Mr. Chairman, Ladies and Gentlemen,

May I express my warmest thanks for your invitation to address this College. I have chosen the Brompton Hospital for my subject because its history will be new to most of you, even to those for whom the name is closely bound with the development of thoracic medicine in England. As the hospital is honored by your invitation it is fitting to mark the occasion in this way and to commemorate the great figures in English medicine who have served Brompton in the past. Brompton recently attained its centenary so that its history spans almost the entire period within which our present knowledge of chest disease has evolved.

At the time of Brompton’s foundation England had a population of fifteen millions, of whom an eighth were herded in London and nearly sixty thousand died yearly from consumption. Disease and child labor together made the expectation of life for a workman not much more than seventeen years. The state of affairs was widely realized only through the novels of Dickens, Disraeli and Charles Kingsley, through Engel’s account of the condition of the working class, and through Lyon Playfair’s Report on the Health of Towns. Together these made a deep impression on the public mind, and a few years more saw the idea of humanitarianism become a living force.

One of the early signs of this was the foundation of Brompton. The occasion was commonplace: a city clerk with consumption was unable to gain admission to a general hospital. But the clerk concerned had won the bounty of a wise employer, a leading solicitor Philip Rose, who organized a public meeting to establish a special hospital. The “Morning Herald” of May 29, 1841, reported that “a highly respectable meeting was held at Hanover Square Rooms” at which a resolution was passed to found a hospital as an asylum for consumptive patients and as a means of furthering

*Presented at the 13th Annual Meeting of the American College of Chest Physicians, Atlantic City, June 7, 1947.
knowledge of the disease. The Queen gave her patronage, and Manor House at Chelsea was leased for twenty patients from September 1842, with an Out-Patient Department at 20 Great Marlborough Street. Patients nearby, too ill to attend, were visited at their homes, pupils were admitted to the wards and lectures were organized. At the Second Anniversary Dinner in May 1943 Mr. Charles Dickens was a steward and proposed the toast “Prosperity to the Hospital.” Unfortunately we have no record of what he said, though in a letter to Jerrold his views on the other speakers were pretty terse: “There were men there who made such speeches and expressed such sentiments as any moderately intelligent dust-man would have blushed through his cindery bloom to have thought of.”

Meanwhile, Philip Rose and his friends were busy with the new hospital. A site was chosen at Brompton, a village in Kensington “remarkable for the salubrity of its air,” and “surrounded entirely by nurseries and garden grounds which were among the first cultivated in this country.” The ground was formerly part of the botanical garden founded in 1789 by William Curtis, a noted entomologist and author of Flora Londinensis. The foundation stone of the hospital was laid there by the Prince Consort on June 11, 1844, and sixty beds were in use by November 1846. A further wing was added a few years later with funds raised at a concert by Jenny Lind in Her Majesty’s Theatre on Monday, July 31, 1848. Two novel features of the building were the division of wards into small rooms, and ventilation by warmed air through underground tunnels. This system, invented by Dr. Arnott, was de-

scribed in The Builder of 1847, and was used until open windows became the rule. A second large block added in 1879 with a legacy of 100,000 pounds sterling from Miss Cordelia Reed, brought the total beds to 368, besides adding other facilities. Many years later, in 1908, the International Tuberculosis Congress at Washington awarded Brompton the prize of a thousand dollars for the best hospital exhibit of the treatment of the more advanced cases of consumption.

Among the first members of the medical staff, Sir John Forbes, Walter Walshe and Robert Liston have left enduring names in British medicine. Liston was already past the zenith of his career and died in 1847. Forbes, a man of many parts, was a Scot from Banffshire who served at sea through the Napoleonic wars and then retired to study in Edinburgh. He seems to have been a master of the art of living, for he wrote a charming book on the relation of happiness to work and knowledge, and in middle life climbed from the status of a country practitioner in Penzance to that of a prosperous consultant, a Court Physician and a Fellow of the Royal Society.

