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SOCIAL MEDICINE: ITS MEANING AND ITS SCOPE

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"Salus populi suprema est lex"

There has been much discussion in the medical journals and the daily press in recent months as to the purport and prospects of social medicine. In the minds of some of the profession there would appear to linger a confusion of thought as to the meaning of the term; some uncertainty even as to the underlying ideas which have prompted the discussion. The laity and members of the social services and student bodies are eagerly seeking enlightenment; less harassed and preoccupied and, perhaps, more hopeful of the future than the overworked doctor, they have sometimes appeared more receptive and understanding than the profession whose intimate concern these ideas must shortly become. The prevailing uncertainties would seem to be based upon two main misconceptions: (1) that social medicine is just another name for preventive medicine as we now know it, and (2) that social medicine and socialized (or State) medicine are synonymous. It seemed to me that it might be helpful to trace the sources of these misconceptions and to attempt a brief account of what the actual meaning and objectives of social medicine are in the view of those who have, for longer or shorter periods, insisted on the need for an evolutionary change in much of our general teaching, philosophy, and practice.

A Recent Awakening

We are most of us conscious of the fact that medicine during the past quarter of a century has become (inevitably, be it allowed) not merely more specialized but also more technical, and that in the process—for the technicalities are often precise, intricate, and time-consuming—the old aetiological interest and humanism of our fathers have tended to take a second place. In the teaching hospitals this can scarcely be disputed. Investigation to the limit, mainly by objective methods and often with too little said to or done for the patient during or after the tedious process, has been the prevailing trend, especially in the case of the more chronic or seemingly more obscure varieties of disorder and disease. More and more accurate assessments of local pathology, with the help of more and more colleagues and instruments, and less and less intimate understanding of the patient as a whole man or woman with a home and anxieties and economic problems and a past and a future and a job to be held or lost, have become the order of the day. As we direct our students, so in large measure must the outlook and method of each new generation of doctors be determined. Over-reliance on specific objective tests; too strong a belief in the potency of certain treatments aimed at altering established disease-states or too deep a despair at the apparent unalterability of others; too little knowledge of morbidity and mortality figures, of the relative incidence of diseases in the community, of the vast prevalence of "illness" or "debility" without "physical signs" and of their several significances; too vague an appreciation of the fact that these illnesses and, indeed, many of the organic

diseases have discoverable origins in social, domestic, or industrial maladjustment, in fatigue, economic insecurity, or dietary insufficiency—have not these already set their stamp upon the work and outlook of the younger generation of practitioners? And are the majority of those who teach them, most of whom have but little close acquaintance with the conditions in which their poorer hospital patients live and work, much wiser? There are notable exceptions, it is true, but their numbers dwindle. The sciences and techniques have come to dominate medicine to the exclusion of the most important science of all—the science of man—and the most important technique of all—the technique of understanding. Science without humanism may work with atoms but it will not work with men.

In the United States, where this "mechanized" medicine has perhaps captivated the thought and action of the doctor even more than in this country, there has been a recent awakening to the need for a return to the older methods of study and assessment, the methods of the general physician—the methods which the writings of a Trousseau or an Osler were ever at pains to describe but which are often barely mentioned in modern textbooks. Canby Robinson (1939) has told how at Johns Hopkins it was found necessary to launch a new experiment with a physician and assistants to stand in a special personal relationship to the patient—a relationship which all the specialists and interns responsible for his more specific investigations and treatments somehow failed to achieve. With the aid of the trained medical social worker and with closer collaboration with the departments of public health and assistance, the interdependence of clinical, social, and environmental studies and the contribution which each can make to a better appreciation of aetiology and prognosis and to a better organization of after-care are now being taught to the student in several of the American schools. Visits are made to the environment in which illness has had its beginnings. Tuberculosis and venereal disease are being considered as human, educational, and social problems, and not merely as medical and surgical problems with their set routines for diagnosis and therapy. The neuroses and psychoneuroses, it is found, are often better helped by these new alliances than by calling yet another specialist to the bedside while the physician or surgeon, who has "excluded organic disease," retires from the scene with a sigh of relief for something accomplished—even though it was a "negative" something where the patient was concerned.

