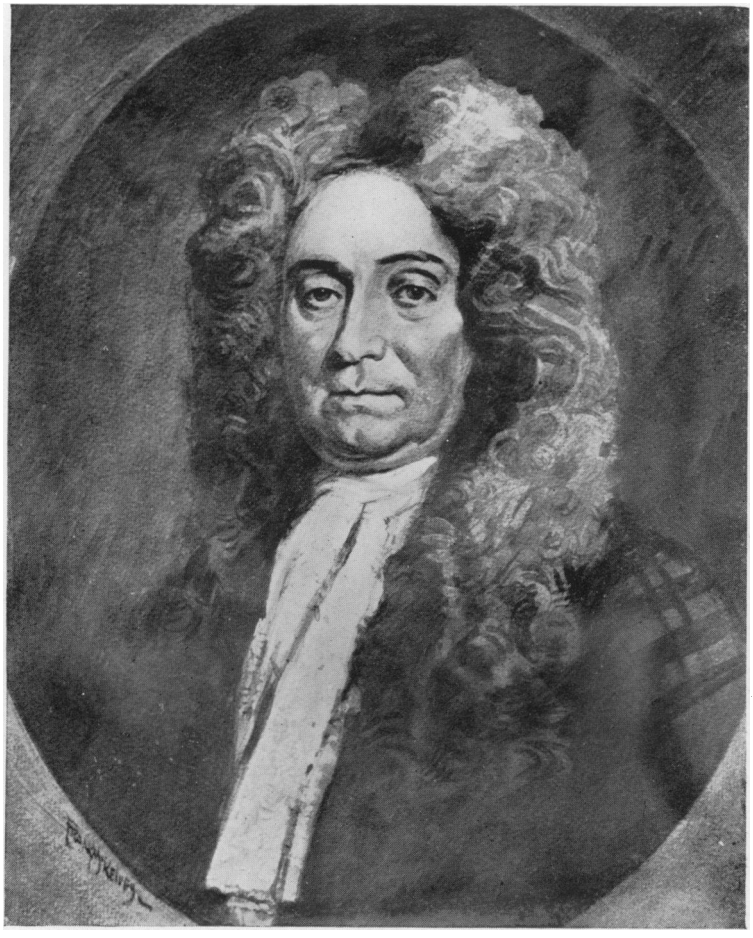

SIR HANS SLOANE, M.D., F.R.S.

Born Killyleagh, Co. Down, 1660. Died Chelsea 1753

(From a drawing in the Belfast Art Gallery)

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Some Aspects of the Life and Times of Sir Hans Sloane

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Among the many Scotsmen who settled in County Down at the time of the plantation of James I was one Alexander Sloane. He lived almost under the shadow of the walls of the great castle of Killyleagh, which, at the time our story opens, was the home of James Hamilton, second Viscount Claneboye, first Earl of Clanbrassil, and of his wife, the Countess Anne. This gracious lady, the eldest of the eight beautiful daughters of the Earl of Monmouth, was greatly beloved by the tenants of the Claneboye estate. As her companion she had brought with her to Ireland Miss Sarah Hickes, whose father was a distinguished English divine, Prebendary of the Cathedral Church of Winchester, and at one time chaplain to no less a personage than the great Archbishop Laud. At Killyleagh Sarah Hickes met and finally married Alexander Sloane, now Receiver-General of Taxes for the County of Down and a man of considerable importance in the neighbourhood.

During the Civil War Lord Claneboye judged it his duty to join himself and his forces with the Royalist troops in Ireland. Disaster followed, and to save his life and estates he was forced to pay a huge fine to the Commonwealth. His health gradually declined, and he died, "corpulent, scorbutic, and dropsical," in the summer of 1659. A few days before his death he drew up a will nominating a few of his most trusted relatives and friends, among them Alexander Sloane, to assist the Countess Anne in the better management and improvement of the estate.

The year after the Earl's death saw the Restoration of Charles II, and the hope of brighter days dawned for those who had been faithful to his cause. Alexander Sloane was appointed a Commissioner of Military Array, which afforded a welcome addition to the income of the Sloane family, for the little house under the grim keep of the castle was now filled by six boys who had followed each other in rapid succession. On 16th April, 1660, a seventh son was born. He was named Hans, which was a family name in the Claneboye connection.

The village of Killyleagh, when Hans Sloane was born, was dominated, as it is to-day, by the great castle which stood at the head of the main street, at the lower end of which was a little inlet of Strangford Lough where ships lay sheltered from all winds. Off the main street, their backs facing the rolling hills of Down, were a few houses, in one of which, close to the castle walls, Hans was born. An ugly street of mean houses now occupies the site, one of which is pointed out as the birthplace of Sir Hans Sloane; but nothing remains of the original house save the ancient fire-irons of the open kitchen hearth, which have been preserved. Above the door has been placed a stone bearing the date 1637, possibly the year when Alexander Sloane built his Irish home. On an eminence above the harbour stood the new church, built in the shape of a cross. Here probably Hans was baptized by the Rev. Wm. Richardson, who was afterwards deposed from his charge for non-conformity by Jeremy Taylor, then Bishop of Down. Mr. Richardson was an accomplished scholar, from whom it is possible Hans received the foundations of that classical knowledge so valuable to him in the future.

Alexander Sloane died when Hans was six years of age. The boy, naturally of a delicate constitution, found his amusements in the study of nature. "I had from my youth been very much pleased with the study of plants and other parts of nature." Strangford Lough must have been a veritable paradise for little Hans, as it afforded a great variety of wild fowl for observation and study—wild geese, great flights of barnacles, duck, gold-heads, widgeon, teal, and different kinds of divers. He visited the Copeland Islands, and marvelled "how the sea-mews laid their eggs on the ground, so thick that he had difficulty in passing along without treading on them, while the birds screamed over his head." With interest he noted the gathering of dulse. This seaweed was destined to form the subject of one of his earliest communications to the Royal Society, in which he mentioned that the Irish, when afflicted with scurvy, were in the habit of chewing this substance, and found it very delightful to their palates. In the bogs near by he watched the turf-diggers at work, and noted with surprise "large pieces of underground wood so soft as to be cut through with the workers' spades, and no harder than cheese, if so hard."

