LONDON

(Ancient and Modern)

From the Sanitary and Medical Point of View.

G. V. POORE, M.D., F.R.C.P.

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THE CENTRE OF LONDON IN 1658, REPRODUCED FROM NEWCOURT'S MAP. [*Frontispiece.*

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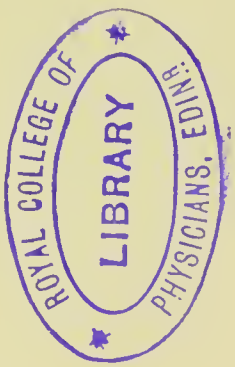

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PREFACE.

THIS little book is an expansion of two addresses delivered in January, 1889.

One of these addresses, which deals with the Sanitary Aspects of Ancient and Modern London, was given in the Parkes Museum of the Sanitary Institute, and was written for a mixed audience. The other formed the subject of the annual address to the Students' Medical Society at University College, London, and was written for an audience which might be expected to have a special interest in the History of Medicine in London.

Both have already appeared in print; the first in *Public Health*, the journal of the Society of Medical Officers of Health; and the second in the *Lancet*. For the loan of most of the woodcuts the author is indebted to the Publishers of the *Lancet*, who kindly undertook, when the lecture was appearing in their columns, to illustrate it with five illustrations, which were made especially for the purpose. One illustration has been supplied by the proprietors of *Public Health*, and four have been borrowed from "Cassell's Old and New London."

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LONDON FROM THE SANITARY POINT OF VIEW.

In considering the sanitary conditions of a great city like London, it behoves us to remember that it has been a place of importance since the days of the Roman occupation of this country—that is, for some 1,500 years.

A place that has been peopled for centuries is very apt, in the absence of special precautions, to become unwholesome by reason of the vast accumulation of refuse. Roman London is many yards beneath the surface of the present City. It has been deeply buried, and by what? By refuse and debris from every source; and this in itself is necessarily a danger to health, and doubtless has in times past greatly tended to produce many of those diseases for which mediæval (and even modern) London was noted.

SITUATION.

The situation of ancient London was most convenient for commerce, and fairly good from a sanitary point of view. The advantages of its situation have been dwelt upon by many writers, and were well summed up by Edward Chamberlayne, who thus speaks of it in his

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"Present State of England" (1682), a work which was analogous in many respects to the "Whitaker's Almanack" of the present day.

Chamberlayne says:—"In the most excellent situation of London the profound wisdom of our ancestors is very conspicuous and admirable. It is seated in a pleasant evergreen valley, upon a gentle rising bank in an excellent air, in a wholesome soil mixed with gravel and sand upon the famous navigable river Thames, at a place where it is cast into a crescent, that so each part of the City might enjoy the benefit of the river, and yet not be far distant one from the other; about sixty miles from the sea; not so near, that it might be in danger of surprise by the fleets of foreign enemies, or be annoyed by the boisterous wind and unwholesome vapours of the sea; yet not so far but that by the help of the tide every twelve hours, ships of great burden may be brought into her heaving bosom; nor yet so far but that it may enjoy the milder, warmer vapours of the eastern, southern, and western seas; yet so far up in the country as it might also easily partake even of all the country commodities; in an excellent air upon the north side of the river (for the villages seated on the south side are noted to be unhealthy in regard of the vapours drawn upon them by the sun), but roughed by gentle hills from the north and south winds.

"The highways leading from all parts to this noble city are large, smooth, straight and fair; no mountains nor rocks, no marshes nor lakes to hinder carriages and passengers." * * *

Chamberlayne, in speaking of the Thames, is, as well he may be, loud in its praise:

"The river whereon is seated this great city, for its breadth, depth, gentle, straight, even course, extraordinary wholesome water, and tides, is more commodious for

navigation than any other river in the world. * * * This river opening *eastward* towards Germany and France, is much more advantageous for traffic than any other river of England. To say nothing of the variety of excellent fish within this river—above all of the incomparable salmon—the fruitful, fat soil, the pleasant rich meadows and innumerable stately palaces on both sides thereof; in a word, the Thames seems to be the very radical moisture of this city, and in some sense, the natural heat too; for almost all the fuel for firing is brought up this river from Newcastle, Scotland, Kent, Essex, etc., or else down the river from Surrey, Middlesex, etc."

After dwelling on the shipping and commerce of the Thames, he concludes his article on London by stating "that London is a huge magazine of men, money, ships, horses and ammunition, of all sorts of commodities necessary or expedient for the use or pleasure of mankind. That London is the mighty rendezvous of nobility, gentry, courtiers, divines, lawyers, physicians, merchants, seamen, and all kinds of excellent artificers, of the most refined wits, and most excellent beauties; for it is observed that in most families of England, if there be any son or daughter that excels the rest in beauty or wit, or perhaps courage or industry, or any other rare quality, London is their *north star*, and they are never at rest till they point directly thither."

A writer of a much earlier date, William Fitz-Stephen, who in 1180 prefixed an account of London to his biography of Thomas-à-Becket, has also some remarks about the situation of London, from which I will make a quotation.

"On the north are cornfields, pastures, and delightful meadows, intermixed with pleasant streams, on which stands many a mill, whose clack is so grateful to the ear. Beyond them an immense forest extends itself, beautified

with woods and groves, and full of the lairs and coverts of beasts and game, stags, bucks, boars, and wild bulls."

"The fields above-mentioned are by no means hungry gravel or barren sands, but may vie with the fertile plains of Asia, as capable of producing the most luxuriant crops and filling the barns of the hinds and farmers.

"Round the city and towards the north arise certain excellent springs at a small distance, whose waters are sweet, salubrious, clear," and

"Whose runnels murmur o'er the shining stones."

WATER SUPPLY.

This final remark of Fitz-Stephen's leads me to make a few observations about the water supply of ancient London, which originally was abundant and excellent.

It is probable that in pre-historic times the rising ground upon which the "City" is built was an island, the Thames in those days being much wider and shallower than at present. Even a writer so late as Fitz-Stephen mentions the fact that Moorfields was used for skating, and the derivation of the name "London" which finds most favour with philologists is from the Celtic *Llyn din*, which means the Lake fortress.

Many watercourses ran from the north into the Thames, the names of which are still attached to districts or streets in the Metropolitan area. Thus, beginning at the East, one has to mention *Langbourn*, a watercourse flowing through what is now Langbourne Ward in the City, taking its course from Aldgate along Fenchurch Street, and probably flowing into the *Wall Brook*, a stream which divided the city into nearly equal halves, and flowed from Moorgate to Dowgate, through the Bank of England and the Poultry, and the name of which still remains in a ward and a street. The river *Fleet* rose by Highgate Ponds, and meandered through St. Pancras to

King's Cross, where is "Battle Bridge;" thence its course skirted the western side of Clerkenwell, and, flowing at the foot of Saffron Hill, Snow Hill, Holborn Hill, and Ludgate Hill, reached the Thames at Blackfriars.

Farther west was *Tybourn*, which rose at Hampstead and flowed through what is now the ornamental water in the Regent's Park. Then becoming locally known as the Marybourne, its name was associated with the village of Marylebone; it then took the circuitous course of what is now Marylebone Lane, crossed Oxford Street opposite the end of Davies Street, crossed Brook Street, which was named from this fact, then flowed at the back of Bond Street to Bruton Street. In Bruton Street is a curious circuitous mews, which marks its course, running to the south-east corner of Berkeley Square, whence the Tybourne struck west, dividing Devonshire House from Lansdowne House, where now there is a sunken passage between the garden walls. Thence it reached Piccadilly at its lowest point, and flowed through the Green Park to Buckingham Palace. Here it divided, and reached the Thames near Vauxhall Bridge to the west, and near Westminster Bridge to the east, a smaller delta formed by the eastward branch forming Thorney Island, associated with the palace of Edward the Confessor and the monks of St. Peter's Abbey.

The *Westbourne* also rose at the foot of the Northern Hills, flowed through Kilburn and Bayswater, both suggestive names, through the Serpentine to Knightsbridge, another suggestive name, and so to the Thames at Chelsea Bridge, apparently forming by its course the western boundary of the Grosvenor Estate.

These watercourses have all disappeared, because in this Christian country there is no respect for the purity of pure water. They became so swinishly filthy, that for

very shame we have covered them up, and when the time arrives for covering up the Thames, which we are so systematically fouling in the same way, I have no doubt that our engineers will be equal to the task.

