THE BRITISH TRADITION IN INDUSTRIAL HEALTH*

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We meet, Mr. President, Ladies, and Gentlemen, to honour the memory of John Crosthwaite Bridge. By so doing we inspire ourselves, for that which is worthy of honour is worthy of emulation. Work well done flows from the application of principles, and principles are the code of experience and the lineage of tradition.

That we have gained a national tradition in industrial health is due in great measure to the work of medical pioneers, and it will be a fitting tribute to Bridge, who did so much to foster and develop our British tradition, if we try to distil from this unique heritage its essential principles and to carry on his work and that of his fellow pioneers.

Industrial Legislation

If, then, in our genetic analysis, we examine the state of industrial health and look back at its mode of development, I am afraid we shall be disappointed if we expect to find a series of legal mileposts marking the speedy fruition of great humanitarian conceptions. Yet Parliament has been by no means idle during the past hundred and fifty years, and has enacted many statutes bearing on social evils and has reversed a few; but there is little evidence that the successive reforms which came about were inspired by some magnificent, if misty and far distant, vision of a state of complete industrial health.

Such visions are seen first by men, and only later—and often in the guise of portents—by Parliaments. Perhaps it is better so, lest they bear the emptiness of the mirage rather than the promise of the rainbow. It seems that Parliament legislated with little more in mind than the provision of *ad hoc* remedies for conditions of work which had become scandalous, and, being obsessed with consequences rather than causes, in solving local issues, it ignored national problems.

We may think that in this, as in other legislation,

Parliament was at first understandably addicted to homeopathic ideas. Its treatment of social evils was distinguished by remedies exhibited in frequent minute doses, and was entirely empirical and symptomatic. As so often in our history, the patient miraculously survived, to the astonishment of the world and the admiration of ourselves, without recourse to more than the most minor surgery. Nevertheless, with the physician flitting from symptom to symptom and organ to organ, prescription piled upon prescription, and instruction upon instruction. Small wonder, then, that the patient became exasperated and the relatives and nursing staff exhausted and bewildered. Therefore, every twenty or thirty years or so, a major effort would be made to cure quickly, safely, and pleasantly. New knowledge was tapped and a brave new prescription issued on orthodox lines. In this, the dosage was stepped up, particularly that of the corrigens, and the greatest thought given to the vehicle, so that an agreeable form was imparted to the medicine, at least, temporarily. This is what is called a Consolidating Act!

We shall find, therefore, in this legislation, many signs of a restricted field of vision, and but little evidence of bold and comprehensive planning such as there are indications of today. Thus, in relation to child labour, it seems that when Parliament considered chimney sweeping, cotton spinning was outside its range of vision, and it was blind to this problem in coal mines for yet another half century. Again, it thought a lot about apprentices, but little about the exploitation of the labour of "free" children. Surely all children, wherever employed, were in need of care and protection.

Most remarkably, although the advent and rapid extension of power-driven machinery did not, as is often thought, initiate the scandal of child labour, but merely concentrated it and so forced attention, it did import an even more compelling accident toll, which was ignored for over forty years. Furthermore, in 1856, fifty-four years after the enactment of the "Act for the preservation of the

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Health and Morals of Apprentices and others employed in Cotton and other Mills and Cotton and other Factories," Parliament actually passed an Act which specifically reduced the fencing requirements for overhead shafting, and so made it easier for accidents to occur.

This followed the formation of the Factory Law Amendment Association which was merged into the National Association of Factory Occupiers, referred to by Dickens in "Household Words" in 1855 as the Association for Mangling Operatives. It also petitioned for the removal of Mr. Leonard Horner, one of the first four factory inspectors.

Reasons for the Inadequacy of Legislation

This course of action and associated legislation, with its limited scope and *ad hoc* character, its piecemeal application and its failure to deal effectively with first causes, caused so much confusion that by 1875 the law on Factories and Workshops alone was contained in no less than nineteen statutes, and a Royal Commission was appointed to go into the matter. Legislation is a drug, essential for Governments, and, being essential, it is liable to be dangerous, and when in any way it fails in action we can profit by searching for the cause.