Like most Ulster boys, Hans was brought up in the fear and admonition of the Lord. The influence of his early religious training can be traced all through his life. He continually insisted in his writings on "how the power, wisdom, and providence of God appears nowhere more than in the works of His creation." All through his life he made it his rule "to do to others as I thought I should desire to be done to me in like circumstances." It was his "daily habit to beseech God to direct his belief according to His will, and to conform his actions to it."

The first Viscount Claneboye had in the early stages of his career been a fellow of Trinity College, Dublin, and a distinguished classical scholar. The Castle of Killyleagh contained a good library, and into this, through the friendship of the Countess Anne, Hans had the entry. He early determined to follow the medical profession, and directed his reading along those lines, but at the age of sixteen his studies were interrupted by a spitting of blood, which recurred at intervals during the next three years, and during this period he was practically confined to his room.

He knew enough medicine to realize the significance of his hæmorrhage, and that a malady of this nature was not to be quickly removed, and so, all through his life, he adopted a rigid course of temperance, often quoting his favourite maxim—that sobriety, temperance, and moderation were the best preservatives that nature has vouchsafed to mankind. On his recovery, Hans, now in his nineteenth year, made his way to London, where for the next four years he applied himself with assiduity to his medical studies.

It is doubtful if any country or any age can show such a galaxy of talent as the band of scientific workers then in England—Ray in botany, Boyle in chemistry, Newton in mathematics, Sydenham in medicine, Wren in architecture, and Locke in philosophy. With Boyle and Ray, Sloane came into close contact soon after his arrival in London. With the others he was destined to be associated later in terms of great intimacy and friendship.

Sloane lived in a house in Water Lane, adjoining the laboratory of the Apothecaries' Hall, with Mr. Stapherst, a chemist, under whose instructions he acquired a knowledge of the preparation and uses of most of the chemical substances employed as medicines. But his chemical horizon was widened by his friendship with Robert Boyle, the father of modern chemistry, who taught him that chemistry was the science of the composition of substances, not merely an adjunct to the art of the physician. Boyle was an Irishman, the seventh son of the great Earl of Cork. He was unmarried, having remained faithful to a romantic attachment to a younger sister of Anne, Countess of Clanbrassil. Had the Countess remembered this old romance, and introduced the young student from Killyleagh to the great chemist?

Hans haunted the new Physic Garden lately established by the Company of Apothecaries at Chelsea, for botany, his favourite study, was considered almost the most important subject of the medical curriculum, and an intimate knowledge of the numerous herbs used as drugs was required. His passion for botany brought him under the notice of John Ray, the greatest botanist of his day, and who had just published his classification of plants into mono- and dicotyledons. Ray's correspondence shows that he was not only a great naturalist, but also a fine classical scholar and a man of the noblest character. Between these two a great affection arose which was only terminated by Ray's death twenty-five years later.

Ray and Boyle encouraged Sloane in his hobby of searching for and collecting new plants and other curiosities. Already he had gathered together such a number of rare plans that Ray urged him to publish his discoveries and observations, but the cost entailed in producing the necessary illustrations prevented Sloane from following Ray's advice at this time. He was anxious rather to spend his slender resources in pursuing his medical studies at some of the famous medical schools on the Continent.

In 1683 he and two friends made their way to Paris. Among the Sloane MSS. can be found an account of the day's work in Paris. He entered at six in the morning the Royal Garden of Plants with Tournefort, the youthful Professor of Botany, who demonstrated the plants till eight, after which their virtues were explained till ten, and at two in the afternoon the famous du Verney read upon

anatomy till four, and was succeeded by the chemical professor, who discoursed in French on the experiments to be performed that day. As he also attended the wards of La Charité, Hans must have had a busy day.

He found anatomy represented, not by the stereotyped lectures of the Hall of the Barber-Surgeons, but by du Verney's recent researches, which had laid bare the hidden secrets of the temporal bone and had demonstrated to the students' gaze the mysteries of the organ of hearing. Instead of the infant Garden of Physic by the Thames, before his delighted gaze were spread the gardens of the kings of France, where he could expatiate to his heart's content. Here Tournefort, only four years his senior, in his Provençal accent, told Sloane of the medical fame of Montpelier, of its library filled with unique and priceless manuscripts, of the natural treasures of the south, and the alpine flora of the Pyrénées.

His desire to visit the South of France received an added impetus from Dr. Hotton, a friend of Ray's and Professor of Botany at Leyden, by whom he was advised that, although a Protestant, he could take his degree as Doctor of Physic at the University of Orange. He accordingly went there, and having maintained a thesis with great applause, was admitted in July, 1683, to the M.D. Aurantii.

This university was subject to William, Prince of Orange, afterwards William III of England. Its graduates were recruited from Huguenot families, who were debarred from taking degrees at Paris and Montpelier. It seems to have been merely an examining body, without a *studium generale*. An old document states that it conferred degrees in all faculties upon "vagabond, ribald, unprofitable, and ignorant scholars who had been refused degrees elsewhere." Notwithstanding remonstrances from the neighbouring University of Montpelier and various papal bulls from Rome, the university managed to prolong its "ignoble existence" into the eighteenth century.

Bearing letters of introduction to the learned professors of Montpelier, he was welcomed there, and spent the next year attending lectures and accompanying Magnol—whose name has been immortalized in those lovely shrubs, the magnolia—in his botanizing excursions through Languedoc. At last, slowly he turned his steps homewards *via* Toulouse and Bordeaux, ever collecting natural curiosities and in every place making new and lasting friendships. On his arrival in London, Sloane got in touch with Boyle, and reported to him the most recent advances in chemistry in France, and to Ray he gave a great number of rare plants and seeds which he had collected on his tour.

