PAPERS AND ORIGINALS

Medicine, the community, and the university: a century of Cambridge history*

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Most people know what public health is, but the appearance of social medicine caused confusion, which has not been helped by the introduction of yet another term—community medicine. I propose to consider how and why community medicine developed out of public health and to trace the story of this metamorphosis in the University of Cambridge.

Community medicine in Britain has strong associations with Cambridge because it was formally defined by the Royal Commission on Medical Education,¹ which sat in 1965-8 under the chairmanship of the then Master of Christ's College, Lord Todd. There have been other definitions, but I do not cavil at that of the commission¹: "Community medicine is the specialty practised by epidemiologists and medical officers who are administrators of medical services . . . and by the staffs of the corresponding academic departments. It is concerned not with the treatment of individual patients but with the broad questions of health and disease . . . in the community at large. . . . In community medicine, as we define it above, the doctor has no monopoly of responsibility or of contribution: many other people's skills are also required."

Thus community medicine seeks to promote health by developing and applying scientific knowledge to communities rather than to individual patients. This definition could have been applied in its entirety to public health in its heyday and with some modification to social medicine. The essential difference between the three is that each has had at the outset to face substantially different problems and has turned to different sciences to solve them.

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The beginnings of scientific public health

In 1842 William Chadwick published his report on "The Sanitary Conditions of the Labouring Population in Great Britain," which set London and other cities slowly on the way to improving housing and working conditions, and most important, to separating drinking water from the sewage. At that time the Thames was both a source of drinking water and the depository for sewage.

Cambridge too had its problems. Through the years sporadic cases of typhoid occurred in October in the poorer parts of the town. In 1873, however, there was an outbreak which also affected undergraduates in Caius and Queen's Colleges; three of those living in the newly constructed Tree Court in Caius died, despite the fact that, according to the *British Medical Journal*, "The sanitary arrangements of this portion of the college are most perfect; the slops, etc, from the students' rooms not being carried off by drains in the buildings, but carried out of the rooms and poured down gully-holes in the court."³ Many experts of the time thought that miasma and sewer gas caused typhoid.

CERTIFICATE IN SANITARY SCIENCE AND STATE MEDICINE

As early as 1868 State medicine and sanitary science had been recognised as independent subjects for exercises for the Cambridge MD—perhaps the first degree anywhere in the Kingdom to be available in these subjects. In November 1874 the Board of Medical Studies recommended that since Parliament proposed to increase the numbers of medical officers of health, the university should establish examinations in those aspects of State medicine relevant to the functions of officers of health. The subjects should include chemistry and physics as they related to the analysis of air and water—and microscopy was included as part of chemistry. Also included were ventilation; water supply; drainage; building and sanitary engineering; public health law; sanitary statistics; the origin, propagation, pathology, and prevention of epidemic and infectious diseases with special reference to overcrowding; bad or insufficient food; and unhealthy occupations and the diseases to which they give rise. The examination included no epidemiology.

When the university discussed the board's report Sir George Paget, regius professor of physic and one of the architects of the modern Cambridge Medical School, emphasised that this gave the university an opportunity of meeting a great national need and recommended that because there would not be enough Cambridge men to fill the posts that would be created the university should also examine and certify graduates of other universities. The relevant university docu-

ments allude to similar steps that had already been taken in 1871 in Trinity College, Dublin (on the instigation of William Stokes), and in Edinburgh, which started teaching towards the BSc in public health the following year. The report was accepted, helped no doubt by sympathy aroused in the university by the tragic events in Caius; further details were worked out; and the Certificate in Sanitary Science and State Medicine was born. The course was placed under the immediate directorship of G E Liveing, professor of chemistry.

Other universities rapidly followed suit, each giving its own title to a qualification which was to have statutory significance. The General Medical Council in 1886 therefore recommended that all qualifications in the field should be registered as the Diploma in Public Health.

