

Historical Perspective

An essay on some aspects of medicine in Malta between 1934 - 1990

Emmanuel Agius

It has been wisely said that experience is not what happens to you but what you do with what happens to you. Especially the young tend to sneer at one who is always ready to justify whatever he says or does by saying that is what experience has taught him. This is hardly fair since he who quotes his experience is really only offering to present his listener with what he has acquired by his own exertions. In this essay I will in many ways offer to the reader what experience has taught me for which gratitude should be a fit reward. It is clear that what the "Medical Association of Malta" requires is an essay, qualifying

this only by saying that "authors may choose any subject" as long as it has a medical variant, which is rather broad as a term of reference. It seems to me this could suggest the description of some clinical condition or procedure, of some technique or some special therapeutic measure. It could also mean presuming the essayist is a medical man that the writer would be describing in biographic terms some part of his life which he had assumed to be of medical interest. Since I am one of the oldest doctors living in Malta and since I have had a varied life it is along these lines that this essay will be cast.

I have qualified medically in 1934. My main interests, since, have been those of a laboratory man in what used to be known as Public Health and is now often referred to as Community Medicine. I have lived for some twenty months in England almost exclusively concerned with the study of Hygiene and that of Microorganisms. I have for several months traveling and working in England, the U.S.A, Canada, what used to be called French North Africa and, briefly, in Italy. I have also been for twenty-nine years a University teacher. I have said that this essay will not be a biography and I shall not yield to the temptation to make it so. I shall make this essay a purely medical one, restricted to what were my scientific commitments.

Of some medical interest were the facts that getting into the University to follow a course in Medicine in 1927 involved Matriculation in seven subjects of which mathematics and Latin were two, apart from Physics, English and Italian literature. Italian was a pleasant subject to study in its various aspects and ever afterwards I, who had the undeserved reputation of a Italophobe never refrained from reminding those who teased me about that, that I was always the man who in a large class scored top marks in the language. In those days what were called reparatory classes, at least, classes were large, some forty or so. This, and my observations on the curriculum, severe to show how things have changed, for the worse as far as languages and mathematics were concerned and for the better as far as some science subjects and philosophy were concerned, although even then we did physics, chemistry and biology rather well. Times change and we change with them.

Just as an instance of these changes I mention that only one woman had in 1927 ventured to join the Course of Medicine. She had had predecessors in other years but never had there yet been such a multitude of females as happens today. In those years a similar male predominance also prevailed in the Literature courses which meant a B.A.

Key words

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Emmanuel Agius

Born: Msida, 11/12/1911; *died:* 29/11/1993. **Education:** University of Malta [1927-34]; continued postgraduate studies in Universities of Liverpool and London. **Qualifications:** Ph.C. [Malta, 1930]; B.Sc. [Malta, 1931]; M.D. [Malta, 1934]; D.P.H. [Liverpool, 1937]; D.Bact. [London, 1938]; F.C.Path. [U.K., 1964]. **Career:** *Government Health Service* - Resident Medical Officer in Government Hospitals [1934-36]; Assistant Bacteriologist M&H Department [1938-51]; Senior Bacteriologist [1952-75]. *University of Malta* - Lecturer in Bacteriology and Parasitology [1948-75]; acting Professor of Pathology [1949-53]. Also served for some terms as member of the University Senate and the Faculty Board. **Achievements:** very active in British Medical Association [Malta Branch] filling various official posts [Hon. Secretary 1939-46; President 1947-48, 1955-56, 1960-61]; elected founder fellow of the Royal College of Pathologists [1964]. Was closely associated with the Institute Pasteur de Tunis et d'Algerie; served on the nomination committee for Nobel Prize award in Medicine [1953]; editor of the *St. Luke's Hospital Gazette* [1966-74]; published a number of publications related to bacteriology and parasitology in several refereed journals besides a number of literary works.

It may be worth noting that while eighteen students had finally entered the Course of Medicine at least three of them died young, two of them I think died before qualifying, one of them through tuberculosis, one through a particularly virulent form of lymphocytic leukaemia. The latter, a first cousin of mine, was the eldest son of my uncle who was at the time Rector of the University. Another student who had always scored top marks throughout his time in the medical course died young, a short time after qualifying, through Essential Hypertension.