Causes of Misconception

Unprofitable trends in clinical teaching and research, educational errors at various stages in the curriculum—quite as much as its overcrowding—would indeed seem to be among the initial causes of misconception, of the failure to appreciate what social medicine, a direct development and expansion of clinical medicine, seeks to provide for the student and for the individual patient and for those closer and more useful relations between the people and their medical services which we would all like to see established. For social medicine, as its name implies, clearly has a main concern with the group as well as the individuals composing the group, with the many and varied problems created by sickness in the family and the community as a whole. The illustrations or texts

for the contributions which it makes, or at present fails to make, are often to hand in the ward and out-patient clinic, and should be first presented there, but there are many larger problems to be explored "in the field."

The Third Epoch of Preventive Medicine

We are living to-day at the end of the second (or the beginning of the third) of the three great historical epochs of preventive medicine in this country. Starting a hundred years ago with Chadwick—followed a little later by Parkes and Simon, Southwood Smith and Farr—the first epoch was occupied with the disclosure of the appalling conditions in which the working classes then lived, of the prevailing lack of sanitary provisions, of the hovel-like homes, of the defective and contaminated water-supplies; of the high death rates; and with the earlier endeavours to limit the ravages of the acute infectious diseases—typhus, typhoid, smallpox, cholera, and the malignant scarlet fever of those days.

The second epoch has continued and extended the work of the first, but it has also witnessed the attack on the chronic infective diseases—tuberculosis, venereal disease, and now (we may hope), with an improved understanding of its intimate connexions with poverty and crowding and streptococcal throat infections, on rheumatic fever, which (with chorea and rheumatic heart disease) remains second only as a cause of death to phthisis between 5 and 45 in women and follows phthisis and violence in men (Morris and Titmuss, 1942).

The idea that many non-infective diseases can also be considered as preventable and so may eventually be brought within the jurisdiction of a nation's health authority has sunk more slowly into the consciousness both of the profession and of the laity. But before our eyes and in the space of four years of war we have seen the work of the great students of nutrition bear fruit, a Ministry of Food established, and our people as a whole in better health through better feeding, in spite of many shortages, than they were in times of peace. Measures to secure better standards of nutrition, better housing, and better education, and to reduce industrial fatigue and hazards (although in all these directions we still have a long way to go) have marked the beginning of our third epoch. In this period we have realized not only that many non-infective diseases (including rickets, chlorosis, other nutritional anaemias, and much retarded physical and mental development) are readily preventable, but also that by preventing them and raising the general standards of health—*especially in early life*—we assist indirectly the attack on morbidity and mortality due to the diseases of infective origin (including tuberculosis and, in all probability, most of the acute infectious fevers of childhood). Universal pasteurization of milk and an extension of diphtheria immunization could carry us a stage further.

There remain, however, other diseases in plenty which must be regarded as in large degree preventable through socio-medical reforms: diseases which are associated with faulty habits of life or conditions of living; diseases too which are, in our existing order, becoming yearly more prevalent. Of such, for example, are gastric and duodenal ulcer, now greatly on the increase, and the psychoneuroses. Peptic ulcer in the industrialized countries is competing with tuberculosis and rheumatic fever, not as a cause of mortality (although that is serious enough), but as a cause of sick-wastage, of chronic or recurring disability affecting men and women at the time of life when they should be most useful and most active and their responsibilities are greatest. It affects certain physical and temperamental types more than others; it affects all social groups, but whether equally or unequally we do not yet know. It is a disease notably of the latter half of the industrial era, the era of money-getting and money-lack, of occupational and domestic anxiety, of wars and rumours of wars, of restless living and "snack" meals and excessive tobacco consumption. Its therapeutics leave much to be desired. Its prevention has not been seriously considered. In common with other non-infective diseases it has not come within the scope of our present public health organization. What was once a relatively rare disease can, however, become so again when our work and our social and individual lives are better planned.

