

JOHN SNOW, M.D., A REPRESENTATIVE OF  
MEDICAL SCIENCE AND ART OF THE  
VICTORIAN ERA

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THE Victorian Faculty of Physic has produced no one man of commanding genius who has remained in medicine, practising the art. It has, however, produced many truly representative men who, in their combined labours, offer a magnificent result of work done and advancement made. Amongst these I should place in the first rank the late Dr. John Snow, and for this reason I bring forward here a sketch of his career for the student of the future.

John Snow was born at York, on June 15th, 1813. He was the eldest son of his parents. His father was a farmer. As a child he showed his love of industry, and increasing years added only to the intensity with which he applied himself to any work that was before him. He was first sent to a private school at York, where he learned all that he could learn there. He was fond of the study of mathematics, and in arithmetic became very proficient. At the age of fourteen he went to Newcastle-on-Tyne, as an articled pupil to Mr. William Hardcastle, surgeon, of that place. He had also the opportunities of studying at the Newcastle Infirmary. During the third year of his apprenticeship, when he was seventeen years old, he formed an idea that the vegetarian system of feeding was the true and the old; and with a consistency which throughout life attended him, tried the system rigidly for more than eight

years. He was a noted swimmer at this time, and could make head against the tide longer than any of his omnivorous friends.

At or about the same time that he adopted his vegetarian views, he also took up the temperance cause. He not only joined the ranks of the total abstinence reformers, but became a powerful advocate of their principles for many succeeding years. In the latter part of his life he occasionally drank a little wine, but his views on the subject remained to the end unchanged. He retained a strong faith in total abstinence, and a belief that it must ultimately become universal.

In 1831–32 cholera visited Newcastle and its neighbourhood, and proved terribly fatal. In the emergency Mr. Snow was sent by Mr. Hardcastle to the Killingworth Colliery, to attend the many sufferers from the disease. In this labour he was indefatigable, and his exertions were crowned with great success. He made also various observations relating to this disease, which proved to him of immense account in after-years.

He left Newcastle in 1833, and engaged himself as assistant to Mr. Watson, of Burnop Field, near Newcastle, with whom he resided for twelve months. Leaving Burnop Field in 1834–5, he revisited his native place, York, for a short stay, and thence to a certain half-inaccessible village called Pately Bridge, in Yorkshire, to act as assistant to Mr. Warburton, surgeon of that place. Eighteen months at Pately Bridge, with many rough rides, a fair share of night work, a good gleanings of experience, and, this sojourn over, our student went back again to York, to remain a few months, and to take an active share in the formation of temperance societies. In leisure days during this period it was his grand amusement to make long walking explora-

tions into the country, collecting all kinds of information—geological, social, sanitary, and architectural.

At last York must again be left, for the London student life was in view. In the summer of 1836 he set off from York to Liverpool, and, trudging it afoot from Liverpool through the whole of North and South Wales, turned London-ward, calling at Bath by the way, on a visit to his uncle, Mr. Empson, to whom, to the end of his life, he was devotedly attached. October 1836—eventful October—brought him to the “great city,” and placed him on the benches of the Hunterian School of Medicine in Windmill Street; a school long since closed, and now as mythical as the mill which gave the name to the locality.

In October 1837 Mr. Snow began to take out his hospital practice at the Westminster Hospital. On May 2nd, 1838, he passed his examination, and was entered duly as a member of the Royal College of Surgeons of England. In October 1838 he passed the Apothecaries’ Hall, and was now duly qualified in medicine. His student days were passed at 11, Bateman’s Buildings, Soho Square.

At this time there existed in London a society (now the “Medical Society of London”), called the “Westminster Medical Society.” It was a society which had long given encouragement to those junior members of the medical profession who might wish for a hearing at its meetings and debates. Mr. Snow was not the man to lose an opportunity such as this. I have often heard him say, both privately and publicly, that, upon his early connection with the “Westminster Medical,” his continuance in London depended, and all his succeeding scientific success. When he first attended the meetings of the “Westminster Medical,” he was very timid; and although he always spoke to the point, he found it difficult to obtain a favourable notice. At first nobody ever replied to what he said. After

a long time some grave counsellor condescended to refer to him as the "last speaker." A little later and somebody ventured to name "the last speaker" by his name. Then some one, bolder still, concurred with Mr. Snow; and ultimately Mr. Snow became recognized more and more, until the presidential honours were his own.