It is very interesting to follow the course of these old streams, and it will be found that the explanation of the circuitous course of some streets (such, for example, as Marylebone Lane), is explained by their following the line of a forgotten rivulet. Nothing can give us a better idea of the change which has come over London than to go into the City and search for Walbrook or Langbourne, or to come west and look for the Tybourne at the end of Conduit Street and follow its course thence to Piccadilly. I hope that those who amuse themselves by taking such a walk as I have advised, will ponder well upon how much we have lost by being obliged to cover them, and why we were obliged to cover them, and will take a lesson from these reflections. If he does that his time will not be wasted.

In a district so intersected by pure streams, it was an easy matter to have a well of good water, and throughout London there were many such wells. Good water, in fact, abounded on every side, and it is noteworthy that the Romans have left us no remains of gigantic aqueducts, such as they knew well how to construct; for the very good reason that they were not necessary.

The first public waterworks were the Conduits in Cheapside and Cornhill. Those in Cheapside were supplied by the Tybourne, the water of which was captured near what is now Stratford Place, and conducted to the City in leaden pipes. Lamb's Conduit was another, the name of which remains. This was at Holborn Bridge (a bridge over the Fleet), and its water came from fields near the Foundling Hospital. There were many other Conduits, and it must be borne in mind that local names

ending in *well* generally indicate the position of a neighbouring water source.

When these watercourses were open London was a very different place. The Lord Mayor kept his pack of hounds in those days, and in Aggas's map, made in the reign of Elizabeth, one may see the "dogge house" in Finsbury Fields, for the Lord Mayor was Lord of the Manor of Finsbury, and here he had his kennels, and frequently he would go a hunting, and when he made his tour of inspection of the Conduit heads at Tybourne, he took his pack with him and combined business with pleasure. Strype records that in 1562 they hunted a hare here, and having dined at the Suburban Banqueting House in Stratford Place, they started out again after dinner and killed a fox. How much inspection the watercourses received on these occasions is not certain.

The first waterworks in London were those constructed by Master Peter Morrys, a Dutch engineer, in 1582. His plan was to utilise the enormous force with which the Thames rushed through the nineteen narrow arches of old London Bridge, and for this purpose the Corporation granted him a lease of the first arch on the City side for 500 years, at a rental of 10s. a year, and two years later the second arch was given on similar terms. In 1701 a third arch was leased to a grandson of Morrys, and at this time the proprietary rights were sold to Richard Soams, a goldsmith, for £36,000, who converted it into a Company of 300 shares of £500 each. In 1761 a fourth arch of the bridge was given to the Company, and two other arches were closed to give additional force to the water-wheels. The passage of the narrow arches of the bridge was at all times difficult, and the process of shooting London Bridge, with a fall of some five feet through the arch, was not without danger. This blocking of the bridge caused great complaints, but, nevertheless,

the Company continued to ask for more, and with success, so that in 1767 the first five arches were occupied with immense water wheels, and two arches on the Surrey side were similarly occupied. We gather that the Company at this time also possessed a "fire-engine." The last wheels were put up under the advice of Brindley and Smeaton. The wheels were of the undershot variety, and by their power 2,000 gallons of water per minute were raised to a height of 120 feet, through a pipe which passed over the tower of St. Magnus' Church. These wheels continued in use for 240 years, until 1822, when the Act for re-building London Bridge caused their removal. The pumping machinery was of its kind excellent, but the mains were very defective, and there was much loss by leakage, and leakage also caused great damage to the bridge. The chief mains ran in Bishopsgate Street, Cheapside, Aldgate, Fleet Street, and Newgate Street. The fact that the London Bridge Waterworks were in use until 1822 is important, as showing that the Thames water up to that time was not so grossly impure as to preclude the possibility of distributing it for household purposes without filtration. It is not conceivable that such a course could be adopted at the present day. The impurities of Fleet Ditch were due to slop water, and to material negligently thrown into it, and it was probable that only during a sharp shower, when the filth of the streets was washed into it, it reached that state of impurity which Swift has described. Water-carried sewage, as we understand it, was not then in common use, and cesspools were not allowed to empty into the sewers; and Public Authorities were not expected to relieve individuals of responsibility and to undertake duties, the satisfactory accomplishment of which is impossible.

The first of the great water companies was the "New River," constructed by Sir Hugh Myddleton and opened

in 1613. This was a conduit on the old pattern, but on a larger scale, and did not involve the use of pumping machinery. It brought the water of Chadwell spring in Hertfordshire, which is 110 feet above ordinance datum, to the New River head at Clerkenwell, whence it was distributed through the City. Many additional sources of water have been added to the original Chadwell spring, and many powerful pumping engines are now in use by the New River Water Company, which is still the biggest of eight metropolitan companies. The areas supplied by the different water companies may be briefly indicated. The "New River" supplies the northern part of the metropolitan area; the "East London," which dates from 1669, supplies the north-east; the "Kent," which dates its early beginnings from 1701, supplies the south-east. The "Southwark and Vauxhall" in its present form dates from 1845, the "Lambeth" from 1785, the "Chelsea" from 1723, the "Grand Junction" from 1811, and the "West Middlesex" from 1806.

These eight companies supply about 140,000,000 gallons of water daily (about one half being from the Thames) to 668,525 houses, by means of 145 engines of 17,145 horse-power, through 4,068 miles of mains, and by the aid of a capital of £13,150,318.

It is difficult for us to appreciate such a quantity as 140,000,000 gallons, but we may grasp it better if we imagine this water put into 1,400,000 water-butts, of 100 gallons each, and each 4 feet high. These butts placed end to end would reach considerably more than 1,000 miles, and that, be it remembered, is a statement of the daily water supply of this city, which is certainly well within the mark.

The great fault in the situation of London was the proximity to it on every side of marshy land. The Thames, as I have stated, was formerly much wider than at present.

Certain it is that Moorfields to the north was often flooded; to the immediate east and north-east was marshy ground, stretching into Essex; to the west was the low district of Thorney Island, Chelsea, and Fulham, while on the opposite bank of the Thames was the ground around Southwark and Lambeth, which was little better than a swamp, and remained unbuilt upon, except to a very slight extent, until the end of the last century.

Ague is at present a rare disease in London, although one still occasionally meets with cases which are apparently due to local causes. Formerly it was a very potent cause of death, but the discovery of the use of "Jesuits' Bark," as Cinchona was at first called, and the gradual and continuous filling up of the soil, combined with drainage, led to its extinction. Possibly the impregnation of the soil with coal-gas may have helped to this end.

MEDIÆVAL LONDON.

Mediæval London was a town in which the clerical element predominated. I have upon the screen a very beautiful drawing which appeared in the *Builder* newspaper, and which is an imaginative and authoritative reconstruction of the London of Henry VIII., by Mr. W. H. Brewer, whose great talents will be obvious to all who look at his picture. London at that time must have been exceedingly beautiful, filled as it was by grand ecclesiastical and monastic institutions.

The artist's point of view is from some coign of vantage east of the Tower. In front of him, in the middle distance, forming at once the centre and apex of the picture, is old St. Paul's, with its lofty steeple towering to a height of 500 feet, and placed on an eminence which enhances its commanding importance.

To the left is the noble river, its broad expanse dotted with many a craft, and forming a superb sweep to the

south-west, where it is lost beyond the Abbey of Westminster, which forms the most distant object to the left of the spectator. The chief feature in the foreground is "The Tower," a noble mixture of military, palatial, ecclesiastical, and domestic architecture. Beyond it, and to the south, is old London Bridge, probably the most picturesque structure of the kind that the world has ever seen, with its quaint houses and graceful chapel, and with the clear water of the Thames roaring through its nineteen narrow arches. On the south side of the bridge is the church of the Priory of St. Mary Overy (St. Saviour's, Southwark), as it may still be seen, and near it the great palace of the Bishops of Winchester, with the marshy ground of Southwark and Lambeth, and Lambeth Palace in the distance. Running northward from the Tower is the castellated city wall, with its brimming ditch filled with water flowing from the shallow lake of Moorfields. Between the wall and the spectator is a series of grand ecclesiastical buildings, with St. Katherine's Hospital to the south, and St. Mary Spital to the north, and between them Eastminster or the Abbey of Grace, the Abbey of St. Clare in the Minories, and the church of St. Botolph. Behind the city wall is seen a bewildering wealth of tower and spire and gabled roof.

