Section of the History of Medicine

President Lord Cohen of Birkenhead M0

Meeting June 12 1968

President’s Address

I need not enter into the controversy which still rages over the early history of the introduction of ether anaesthesia in America. What seems indisputable is that Morton’s success with ether was announced to the world in a paper by Henry J Bigelow published in the Boston Medical and Surgical Journal on November 18, 1846. Dr Frederick Fox Cartwright, in his John Snow Memorial Lecture of 1938, states that the news of the Boston success arrived in England in the middle of December 1846 by means of a letter from Bigelow to a Mr James Bost, who was an American dentist living in Gower Street. Bost is said to have consulted with a fellow dentist named Robinson, with a chemist named Squire, and with an instrument maker, Hooper of Pall Mall. On December 19, 1846, with an apparatus devised by Hooper, Bost extracted a molar tooth successfully in the presence of Robert Liston, then senior surgeon to University College Hospital of whose council Bost was a member. Two days later, on December 21, 1846, Robert Liston performed a mid-high amputation of the lower limb and an avulsion of the toenail successfully under ether anaesthesia, and ten days later there was a public demonstration of anaesthesia at King’s College Hospital, when William Pergamon performed seven operations under ether administered by Squire and Robinson.

But it is by no means certain that this was the source from which Snow learned of ether anaesthesia. Nor indeed is there any valid evidence for what Richardson alleges was Snow’s own account. This briefly was as follows:

"On a day early in January, 1847, he was leaving one of the London Hospitals when he met a druggist, a friend of his, who was bullying along with an ether apparatus under his arm. "Good morning," said Snow."
"Good morning to you, doctor," replied his friend, "but don't molest me now. I am giving ether here, share and share alike, and am going quite into an ether practice. Good morning, doctor." "An ether practice; rather peculiar, thought Snow" and turned his mind to the possibility of starting one himself.

We do know, however, that Snow read and wrote for the London Medical Gazette. In 1846, he contributed to this journal paper on "Strangulation of the Blenn in an Aperture of the Mysymystery", and "Alkaliene Utrine, and Phosphatic Urinary Calculus". On December 18, 1846, there appeared in the Gazette a note headed "Animal Magnetism Superseded - Discovery of a New Hypnotic Vegetation". It read thus:

"We learn on the authority of a highly respectable physician of St. John's, U.S., that at Dr. Morton, a surgeon-dentist of that city, has discovered a process whereby in a few minutes the most profound sleep may be induced, during which teeth may be extracted, and water operations performed, without the patient being sensible of pain, or having any knowledge of the proceedings of the operator. The process simply consists in causing the patient to inhale the vapour of ether for a short period, and the effect is to produce complete insensibility, or, as the writer says, intoxication. We quote the following case on the same respectable authority: "I took my daughter last week to Morton's rooms to have a tooth extracted. She inhaled the vapour of ether about one minute, and felt (sic) asleep instantly in the chair. A molar tooth was then extracted without the slightest movement of a muscle or fibre. In another minute she awoke, smiled, and said the tooth was not out, had felt no pain, nor the slightest knowledge of extraction. It was an entire illusion." (London Medical Gazette 1846).

The Gazette proceeded to comment favourably on the frank disclosure by Dr. Morton of his methods in contrast to the mystery proceedings of "the tribe of hypnotic quacks who have lately paraded the country", but urged that caution should be exercised in the use of ether, as "it is a poison, and it was difficult to understand how the patient was unaware that the tooth was out and had experienced no post-operative pain.

John Snow could well have learned of ether anaesthesia from this note, for the news from America was to fall on a prepared mind. When at the age of 24 Snow came to London from York, he spent a year at the Windmill Street School, founded by William Harvey, where he was well grounded in chemistry. On December 16, 1837, while still a student, he reported to the Westminster Medical Society, which was later to merge with the Medical Society of London, the results of some experiments he had performed to ascertain the effects on animal life of combustion of candles containing arsenic acid. By 1839, the year after he qualified, he had performed and reported experiments to show (1) that carbon dioxide was produced when inhaled; (2) that a decrease of oxygen in the atmosphere was dangerous to life; and (3) that if both were combined then the effects proved more rapidly fatal.