Frith Street, Soho Square, No. 54, was the house at which Mr. Snow, to use his own words, "first nailed up his colours." He removed there from Bateman's Buildings in September 1838. He bought no practice, nor exhibited any pretence, but a more thoroughly girded man for the world's encounter could hardly be conceived than he at this time. He took no wine nor strong drink; he lived on anchorite's fare, clothed plainly, kept no company, and found every amusement in his science books, his experiments, and simple exercise.

To fill up time till the money patients should come, he became one of the visitors of the out-patients of Charing Cross Hospital, and to many a representative of the great poor he extended a skill which would have been a blessing to the great rich. The librarian of the College of Surgeons' Library considered him a quiet man, who read closely, and was not too proud to ask for a translation when an original bothered him. All who knew him said he was a quiet man, very reserved and peculiar—a clever man, but not easy to be understood, and very peculiar.

The connection with the "Westminster Medical" led to Mr. Snow's first attempts at authorship. On October 16th, 1841, he read at the Society a paper on "Asphyxia and on the Resuscitation of New-born Children." The paper in full will be found in the *London Medical Gazette* for November 5th of the same year. The paper is remarkable for the soundness of its reasonings and the advanced knowledge which it displays. The object of the paper was

to introduce to the Society a double air-pump, for supporting artificial respiration, invented by Mr. Read of Regent Circus. The instrument was so devised that by one action of the piston the air in the lungs could be drawn into one of the cylinders, while by the reverse action the expired air could be driven away, and the lungs supplied with a stream of pure air from the second cylinder. There was also advanced, in the concluding part of the communication, the view that the cause of the first inspiration is probably the same as the second or the last, viz., a sensation or impression arising from a want of oxygen in the system. So long as the placenta performs its functions, the fœtus is perfectly at ease, and feels no need of respiration; but whenever this communication between the child and its mother is interrupted, at least in the later months of pregnancy, the child makes convulsive efforts at respiration similar to those made by a drowning animal.

On December 18th, 1841, Mr. Snow was again before the "Westminster Medical" with a very ingenious instrument which he had invented for performing the operation of paracentesis of the thorax. The description of the instrument will be found in the *Medical Gazette* of January 28th, 1842.

In the *Medical Gazette* for November 11th, 1842, Mr. Snow published a note on a new mode for securing the removal of the placenta in cases of retention with hæmorrhage; and in the same journal for March 3rd, 1843, he communicated an essay on the circulation in the capillary vessels. The essay was selected and re-arranged from papers read before the "Westminster Medical" on January 21st and February 4th. We have in this essay an admirable sketch of the capillary circulation. He advanced, on this occasion, the idea that the force of the heart is not alone sufficient to carry on the circulation, but that there is a

force generated in the capillary system which assists the motion. He explained also the great importance of the cutaneous exhalation, and reasoned that in febrile states, accompanied with hot skin, the transpiration from the skin is in reality greater than it is in health.

Pushing on in the higher branches of his profession, and aiming always at the best, the degree of the University of London became a temptation, and *Mr.* became *Dr.* Snow on the 23rd of November, 1843, by passing the M.B. examination. He was enrolled in the second division on this occasion. On the 20th of December in the following year, he passed the M.D. examination, and came out in the first division.

The harass of London life by this time commenced to tell on Dr. Snow. He had suffered a few years previously from threatened symptoms of *Phthisis pulmonalis*, but took plenty of fresh air and recovered. He again became unhinged for work, and in the summer of 1845, was attacked with acute and alarming symptoms of renal disorder. His friend and neighbour, Mr. Peter Marshall, then of Greek Street, afterwards of Bedford Square, gave him his able assistance, and the advice of Dr. Prout and of Dr. Bright was obtained. In the autumn of 1845 he paid a visit to his old colleague, Mr. Joshua Parsons, at Beckington. From Beckington he went to the Isle of Wight, but soon returned to London and was elected Lecturer on Forensic Medicine at the Aldersgate School of Medicine, an appointment held till the school ceased in 1849.

There is no night without its morning. The eventful medical year of 1846 proved the turn of tide season for our struggling Esculapian. In this year the news came over from America that operations could be painlessly performed under the influence of ether.

The fact was just such an one as would at once attract

the earnest attention of Dr. Snow. It was a physiological, as well as a practical fact. It was rational in its meaning, and marvellously humane in its application. The question, once before him, was in a scientific sense his own. His previous experimental studies on respiration and asphyxia had prepared him for this new inquiry; he took it up for its own sake and not from any thought, at the time, of a harvest of gold.