By the river bank among wharves and quaint mediæval warehouses, St. Magnus' steeple, the stern towers of Baynard's Castle, and the buildings of the Blackfriars are conspicuous; while in the same direction, and beyond the Fleet river, is Bridewell Palace, the huge tower of the Whitefriars, the Temple, St. Dunstan's Church, Exeter House, Arundel House, the Savoy, and York Place. Along the eastern limits of the City are St. Dunstan's, St. Margaret Pattens, All Hallows Barking, the great Minster of the Friars of the Holy Cross, and the still larger Priory of the Holy Trinity in Aldgate.

Near Bishopsgate is the large establishment of the Augustinians, and beyond this again the Grey Friars, the Priory of St. Bartholomew, the Charter House, and the Priory of St. John, Clerkenwell. In the centre of the City is an almost endless array of parish churches, with here and there the high-pitched roof of some guild house, or the residence of a nobleman or wealthy merchant.

GARDENS AND PLEASURE GROUNDS.

These ecclesiastical foundations generally had gardens attached to them, and in the time of Henry VIII. and the subsequent Tudor monarchs, who discouraged building in London, the houses were by no means so closely packed as at present. It is usual to find in walled cities that the houses are packed as closely as possible within the walls; but this most certainly was not the case in London. A glance at Aggas's or Ryther's map (a copy of which is given in Mr. Loftie's admirable "History of London") will convince one of this. The houses enclose a great deal of garden ground in every direction, especially in the northern and north-eastern portions of the city. It was along the river bank that the crowding of houses was greatest, but even here there were open spaces; and I must remind you that Pepys, who lived in Seething Lane in the time of Charles II., when the crowding in the City had very much increased, makes frequent mention of his garden.

Mr. Loftie tells us that in 1276 an inquiry was held as to the cause of death of one Adam Shott, who had fallen from a pear tree in the garden of one Laurence, in the parish of St. Michael Paternoster, which was close to Thames Street. St. Martin Pomeroy, a church formerly in Ironmonger Lane, is supposed to have derived its name from an adjoining orchard. We know

that Sir John Crosbie built Crosbie Place, now a restaurant, in Bishopsgate Street, on part of the land forming the gardens of the adjoining Convent of St. Helen's. Sir Thomas Gresham's house in Bishopsgate Street also had its garden, and we know that the College of Physicians had a physic garden, first at Amen Corner, and subsequently in Warwick Lane.

The Priory of the Augustinians, or Austin Friars, included a large tract of land. A part of it was given to the Marquis of Winchester, who built Winchester House, which occupied the site of Winchester Street and Buildings in Old Broad Street; and Drapers' Hall was originally the house of Thomas Cromwell, who made what till a very few years since was known as Drapers' Gardens by the simple process of stealing portions from the gardens of his neighbours, they not daring to quarrel with so great and so arbitrary a person. Immediately outside the walls was any amount of open space. The houses of the nobles along the Strand had each of them its ornamental garden. The Templars had their garden, which still remains. The Priory of St. Bartholomew had its garden; the Carthusians at the Charterhouse had their garden. Hotspur lived in Aldersgate Street, Prince Rupert lived in Barbican, and the dismal spot now known as Bridgewater Square was once occupied by the Earl of Bridgewater's house and garden. Old Gerard, the herbalist, had his garden in Holborn, where he raised the potato, and he superintended Burleigh's garden in the Strand. Hatton Gardens were famous when Sir Christopher Hatton lived there in state. Gray's Inn Garden was planted by Francis Bacon. Grocers' Hall had its garden, with hedge-rows and a bowling alley. The Merchant Taylors, the Ironmongers, the Salters, and the Barber-Surgeons had each of them gardens attached to their halls. The chief garden, or

pleasure ground, for the citizens was Moorfields. This was originally a wild, undrained place, which extended from the City wall right away to the villages of Islington and Hoxton. According to Loftie, it appears that in 1274 the citizens called in question certain Acts of the previous Mayor, one Walter Hervey. They accused him of certain "presumptuous acts and injuries," and the first of these appears to have been that "He had not attended at the Exchequer to show the citizens' title to the Moor." From this it would appear that over 600 years ago Moorfields was regarded as a common for the use and enjoyment of all, and it appears to have been used more or less for these purposes down to the close of the last century, and it is to be found in all maps. Moorfields was used for archery and for exercising the train-bands, that is, it was so used after it was drained, which was first attempted in the fifteenth century. At one time, the people living near Moorfields put up fences and showed a disposition to encroach on the moor, but the citizens, taking the law into their own hands, levelled the obstructions. When Moorfields had been drained, a part of it was planted, and it became a fashionable promenade, and in some maps it is shown as planted with intersecting avenues. According to Mr. Denton, the historian of Cripplegate, the northern part of Moorfields was the property of the Dean and Chapter of St. Paul's being leased merely to the Corporation, together with the Manor of Finsbury. The southern part, however, was, according to the same authority, the gift of Catherine and Mary Fynes to the City Corporation in trust for the citizens. Finsbury Square was built on the northern part in 1768, and finally, in 1812, the Corporation obtained an enabling Act from Parliament and put Finsbury Circus on the lower half, and thus perished the People's Park after existing 800 years. The building

upon this open space was a very short-sighted policy, and it says very little for the spirit of Londoners that such a policy was able to be carried out. The first encroachments on Moorfields took place, probably, after the fire, when thousands of citizens were homeless, and the Moor was used as a temporary place of encampment. Many of the houses then erected appear to have been fairly substantial, and it is probable that encroachments having been made in consequence of a sudden and dire necessity, and possession being nine points of the law, the City of London lost its park. Part of Moorfields had been used during the plague as a plague pit, and towards the end of the 17th century the great burial ground for dissenters, Bunhill Fields, was here established. The Artillery ground, once the exercising ground of the train-bands, still remains, and it is fortunate that the extinction of the Honourable Artillery Company has been averted and has not resulted in this "eligible building plot" being leased at so much a square foot.

Moorfields is gone, the Drapers' Garden is gone, and the wealthy City of London has now the proud distinction of being without any public recreation ground within its limits.

It is true that the Corporation has bought Epping Forest, in the county of Essex, and Burnham Beeches, in the county of Buckinghamshire, and all honour to them for so doing; but it must be remembered that a third-class return ticket to Loughton, the centre of Epping Forest, costs 1s. 7d., and that to go from and return to Fenchurch Street takes one and a half hours, while a return third-class ticket from Mansion House to Slough, which is, I think, the station for Burnham Beeches, costs 3s. 6d., and the journey to and fro takes four hours at least, so that if each of the 51,000 people

who reside in the City pay one visit to each of their parks, they would do so at a minimum cost of nearly £13,000, and at a necessary loss (collectively) of 281,000 hours, which at 3d. an hour means an additional £3,500.

It is at least doubtful whether, if Moorfields could be restored as a playground for the City, it would not be of more use to the City, from the point of view of the health of those who dwell in it, than are the Essex and Buckinghamshire estates. Almost every inch of available ground in the City has been built upon. Goodman's Fields, once a farm where Stowe used to buy three pints of milk for a halfpenny, is now covered with houses. Spitalfields was once an open space, but it is an open space no longer. Paternoster Square has its centre packed with buildings, and for aught I know there is nothing to prevent the occupation in a similar way of the centres of Finsbury Square and Circus, Lincoln's Inn Fields, the Gardens of the Temple and Gray's Inn, of Russell and Bloomsbury Square, and, in short, of every inch of green that can be turned into money.

The gradual obliteration of open spaces in London is seen not only in public and semi-public spaces, but also in the curtilage of private houses. Before the introduction of our modern system of sewerage and water supply, it was not possible to build houses without adequate curtilage for a well and the bestowal of refuse, and this obvious fact is borne out by a reference to the maps of 1558, 1658, and 1720, which are hung upon the screen. It is noteworthy that Newcourt's map of the time of Charles II. shows that the houses in the City were much more closely packed than in the time of Elizabeth, and it is probable that just before the Plague and the Fire the crowding of houses was excessive.