Epidemiology's contribution to the public health movement in Britain

In the years leading up to the establishment of the Cambridge certificate research in infectious disease in Britain had largely been epidemiological. Budd and Snow had made their preliminary observations on typhoid and cholera, and in 1858 John Simon had moved to the newly created position of Chief Medical Officer to the Privy Council. He gathered around him a remarkable group of 16 medical scientists (table).² Most were members of the Epidemiological Society

Some distinctions of Sir John Simon and the 16 epidemiologists who worked with him in the Medical Department of the Privy Council (after Brockington²)

	Date of birth	FRCP	FRCS	FRS	Baronetcy or knighthood	Teaching post in related subject
Guy ..	1810	+		Vice-president		+
Simon ..	1816		+	+	+	
Greenhow ..	1814			+		+
Seaton ..	1815	+				
Whitley ..	1816					
Smith ..	1818	+	+	+		
Parkes ..	1819	+		+		+
Hunter ..	1823					
Stevens ..	1823	+				
Bristowe ..	1827	+		+		
Sanderson ..	1828	+		+	+	+
Thudicum ..	1829	+				+
Radcliffe ..	1830					
Buchanan ..	1831	+		+	+	
Ord ..	1834	+				
Thorne ..	1841	+		+	+	
Wagstaffe ..	1843		+			
Totals		11	3	9	4	5

of London, which had been founded in 1850 under the presidency of the Earl of Shaftesbury. William Augustus Guy became vice-president of the Royal Society, an organisation of which eight of the others, including Simon, were Fellows. Sir John Burden Sanderson was the first MOH of Paddington and subsequently went to Oxford, where he held successively the Waynflete chair of physiology and the regius chair of medicine.

During the 13 years Simon was medical advisor to the Privy Council his team produced 135 reports on epidemic outbreaks and health problems, the variety of which can be judged from the following titles and subjects: "The ague and other malarious diseases in the marshes" (it was a popular view that damp air caused the ague too); mercurial and lead poisoning; "The state of public vaccination in various parts of the country" (they were much concerned that Britain did not exploit the discovery of one of its sons); "Cholera on Irish mail steamers."²

Sir George Buchanan, another member of the team, came to Cambridge in 1874 not to become a professor, but for the more immediate purpose of looking into the "typhoid scandal." By applying what he had described to the Epidemiological Society as "The arithmetical study of disease," he showed that, because of faulty valves in the water mains and a porous town drain, sewage had been polluting the drinking water.⁴ His arguments were based partly on estimates of relative risk, a concept that was not to be put to general practical use by epidemiologists for nearly a century.

The team has a historical interest all of its own. I draw attention to it here to make the point that such an outstandingly able group of men found intellectual satisfaction in public health. Seventy or 80 years were to elapse before the social medicine movement was to reach its

height and a later generation of British scientists with equal drive and ability were to turn once more to examining the relationship between man's health and his environment, and once more to lead a scientific movement of world importance.

Chemistry and bacteriology in public health at Cambridge

The DPH continued to be based on chemistry, physics, and pathology, but the director of studies for the diploma was always a chemist. When Liveing retired in 1908 he was succeeded by a member of his department, A E Purvis of Corpus, who was accorded what must have been one of the longer titles in Cambridge—"University Lecturer in Chemistry and Physics as Applied to Preventive Medicine and Hygiene." Purvis retained responsibility for the course until it was finally discontinued.

While the British were developing epidemiology other approaches were being made in the investigation of infectious disease on the Continent. In 1875, the year the Cambridge DPH started, Weigert, using his methyl violet stain, showed cocci in the tissues of patients with certain fevers, a discovery which some historians look on as the beginning of medical bacteriology.⁵ Nevertheless, instruction toward the DPH was to run for a quarter of a century before bacteriology was to be included in it.

The extent to which chemistry dominated the course and examinations can be judged from fig 1. The old medical school which had been built in 1784, was finally pulled down in 1901.⁶ The plans of the first floor of a new medical school that the university was considering building the following year show that extensive space was to be provided for public health, including a laboratory for a professor.