He had undertaken also quantitative experiments to show that 5-6% was the concentration above which carbon dioxide might give rise to alarming symptoms. Moreover, he had succeeded in controlling the concentration of carbon dioxide in closed spaces, first with lime water, and later with caustic potash solution. There can be no doubt that it was these studies on respiration and asphyxia which led him to recognize the significance of ether anæthesia.

He carried out many experiments with ether, on animals and on himself, and within a month had devised an "Apparatus for Inhalation of the Vapour of Ether", which on January 23, 1847, he demonstrated to the Westminster Medical Society. It consisted of a round tin box, two inches (5 cm) deep, and four or five inches (10-12.5 cm) in diameter, with 4 tube of flexible white metal, half-an-inch (1.25 cm) in diameter and about a foot and a half (45 cm) in length, coiled round and soldered to it. There was an opening in the top of the vessel at its centre for pouring in the ether, and to this was afterwards attached the flexible tube belonging to the mouthpiece. In the interior was a spiral plate of tin, soldered to the top and reaching close to the bottom. When used the inhaler was to be put in a hand basin of water, mixed to a particular temperature corresponding to the proportion of vapour that the operator might desire to give; the caps being removed and the mouth tube attached when the patient began to inhale, the air would gain the desired tempera- ture in passing through the metal pipe; it would then rise to the surface of the ether where it would have to pass round three or four times before entering the tube going to the mouthpiece, thus ensuring its full saturation and preserving it at the desired temperature.

At a meeting of the Westminster Medical Society a month later, the inhalation of ether was again discussed. Hale Thomson regarded it as 'a most valuable boon to humanity' from which he had seen no ill results, whilst Hancock, another surgeon, reported that he had seen it produce convulsions in one instance and severe irritation of the throat in another, which remained until the patient, who was previously in a very low condi-
tion, died. There was much praise for Snow's apparatus, and Snow himself reported that he had completed further experiments by which he had ascertained that the vapour of ether given out from the lungs was unchanged, and that the amount of carbon dioxide produced during the inhalation of ether was less than at other times, circumstances which he considered to confirm his explanation of the effect. A little later he found Dr Gull, subsequently Sir William Gull of Guy's Hospital, one of the greatest physicians of his time, reading a paper to the South London Medical Society on the effects of ether on different classes of animals, in which he surveyed what was known of the physiology of ether up to that time, but ended his communication with three questions which indicated the main problems confronting his surgical colleagues. Firstly, is it useful to abolish pain during a surgical operation? Secondly, can this be done safely by ether? Thirdly, does the presence of ether in the blood modify the healing process? Most surgeons would by then have answered all three questions affirmatively, but there were still many who were doubtful. Amongst those was the distinguished Guy's surgeon, Mr Bramah Cooper, who remarked that pain was a preliminary condition no doubt fitting parts, the subject of lesions, to separate action, and therefore he should feel averse to the prevention of it. In parts operated upon the influence of ether there was no muscular contraction, no retraction of the larger vessels, and the small ones continued bleeding, and so forth in denunciation. By February 1847 James Young Simpson, a most distinguished professor of obstetrics at Edinburgh, was using ether in his practice. It is said that when the news of ether was first received he cried: 'It is a glorious thought. I can think of nothing else.' But there was much more time of its misuse by the inexperienced and in many places, particularly in Europe, orders were issued prohibiting its use.