The first inhalations of ether in this country were not so successful as to astonish all the surgeons, or to recommend etherisation as a common practice. The distrust arose from the manner in which the agent was administered. Dr. Snow at once detected this circumstance; and remedied the mistake by making an improved inhaler. He next carried out many experiments on animals and on himself, and brought the administration to great perfection. One day, on coming out of one of the hospitals—I am giving the narrative as he gave it to me—he met a druggist whom he knew bustling along with a large ether apparatus under his arm. “Good morning!” said Dr. Snow. “Good morning to you, doctor!” said the friend; “but don’t detain me, I am giving ether here and there and everywhere, and am getting quite into an ether practice. Good morning, doctor!” Rather peculiar! said the doctor to himself; rather peculiar, certainly! for this man has not the remotest physiological idea. An “ether practice! If he can get an ether practice, perchance some scraps of the same thing might fall to a scientific unfortunate.” Consequently, with his improved inhaler, Dr. Snow lost no time in asking to be allowed to administer ether to the out-patients of St. George’s Hospital, in cases of tooth-drawing. Dr. Fuller, of Manchester Square, standing by, was surprised to see with what happy effects ether was administered when administered properly. A day or two afterwards, a major operation having to be

performed, and the surgeon, Mr. Cutler, not approving of the ether in the way in which it had previously acted, Dr. Fuller remarked on the superiority of Dr. Snow's mode of administering it; and the result was, that he was asked to give it on operating days. He did so with great success. He administered it also at University College with the same success. Liston, then the leading operator, struck with the new man, able as unaffected, took him by the hand; and from that time the ether practice in London came almost exclusively to Dr. Snow.

The new field once open, it were impossible but that he should cultivate it diligently. The Westminster Medical Society was often favoured with his communications and experiments on etherisation; and in the September of 1847 he embodied, in his first work, the whole of his experience up to that time. The work was remarkable for the care with which it was written, and the complete mastery of the subject which it conveyed.

What had been a mere accidental discovery, I had almost said a lucky adventure, was turned by the touch of the master into a veritable science. The book was beginning to be appreciated when the discovery of the application of chloroform threw ether into the shade, and the book with it.

Dr. Snow, though a man of great firmness when once his mind was made up, was always ready for new inquiry. Chloroform, therefore, was no sooner brought before the profession by Dr. Simpson, than he began to institute a series of independent researches, and having satisfied himself personally as to the effects and greater practicability of chloroform, he at once commenced its use, and forgot sooner than most others his predilections for ether. In 1848, he commenced a series of experimental papers on narcotic vapours in the *Medical Gazette*, and continued them until 1851, when the *Medical Gazette* ceased to exist indepen-



dently. The papers on narcotics, in accordance with his other and earlier productions, were stamped with the evidences of profound and careful research, and still more careful deduction. I infer that they have been more talked about than read, for few people seem to be aware of the enlarged and original physiological arguments which they contain. Chloroform and ether are not alone discussed, but all narcotics. Narcotics are not alone considered, but various of the great functions of life. The records of a vast number and variety of experiments are here related, and an amount of information, original in kind, collected, which will always remain as a memorable record in the history of medical literature. But the great points in these papers are those in which the author enters on the physiological action of narcotics. Here appear the generalizations and insights into the relations of allied phenomena which mark the man of true power.

The year of the world's fair in London, 1851, may be considered a fortunate one for Dr. Snow. His affairs had taken a new turn, and the tide was fairly in his favour. He had a positive holiday, physical and mental. The harass of the professional struggle was over, the world was opening its eyes to his intrinsic merits; old friends, brought to the grand show in town, flocked around him, and all was well. He did but little that was new this year, except to write a characteristic letter to Lord Campbell, who was pushing on a Bill in the House of Lords, called the "Prevention of Offences Bill," in which a clause was introduced to prevent, by severe punishment, any attempt that might be made by any person to administer chloroform or other stupefying drug for unlawful purposes. Dr. Snow, believing that Lord Campbell was actuated in introducing this clause by the fact of certain trials having recently occurred for the offence of using chloroform unlawfully, and being him-