A marvellous opportunity for commencing practice in London awaited the young physician, rich in enthusiasm and learning, but poor in pocket. Thomas Sydenham was incapacitated from active duty by gout, on which had been superimposed the tortures of a renal calculus. Boyle, his intimate friend, probably knew that he required a pupil to assist him in his practice. Sloane waited upon Sydenham with a letter of recommendation, which stated that the bearer was "a ripe scholar, a good botanist, a skilful anatomist." After Sydenham had perused this eulogy and had eyed the applicant very attentively, he said: "All this is mighty fine, but it won't do. Anatomy, botany—nonsense! No, sir, you must go to the bedside; it is there

you can alone learn disease." Nevertheless, "he was admitted by that judicious physician into the greatest intimacy and friendship, and desired by him to settle in his neighbourhood, that he might introduce him into practice, recommending him in the strongest terms to his patients when he was disabled by the gout from attending them himself, and carrying him to them when he was well."

This period of intimate contact between the receptive brain of the younger man and the mature mind of the father of modern medicine came at a critical period in Sloane's intellectual career. Sydenham taught him to note with the utmost exactness the signs and symptoms seen in each patient, just as he was accustomed to describe minutely the leaves, flower, and fruit of a new plant. As plants presenting similar features were grouped into species, so could cases of illness whose signs and symptoms were similar be grouped into specific diseases. By this process Sydenham had already separated measles and scarlatina. To Sloane this new idea, that diseased processes were but a part of natural history, made a strong appeal, and prevented him from being carried away by the various metaphysical hypotheses then in vogue in the world of medicine.

In the intervals of practice Sloane continued his botanical interests. He was a frequent visitor to the Physic Garden at Chelsea, and watched with interest the installation of a new contrivance "of putting under the floor of the greenhouse a great fireplace which conveys the warmth through the whole house by tunnels, and so making an artificial summer." These artifices were so effectual that in the severe winter of 1684, when the Thames was frozen and used as a high road, scarce any of the fine plants were lost.

He discovered that the bark sold as Peruvian bark was largely the "bark of the black cherry dipped in a tincture of aloes to make it bitter." He pointed out that the adulteration could easily be detected, as "this bitterness wears off with the first touch of the tongue, whereas the true bark is a pretty while in the mouth before it is tasted."

Sloane's prospects in London were now of the rosiest, but he was still possessed of the wanderlust. "I was young," he writes, "and could not be so easy if I had not the pleasure to see what I had heard so much of. . . . These inclinations remained with me some time after I had settled myself to practise physic in London, and had had the honour to be admitted a Fellow of the College of Physicians as well as of the Royal Society. These unmerited favours did not at all alter my mind, but rather incited me to do what I could, to be no useless member, but to cast my mite towards the advancement of Natural Knowledge, and by that means endeavour to deserve a place amongst so many great and worthy persons."

About this time the Duke of Albemarle was appointed governor of the island of Jamaica, and asked Dr. Peter Barwick, his physician, to look out for some one who would take care of him and his family in case of sickness. Dr. Barwick spoke to Dr. Sloane of the matter. "This seemed to me to be such an opportunity as I myself wanted, . . . and after due consideration I resolved to go, provided some preliminaries and conditions were agreed to, which were all granted."

Like the good Ulster Scot that he was, Hans made good terms for himself. He

was to receive £300 down for the necessary preparations and to be paid a salary of £600 a year. When abroad, Sloane showed a fine business instinct by spending practically all his salary in purchasing large quantities of Peruvian bark, an investment which was to yield him a handsome profit.

The death of the Duke some months after his arrival in Jamaica caused the expedition to be cut short, and Sloane accompanied the Duchess back to England. He had been away for twenty months, and the account of this period is contained in the two volumes of his work, "A Voyage to Jamaica," wherein is narrated the story of his voyages and adventures, the life and habits of the settlers in the West Indies, the medical cases he saw and treated, his exploration of the island, and a full description, "with copper plates as large as life," of the eight hundred plants which he collected there.

Sloane was the first man with a scientific training to explore the natural history of the West, and the rich harvest he carried home from this unexplored field excited great surprise and brought him much fame. Others were stimulated "to go to and fro, and knowledge was increased." Among those whose imaginations were stirred was Sir Arthur Rawdon, whose gardens at Moyrah, County Down, were famous. "When Sir Arthur observed the great variety of plants I had brought with me, he sent over to the West Indies Mr. James Harlow, a gardener, to bring the plants themselves alive to him for his garden at Moyrah in Ireland. This Mr. Harlow performed, bringing back with him a ship almost laden with cases of trees and herbs, planted and growing in earth. These were planted in the demesne at Moyrah, and there they grew and came many of them to great perfection." In an old work on County Down written fifty years later, Harris states that some of these trees and plants still remain, and he mentions among them the *calamus aromaticus,* or sweet flag. Gone to-day is the castle of the Rawdons, gone the gardens and parterres, gone the exotics of the West, but the sweet flag, now something of a nuisance, remains, as with its creeping underground roots it grows along the banks of the canal between Lisburn and Moira.

The Duchess of Albemarle, having learnt to appreciate Sloane's skill, appointed him her domestic physician, and introduced him to fashionable practice. He was soon chosen physician to Christ's Hospital, which provided home and education to four hundred orphans. The system of voluntary attendance on charitable institutions was not yet in vogue. Sloane received the salary in order to assert his own right and that of his successors to it, but he never used a penny of it for his personal use, employing the money for the advancement of deserving boys who were receiving their education there. "I shall never have it said of me that I enriched myself by giving health to the poor."

He took a house in Great Russell Street, near Bloomsbury Square. Here he brought as his bride Elizabeth Langley, heiress of a wealthy alderman of the city of London, and widow of a sugar-planter in Jamaica. With her came a large fortune, so that from this time onwards Sloane was freed from any pecuniary worries. The great house soon heard the voices of children, of whom there were four, a boy Hans and three girls. Of these, only two girls, Sarah and Elizabeth,

survived, who married later into the aristocratic families of Stanley and Cadogan.

