Austrian Lombardy, he studied the living and working condition of the people in great detail and found poverty, ignorance and disease in a region that was extremely fertile. He knew the cause of starvation and sickness to be the fact that the land did not belong to the people who tilled it : it was the property of a small group of patrician families who had been given large estates as fiefs. "The peasants were crushed and starving in the midst of plenty "[45]

Though Frank held the position of professor of clinical medicine, he was not yet bound by the narrow paradigm of clinical medicine that emerged in the nineteenth century. He lived in Italy at the end of the eighteenth century, before the industrial revolution. Frank saw that there was little point in reorganising health authorities, hospitals and medical schools so long as the people did not have enough to eat He demanded land distribution ; 'that every family should have enough land to produce the food it required and a surplus that could be sold to the cities ; .. that the prices of agricultural goods should be such that the farmers would be enabled to buy in the city the commodities they needed and that the city workers, on the other hand could buy food at the price they could afford."[46]

When Frank died in 1821, his work was already outdated. since it presupposed conditions that still existed in only a few European countries. The pressures of the industrial revolution called for basic changes in public health measures, and the movement for these changes came from England. Frank made two important contributions that were relevant to conditions in the nineteenth century : he described the impact of social

conditions on people's health from birth to death as the feudal mode of production was crumbling ; and he revealed the economic interest of the state in the health of its subjects.

The Impact of Capitalism on Health

In the eighteenth century, England was still largely dependent on agriculture ; by the mid-nineteenth century, the census showed that the urban population had become greater than the rural. The transformation during that period that made possible vastly increased agricultural productivity was social rather than technological. The enormous success of agricultural machinery was due rather to its labour-saving capacity than to any increase in harvest yield. Scientific agriculture was not introduced before the mid-nineteenth century ; till that time, mechanical ingenuity was in advance of any scientific knowledge of the growth of plants.[47]

The enclosure movement ended communal cultivation and common pasture remnants of a medieval society. Self-sufficient farming was liquidated and old-fashioned uncommercial attitudes towards the land disappeared. Britain became a country of a few large landowners, a moderate number of commercial tenant farmers, and a great number of hired labourers. By the census of 1851 capitalism had penetrated the countryside. ' In terms of economic productivity this social transformation was an immense success ; in terms of human suffering a tragedy, deepened by the agricultural depression after 1815 which reduced the rural poor to demoralised destitution."[48]

If the landless wage labourers, rural domestic workers, land-poor peasants and peasants living on infertile land starved and died in dire poverty, those who joined the nineteenth century "forced draft urbanization" to swell the ranks of the new urban industrial proletariat fared no better. Change from the traditional diet and overcrowding were probably the two major factors that combined to render the immigrants so vulnerable to the harshness of their new working and living conditions.

It became popular in the 1830's to publish reports on

urban life which exposed the appalling health conditions of the industrial population. Engels was the first to deal with the working class as a whole and not only with particular sections or industries; he did not simply survey working class conditions, but made 'a general analysis of the evolution of industrial capitalism, of the social impact of industrialisation and its political and social consequences—including the rise of the labour movement."[49]

Engels catalogued the ways in which deprivation created an environment where workers' could not remain healthy or enjoy a normal expectation of life: the air was polluted, slum houses were poorly ventilated and overcrowded, there was neither clean water nor sewerage, there was no medical care available, and the workers mental health was threatened by continual insecurity. Wages were almost stationary for many workers until the 1870's, when they began to rise. The price of a staple such as wheat did not fall significantly or steadily until after 1880. Mortality was clearly associated with class. Engels cites a house-by-house investigation carried out in a suburb of Manchester by a doctor for the Health of Towns Commission; the mortality in the best houses on the best streets was 1 in 51 in the worst houses on the worst streets 1 in 25. Towns were on the whole more lethal, and deaths of children under five years of age in urban areas more numerous, than in rural areas.