self convinced that, in two of the cases, one the case of a robbery in Thrale Street, the other, of a robbery attempted on London Bridge, the evidence against the prisoners, of attempting to produce insensibility by chloroform, was without any reason or possibility, he opposed the afore-named clause in the Bill, on the ground that, if it became law, numerous frivolous and false charges would be constantly brought up against innocent people, or against guilty persons, but persons not guilty of the special charge laid against them, that, namely, of administering a volatile narcotic by inhalation. Knowing that weakness of human nature which leads a man, in the presence of all evidence, never to admit intoxication as possible in his own proper person, Dr. Snow felt that, in any case where an intoxicated person had been robbed, such persons might allege that he had been made insensible by narcotic vapour. The two cases specially noticed in his letter admitted readily of such interpretation, and were clearly not cases in which chloroform had been administered. Lord Campbell, on the receipt of Dr. Snow's letter, referred to it in very complimentary terms in the Lords, but intimated that the reasoning of the letter did not alter his determination.

In the year 1848 Dr. Snow, in the midst of his other occupations, turned his thoughts to the questions of the cause and propagation of cholera. He argued in his own mind that the poison of cholera must be a poison acting on the alimentary canal by being brought into direct contact with the alimentary mucous surface, and not by the inhalation of any effluvia. In all known diseases, so he reasoned, in which the blood is poisoned in the first instance, there are developed certain general symptoms, such as rigors, headache, and quickened pulse; and these symptoms all precede any local demonstration of disease. But in cholera this rule is broken; the symptoms are primarily seated in

the alimentary canal, and all the after-symptoms of a general kind are the results of the flux from the canal. His inference from this was, that the poison of cholera is taken direct into the canal by the mouth. This view led him to consider the media through which the poison is conveyed, and the nature of the poison itself. Several circumstances lent their aid in referring him to water as the chief, though not the only, medium, and to the excreted matters from the patient already stricken with cholera, as the poison. He first broached these ideas to Drs. Garrod and Parkes, early in 1848; but feeling that his data were not sufficiently clear, he waited for several months, and having in 1849 obtained more reliable data, he published his views *in extenso* in a pamphlet entitled "The Mode of Communication of Cholera." During subsequent years, but specially during the great epidemic outbreak of the disease in London in 1854, intent to follow out his grand idea, he went systematically to his work. He laboured personally with untiring zeal. No one but those who knew him intimately can conceive how he laboured, at what cost, and at what risk. Wherever cholera was visitant, there was he in the midst. For the time he laid aside as much as possible the emoluments of practice; and when even, by early rising and late taking rest, he found that all that might be learned was not, from the physical labour implied, within the grasp of one man, he paid for qualified labour. The result of his endeavours, in so far as scientific satisfaction is a realization, was truly realized, in the discovery of the statistical fact, that of 286 fatal attacks of cholera, in 1854, occurring in the south districts of the metropolis, where one water company, the Southwark and Vauxhall, supplied water charged with the London fæcal impurities, and another company, the Lambeth, supplied a pure water, the proportion of fatal cases to each 10,000 houses was to

the Southwark and Vauxhall Company's water 71, to the Lambeth 5.

There was, however, another fact during this epidemic, which more than the rest drew attention to Dr. Snow's labours and deductions. In the latter part of August 1854, a terrific outbreak of cholera commenced in and about 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 500 fatal attacks of cholera in ten days. To investigate this fearful epidemic was at once the self-imposed task of Dr. Snow. On the evening of Thursday, September 7th, the vestrymen of St. James's were sitting in solemn consultation on the causes of the visitation. They might well be solemn, for such a panic possibly 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 haste, all which before they valued most. While, then, the vestrymen were in solemn deliberation, 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 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 vestry was incredulous, but had the good sense to carry out the advice. The pump-handle was removed, and the plague was stayed. It was my privilege, during the life of Dr. Snow, to stand on his side. It is now my duty, as a biographer who feels that his work will not be lost, to claim for him not only the entire originality of the theory of the communication of cholera by the direct introduction of the excreted cholera poison into the alimentary system; but, independently of

that theory, the entire originality of the discovery of a connection between impure water supply and choleraic disease. The whole of his inquiries in regard to cholera were published in 1855, in the second edition of his work on the "Mode of Communication of Cholera"—a work in the preparation and publication of which he spent more than £200 in hard cash, and realized in return scarcely so many shillings.

