HYGIENE AS A WORLD FORCE.

*Address at the Opening of the new School of Hygiene
of the Johns Hopkins University, Baltimore,
on October 22nd, 1926,*

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[Abridged.]

My first duty is to thank most sincerely the authorities of the Johns Hopkins University for the great honour they have done me in asking me to deliver an address upon such an auspicious and important occasion. It would have been very easy for them to find on this side of the Atlantic someone well fitted to perform the task and far more in touch with the great march of public health in the United States; someone also with a more extensive knowledge of hygiene as now practised and developed in countries with temperate climates, for many years of my working life were spent in a land where public health work was in its infancy. It is only since taking up residence in England, and especially since my association with that undertaking which, in large measure, owes its inception and progress to the beneficent generosity of the Rockefeller Foundation, that I have had opportunities of becoming intimately acquainted with these modern movements which have wrought so great a change in the domain of State medicine.

A study of hygiene in England, and particularly of the history of hygiene, has, however, shown me why, in all probability, those responsible desired to have a speaker from that country. England is undoubtedly the cradle of modern hygiene—that is to say, it was in England that the principles and practice of hygiene were first properly developed and placed on a sound administrative basis. Thus other nations have acquired the habit of looking upon England as a leader in the great campaign against disease and death. This habit, flattering to the old country—and the term “old country” includes Scotland, Ireland, and Wales—was undoubtedly justifiable in the early days of public health, and I trust may still be looked upon as wise and salutary, even though the old country has now much to learn from other lands, more especially from this great and wealthy Republic of the West. On the other side of the Atlantic we are perhaps a little apt to forget that America has public health traditions of considerable antiquity, and that, if England is a cradle of hygiene, the United States is indubitably a baby's cot. It could not well be otherwise. Long ago New York was Dutch, and the stout burghers from Holland reached the New World with a great tradition behind them of personal and domestic cleanliness. The Dutch who settled in New York doubtless practised those habits of cleanliness in which they had been reared, and their influence cannot have wholly vanished even when New York, foul, crowded, and unhealthy, had become “The City that Was,” so graphically portrayed by Dr. Stephen Smith. Personal cleanliness and cleanliness of the home meant much, but hygiene became a living force only when it extended from the individual to the community, when it became an affair of government, both local and central, and when the aid and majesty of the law were invoked on its behalf. Strange to say, of late years the pendulum has swung back in the old direction, and environment, at one time all-important, is now seen in its proper perspective, while the health of the individual has become a matter of primary importance to the State and to all who have the well-being of mankind at heart.

To-day, in the brief space available, I wish to consider hygiene as a world force, as one of the great factors which have influenced human life and activity, and as possibly the greatest factor which will influence man's progress in the future. To do so, it is necessary to institute a few comparisons.

Religion and Hygiene.

While any general comparison of religion in the abstract with hygiene also in the abstract would serve no good purpose, I cannot refrain from contrasting the influence of applied hygiene with that of the application of religious principles in human life and work; in other words, with

organized religion, whether such takes the form of Christianity, Judaism, Mohammedanism, Buddhism, the faith of Confucius, or any of the other creeds which have helped man along the thorny path of existence and guided him, in some measure, through its trials and difficulties. The practice of these beliefs has, of course, had a profound influence upon the world. I think it possible, however, that the hygiene instinct, apparent in some animals be it noted, preceded the religious instinct, and that, even at the present time, the influence of the former is more universal. There are many to whom religion makes no appeal; there are a few races of mankind which appear to be wholly devoid of any religious instinct, but even the most primitive, the most debased, practise certain laws of health. These are essential for life and procreation, and the two ideas which dominate every type of man are those which control the animal world of which he is a part: love of life and the desire for reproduction.

It is instructive to note that some forms of religion had, and still have, a hygienic basis. Rites of purity and certain forms of exercise are, to this day, closely associated with religious observances. Both Moses and Mohammed were hygienists of no mean order. The best features of some faiths are those which relate to the care of the body and the prevention of disease. In India the great system of caste following the institutes of Vishnu and the code of Manu brought the teeming millions of the peninsula some measure of sanitary salvation, while the creeds themselves did little to raise or elevate the masses.

In the hands of man religion playing the part of a world force has unhappily often produced turmoil and bloodshed. On the other hand, hygiene as a world force is a power for peace. Health and its promotion are subjects which sensible men—I say sensible, for we must exclude cranks—can discuss without acerbity and bitterness. I venture to think that the Health Section of the League of Nations is likely to prove the most constructive and most successful part of the great Geneva organization designed to precipitate the millennium. In public health work and propaganda jealousy takes the form of a healthy rivalry. You may envy your neighbour's health record, but there is no sense in being jealous of him because his infantile mortality rate is much lower than yours. The revelation merely stimulates you to further effort, and it is almost inconceivable that nations should go to war in the race to be the fittest, as they do when it is a question of riches or power or *amour propre*, or (in the old days) religion, or self-defence. Yet curiously enough this fitness brings wealth and perhaps power with it, and is a very excellent form of self-protection. I am quite sure that, if the International Health Board of the Rockefeller Foundation had not the word “Health” in its title, its manifold activities would never have been received with complacency and gratitude by countries not owing allegiance to the Stars and Stripes.

It is true that, in certain directions, organized religion has played a part comparable to that of hygiene in moulding man's destinies, though it is also true that at times it has been the bitter foe of progress and enlightenment. Christianity throughout the dark Middle Ages kept alight here and there the torch of knowledge. We recall the stimulus to thought and inquiry engendered by the Reformation in Europe, but, as a rule, when it has signally influenced progress the effect has been due rather to a spiritual movement as, for example, the awakening of a spirit of sympathy with the sick and, as Dr. Welch has pointed out, the development of that new humanity which paved the way for the work of the sanitary reformers in England, rather than any deliberate campaign by a religious body. Religious organizations were in being in various parts of the world for many hundreds or thousands of years without any serious attention being paid towards the betterment of life and working conditions. It is true that Judaism, the creed of Mohammed, and certain other faiths did lay stress on the practice of preventive medicine, but it seems to me that none can equal in this or other fields what hygiene has accomplished in a remarkably short space of time, achievements which have wrought amazing changes in many parts of the globe and brought about a veritable revolution. It is too much to expect that organized religion could conquer disease: that is not its

province. The ancient faith of China did nothing to alleviate the myriad plagues of that vast territory; all the creeds of India—amongst them Buddhism, which possesses much that is attractive—failed to show how cholera could be mastered and malaria subdued. Christianity, with all its virtues, for hundreds of years coexisted with a great burden of communicable maladies. It was not until, in the fullness of time, scientific knowledge was applied to the prevention of disease that we gained our freedom from the fear of small-pox and of typhus and that you Americans were able to sweep yellow fever out of the New World.

The old, wise Greeks knew what they were about when they worshipped the goddess Hygeia and made her votive offerings. I am inclined to think that in some countries, such as India, hygiene will never exercise its full sway unless it comes to the people in the form of a religion, a new revelation to save and succour a vast multitude, the prey of superstition and disease. I believe that to-day you are opening and consecrating not a school only but a temple, a shrine with infinite possibilities.

Leaving the ancients out of the question and pioneers like Mead and Jenner, the credit for initiating the campaign which has had such remarkable results is due neither to the votaries of religion nor those of medicine, for it was a layman and a lawyer, Edwin Chadwick, who devoted all his time and gifts and energies to the realization of this ideal. Similarly in the United States it was Lemuel Shattuck, who was neither a divine nor a physician, but a student of social problems, who played the part of a pioneer.

There are, I think, three other factors which may be termed "world forces," and with which hygiene may, nay must, be compared: the pursuit of pleasure, the pursuit of wealth, and the pursuit of knowledge. All these, though in very different ways, have exerted a great influence on man and his affairs. No one, however, would place either the pursuit of pleasure or the pursuit of wealth in the same class with hygiene as a controlling force in human destiny. The influence of both is evanescent compared with that of hygiene, and too often is not in the direction of progress and true comfort. The pursuit of knowledge is in a different category. It has been a great and cardinal force, and might well contend with hygiene as a benefactor of mankind were it not that the art and science of hygiene have arisen from this pursuit and that hygiene, being the application of knowledge to man's needs, has outstripped it. The pursuit of food, at the call of hunger, has from the beginning been a world force, but, inasmuch as it is, in certain directions, a hygienic activity, it need scarcely come into our comparative list.

World Hygiene To-day.

And now let us see how, at the present time, hygiene acts as a world force. It does so in various ways. One is by the great system of quarantine, with its stations scattered over the globe and its control of ships and shipping. It is of interest to note that the first Quarantine Act was passed by the General Assembly of Pennsylvania in 1700, and was quaintly entitled "An Act to prevent sickly vessels coming into this Government." Hygiene has always had a close association with the sea and ships. It has abolished two great sea scourges, scurvy and ship beri-beri; it has radically changed life afloat, so far as navies are concerned; and now, at long last, it has commenced to take the merchant seamen under its wing. In this respect I must sorrowfully confess that the American mercantile marine is ahead of that of Great Britain. Speaking generally, you house and feed your sailors better than we do. This is a reproach we, an old seafaring nation, are now taking steps to wipe out, and if only the control can pass from the Board of Trade to the Ministry of Health, much may be accomplished.

Most unprejudiced persons will, I think, admit that, taken all in all, the British Empire has been a power for good in the world; and its sons, throughout the long years, have done much to make hygiene a world force. The traditions of the homeland have been carried overseas, and some of the great dominions, favoured perhaps by

local conditions, have, in certain directions, progressed further than the mother country. New Zealand has the lowest infantile mortality in the world; Australia has probably the most complete and best organized quarantine system on the face of the globe; South Africa has done more to prevent and stamp out disease amongst miners than has any other land; Canada, closely in touch with the vast public health developments in the United States, has in some ways more than held its own. For example, I believe the milk supply of Toronto, under the fostering care of Dr. Charles Hastings, will compare favourably with that of any other city. The Indian Empire, with its fine record of research in tropical medicine and hygiene—a record reaching back more than a century and containing the crowning triumph of Sir Ronald Ross, based on the reasoning of Sir Patrick Manson—has, it is true, failed to apply, as it might have done, all the lessons that research has taught, but its task is a stupendous one. It is something to have furnished great cities like Calcutta and Bombay with active sanitary organizations, to hold cholera in check, to grapple successfully with leprosy, to indicate the method whereby kala-azar may be controlled, to rob enteric fever of its terrors, to alter the whole outlook as regards amoebic dysentery and liver abscess, to cope manfully with the grim spectre of famine. In Malaya Sir Malcolm Watson and others have accomplished a great work in reducing malaria and rendering estate labour healthy. Hong-Kong has changed from a pestiferous hole to a comparatively healthy seaport. Singapore and Colombo have carried out important sewage and water works and taken elaborate steps to guard themselves against imported infection. In Palestine a revolution has been effected since the war, and there is not a single branch of public health which has not received some attention there at the hands of a small but devoted band of workers. The east coast of Africa, from Uganda and Kenya in the north to the Rhodesias in the south, has been the scene of active operations, and I would cite especially the campaign against syphilis in Uganda, that against yaws in Kenya, the war on the tsetse fly in Tanganyika, and the determined attack on malaria and blackwater fever in Southern Rhodesia. On the west coast, once the white man's grave, a great change has taken place, and, although there is much yet to be accomplished, notably in the case of yellow fever, where valuable help is being rendered by American experts, life is now very different, both for the white man and the black, all the way from the Gambia to Southern Nigeria, than it was when that intrepid woman Mary Kingsley sent out her clarion call for action. There remains the Anglo-Egyptian Sudan, a greatly changed territory now from what it was in the days of the Mahdi and the Khalifa. Turning to the New World, the British record is not so good, but we can point with some satisfaction to important advances in British Guiana and with a reasonable pride to what has been done in Port of Spain, while here and there elsewhere the torch of hygiene has been kept alight, even if it glows but dully.

France, ever to the fore in questions scientific, has greatly ameliorated conditions in the vast territories under the tricolour. Her work on malaria in Northern Africa has been remarkable, in French equatorial sleeping sickness has been relentlessly pursued, in Madagascar plague has been combated to good effect, while in French Indo-China much has been done in the way of safeguarding the public health. The Dutch, with a passion for cleanliness bred in their bones, have displayed qualities of great thoroughness and persistence in coping with difficult situations in Java and Sumatra. The way they have tackled plague is an example for other countries to follow; they have solved important problems relating to the manufacture of vaccine lymph in the tropics; and, recognizing that hygiene pays, and pays handsomely, they have spent great sums in improving the housing and living conditions of the coolies on their fine rubber and cinchona estates.

The Germans have been shorn of their overseas possessions, but German influence and work continue to keep hygiene a world force and to increase its efficiency, more especially perhaps by shedding fresh light on the various sciences upon which hygiene and sanitation are securely

based. Belgium is busy, both at home, where her campaign against venereal diseases attracts special attention, and in that vast Congo region, so long inaccessible and full of terror for the white man, now a country where much scientific work is being carried out on preventive lines, notably in the case of sleeping sickness and tuberculosis. Italy, where the revival of learning had its birth, has contributed greatly towards the common cause. The early work there on malaria has had its repercussion in many parts of the world, and, in such colonies as she possesses, Italy does not forget Emerson's maxim, "The first wealth is health." Other examples from the Old World might be cited, for the activities of Japan have not been confined to the Archipelago of the Far East, and Japan can certainly claim a place in disseminating the principles and practice of hygiene; but it is time to cross the Atlantic or Pacific and see where America stands.

I said little in the way of comparing war and hygiene. In many respects they are as the poles apart, but let it not be forgotten that war has its constructive as well as its destructive side. There is no doubt hygiene is the greater and more beneficent force, but some of the most valuable advances in hygiene may be traced to war. Consider how campaign after campaign in Europe combined to give us the wisdom of that great army physician Sir John Pringle.

Moreover, it was war—war with Spain—which led the United States to spread abroad the knowledge and experience of public health measures it had gained and garnered since the days of Shattuck, to plunge into research with a view to prevention, to embark upon a policy which has had far-reaching results. Reed and his colleagues in Cuba penetrated the mystery which had shrouded yellow fever for centuries and Gorgas applied the new knowledge. In the Philippines and Porto Rico a hopeful gospel was preached and hygiene became a factor of paramount importance. Then followed Panama with all its wonders and triumphs, and now the good work has been extended to Haiti.

Wealth in the Service of Health.

With a few exceptions, all the cases I have cited are examples of countries busy in their own possessions, sometimes forced by circumstances to support the cause of hygiene, sometimes wise enough to see that such support is profitable, sometimes, no doubt, influenced by feelings of compassion and a desire to do the right thing.

But hygiene has been given an opportunity of showing itself as a world force in quite another manner, and this is perhaps the most startling and interesting and impressive development mankind has ever witnessed. Never before has altruism played such a part in hygienic progress, for never before has colossal wealth been turned to so beneficent an object.

When John D. Rockefeller placed his millions at the disposal of the International Health Board of the Foundation bearing his name he made that Board a power for good, a world power with amazing possibilities before it. Some of the possibilities have already been realized. Yellow fever, the scourge of tropical America, which formerly took terrible toll on your eastern seaboard, has been wellnigh exterminated. It has also been attacked in West Africa, and there is more than a reasonable hope that in the next few years it will be extinct. Even if it is not blotted out for ever, it has been so reduced and controlled as no longer to be an international danger. Again, take the hookworm campaigns set on foot in various parts of the globe; not so dramatic as the yellow fever work, but far more extensive. The war on the ankylostomo has already worked wonders in certain places, and, if only properly followed up, will make an enormous difference to labour in the tropics, and incidentally will greatly diminish the evils of soil pollution.

I have no time to tell of all the other ways in which the International Health Board is proving hygiene to be a world force of the first magnitude. Were I to enlarge upon the subject I would have to ignore another international organization which is also demonstrating in a remarkable manner how hygiene may sway the destinies of nations and be a power for peace. I refer to the Health

Organization of the League of Nations, the Health Section of which, under the guidance of its restless, enterprising, and far-seeing medical director, Dr. Rajchman, is becoming a friendly, if comparatively humble, rival of the International Health Board, and is extending its activities far and wide. The parent organization is now a very important body which certainly looks upon hygiene from the widest aspect and seeks to increase its scope and intensify its undertakings. This it does by means of its Advisory Council, represented by the Permanent Committee of the Office International d'Hygiène Publique at Paris, a committee on which both Great Britain and the United States are represented, its Health Committee with its various Commissions, and its Health Section. When one looks through the long list of their activities one recognizes, not only how much is being done, but how much has yet to be accomplished. Surely, however, the outlook is hopeful with powerful organizations on either side of the Atlantic exemplifying a new spirit of international co-operation and control.

It would take hours to recount the triumphs of hygiene, but, viewing them all, let us render thanks in this country to the men who have fought the good fight and seen the works of their hands established upon them. And what of the future? These men had not the facilities you are providing for the students of to-day. They had no schools of hygiene, in large measure they had to learn the lesson in that best of all schools, the school of experience. Yet it cannot be doubted that your young men will now start upon their careers better equipped than were their predecessors. Their enthusiasm can be aroused, their imaginations quickened by what they hear and do in this new school at Baltimore, and the very sight of a magnificent building devoted wholly to the teaching of preventive medicine should impress upon them the importance of safeguarding the public health, should convince them that hygiene is indeed a world force.

Reports of Societies.

RUPTURE OF THE BLADDER DURING PREGNANCY.

At a meeting of the North of England Obstetrical and Gynaecological Society, held in Liverpool on October 15th, with the President, Mr. W. GOUGH (Leeds), in the chair, Miss HELEN M. DUVALL (Liverpool), on behalf of Professor E. E. GLYNN and herself, reported a case of rupture of the bladder during labour, with fatal peritonitis. Miss Duvall said that the clinical details of the case were as follows.

The patient was a primigravida, aged 29, who had been a regular attendant at the ante-natal clinic attached to the hospital during her pregnancy. Her pelvic measurements were normal, and the urine, which had been tested weekly for some time, had no abnormal constituents. On admission she was at full term, the os was one fingerbreadth dilated, the head well down in the pelvis, and the presentation left occipito-anterior.

During the next three days she had intermittent labour pains, and the membranes ruptured at 6 p.m. on the fourth day, the os being three-quarters dilated at 8 p.m. At 3 o'clock on the following morning the patient is said to have given a piercing shriek, and to have complained of acute abdominal pain. The nurse felt the uterus then, and there was no contraction, but the patient was rather cold and clammy, and became somewhat hysterical. As the labour had been long, and the interest of the child seemed to demand it, low forceps were applied under chloroform, and the patient was easily delivered of a living male child weighing 6 lb. 5 oz. A perineal tear of the second degree occurred, and was repaired. The third stage occupied an hour and a half, and the placenta and membranes were delivered by manual expression. The condition of the patient was then considered satisfactory. The patient passed urine voluntarily just before the anaesthetic, and no urine was obtained on the passage of a rubber catheter before the application of forceps. Apparently the patient's condition gave rise to no anxiety during the next twenty-four hours, but as she passed no urine during that time she was catheterized, and 8 oz. of "smoky" urine (said to contain no blood or albumin) withdrawn. On the following day she passed 8 oz. voluntarily at 2 a.m., and 6 oz. again at 2 p.m. By the evening she had become very ill, complexion sallow, temperature 100.2° F., pulse rapid and almost imperceptible, respirations quickened. The abdomen was much distended and very tympanitic, and there was pain in the left iliac region. The usual restoratives were given, but she was much worse by the next morning, with