Bacteriology arrived in Cambridge in 1899 when G S Woodhead was appointed professor of pathology. Woodhead brought G H F Nuttall back to Cambridge as university lecturer in bacteriology and preventive medicine and charged him with teaching students for the DPH as well as the medical undergraduates. Nuttall had already achieved fame by collaborating with William Welch of Johns Hopkins University in showing that *Bacillus aerogenes capsulatus*, subsequently renamed *Clostridium welchii*, was the cause of gas gangrene.⁷ He had great influence on the development of microbiology and immunology in Cambridge over the forthcoming years. In 1906 he was appointed to a readership in hygiene and the records tell us that a professorship would have been proposed if funds had been available to support it. Shortly afterwards he became Quick professor of biology and turned from bacteriology and immunology to parasitology and directed his teaching efforts to candidates for the new Diploma in Tropical Medicine and Hygiene, leaving the DPH in the hands of the chemists.

The two diplomas prospered until the first world war, but shortly afterwards there were rumblings off-stage. To put these in perspective we must examine what had been happening in the United States.

Epidemiology and public health in American universities

W T Sedgwick, professor of biology and public health at the Massachusetts Institute of Technology, is generally regarded as the father of academic public health in the United States. He was a bacteriologist who had abandoned medical studies to concentrate on biology and had since the last years of the nineteenth century been encouraging his graduate students to enter public health. In 1913, together with C G Whipple and Milton Rosenau—respectively professors of sanitary engineering and preventive medicine and hygiene at Harvard—he started a joint enterprise called the Harvard-MIT School for Health Officers, which in 1922 became the Harvard School of Public Health.⁸ C-E A Winslow, the most distinguished of Sedgwick's pupils and like his mentor a bacteriologist with medical training, became head of the department of public health at Yale in 1916. In both Boston and New Haven students without medical degrees were admitted, and Sedgwick and Winslow both lectured in epidemiology, although the subject was not given departmental status.⁹

In 1918 in Baltimore at the age of 65, William Henry Welch (fig 2) resigned the deanship of the school of medicine, which he had created, to become first dean of the new School of Hygiene in Johns Hopkins University. He saw to it that his curriculum was broadly based without domination by any physical or biological science. His appointment of Lowell Reed as foundation professor of vital statistics was to have

FIG 1—Ground plan of first floor of new medical school building proposed in Cambridge in 1902. Shaded portion was to have been assigned to the public health section for the purposes shown. Almost all of the rest of the floor was to have been used for pathology and bacteriology.

"Some Welch Rabbits"
Drawing by Max Brödel

FIG 2—Cartoon published by Max Brödel in 1910, and reproduced in a biography of Welch.¹⁰ W H Welch is the central figure and G H F Nuttall is the "rabbit" in the rear left of the picture.

far-reaching consequences in Johns Hopkins, the States, and in Britain. Reed's work and that of his associate Wade Hampton Frost had much to do with the success and relevance of the Baltimore School.¹⁰

In 1927 Frost became the first professor of epidemiology in the United States, and perhaps anywhere. One of Frost's contributions was to rediscover, collate, edit, and republish the writings of John Snow on cholera and of Budd on typhoid.¹¹ Thus, although bacteriology had burgeoned so rapidly that for 50 years it had smothered nascent epidemiology in the universities, public health had at last found that it had a science of its own. This science was shortly to return to Britain in the person of Major Greenwood, first professor of epidemiology and medical statistics in the University of London.

The end of the Cambridge DPH

Welch was among those responsible for interesting John D Rockefeller in medicine and was president of the Board of Scientific Directors of the Rockefeller Foundation. The aftermath of the war, from which the United States had largely escaped, concerned Welch, and with the Rockefeller Institute and the two Baltimore Schools established he turned his attention to promoting the teaching of public health overseas. This intimately concerned Cambridge because the Rockefeller Foundation made a gift to the University of London of \$2m to found a national or even an imperial school of hygiene there in the image of the one at Johns Hopkins.