But Forbes was more than a successful man of his day. He was an eminent geologist, and the first English translator of Laennec's great work in 1821. It is altogether fitting that this fine service to thoracic medicine should have come from the man who later in life was to do much for Brompton. He translated Auenbrugger's book also, adding cases of his own to illustrate percussion; and for twelve years edited

**FIGURE 5**

**FIGURE 6**
the British and Foreign Medical Journal which became the leading medical journal of the day. Forbes excelled with his pen at a time when medical authors commonly wrote good prose. Like his senior colleague, Walshe, too, had literary gifts. But he had, as well, the mind of the pioneer. Born of Irish stock in Dublin, he studied in Paris with that great inspirer of youth, Pierre Louis, whose "Phthisis" he translated for the New Sydenham Society in 1844. Here in Paris he met Oliver Wendell Holmes and the two friends kept up a correspondence until death parted them. Walshe's own writing began with a brilliant little book,
"The Physical Diagnosis of Diseases of the Lungs"; but his chief work was "A Practical Treatise on the Diseases of the Lungs and Heart," published in 1851. It is one of the most penetrating and best written monographs on the subject in English. He was also responsible for one of the earliest papers from Brompton, a "Report on Pulmonary Phthisis as observed at the Hospital for Consumption, Brompton," which appeared in the British and Foreign Medico-Chirurgical Review of 1849. Walshe had wide interests and a most observant mind. We owe to him the precise description of moveable kidney and of cephalhaematoma. He was among the earliest to recognize the presystolic character of the direct murmur of mitral stenosis; and the first to describe the contracted pupil of aortic aneurysm and to associate sudden death with an aortic reflux.

Two very differing personalities joined the medical staff in 1848, Richard Payne Cotton and Richard Quain. Cotton was then only twenty-eight, and while still a young man, four years later, wrote his book "The Nature, Symptoms and Treatment of Consumption," which has historical importance because his unorthodox opinions on many controversial matters have since become common teaching. For instance, he believed that phthisis was not occasioned by pregnancy unless there was a disposition to it, the disease

FIGURE 9: Sir John Forbes (1787-1861). (Lithograph by Maguire, 1848).
affecting large families only when it was already rooted there, observations now explained in terms of close contact. He showed, too, that there was seldom any ill effect during gestation, the harm appearing afterwards, for which prolonged lactation was much to blame. Cotton also described phthisis in children, recognising affection of the bronchial glands as a cardinal feature, with symptoms due to bronchial compression. Nearly twenty years after the appearance of his book Cotton again showed how fresh were his powers of observation when he gave the first account of paroxysmal tachycardia.

Sir Richard Quain is memorable chiefly for his humorous personality and as an after-dinner speaker, for his part in the public side of the profession and as Lord Beaconsfield’s physician. His one detailed publication, “On Fatty Diseases of the Heart,” which appeared in 1850, is remarkable as an example of the ease with which important evidence can be disregarded. It is an account of 83 cases with necropsy findings. Yet so fixed was his attention upon epicardial adiposity that the ossified or obstructed coronary arteries, found in 25 of his series, were dismissed as unimportant. Here he was in good company, for such an astute observer as William Stokes did the same.

In 1849 the first Medical Report of the Hospital gave an analysis of 4,358 consumptive patients, the largest series to be reviewed until then. Though conditions other than tuberculosis must have been included to some extent, the conclusions were accurate on many points: the age, sex and occupational incidence of the disease, for instance, and the frequency of haemoptysis. Occupation was epitomised in the brief sentence: “there are certain pursuits which . . . exercise a directly injurious influence on the health of those engaged in them—particularly those which compel persons to work in close, ill-ventilated and over-heated rooms”—an opinion well ahead of its time seeing that the tax

FIGURE 11
Richard Quain (1816-1898). (Cartoon by SPY, from Vanity Fair, Dec. 15, 1883.)
on windows was not yet repealed. The Report also dealt with John Hutchinson's Spirometry—for he was, of course, the inventor, studying more than 3,000 patients at Brompton by invitation before he was appointed to the Staff in 1855.

