

# James Reid Wheeler (1898–1973)

President of the Ulster Medical Society

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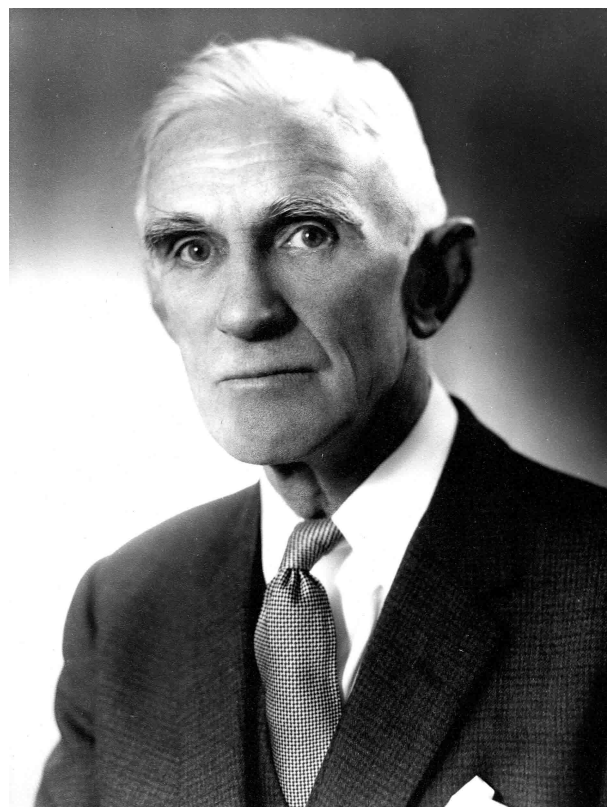
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## THREE GENERATIONS

The last one hundred odd years have seen such changes in the world that it behoves us to pause for a moment and look back at great men, and great achievements. I can look back to forty years in the medical profession, but as my father and grandfather were also members of our great profession I thought I would try and look at life as it was since 1846 when my grandfather obtained his qualification of L.R.C.S. in Edinburgh, incidentally he was President of this Society in 1875-76.

During that early period what great names were brought before the students. Moses, the first great doctor in Egypt, laid down laws of health and made the Israelites follow a code of regulations for their cleanliness and well-being which preserved them in health for forty years wandering in the wilderness. Probably segregation of the leper, often referred to in Leviticus, was the first great feat of preventive medicine.

Hippocrates died over two thousand years ago, but his solemn oath which his students took to respect their teachers as a father, to share knowledge freely, to behave with stainless honour, and never to divulge a secret learned in the sickroom, still remains. Galen was born in A.D. 130. He gathered together all the safest teaching of those who had gone before him and added to these the results of his own observations. For a thousand years the teaching of Galen was all that Europe had to go upon in the science of curing disease. About fourteen hundred years later William Harvey appeared on the scene and it was his great mind that discovered the circulation of the blood and laid the real foundation of physiology. John Hunter was born in Lancashire in 1728 and was a great surgeon, but will best be remembered as the comparative anatomist who first understood how different forms of life resemble one another. Edward Jenner was a pupil of Hunter's, and it was in 1798 that he made known his views on vaccination for smallpox. The idea came from overhearing a milkmaid say to her friend that she had



had cowpox and so would not get smallpox. It was just over fifty years later than an Act was passed in Parliament stating that all infants within four months of birth must be vaccinated. Parliament of the day gave Jenner £30,000, and of course he received many honours which were richly deserved.

Now coming up to my grandfather's time, it was just a year after he qualified, that is to say in 1847, that Simpson, a professor of Edinburgh University, first used chloroform as an anaesthetic. Up to this time all surgical operations were performed upon conscious (or drunk) patients. Now the number of operations greatly increased, but, alas, the death rate also increased due to gross infection in the wounds. In fact, Dr. John Hall, Chief of Medical Staff of the British Army in the Crimea in 1855, issued instructions to his officers against the use of chloroform: "The smart use of the knife is a powerful stimulant, and it is much better to hear a man bawl lustily than to see him sink silently into the grave."