In 1847, less than a year after the introduction of ether, Snow had published his first monograph, 'On the Inhalation of the Vapour of Ether in Surgical Operations'. This described the various stages of anesthesia, and reported the 'Results of nearly Eighty Operations in which Ether has been employed in St. George's and University College Hospitals'. In it he differentiated the five stages of anesthesia, and the classic signs of coma were the indications for, and contra indications to, its use. On November 10, 1847, within a few weeks of its publication, Simpson announced to the Medico-Chirurgical Society of Edinburgh that he had discovered a new anaesthetic agent, chloroform. This he had tried on the advice of Wadie of Liverpool. Ten days later, on Saturday, November 20, Snow was reporting to the Westminster Medical Society that chloroform was preferable to ether in some respects, although it was impossible that anything could be more efficient than ether, as it was capable of totally preventing the pain in every operation in which it might be properly applied'. He told of the operation on the preceding Thursday, November 16, for amputation of the breast at St George's Hospital in which he had used chloroform successfully, and pointed out that whereas ten drachms of ether would probably have been used in the operation, only one drachm of chloroform was necessary. He proceeded to describe experiments on himself which led to unconsciousness and he sublimated also on the physical properties of chloroform.

During the ensuing years, Snow gave anesthetics for Benjamin Brodie, for Liston and the Hawkins brothers, for James Paget, Bowman, Spencer Wells, Patridge and Quain amongst many others. But from 1850 until 1858 most of his experimental work and hospital practice was carried out with William Fergusson at King's College Hospital. Fergusson had been a pupil of, and prosecutor for, Robert Knox in Edinburgh, and in 1839 began surgery to the Edinburgh Royal Infirmary, but he was attracted to London, largely it is said because of James Syme's success, and there, when virtually any disease of the limbs was regarded as a sufficient reason for amputation, he founded a school of conservative surgery in which he sought to preserve parts of the body which were needlessly sacrificed by earlier operators. Parochial loyalty compels me to record that Ferguson was not the first to advocate the surgery of 'conservation'. The credit belongs to Henry Park of Liverpool Royal Infirmary who, seventy years earlier, was creating by excision chronic infections of the knee and elbow-joints, which had hitherto been treated by amputation. His work entitled 'Cases of the Excision of Carious Joints' (Paris & Moreau 1800) ran into many editions, and made his reputation as a surgeon, though he had not found favour science in France than in this country. He urged that by total extirpation of infected joints limbs might be preserved, with such a share of the motions which Nature had originally allotted to them, as to be considerably more useful than any invention which has hitherto been able to compensate in their stead'.

This Park anticipated Ferguson's more succinct comment that it is a grand thing when by prudence even the life of a limb can be saved. Little wonder that Ferguson thowed enthusiasm
for anesthesia or that he chose the skilful Snow as his colleague. For he realized that anesthesia increased the scope of surgery by adding to it not only less of pain, but also the dimension of time, for whereas before anesthesia the range of surgery was limited by the endurance of the patient, with anesthesia-induced could be sacrificed o ease and accuracy.

In the Royal College of Physicians are to be found the medical case books of John Snow which contain a record in diary form of all his cases from July 17, 1848, to June 5, 1859 (Snow died on June 17, 1858). These three quarterly volumes record all but the first 47 cases to which he administered chloroform anesthesia together with, in a few instances, the use of ether. "Dutch liquid" and chloroform chloride of ethyl", a French preparation. These volumes would repay a more careful study than they have yet received. It is recorded the administrative of chloroform to Queen Victoria on April 7, 1847, as the birth of Prince Leopold, and on April 15, 1857, at the birth of Princess Beatrice: and to many other distinguished patients. There is one entry which is of interest because of the theological controversy aroused by Simeons use of anesthesia in childbirth. The case of Eve, the Chuchmen asserted is clear: "To sorrow thou shall bring forth children." But Simpson was unmoved, and in 1847 he wrote a powerful pamphlet in "An Answer to the Religious Objections Against the Employment of Anaesthetic Agents in Midwifery and Surgery." These theologians in high clerical office did not share some of the alleged religious objections to anesthesia is shown by an entry in Snow's case book on October 20, 1853: "The confinement of a daughter of the Archbishop of Canterbury at Lansehe Palace." These records form the basis of Snow's major work published shortly after his death - On Chloroform and Other Anaesthetics: Their Action and Administration - and a fitting memorial to his pioneer work. It describes the physical and chemical properties of chloroform, its physiological effects, the circumstances which modify these, such as age, habits, and disease, the mode of administration, the causes of death which may follow chloroform, and the indications for the use of chloroform in medical conditions, such as neuralgia, asthma, whooping-cough, convulsion, and the like. It is a valuable entry, which (the anesthetic of which he once had the greatest hopes) and other volatile agents, being its phases, which reveal its industry and meticulous attention to detail. We are reminded of what Mr Joshua Parisson, a fellow student of Snow's in 1838 at the Hunterian School of Medicine in Windmill Street, wrote of Snow as to his Benjamin Richardson: "Not particularly given to apprehension, or ready in invention, he had always kept in the foreground by his indefatigable perseverance and determination in following up whatever line of investigation was open to him. The object of this steady pursuit with keen was always right: the moral truth for its own sake, what he sought and found. No consternation of honour or profit seemed to have power to bias his opinions on any subject" (Richardson 1858).