Hans Sloane was in the habit of rising early, and "from his first getting up was constantly dressed fit to have gone abroad." Until ten every morning he gave the poor of the neighbourhood advice free in his own house, and then sent them to the dispensary of the College of Physicians in Warwick Lane for their physic. The story of this dispensary, in which Sloane played a leading part, is a historic one. In 1687 the College of Physicians had resolved, but not unanimously, that their Fellows should give advice gratuitously to the sick poor. But to give prescriptions to the poor unaccompanied by the means of getting them dispensed was of little use. When the poor brought their prescriptions to the apothecary's shop, they found the charge for dispensing them beyond their means. The physicians asserted, not without reason, that the demands of the drug vendors were extortionate; on the other hand, the apothecaries regarded the poorer classes as their peculiar field for medical practice. To solve the difficulty, some fifty Fellows pledged themselves to subscribe for the preparation of medicine to the poor at cost price, and a dispensary was established for this purpose in the College of Physicians. Many of the leading physicians refused to take part, probably fearing to offend the apothecaries, who were in the habit of calling them in consultation. The college was split into dispensarians and anti-dispensarians. Sir Samuel Garth's mock heroic poem, "The Dispensary," covered the apothecaries and anti-dispensarians with ridicule. In spite of popular opinion and the support of men of letters, the physicians were in the end beaten by the apothecaries. A test case in 1703 against an apothecary for attending and prescribing for a sick man was at first decided in the physicians' favour, but subsequently this decision was reversed by the House of Lords, when it was decided that the duty of the apothecary consisted not only in dispensing medicine, but also in directing and ordering the remedies to be employed. The dispensary at the College was closed in 1724.

Living near by, in Bloomsbury Square, was a Dr. Luke Rugeley, a very eminent and famous physician. Sloane had noticed the marvellous results obtained by his neighbour in the treatment of sore eyes. He was intensely curious to obtain some knowledge of the medicine, but Rugeley jealously guarded the secret which had brought him his great reputation. An application to a very understanding apothecary, who was a particular friend of both the doctors, was without effect. Rugeley died soon after, and Sloane purchased his books and manuscripts. But no trace of the prescription could be found among them. At length a person came to him, and for a pecuniary reward, joined to a promise of not divulging the secret, delivered up the genuine recipe in the doctor's own handwriting. Many years later, "in turning over some manuscripts of Sir Theodore Mayerne's, I found he had known the same ointment and had entered it in his Pharmacopœia under his own name; though I afterwards discovered that it was not originally his, but had been communicated to him by Sir Martin Lister, who had performed a cure with it on Lady Saville which Sir Theodore thought a very extraordinary one. And 'tis very probable that he afterwards communicated it to Dr. Thomas Rugeley, father of Dr. Luke Rugeley, as I find they were contemporaries and friends."

Sloane soon acquired a great reputation for the treatment of eye affections. In his correspondence we find frequent requests for "phials of his eye-water." There did not exist in Sloane's time the same strict code of ethics with regard to the disclosure of beneficial remedies. He did not reveal the nature of this liniment till he was eighty-four and had retired from practice for several years. "I had formerly promised secrecy with regard to this medicine, which I have religiously kept till now, that I think myself for many reasons abundantly absolved." He wants to make it quite clear that this was an exceptional case. "I cannot charge myself with making the least mystery of my practice, for in consultations I have always been very free and open—far from following the example of some physicians of good morals and great reputation who have on many occasions thought it proper to conceal part of their own acquired knowledge, alleging the maxim, *"Artis est celare artem."*

By the beginning of the eighteenth century Sloane's reputation as a physician was firmly established. The Universities of Oxford and Dublin conferred upon him the degree of Doctor of Medicine, while the Academies of Science of Paris, Berlin, St. Petersburg, and Madrid elected him among their foreign members. Of his extensive practice, his correspondence and the literature of the period afford ample evidence. "I have been very near Bath. I went in twenty-four hours and came back very near as quickly on occasion of the sickness of Her Grace the Duchess of Beaufort." He found time, however, on this flying visit to Badminton to inspect her Grace's gardens and wonderful new hothouses, and adds : "I never saw West India plants in such perfection out of their own climate as there." Samuel Pepys, writing to his friend Captain Hatton, says : "You give me hopes of recovery from the care and knowledge of my friend Dr. Sloane." Pepys had been president of the Royal Society in 1685 when Sloane was elected a Fellow. Sloane attended Pepys in his final illness, the cause of death as revealed at autopsy being a pyonephrosis following renal calculus. The gentry of County Down were proud to claim acquaintance with such a distinguished physician, and many of those who were able to visit London made him their medical adviser. The Hamilton family kept in touch with him, and the letters of Lady Jane Hamilton of Tollymore to him are still extant. In these letters, extending over a period of nearly twenty years, we can trace the medical history of this lady, starting with an attack of gallstones, passing through the troubles of the menopause, to end in cardiac defeat. He was consulted frequently by Queen Anne. For the last time he was summoned to Kensington Palace on the 29th July, 1714. Dr. Arbuthnot was there, no quip or jest on his lips, for he had been Anne's beloved physician and he had returned her affection. Mead, the promising young physician, had come in place of Radcliffe, for Radcliffe had taken physic the night before, and lest it might work, he could not come. Four other learned physicians were there in their periwigs and lace ruffles, Sir Richard Blackmore, the would-be poet, Sir David Hamilton, the man-midwife, Dr. Shadwell, and Dr. Laurence. In "England Under Queen Anne," Trevelyan states how two days previously the Council had sat till two in the morning, and regardless of the presence of their royal mistress, who sat drooping with bodily pain and

weakness in the chair, Oxford and Bolingbroke had denounced each other with unseemly violence across the Council chamber. The Queen retired, never to rise again, for an attack of apoplexy attended with convulsions ensued. Did the grave and learned physicians, as they examined the gross, unwieldy body of the dying Queen, remember the numerous dead babies she had borne? If they did, the conventions sealed their lips, and the bulletin was issued that the gout which had long been torturing her Majesty's legs had translated itself upon the brain. Mead, with the dogmatism of youth, declared she could live only a few minutes. Sloane urged that she should be bled. This was done, and after a few hours' suspense the Queen recovered her senses. The doctors attended the Privy Council and stated, "Her Majesty was in a condition to be spoken to." The Queen placed the Lord Treasurer's staff in the hands of the Whig Duke of Shrewsbury, and the succession of the Elector of Hanover was assured.