Dr. Paul R. Howley, M.D. of Chicago, Chief Medical Officer of U.S. Forces in Britain in the last war, pointed out that hospitals in the nineteenth century

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and before were set up for the primary purpose of abating a nuisance, the sick, crippled, and insane who were unable to pay for private care. The hospital was a place in which to die, not to regain health. The mortality rate was very high.

The idea of training women to the profession of nursing was due to the initiative of Florence Nightingale. Her astonishing personal success lay in the forcing of her modern methods of hospital management on the Crimean Army authorities (1854). Perhaps the first "War Correspondents" stirred up public opinion at home, so that the idea of nursing as a serious profession spread fast in civil life.

It was to Semmelweiss (1846) that we owe the beginning of our deliverance from serious epidemics of puerperal fever. He noted that the death rate from puerperal fever was low in cases treated by midwives and high when patients were examined by medical students. It was evident to Semmelweiss that infection was carried by the hands of students from bodies in the dissecting room. He gave instructions that students examining such women should wash their hands in chloride of lime solution, and as a result the death rate fell from 1 in 8 to 1 in 33. Perhaps he was the first to recognise the necessity for asepsis in dealing with patients. Like many pioneers, his ideas were bitterly opposed by some of the medical profession of his day.

On the other hand, Lord Lister, who introduced methods of antisepsis which were to produce a revolution in surgery, was acclaimed by his own profession and received many awards. Lister noted the resemblance between putrefaction in a wound and the process of fermentation as explained by Pasteur in 1862, and he conceived the idea of destroying the organisms by use of a strong antiseptic such as carbolic acid. In 1865 his method was used for the first time in his wards at Glasgow Royal Infirmary, and his wards became the healthiest in the world. Mortality rate was reduced from 40 per cent. or 50 per cent., to 1 per cent. or 2 per cent. What a debt the world in general owes to this famous man.

Antiseptic surgery, in turn, gave way to aseptic surgery, and now the establishment of bacteriology has made most impressive changes in the medical world. My father used to like telling the story of when he was a medical student at St. Bartholomew's Hospital, how the senior surgeon came into his theatre one morning and told his class that he was going to try this new scheme of Lister's; and that was less than one hundred years ago. The main surgical operations at that time were amputations, breast tumours and strangulated hernia – the abdomen was

still almost forbidden territory.

With this marked progress in medical knowledge it was deemed necessary to pass a Medical Act in 1858 in order to establish a register of medical practitioners who had a reasonable training in medicine and surgery. It was felt that in the past incalculable harm had been caused to countless individuals by the unskilled administrations of unqualified practitioners. The previous Medical Act of 1511 had stated that no one could practise medicine in London unless he had been examined and approved and put on a register by the Bishop of London or the Dean of St. Paul's. It is a long cry from this to our present very efficient court of examiners and General Medical Council.

The seventies and eighties had been a period not only of large families, but of puritanism in ethical and sexual ideas. The genuine honesty of most British merchants as men of business had been one of the causes of our great commercial prosperity. Others were of course the advent and opening up of railways both for the carriage of goods and the travel of the general public. The advent of the railways was England's gift to the world. In 1814 George Stephenson constructed his first steam locomotive engine. The triumph of the latter opened out unexpected vistas for the carriage of all classes of goods, especially coal, and later on passenger traffic. Stage coaches and canals were doomed – this was the railway age. The first public railway for passengers was the Stockton to Darlington railway in 1825 (Rocket). During the next twenty-five years many lines were opened up in Europe and the U.S.A. Now, by all recent reports, we, in our age, are seeing the closing down of railways! At this period the British mercantile marine was substituting iron for wood and later on steel for iron. This coincided with an enormous development of English iron and steel output or of pig iron. Britain produced half the pig iron in the world, and thirty years later the output trebled. The steam engine, coke, iron, and steel are the four principle factors contributing to the acceleration of technology called the Industrial Revolution, which was now gaining its full momentum.