The diagram (p. 23) shows the growth of London between 1560 and 1889. The notable features being (*a*)

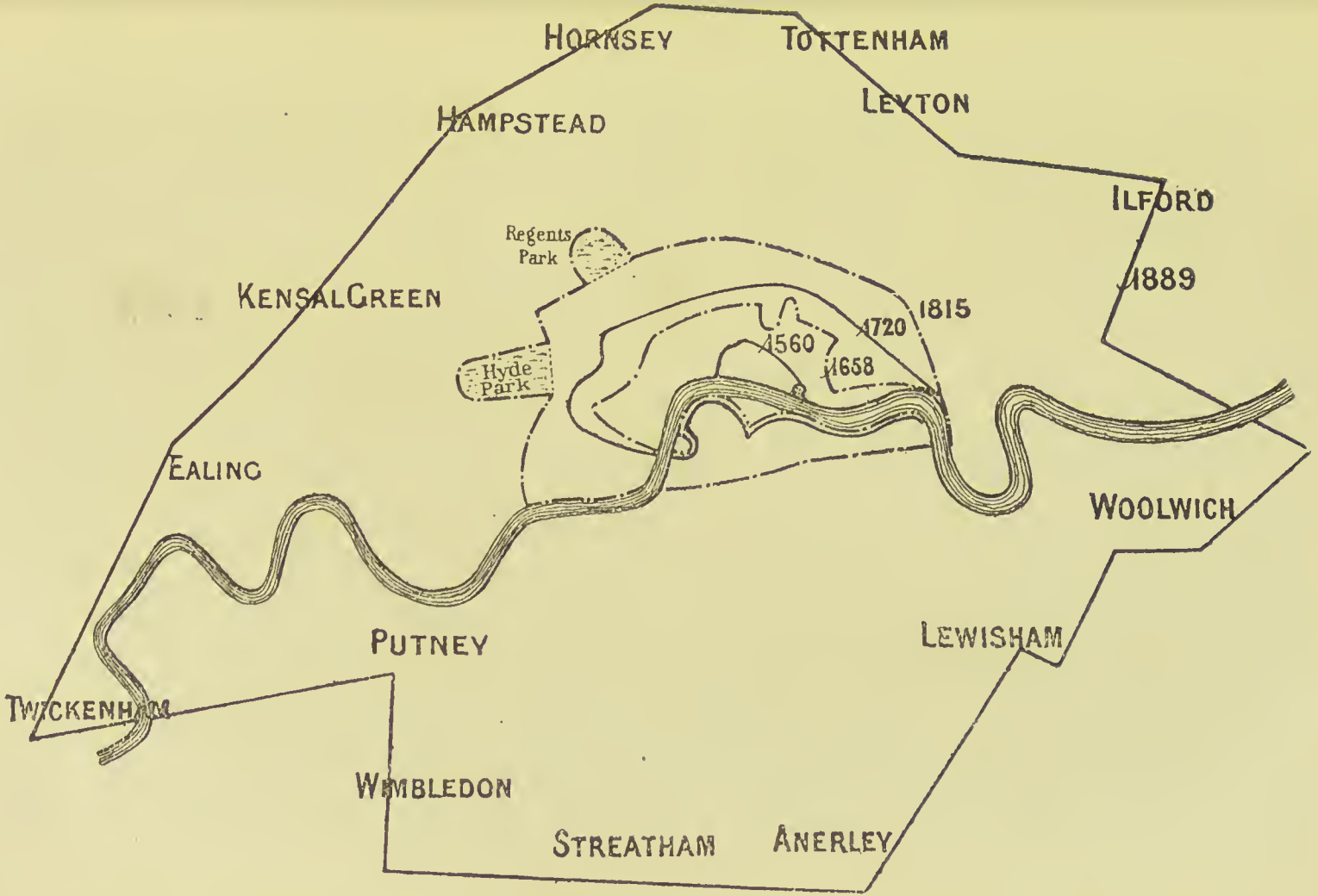


DIAGRAM SHOWING THE SIZE OF LONDON AT DIFFERENT PERIODS BETWEEN 1560 AND 1889.

the very rapid extension of the London area since 1815, and (*b*) the fact that the marshy land south of the Thames has only been covered with buildings within comparatively recent times. The frontispiece is a reproduction of part of Newcourt's map (1658) showing that the houses in the centre of London were very densely packed. It also shows the position of Moorfields, and the Drapers' Garden, which are alluded to in the text.

HEALTH OF OLD LONDON.

That mediæval London was very unhealthy there is no question, but whether it was more or less unhealthy than other cities of the time is doubtful. It would be difficult, however, to conceive a worse state of public health than that prevalent in old London.

Exact information on the subject is not to be had. It was not till 1593 that deaths were registered and published by the parish clerks, but the record of deaths without a knowledge of population does not make it possible to hazard even a guess at the death-rate.

The Parish Clerks' Bills of Mortality show clearly that from 1593 to the year 1800, *i.e.*, for 207 years, the deaths invariably exceeded the births, and often to an enormous extent, the maximum being reached in the memorable year 1665, when the deaths were 87,339, as against 9,967 births. Taking the whole of the 18th century, it would appear from a table given by Henderson, in the "Encyclopædia Britannica," that of the births and deaths registered, the excess of the latter averaged about 6,000 a year, or 600,000 for the century. At one time leprosy was common in London, and we know that in the reign of Edward III. the "black death," which was probably plague, committed frightful ravages, and is said to have killed 100,000 in London; and this scourge reappeared at intervals up to the year 1665, the mortality

then being enormously in excess of the very high mortality which was habitual.

Between 1485 and 1551 there were epidemics of the sweating sickness, a disease different from plague but scarcely less deadly.

We all know what epidemics of plague and sweating sickness did for London, but it may be thought that epidemics are accidental visitations, and are no criterion of the general health of the city. The numbers I have quoted from Henderson will make it impossible for us to believe that old London was at any time healthy, not even after the fire and the rebuilding.

What were the chief ordinary diseases of London? This question may be answered by reference to the bills of mortality. I will take the year 1661, when 19,771 deaths were registered by the parish clerks, and will note those diseases which are credited with more than 100 deaths. These were: Abortive and still-born, 511; chrisomes and infants, 1,400; ague, 3,490; dysentery (bloody flux, scouring and flux), 314; childbed, 224; aged, 1,302; apoplexy and suddenly, 108; colic, 186; consumption, 3,788; convulsions, 1,198; dropsy and tympany, 967; flox and small-pox, 1,246; griping in the guts, 1,061; jaundice, 141; imposthume, 160; measles, 188; rickets, 413; rising of the lights, 227; spotted fever and purples, 335; stopping of the stomach, 170; surfeit, 212; teeth and worms, 1,195. Looking at the table, and using the best of my judgment in interpreting it, I should say that about one-fourth of the deaths were due to the accidents of parturition and the diseases of infants, and another fourth due to fevers. It is to be noted also that plague is answerable for 20 deaths, although this was not a plague year.

What were the causes of the high mortality in Old London?

The situation was not healthy because of the marshy surroundings of the city. Ague and dysentery were always present, and were terribly fatal. Not only was the ground around the city marshy, but it was probably filthy as well. The old town ditch was used as a receptacle for all kinds of filth, and the cleansing of it was a great work, which was only occasionally undertaken. When Moorfields was drained, and the other marshy districts improved, one great cause of sickness disappeared.

The city itself was certainly as foul as could be. The streets were unpaved, or paved only with rough cobble stones. There were no side walks. The houses projected over the roadway, and were unprovided with rain-water gutters, and during a shower the rain fell from the roofs into the middle of the street. These streets were filthy from constant contributions of slops and ordure from animals and human beings. There were no underground drains, and the soil of the town was soaked with the filth of centuries. This sodden condition of the soil must have affected the wells to a greater or less extent.

The streets were filthy without, the houses were filthy within. The rooms of the poor were more like pig-styes than human habitations, unventilated, and strewn with rushes, which were seldom changed; and the wretched inhabitants closely packed in these miserable hovels must have become very prone to suffer from infection of all kinds. Another great cause of unhealthiness was the diet, which amongst the poor was composed largely of salt meat and fish, and with an absence of fresh vegetables, so that many of the inhabitants must have been on the verge of scurvy. The potato was not imported till the end of the sixteenth century, and the eighteenth was well advanced before it

became a common article of diet. Much of the improvement in public health of late years is due to this wholesome and easily stored vegetable. In the days of Elizabeth the children of Christ's Hospital were often ill from scurvy, and it was not till 1767 that the potato was introduced into the dietary of St. Bartholomew's Hospital.