With the accession of George I, Sloane was created a baronet, the second physician ever to receive a hereditary title, and three years later he was elected president of the College of Physicians. This chair he occupied with dignity for sixteen years (1719-1735), a period exceeded in length only by Sir Henry Halford (1820-44). He found the finances of the College in low water, and with his astute business brain tackled the subject, taking over the debt and accepting a low rate of interest on his loan, in addition to giving a generous subscription to the College funds. He quickly won the confidence of the Princess of Wales, afterward Queen Caroline. Her Royal Highness, having learnt of the practice in vogue in Turkey of engrafting with the smallpox as a preventive against the natural disease, was all the more interested in the subject, because an attack of this disease had somewhat dimmed her beauty, and her eldest daughter, the Princess Anne, had fallen so dangerously ill of the disease that Sir Hans feared greatly for her life. The Princess spoke to Sir Hans on the matter, and he devised a series of experiments to test the efficacy of the new treatment, which were published in the Philosophical Transactions (1755) after his death. He arranged that the princess should beg for the lives of six of the condemned criminals in Newgate, and on these the operation was successfully performed. In order to obviate the objection made by the enemies of this practice that the distemper so produced was only the chicken-pox or swine-pox, and did not secure persons against the true small-pox, Dr. Steigertahl, the German physician to King George I, and Sir Hans joined their purses to pay one of those who had been inoculated in Newgate, and who was then sent to Hertford, where the small-pox was epidemic and very mortal. Here this person nursed, and lay in bed with, one who had it, without himself receiving any new infection. To make a further trial, the princess procured half a dozen of the charity children belonging to St. James' parish, and these were inoculated, and all of them except one (who had had the small-pox before, though she pretended not for the sake of the reward) went through it with the symptoms of a favourable kind of that distemper. After these trials and several others in private families (including Sir Hans's own grandchild), Her Royal Highness asked him his opinion of the inoculation of Princesses Caroline and Amelia. Note how skilfully Sir Hans throws the

onus of decision on the princess. "I answered that it seemed a method of securing people from the great dangers of the natural distemper, and that its practice was very desirable, but I was unwilling to persuade or advise the making trials upon patients of such importance to the public. The princess then asked me, 'Would I dissuade her from it?' To which I made answer that I would not in a matter so likely to be of such advantage. King George having given his permission, the matter was concluded upon, and succeeded as usual without any danger during the operation or the least ill symptom or disorder since."

Sir Hans was always active in promoting the social welfare of the people, and as president he probably inspired the petition sent by the College of Physicians to Parliament submitting to their consideration the great and growing evils resulting from the use of spirituous liquors among persons of all ranks and both sexes, rendering them and their children diseased, unfit for business, a burden to themselves and a charge on their country.

During his presidency the fourth London Pharmacopœia appeared. First published over a hundred years before, little change had been made in its contents. It still contained such disgusting remedies as human perspiration, the excreta of animals, spiders' webs, and such a relic of witchcraft and superstition as the wormian bone from the skull of an executed criminal. Simplicity of prescribing was lost, and a belief was prevalent that what was wanting in efficiency in individual ingredients might be compensated for by the combination of many. In the antidote of Matthiolus against poison and pestilence were massed together all substances imagined to be imbued with alexi-pharmic powers, in all some two hundred and fifty ingredients. Of this medicine Nicholas Culpeper had remarked that if it were stretched out and cut in thongs it would reach round the world!

Already Sydenham had preached the gospel of simpler therapeutics; it was left for his disciple Sir Hans Sloane to attempt to give this doctrine expression in the new Pharmacopœia, which was a great advance on its predecessors, though the compilers acknowledged that the work was but a compromise and a transition from the polypharmacy of previous generations to the simpler methods of prescription then becoming popular. Medicines which had been found of little use were rejected, formulæ which were absurd and incompatible were altered, preparations savouring of superstition were removed, and in general an attempt was made to make the work more consistent with reason and experience. Sir Hans's tidy and scientific mind can be traced in the catalogue of official herbs, which were for the first time clearly defined and means for their identification given.

Let us now retrace our steps to take up the story of Sloane's activities in the Royal Society, of which he had been appointed secretary in 1693. With characteristic energy and enthusiasm he threw himself into the work. The publication of the Transactions, which had for some time been discontinued owing to the unsettled state of public affairs, was now resumed. The letter-books of the time contain copies of numerous letters which he addressed to persons at home and abroad requesting communications on various subjects. It is interesting to trace in some of these the germ of discoveries which in a more perfect state have revolutionized

the condition of mankind. "Mr. Savery entertained the Society with showing his engine to raise water by the force of fire. He was thanked for showing the experiment, which succeeded according to expectation and was approved of." Did any of those present dream that in the hands of Watt and Stephenson this engine was destined to transform the transport of the world? And a communication from Antony Van Leeuwenhoeck, the draper of Delft, was read (Paul de Kruif tells the fascinating story in "Microbe Hunters"): "I was talking to an old man, and my eye chanced to fall on his teeth, which were badly grown over, and that made me ask him when he had last cleaned his mouth. I got for answer that he had never cleaned his teeth in his whole life"; so Leeuwenhoeck examined scrapings from the old man's teeth under his lenses, and he found "a new kind of creature, that slid along bending its body in graceful bows like a snake." The world had to wait until the imagination of Pasteur connected Leeuwenhoeck's animalcules with the causation of disease.