That our ancestors had an eye for statistics was shown not only by this first Report and by a second thirteen years later, but also by the astonishing book on "The Elements of Prognosis in Consumption" by Edward Pollock which appeared in 1865. Pollock took ten years to collect his material, using 3,500 cases seen at Brompton and analyzed with the help of a statistician. Even today there is not much to add to what Pollock wrote about the natural history of consumption. We can define the forms better and we know early tuberculosis in a way quite hidden to Pollock and his time. But with these reservations his chart of the course of its various types is still reliable. He emphasized the latent character in old age, as well as in those with emphysema and rheumatic heart disease. He knew that clubbing meant very chronic disease. He showed how a good prognosis for spontaneous pneumothorax in phthisis goes with a well thickened and protective pleura, a small fistula, no effusion and a sound second lung; and he pointed out that in localized acute disease the prognosis can improve after rapid cavitation—a fact now ascribed to obstruction to the draining bronchus. As with all the literature prior to the detection of the tubercle bacillus, we allow for some confusion between tuberculous and other chronic lung infections; but the book still
remains one of the classic works on its subject. There is more than one reason for regarding it as a neglected masterpiece.

The important contemporaries of Pollock at Brompton were Hutchinson, Edward Smith, William Marcet and John Burdon-Sanderson. Though they were all on the active clinical staff, it is to them that we owe the start of the experimental method as applied to respiratory function and disease—Hutchinson with spirometry; Smith with the chemistry of respiratory exchanges; Marcet with this and also his use of Villemin’s discovery for diagnosing human pulmonary tuberculosis by animal inoculation with sputum; and Burdon-Sanderson in many ways. Burdon-Sanderson was incomparably the greatest, maybe of all the staff in the hundred years the most eminent for the sheer variety and extent of his original researches. They included elaborate papers on vegetable reproduction and on cattle plague; the invention of the kymograph; a fine paper on the relation between respiration and the pulse; and two fundamental studies of the excitatory process.

in cardiac muscle, using the capillary electrometer. Moreover, he was the first to confirm Villemin's work on the infectivity of tuberculosis for laboratory animals; investigated epidemics of cholera, cerebrospinal fever and diphtheria; made the first detailed experiments on artificial respiration in asphyxia by drowning; and did his famous studies of the sphygmograph soon after Marie's and wrote a book on them. None of his original work was directly clinical. His strength lay rather in his early grasp of the application of scientific methods to medicine, and in a superb technical skill. But, none the less, he worked for over ten years in the Out-Patient Department at Brompton, becoming one of the foremost advocates of sanatoria in their early days and of a proper system of supervision for tuberculous patients; and he spent the closing years of his life as Regius Professor of Medicine at Oxford, where he was succeeded by Osler. His position in English medicine is almost unique in that he was the first to bring the outlook of experimental physiology and to show in the profusion of his own investigations the rewards it was able to achieve.

If one crucial test of a great mind is the quality of those it nurtures, Burdon-Sanderson can have few rivals; for among his associates and pupils were Sharpey, Ferrier, Waller, Mott, Rose Bradford, Osler, Victor Horsley, Romanes and Sidney Ringer.

Although Burdon-Sanderson was so eminent there must have been something greatly lovable about him. He was notoriously absent-minded. He used to stuff one chalk duster after another into his pockets when lecturing, and then clean the blackboard with his pocket handkerchief. One evening his wife left him to conduct guests into the dining room, but found him in the hall a few minutes later helping them into their overcoats, shaking hands and saying good-night. But perhaps the most amusing reminiscence is one of boa which he was the victim, concerning his appointment to the Brompton staff. His rival was a staunch adherent of the Church of England. Burdon-Sanderson was therefore questioned closely on his religious principles, and

FIGURE 18: Isaac Burney Yeo (1845-1914). (From "Leaders in Medicine and Surgery, 1876." Barraud and Jerrard, London).

FIGURE 19: Sir James Kingston Fowler (1852-1934).

required to get clergymen to testify to his orthodoxy before he was elected!