In this case it could not be due to ignorance of the subject matter or to its triviality, for the evidence was all too clear; nor to a low standard of justice in a nation which had abolished slavery in distant parts and the death penalty at home for 144 out of 150 crimes so punishable; nor were we as a nation indifferent to the ancient virtues. Nor was it due to lack of intelligence in our law-givers; we may arrogate to ourselves a higher level of intelligence today, but in fact, there is no evidence that we have improved one iota in this respect since classical times.

Nor will the explanation be found in any failure in altruism and personal courage, in common sense and resourcefulness, or in slackening in duty and tenacity of purpose amongst the pioneers of social reforms of those times. The violent opposition and bitter controversy aroused by these philanthropists, who were to be found in all circles, including members of the Government, employers and workers, doctors and engineers, and the first four factory inspectors—Horner, Saunders, Baker, and Stuart—is sufficient proof of this.

As an illustration, listen to this petition of 1855 to the Home Secretary for the dismissal of Mr. Horner, presented by the National Association of Factory Occupiers to the Rt. Hon. Sir George Grey, Her Majesty's Secretary of State for the Home Department:

"We, the undersigned, occupiers of Factories in the district of Mr. Leonard Horner, beg to submit that the conduct of that gentleman, from his first entrance on the administration of his office to the present day, has been harsh, unfair, and injudicious; has therefore naturally created a strong feeling of distrust towards him, and increased the unpopularity of an unequal and unpopular Act of Parliament.

The continuation of Mr. Horner, in his present office being, therefore, calculated to bring the law into still greater disrepute, and the Government into frequent, unnecessary, and injurious collision with the people, we earnestly solicit his removal."

What, then, explains the apparent prostitution of conscience by expediency to be found in this earlier legislation, which on occasions even tended to depress the standards of the good employers to that of the lowest? Undoubtedly the chief cause of the failure of government was the overwhelming pressure of events. Wars and their aftermaths, revolutions and the fear of them, dismemberment of countries and failures of crops, famines and epidemics of cholera and typhus, all brought misery and intensified existing hardships, and brought slumps in trade to a feverishly expanding, but young and unstable industrial instrument, which in turn, intensified distress and national insecurity.

Influence of Public Opinion

No wonder public opinion got far ahead of parliaments and, disappointed in their rulers, the people set about to think, plan, and act in innumerable small circles of devoted humanitarians, aided by the spread of newspapers, pamphlets, and novels, and by railway transport. Trade revived, and thus began a steady advance in national health and happiness. Governments took the credit, but the British people saved themselves.

I have discussed this at some length, because the upheavals of the first half of the nineteenth century caused a change from government by politicians through Parliament to government by the people through Parliament. Since then, and until now at any rate, public opinion has continued to be ahead of parliamentary action, and this has an important bearing on the development of industrial health.

Inductive versus Deductive Methods

This method is predominantly inductive and highly characteristic of the mode of development of industrial health in this country—our tendency is to deal with particular events and circumstances, and to encourage general conclusions to emerge, on which Parliament may act. A number of countries have followed our example, but many,

particularly those more recently developing this social service, tend to work the other way round, and attach more importance to planning detailed action from pre-formed gallant principles.

Of course, the distinction cannot be clear-cut in practice, but the difference between the predominantly inductive characteristics of our procedure and the mainly deductive methods of some other countries, explains many idiosyncrasies in national thought and practice. Which is the quicker method in the long run of achieving the national aims of industrial health, it is hard to say: as to which is the better method, naturally I think that ours best suits our national needs. In point of fact, however, we had no choice.

While incendiary bombs were falling the fires had to be put out with the means at hand, without wasting time planning a national fire service. Moreover, good planning cannot be done without basic data, and there were none; so the pioneers had to set about getting them, and it was from their reports, and brave efforts, singly and in company, in little private committees and societies, that reforms sprang up and industrial health services germinated. From such beginnings arose all the fact-finding investigations, the boards, the committees, and the commissions which examined the problems thus brought to light, and reported the facts on a national scale with a view to remedying a social evil by operation of the law. So we see that traditionally, industrial health is secured by legislation, the quality of which is dependent on the accuracy of essential data.

Working out a Problem

Let us look at it another way. If we are confronted with an industrial health problem, the first question we ask is, "What are the facts?" and the next, "Are these all the facts?" Then almost invariably we find that although the problem is inherently medical, the chemist or the physicist, the management or the workers, the psychologist or some other experts have vital roles to play in solving the problem.