Medicine has two aspects: the curative and the preventive, and their combination has led to the great advance of the science. Curative medicine in its turn depends on the application of pure medical science for the diagnosis and treatment of disease. Both these latter depend on the application of advances in many sciences, varying from the study of such pure science as chemistry to that of microscopy.

One need not elaborate on all this. Chemistry has been applied in physiology both in the study of the working of the human body and in the study of methods of treating any abnormalities. As physiology has advanced so have therapeutics in their various phases and this natural progress has led to the situation with which we are now familiar.

Medicine has become more mechanical taking advances in its stride which have made semiotics easier and more precise. One of the most striking advances has been in the application of physics to microscopy, which in its turn led to the discovery of microorganisms and to the finer aspects of histology, by which pathology has progressed. Microscopy and microbiology have led to the greatest advances in prophylaxis and it is to these that we owe the possibilities and indeed the actual effects of prevention of disease.

What the present day applications of microbiology have brought about have been the use of various methods to check control and eventually to eradicate infectious disease and to make the most complex surgical procedures possible.

The dominant characteristic in medicine has been its continued progress. Looking backwards – and indeed not very far backwards even only as far back as 1936, which is barely one working lifetime – I can recall our Central Civil Hospital located where the Police Headquarters now are, housed practically all the cases now at St Luke's and the fever cases filled the vast ward, now used to deal with transport licensing. Most of the beds were occupied by typhoid and brucellosis cases. Patients suffering from these illnesses were in there for weeks for the simple reason that there was practically no treatment for them. Since then the picture has altered completely. The breakthrough is therapeutics, and if anything can be so called these were they, were the discovery of the sulpha drugs, as far as streptococcal infections including *Streptococcus pneumoniae* were concerned and the antibiotics in the thirties and forties.

The antibiotics changed the whole picture in a variety of ways, literally starting a new era. First was Fleming with Penicillin, to be followed by tetracyclines, the long-awaited specific for Brucellosis, by chloramphenicol, which dealt with

typhoid and paratyphoid, and by streptomycin, Waksman's remedy for tuberculosis.

The history of antibiotics is the history of medicine itself. It started with Alexander Fleming industriously writing out the chapter on the Staphylococcus for the ninth volume of a "System of Bacteriology". Then Fleming went on a brief holiday while a spore for *Penicillin notatum* landed on a Petri dish which he had to leave uncovered. Back from the holiday the careful painstaking Scotsman looked at the plate on which bacterial had been growing and observed that some Staphylococcal colonies had somehow withered. The story has often been told and I had the privilege of hearing it from the discoverer himself. Fleming, a modest man, said that the making the initial observation the rest was picking up the mould and playing about with it. I remember one person in the audience interjecting that it was just "the playing about" which made the difference between a casual observation and a momentous discovery. Fleming did take time by the forelock and the whole antibiotic epic followed. The Scotsman's observation led to medicine taking a new turning and he probably saved more lives than the great Napoleon had destroyed. The road Fleming had opened led to the Nobel prize and to honours uncounted. Many have written his biography including Andre Maurois. Once, when traveling Fleming was given three honorary degrees in two days. Mankind could not find means enough to honour its great benefactor. What really mattered was that the discovery of Penicillin was a master discovery which led to many others.

The point is that infectious disease works on an exponential basis and if for example you cure one case of tuberculosis you will have nipped in the bud so many others. John Keats, the poet, died of tuberculosis which he had contracted from his brother whom he had nursed. Many hospitals which throughout the world looked exclusively after tuberculosis cases found that in civilized countries that grim malady had become so uncommon that they had to close down. The wards which in the nineteen thirties and forties had to deal with typhoid and brucellosis were given over to other illnesses or turned into offices. It is not the case that infectious disease have been made obsolete but nowadays, instead of taking about these serious maladies, we speak of the quality of life.

One first great step was the discovery and use of the microscope. This was due, of all people, to a Dutch draper, one Antony van Leewenhoek. From his work followed to a great extent, the history of bacteriology. The discovery of the cause of many diseases, and, when the ultra microscopic bacteria were discovered, the viruses of a vast range of other causative illnesses in man, animals and plants. The point we aim at here is the discovery of the specific prevention of disease. What knowing the cause of an illness led to us the specific prevention and treatment. It was the discovery that the cause of many infections after operative procedures were of bacterial origin and hence the rise of antiseptic surgery. When Pasteur and Lister embraced each other at a historic meeting we had indeed the birth of modern medicine.