Engels rejected the position, then commonly held, that poverty was an offense meriting severe punishment as a warning to other potential paupers. He understood that what drove a worker to drink excessively was his general environmental circumstance, and that drunkeness was not a vice for which the drunkard must accept responsibility. In an eloquent indictment of the middle classes, he labels the crime of exploitation.

"Murder has been committed if society places hundreds of workers in such a position that they inevitabily come to premature and unnatural ends. Their death is as violent as if they had been stabbed or shot. Murder has been committed

if thousands of workers have been deprived of the necessities of life or if they have been forced by the strong arm of the law to go on living under such conditions until death inevitably releases them Murder has been committed if society knows perfectly well that thousands of workers cannot avoid being sacrificed so long as these conditions are allowed to continue."[50] The attitude of the ruling class towards the labouring poor is well described by Marx in a chapter of "Capital" entitled ' Bloody legislation against the expropriated" ; in it he traces the invidious and cruel poor laws and labour laws from the end of the fifteenth to the middle of the nineteenth centuries.

In addition to their pious opinions about poor relief, the ruling classes adopted a new population theorist. Thomas Robert Malthus (1766-1834) reversed mercantilist ideas on the need to guard the health of the people so their numbers would increase. In his "Essay on the Principle of Population," published in 1798, Malthus argued that population, unchecked, increases in a geometrical ratio, while subsistence increases only in an arithmetical ratio. Hence, as Engels summarised it "……the earth is perenially overpopulated, whence poverty, misery, distress, and immorality must prevail ; it is the lot, the eternal destiny of mankind, to exist in too great numbers, and therefore in diverse classes, of which some are rich, educated, and moral, and others more or less poor, distressed, ignorant, and immoral."[51]

Publication of the Essay was timely ; it provided an argument for tightening relief laws, and its philosophy is reflected in the 1834 Poor Law. By making poverty seem a natural phenomenon, the Essay legitimised the dominant position of the propertied classes. It fit their frame of reference admirably : the secular ideology of the bourgeoisie was classical liberalism.

While the plight of the rural poor could be conveniently ignored, the condition of the urban proletariat could not. First, the rise of working class consciousness was reflected in the formation of trade unions, in demands for better living

and working conditions, and in strike action to force through reforms. No trade unions of agricultural labours were formed before 1875—an attempt in Dorset in 1634 was crushed with force.[52] For a description of the urban trade union movement see the Hammonds,[53] and for an account of strikes see Frow.[54] Second, mortality and morbidity were becoming so extensive that the capitalists attempt to extract maximum profit through lower real and social wages, were coming into conflict with their need for a productive and reproductive labour force. There was a physiological limit to reductions in the wage rate. Third, sanitary conditions became so serious that the epidemics formerly confined to the east ends of large cities, where the poor lived, were spreading to the rich west ends and beginning to kill members of the ruling class.

The Sanitary Reform Movement.

One response to these conditions in Britain was the Sanitary Reform Movement. Historically it grew out of the reform of the old Elizabethan Poor Law that had empowered parish officers to enter into general contracts for the care of the poor. The new, more restrictive, Poor Law of 1834 confined that contract to "a person licenced to practise as a medical man" and limited care to those classified as "sick paupers." These limitations reflected changing power relations in the new class society: the law was pushed by the old rural aristocracy, but it would not have passed without the support of the rising urban industrialists who saw it as a way of controlling the growing proletariat.

The 1834 law was "the culmination of a protest movement launched by the landed aristocracy and gentry to reduce what they considered to be the outrageous cost of the poor rate[55]". Between 1770 and 1830, a period of enclosures in rural areas the relief rolls swelled; unemployment was further aggravated after 1815 with the demobilisation of British troops, and the post-war agricultural slump created misery everywhere. Since relief was paid out of taxes, the Boards of Guardians were concerned to keep down the cost

by making relief less attractive, cutting it down to subsistence level, and accompanying it by an irksome discipline. The underlying philosophy of the 1834 Act was that most pauperism was "voluntary", the result of moral defects such as idleness, intemperance, and improvidence. It thus proposed a rigorous "workhouse test" to weed out the "able-bodied" paupers who were henceforth ineligible for aid.