Each individual as a unit is subject to many influences – care when he is an infant, nutrition in adolescence, housing, education, and of course his heredity make up. In the early nineteenth century towns were small and so with the rapid onset of the industrial age there was a packing of a large population into a limited area of land without sufficient provision for sanitation. In 1853, when

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cholera threatened the country, the Presbytery of Edinburgh wrote to Lord Palmerston, Home Secretary, suggesting “a national fast should be appointed on Royal authority.” Palmerston’s reply was that “prayers and fasting of a united but inactive people are useless” – plan and execute measures to purify those parts of towns which are inhabited by the poorer classes so that they may be freed from those causes and sources of contagion which breed pestilence. It is sad to remember that the early Church was at some periods bitterly antagonistic to the acquisition of scientific knowledge.

The various forms of epidemic were found mainly in overcrowded dwellings with poor disposal of decomposing animal and vegetable substances. A proper water supply so as to establish habits of cleanliness is essential. Legislation is required if these ideals are to be established, and then a number of Government inspectors to see that the job is properly done. In 1846-47 the Irish Potato Famine brought over three hundred thousand of panic-stricken and starving refugees to Liverpool. Lodging-houses, and even cellars, were crowded, so an epidemic of terrifying dimensions arrived in due course. All were grouped under headings of fever, typhus, and relapsing fever, plus dysentery which was simply called diarrhoea. The death rate was 135 per thousand. To deal with this Liverpool set the first example of the need for largish towns to appoint medical officers of health. A few years later the General Board of Health summed up arguments for quarantine by stating that epidemic diseases were not contagious but due to the existence of an “epidemic atmosphere.”

It was about this time that Disraeli made the remark that England was divided into two nations, the rich and the poor, and this, unfortunately, had an uncomfortable amount of truth in it. Times, however, were beginning to change, and the Great Lord of Shaftesbury did much to alleviate the appalling conditions of women and child labour in mines. Britain was at last striving to remedy some of the evils attendant on the industrial revolution, and the first Factory Act was passed in 1847.

Industrialisation impels social changes, old certainties of class and status get washed away. Progress quickens when man applies his deductive powers to the material world. Over the centuries, in spite of frequent setbacks, the material condition of man has improved. Now the speed of progress has accelerated phenomenally, and shows all prospect of continuing to do so.

In the second half of the eighteenth century “self

help” was a favourite motto with leading men in all classes. Science was perhaps undermining the older forms of religious history which were very intolerant. (From 1753 to 1836 no one could be legally married except by a Church of England parson – now a certificate from a registrar was sufficient.) Now the enormously increased wealth and manufacturing power of England was building up a powerful middle class. The education committee of the Privy Council was helping to build state-aided schools, private academies were giving a more scientific education in contrast to the so-called public schools which still gave a purely classical education.

During the “Age of Projects” the engineer got little help from the scientist, but during the eighteenth century, the Age of Reason, the scientist and engineer were getting together to study problems of detail. The older universities like Oxford and Cambridge contributed little, the pace being set by younger ones like Edinburgh and Glasgow. In Great Britain the state was not concerned with the education of this new master craftsman – his training was practical and his success depended on good instruction and appropriate instruments. Progress became rapid and made the great Dr. Johnston cry out, “This age is running mad after innovations, all business of the world is to be done in a new way.” How right he was, the day of the small craftsman was gone. The manufacturing process was split up into a series of operations, each of which was performed by a special piece of machinery instead of being worked by hand by one craftsman who mastered all operations. These new factories demanded a large outlay of capital. Incessant local wars had impoverished central Europe and Italy. U.S.A. had their Civil War in 1861-65. England was in the fortunate position of having a flourishing overseas trade, a well-developed banking system, raw materials in the form of coal and iron ores, and an industry-minded middle class willing to take the risk of introducing new machinery and recruiting labour mainly from Scotland and Ireland. Income tax in the eighties varied from 2d. in the £ to 6d. Free trade had lifted the weight of taxation from the poor, and in spite of a falling off in agriculture there were enormous increases in shipping and overseas trade.