Let us now look at some of the individual illnesses. Malta being a small overcrowded sub-tropical island was a country in which individual infectious diseases were very liable to spread. Such illnesses as typhoid could occur and wartime conditions heightened the possibility.

There were two epidemics of typhoid which brought these menaces into stark reality which will never be forgotten. In 1942 Malta was a tightly besieged country. France was a defeated ally, Italy was a very near enemy and Germany was at the height of its aggressiveness.

In 1942 a bombardment had led to damage of some sewer channels with resulting pollution of some areas where vegetables had been growing. Moreover permission had been very reluctantly given to use human excrement as manure in some fields where vegetables which at least supposedly were to have been cooked before consumption were cultivated. The result was an epidemic of typhoid with no less than 998 deaths. To safeguard the population against the expected danger at one stage T.A.B. vaccination of the population was advised and, indeed, eventually made compulsory. This was quite logical and proved useful but this was Malta in its besieged stage and T.A.B. vaccine was not available and could not be imported. It was a case of making it ourselves and doing it in extempore laboratories, since the Valletta laboratory had been disrupted through bombing and was out of action. We had shifted temporarily to the Government School at Birkirkara then called St. Francis Hospital. We did carry out the assignment and we did complete the task without any contretemps. I can say that the difficulties were such that to this day I wake at night thinking about the terrible dangers we had succeeded in avoiding.

There was, as had been expected, a second epidemic in 1943 when accidental damage in the construction of an airfield – remember this was Malta in 1943 – led to an extensive pollution with sewage of the most important reservoir in Malta. I can still recall how my then chief, the late professor Victor Mifsud, reacted vigorously to the terrible news. The accident led to 1567 cases of typhoid and 202 deaths.

Of the infectious diseases, the most dramatic, the one which inspires most horror in the popular imagination is the plague. As it happened bubonic plague has occurred in Malta more than once even in what one could call recent historic times and by an odd chance, I came into close contact with it for several weeks and had to deal with it both from the clinical and from the laboratory aspect. After going through this experience I could claim that I had come to know plague better than any other bacteriologist in Europe. Although it is true that it is certainly a very dangerous illness especially in its pulmonary and septicaemic forms if one takes the standard precautions one can escape any serious consequences. It is a source of satisfaction to me that, although we dealt with several cases, both in hospital and in the laboratory, none of the staff concerned acquired the infection. By a strange chance, even a close relative of mine, who had to deal with the illness in the field, escaped infection as did all his colleagues.

The Isolation Hospital at Manoel Island has a long and varied history. In few “fever hospitals” in the world is the word “isolation” interpreted literally but so it had been for many years in Malta. With the many links Malta has had with the Near East and North Africa we have always tended to avoid any risks in that connection and have “isolated” any travelers from the Orient with the greatest completeness so that for us the word “quarantine” has meant rigid isolation for 40 days and the word denotes whether the arrival from a plague infected locality had been distinguished prelate or an equally distinguished poet.

My first turn of duty came about through the forced absence, through illness, which was not plague, of the normal incumbent. Some had to take over the running of the hospital and the treatment of the patients so I was called upon to do so. The plague had broken out in the village of Qormi in 1936 when a general practitioner was called upon to deal with some severe cases some of whom some proved fatal. The doctor in the case was in fact a classmate of mine Doctor Carmelo Coleiro and his alertness seems to have impressed the office staff so much that in time he was eventually raised to the top of the department and he was made a Chief Government Medical Officer.

I do not propose to write out a detailed history of the whole outbreak, since this has been done in full in the annual reports of the Medical and Health Departments, as they then were and also most painstakingly by Dr. Paul Cassar in his classical “Medical History of Malta”. Between the earliest identifiable outbreak listed and 1945-46 there were at least 17 epidemics.