The same factors which have increased the incidence of peptic ulcer and a prominent group of visceral disorders commonly described as "psychosomatic" (an unsatisfactory title, since all diseases have their physical and mental components) have been partly responsible for the prevalent psychoneurosis in the community. Faults of upbringing, domestic stress, industrial fatigue,

inadequate sleep and holidays, economic anxieties—factors eventually alterable by improved education, more ample accommodation for families, factory welfare, and social insurance—have also played their significant part. In the meantime we try to cope with their consequences with bottles of medicine and certificates and a multiplication of psychiatric clinics at an ever-increasing cost to the community.

Endemic goitre persists in many rural areas along the goitre belt of England. We know that it is largely preventable and that it has been partially controlled in other countries, but have not yet taken purposeful steps to control it in our own. Even cancer, quite apart from its occupational varieties, has its social or class differentiations, for deaths from cancers of the surface and of the stomach and upper alimentary tract are approximately twice as common in the poor as in the more privileged sections of the community. Dental disease (almost unknown in some native communities) is almost universal with us, but in its graver forms common only among the poor, and has many serious secondary consequences.

A Socio-Medical Problem

Good food and habits of feeding, good houses, better facilities for open-air activities and cleanliness, better education and cultural opportunity, holidays and social security—could they be extended to the populace as a whole—would bring benefits, both human and economic, to the individual and to the State beside which those accruing from all our remarkable advances in remedial medicine and surgery of the last century, valuable though they have been and must remain, would make but a poor showing.

The evidence for such contentions is already available in existing statistical studies of the differential mortality figures as disclosed in the Registrar-General's records relating to the five main social groupings; and mortality is only a very partial index of morbidity. Whether we consider deaths from tuberculosis or rheumatic heart disease or the infantile death rate, the figures mount steadily as they are traced from the economically favoured classes to those in the lower-income groups. Notwithstanding that there has been a satisfactory downward trend in infantile mortality—always a delicate index of social condition—in each of these social groups, there is some evidence for an increasing disparity in the mortality rates as between the highest and lowest groups (Titmuss, 1943). According to our national statistics for the period 1930-2 the disparity in mortality in the first month of life as between the best and worst economic grades was of the order of 50%, but in the latter phase of post-natal life (i.e., 6 to 12 months) the difference was as great as 439%. Before the war the infant death rate in some of our northern industrial cities was as much as three times that in certain suburban districts of Surrey, and British figures compared unfavourably with those from other progressive countries. The bearing of all this on national efficiency and happiness and on the population problem need scarcely be stressed. Outside the relatively small "social problem" group there is no good evidence of genetic inferiority among the poorer classes. The situation should therefore be regarded as susceptible of ultimate amendment by economic and environmental changes.

These and other cognate findings concerning the influence of class, occupation, or geography on health have been frequently reported upon by our leading statistical authorities. They are available in papers or publications by Major Greenwood, Percy Stocks, Bradford Hill, H. M. Vernon, and many others in this country, and in various reports prepared for the Medical Research Council. But the lag between discovery or demonstration and action is ever a long one. Here, however, is a socio-medical, a human, situation which we cannot lightly accept and of which we should all be more than vaguely aware. Of the mass of non-lethal disease, much of it alterable or avoidable, we have no reliable records, but the Peckham Health Centre experiment (1938) and its family studies have given us a disturbing picture of the extent of urban unfitness and have suggested some of the measures which could help to lessen it. *Our Towns: A Close-up* (Oxford University Press, 1943) and other wartime revelations have also thrown light in dark places for the general public and for those of our profession whose particular experience has been remote from the lives of those who work in slum or factory or mine or who man the ships of our great but grimly unhygienic merchant navy. A more detailed knowledge of these things—in brief, of ultimate causes—is surely as much due to the medical student and the practitioner as is a detailed knowledge of bacteriology or morbid anatomy. If they

are ill informed, or if their own experience in the social and medical fields remains too limited or uncommunicated, how can we expect the people, as voting citizens, and their municipal or parliamentary representatives to know and act?