Investigations undertaken in connection with the Poor Law[56] had been made by, among others Edwin Chadwick, who was later appointed to carry out a further inquiry into conditions affecting the health of the working class. His "Report on the Sanitary Condition of the Labouring Population of Great Britain" was published in 1842. It dealt with the evil social and sanitary conditions in the industrial centres, particularly with housing and conditions at places of work, with the comparative chances of life in different classes, and with evidence of the effects of preventive measures in raising the standard of health and chances of life[57]. Although evidence of unsanitary conditions in rural areas was also considered, the main thrust of subsequent legislation was on reform in urban centres. A Public Health Act was finally passed in 1848, for the first time appointing medical men as public health officers. By 1875, there was a rapidly expanding public health service that engaged medical officers in "sanitary areas" covering the whole country, as provisions in the successive public health acts of 1866, 1872 and 1875 were implemented[58].

The legislation that emerged was of a limited, bureaucratic and interventionist nature. Chadwick believed firmly in the capitalist system, in a free labour market, and unhindered competition. But his investigations showed him that the system would best be served, particularly in the area of disease prevention and sanitation, by a strong central administration, so he was forced to abandon his laissez-faire ideology, at least temporarily. Educated in the Ricardian school of political economy and a loyal disciple of Bentham, Chadwick drafted his reforms with a common purpose—to keep

the way clear for individual initiative by administering strong sanctions to remove obstructive customs or vested interests. In choosing government intervention, Chadwick created the institutions that were to become the bureaucracy of the Welfare State. In the language of Poulantzas, Chadwick was the architect of several of the Ideological Apparatuses of the state (including the repressive apparatus of the constabulary, which he recommended in the report of his police inquiry in 1839).

In 1886, the General Medical Council established a public health diploma in sanitary science. Other specialities developed within public health : factory surgeons were appointed under the Factory Acts ; school doctors were employed ; under the Maternity and Child Welfare Act of 1918, another health corps was provided ; and in the period 1912—16. medical officers were appointed to public medical services for tuberculosis, veneral disease, and mental deficiency. The function of each of these medical corps can be understood in terms of the labour force : for example, factory surgeons – the pioneers of occupational health services were to maintain productivity by keeping workers in good physical condition and by making it difficult for malingerers to "choose" to be ill[59] ; the function of maternal and child welfare officers was to ensure the reproduction of the work force ; and so on.

I find it difficult to sustain the frequently-heard argument that capitalists lay on medical services to improve labour productivity. In every recession, rather than spend money on medical services, capitalists find it more profitable to fire sick workers and replace them with healthy people picked from a labour pool that is swelled by widespread unemployment. Productivity is more dramatically altered by industrial technology than medical care, and rates of profit change more with cuts in the work force than with increased output of individual workers.

During prosperous times when there is full employment and the working class is relatively strong, worker demands for healthier working and living conditions are transformed by

capitalists who respond with medical services This transformation was historically conditioned in the nineteenth century when the hegemony of clinical medicine was established, the domain of public health narrowly confined and capitalists realised that demands for good health could be met only by radical and costly changes in the work process.

The argument that medical services improve labour productivity is thus the capitalists' rationalisation of the expenditures they are forced to make. In addition, this formulation deflates the victory of the working class by turning its health demand into a productivity gain for the capitalists. The end product is the bargain that ties workers' benefits to increased labour productivity.

The outcome of the Sanitary Reform Movement substantiates this view. By the end of the nineteenth century, public health had become a technical engineering speciality ; public health services were limited to sewage systems, food and water inspection, and the prevention of epidemics ; and the prestige of public health practitioners declined. Recent studies have shown that the Sanitary Reform Movement contributed more to improved health status in Nineteenth Century England than the improved practice of physicians and surgeons on hospitalised patieuts.[60] However, public health officers gained little in terms of status, either from the public or their colleagues in other branches of the medical profession. The usual explanations of this phenomenon are : 1) that public health deals with collectivities rather than individuals ; 2) that public health practitioners do not have the same intimate relationship with patients as personal doctors ; and 3) that public health improvements are neither as dramatic nor as noticeable as curative techniques like surgery.