One of the greatest stupidities I have ever come across was committed by a person who wrote that scientists were very foolish to spend valuable time studying how high a flea can leap. In fact that was a very important observation, literally a matter of life and death. How high a flea can leap varies with the species and anatomy, commonly nine inches. When dealing with plague we were careful to wear top boots which reached at least nine inches above the ground. Knowing this simple fact may have more than once prevented *Pulex irritans* from biting *Homo sapiens*. Drill in plague work which we all followed depended on the knowledge that it was transmitted by the bite of a flea in whose mouth parts of *Pasteurella pestis* could multiply. This led to the flea getting into what is called a blocked condition and injecting microorganisms into a new host. The great difference between a wide spread of the infection and an effective control of the terrible illness depended on that relatively simple piece of knowledge. What was done therefore was to wear high top boots and to destroy fleas as far as possible. This was done by spraying disinfestant solutions, by close attention to the clothing of patients, defleaing them as far as possible – and it had to be possible – literally a matter of life and death. It was all a result of knowledge obtained by the Indian Plague Commission. Fleas can jump at least four inches in a vertical direction, seldom more than six and about five to six inches horizontally depending on the species. Mitzmain states that *Pulex irritans* can jump $7\frac{3}{4}$ inches vertically and 13 inches horizontally but this must be exceptional. A drain 8 inches wide either containing water

or some disinfectant is a certain barrier against *Xenopsylla cheopis*, an important transmitter of the plague bacillus. The life cycle is rat-flea-man and this must be interrupted at any of these points. What we were doing during the epidemic was to conduct a vigorous and effective anti-rat campaign: examining the rats, identifying their species and the species of fleas they were carrying and defleaing the rats. It was very important to see whether the rats were infected or not since this was necessary to determine whether the infection had established itself as an indigenous illness. This was done by examining the rats' blood, by cultivating heart blood or by making spleen impression smears. Our most useful stain was found to be a mixture of thionine and methylene blue, which applied for a few seconds produced typical characteristic bipolar staining (References: Departmental reports on Health Conditions of the Maltese Islands for 1945, including Appendix H. A. by A. Briffa and Appendix H. F: on the work of the Public Health Laboratory, by V. J. Mifsud).

In the 1936-37 outbreak which lasted from April 1936 to May 1937 there were 33 cases with 12 deaths. In the second epidemic lasting from June 1945 to June 1946 there were 80 cases with 22 deaths. In the earlier epidemic I had been at the Isolation Hospital only up to September 1936, then leaving for studies in England. In the 1945-46 epidemic I was working all through it including a very hot summer, in the old historic Public Health Laboratory. All this involved carrying out bacterial cultures and guinea-pig inoculations and taking part in an intensive anti-rat campaign. In all this I was working with Professor Victor Mifsud and Dr Paul Borg-Mallia, two very agreeable colleagues.

It is rarely true that a new disease appears in the community but it happens reasonably often that an illness turns up in a unusual environment and becomes very common. In World War II we had epidemics of infective hepatitis of various types. We had type A, type B and the non-A and non-B type hepatitis. Before the war these illnesses had been so uncommon that initially we considered them a new illness altogether. One type was first apparent in North Africa and first showed itself in army personnel.

Then there were the various kinds of typhus, mainly the murine, with a variety of other names, and the human, the more serious one, which the French call *typhus historique*. We first saw the murine type at St. Francis Hospital and it may have been another African importation also through rats. Unlike the human type it does not kill its normal rat host and therefore it tends to linger in the rat population and consequently also in the human, wherein it becomes indigenous. I see that even up to least year there were still 49 cases occurring in man all of them of the murine type, except one which was said to have been "scrub typhus".

I may mention that for study purposes in 1944, I traveled to Tunis where at Ferryville near Bizerte there were cases of plague and of typhus and to Algiers where there were cases of typhus, visiting the respective Pasteur institutes.

There are certain points which if one observes the incidence

of infectious diseases in 1990 one finds outstanding. There had been epidemics of chicken pox and of whooping cough and an outbreak of flood poisoning but for these there will have been the usual causes. I note with interest two cases of Lewgionellosis. I view with alarm 13 cases of pulmonary tuberculosis, which makes something I wrote earlier in the essay sound overoptimistic. I see with no surprise but with regret that there were still 21 cases of human brucellosis. Brucellosis in Malta has always been a special problem but we had reached the point when, as described by Dr. G. G. Alton in "The St. Luke's Hospital Gazette" for December 1968 in his paper on "The Control of Animal Brucellosis in Malta". The incidence showed "a marked and constant decline. The F.A.O. report already mentioned contains a number of recommendations which it is hoped will help to bring the eradication of Brucellosis from Malta to a successful conclusion". This, unfortunately, has not yet been the case, most probably through non-cooperation in various quarters.