The latter half of the century was a great period of emigration when it was decided that Canada, Australia, New Zealand, etc., should be populated by the British. Organised efforts by emigration societies took place and Government assistance could be obtained. The Victorian era had been a long period of ever-increasing prosperity at home, and of gradual

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uninterrupted peaceful transition from the old to the new. In Northern Ireland there was a tremendous boom in the linen trade and many men from these parts sought their fortune in America.

Progress in the medical world was not lagging behind during this period. Pasteur, who was a chemist, not a medical man, was continuing his work on micro-organisms and vaccines. The Pasteur Institute was founded in Paris towards the end of the nineteenth century, and by his researches here some might say he laid the foundation of the science of bacteriology. He was followed by a long line of distinguished men, one of whom, Robert Koch (1843-1910), a qualified doctor, discovered the T.B. bacillus in 1882.

The next big advance in medicine perhaps came from the discovery of the X-ray by Rontgen in 1895. This diagnostic agent was first applied in cases of fractures and opaque foreign bodies. Dr. Porter told us in his opening address at the Royal Victoria Hospital last October that my father was Chairman of the Staff when they ordered their first X-ray machine. We all know the many advances that have been made in the study and science of radiology since that day.

One of the next discoveries that was to affect the medical world was the isolation of radium by M. and Mme. Curie in 1898. This was to prove of immense value in the treatment of certain skin diseases and in the treatment of malignant growths.

It is, of course, quite impossible in a short talk of this type to mention all the great men in their day and generation, and to enumerate their various discoveries and inventions. In my own subject, however, I would just like to mention that in 1850 Helmholtz, a German ophthalmologist, introduced the first ophthalmoscope and so was the first person to view the interior of the human eye. There have been variations of this instrument since then, of course, but the original principle is the same today.

By the end of the century, after about fifty years of unremitting effort by the Public Health Authorities, improvements had been made in water supplies and general sanitation, so that the general health of the population had improved. There was a fall in infantile mortality and smallpox had been got under control. However, enteric fever still took a large toll of lives. Committees were appointed to supervise the sale of food and milk, etc. But even so, a large proportion of the labouring classes were still living on incomes below the "poverty line." In 1901 no less than 40 per cent. of the recruits examined for the armed services were rejected on medical grounds.

Sir Almóth Wright's name will always be

remembered for his work on the anti-typhoid vaccine which was first used in the South African War, and then later with such good effect in the 1914-18 War. In the South African War the greater number of casualties were due to sickness in the field caused by indifferent sanitation and contamination of food and water supplies. By the use of the antityphoid vaccine, then in its infancy, cases of typhoid were eventually reduced in number. The experience gained at this time helped to accelerate the progress of research into these vaccines. One, or perhaps the only good thing to come out of a war is the experience gained in the treatment of disease and of injuries which can then be used to help in time of peace.

Towards the end of the nineteenth century and at the beginning of the twentieth century great strides were being made in the world of transport. The first electric tramway was opened between Portrush and the Giant's Causeway in 1883. Some of us here have seen the entrance and exit of electric trams in our city. In 1889 Dunlop, a Belfastman, invented pneumatic tyres for bicycles. This opened up a means of transport for a great many people. Motor-cars first appeared on the scene in the early 1900s. These, of course, in those days were an expensive luxury, and a journey in one was often an exciting adventure. Telephones were coming into more general use since Graham Bell introduced the first instrument which could transmit speech in 1876. This easier mode of travel and improved means of communication accelerated the transference of knowledge and ideas from one place to another, and so in many ways speeded up research. The period up to the First World War was often looked on as one of great advancement in research in the medical world. The incentive to any research is an idea, and it was fortunate that men with fruitful ideas were not lacking in the medical profession fifty odd years ago.

The bulk of the casualties in the First World War, unlike previous wars, were due to trauma rather than sickness, the amount of sickness being reduced, as I mentioned previously, by anti-typhoid vaccines and tetanus inoculations, etc. The Thomas Splint was used for the first time during this war and was responsible for saving many lives and limbs.