Sloane was blamed for giving too great prominence to medical subjects in the programmes. His special critic was John Woodward, a well-known geologist of the period. Woodward was of a jealous, quarrelsome disposition; and Ralph Thoresby, whose diary gives us much information about this period, calls him "that ill-natured piece of formality." At a Council meeting (in 1710) the quarrel between Sloane and Woodward reached its culmination. Sloane was reading to the Council a communication he had received concerning a *bezoar,* which was the name given to a concretion found in the intestines of goats from Persia and India. *Bezoars* were considered the chief antidote against poisons and, being difficult to procure, were literally worth their weight in gold. By way of explanation to members of Council, Sloane said, "The *bezoar* is a kind of gallstone." Woodward immediately broke in, "No man who understands anatomy would make such an assertion." Later on Woodward again interrupted, "Speak sense or English, and we shall understand you." It was more than even the equanimity of Sloane could stand. He complained that this was not the only occasion on which Dr. Woodward's conduct towards himself had been offensive, and that Woodward had often affronted him by making grimaces at him. Among those present was the witty Dr. Arbuthnot, who begged to be informed "what distortion of a man's face constituted a grimace." But the Council was in no humour for raillery, and demanded that Woodward should apologize, which he refused to do, and after solemn deliberation he was expelled from the Council. Sir Isaac Newton was in the chair, and when it was pleaded in Woodward's favour that he was a good natural philosopher, Sir Isaac remarked "that in order to belong to that Council a man ought to be a good moral philosopher as well as a good natural one."

In 1727 Sir Isaac Newton died. The greatest philosopher of all time, he had presided over the Royal Society for a quarter of a century. To find a successor worthy to fill the chair after the man "who had drawn the veil from Nature's face" was impossible. It was never an easy task, says the author of "The Gold-Headed Cane," to select one able to perform all the duties of that distinguished station. He should be a man of literary and scientific attainments, and so well acquainted

with the history and progress of natural knowledge as to be capable of judging of the value of the contributions of others. He must be a man of discrimination and tact, of good fortune, and of strength of character. He must have a knowledge of foreign languages to do the honours of science to distinguished strangers. It is gratifying to the medical profession and to Ulstermen that in the person of Sir Hans Sloane the Society found all these desiderata fulfilled, and he was chosen to fill the difficult post. He brought to the chair a commanding presence. He was tall and well built, blue-eyed, and of a ruddy complexion, with firm mouth and chin, his natural hair usually covered with an auburn periwig. In all his paintings his long, tapering fingers, with their beautifully-shaped and carefully-tended nails, attract attention. He rightly regarded the presidency of the Royal Society as the crowning and greatest honour of his career. To a great friend he wrote : "I am, though unworthy of that honour, chosen president of the Royal Society, and therefore must cry out to such as you for help." His first act as president was typical of the man. Finding many Fellows in arrear with their subscriptions, he caused immediate steps to be taken to apprise the defaulters of the intention of the Council to enforce payment. With the resulting augmentation of funds he persuaded the Council to depart from the usual custom of purchasing Government securities and to seek a more profitable investment by buying some fifty acres at Acton, then in the country. Later this area became of immense value for building ground.

Sloane is the only man who has ever been president of both the Royal Society and of the Royal College of Physicians.

Sir Hans kept an open table for his learned friends, and the dinner-parties and conversaziones held in his house in Great Russell Street were famous. Dinner was served about five in the afternoon, and was generally a bachelor one, for Lady Sloane was dead and both his daughters were married. He was a sprightly conversationalist with a dry sense of humour. He knew everybody, had read everything published on his own subjects, had travelled extensively, so that the talk never flagged. Sir Hans, owing to his tendency to repeated attacks of hæmoptysis, ate moderately and restricted himself to one glass of wine. After dinner the guests were wont to repair to his museum, where the latest additions to his huge collection were shown and discussed. Then a general tour was made and special treasures were pointed out. Thanks to the researches of Miss Jessie M. Sweet, one can picture the scene. "This beautiful little penknife," Sir Hans used to say, "with a white agate handle and the end of the blade made of gold, once belonged to an alchemist. This imposter had two little knives made alike, except that one had a gold point, the other plain. The pretended elixir was produced, and with a conjuring trick the alchemist changed the plain knife after its dipping, deceiving the eyes of the onlookers by his nimble motion, and brought forth the other with the gold blade; then the grand elixir was spilt on the ground and could never be made again." He showed them wonderful *objets d'art,* and from his pharmaceutical cabinet he would draw out a drawer and show them his *bezoars,* charms, and amulets. "This is the *lapis variolosus,* having marks on it like the small-pox, and therefore said to hinder that distemper from injuring the face if kept about the person diseased."

Pausing before a magnificent pair of horns of the Indian buffalo, fourteen feet from tip to tip, Sir Hans told how he found these in a cellar at Wapping where he had gone to see a barber, who proffered them to him in lieu of a fee.

He exhibited a very heavy blackstone with golden streaks. It had come from his friend John Winthrop of New London. Long after Sloane's death Charles Hatchett was rearranging part of the British Museum collection and came across this specimen. He examined it more closely, and from it isolated the new element columbium.

To his house came many distinguished foreigners. Voltaire presented him with autographed copies of the English Essays and the Essay upon Epic Poetry of the European Nations. With Sloane, Voltaire had many common interests. In France he had strongly advocated inoculation against small-pox. Both were interested in the history and ravages of syphilis, and probably Voltaire discussed with him his idea of stamping out syphilis by a league of nations.

The visit of Handel, the composer, was marred by an unfortunate incident. Some light refreshment was served, and Handel laid his hot, buttered muffin down on one of Sir Hans's most treasured and precious manuscripts. From Handel's description of the scene it is evident that Sir Hans expressed his feelings with some heat!