And how much yet remains to be done in the shape of combined medical and social inquiry! At present we have no reliable morbidity (as distinct from mortality) statistics apart from those relating to the notifiable diseases. Nor have we sifted, as carefully as we shall have to sift, the particular influences operating within the three main adversities due respectively to low economic, environmental, and educational standards. Nor have we seriously begun to study health itself within its considerable ranges of variation for age, sex, and occupation, or to determine the manifestations and standards which distinguish the individual in "full health" from the individual with "no demonstrable disease" or with early illness. We have much to learn from periodic health examinations and the study of fit groups in childhood, adolescence, and later life, and especially in the schools and Services. Growth and development in differing environments await a much fuller investigation. There is no lack of material for the student of social disease and disability, and of those states of physical, mental, and moral health or "wholeness" which must provide the target for our human planning. While disease accompanying poverty and manual toil provides a problem of far greater magnitude it should also be remembered that there are diseases of affluence or due to professional overwork and anxiety which better education and individual discipline and hygiene could conspicuously reduce. Man and his heredity, his types, and his reactions to environmental stress are inexhaustible studies.

New Training and Opportunity

But enough, perhaps, has been said to explain why social medicine—no new concept and certainly not a new specialism, for its principles have long been germinating in the minds and reflected in the motives of all good practitioners and health officers—has required and received its new impetus; enough, too, to indicate its wide scope and that it envisages something far more comprehensive than our existing preventive medicine. It is a concern of all branches of our medical and health services, remedial and environmental, and of their ancillary services, and, among these in particular, of the hospital and municipal social worker. It must eventually invoke, through health education as an essential part of a broader general education continuing into adult life, the co-operation of the public as a whole. Its teachers, although special appointments in medical schools and institutes will be required in due course, must come to include all teachers of the main clinical subjects. Social medicine is indeed a necessary interest of the general physician, whose numbers within our schools must surely be increased and whose demonstrations could often be both clarified and amplified by fuller and more frequent references to initial or basic aetiology, and to rehabilitation and subsequent care, as an offset to concentration upon particular pathologies and immediate treatments. The co-operation between clinical teacher and hospital almoner (as social worker) in ward and clinic must become much closer.

The students and investigators of social medicine have long been active, and will continue to be found especially among the epidemiologists and medical statisticians; they will be found among the workers on human nutrition, on industrial psychology and industrial and domestic fatigue, and on maternity and child welfare; or among Service medical officers with their fine opportunities for studying large bodies of fit men or men in the process of being trained and fed to a finer level of physical and mental efficiency and resource than their civilian lives allowed; and, last but not least, among all those physicians or surgeons whose interest has led them to the study, in home and clinic and hospital, of the broader natural history of man in disease (or health); of man as he continually reacts, emotionally and physically, not merely to the single noxious agent but to the multiple circumstances of his whole life and environment. For such as these and others with other problems our departments of social medicine will come to provide new training and opportunity.

The practitioners of social medicine will, it need hardly be said, eventually include the whole of the practising part of the profession as well as the officers of the environmental services. There is no sharp division between individual and social medicine. Health education and periodic health examination will some day

supplement the remedial activities of the general practitioner, and co-operation with his colleagues of the public health service will be a far closer one than it is to-day.

The Physician's Mission

And, finally, what should be said of the confusion which has arisen in some minds between social medicine and socialized or State medicine? Although social medicine and the planning for a comprehensive medical service, through the stimulus of the times we live in, have come simultaneously under review in the medical and the general press it should be abundantly clear, from what has gone before, that social medicine has no immediate concern with medical or other politics. That it will (in common with all other scientific and educational developments having a bearing on human betterment) influence legislation and prompt reforms in the fullness of time cannot be disputed. Jenner's observations and experiments were a precursor of compulsory vaccination. Osler's teaching expedited the attack on typhoid and tuberculosis. Without Gowland Hopkins, Edward Mellanby, John Boyd Orr, and others of our own day it may be doubted whether we should have had school meals or Lord Woolton and a Ministry of Food which—in our crowded island and in the midst of a long world war—has helped already, by legislation and organization, to improve the general state of fitness of the people.

There are those, it is true, who feel entitled to believe that social and individual medicine will find a better opportunity under a reorganized, co-operative and comprehensive medical and health service in which the uneconomic and often inequitable separations into "voluntary and municipal," "private and panel," and "preventive and remedial" services will no longer obtain. But the advocacy of changes of this kind is no more a function of social medicine than, let us say, the nationalization of the chemical industries is a function of the chemical sciences, or the framing of new regulations for the mines a duty for the Medical Research Council's Committee on Silicosis.