In this war transport in the field was almost entirely horsedrawn, there being just a few motor-cars for headquarters staff. The aeroplane was used for the first time as part of the armed defences. The experience gained during those war years greatly accelerated the improvement and construction in these planes and the advent of the second war has helped to produce the immensely powerful and

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efficient machines we are accustomed to today. The wings of the original aeroplanes were made of Ulster linen and I remember the first air display at Balmoral Showgrounds in 1912, when several of these little planes took part, but unfortunately one hit a flagpole and crashed. It was in 1903 that the Wright brothers produced the first petrol-driven and man-carrying aeroplane, and the first flight was a distance of 852 ft. The first trans-Atlantic flight was in 1919 when Alcock and Brown flew from America and landed in the West of Ireland. Now, of course, large air liners are flying daily to all parts of the world, and before long will probably also be flying to the moon.

Wireless as we know it today was not available during the First World War. Marconi had been experimenting with wireless telegraphy for about twenty years and was able to transmit messages by Morse Code. After the war great advances were made, and in 1927 a public wireless telephone service was established between London and New York. The first private wireless sets were the small crystal cat's whisker sets, with ear phones, and often one had to use one's imagination to hear anything on them. We all know what a tremendous part wireless transmission played during the Second World War, both as a means of communication and as a form of propaganda, and anyone who heard Sir Winston Churchill's rallying broadcasts to the nation during the darkest hours will never forget them. Now, of course, television has taken the place of the older sound wireless, and medical knowledge is even transmitted by this method, as in *Your Life in their Hands*, etc.! Closed circuit methods are also used for teaching purposes.

Sir Henry Dale, O.M., said in 1950: "I think that our successors are likely to recognise the first half of the twentieth century as the period in which civilisation began to feel, for good or evil, the full impact of progress in the natural sciences. In no department of knowledge and practice has this change been more conspicuous or more rapidly progressive than in the general field of medicine."

About forty years ago there may have been something in the remark of Oliver Wendell Homes when he stated in his own inimitable way, "If the whole *Materia Medica* (except only opium and ether) as now used could be sunk to the bottom of the sea, it would be all the better for mankind and all the worse for the fishes."

A major advance in the medical world was Banting's discovery of insulin for the treatment of diabetes. I was a house surgeon in the Royal Victoria Hospital when some of the first cases were treated

with insulin here in Belfast. I heard Banting give a lecture in Edinburgh. He told us that what first interested him in trying to find a cure for diabetes was the fact that his best friend suffered from this disease. He tried out his various preparations on his friend, who called himself "the human rabbit." The next forward step in the treatment of disease was the use of liver in the treatment of pernicious anaemia, and the sulphonamides in infections.

Perhaps, however, the most outstanding discovery of that time was the isolation of penicillin by Fleming. The time between the discovery of a drug and the placing it on the market, as it were, is often very considerable. Penicillin was considered to be of such vital importance that its production on a large scale was deemed a top priority during the Second World War. For this reason we sought the aid of our American allies in order that sufficient quantities could be produced in a limited time.

Immunisation against diphtheria was proving to be of great value. Dr. Fred Kane has given me some very interesting figures as regards the incidence of scarlet fever and diphtheria as treated in the Northern Ireland Fever Hospital, Purdysburn. In 1933 there were 2,329 cases of scarlet fever, with twelve deaths. In 1962 there were 45 cases, with no deaths. In 1933 there were 593 cases of diphtheria, with 47 deaths. In 1962 there were no cases. He points out that the changed picture in the incidence of diphtheria is entirely due to prophylaxis, while in the case of scarlet fever the improvement is due to treatment, first by sulphonamides and now by anti-biotics. Streptomycin and other anti-tuberculous drugs have dramatically hastened the decline and fall of the malady that used to be called "the captain of the men of death." The sulphonamides and anti-biotics have drastically reduced the menace of bacterial infection, and now one rarely sees a case of acute mastoiditis or ophthalmia neonatorum, or trachoma, etc.