Pope referred to Sloane in his moral epistles when he says, "And books for Mead and butterflies for Sloane," and in his satires mischievously associated him with Woodward—"Or Sloane's and Woodward's wondrous shelves contain." The following letter from Pope to Sir Hans is of special interest to those who live in Ulster :—

> Sir,
>
> I have many true thanks to pay you for the two joints of the Giant's Causeway (that surprising natural curiosity) which I found yesterday at my return to Twickenham, perfectly safe and entire, and which indeed I have ardently sought for some time. They will be a great ornament to my grotto, which consists wholly of natural productions, owing nothing to the chisel or polish, and which it would be much my ambition to entice you one day to look upon. I will first wait on you at Chelsea and embrace with great pleasure the satisfaction you can, better than any man, afford me of so extensive a view of nature in her most curious works.
>
> I am, with all respect, Sir,
>
> Your most obliged and most humble servant,
>
> A. Pope.

When Sloane was seventy-six he met Linnæus, then twenty-nine, for the first time. Linnæus carried to London a flattering letter from Boerhaave, introducing to the doyen of English botany the young Swede who had just published a work entitled "Fundamenta Botanica," which exhibited the basis of his botanical system. But Sloane was now too old to welcome with enthusiasm revolutionary ideas in his favourite study, and remained loyal to the classifications of his friends, Ray and Tournefort. Linnæus received at Great Russell Street but a chilly reception.

A few years later (1741) we find him writing: "My condition has rendered me unable to follow the practice of my profession," and he removed to the Manor House at Chelsea, which he had purchased some twenty years before. Chelsea was then but a small village by the Thames in the heart of the country. Near by was the Physic Garden of the Apothecaries, the freehold of which Sir Hans presented to the Company on the condition that fifty new plants should be exhibited to the Royal Society every year until the number amounted to two thousand. In token of gratitude to their benefactor, the Company of Apothecaries erected a statue by Rysbrach representing Sir Hans in a full-bottomed wig and doctor's gown, which still keeps guard over this old garden on the Chelsea Embankment, a restful oasis amid the roar of modern London.

For eleven years he enjoyed his well-merited leisure in his beloved Chelsea. He possessed to the end of his life all his rational faculties, except his hearing, which became impaired. His decay was very gradual, and he used to say that some day he would drop like a fruit, fully ripe. He developed none of the peevishness of old age, but always remained considerate and thoughtful of the feelings of others. Here he still received the visits of his learned friends, and among those who rarely missed drinking coffee with him on a Saturday was the librarian of the College of Physicians, George Edwards, a gifted naturalist, whose book on the Natural History of Birds, illustrated by perfectly coloured illustrations, is one of the most beautiful books published in the eighteenth century. Edwards relates how he diverted Sir Hans for an hour or two with the common news of the town and with anything of interest that had happened among his acquaintances. He generally found Sir Hans in the house, but occasionally in his garden in a wheeled chair. During his visits the old man frequently consulted him about the merits of the many petitions he received for charity, especially from decayed branches of families of eminent men late of his acquaintance. All these petitions were considered with attention, and, provided they were found genuine, were always answered by charitable donations.

Some of these lonely hours must have been cheered by the reading of a small book on "The Ancient and Present State of the County of Down," published in 1744, and dedicated to the Honourable Sir Hans Sloane, because of "the relation it bears him as a Native of the County here described." He who had been untiring after the search for the curious, and who had himself reported many rare pathological conditions, must have read with interest the story of the remarkable birth of James Walker, in the parish of Hillsborough, an account of which is given by Dr. John Sedgwick, who officiated at the labour of the mother when Walker was born. "In the year 1718 I being called (says he) to assist the wife of James Walker, who had been in hard labour for three or four days, and given over by the midwife, I found by the bad posture of the pelvis that the fœtus had presented its arms to the birth, which, not being prevented in due time, part of both arms for two days remained born, and part in the birth, which were so swollen by the contractive force of the neck of the uterus that it was impracticable to replace them in their natural situation. In this extremity I ordered their teacher, Mr. Charles Seaton, a dissenting minister of the parish of Anahilt, to which they belonged, to be sent for,

and laid the danger before the husband and him, who agreed with me that it was more humane and Christian to save the mother (if possible), we doubting also that the child was dead. The woman's great importunities to preserve her life at length prevailed; in the presence, therefore, of the husband, Mr. Seaton, the midwife, and others, I dislocated the humeri of the child from the scapulæ, divided the muscular parts with a proper instrument, made a total separation of them from the body, and thereby found means easily to extract the child by the feet, and then with speed and safety brought off the placenta, etc., and safely laid the woman abed. Believing the child was dead, I committed him to the midwife, who laid him aside. Some time after the child shrieked, which surprised us. However, I stitched the wounds crossways, and drew the muscular parts over the scapulas, and then dressed them with dry cotton; and this method not only filled the cavities, but formed little protuberances that appear as stumps."

"The person thus saved is twenty-five years of age, six feet high, slender and narrow-shouldered, active and nimble. He fits a saddle upright and firm, will ride forty miles to a fair, and deals much in buying and selling horses, which he dresses and curries as well as any groom can do, holding the curry-comb between his chin and shoulder. The same way he holds the goad in driving the plough, and the spade when he digs; which actions, however, are uneasy and irksome to him, and he does not practise them much. He throws a stone from the top of his foot with more exactness and greater force than most men can do with their hands, and seldom fails hitting any mark he aims at. He mounts a horse without any assistance and shuffling the bridle over his head till he gets it on his shoulders, he guides the horse with as much skill and as little fear, even a-hunting, as any man can do."