Not a century has elapsed before any work on anesthesia was published, commemorate in scope, quality and originality with that of Snow, and before anaesthesia was to be acknowledged as a science and academic discipline worthy of study of the other specialties.

Snow was interested also in local anesthesia, and on April 10, 1874, he read to the Physiological Society of which he was the Vice-President, a paper on the production of local anesthesia, in which he referred to Dr James Arnett's method of obtaining anesthesia by the application of crushed ice. Snow tried a piece of folded with chloroform and applying it to the skin, preventing evaporation by a covering of oiled silk. But there was no complete anesthesia except when the skin was numbed of its cuticle by a blister. The denuded surface could then be made insensitive even by the vapour of chloroform. He referred also to the method of cooling the skin by "dropping ether on it and increasing the rate of evaporation by a current of air from below. This method recommended by Prof. W. W. Snow was used it with some success for the incision of the callos regions of a leg ulcer. But Snow was never satisfied with the results of these trials and discontinued them in order to 'concentrate his energies on the discovery of what he felt sure must be discovered ultimately - an anaesthetic which might be injected with absolute safety, and which would destroy common sensation without destroying consciousness.' He thought that he had succeeded for a time in this venture with amyl nitrate, but soon deaths began to occur. These he faithfully recorded and as a result of these fatalities discontinued the use.

Chlore Snow's work on clothe has perhaps attracted wider attention than that on anesthesia because it led to the saving of tens of thousands of lives, but was powerfully to strengthen the infant science of epidemiology and medical statistics, it without the aid of accurate observation, recording, and scientific inference.
The Indian or Asiatic cholera first appeared in Britain in houses on the quay in Sunderland in October 1831, although the disease was known here for some years before, and a lengthy description of it had appeared in the 1823 edition of Dr Mason Good's "Study of Medicine".

Snow's interest in cholera had been early aroused. In 1827, at the age of 14, he had left York, his birthplace, to be apprenticed to William Hardcastle in Newcastle upon Tyne. In 1831-2 cholera visited Newcastle in a most fatal form and Hardcastle sent Snow to Killingsworth Colliery to attend sufferers there. The soil of Snow's upland coincided with the growing interest aroused in the conditions of living, especially of the poor, and their contributions to disease, which led to Edwin Chadwick's work on the health of the labouring classes (Poor Law Commission 1842), which initiated the 'sanitary era' of public hygiene, and impelled the efforts of social reformers who urged the eradication of the evils of poverty - crowding, squalor, dirt, lack of sanitation and ventilation and warmth, malnutrition and inadequate clothing. At that time the question of how cholera spread was being widely debated. The view generally held was that emanations from the sick diffused through the atmosphere (miasmas), were inhaled, absorbed by the blood, passed through the lungs, and then poisoned the alimentary tract, giving rise to diarrhoea and vomiting with ultimate collapse and death. Snow countered this view in a short essay "On the Mode of Communication of Cholera" (1835), in which he stated that cholera commences primarily in the alimentary canal, and is due to swallowing of mordant material from the excretions of the victim, usually in drinking water, though it can be transmitted to a distance, e.g. on tea leave. This view was confirmed by the views of the Royal Medical and Chirurgical Society on January 22, 1850, with Dr Thomas Addison of Guy's in the Chair. There Snow emphasized that, unlike influenza which spread as swiftly as a piece of bad news and was communicated by the breath, the cholera poison had to be swallowed to produce its effects, and thus the disease naturally spread more slowly, and that it was found to spread most extensively where there were the greatest facilities for swallowing the excretions. He emphasized that the recent epidemic had proved most fatal in those districts of London where the Star and Garter Hospital was situated, and in the neighbourhood of the chief sewers which would, when cholera was prevalent, contain the evacuations of the patients. This 1849-50 epidemic, of which Snow's observations were based, had started in Bethnal Green and other suburbs in the autumn of 1848, but it was not until the summer and autumn of 1849 that the ravages appeared. In London, in July 1849, there were 1,952 deaths; in August, 4,251; in September, 6,644; thus came a rapid decline. In October there were 464 deaths and in November, 27.