In 1856, he made a visit to Paris in company with his uncle, Mr. Empson, who having personally known the emperor many years, had on this occasion special imperial favours shown to him, in which the nephew participated. During the visit Dr. Snow lodged a copy of his work on Cholera at the "Institute," in competition for the prize of £1,200 offered for the discovery of a means for preventing or curing the disease. The decision of the judges has since been published, but with no notice of Dr. Snow's researches.

The Medical Society of London, reformed under that name in 1849-50, by amalgamation with the Westminster Medical, was at this time the principal scene of Dr. Snow's scientific exertions. In 1852, the Society elected him as Orator for the ensuing year; and at the eightieth anniversary of the Society, held on March 8th, at the Thatched House Tavern, he delivered an admirable oration on "Continuous Molecular Changes, more particularly in their Relation to Epidemic Diseases." He made no claim to the orator's gown; but the address was too forcible not to call forth the enthusiasm of the audience. He spent nearly twelve months in the preparation of this oration, in which he endeavoured to convey, in the most pleasing manner at his command, a broad view of his observations on the communication of certain spreading diseases. He advanced, on this occasion, the idea that the poison of intermittent

fever, and perhaps yellow fever, is carried direct, like the poison of cholera, into the alimentary system.

Two years after this event, having, meantime, passed the office of vice-president, the Society elected him to the highest honour it can confer,—to the presidential chair. He took his place as President, in his unassuming manner, on March 10th, 1855, delivering a short address. Throughout the year he carried out the duties of his office with great success. One of his presidential acts was peculiarly graceful. One evening, while presiding, Dr. Clutterbuck—then the father, or oldest member of the Society—came into the meeting. The venerable and distinguished old man, then long past his eightieth year, had lately been a stranger to the assembly, and was known but to few of the members. The President, as Dr. Clutterbuck entered the room, rose, and in a way that was irresistible in its simple courtesy resigned his chair to the veteran Esculapian. “It is near fifty years,” said Dr. Clutterbuck with emotion, as he took the proffered seat, “since I last occupied this honourable position.” At the next anniversary meeting, held on March 8th, 1856, Dr. Clutterbuck came to his last meeting, and to see his friend the President play also his last part in presidential duties. At the anniversary dinner on that same day, the President reviewed, in feeling terms, his own career in the professional strife, and expressed that his success in life had originated in his acquaintance with the Society.

In addition to the fellowship of the Medical Society, Dr. Snow belonged to the Royal Medical and Chirurgical, Pathological, and Epidemiological societies, and to the British Medical Association. The Medical Society, from its old associations, was, however, that in which he took the most active part. Next to this, the Epidemiological Society,

founded by the late Mr. Tucker, of Berners Street, claimed his regard.

The position which he took as an epidemiologist was original, and in opposition to the views of many eminent men who had, in matters relating to public health, considerable scientific and political influence.

He contended, in regard to true epidemic disorders, distinguished by specific symptoms, that they are due to a specific poison, which is propagated by certain fixed laws; which attains its progression and increase in and through animal bodies; which is communicated from one animal body to another; and, which is the same in its essence from first to last. This was his position, and he adhered to it. No mere emanation arising from evolution of foul smelling gases can, *per se*, according to his views, originate a specific disease, such as small-pox or scarlet fever; as well expect that the evolution of such gases should plant a plain with oaks or a garden with crocuses. The small-pox may occur over a cesspool as an oak may spring up through a manure heap; but the small-pox would never appear over the cesspool in the absence of its specific poison; nor the oak rise from the manure heap in the absence of the acorn which seeded it.

In 1855 Dr. Snow gave evidence before the select committee on the "Public Health and Nuisances Removal Bill," in which evidence he strove to convey the impressions condensed above. Feeling that he had not been correctly understood, he afterwards wrote a letter to Sir Benjamin Hall, in which he set forth the whole of his argument very distinctly and sensibly. He indicated in this letter that he was no defender of nuisances, but that whereas a bad smell cannot, simply because it is a bad smell, give rise to specific disease, so an offensive business conducted in a place where it ought not to be, should be proceeded against by ordinary

law as a nuisance, without applying to it the word pestiferous, or otherwise dragging in and distorting the science of medicine.

In relation to public health Dr. Snow contributed many other observations. In the first number of my *Journal of Public Health and Sanitary Review*, he communicated a valuable paper, previously read at the Epidemiological Society, on the "Comparative Mortality of Town and Rural Districts;" and, previous to his decease, he was busily occupied in investigating the question of adulteration of bread with alum. He made several analyses of different specimens of bread, but his papers merely leave a brief record of the fact, without any comments or results.