This sounds ridiculously simple today, but it was not always so, for if we analyse the procedure, we find it involves: (a) the use of basic knowledge of industrial health; (b) the recognition of the problem; (c) assessment of its general scope; (d) its field of investigation in a particular environment; (e) possibly laboratory research; (f) collecting and assessing the results of investigation and research; and finally (g) applying them to a particular occupational environment; this involves, of course, (h) highly specialized team-work.

The team requires (a) to have basic and specialized knowledge, (b) to be critical of its limitations, (c) to have a passionate desire for completeness and accuracy, (d) to exercise sound judgment, (e) to appreciate that the matter may bear on other problems, national as well as local.

Thus, we progress all the way from the particular incident to the general principle; and, if the problem happens to have national implications, the process continues by way of further investigation and legislation, and returns from the general conclusion to the particular case by way of a legal duty operating in the very factory or other occupational environment in which the problem began. This is all very different from personal medicine and the diagnosis and cure of disease in an individual.

Differences between Industrial Health and Personal Medicine

Industrial health is a wholly preventive special function based on law; it is predominantly, but not solely, medical in scope, operating in the industrial environment, and it is concerned with the individual primarily as an index of that environment.

Personal medicine is wholly wrapped up in the individual. Industrial medicine is predominantly wrapped up in the occupation and the occupational environment. Thus the approaches of the two branches of medicine are fundamentally different. Personal medicine secures the nation's health by treating the individual. Industrial health secures the individual's health by treating the industrial community. Obviously personal and industrial health are integrally specialized, but specifically complementary, functions.

So it seems that industrial health originated on account of action by particular individuals about particular incidents in particular places of work, and has progressed and is progressing essentially in this way. If we could but identify the first of these actions, we could put up a memorial saying, "At this spot on such a date industrial health was born, when X thrashed Y, an overseer, for cruelty to Z, an orphan aged 5, employed in this mill."

Industrial health has progressed far since then, but the germinal focus lies in the place of work and will remain there quite properly. Essentially, therefore, industrial health is a specialized study for those who study the place of work.

As Pope said: "The proper study of mankind is man"; and we might say, "The proper study of industrial health is industry"; and the double meaning of the word "industry," which I hear is going into disuse, will not escape us.

Dangers of Inertia

There is no time to discuss all the advantages of our traditional approach to industrial health, but I should mention one of the few disadvantages, but a major one. That is, the liability to inertia at all stages, and particularly in the crowning stages of development.

It has often been a long way from the birth of a new risk, through Parliament to the general application of a new law to prevent it, and we should do everything we can to expedite the process. The new short Factories Bill, 1948, just presented in the House of Lords, does something in this direction. To quote Pope again, "The learn'd reflect on what before they knew"; and reflection can be often so interminable that a vital step in progress escapes a generation.

Dangers of Guessing

The other method of progressing from the general to the particular follows classical reasoning. Its main defect is that unless the general principle is securely based on exact knowledge—which means either deriving the general from the particular or making a lucky guess—forces may be set in motion to the detriment rather than the aid of progress—as is shown by the Nazi dogma of inherent racial superiority—a most unhappy guess, had they but known. The lucky guess means, of course, rapid progress—but we cannot afford guesses, lucky or unlucky.

Another grave disadvantage to progress of proceeding from the general to the particular on inadequate data is that it favours the opportunist amateur, medical or lay, who is omnipresent today. We have all met with sorrow these extra-territorial prophets, gifted parasites blessed with a talent for simple, if inaccurate, exposition, who, modestly conscious of the mantle of genius, inwardly despise knowledge as painfully clouding inspiration. We can appreciate their appeal to the hard-pressed, honest man of affairs, who, anxious above all things to do justice to a problem, and to himself, yet desires the achievements and potentialities of nuclear physics served up to him on half a sheet of paper in ten minutes. We should resist them at all costs.