I have dealt at length with these early members of the Brompton staff because they planted the tree of thoracic medicine in England. True, it grew from the soil of Laennec, but they tended it wisely and well. The fruits of their work have been gathered ever since, and among those who have had the care of their legacy at Brompton were Douglas Powell, Burney Yeo, Charles Theodore Williams, Mitchell Bruce, William Ewart, Kingston Fowler, Percy Kidd, Hector Mackenzie, Sidney Martin, Batty-Shaw and L. S. T. Burrell, not to mention others in succeeding years. We cannot here do more than touch upon a few of them: William Ewart who did so much on bronchial anatomy; Burney Yeo, inventor of a simple inhalation face mask and one of the most lucid teachers of his day. How refreshing, for instance, to find the valueless use of potent remedies on hopeless cases trounced in this delightful fashion: "...if ignorant charlatans wrote in this way, we should find no language too severe to condemn their imbecility. Gentlemen, this kind of thing is foolish trifling." Kingston Fowler, too, had a pointed style and his obiter dicta are replete with gusto and clarity—such remarks as "No fool is ever cured of pulmonary tuberculosis," "Once notified, always tuberculous," and "Strange things may happen when a clinician who has 'scrapped his stethoscope' calls in a radiologist who is not a pathologist." Kingston Fowler was a fine clinician, steeped in a knowledge of morbid anatomy, full of common sense and with an intuition trained by long and patient observation at the bedside. He and Douglas

Powell were, by all accounts, impressive figures and fine exponents of the art of managing both patient and disease.

We have seen how Brompton already had a long record as a chest centre well before the close of last century. The next step was sanatorium development. Brehmer in 1859 and Trudeau in 1884 started sanatoria in Germany and America. Actually Brompton decided in 1851 to build a small sanatorium at Bournemouth, and it was opened in 1854. This was, in point of fact, the first sanatorium. But difficulties of travel for patients restricted its use to local cases, and, as time went by, Brompton found that another sanatorium was needed, nearer at hand. A site was chosen on the Chobham Ridges, thirty miles from London, and in June 1904 Frimley Sanatorium was opened by the Prince and Princess of Wales. It was designed for 150 patients accommodated on two stories in a stellate block, and had 65 acres of grounds.

It was a fortunate day for Frimley when Marcus Paterson was appointed the first Medical Superintendent. The work was new, the value of sanatorium treatment had still to be proven, and the lines on which that treatment should be conducted had still to be defined in detail. Paterson extended the principle of graduated exercise to include useful labor. The early trials were described in his book "Auto-Inoculation in Pulmonary Tuberculosis," and they formed the basis of the system which has been in use at Frimley ever since. Though his views on the rationale of exercise were wrong—and there lie the roots of criticism—results soon

FIGURE 22: Brompton Hospital Sanatorium, Frimley. An aerial view.
showed the value of work as an integral part of treatment. There is a story of a patient who discharged himself from the sanatorium rather than toe the line. As he left Paterson called out from his office, "Oh! by the way, tell your widow to send me a post-card."

Now we turn to more recent events. The growth of radiology completely changed assessment of the anatomical aspects of chest diseases. Blacker, the first radiologist at Brompton, was appointed in 1900; but it was the later combination of Stanley Meiville and R. L. Rawlinson that brought the department to maturity. Many years ago they established the use of lateral and penetrating views of the chest, and of sinusography for the control of empyema drainage. They did much of the early work at bronchograms of high technical quality, and on the radiographic control of artificial pneumothorax and of surgical procedures. Neither Meiville nor Rawlinson wrote much, and neither left an enduring monument to their work in words; but their knack of keeping close contact with the clinical staff, their insistence upon the importance of necropsy control of their findings whenever possible, and their standard of films and of interpretation were all ahead of their time for our country.