The critical proof of his theory was, however, to await the more sudden though less severe epidemic of 1849-54 in London, and on record in his classic treatise on cholera published in 1855, and a later publication in 1856. Snow mapped out every death from cholera occurring in the districts deriving their water supplies from two companies, namely, those served by the Southwark and Vauxhall Company, and the three districts served wholly by the Lambeth Company. Although both companies had until 1849 drawn their water unfiltered from the Thames at London Bridge, the Lambeth Company in 1852 had removed its works to Thames Ditton, where the supply of water was quite free from the sewage of London. Richardson (1858) records that:

'The result of his [Snow's] endeavours, in so far as scientific satisfaction is a recompense, was truly realized in the discovery of the statistical fact, that of 286 total attacks of cholera, in 1854, occurring in south districts of the metropolis, where water company, the Southwark and Vauxhall, supplied water charged with the London feudal impurities, and another company, the Lambeth, supplied a pure water, the proportion of fatal cases to each 10,000 houses supplied by these waters, was to the Southwark and Vauxhall Company's water 71, to the Lambeth 5.'

The Broad Street Pump episode on which, in the minds of many, Snow's claim to fame rests, is described by Richardson thus:

'In the latter part of August 1854, a severe outbreak of cholera occurred in the north-eastern part of the town, especially in the neighbourhood of Broad-street, Golden-square. Within two hundred and fifty yards of the spot where Cambridge-street joins Broad-street, there were upwards of five hundred fatal attacks of cholera in ten days. To investigate this fearful epidemic at once the self-imposed task of Dr Snow. On the evening of Thursday, 9th of September, he and Dr John Snow were sitting in system consultation on the causes of the visitation. They might well be solaced, for such a pana pox never existed in London since the days of the great plague. People fled from their homes as from instant death, leaving behind them, in their houses, all the mere matter which before they valued most. While, then, the vestrymen were in solemn abulia, they were called to consider a new suggestion. A stranger had asked, in modest speech, for a brief hearing. Dr Snow, the stranger in question, was admitted, and in a few words explained his view of the "head and front of the offending". He had fixed his attention on the Broad-street pump as the source and centre of the calamity. He advised the
removal of the pump-handle as the grand prescription. The venery was incredible, but had the good sense to carry out the advice. The pump-handle was removed, and the plague was stayed.

But, as Bradford Hill (1955) has pointed out, the effect was poor for and not permanent. At least five days before the removal of the pump-handle, the peak incidence had occurred and deaths had been falling rapidly (Table I), a fact which Snow himself had recognized. Has the pump-handle remained in situ it is almost certain that more deaths would have occurred, but the end of the epidemic was, certainly not brought about by its removal. Snow himself had recorded in 1850 an earlier example of closure of a pump. It occurred when, as a result of a fatal series of cases in the neighbourhood of Bridge Street, Blackfriars, St Bride's pump, from which the inhabitants obtained their drinking water, was closed at the insistence of Mr Hutchinson, the surgeon (not the famous Jonathan Hutchinson, who was then 22 years old), but having been re-opened that the well was contaminated by a sewer running into the Fleet ditch.