Unfortunately on the other side of the picture, due to mechanical inventions in the workshop and on the road and in the air, the accident rate has gone up, and diseases of stress and strain due to the modern way of life, are on the increase.

With the widespread use of prophylactic vaccines and the use of these new drugs one might say that medical treatment has been put on a more scientific basis. Occasionally there will be a drug which helps millions of people but harms a few. The public will have to be prepared to accept some risk, though this risk is minimised by intelligent safeguards.

The cost of drugs today is very great, but the

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saving in the mortality and the morbidity rate is greater still. Great Britain, it is estimated, spends about 16s. per head of the population per annum on drugs. Holland spends 22s., U.S.A. 33s., Belgium 55s. Dr. Vincent Askey, President of the American Medical Association, called America "a land of hypochondriacs, its inhabitants crammed full of vitamins they don't need"!

Blood transfusion is such a commonplace thing today that it is hard to realise that it was only used occasionally before the last war. Prior to this time, Sir Thomas Houston had done much valuable work on the grouping and typing of blood. Again, with all the war casualties, it was a vital necessity, and from here the whole technique of blood banks and blood donors has been brought up to its present efficient state. In the ophthalmic end we are now establishing an eye bank so as to have a supply of eyes always in readiness for corneal grafting operations.

I might here digress to mention that one of the great triumphs of the century in ophthalmology has been a method of treating simple retinal detachment where there is a retinal hole or tear. To Gonin of Lausanne (1925) goes the credit of being the first to get the idea of closing the retinal tear by means of a caustic. His original technique has, of course, been much improved, and today, by means of diathermy and scleral resection, etc., about 70 per cent. of cases have their sight restored.

The advances in general anaesthesia in the last forty years have been immense. In my day as a house surgeon in the Royal Victoria Hospital, we gave anaesthetics in all and every type of operation, often just with ether on an open mask. How the surgeons put up with this I do not know. At that time there was just one honorary consultant anaesthetist, Dr. Victor Fielden. Anyone who has had a general anaesthetic in recent years, or who has had to operate on a patient under general anaesthesia, will realise what these modern methods mean both to the patient and the surgeon.

With all this advancement in medicine and in scientific knowledge generally new schools and technical colleges and universities have had to be built, or old buildings have had to be enlarged to try to cope with the evergrowing demand for higher education.

After World War II, what with the rising cost of living and the need for hospital expansion and the rebuilding and the establishment of many new departments in hospital, it was obvious that the day of the voluntary hospital was over. In July, 1948, the Northern Ireland Hospitals Authority took over

almost all the hospitals in Ulster. It has been stated that the overall cost of running a hospital has increased threefold during the past ten to twelve years. This, with the cost of building and the cost of new and expensive equipment, could only be undertaken by the State. With these advances the general health of the people is very much improved, so one hopes that the high cost of the hospital services may be offset to some degree by better workmanship and less loss of working hours through illness in the industrial world.

So we see that during the last one hundred and twenty years vast improvements have been made in the living conditions and the general health and well-being of the people. Today practically all families in this country have enough food to satisfy the high standard of nutrition as laid down by the British Medical Association.

Education has advanced to an outstanding degree, mechanisation in factories and agriculture has enormously increased output. Modes of travel have been vastly accelerated, means of communication have multiplied out of all knowledge.

With all this progress I think the advances in medicine have more than held their own.

The gift which medical scientists bequeathed to those who followed them was not so much the discoveries associated with their names, valuable as these discoveries were, as the proof of the fact that health and disease were the effects of natural causes and that these causes could be elucidated by the use of ordinary principles of scientific investigation.

In all surveys in the field of physical and medical science the story is never finished. There is no hard and fast line separating past, present, and future. We cannot overstate our debt to the past, it is interesting, but now only history. It is the present and tomorrow which have the supreme claim. There will still be new worlds to conquer, both in the region of the body and the mind.