There are, however, more fundamental reasons for the low regard of public health, and the limitations placed upon it. Its major beneficiaries were the urban working class, "the group least able to confer status and prestige upon the Medical Officers of Health," while its Major targets of attack were ' the slum houses, noxious and odious factories .. inefficient water

boards and offensive burial grounds.'[61] More importantly, public health work tended to highlight the failings of capitalism. Many of the regulations of the public health acts entailed considerable financial losses for industrialists and other influential members of the rising bourgeoisie. It is no wonder, therefore, that public health practitioners were not honoured in the same way that successful hospital practice was rewarded.

If Chadwick, a prominent figure in the Sanitary Reform Movement, was disliked, it was far less because he was overbearing and ambitious than because his investigations had left starkly exposed the tainted sources of many "respectable" fortunes. Four examples, follaw, taken from areas of waste disposal, housing, water supply, and occupational health, which explain the resistance to reform.

In the matter of sewerage, profits were made out of selling the vast dumps of ashes, night-soil, rotten vagetables, straw, dung the sweepings of the streets, the offal of the slaughter houses, and the contents of public latrines refuse of all kinds in thousands of tons, occupying hundreds of cubic metres. If the privy were to be replaced by the water closet, dealers who retailed the sewage by the cart-load and the barge-load to farmers, would lose a source of revenue.

Vested interests in housing stood to suffer similar losses from the Sanitary Reforms. The immense expansion of the urban population was a boon to the speculating builder and the greedy landlord. If census returns gave the impression that housing had increased at the same pace as population, it was because every occupation under the same roof was counted as a separate dwelling. In Blackfirars Paris, Glassgow, the population increased 40 per cent between 1831 and 1841, while the number of houses remained the same.[62] The workers were forced to take any accomodation they could get. In the old districts of towns, landlords packed them into decaying and abandoned houses, the former mansions of the rich. In the new suburbs, speculators built on every scrap of land, be it narrow, damp or near a public dump. The result was cellar dwellings lacking drains or conveniences of any kind ; back-to-

back houses with no thorough ventilation ; and closed courts with a water tap at one end and latrine at the other. Property owners raised the most bitter objections to sanitary reforms : they feared the additional costs of installing drains and laying on water supplies for their tenants. Slum landlords maintained that stink and damp were part of the tenants' risk.

Water companies made their profits from the provision of an intermittent supply of unfiltered water from the rivers that also served as sewers. No investment was made in new plant nor any attempt made to apply the newly discovered principles of hydraulics to improve the system. The Sanitary Reforms threatened them with the municipalisation of water supplies.

Of all the regulations concerning public health, the ones that were potentially the most costly to industrialists were the Factory Acts. Bad working conditions in the factories were a major cause of ill-heatlh – the exhausting hours, the lack of time off for meals, physical dangers of accidents, and the absence of such sanitary arrangements as ventilation for workrooms that were overheated, polluted by noxious fumes and overcrowded. Five labour laws had been passed between 1802 and 1833, but Parliament voted no money for their implementation.

Industrial unrest in 1833 prodded the government into appointing a commission to study the condition of children in factories. The evils of child labour in textiles factories had been a paramount political issue in the north of England. Marx has shown how the so-called domestic industries and the intermidiate forms of production between them and manufacturing depended on the use of child labour and an unrestricted working day, since the sole basis of their competitive powers was the unlimited exploitation of cheap labour[6 3].