One feature at Brompton, prominent in the last twenty years, is the importance attached to careful training in breathing exercises for the restoration of functional efficiency in asthma and emphysema and after empyema drainage and other surgical procedures. Accurate techniques of postural drainage and of forced expiratory breathing and thoracic percussion were designed some years ago for treating septic bronchiectasis and some examples of lung abscess. Such treatment is essential for good results, whether as a pre-operative measure or as a routine for inoperable cases. The secrets of success are the accuracy of posturing in relation to the anatomy of the draining bronchi, and sufficiently prolonged posturing, often many hours daily at first.

But the most fruitful advances of recent times at Brompton, as in thoracic work elsewhere, have come from our surgical colleagues, whose mastery of technical problems claims the admiration of us all. There, Brompton may fairly claim that it has not only led the field in our country, but has maintained its lead with the largest and most varied thoracic surgical experience. The opening moves were due to J. E. H. Roberts and Tudor Edwards. In 1924 Tudor Edwards gave the first account in the English literature of thoracoscopic division of adhesions. By 1927 he reported the removal of seven intrathoracic new growths with only one death. Roberts started tourniquet lobectomies in 1931 using instruments of his own design for a modified Shenstone technique. He and Nelson published an account of 10 cases in 1933 and Tudor
Edwards and Price Thomas another 48 the following year. Roberts and Tudor Edwards did the first two one-stage tourniquet pneumonectomies for bronchiectasis in the same week at Brompton, soon after Graham devised the operation for bronchial carcinoma. The first dissection lobectomy at Brompton was done by Tudor Edwards in April 1929 on a boy of sixteen, and the first dissection pneumonectomy by Price Thomas for a peripheral carcinoma in March 1935. Some idea of the volume of surgical work and its rate of increase may be gained from the fact that in 1939 Tudor Edwards reviewed 199 cases of bronchiectasis which he had treated surgically—166 lobectomies and 33 pneumonectomies. His experience with bronchial tumors was given in two fine papers in 1938 and 1946. The latter paper, published in the first issue of Thorax,
was the opening Presidential Address to the Society for the Study of Diseases of the Chest which he founded shortly before his untimely death.

I have brought this account to the present time and of necessity have been selective. I have emphasized the early rather than the later history because the present place of Brompton in English Medicine derives from its record last century, not only in the sense of the achievement then, but also in the sense of the inspiration which that achievement still imparts. If, moreover, I seem to have laid stress upon one aspect of the hospital—its place in the advancement of learning—I trust that I have not overlooked the reasons why we in England regard the Brompton with so much affection. For it is, indeed, an atmosphere rather than an institution—a phrase by which Kingston Fowler once described a sanatorium. Inherent in this atmosphere are regard for wisdom and respect for the past, though there is something more intimate than either of these. Perhaps the words of Benjamin Disraeli at the Seventh Anniversary of the Hospital, almost a hundred years ago, were prophetic of this quality: "It has been considered that consumption is an incurable disease... All of us must feel that the secrets of nature cannot yet be told; and in an age distinguished as the present for the application of science to social life he is indeed a bold man who can say that he is to fold his arms in despair and sit down, and when he encounters a calamity can believe that a beneficent Providence which surrounds us has not supplied man with some remedial resource."

I am indebted to many friends and colleagues for help and guidance; in particular, to Mr. Rouvray, Secretary to the Hospital, who generously placed his collection of documents and his expert knowledge of the subject at my disposal; to Mr. Bishop, Librarian to the Wellcome Historical Museum, who enlivened our antiquarian researches and whose department did many of the fine illustrations; to Dr. Maurice Davidson, who read the manuscript for me; to Dr. J. V. Simpson, who collected much information towards it; and to Dr. Foster Carter for some of the prints.

REFERENCES

As there is no History of the Brompton Hospital, I have drawn upon original manuscripts, papers and letters, and upon contemporary accounts in the press for factual details. Only accessible references to this part of the subject are given; and, for convenience, they are separated from the list of publications by members of the staff which have been consulted in preparing this paper.

The History of the Hospital and Its Staff:
Hamilton, Rev. Dr.: Archaeologia. 12:279, 1891.
Hospital for Consumption, Brompton: Annual Reports. London, 1842 et seq.

Publications by the Staff of the Hospital: