Medical History

Brice Clarke (1895-1975) and the control of tuberculosis in Northern Ireland.

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ABSTRACT

Among the problems facing Northern Ireland after its foundation in 1920, one of the most daunting was the prevalence of tuberculosis, a chronic communicable disease with highest mortality among young women and men in the prime of life. Over a quarter of a century, legislative changes tardily responded, and in spite of, or because of its magnitude, Brice Clarke (1895-1975) devoted himself to the challenge. After decorated service in the Great War of 1914-19 he returned to finish his medical studies in Queen’s University Belfast and held hospital appointments until he became Chief Tuberculosis Officer for Belfast and soon afterwards Director of Tuberculosis Services in Northern Ireland.

For twenty years he was an enthusiastic proponent of collapse therapy, and even before the new chemotherapy hastened the natural decline in the tuberculosis epidemic he trumpeted the value of properly equipped chest clinics and generously funded welfare schemes. His garden at Hillsborough could not contain him in retirement; he set off on a slow boat to Japan in 1962, and returned to pen biographical sketches of famous consumptives until his death in 1975 at the age of 80.

PROLOGUE

Before assessing Brice Clarke’s contribution it behoves us to recall the social and legislative scene into which he entered with such good effect. By the close of the nineteenth century it was clear that phthisis was a communicable disease due to the tubercle bacillus and that infection was not only preventable but also increasingly the cause of morbidity and mortality throughout Ireland. Belfast responded by opening in 1880 a Hospital for Consumption and Diseases of the Chest whose nomadic existence in the city centre ended in 1897 through the munificence of Forster Green (1815-1903, Figure 1), a County Down Quaker, when he purchased Fortbreda House with its extensive grounds. In the Belfast Infirmary, patients were not segregated by diseases until 1899 when Robert Hall (1861-1941) persuaded the Board of Governors to provide separate wards for consumptives. When a mansion became available at Whiteabbey in 1904 it was purchased, pavilions were built, and Dr Hall (Figure 2) with 210 patients moved from the Infirmary. In 1913 the Corporation took over the administration of Whiteabbey sanatorium from the Board.

Lady Ishbel Aberdeen’s (1857-1939, Figure 3) Tuberculosis Exhibition moved from Dublin to the Old Town Hall in Belfast on 7 December 1907, and evening lectures in her presence and that of the Viceroy continued for a week before the Exhibition moved to Lisburn on 18 December and Lurgan on 11 January. The crusade continued in the province in the shape of a horse-drawn caravan; “Phoenix” replaced “Eire” after it was destroyed by fire at Lifford in March 1909. Unfortunately, the valuable provisions of the...
Tuberculosis Prevention (Ireland) Act (1908) driven along by the Vice Reine were neutered by the parliamentarians anxious not to offend the enfranchised rate-payers, and the permissive regulations were haphazardly applied if at all.

TABLE I.
Legislation in London and Belfast in the first half of the Twentieth Century

| Year | NHI = National Health Insurance, NI = Northern Ireland |
|------|--------------------------------------------------------|
| 1908 | Tuberculosis Prevention (Ireland) Act, (Lady Aberdeen’s exertions) |
| 1924 | NHI (NI) Act sanatorium benefits for insured persons |
| 1930 | NHI (NI) Act sanatorium benefit from central funds |
| 1934 | LG (NI) Act compulsory notification by general practitioners |
| 1936 | NHI Medical Benefits (NI) Regulations |
| 1944 | NI Tuberculosis Authority Report treatment allowances |
| 1946 | Public Health (Tuberculosis NI) compulsory notification all forms |
| 1947 | National Health Service inauguration, Great Britain, 1 July. |
| 1948 | NH Assistance (NI) Act more generous allowances |

The establishment of Northern Ireland under the Government of Ireland Act (1920) made no improvement and tardy legislation was piecemeal as is evident from Table I. Though anxiety about the inordinately high death rate from tuberculosis in Northern Ireland was continually expressed in Stormont, it was not until 1942 that a Select Committee on the Health Services was formed to consider all the health problems in the state.

Ruefully looking back over the tuberculosis service in 1955 Barr remarked:

The most conspicuous feature of the development of the County Tuberculosis Schemes was their lack of uniformity and their haphazard growth. By 1927, schemes were in operation in all County and County Boroughs with the exception of Londonderry County and County Borough where there was only a scheme under the National Insurance Act of 1911. In Belfast, Tyrone and Armagh, the schemes were self-contained; each authority had control of a sanatorium and was able to provide comprehensive treatment for all patients living within its respective boundaries. The remaining counties of Antrim, Down, Fermanagh and Londonderry and Londonderry city had no sanatorium and thus were forced to make arrangements for patients to be cared for in private and voluntary institutions. There were, however, arrangements in Counties Down and Fermanagh whereby non-respiratory cases were dealt with in the County Infirmaries. Even with these ad hoc arrangements, the accommodation was in many instances inadequate, antiquated and unsuitable.

And he lamented that it was not until the end of 1945 that it was finally realised that a unified central scheme was necessary.

Tuberculosis ranked high among the problems faced by the 1942 Select Committee. From a summary of the Registrar General’s Annual Reports for 1943, 1945 and 1947, it is clear from Table II that rural Fermanagh (69.64) had the lowest average annual death rate, and the highest (86.67) was seen in Antrim, where Belfast with a population of 438,086 (205,538 males, 232,548 females), reported 367 (184 m, 183 f) deaths from respiratory tuberculosis and 117 (61 m, 56 f) deaths from non-respiratory tuberculosis in 1943. In the city alone deaths from all forms of tuberculosis were 99.72 per 100,000 of population. Four years later there were 281 (116 m, 113 f) deaths from respiratory tuberculosis and 65 (37 m, 28 f) deaths from non-respiratory forms; the overall rate had fallen to 71.14 per 100,000 population - even though there had been no new developments in treatment.

When the Select Committee presented their Report in 1944 a Health Advisory Council was set up under surgeon Howard Stevenson (1875-1950) to advise the Minister of Health and Local Government. A Tuberculosis Committee of this Council reported in 1946. It stressed that a unified effort in a concentrated attack was needed, and that 500 additional beds should be provided, and that notification should be compulsory, after 'provisional intimation' of any suspected case, with additional power given to the Courts 'to order the removal to hospital of an infectious person'. To sweeten this pill, the Treatment Allowance Scheme was extended to all cases of pulmonary tuberculosis. In 1946 the Public Health (Tuberculosis, Northern Ireland) Act became law, the Northern Ireland Tuberculosis Authority was set up, all forms of tuberculosis became compulsorily notifiable, and the authorities had the good sense to appoint a man of wide experience and deep insight as Director of Tuberculosis Services.

Brice Clarke was born on 12 May 1895, educated at...
Campbell College, Belfast, and went on to study medicine at Queen’s University where he was smitten by Helen Waddell (1889-1965), later the noted Latinist though more widely known for her historical novel *Peter Abelard* (1933). Unlike many a lovelorn young student he was inspired to work harder. He was fortunate in having a trusty go-between in his sister Maude, a classmate who informed Helen “He thinks you are wonderful. ‘Maude’, he said suddenly, ‘think of hundreds of clever men that must be in England who don’t even know there’s anybody like Helen in the world’”. Dame Felicitas Corrigan, Helen’s biographer, surmised that Brice was the lonely figure wandering about the quad in the ballad *Il Penserosa* composed under Helen’s blotting paper to while away a boring lecture:

> I was a naughty medical,  
> I did not love to work,  
> But since the night she danced with me  
> I never want to shirk.

Helen did not fall in love with him: ‘I think he fell in love with me, but he had done it several times before and was to do it several times after’. Nonetheless, they corresponded regularly while he was away at war and ‘trysted’ when he resumed his studies in January 1920. They remained friends right up to the time of her death in March 1965, fifteen years after the total eclipse of her dazzling gifts of intellect and charm.

After passing his second medical examination in 1914, Brice volunteered to serve as a dispatch rider in France and was later commissioned lieutenant in the Royal Dublin Fusiliers before becoming a tank commander in World War I. For his service as one of the first tank commanders he was awarded the Military Cross and was presented to the King and Queen of the Belgians. After a gas attack he was found to have ‘incipient’ phthisis - a diagnosis that shaped his future career. He returned to his studies (and fruitless pursuit of Helen) in 1920 and graduated with honours in 1921.

He was appointed Medical Superintendent of Forster Green Hospital in 1925. Meanwhile, the municipal Whiteabbey Hospital had fallen on evil days, and a commission of inquiry reported within six months in June 1941 that the Corporation had failed miserably in its duties. The exceptionally high casualty rates when the city was blitzed in April and May 1941 added to the embarrassment of the government as well as the councillors, and a Commission replaced the tuberculosis committee of the Corporation. In 1943 Clarke was transferred to Whiteabbey Chest Hospital and the Greenisland Hospital for Children. Shortly afterwards in 1944 he became Chief Tuberculosis Officer for Belfast, and two years later Director of Tuberculosis Services when the Public Health (Tuberculosis) Act (Northern Ireland) 1946 established the Northern Ireland Tuberculosis Authority. (Figure 4)

### COLLAPSE THERAPY

Collapse therapy was in the ascendant at this juncture and, in the first volume of the *Ulster Medical Journal*, Clarke surveyed the methods in use. Before discussing therapy he reminded readers of the results of conservative treatment in 688 patients discharged from Forster Green Hospital between 1919 and 1924 surveyed in 1928; the dire prognosis in patients whose sputum contained tubercle bacilli on admission is evident in Figure 5. Clarke was aware that some cases of pulmonary tuberculosis recover without any special treatment, that a group of patients in which the disease is early would benefit from rest and sanocrysin, but that a large group require some form of collapse therapy when conservative methods have failed.