It may properly be argued that many of the social evils, so widely manifest by disease, which have been cited above call not for medical action but for drastic social and economic reform. For these the electorate through their representatives, and not the doctors (as doctors), must become responsible. But who unearths and exposes the evils and their secondary effects? The factual evidence, the socio-medical experience, the statistical data—all of which must be carefully and laboriously collected and analysed—must continue to be provided by the doctors and their scientific associates and field-workers and particularly by those whose concern is rather with the social than with the individual aspects of disease. Whether in this basic manner, or more immediately as an educator of opinion, or incidentally in the course of his daily professional activities, we have reached a time in which "the physician" (to quote Prof. Sigerist) "must assume leadership in the struggle for the improvement of conditions." Without research and teaching in social medicine to guide him he cannot faithfully fulfil his mission.

Conclusion

In summary, social medicine means what it says. It embodies the idea of medicine applied to the service of man as *socius*, as fellow or comrade, with a view to a better understanding and more durable assistance of all his main and contributory troubles which are inimical to active health and not merely to removing or alleviating a present pathology. It embodies also the idea of medicine applied in the service of *societas*, or the community of men, with a view to lowering the incidence of all preventable disease and raising the general level of human fitness.

As one who has been made responsible for the first institute of social medicine in this country and whose training and teaching for more than 25 years have been essentially clinical, I should like to add that I regard social medicine (for all its needful associations with public hygiene) as a logical development from and a direct expansion of clinical medicine, of medicine construed in its best Hippocratic sense and activated by the highest Hippocratic ideal; for "where there is love of man there also is love of the Art."

Of the work and intended programmes at Oxford it is too soon to speak, for they are but in their infancy. Suffice it to say that the Institute already houses the Oxford Nutrition Survey and is about to house one of two experimental bureaux supported

by the Nuffield Trust (the other based on Glasgow) for the collection and analysis of morbidity statistics; that it is sponsoring some studies of endemic goitre in rural England; and that its director and his colleagues have recently initiated regular socio-medical teaching and demonstrations (with the help of the hospital staff and social workers) for students in their clinical years at the Radcliffe Infirmary. Close co-operation with the Institute has been generously offered by the public health authorities of the city of Oxford and of the county. For our team of graduate assistants we shall have to wait until demobilization provides them with their opportunity for new service and us with a new stimulus.

To those in our universities or health departments, in practice, or serving with the armed Forces who are interested in these things and in the needs of the future it seems that the ideas and tasks of social medicine may be justly regarded as essential contributions (perhaps the most essential and practical of any at present within our range) to the developing philosophy of scientific humanism. The potentialities of this philosophy are very great. Wherever our science, our faith, and unpredictable chance may lead us it can now scarcely be doubted—even while the present mad epoch of destruction continues—that we are moving upon the borders of new and possible worlds. To the rational and humane enrichment of these worlds the profession and the sciences which have the most intimate concern with man himself—a very social animal—have surely much to offer. To envisage and design a close equality of opportunity for health in the coming generations is no longer an extravagant fancy. Whether at home, in India or the colonies, or in the broader international field, it may shortly become our most urgent common interest. Nor should we forget that in our Dominions and other countries, and notably in the land of our most virile and victorious ally, there have been important experiments in social medicine and hygiene from which we have much to learn.

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THE THERAPEUTIC VALUE OF GAS-GANGRENE ANTITOXIN*

BY

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Gas gangrene is characteristically a disease due to the invasion of tissues and the production of toxins by anaerobic bacteria of the *Clostridium* group present in infected wounds, particularly in wounds involving muscle. The most rational treatment appears to be a combination of measures—the use of surgery and bacteriostatic drugs to control the infection, and the use of antitoxin to alleviate the toxæmia. The War Wounds Committee of the Medical Research Council accordingly recommended (*M.R.C. War Memorandum No. 2*, 1940) that antitoxin should be used in conjunction with surgery and chemotherapy in the treatment of gas gangrene, the procedure then advised being the intravenous injection of 13,500 units† of polyvalent antitoxin as soon as possible after diagnosis, repeated according to the signs. In order that the value of this and other lines of treatment could be assessed, surgeons were asked to make detailed returns of all cases of gas gangrene and of lesser anaerobic wound infections on the forms issued (Army Form I 1241 and its supplement I 1241A). Through the courtesy of the Medical Directors-General of the three fighting Services and the E.M.S. the

returned forms have been made available for study, and enough data have now accumulated for a preliminary analysis of the therapeutic value of antitoxin.