I return for a few moments to some further points connected with his researches on inhalation. In addition to his experiments with volatile narcotics, he carried out for a long time a series of inquiries with other medicinal substances, and administered many remedies by inhalation at Brompton Hospital during a period of twenty months. In 1851, he recorded the result of this experience at the Medical Society of London, and explained the modes of administering various agents. Some, as morphia and stramonium, were inhaled with the aid of heat; others, as hydrocyanic acid and conia, were inhaled at the ordinary temperature. The particulars of these experiments will be found in a short paper in the *London Journal of Medicine* for January 1851.

He continued steadily to investigate the effects of various volatile agents for the production of insensibility, performing a variety of experiments with carbonic acid, carbonic oxide, cyanogen, hydrocyanic acid, Dutch liquid, ammonia, nitrogen, amylovynic ether, puff-ball smoke, allyle, cyanide of ethyle, chloride of amyl, a carbo-hydrogen from Rangoon tar, a carbo-hydrogen coming over with amylene, and



various combinations of these. His grand search was for a narcotic vapour which, having the physical properties and practicability of chloroform, should, in its physiological effects, resemble ether in not producing paralysis of the heart.

First he ascertained the boiling point of the substance under investigation; then the point of saturation of air with the vapour at different temperatures; next the effects of inhalation of the vapour by inferior animals; and finally the quantity required to be inspired, with the air breathed, to produce insensibility. When he had obtained any substance which would produce insensibility favourably on animals, he pushed it, in one or two experiments, to its extreme in animals of different kinds. Then having produced death by the inhalation, both by giving rapidly a large dose, and by giving a small dose for a long period, he observed the mode of death, whether it occurred primarily by cessation of the heart, or by cessation of the respiration. If the agent seemed to promise favourably from these inquiries, he commenced to try it on man; and the first man was invariably his own self. His friends, knowing his unflinching courage in the ardour of his inquiries, often expostulated with him in regard to the risks he ran. It was of no avail. He felt the personal trial a duty, and he did it. I do not believe, as some have supposed, that these personal experiments had any effect in producing his early death; but it is certain that he underwent many risks in the performance of his investigations, and that he held his own life of least value when the lives of others were under consideration.

There is yet another trait in his character which I cannot but notice, and which I would respectfully commend to all physiological inquirers. While he held it as a necessity to use inferior animals for the purpose of experiment, he never

touched a living thing with the physiologist's finger without having before him some definite object; and never performed experiment on any animal without providing with scrupulous care against the infliction of all unnecessary suffering. The interests of humanity were, he thought, best advanced by the universal practice of humanity.

By his earnest labours Dr. Snow soon acquired a professional reputation, in relation to his knowledge of the action of anæsthetics, which spread far and wide, and the people, through the profession, looked up to him from all ranks, as the guide to whom to entrust themselves in "Lethe's walk." On April 7th, 1853, he administered chloroform to Her Majesty at the birth of the Prince Leopold. A note in his diary records the event. The inhalation lasted fifty-three minutes. The chloroform was given on a handkerchief, in fifteen minim doses; and the Queen expressed herself as greatly relieved by the administration. He had previously been consulted on the occasion of the birth of Prince Arthur, in 1850, but had not been called in to render his services. Previous to the birth of Prince Leopold he had been honoured with an interview with His Royal Highness the Prince Albert, and returned much pleased with the Prince's kindness and great intelligence on the scientific points which had formed the subject of their conversation. On April 14th, 1857, another note in the diary records the fact of the second administration of chloroform to Her Majesty, at the birth of the Princess Beatrice. The chloroform again exerted its beneficent influence, and the Queen once more expressed her satisfaction.

Inquisitive folk often overburthened Snow, after these events, with a multitude of questions of an unmeaning kind. He answered them all with good-natured reserve. "Her Majesty is a model patient," was his usual reply: a reply which, he once told me, seemed to answer every purpose,

and was very true. One lady of an inquiring mind, to whom he was administering chloroform, got very loquacious during the period of excitement, and declared she would inhale no more of the vapour unless she were told what the Queen said, word for word, when she was taking it. "Her Majesty," replied the dry doctor, "asked no questions until she had breathed very much longer than you have; and if you will only go on in loyal imitation, I will tell you everything." The patient could not but follow the example held out to her. In a few seconds she forgot all about Queen, Lords, and Commons; and when the time came for a renewal of hostilities, found that her clever witness had gone home, leaving her with the thirst for knowledge still on her tongue.