Table I

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Snow and others detected by William Budd in the drinking water of cholera dysentery in Bristol. Snow recognized that if these cells existed they tended to confirm his view of the nature of cholera, though he was not sure that they were the real cause, and a little later he threw doubt on their existence and on the motives of the original discoverers of those organisms. In this he was in good company, for not only Sir James Paget, but also Sir Bailey and Gull, who spoke for the Sub-Committee of the College of Physicians on cholera fungi, concluded that 'the whole theory of the disease which has recently been propounded is erroneous as far as it is based on the evidence of the bodies in question'. It has been said that one of the reasons why Snow withheld his support of this discovery was that it might detract from his claims to be the originator of the theory that cholera spreads through imbibing water contaminated with infected excreta. Evidence that he held jealousy to this claim is found in the Lectures of 1856. In an address on January 21, 1856, to the Manchester School of Medicine on the progress of medical sciences, Sir James Kay Shuttaworth, whose contributions to education and public health in England had earned him a Baronetcy, said:

The discoveries of Dr Snow, without which the mode of propagation of putreous fever by the cadaverous poison, and Dr Budd's discovery of one mode of the dissemination of cholera, by a poison evolved in the early stage of the decomposition of the specific excretions, are facts which indicate, though they may not prove, the influence of specific virus on the constitution of the blood, and the action of the fluid in a state of disease in the solid parts.

This quickly evoked a reply (February 16, 1856) from Snow claiming priority, which concludes by stressing that the correction he was making was not 'in the way of conviction; but as my researches respecting cholera have been associated with great labour, and very much to the detriment of my more immediate interests, I feel it a duty not to allow the credit of them to pass from me by a mere mistake.'

Brown (1961) revives claims to priority which from time to time have been put forward on behalf of Budd, Snow and Buxton. But Budd himself acknowledged Snow's priority. He wrote in a footnote (p 19) of his 'Malignant Cholera: Its Mode of Propagation, and Its Prevention.' (1849):

Dr Snow, whose ingenious pamphlet on Cholera fell into my hands, was told that these materials were deserving for publication, and has been led, by the consideration of particular instances of some of the facts above alluded to, to the same conclusion as to the part which water...
play in the diffusion of the disease. Of being the first to develop [sic] and to publish this very important conclusion we must, therefore, give the whole merit. To no pan of this merit do I lay the slightest claim. In Dr. Snow's illustration of the entire subject of the propagation and prevention of cholera there is, besides, much that is apt and in such entire accordance with the truth, that the detection of the actual cause of the disease, and the determination of its nature, were all that was wanting to convert his views into a real discovery."

The fungi, which Budd and his colleagues claimed to have seen through the microscope when examining the stools of cholera patients, were almost certainly epithelial cells, starch granules and fat globules. Not until 1853 did Koch discover the cholera vibrio.

Brown (1996) refers to Snow as 'the autumn looser' from Browning's verse:

'And none have grown old among their books To die careless in their ignorance, While autumn loosers... have charmed on truth.'

But Snow did not chance on truth; he searched for it and found it. Hence the question mark in the title of this Address. Snow's method of epidemiological investigation justified the willy-nilly universal admiration which he has attracted for over a century. Sometimes and he was by no means the first to do so, extrapolated prematurely. For example, he stated at the Epidemiological Society on June 3, 1851, that:

'He believed that several diseases, including abdominal pain, and dysentery, were transmitted in the same way as cholera, and that sewage was often caused by drinking the dirty water of nearby places.'