### Effect of initial status on survival 1919-1924

- T.B. Negative
- T.B. + Normal Temperature
- T.B. + Sub Febrile Temperature
- T.B. + Febrile Temperature

'... It is a mistake to collapse the lung too early. ... When it is clear that cavity formation has commenced, the lung should be collapsed by artificial pneumothorax (APT) or, failing this, by phrenic evulsion or crush. Thoracoplasty is indicated in a group of cases where APT and phrenic crush have failed to arrest disease, especially where there is a large cavity or repeated haemoptysis.'

The dangers and complications of all these procedures were examined minutely in the paper.

With his colleague SLW Erskine, he examined the late results of artificial pneumothorax in 1940 in 400 patients, showing the effect of + presence or - absence of tubercle bacilli in sputum, and of temperature, at time of admission.
of 193610, but induction of the pneumothorax early in Phrenic evulsion improved the results as Purce and Clarke noted in 193610, but induction of the pneumothorax early in the disease was the factor most likely to produce a successful outcome: the success rate with induction within six months was 55 percent; induced within 6 to 12 months it was 28 percent; attempted thereafter the successes fell to 20 per cent.

Of the 131 patients with successful collapse lasting between one and four years approximately, 96 were examined and X-rayed after expansion of the lung. In two cases only was the ‘pneumothorax’ lung normal, in nine, active disease was present, 50 showed fibrosis and 35 showed extensive fibrosis. The mediastinum was not displaced in 34 patients, it was detectably so in 35, and markedly so in 27. This pulmonary fibrosis is not counted among the complications of artificial pneumothorax listed at the close of the paper9, although it was subsequently realised that impairment of pulmonary function inevitably followed ‘resting’ the lung.

At the annual conference of the British Tuberculosis Association in Edinburgh in July 1947 he read a paper on the causes of relapse in quiescent cases of pulmonary tuberculosis11. The paper was what would now be called a meta-analysis of results of collapse therapy, and was openly polemical in nature. The statisticians had begun to doubt its effectiveness even though the ‘curative effect was self-evident’ to medical and surgical teams who employed it ‘systematically and scientifically’.

‘Failure to cure a substantial percentage of patients by collapse therapy suggests that the selection of cases or the technique (including the after-care technique) is faulty and in need of revision. … It is a pity that some of the energy which has been expended in demanding statistical proof of the value of AP and other collapse measures has not been devoted to improving the equipment of small sanatoria and chest clinics. … the apparent relapse of many patients is the result of faulty classification on discharge, due to errors of judgement or, more frequently, to failure to carry out a proper radiological and bacteriological control. But even after the most conscientious investigations there will be a high rate of relapse11.

He moved on to surer and safer ground:

Another factor with an obvious bearing on relapse is that of after-care, and particularly that of financial assistance for the patient who has recently suffered from active disease. If it is impossible to prove the value of sanatorium treatment statistically, it is not difficult to prove the effect of poverty on the prognosis of pulmonary tuberculosis.

And then he blithely undermines his defence of sanatorium and collapse therapy:

It is a remarkable fact that many of the soldiers who contracted tuberculosis in the 1914-19 war, including the TB positive cases, have made good recoveries and are alive at the present time. These men had comparatively little sanatorium treatment and very little collapse therapy. What they did get was a measure of financial security through their disability pensions and this has been sufficient to bring about the recovery of a remarkable degree of health in many of the men11. (Himself among them!)

As had happened in World War I shortages of foodstuffs and fuel between 1940 and 1942 increased the tuberculosis morbidity and mortality rates aggravating the demand for sanatorium and hospital accommodation. The rise in death rate was apparent all over Ireland, but because tuberculosis was not not classified as an infectious disease, notifiable only in the advanced stage the Republic laboured under an additional disadvantage12 (Figure 6).

The financial world for tuberculosis patients was slowly changing. In November 1942 Sir William Beveridge (1879-1963) published his report Social Insurance and Allied Services. He recommended a ‘health service providing full preventive and curative treatment of every kind to every citizen without exceptions, without remuneration limit, and without an economic barrier at any point to delay recourse to it’13. In a Labour administration at Westminster, Aneurin Bevan (1897-1960) inaugurated a National Health Service, based on Beveridge’s report, for Great Britain on 1 July 1947. At Stormont a Health Services Act (1947) extended the measure to Northern Ireland. Under the National Assistance (Northern Ireland) Act (1948) outdoor relief was abolished, and financial allowances were paid to all persons...
in need; patients with respiratory (but not non-respiratory) tuberculosis received a more generous allowance than the ordinary rate¹. Individual patients or doctors and institutions could opt out, but in effect health care in all its aspects had become a surprisingly well-funded nationalised industry. 