Between 1833 and 1864, a series of Factory Acts was passed, regulating the working day and the employment of women and children. The specific clauses in the Factory Acts dealing directly with public health were in feat few. While

washing of walls and other matters of cleanliness, ventilation, and protection against dangerous machinery. This last, since it involved the greatest expense by capitalists, provoked the most intense opposition Mine owners were amongst the most flagrant exploiters ; they were the subject of special acts in 1842 and 1860. They invested no more in the collieries than was absolutely necessary to get the coal out : shafts were ill-constructed, pits poorly drained and ventilated, roadways and bays badly prepared. The result was an appalling accident rate and a high loss of life. In 1860, an average of 15 men died each week in the mines ; some 8,500 were killed between 1852 and 1861[64]. These human sacrifices were mostly due to the inordinate greed of the mine owners.

Factory owners resisted the enforcement of legislation requiring the installation of safety devices. In 1854, manufacturers formed the national Association for the Amendment of the Factory Laws in Manchester, assessing members two shilings per horsepower in order to finance their defence in court proceedings initiated by factory inspectors. And in 1856 manufacturers succeded in serving an Act of Parliament, that deprived labourers of all special protection and referred them to the common courts for compensation in the event of industrial accidents. Marx called this "sheer mockery" because the costs of a law suit in England were for beyond the means of any worker.

Legislation did not always benefit the working class ; in particular, the new poor law reduced, rather than expanded, the availability of relief. However, the Royal Commissions and Select Committees investigated the appalling material conditions of the masses were appointed as a direct result of industrial unrest. In the Webbs' wards.

"Although, as it now seems, the danger of a popular uprising on any considerable scale, in the England of the first few decades of the nineteenth century, was never very substantial there was a continual undercurrent of seditious talk, which did not fail to become known to the Government, and which seemed to be illustrated by spasmodic little attempts at rebell-

ion. From the food riots of 1795-1801 ..right down to the impulsive 'Jacquerce' of the South Eastern Countries in 1830, and the tensions of the struggle over the Reform Bill, there was, it seems clear, what was regarded as a very ugly spirit among the mass of the people."[65]

The role of labour in forcing industrialists to improve working and living conditions was key. Chadwick and his fellow reformers were motivated to support legislation disadvantageous to the bourgeoisie, not because they were humanitarian champions of the working class, but because they believed it would be good economy to prevent rather than cure disease.

To summarise this section on the Sanitary Reform Movement:

The reforms required to deal properly with public health would simply have been too costly and ever ruinous—to the pitalists. Reforms were won only as a direct result of the class struggle-piecemeal legislation granted grudgingly by Parliament and resisted by industrialists. Even the half-hearted attempts to deal with the health of the collectivity flourished only between 1850 and 1875. By 1880 government funds were being withdrawn, and by 1898 official interest had so far declined that the government medical officer testified that he "occupied the lowest status of anyone in the whole public service who has any corresponding position"[66] The need for public health measures was not less ; the progressive deterioration of physique in English working-class men was recognised during the call-up for the South African war, when rejections averaged 40 percent nationally and rose to 60 percent in some areas a government committee found that poverty, leading to defective diet, overcrowding and poor sanitation, were the causal factors.[67] Nor were public health measures ineffective ; they were responsible in large part for the decline in mortality from typhus, typhoid and cholera[68]. Nor did their effectiveness go unrecognised : whenever a cholera epidemic threatened, the Medical Department could be sure of an appropriation from the Treasury[69].

The problem rather, was that a systematic response to the public health problems of the collectivity would have been antithetical to capitalism. The committees of inquiry set up by Parliament were used affectively by the sanitary reformers. As one historian has said, 'A few doctors, led by Southwood Smith, a few officials led by Chadwick, a few members of Parliament led by Normanby, Ashley and Slarey, were able, with the powerful help of Charles Dickens, to bring this machinery into use in the cause of public health For one moment it looked as if the English people was about to take in hand the most urgent of its new tasks."[70] But by the end of the nineteenth century, relatively little had been accomplished. "The commission which sat in 1867 found in existence the main evils that were revealed by the committee of 1840 ; the Comission of 1884 found in existence the main evils that had been revealed by the Commission of 1867. In many towns the death rate was higher in 1867 them in 1842"[71].