From the literary and medical history of Dr. Snow, let me turn for a few pages to his history personal as I knew him. He was of middle height, of somewhat slender build, and of sedate expression. His long life in comparative student loneliness had made him reserved in manner to strangers; but with private friends he was always open, and of sweet companionship. With his increased popularity he became less reserved to strangers, and in the last years of his life he so far threw off restraint as to visit the opera occasionally. But he moderated every enjoyment, and let nothing personal stand in the way of his scientific pursuits. He was the impersonation of order. He had his time and place for everything. He kept a diary, in which he recorded the particulars of every case in which he administered chloroform or other anæsthetic, with comments on the results of the administration, and hints as to the dangers avoided or chanced. He kept a record of all his experiments and short notes of observations made by his friends. He rose early, and retired early to rest—at eleven o'clock. He seemed, whenever he was waited on, as though he had

nothing in hand, and was always open to an engagement.

Anything and everything of scientific interest that arrested his attention aroused his enthusiasm and his desire to be of use. When I was living at Mortlake, he would run down, on request, after his day's duties were over, to a *post-mortem*, to see a poor patient, or to take part in an experiment, returning as cheerily as though he had received the heaviest fee. This is but one example of his kindly nature.

He laid no claim to eloquence, nor had he that gift. A peculiar huskiness of voice, indeed, rendered first hearings from him painful; but this was soon felt less on acquaintance, and the ear once accustomed to the peculiarity, the mind was quickly interested in the matter of his discourse, for he always spoke earnestly, clearly, and to the point. In the Societies he spoke very often, and gave expression to views, on which he had spent great thought, with a generous freedom which, in so far as the fame of his originality was concerned, had been better held in reserve. It had been better, that is to say, for him to have carefully elaborated some of his views in the closet, and published them fully, than to have sent them forth in the hurry of debate. Had he lived, he would possibly have collected many stray labours thus put forward, and have given to them the mature consideration which they deserved. One of his views, on which he would have bestowed great attention, refers to the origin of various morbid growths, such as cancer. He believed that these morbid formations are all of local origin; that they arise in the parts of the body where they are found, from some perversion of nutrition; and that the constitutional effects are secondary to, and dependent on, the local disorder. He made many observations on this important subject, notices of which are to be found scattered, here and there, in the proceed-

ings of the Medical Society of London, but no connected record was ever completed.

His private conversation was both instructive and amusing; he was full of humorous anecdotes, which he told in a quiet and irresistibly droll style.

His replies, when under the fire of cross-question, were ready and common-sense. Once, as we have already told, he observed that sulphuric ether is safer than chloroform. "Why, then," said a listener, "do you not use ether?" "I use chloroform," he resumed, "for the same reason that you use phosphorus matches instead of the tinder box. An occasional risk never stands in the way of ready applicability." On another occasion, after one of the meetings of the "Medical Society," when the subject of a specific cholera cell had been under debate, some one asked him, as a poser and rather ironically, where he thought the first cholera cell came from? "Exactly," he replied, with a shrewd look. "But to begin, do you tell *me* where the first tiger or the first upas tree came from; nay, tell me where you came from yourself, and I will then tell you the origin of the first cholera cell, and give you the full history of the first case; but I want a model before I venture on the description of ultimate facts."

As an author his style was plain, clear, and smoothly elegant. His argument was always carefully studied and carefully rendered. He sent manuscript to the printer which required scarcely a letter of correction. Both in writing and speaking he made the expression of truth his first business. Neither provocation nor temptation could ever lead him aside from that principle. His readings were select. He chiefly read scientific works, old and new. He had great relish for some of the old medical writers—the masters in physic. He had read Bacon, but agreed with Harvey's criticism that Bacon wrote science like a lord

chancellor. He had a notion that there had been a history long previous to any we know of from existing records, in which the sciences generally had risen to a greater perfection than they are at this present. His conversance with Sprengel's "History of Medicine" had possibly led him to this opinion. He was fond of general history also, but studied it little. He never read novels, because the hours devoted to them were, he felt, hours thrown away. At the same time he enjoyed as much as any man ridiculous life-pictures naturally cast. When he came to see me, and leisure was with us, I often read to him some of the more amusing passages from Dickens and Thackeray, or from one of the older writers, as Swift. It was a new world to him, and provoked great fun. He would ask to have passages read over again, that he might better realize the conception. He himself observed human character shrewdly, and described it in its humorous phases so well that if he had written as he related he would have ranked as one of the great humorists of the age.