A most important factor in the causation of disease was the moral condition of the population, which was very low, and marked by superstition, ignorance, and brutality. An age when even the better classes crowded into Smithfield to see some poor wretch burnt; when the most brutal punishments were inflicted for comparatively slight offences; when kings beheaded their subjects and even their wives, almost as a matter of course; when the ghastly heads of executed persons stared from the city gates; when religious-minded Puritans could do nothing with a misguided king but behead him; and when restored "monarchy" exhumed the dead bodies of political offenders in order that it might wreak an unmeaning vengeance on a corpse; and when even ladies in good positions in society flocked to see these sickening exhibitions,* was not an age in which the nobler feelings of Christianity were easily evoked; and without these feelings, measures for securing public health, which cannot be fostered except in connection with public decency, found no place among the ideas of governors or governed.

The public amusements were many of them brutal and cruel. Tournaments were less brutal than bear-baiting, bull-baiting, and cock-fighting, because they

* "To my Lady Batten's; where my wife and she are lately come back again from being abroad, and seeing of Cromwell, Ireton, and Bradshaw hanged and buried at Tyburne."—"Pepys's Diary," Jan. 31, 1660–61.

fostered animal courage; but animal courage it most distinctly was.

Fitz-Stephen mentions the drunkenness of the population in the 12th century, and there can be little doubt that when beer was the only drink—the drink which Queen Elizabeth took for breakfast—a state of fuddle from drink must have been exceedingly common. From Chamberlayne's "Present State of England," I gather that in the year after the Fire, 452,563 barrels of strong beer, at 12s. 6d. the barrel; 580,420 barrels of ale, at 16s. the barrel; and 489,797 barrels of small beer, at 6s. 6d. the barrel, were consumed in London, which (if we take the population at that time at 500,000) allows about three barrels, or 108 gallons, or some 1,440 pints per head per annum.

Again, Chamberlayne, speaking of the causes of the Great Fire, mentions: 1. "The drunkenness and supine negligence of the baker and his servants in whose house it began. 2. The dead time of night wherein it began, when some were wearied with working, others filled with drink, and all in a dead sleep."

The brutality of the people's amusements continued down to the end of the last century, and later. Thus in Pink's "History of Clerkenwell," I find the following advertisement culled from a journal of 1716:—

"At the Bear-garden at Hockley-in-the-Hole, at the request of several persons of quality, on Monday the 4th of this instant of June, is one of the largest and most mischievous bears that ever was seen in England to be baited to death, with other variety of bull-baiting, and bear-baiting; as also a wild bull to be turned loose in the Game Place, with fireworks all over him. To begin exactly at 3 o'clock in the afternoon, because the sport continues long."

Close by, in Spa Fields, female prize fights were held, and there is a lively account of one of these en-

counters in which "Bruising Peg" terribly damaged her antagonist. In such a time, of course, foot-pads abounded, and it was not without danger that persons crossed Spa Fields after dark; and those who were invited to Sadler's Wells, to see a man eat a live cock, feathers and all, for a wager of £5, were informed that the New Road and City Road would be patrolled, and that the return home would be without danger.

Such facts as these, which I could multiply to any extent, show the rough moral condition of the populace, and I believe that, with such a state of moral feeling, any real improvement in public health was impossible.

Another cause of the high death-rate was superstition, which regarded disease as a "visitation" which had to be borne without question or inquiry.

With such an attitude towards epidemics, which by some were regarded as due to an unfortunate conjunction of certain planets, it is not to be wondered at that the epidemics were mismanaged; and it is certainly difficult to imagine any measure better calculated to cause the spread of the plague than that of forbidding those affected to leave their houses, and compelling them to stay indoors and infect the rest of the household. The most efficient of all measures which we nowadays adopt for preserving the public health is that of the instant separation of the sick from among the healthy, a plan which had been adopted in old time in the case of "leprosy," and which we re-introduced in the last century, when the first small-pox hospital was built.

Another great cause of the high mortality was the ignorance of the physicians, who were almost as superstitious as the populace, and who were entirely without any exact or correct knowledge of their art, which they practised almost entirely by the light of the old Greek, Roman, and Arabian writers.

To recapitulate, the causes of the high death-rate were probably the following :—

1. The prevalence of ague from the abundant marshes.

2. The dirt of the city and the houses, and the probable infection of wells from a soil sodden with putrefactive matter.

3. The ill-nourished, drunken, and scorbutic condition of the people, and

4. Their condition of superstition and brutality, which made any rules for public health impossible.

5. The neglect to separate the infected from the healthy.

6. The ignorance of the doctors.

We may get some idea of the state of public health during the sixteenth and seventeenth centuries by a reference to the families of monarchs.

The difficulty of rearing children was very largely experienced in royal families. I have, by the help of Burke's "Peerage," made a list of all the children of monarchs (other than those who ascended the throne) whose ages at death are given by that genealogist.

This difficulty of rearing children, which began in the reign of Edward III., becomes very marked with the reign of Henry VIII., who, as we are told by Froude, was disappointed by a succession of still-born children borne to him by his first wife.

Of the children of James I., three out of five died under 3 ; of the children of Charles I., the ages at death were 29, 26, 20, 15, 4, 1 ; of eleven children of James II., by two wives, one (the old Pretender) attained the age of 78, and of another the age is doubtful, but eight died under 4, and two others died at 11 and 15 ; of the six

children of Anne, one reached the age of 11, and the remaining six died under 1 year.

With the accession of George I. this difficulty of rearing royal families appears to have ceased, having been more or less marked during the reigns of 21 monarchs, intervening between Edward III. and George I. What the cause may have been I will not discuss, but I mention the fact because it is probable that causes which affected kings affected subjects also.

There can be no doubt that down to the commencement of the present century London was a veritable feverbed, the causes of death being largely malarial fever, spotted or typhus fever, plague, small-pox, measles, scarlet fever, and whooping-cough, the two latter being comparatively recent introductions.

THE LONDON "DEATH RATE."

The present writers on London, like their predecessors, are loud in its praises and blind to its defects, and they point to a figure which is called "the death-rate," and ask us to accept it as evidence that the state of public health in London is as good as can be.

It is quite true that the death-rate of London is low, and that it is not much in excess of the country at large, and is very much below that of some of the big towns scattered through the kingdom. Nevertheless, before we accept this figure and rest contented with it, we must take several facts into consideration.

1. The London of the Registrar-General is very extensive, and no small part of it is rural or semi-rural in character. Many of the dwellers in Lewisham, Wandsworth, Fulham, Hampstead, Hackney, Greenwich, Camberwell, and Woolwich, can hardly be looked upon as dwellers in a city, and it must be remembered that the death-rates in these districts, which contain only from 40

to 8 persons to an acre, tend very materially to reduce the death-rate of the whole town.

2. London is very largely a city of wealthy and well-to-do people, most of whom must be looked upon as sojourners rather than dwellers in the city. Among such as these, who can command every luxury and necessary of life, including change of air, death-rates ought to be low. It is manifestly unfair to contrast the death-rate of St. George's, Hanover Square, or Kensington, with the death-rate of a town packed with the wage-earning class.

3. The mobility of the London population is so great that it must vitiate any statistics bearing on the health of the inhabitants. "Londoners" are a mixture of races, recruited from every clime from China to Peru. They are, as the phrase goes, "Here to day and gone to-morrow," and probably no one fact quickens their departure more than ill-health. I am told by the proprietor of Kelly's Post Office Directory that the annual correction of addresses amounts to about ten per cent. of the whole, so that the London population shifts on an average completely every ten years, even among classes who have far more stability than the labouring classes. It is also well to point out that these changes in the Directory do not represent all the changes, because in trade it is common for new individuals to trade under an old and established name. I find, on comparing the Directories of 1880 and 1889, that in my own street of 96 houses there have been 87 changes of names, and that 96 houses are now credited with the addresses of 140 individuals, whereas in 1880 the individuals numbered 120.

4. Still more important, as vitiating the value of the "death-rate," is the abnormal age distribution in London. In London (and especially in the central portions of it) there is a great deficiency of young children and old

people, among whom the death-rate is always highest ; the population of London is largely composed of selected adults imported from the country, among whom the death-rate ought to be low.

5. The continued low death-rate of London is very largely accounted for by the diminishing birth-rate. Thus the birth-rate for the ten years 1877-86 averaged 34·4 and the death-rate 21·2, while for the year 1887 the birth-rate was 31·6 and the death-rate 19·5. This is a diminution of 2·8 per 1,000 of population in the birth-rate. This, in a population of 4,250,000, means a deficit of 11,900 children ; and as out of every 1,000 children born in London in 1887, 158 died before they were one year old (*i.e.*, 13 per 1,000 more than in England as a whole, and 66 per 1,000 more than in the county of Dorsetshire), it is evident that this diminution of the birth-rate entails a deficit of 1,940 in the total deaths occurring in London in the year. It is clear from this that in taking account of a diminishing death-rate we have to take into consideration the diminishing birth-rate also.