This was not seen as a a problem in the organisation and planning of town life ; collective formulations of disease causation could not be allowed to gain currency. The dominant classes of capitalist society wanted to avoid the development of public health because collective action on health problems could strengthen political resistance. The corollary is the clinical medical practice, by situating the diagnosis and treatment of disease at the level of the individual, provided the ruling classes with a means of social control ; patients would fail to make common cause with each other or to protest the external, underlying conditions that make them ill. The effect is to de-politicise malnutrition, alcoholism, drug addiction and mental illness by defining the . as medical problems. The medical profession - made up predominantly of members of the ruling classes—is thus invested with power in order to control the behaviour of the working class. Especially in the field of psychiatry, this aspect of social control is very clear.

Public health became an unrewarding career with little

prestige and less pay ; at the same time, various branches of public health, for example, occupational health, nutrition, and maternal and child care, were forced into the mould of the clinical medical paradigm.

Imperialism and Living Standards in England and the Third world.

From the mid-nineteenth century, mortality began to decline in England. Infact mortality fell from over 130 deaths per thousand live births in 1870 to under 30 per thousand in 1970[72]. Tuberculosis which accounted for half the deaths registered as being due to infection in the second part of the nineteenth century, declined from 2,231 deaths per million in 1871—80 to 768 per million in 1921—30[73]. These reduced rates are generally thought to be due, most importantly, to a rising standard of living, of which the significant factor was improved diet[74].

One explanation for the improvement in living standards has already been given ; it was due to the success of working class struggles for better working and living conditions. A second and, I believe, complementary explanation is that the English working class benefited from imperialism, even as subject populations experienced impoverishment with the expansion of the capitalist system in the third world. The evidence for the second argument is considered briefly.

The imminent social revolution in England predicted by Engels in 1845 never came to pass. As he points out in the preface to the 1892 edition of 'The conditions of the working class", 'the truth is this : during the period of England's industrial monopoly the English working class have, to a certain extent shared in the benefits of the monopoly[75].'' With respect to health, this "sharing" involved shifting part of the burden of death from England to areas of the world whose development was now to be dictated by the needs of English manufacturing capital.

There can have been no improvement in diet before the repeal of the Corn Laws in 1846. The object of the Corn Laws had been to keep the price of wheat at the famine level

it had reached during the Napoleonic wars and from 1815 on, all wheat imports were forbidden whenever prices fell[76]. Necessary as it was, the repeal was not sufficient, for ever after abolition, wheat prices remained high. It was not until about 1870, when the vast wheat belt of the midwestern United States had been opened up by railways, and steamships had greatly increased transatlantic trade, that really large quantities of grain flowed into England, prices fell, and diet improved.

The significance of the repeal of the Corn Laws lies elsewhere—it was the first of the Free Trade legislation and represented the ascendancy of the manufacturing capitalists over the landowning aristocracy. Domestic and foreign commercial and financial policy were adjusted accordingly. As Engels described it : "Every obstacle to industrial production was mercilessly removed. The tariff and the whole system of taxation were revolutionised. Everything was made subordinate to one end, but that end of the most importance to the manufacturing capitalists ; the cheapening of all raw produce, and especially the means of living of the working class ; the reduction of the cost of raw materials, and the keeping down —if not yet the **bringing down** of wages"[77].

Britain had been a predominantly importing country since the eighteenth century, but between 1800 and 1900 imports multiplied tenfold in value while exports multiplied eightfold[78]. In 1866, Britain's world-wide sources of supply were described as follows by Jevons :

The several quarters of the globe are our willing tributaries The plains of North America and Russia are our cornfields : Chicago and Odessa our granaries, Canada and the Baltic our forests ; Australia contains our sheep farms, and in South America are our herds of oxen. Peru sends her silver and the gold of California and Australia flows to London ; the Chinese grow tea for us ; and coffee, sugar and spice arrive from the East Indian plantations. Spain and France are our vineyards, and the Mediterranean our fruit garden our cotton grounds, which formerly occupied the Southern ted

States, are now everywhere in the many regions of the earth[79].