He thought severely of the reviewer's art, and would never of late review any book critically. If a book were good, it carried the review of its own merits. If it were bad, it were better left untouched. He, at all events, with so much original work before him, could not stop to criticize his compeers or their transactions. Let the dead bury their dead; he must march with the living while life gave power.

He admired art, and felt real pleasure in advancing it. He enjoyed innocent recreations, and was ever at home in the family circle. He had his regrets that he had never married, the fates had been against him permanently on that score. He loved the prattle and gaiety of children. When he went to court, arrayed in his court suit, nothing connected with the event delighted him so much as the say-

ing of the child of a friend, who, on seeing him start, with his sword and flattened hat, held up her hands, and exclaimed, "Oh! isn't Dr. Snow *pretty*, mamma." The idea of being considered pretty roused in him quite a new and droll sensation, which he could not help repeating as a rare incident in a courtier's career. The anecdote is simple, but it gives a good idea of the genial and gentle nature of the man.

It has been shown that the tendency of Dr. Snow's mind for philosophical pursuits led him away in some measure from the practical drudgery of professional life. From this fact it has been too hastily inferred that he was therefore, in the common parlance, "not a practitioner." Those who knew him as a practitioner, and had reaped the advantage of his assistance in cases of doubt or difficulty, had a very different opinion. These, with one accord, spoke of him, as having been, without any ostentation, one of the soundest and most acute of our modern physicians. He had great tact in diagnosis; an observant eye, a ready ear, a sound judgment, a memory admirably stored with the recollection of cases bearing on the one in point; and a faculty of grouping together symptoms and foreshadowing results, which very few men have possessed. For my part, I can bear truthful testimony to his eminent qualities as a practitioner, and to the fact that his philosophical labours only served to render him more intelligent and profound in matters relating to diseases and their treatment.

And, when the opportunity offered for obtaining remunerative practice by the exercise of true scientific skill, Snow showed himself, both in act and industry, competent for success. He soon overcame all difficulties, and managed by his frugality to lay in store for a rainy day for himself, and to help such friends as needed. Many rumours as to the extent of his gains abounded which it is right to correct.

His largest income was £1,000 a year; it never exceeded that sum. For this he administered chloroform or other anæsthetic about four hundred and fifty times annually, taking an average of ten years preceding his death. In many cases his services were gratuitously supplied.

In his private relations Dr. Snow was a man of the strictest integrity and purest honour. The experiences of life, instead of entwining round him the vices of the world, had weaned him from the world. Without any pretence, maintaining no connection with sect or party, he carried out a practical religion, independently of any hypothesis or abstruse profession, which few professors could approach. A child of nature, he knew no way of recognising the Divine influences so purely as in silent and inexpressible admiration of those grand external phenomena which each moment convey, to men of his character, the direct impression of a Power all-present and revealing itself for ever.

We approach the end. In the midst of his success, when medicine most valued him and his hand was most powerful, he stood one day in his mental strength, and the next day fell. Death found him at his duty.

On the morning of June 9th, 1858, while at work at the MS. of his last book, "On Chloroform and Other Anæsthetics," he was seized suddenly with paralysis just as he had written the word "*exit*;" and on June 17th, at 3 p.m., he slept the euthanasia. He was buried in Brompton Cemetery, and over his grave a few of us who knew him best erected a simple memorial.

For John Snow, as a representative man of medicine of the Victorian era, we may claim the poetic thought, less the poetic expression, combined with industry, perseverance, and the courage to express his own opinions



boldly when founded on what he honestly felt to be the truth, and, if not the whole truth, nothing but the truth.

He had a patience that was inexhaustible, a devotion for labour unsurpassed, and a slow but sure and reliant comprehension and comprehensiveness which were not easily seen because of their extent. He combined with a stolid firmness distinctively Saxon a rare talent for penetration into obscure problems, for casting aside objects which are coincident or accidental, and for seizing determinately the realities for which he sought.

These attributes, if they do not constitute genius, consecrate life; and, represented by and through a man, a family, or a nation, make the choicest history of the grandest eras.