When Sir Hans was eighty-eight years of age he was honoured by a visit from the Prince and Princess of Wales. This is how Dr. Mortimer, secretary of the Royal Society, tells the story in the "Gentleman's Magazine" of 1748 :

"I conducted their Royal Highnesses into the room where Sir Hans was seated, being ancient and infirm. The prince took a chair and sat down by the good old gentleman, expressing the great esteem and value he had for him personally and how much the learned world was obliged to him for his having collected such a vast variety of curiosities. Sir Hans' house formed a square of about one hundred feet on each side, enclosing a court. Three front rooms had tables set along the middle, which were spread over with cases filled with all sorts of precious stones in their natural states—the verdant emerald, the purple amethyst, the golden topaz, the crimson garnet, the azure sapphire, the scarlet ruby, the brilliant diamond, and the glowing opal; other cases delighted the eye with the most magnificent vessels of carnelian, agate, jade, and mocha-stone; another contained stones formed in animals, which are so many diseases of the creature that bears them, as the most beautiful pearls, which are but warts in the shell-fish, the *bezoar,* and stones generated in the kidney and bladder of which man woefully knows the effects.

"When their Royal Highnesses had viewed one room and entered another, the scene was shifted; for when they returned the same tables were covered for a second

course with all sorts of jewels, polished and set after the modern fashion. For the third course the tables were spread with gold and silver ore, with the most precious and remarkable ornaments used in the habits of men from Siberia to the Cape of Good Hope, from Japan to Peru, with ancient and modern coins and medals in gold and silver, the lasting monuments of historical facts. The gallery presented a most surprising prospect filled with beautiful corals, brilliant butterflies, painted shells and gorgeous birds.

"Then a noble vista showed itself through several rooms filled with books, volumes of dried plants, and choice and valuable manuscripts. Below stairs were rooms filled with the curious remains of ancient Egypt, Greece, Etruria, Rome, Britain, and the Indies, with large animals preserved in their skins, and," so the tale goes on, "fifty volumes in folio scarce sufficing to contain the catalogue of this immense museum consisting of above 200,000 articles."

Sir Hans reckoned that this museum had cost him £50,000, and that its real and intrinsic worth was at this period over £80,000. Day by day, night after night, the old man pondered the disposal of his treasures. He hated the thought that the work of his life should after his death be broken up and dispersed far and wide. "I desire very much," he writes in his will, "that these things, tending many ways to the manifestation of the glory of God, to the confutation of atheism, to the use and improvement of physic and other arts and sciences, and to the benefit of mankind, may remain together and not be separated."

The collection was too valuable to be given away without wronging his family, and too valuable to be purchased at their true value by any individual; and so he bequeathed them to his country in terms neither hurtful to the nation nor to his family. His executors were instructed to offer them to his most excellent Majesty, King George II, for the sum of £20,000. A few years later he died on the 11th January, 1753, "without the least pain of body and with a conscious serenity of mind he ended a virtuous and beneficent life."

A greater concourse than ever before seen at Chelsea attended his funeral. The sermon was preached by Dr. Zachary Pearce, Lord Bishop of Bangor, who took as his text the very approprite words, "So teach us to number our days, that we may apply our hearts unto wisdom," his discourse being upon the uncertainty of life and the advantages of a good one and devoid of all "encomiastic flattery," for so Sir Hans had expressed his wishes twenty years previously.

In the same year an Act of Parliament was passed, entitled "An Act for the Purchase of the Museum or Collection of Sir Hans Sloane, Bart." By this Act £100,000 was ordered to be raised by lottery, and this amount being obtained, the mansion of the Duke of Montague was purchased, and the new British Museum was opened for study and public inspection on 15th January, 1759, just six years after Sir Hans's death.

Many years after his death, when the fields of the Manor of Chelsea were covered with streets and squares and crescents, some of these were called by his name. "It was an inspiration," writes Dr. Dawtrey Drewitt in his delightful "Romance of the Apothecaries' Garden," "for Sloane Street well represents the life of Sir

Hans Sloane. Those who walk all the way down it know that it is very *long*, obviously *prosperous*, and perfectly *straight*."

To the man in the street the wisdom of Hans Sloane was as foolishness. Edward Young, the author of "Night Thoughts," wrote of him as "Sloane, the foremost toyman of his time." Horace Walpole, one of his trustees, styled himself "the guardian of embryos and cockle-shells." But fortunate the nation whose "young men shall see visions and whose old men shall dream dreams." The vision of a young Ulsterman and the dreams of his old age gave England the British Museum.

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I should like also to express my thanks to Mr. Arthur Deane, of the Belfast Museum and Art Gallery, for permission to reproduce the portrait of Hans Sloane which appears at the beginning of this publication.

REVIEW

HYGIENE FOR NURSES. By John Guy, M.D., D.P.H.Camb., F.R.F.P. & S. Glas., F.R.C.P.Edin., and G. J. Linklater, O.B.E., M.D., D.T.M. & H., M.R.C.P.Edin. Fourth edition. Edinburgh: E. & S. Livingstone, 1937. pp. 219; figs. 22. Price 4s. 6d.

This little book, as its title implies, is intended for those preparing for the Preliminary Examination of the General Nursing Council. Both authors are examiners in hygiene to the Council, and their experience is that "too much stress has hitherto been laid on the communal aspect of hygiene, namely, sewage systems, water supplies, etc." They have endeavoured to counteract this by cutting down the space devoted to these subjcts and by concentrating on the personal aspect of hygiene, such as dress, personal habits, care of children, and dietetics.

With this attitude we are in entire agreement. It seems in the highest degree unlikely that even the district nurse—who is expected to be able to turn her hand to most things—will ever be responsible for the sewerage and water supplies of her area. She may, however, have to give advice in rural districts where flourish the shallow well, and the pail closet, now often dismissed, perhaps too hastily, from the pages of hygiene textbooks.

It is, however, in her contact with single individuals that the nurse's most important work is done, and this book provides enough up-to-date and clearly expressed information to enable her to practise and preach the chief principles of healthy living and preventive medicine. The chapters on Dietetics, with their examples of adequate and inadequate or unbalanced diets, are especially good. They should enable the nurse to give real help to harassed mothers trying to bring up healthy families on a limited income.

We feel sure that the present edition, thoroughly revised, especially as regards Infancy, Food Poisoning, and Milk Grading, will have the same welcome as the previous editions.