Britain's free access to these supplies, until at least 1870, was assured by British colonialism and domination of the world market. Thereafter British hegemony was contested by a number of countries, but these affected markets for her exports more than sources of raw materials. In any event, the problem of competing national capitals was temporarily resolved by the partition of the world that marked the emergence of imperialism. British capitalism gained a new lease on life and was able to sustain a dense population, complex industry, and a rising standard of living for a while longer.

Engels thought that the loss of monopoly would damage the position of both capitalists and workers in England. But as Lenin showed in **imperialism, the Highest Stage of World Capitalism,** workers obtained higher real wages through the stepped-up inflow of low-priced goods from the Empire. The prosperity of British capital also meant that many of the abuses of the early years of the nineteenth century, which were so injurious to health of workers, disappeared with the concentration of capital in the leading industries. Working conditions improved as a result. As Sweezy wrote, "....the working class of any country can gain most from an extension of foreign trade and capital export if the profits of the capitalists are enhanced, cheap imports of wage goods are fostered, and there is little danger of a collision with rival countries. This was precisely the piculiar situation in which the English working class fonnd itself throughout a greater part of the nineteenth century, a fact which amply accounts for the complacent and even favourable attitude which the British working class movement adopted towards the extension of British interests abroad in the years before the First World War[80].

Conclusions :

This article has examined the theoretical assumptions of medicine and found that these cannot be understood apart

from the mode of production in which medicine developed. Even the so-called pure sciences of physics and chemistry take their aim and their material from industry and commerce. As the practical application of scientific knowledge, medicine is, if anything, even more determined by the economic formation in which it is practised.

The clinical medical paradigm, as the ideological expression of capitalistic medicine, was described and its historical development traced ; it was found to be dominated by a mechanistic conception of the human body and to be inadequate as a representation of the reality of human life. It was therefore unable to inform the development of public health as a discipline. Because it is of historical necessity in harmony with the general philosophy of capitalism, ie. classical liberalism, the clinical paradigm is overwhelmingly concerned with the individual and neglects the study of collectivities. Thus it was unable to provide a framework for the solution of public health problems produced by industrialisation and urbanisation in England. Instead, medicine served the needs of the dominant classes.

The clinical medical paradigm rejects political economy as irrelevant to medicine and therefore fails to explain changes in health conditions in Vietnam after liberation. A truly political ecology of disease recognises the deteminant influence of the mode of production on health status.

Engel's analysis of the social impact of industrilisation and its political and economic consequences is perhaps the archetype exposition of the political ecology of disease. It was completed in 1845, before Marxist theory was fully developed later, Engels was to compare it with a human embryo. But even at that early date his analysis included not only an outline of what might serve as the basis for a socialist medical pradigm, but also an indication of what socialist medical practice might be. Until Marx elaborated a set of categories for analysing social systems in the process of change, there was in my opinion, no adequate social theory for a new medical paradigm. Biology would prove inadequate, and no later

methodology would escape the ideological distortion that Marx predicted would constitute the principal stumbling block for scientific investigation[81] the element of Marx's theory relevant to medical practice, which already appears in Engel's analysis of the English working class, is social revolution. Engels made clear that redness of unhealthy social conditions was contingent upon revolution : relief would come only with collective action to overthrow the capitalist system. It is this emphasis on social initiative that could inform a new paradigm of medicine.

Finally, the clinical paradigm failed to produce a positive definition of health which requires as its theoretical base, not only mathematical or biological science, but also social science, especially historical sociology and political economy. The closest I have ever come to finding a positive definition of health is the following formulation: Marx regarded as the aim of the socialist movement "a society, in which men, liberated from the 'alienations' and 'mediations' of capitalist society, would be the masters of their own destiny, through their understanding and control of both Nature and their own Social relationships."[82]

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