Another thing which I view with anxiety is the occurrence of 18 cases of cutaneous Leishmaniasis. It is possible that the absence of this disease in the past (or its presence to a lesser extent) may have been due to it's not having been diagnosed, but in may be that the illness which is common in the Near and Middle East, through becoming dermatotropic is regrettably occurring in Malta. This would be most unfortunate.

On the credit side, I note with pleasure, the complete absence in 1990 of diphtheria, or poliomyelitis and of new cases of leprosy. I recall with joy ho Sabin's vaccine against poliomyelitis, when last used in Malta, was found to be powerful enough to stop an epidemic in nits tracks. An even greater triumph had been the successful extermination of smallpox. This was possible because the smallpox virus is one which confers a lasting immunity, one which does not attack other animal species and one which produces an illness which can be diagnosed with certainty. It is good to see that not even the offer of a money prize has succeeded, so far, in the discovery of some new case of smallpox.

There are two great problems still facing medical science. One, less difficult, is the resurgence of cholera. It is less difficult because there is a sort of remedy for it, the treatment through hydration. The one which is very difficult is the AIDS disease. A great deal has been said and written about it and, at the moment, it seems to be an illness for which there is no cure and only scanty preventive measures. The occurrence of AIDS in countries with a very low standard of civilization makes it even more difficult to deal with. At present we have most ineffectively to wait and see, the prospect appearing very far from hopeful.

In addition to all the preceding, one must not neglect, both in wartime as in peacetime to take into serious account the diseases resulting from parasites, using the word in its ordinary medical sense. Parasites can produce very important diseases which can influence military and civilian practice. In the second world war there was scabies, fortunately not serious but a nuisance. Malaria is probably the first parasitic illness to occur to one's

mind, but there are many others. As has happened before so can be the case in future. In all directions, under every circumstance, the rule should be “Estote Parati”.

The only thing comparable with AIDS for its horror is biological warfare, the possibility of bacterial and viruses being used as war weapons. I do not think it can be ruled out, but there are several awful considerations to be made about it. Firstly it has been well said that in warfare one thing to be well borne in mind is the possibility of surprise. In war one and one never make two, there is always the unexpected to consider. The unexpected includes the use of bacteria and viruses one has never thought of, and the number of such agents is infinite. I think two bacteria to dread most are the bacillus and Anthrax and that of Pfeifferella mallei, which causes glanders, a disease of horses, which can also attack man.

The number of viruses is legion and we must not forget that the virulence of bacteria and viruses can be heightened artificially. Very likely such a thing will be done. If biological agents ever come to be used, it is such agents which will be used. A biological agent must be very virulent, very resistant to environmental conditions such as temperature and dryness, to the effect of light, to dispersibility by air currents and the effects of moisture. One very important consideration is that a microorganism to be effective has to be infective, in other words capable of spreading and therefore there will be the great

danger that it will spread not only to one side of the battlefield but also to the other. I think it is this which has so far stopped anybody using biological warfare. I do not believe the idea of immunizing your own troops to lethal agent you will be using, will work in practice.

Postscript

I learned most, though not all, of my microbiology from professors Topley and Wilson in person. They had written “The Principles of Bacteriology and Immunity”, a title reminiscent to me of Newton’s “Principle”. Incidentally why “Immunity” and not “Immunology”? But let that pass. I had used the second edition in one volume which contained 1645 pages and weighed 7 lbs. Jokingly I suggest if there was to be a future edition in one volume it should be provided with little wheels, one at each corner and a cord to pull it by.

The eighth edition, now in four volumes, was published in 1990. It has 2623 pages of text plus a cumulative index with 113 pages. At Harvard Medical School, perhaps the best medical school in the world, I was told “Topley and Wilson” was the best microbiology textbook in the world. It had only one imperfection. They told me *sotto voce* it is “British”.

Harvard is in Boston and it seems they have not quite forgotten the famous “tea party”. The book now has over 140 contributors. The second edition had cost under £10; the present one costs £395, another sign of the times.