As a physician, the width of his interests is shown by an interwoven paper he delivered in the Lancet in 1857 on the 'Adulteration of Bread [By Alcohol] in a cause of Rheumatism'. His theory was both attractive and plausible. He stated that bones owed their hardness to phosphate of lime, which exists easily formed in many articles of food from which it is assimilated, whilst in rickets the phosphate of lime in the bones is known to be deficient. He says that it is likely that the sulphuric acid of the stomach, which is allied to bread, would decompose the phosphate of lime of wheat forming phosphate of lime which would not be available as nourishment for the bones. Although

we now know his theory is groundless, he put in forward with a wealth of epidemiological and chemical data which reveal once again his chemical knowledge and his scientific approach. Indeed, he was ever prepared to defend the scientific method in medicine against those amateur medical systems of practice based on general impressions and mere report. He wrote in 1846, for example, a strong letter to the Editor of the Lancet condemning him for using the name 'Allopathy' to cover the mode of practice of the physicians which he

'homoeopathic have tried to impose on the profession; for there is nothing which would, in my opinion, tend so much to prolong the brief day of the final and irreversible system of homoeopathy as its acceptance in the term allopathy, so inexplicable to the science of medicine. Its admission would greatly increase the importance of the framers of both terms, and would assist to hide from the public the fact that their practice is opposed by the accumulated experience of all nations, not only that of medical men, but of the people at large. A person knowing but little of medical science, and (sad must ever be the case of the greater number of persons,) would say - Allopathy - homoeopathy - well, doctors disagree, I have tried one, only to find the other.'

It is gratifying to recall that the Editor, the redoubtable Thomas Wakley, cordially concurred that the word 'allopathy' must be admitted to be a misnomer and that the less it was used by professional men the better.

In Garrison's standard 'History of Medicine', John Snow is accorded a dozen lines in which is acknowledged his priority in the theory that cholera is water-borne, probably spread by the mouth, and also his pioneer work in anæthesia. But Garrison is in error in stating that his essay on cholera was awarded a prize of 20,000 francs by the Institute of France. This mistake appears to have been copied from D'Arcy Power's article on Snow in the 1898 edition of the 'Dictionary of National Biography'. But Richardsons (1858) in his memoir had made it clear that although Snow accompanied his uncle, Mr. Emoison, to Paris in April 1856, and died during the visit deposited at the Institute of France a copy of his work, which he submitted as an entry for a prize of 10,000 francs offered for the best means of preventing or curing the disease; 'the decision of the judges has since been published but no note seems to have been made of Dr. Snow's researches.' In a note in 'Medical History', George Edwards (1959) published a letter from the Academy of Sciences which establishes that Snow did not receive the Institute's prize.
Garrison makes a second error in attributing to Snow the pulmonic for ascaphoid infants which Snow described in an early essay which he read to the Westminster Medical Society on October 16, 1841, entitled "Applasia and the Resuscitation of New Born Children." The object of this paper was to introduce to the Society a pulmonic or double-air pump for supporting artificial respiration, but it had been invented by Mr. Reed of Regent Circus. These two errors illustrate once again that though history may not repeat itself the writers of historical texts do.

In this Address, I have sought to convey some of the contribution which Snow made to the advance of medicine in the mid-nineteenth century. It was a time of change from the older authoritarian medicine to a growing appreciation of the role of science and especially the application of physics and chemistry to the study of biological phenomena, could play in medicine. Among those in the front line of these advances was John Snow. To few men has it been given, as to him, to advance on two fronts. His pioneer work in anaesthesia made an impresive and lasting contribution to the relief of suffering of mankind; and his work on the mode of spread of cholera led to the saving of thousands of lives, not from cholera alone, but from all other water- and food-borne diseases. After reading Snow's original works, I share Carlyle's feelings when he wrote: "One comfort is, that Great Men, taken up in any way, are profitable company. We cannot look however imperfectly upon a Great Man, without gaining something by him."

REFERENCES
Carnevali F P (1969) J. med. Soc. Lond. 74, 169

Meeting May 15 1968
The following papers were read:
Nineteenth Century London Dispensaries as Teaching Centres Dr W Harston (Greater London Council)
Some Medical Practitioners in the Pre-professional Era Professor I Fisher (London School of Economics)
Wanted