In 1922 Cambridge established an "occasional syndicate" to inquire into the future of the medical diplomas. This reflected concern in the university about the impact of the London plans on the DPH and the DTMH (together with a new diploma in hygiene which had been made available for those foreign graduates in medicine whose names did not appear in the medical register and who were therefore not eligible for the DPH). Space and the quality of teaching were also issues. The laboratory used by the public health students was required for undergraduate teaching. Nuttall is recorded as having told the syndicate that although the teaching standard was by far the highest in the kingdom, it was not high enough. He considered teaching in bacteriology "generally to be beneath contempt." "Should the chemistry and physics of public health not be left to the analyst?" he asked. Although this question may have had special edge to it in Cambridge, in its broadest connotation it still stands unresolved. There is still confusion and conflict about roles, tasks, and professional identities in the service as well as the academic worlds of community medicine.

The syndicate took the advice of several distinguished scientists in London and recommended that Cambridge should continue to offer

its DPH. Funds were found to build a wooden hut on the Downing site, where Purvis could carry out his administration and teach his introductory courses. The university lecturer in hygiene, G E Graham-Smith, was appointed reader in preventive medicine and was charged with teaching bacteriology. Nuttall continued to teach parasitology. Again the question of establishing a professorship was considered. Sir Clifford Allbutt, Paget's successor as regius professor of physic, said in the Senate House that "it was therefore very important that (those responsible for the DPH) should not appear to be merely a small examination Board, but should have a strong Hygiene Department within themselves . . . to show the world outside that the teaching of the Department was placed on a high standard. . . . They would be very glad if the University could have a professor in Preventive Medicine, but at present that was impossible, so he [Allbutt] supported the readership."

For a few years numbers increased, but in 1927 the London School of Hygiene and Tropical Medicine finally opened its doors to DPH candidates after a rather difficult gestation and birth. The effect on enrolment to the Cambridge course was immediate, and the end was in sight. The last eight diplomas were awarded in 1932. Purvis, who had been elected Mayor of Cambridge in 1931, died shortly afterwards.

A distinguished alumnus of that period describes the course in its dying days as "uninspired and narrow." "There was," he writes, "virtually no teaching in Epidemiology, none in Sociology, Social Anthropology [or] Statistics, [but] Graham-Smith the bacteriologist was magnificent as a teacher." Although the detail of the curriculum had undergone some modification to accommodate advances in the relevant biological sciences, its form in 1931-2, when it was last presented, was strikingly similar to the template of 1875.

It would be wrong to leave the Cambridge DPH on a note of despondency. Simon's brilliant group of epidemiologists had already lent a scientific, if not in the eyes of everyone a social, respectability to the young discipline of state medicine and public health. That an institution as prestigious as Cambridge should choose to offer instruction in the subject must have given great moral support to those who were using the novel and sometimes controversial public approach to improving health; to this benefit must be added the contributions of over 1600 medical men and women who acquired over 57 years a qualification in state medicine, public health, or hygiene and went on to apply what they had learnt for the public good.

During those 57 years infant mortality had fallen from 158 to 65 per 1000 live births, and maternal mortality had also been reduced by more than half. Cholera, smallpox, and typhoid had been contained and the impact of tuberculosis had steadily lessened. Unlike McKeown,¹² I believe that the biomedical sciences can take a substantial share of the credit for each one of these victories. With the success of public health, however, there was a restlessness in medicine,

as it related both to the individual and to the community. Available weapons had done their work and were becoming outdated.

Winds of change: Thomas Lewis and John Ryle

In 1912 René Sand had founded the Belgian Social Medicine Association, and by 1920 Winslow had begun to emphasise that what he called "the public health campaign" could not make progress without recognising a social component.¹³ Neither they nor other earlier prophets of social medicine were very explicit about the details of the social component or the mechanics of how it should be tackled.