Evidence of the value of the specific antitoxins in the treatment of gas gangrene developing in wounded men was brought forward by Weinberg and Séguin (1918); promising results were also obtained in 1918 by British workers (Medical Research Committee, 1919). MacLennan (1943a, 1943b) has recently made a detailed report on the clinical and bacteriological features of the anaerobic wound infections encountered in the Middle East Forces, in which he discussed the value of the various lines of prophylaxis and treatment. His demonstration that in a group of patients which comprised 70% of all the cases of true gas gangrene reported in these Forces the fatality rate was significantly lower among those who had received antitoxin provides further evidence of the therapeutic value of polyvalent antitoxin in field conditions. The present survey is based primarily on all the reports (259) of anaerobic wound infections received by the Medical Research Council up to June, 1943, excluding those from the Middle East Forces, and is concerned only with the value of antitoxin in the treatment of established cases of gas gangrene. The question of its prophylactic value will not here be discussed; it will only be repeated, as MacLennan has already pointed out, that the prophylactic value cannot at present be determined, as the necessary information on the number of casualties that have received this prophylaxis and have not developed gas gangrene is not yet available. The occurrence of gas gangrene in a patient who has received antitoxin soon after wounding is an individual failure of prophylaxis which is without significance, in a statistical sense, until the total number receiving this prophylaxis is known.

Object of the Present Analysis

It is not to be expected that gas-gangrene antitoxin will be of value in the treatment of anaerobic cellulitis and lesser clostridial infections without toxæmia. In order to provide an adequate and reasonably uniform test of efficiency, only those cases (treated or untreated) have been included in this analysis in which the presence of *marked toxæmia*, accompanying other signs and symptoms of gas gangrene, was recorded by the clinician. Since bacteriological confirmation of the diagnosis was, for obvious reasons, not always attainable, the possibility that some cases were due to streptococcal infections (MacLennan, 1943a) is not excluded. The figures in the ensuing paragraphs refer to the toxic cases on which the analysis was finally made.

The evaluation of a single therapeutic measure in gas gangrene is complicated by many variables, particularly in field conditions. First, there are the factors which may determine whether treatment as a whole is effective: these include the interval between the onset of the disease and treatment, in relation to the rate of development after onset; the site of the wound and the general condition of the patient; the nature of the pathogenic clostridia present, and of concomitant infections; the facilities for surgery and nursing. So far as is possible with the data available, these factors will be taken into account by grouping similar cases together and analysing the groups separately. Secondly, since the treatment advised consists of two measures—the use of surgery, to which the employment of drugs is ancillary, and the use of antitoxin—it is necessary to evaluate both measures. Thirdly, it is necessary to know whether there has been any selection of cases for treatment.

It may be useful to discuss here the general aspects of the probabilities with regard to the effectiveness and the practice of the two main lines of treatment. The necessity for speedy and adequate surgical treatment of patients with established gas gangrene is well recognized and has been repeatedly urged. The patients in whom gas gangrene developed formed a very small proportion of the total number of wounded, and were under the care of surgical specialists; the high general level of skill and care afforded can be gauged from the very low general fatality rate of patients with limb injuries—that is, with wounds of a type prone to develop gas gangrene (Pulvertaft, 1943). As might be expected, appropriate surgical measures were recorded in the majority (86%) of the reports

* A report to the War Wounds Committee of the Medical Research Council.

† Therapeutic dose: 7,500 i.u. *Cl. welchii* antitoxin; 3,750 i.u. *Cl. septicum* antitoxin; 2,500 i.u. *Cl. oedematiens* antitoxin; 20% in excess in each ampoule = 16,500 units polyvalent antitoxin.