These considerations make it very doubtful whether the death-rate of London is of much value, as indicating the amount of disease in the City. Even if we accept it we must not draw any hasty conclusions that the disease-rate bears any definite proportion to the death-rate. There may be much disease with comparatively few deaths, as was the case with the scarlet fever epidemic of last year, and there can be no doubt that the improvement and extension of medical knowledge has very largely diminished the death-rate of those who are sick. Further, an enormous proportion of those who fall ill in London return to the country to die.

A fact which must throw considerable doubt on the healthiness (*i.e.*, a real vigorous and robust condition, which is the true meaning of health) of the population is

the amount of sickness, as evidenced by the ever-increasing work which is thrown upon the hospitals.

According to a table which was published last June in *The Hospital*, it appears that in 1887 there were treated in the London hospitals 79,261 in-patients, and 1,180,251 out-patients, or a total of 1,259,512 persons, excluding those who received relief in the hospitals belonging to the Asylums Board (and these were very numerous, owing to the epidemic of scarlet fever), the workhouse infirmaries, the lunatic asylums, and idiot asylums. Thus it appears that in a city whose death-rate was very low more than 25 per cent. of the population had recourse to the hospitals for relief. We must therefore conclude that the death-rate and the disease-rate bear no fixed ratio to each other, especially when we consider that between 2,000 and 3,000 medical men found sufficient work among the population to furnish them with an income. If deaths be few in London, it is clear that second-rate health is by no means exceptional.

IMPROVED CONDITION OF MODERN LONDON.

Although we have to make many allowances, and take many things into consideration before we can estimate the true value of the London death-rate, it is, of course, undeniable that an enormous improvement in the health of the City has taken place since the beginning of the present century. To what is this due?

The chief cause is the increase of knowledge as to the modes in which diseases are spread. Our knowledge of the mode in which small-pox, scarlet fever, cholera, and typhoid are disseminated has led to the establishment of fever hospitals, and to the improvement of the water-supply, and the inspection of dairies. It is not only that the knowledge of doctors has increased, but what is more important, this knowledge has spread to the public, and

as "self-preservation is the first law of nature," the public has assisted in protecting itself.

The practice of vaccination, and the dealing with epidemics by the method of isolation, have also materially assisted in diminishing the death-rate.

Another very important point is the disappearance of malaria. Drainage, the filling up of low-lying places, and extensive building operations, have banished malaria from our midst, and this, be it remembered, was not only a cause of death in itself, but probably tended to make other diseases more deadly. It is conceivable that the impregnation of the soil by coal-gas may have helped to stop the growth of noxious microbes which make the soil their habitat.

Again, our system of sewers, which has carried filth away from the dwellings, has probably assisted in improving the public health. That sewers have done and are doing much harm as well as good is undoubted, but it is probable that the balance is so far in their favour. For the present typhus fever has disappeared, and this is probably due to two causes—first, the prompt separation of the sick from the healthy, and secondly, to the fact that we have had no scarcity for some years. Typhus is due to overcrowding and want. I have drawn up a scheme which shows by a curve the average price of wheat from the year 1800 to 1886. From this it appears that the staple article of food has, broadly speaking, and with some considerable fluctuation, fallen steadily in price from 1812 to the present time, when it is at its minimum. Not only wheat, but all articles of food and clothing, and also fuel, have of late years been getting steadily cheaper; potatoes and other vegetables are in common use among the masses, and thus we have kept away famine diseases, and also that taint of scurvy, which was undoubtedly a great cause of ill-health in the middle ages. A most important fact

has been the removal of the in-take of the water companies to a part of the river containing less sewage than that between the bridges. It is not enough to be able to rejoice in a small death-rate. We ought to be able to look ahead and feel that to the best of our knowledge there is no probability of the return of a high one, and that our sanitary arrangements having been set a-going, will continue *propriâ motu.* We have to remember that diseases disappear or become unimportant, and that others become prominent. In our own day we have seen the rise in importance of diphtheria and enteric fever, and just at present we seem to have lost sight of typhus, for a long time the most important of the febrile diseases. "Leprosy," which was at one time common in London, has practically disappeared. Plague, sweating sickness, and malarial fever have also gone. Whooping-cough was not recognised till the end of the sixteenth century, and could not, therefore, have been as common as it is now. In like manner, scarlet fever was not distinguished from measles until the seventeenth century, and from that fact we may infer that there could have been no epidemics of it, although we must remember that in the great crowd of fevers it must have been hard to distinguish individuals. The fact that diseases wax and wane must be borne in mind, and should prevent us from indulging in a feeling of false security.

WHAT IS THE OUTLOOK?

Judged by our present standard of knowledge, have we a right to hope that London is likely to remain free from epidemics?

There are certain facts which make me seriously doubt the permanence of the present state of health in London.

The first of these is the fact that some of our hygienic measures have tended to produce overcrowding of

houses, which is infinitely the greatest of all sanitary evils. Formerly the sanitary arrangements of houses were such that without some garden or back premises they would have been uninhabitable, and a reference to Aggas's map, or Norden's map, or Newcourt's map, will show that in Old London a large proportion of the houses had gardens or back premises large enough to be shown on a map. These maps also show that in Charles II.'s time, just before the plague, the overcrowding of houses in London was much more marked than in the days of Elizabeth. When every drop of water and all the fuel used had to be carried to the upper storeys by hand, there were practical inconveniences attending upon very high houses which prevented them from being built to any great extent. Now all is changed. Our system of sewerage has made it possible to build houses with no curtilage whatever, and with no outlet but a hole, and the possession of a high pressure of water (the result of steam power) and the modern system of gas has made it possible to have houses of any height, without any great inconvenience to the occupants. "Five hundred rooms, passenger and luggage lifts to every floor, 1,000 electric lights, hot and cold water laid on to every room, bath-rooms on every floor," is the kind of advertisement put forward by an eight-storeyed hotel without an inch of curtilage. Without steam power, without water under pressure, and without water-carried sewage, such Yankee monstrosities were not possible, whereas nowadays the loftier the hotel so much the greater is the profit, because extra storeys do not increase the ground-rent.

On the other hand, the fact that houses can be and are allowed to be built without curtilage has given an altogether fictitious value to land, the price of which varies in this country (according to situation) from about £200,000 to £10 per acre. It is not surprising that the

bias of landlords and builders is very much in favour of our present system of Sanitation. Sanitary authorities are also in favour of it because, having borrowed enormous sums of money, which have to be paid out of the rates, they are naturally quite regardless of hygiene if they can increase the rateable value of the district, and so make the burden of rate-collection lighter. "Black care (in the form of rates) sits behind the councillor." Everywhere throughout the metropolitan area houses are being pulled down and replaced by others twice as high; extra storeys are being added to old houses, and back-yards and gardens are fetching enormous prices for building purposes, so that the buildings in the centre of London have doubled their height and have lost all their curtilage.

Huge thoroughfares have been driven through London in all directions, but as the ultimate increase in the height of the buildings has been proportionately greater than the increase in the width of the street, locomotion has become more difficult, our traffic has become more in need of police regulations, and it has become an acknowledged rule in the City that if you want to keep an appointment it is dangerous to take a cab, because one can thread one's way with more certainty on foot.

And yet the overcrowding in London does not appear in official documents. Thus the City of London, on an area of 668 acres, in 1871 had 9,415 inhabited houses, and 3,222 uninhabited, and a population just short of 76,000; whereas in 1881 the inhabited houses had fallen to 6,562, the uninhabited had risen to 4,770, and the population had fallen to 51,439. Some historian of the future may draw the conclusion that the decay of London set in acutely about the year 1871, unless he should perchance discover that within the same period the rateable value had risen from £2,500,000 to £3,500,000; that

the day population had risen from 170,000 to 260,000, and that the number of persons entering the City daily for business had risen from 657,000 to 739,000. This population is one mainly of adult males, and since, if they get ill in the City they don't die in it, the death-rate keeps down, and we like to think it is a wholesome place for a young man to work in. The 50,000 people who have to live night and day on this square mile of ground have not a very cheerful time in this wealthy city, where nature has been most effectually obliterated by the brute force of the almighty dollar. What chance have they of any fresh air with a radius of houses extending to five miles all round them? At one time the Thames served as a recreation ground, but that was in the days before the tide rolled in charged with the excrements of 4,000,000 people, and when it was possible to fish and boat, and perhaps catch a salmon, without the danger of being sunk by some headlong steam-tug. Until a few years ago there was a little green spot called Drapers' Gardens, but now Drapers' Gardens is occupied by Throgmorton Avenue, where dwell 322 different firms of stockbrokers and others, and the nearest recreation-ground is St. James's Park, three miles off.