In March 1930 Sir Thomas Lewis¹⁴ published his famous paper in which he recognised the advent of clinical science and proposed research careers for young doctors. He argued that historically progress in medicine had followed two lines. The first was by observation and description, and this method had reached its zenith by the middle of the previous century. The second was by clinical experiment, and it was here that he saw the future to lie.

Just over a year later a most intriguing event occurred in Cambridge. In April 1931 the Cambridge University Medical Society heard John Ryle, a physician of outstanding ability at Guy's Hospital, deliver a paper entitled "The physician as naturalist."¹⁵ Ryle pointed out that the physician is a student of *φύσις* and that in ancient Greek this meant nature, not drugs or medicine. He extolled the power of observation and description as scientific tools and pointed as examples to the work of great naturalists like Darwin, Gilbert White, and Linnaeus. Using as a basis the holistic philosophy of Smuts, he argued that if observation and description were to continue to contribute to medicine, specialism (and here he included bacteriology, biochemistry, and radiology) was to be eschewed. He made courteous comments about Thomas Lewis's views but it is difficult not to look on this lecture as a quiet rebuttal of Lewis's proposals.

Ryle explained the concept of diathesis in detail, using the metaphor of seed (the patient himself) and soil (his environment), pointing out that disease was the consequence of dynamic interchange between the two. "Disease is," he said, "the whole consequence of a conflict between man (or animals) and the noxious agents in his environment." He emphasised that it was the physician's task always to observe this interchange in its totality and to acquire an "understanding (of disease) in man, and man afflicted with (disease)."¹⁵

Four years later he returned to Cambridge as regius professor of physica and established for the university investigative clinical medicine at Addenbrooke's Hospital. But his decision to leave London was a little surprising, although with his interpretation of the word "physica" the regius professorship at Cambridge must have had a very special appeal for him. He could not have known that he was the last great exponent of descriptive medicine as a clinical research procedure, and there is little in his writings to indicate that he was aware of the true nature of experiment.^{16 17} He had yet to find that his relentless insistence on observing and recording and his attraction to the philosophy of holism would inevitably lead him out of the wards into society itself. In his own metaphor of seed and soil, his realisation that the noxious agents in environment included man's own society germinated in Cambridge. But Oxford provided the soil for its roots to strike and for it to flower briefly before Ryle's untimely death.

Although he did not practise social medicine in Cambridge, Ryle cannot be ignored if the history of the subject there is to be examined; and his private conflict is a signal of the more general philosophical conflict of the '30s in clinical and population medicine. His special contributions are that he started his journey, not from public health, like Winslow and Stampar, or from a study of the history of science, like Sigerist, but from the pinnacle of success in clinical medicine, and that, unlike any of them, he initiated empirical studies in social medicine before writing about it.

The British social medicine movement

The increase in the expectation of life resulting from the control of the fevers meant that people were surviving to suffer diseases of middle and old age. Such diseases are immensely complex and are attributable not to a single noxious agent such as a micro-organism or an industrial chemical but to a web of risks and factors spun through the structure and values of society itself. The consequence of these diseases, unlike the swift death brought by the scourges and infections, was to place a chronic burden on the society that created them. The success of the public health movement thus brought a new challenge to epidemi-

ologists. The new methods they developed concerned the dissection and analysis of clinical diagnosis—a reversal of the time-honoured clinical procedure of compounding it by aggregating signs and symptoms—and the application and modification of statistics to health-related phenomena in populations.

A new challenge had been identified, and, three-quarters of a century after Simon's team was disbanded, a group of first-class minds was again concentrating on developing new epidemiological techniques to improve the public health; Cambridge graduates of the '30s who were among them were Cochrane, Fletcher, Payne, and Stewart. The initiative in epidemiological research was again based in Britain and for the first 15 post-war years most of the major advances in the field were made on this side of the Atlantic. The chief achievements of the social medicine movement had been accomplished by the time the National Health Service was reorganised in 1974, although epidemiology still has much to teach us about the diseases with which the movement was concerned. We now know that chronic diseases can to a considerable extent be controlled and contained if aspects of behaviour which society deems acceptable but which are noxious to health can be modified.