Government, Employers, Workers

Our method of procedure stresses the essential importance of the individual in securing industrial health. In fact, it casts the responsibility for progress on every one of us working with industry, be he employer or employee, or aiding in any other way. This, incidentally, is the genesis of the tri-

partite system of consultation between Government, employers, and workers, which was born out of the needs of industrial health, and which happy and successful procedure we have given to the world. This system has not grown up in a day, but again, if we had time, we could trace its development from the talents and qualities of our pioneers in industrial health. They all had in high degree those qualities we most admire, and outstandingly, I think, integrity and courage; joined with a passionate desire for truth and a fierce intolerance of injustice, they were always at war against the big battalions, but they proved once again the truth of the Horatian maxim:

*"Integer vitæ scelerisque purus
Non eget Mauris jaculis neque arcu
Nec venenatis gravida sagittis
Fusce, pharetra";*

(but they had no Moorish javelins and no doubt their first choice would have been the Hogarthian weapon of the day!)

They thrived on opposition and the earlier ones made the Law. The latter ones, being nationally minded, acquired a reverence and a distinct affection for the Law because of its immense power for progress, inherent in its capacity for maintaining standards of quality, once they are attained, and because of the necessity of maintaining minimum standards of industrial health, safety, and welfare, universally and equally.

Above all, they were men (and women of course; you will remember that Florence Nightingale was a model pioneer in an allied field in this period) of practical common sense and stability.

Our Pioneers

These compelling attributes of character are well exemplified in our pioneers of more recent date, whom we can so judge because we have been privileged to know them personally, like Legge and Bridge, and others retired from the forefront of the battle, but happily still with us to lend their wise aid in emergency.

Bridge, in all, served industrial health for thirty-four years, and the verdict of history will be, I think, that his passing marked the close of a remarkable and quite distinct period of half a century of progress in occupational medicine, due in great measure to Legge and himself.

Details of their achievements are well known to you, so I will content myself with emphasizing some outstanding features. The beginning of the half century associated with Legge, and the end, associated with Bridge, were marked by the passage of two advanced and much admired model pieces of legislation—the Factories and Workshops Act, 1901, and the Factories Act, 1937. The whole period

also covers the rise and zenith of the legislation relating to Workmen's Compensation—that unique British inspiration of social and economic justice which has been exported in various ways far and wide.

On the medical framework of such legislation, Legge and Bridge were not only the national pioneers, but were the leading international authorities. Bridge was peculiarly gifted in this field by his legal knowledge and the fine clarity of thought which he brought to bear on his vast knowledge and practical experience of occupational hazards. It was this field of work which appealed to him most, I think; in the pursuit of truth and justice he was ever on the look out for new knowledge which would provide evidence to expand and modify the Schedule of Diseases subject to compensation. He held strongly that legislation concerned with prevention should go hand-in-hand with legislation relating to compensation. The fundamental principle on which he worked, that identification of an occupational hazard, application of measures for its prevention and for the compensation of any associated personal injury should be contemporaneously and swiftly pursued, cannot be too strongly stressed and widely followed, for in this, time saved means life for many.

I would add to this postulate one other requirement for perfection, that of scientific prevision of occupational hazards, a science that is becoming steadily more effective.

Although active in public affairs, Bridge was inherently retiring and sensitive, but he had a most disarming and appealing charm of word and manner. His colleagues, especially the juniors, knew that he

kept of his best for them. He was never too busy to discuss knotty points, and they never forgot how doubts and difficulties would vanish under his skilled analysis. Those who sat at his feet, like myself, have an abiding gratitude for his unobtrusive teaching and his warmth of genius.

The Future

What of the future? As knowledge of industrial health spreads, inertia dissipates, and opposition born of ignorance vanishes. Our pioneers, so sensitive to the maleficent forces they fought so tenaciously, would surely and mightily respond to the feeling of a great surge forward of which we are conscious today. There is a great call for new pioneers, but they will not now fight alone. In these latter years we are supported by an array of men and women skilled in medicine, science, and the many other activities, great and small, which contribute to industrial health. They are found in all conditions of life, and are drawn compellingly to this sphere of human endeavour, and in this connexion I, from my experience, know how continually I am indebted to them as colleagues.

However ill-equipped each of us thinks he is to grapple with the labours ahead, we will agree with Euripides that

“a man shows best when he outshines
himself; to climb
that height he'll spend in labour more than
half his days,”

and, inspired by pioneers, we ask ourselves the age-old question, “Who knowest that thou art not come to the Kingdom for such a time as this?”