I have lately seen a young man, aged 21, with signs of incipient consumption. He is a fine young fellow, and three years ago entered one of the large City warehouses connected with the drapery trade, in the centre of the City. At first he was employed mainly in the basement, where gas was burning all day. During times of extra pressure he often worked from eight in the morning to past midnight, and when he retired to rest he had to share a bedroom with other men, the windows being shut. I believe this is no uncommon case, and I commend it most heartily to the attention of the "Sweating Committee." Occasionally on a Saturday afternoon he got a

game of football, his very slender resources being severely taxed to pay the railway fare to the spot where the games are contested.

What has occurred in the City has occurred elsewhere in London.

I need hardly say that the crowding of houses means loss of liberty, and increases competition—that competition is the cause of "sweating" and other miseries. Having wilfully produced these evils, I for one do not believe that they are to be removed even by the best intentioned efforts of city missionaries, nor by young men's Christian associations, nor even by music halls, though tea be the beverage and hymn tunes the melodies.

We have to bear in mind the fact that all writers on sanitary matters are agreed that of all dangers to health, overcrowding is the greatest, and that the death-rate rises in proportion to the density of population. When, therefore, we allow building to go practically unchecked, and move the poor out of two-storeyed dwellings into six-storeyed barracks, we must remember the possible drawbacks of such a system.

The death-rate of Paris is higher than that of London (it was nearly 26 per 1,000 in 1881), but the density of population in Paris is twice that of London, being 117 to the acre, as against 50 in London. Some parts of Paris are very much more crowded than any parts of London, and no parts of it have a density of population so slight as Fulham, Hampstead, Wandsworth, Woolwich, or Lewisham. The effect of overcrowding on death-rate is seen very markedly in the city of New York, which has a population of 1,337,000, which has an almost unlimited water-supply, and the sewage of which is discharged direct into the sea. According to the writer in the "Encyclopædia Britannica," there is an excessive crowding of the inhabitants into tenement houses, and

the houses are to a great extent without back entrances. As a consequence, the death-rate was 26·47 in 1880, 31·08 in 1881, and 29·64 in 1882.

In overcrowded places the danger is great when contagious disease makes its appearance. The spread of such diseases as typhus, measles, and whooping-cough is very much favoured by overcrowding.

I have prepared a table, taken from the Registrar-General's decennial abstract, which shows this fact very clearly with regard to London. I have arranged the various registration districts of London according to the density of population, and in another column I have given the death-rate per 100,000 from whooping-cough and measles, two diseases which are rarely treated in hospitals, and which are very prone to follow each other in epidemics, so that when we have not measles with us we have whooping-cough, and *vice versâ*.

ANNUAL DEATH-RATE PER 100,000 LIVING OF CHILDREN UNDER 5 YEARS OF AGE FROM WHOOPING-COUGH AND MEASLES DURING THE 10 YEARS 1871–80.

District.	Persons to an acre.	Death-rate per 100,000 from Measles and Whooping-cough.
Westminster	250 ...	... 1089
St. Giles	200 ...	... 1152
Holborn	200 ...	... 1229
Shoreditch	200 ...	... 1099
Whitechapel	200 ...	... 1020
St. George's, E....	200 ...	.. 1327
Bethnal Green	166 ...	... 1113
Mile End	143 ...	... 982
St. Saviour's, Southwark ...	143 ...	... 1150
Stepney	125 ...	... 1220
St. Olave, Southwark	111 ...	... 1091
Marylebone	100 ...	... 1145
Strand	100 ...	... 987
City...	100 ...	... 963

District.	Persons to an acre.	Death-rate per 100,000 from Measles and Whooping-cough.
Chelsea	91 ...	... 856
St. George's, Hanover Square ...	83 ...	... 974
Pancras	83 ...	... 1046
Islington	77 ...	... 965
Kensington	66 ...	... 992
Poplar	59 ...	... 985
Lambeth	59 ...	... 960
London as a whole	50 ...	... 967
Hackney	40 ...	... 698
Camberwell	35 ...	... 879
Greenwich	35 ...	... 778
Fulham	23 ...	... 850
Hampstead	17 ...	... 701
Wandsworth	15 ...	... 701
Woolwich	12 ...	... 794
Lewisham	6 ...	... 546
County of Dorset	3 ...	... 352

The above figures show the effects of overcrowding, on the mortality from two important diseases, very conclusively; and it is interesting to note how very far the mortality from these two diseases in Dorsetshire is below that of even the best parts of London.

Among other diseases which are very common in London are the tubercular and respiratory diseases. Thus the mortality from scrofula, tabes mesenterica, phthisis, and hydrocephalus in London, during the ten years 1871–80, was (collectively) 349 per 100,000 (no correction being made for abnormal age distribution), as against 224 in Dorsetshire, and the death-rate from respiratory disease was 460, as against 315 in Dorsetshire. During the fifteen years 1872–1886 I find that 34,254 in-patients have been treated in University College Hospital. Of these, 3,798 were cases of respiratory disease, and 2,453 were cases of disease of bones and joints, a very large proportion of which, according to

recent investigations, are tubercular. Thus we have 6,251 cases of disease (or more than 18 per cent. of the whole) in which tubercle plays an important part.

There were also 459 cases of enteric fever, 276 cases of diphtheria, and 1,020 cases of rheumatic fever. These, taken together, amount to 1,755, or about 5 per cent. of the whole. Rheumatic fever is one of the common diseases of London, which attacks young adults, and very often cripples them for life. It is a disease of great importance, and appears from the last report of the Registrar-General to have been on the increase since 1858.

Besides the greater liability to premature death which is caused by overcrowding, there are other drawbacks which are scarcely less important. One of these, with which we are well acquainted in London, is an increase in the dirtiness and smokiness of the air, which is mainly due to private fireplaces. When huge piles of offices are run up in the City or elsewhere, we like to imagine that, because most of them are tenantless at night, they cause no inconvenience, forgetting that each office has its fireplace, which helps to foul the air, and that each office supplies its quota of sewage to help to foul the river. The state of the air in London is such that the most beautiful of all arts, gardening, has become impracticable from the fact that comparatively few flowers or shrubs will flourish. This absence of green plants entails a great loss of nascent oxygen or ozone, which gives to air its peculiar quality of freshness. It is hardly conceivable that a high level of health can be maintained in a spot where vegetable life languishes, animal life and vegetable life being complementary to each other.

The overcrowding in London has, of late years, been mitigated by the conversion of old grave-yards into gardens, thanks to the society over which the Earl of

Meath so ably presides. If cremation as a means of disposing of the dead should become general, and spacious cemeteries be replaced by furnaces, it is clear that these spaces bequeathed us by the dead will not be available for "lungs" in the London of the future, and that cremation, unless it be counteracted by suitable legislation, is certain to intensify our state of overcrowding.

The moral side of overcrowding must not be forgotten, but it is not necessary to dwell upon it, as the Whitechapel horrors are still fresh in the memory, and the difficulty of detecting crime in a labyrinth of hiding-places has been demonstrated. The first aim of a sanitary authority should be to prevent overcrowding, and its most important duty is to control building operations, a duty which is never performed because buildings help to pay the rates.

THE LOOSE END OF OUR SANITATION.

Another reason why it is not possible to regard the present sanitary condition of London with much complacency arises from the fact that our sanitarians have failed to "make both ends meet," but have left a terrible loose end to their measures, which is a constant menace and an increasing danger.

This "loose end" consists of a daily allowance of 150,000,000 gallons of sewage, which our new councillors have inherited from the late Board, and which is the result of probably the greatest sanitary blunder ever committed in the history of the world. The proper destination of organic refuse is the soil. Nobody doubts this. Why, therefore, in a moment of weakness, did we construct six millions' worth of machinery to throw it in the water? The great glory of London, time out of mind, has been the Thames, but now certainly our glory

has departed. Having adopted a method of sanitation which is based on an utterly wrong principle, the condition of the Thames must get progressively worse as long as that method is pursued.

Some persons talk of a sewage farm as a remedy, but at least 50,000 acres of land would be necessary, and, to say the least of it, that is not a cheerful outlook for the ratepayer in these days of agricultural depression.