Cambridge after the second world war

In the meantime Sir Lionel Whitby had assumed the regius professorship of physica at Cambridge, and on his advice a department of human ecology was created under Professor Leslie Banks with N T J Bailey as medical statistician, but plans to open an undergraduate medical school did not mature. So after 60 years of teaching public health without a department the university found itself with a department which had no one to teach. Banks retired in 1971 and no steps were taken to replace him until the new clinical school was launched and the present department of community medicine opened in 1976.

A Cambridge personality who was neither regarded by himself nor by anyone else as being part of the social medicine movement yet whose work during those years greatly benefited the development of chronic disease epidemiology and medical statistics was Sir Ronald Fisher. In Birmingham, Lancelot Hogben, whose interests, like those of Fisher, embraced mathematics, statistics, and population genetics, was closely associated with social medicine; indeed, he and F A E Crewe joined forces in 1947 as the first editors of the *Journal of Social Medicine*.

Community medicine and tomorrow's problems

When he was at Oxford Ryle asked himself what had been troubling his mind during the 1930s and replied "memories of tired doctors in practice and sick doctors in the consulting room, who have long done their best with inadequate assistance and equipment to stem the tide of disease."¹⁸ Much of that assistance and equipment is now potentially available but is costly. In its impotence medicine made very modest inroads on a thriving national economy; its rapidly increasing power is far more demanding on a less robust one.

Community medicine is concerned with trying to make the best quality of health care available to everyone, and to do this we are now adding the skills of the economist and the operational research worker to those of the other scientists who have made up research teams in public health and social medicine. Behavioural scientists have already helped us in understanding the causes of disease; we now need their help in finding means to prevent or control it.

Some of the reasons why the course for the DPH was discontinued in Cambridge are evident from what I have already said, but it might be helpful to enlarge on them a little if we are to identify the principles which must underlie a successful future for community medicine. Although the initiative to start the examinations in state medicine came from those in clinical medicine and in the physical sciences, responsibility for running the course itself was placed with chemists and there it stayed for nearly 60 years. If the university had gone along with the move of Allbutt, Nuttall, and others to create a department of hygiene under Nuttall himself in 1906 or in preventive medicine under Graham-Smith in 1922 it would again have run the risk of laying undue emphasis on a single science—this time bacteriology. By 1922 Welch had already foreseen the importance of a multidisciplinary approach to teaching public health and of the special contribution which was to be made by epidemiology and statistics.

Other British universities, by appointing the local medical officer

of health to a part-time chair, experienced different problems. With their heavy dual responsibilities few such men had much time for reflection let alone research. Their university departments sometimes tended to be closer to the political world of the city hall than to that of their academic colleagues. Their members were part of the institution of service public health, and, even if time for innovation had been available, such innovation stood at risk of being fettered by the pragmatism and politics of the council chamber. One suspects that Purvis's interest in local politics stemmed from the service he offered to the city and the country as an expert analyst.

In contrast, because it was virtually isolated from the service world, social medicine suffered no such restrictions, but, with this freedom went an isolation from those responsible for the development of health and social policy locally and nationally.¹⁹

Opposing stresses

The publication of Lord Todd's report,¹ the reorganisation six years later of the NHS, and, on a more parochial level, the opening of the new clinical school at Cambridge have all given us a splendid opportunity to make a fresh start. And with the establishment by the Royal College of Physicians of London and the two royal colleges in Scotland of a national Faculty of Community Medicine, the rift that had existed between public health and social medicine is rapidly being closed, but this has been done at a price. A statutory responsibility of the faculty is to establish and control standards of postgraduate training for registered medical practitioners in the subject; it is therefore a professional institution within the larger professional institution of medicine. We have seen that, although many of the leaders in public health have been medical men, others have not; we have seen too that time and again important contributions have been made by applying any new science that is relevant to the problems of the day.