By 1947 a therapeutic revolution was under way: streptomycin was discovered in 1944, para-amino salicylic acid in 1947 and isonicotinic acid hydrazine (isoniazid) in 1952 (Figure 6).

AIDS TO DIAGNOSIS AND CONTROL

The doctor's dilemma of masterly inactivity was addressed in a paper on diagnosis and treatment. Clarke expressed 'utmost faith' in rest treatment at home or in a sanatorium. He acknowledged that 'the average patient endures rest treatment more cheerfully if it is combined with some specific and systematic medical treatment which convinces him (sometimes without reason) that the doctor can influence radically the course of disease'. Before sending a patient to a hospital or sanatorium, the Hippocratic maxim 'in acute cases radical the course of disease'. Before sending a patient to a hospital or sanatorium, the Hippocratic maxim 'in acute cases

Early diagnosis can never be easy, even with the best laboratory and radiological aids, for if the diagnosis is obvious the disease is no longer early. Missing an early case of active phthisis is a most annoying experience, but labelling a patient tubercular without sufficient cause is more grievous. A full investigation of every suspected case is necessary in order to reduce the number of errors and avoid gross mistakes. Clarke therefore gave a warm welcome to Mass Miniature Radiography (MMR) introduced by a Brazilian worker, de Alreu, because early detection is frustrated by a variety of factors: the patient rarely feels ill and symptoms are not specific; the stigma attaching to the disease makes the relatives or parents resentful and the persistent doctor makes himself unpopular; furthermore 'a poor man cannot afford to have early phthisis'.

PREVENTION

His monograph on Causes and prevention of tuberculosis was published in 1952 and he described 'the development and function of the chest clinic' in a symposium on tuberculosis in the British Medical Bulletin in 1954. Therein he pointed out that common sense dictates that such a clinic must first meet the urgent needs of the community, and where resources are limited the routine use of tuberculin testing, chest radiography, and standard bacteriological tests should permit large numbers to be examined and assessed quickly.

He argued that prevention is the true aim of the clinic service, and to be effective must go beyond the medical and nursing care of the patient. Good organisation should spot gaps in notification, patients not recalled at the proper time, patients lost sight of, and insufficient number of contacts examined.

The search for tuberculosis in contacts should be followed by measures to protect the tuberculin-negative contact from infection, including BCG vaccination. Separation of facilities for children from the adult service was imperative. For control of infection in the home, the minimum standard of housing to be tolerated should provide a separate room for the person with active phthisis who has to be nursed at home, and the patient's attendants and contacts should be protected in the same way and to the same high standard as the tuberculosis nurse. In conclusion he stressed:

'The control of tuberculosis depends on many factors, not all of which are within the sphere of the clinic service. Maintenance of a good standard of life and the provision of more beds, particularly for the older patients who are carriers of infection, are important aims. It is for the chest clinic to direct and execute every measure of prevention that promises to reduce the number of new cases of tuberculosis'.

The success of the tuberculosis clinic is to be judged by the control of morbidity from tuberculosis (Figure 7), a major theme in his 1952 monograph Causes and Prevention of Tuberculosis, which predicted the end of the epidemic within ten years. Perhaps the most important feature of Clarke's prescription for an effective clinic is that it appeared after the introduction of successful chemotherapy and before multiple drug resistance had emerged as a major problem.

Fig 7. Notification rates of pulmonary and non-pulmonary tuberculosis in Northern Ireland and Republic of Ireland (where contacts on chemotherapy are notified unlike the rational NI). Data provided by Departments of Health in Belfast and Dublin from Annual Reports.

From 1946 the Director ensured the provision of a domiciliary service, and by 1955 there were 29 Chest Clinics, all of them adequately equipped with radiological and ancillary necessities, supported by a comprehensive welfare scheme for all patients.

RETIREMENT

Retirement saw him tending his garden quietly at Hillsborough until in 1962 he succumbed to an attack of wanderlust. With his wife he made a slow trip to Japan by cargo boat and kept a journal of his experiences. He wrote accounts of authors who had suffered from tuberculosis, best exemplified by his account of Katherine Mansfield's illness. In this avocation
he was influenced perhaps by a previous Chief Tuberculosis Officer in Belfast: in April 1919 Andrew Trimble entertained the members of the Belfast Natural History and Philosophical Society with an address on ‘The Romance of Tuberculosis’20, at a juncture when it was the primary cause of death in the Western world and the most dreaded chronic communicable disease21. Brice died on 15 June 1975 at the age of 80, survived by his wife and two sons, both of whom followed in his footsteps into medicine22.

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