The Todd Commission's statement that "the doctor has no monopoly of responsibility or of contribution: many other people's skills are also required," makes it quite clear that the Commission recognised that this state of affairs would continue, and it is one of the chief tasks of a university to ensure that it does so, at least in the academic department. Nevertheless, the faculty for its own quite reasonable purposes has redefined community medicine as "that medical specialty which deals with populations . . . and comprises those doctors who try to measure the needs of the population, both sick and well, who plan and administer services to meet those needs and those who are engaged in research and teaching in the field."²⁰ To define a broad subject in professional terms can cause difficulties, and we must realise that this might provide a basis for new rifts to develop between the service and the academic worlds.

There are many other opposing stresses. As we have seen, disease stems from the values, practices, and the norms of society, and social scientists or anthropologists contribute to the understanding of its origins and control just as chemists, physicists, and engineers have in the past. Recently Jefferys said she believed that social medicine (and medicine in general) had found that when it took sociologists into its midst it had opened their gates to a Trojan horse, and I agree with her. She went on to predict that the experience would be repeated with economists.²¹ Be this as it may, if the dialogue with these and any other sciences is to be effective it must be un-bowdlerised. But the difficulties in establishing such dialogues go beyond learning to tolerate what are at times unpleasant attitudes and interpretations: they extend to learning new languages and understanding the tacit assumptions on which the theories of the ecologist, the geneticist, the economist, the statistician, the sociologist, and all the other scientists who have something to contribute to the improvement of the public health are built. These differ profoundly from each other.

Our own particular contribution and chief research tool will continue to be epidemiology, but this must be modified to make best use of progress in statistics and the basic sciences and must be applied to the study of health services as well as to disease.

The importance of the need for every academic department to practise epidemiology cannot be overemphasised. It was not until epidemiology became firmly established in the universities that academic public health achieved any stability, and the consequences have been most productive. Yet we must not repeat the mistake of social medicine by isolating ourselves from the service world, any more than that of public health of becoming too closely identified with it. Community medicine stands on the boundary of medicine and must be prepared to accept the consequences of this. It is not a place for unthinking traditionalism.

I am most grateful to many people for providing me with valuable information and specially to Professor Fraser Brockington, Dr Huw Francis, and Dr Arthur Rook, who pointed the way to original sources, and to Dr Elisabeth Leedham Green, who guided me through the Cambridge University Archives. The plan in fig 1 is reproduced with the consent of the University Archivist.

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ONE HUNDRED YEARS AGO On Friday, by the kind compliance of the managing director of the London, Chatham, and Dover Railway, Mr Richard Davy had the opportunity of practically testing his improved hammock stretcher. The patient was an ex-policeman, suffering from disease of his pelvis and psoas abscess, the result of a fall received in the discharge of his duty. The distance covered was from the Westminster Hospital to the Royal Sea-bathing Infirmary, Margate. The net hammock was slung on the stretcher by four cords, playing on four India-rubber cylinders, which act similarly to inter-vertebral discs. The stretcher consisted of two shoulder-poles, connected by two iron cross-bars; this was slung to the roof of the railway van by two cord pendants. The connection and disconnection of the whole mechanism was effected in an instant. The patient quite enjoyed his transit, stating that he was absolutely free from concussion, and capable of proceeding any distance under similar conditions. At Margate, two strong good-natured porters (London, Chatham, and Dover Railway) carried the stretcher and patient from the van to his bedside in the infirmary. Mr Richard Davy will be pleased to show the whole arrangement, and its practical working, to any members of the profession, on Tuesday afternoons, at the Westminster Hospital. (*British Medical Journal*, 1878.)