At present we are spending £50,000 a year on chemical abominations to mix with the other abominations, but it is very hard to see how that can improve matters. The chemicals will certainly not help the fishing industry, and if added in sufficient quantity they must absolutely destroy the very small manurial value possessed by the sewage or its sludge. My own belief is that the sewage problem in its present form is insoluble. To deal with and filter slop-water, as is done in Paris, is comparatively easy, but here in London the problem is of a wholly different kind, and my firm conviction is that our present system of "water-carriage" must lead us deeper and deeper into the mire.

Until the problem of "What to do with our sewage?" is settled, clearly, we ought to do our best to stop the growth of the evil. Our present system of sewers ought to be closed as far as permission to connect fresh houses is concerned. As it is, the new Council, like the old Board, will have an uncertain quantity of sewage to deal with, for old houses are being everywhere pulled down, and houses of greatly increased capacity erected, and this of course means a proportionate increase in the sewage to be disposed of. In the City there are but 50,000 inhabitants in the official sense, but there are by this time fully 300,000 daily workers and over 700,000 daily visitors to the City, so that, in spite of an official decrease in population, the increase of sewage from that

particular spot must be enormous. The same class of facts applies to other districts in the metropolis, so that the evil at the outfall is not only not improving, but is increasing daily. It seems to me quite impossible to make any arrangement for adequately dealing with the sewage of a district, unless you are able to say beforehand what is the maximum quantity which will have to be dealt with. There being no adequate control of building in London, and no relation between the cubic contents of a building and the area it occupies (witness Queen Anne's Mansions, the huge pile with which we are threatened at Knightsbridge, and the equally large pile projected in the Strand, which is to be 135 feet high, according to the newspapers), it is evident that the volume of sewage to be dealt with may be doubled or trebled without any increase of the area drained by the sewers. Under such conditions as these the sewage problem may well be insoluble. The first and main duty of any sanitary authority should be to exercise a wise control over building. If every house were compelled in the future to have a curtilage bearing a definite proportion to the cubic contents, there would be an end of these towers of Babel, which shut out from us the light and air of heaven; the price of building land would fall; it would be possible to make some calculations as to sewage; and the excessive overcrowding of a city would be prevented. Without such a regulation great sewage schemes must in the end make the sanitary condition of a city worse rather than better.

What to do with our sewage is a very difficult problem —an insoluble problem, I believe, on the present lines. At present the Metropolitan Board is shipping some of the solid matter to be dropped into the sea at the mouth of the Thames. When the Thames Conservancy see this fine ship, "built in th' eclipse, and rigged with curses dark," bound on its mission of blocking the port of

London, what can they think? They think it worth while, apparently, to have a man fined for throwing a basket of rubbish over one of the bridges.

Again, the House of Commons passed a stringent Act to prevent the pollution of rivers, but when, a year or so since, their own sewage arrangements were at fault, they merely constructed an ingenious apparatus to thoroughly suck the sewage out of their own premises and pass it on more effectually than before to pollute the river on whose bank their stately palace stands. What is the good of legislation without example? If the House of Commons, at some sacrifice (more fancied than real) of personal convenience, had adopted measures in accordance with the spirit of their legislation, I believe we should have been within a measurable distance of seeing the Thames once more meriting the name of silvery. A good example is better than any amount of legislation, and a good example set in high places is much needed in this matter, to which there is undoubtedly a moral side.

How to alter the present arrangements in London now the houses have been almost uniformly deprived of their curtilage is very difficult. Under such circumstances "returning were as tedious as go o'er," but I am myself inclined to think that the best solution of London's sewage difficulty lies in the direction of cremation—certainly in the direction of decentralisation.

I believe also that at the outskirts much might be accomplished by an equitable adjustment of sanitary rates, and by encouraging householders to do for themselves what no public authority can do so satisfactorily for them. But as I have dealt with this subject very fully in a paper on "The Shortcomings of Modern Sanitary Methods," I shall say no more at present.

London gets more than half its water from the Thames, and this is another reason why the sanitary outlook is not

satisfactory. The system of water-carried sewage is now almost universal, the sewage ultimately taking its course along the track of the watershed. Wherever water-carried sewage is in vogue the natural watercourses must get fouled, and the fouling will be in proportion to population. The sewage may be deprived of its coarser ingredients by mechanical or chemical means, but it is not possible to believe that any of the methods of treating sewage at present in use render the effluent wholesome enough to drink without danger. The increase of population in the valley of the Thames is therefore a distinct danger to London. The following table gives the population for 1871 and 1881 of some registration districts situated in the Thames valley :—

	1871.	1881.
Kingston	55,929	77,057
Richmond	26,145	33,633
Reading	33,340	43,494
Windsor	26,725	31,992
Staines	20,199	23,774
Uxbridge	25,538	27,550
Brentford	71,933	101,706
Eton	24,928	27,721
Wycombe	38,366	40,278
Henley	18,916	19,992
Oxford	21,016	21,902
Headington	22,756	28,723
	385,791	477,822

I am well aware that some of the districts in the above list are below the intake of the water companies, but the figures serve to show how rapid is the increase of population in the valley of the Thames, which is one of the most popular districts in the whole country. This concentration of people along the banks of the river must have the effect of lessening the purity of the water which we drink.

Thus it is evident that what I have called the loose end of our sanitation is a growing expense and a growing danger. Hygiene, to be a permanent benefit, should move along natural lines, and organic refuse ought to be committed to the soil as quickly as possible, when it would cease to be a danger, and would prove a source of profit. If the evil effects of free trade are to be counteracted, it will be by returning the refuse of our towns free of cost to the impoverished agriculturist. If we in England go on as we are going, and if our brethren in the Colonies follow our example, as they are doing, I believe our race must become extinct, and it will be a Chinaman rather than a New Zealander who will sit in contemplation on the ruins of London Bridge.

CHAPTER II.

LONDON FROM THE MEDICAL POINT OF VIEW.

It is impossible to appreciate the causes of the insanitary condition of Old London without a knowledge of the state of medical education at the time. This chapter will show clearly that scientific medicine is of comparatively modern growth, and it will not need any professional training to distinguish between the superstitious dogmas of the past and those scientific principles which have resulted from the systematic study of medicine by strictly scientific methods. If the scientific study of medicine should from any cause be checked, there can be no doubt that we should soon again make acquaintance with those pestilences which wrought such fearful havoc in the Middle Ages.

CHAUCER'S DOCTOR.

In giving an account of the profession of medicine as seen in London, both in ancient and modern times, one cannot do better than begin with that "Doctour of Phisik" described by Chaucer as setting out from the "Tabard" in Southwark with the other pilgrims bound for the shrine of St. Thomas of Canterbury about the year 1380. Chaucer's lines have been often quoted, but I make no apology for giving them once more, because the description of the "doctour" bears the stamp of truth and is sufficiently minute to bring the individual before us:—

> "There was also a Doctour of Phisik,
> In al this world ne was ther non him lyk
> To speke of Phisic and of Surgerye."

It may be that the poet means to convey the idea that

doctors of the fourteenth century, like some of those of the nineteenth, were prone to talk "shop."

> "For he was grounded in astronomye."

Astrology at this time was an essential part of medicine, and the simplest remedies were not applied without consulting the stars, so that to be "grounded in astronomye" was most essential.

> "He kept his pacient wondurly wel
> In houres by his magik naturel.
> Wel cowde he fortune the ascendent
> Of his ymages for his pacient."

Here we have reference to mystical modes of treatment which were then much in vogue. Amulets and charms were constantly prescribed; the doctrine of signatures—*i.e.*, the giving of those plants having some slight resemblance to parts of the human body or to some prominent symptom of disease, for the relief of the organs or diseases which they resembled—was in every-day use; and the treating of images in order to affect the original of the image was a constant practice among witches, and was probably used by the profession.

> "He knew the cause of every maladye
> Were it of cold or hete or moyst or drye,
> And where thei engendrid, and of what humour."

Here we have allusion to the Hippocratic humoral pathology as developed by Galen.

> "He was a verrey parfight practisour,
> The cause i-knowe, and of his harm the roote
> Anon he yaf the syke man his boote" (remedy).

Quick diagnosis and prompt treatment.

> "Ful redy hadde he his apotecaries
> To sende him dragges, and his letuaries,
> For eche of hem made othur for to wynne.
> Here frendschipe was not newe to begynne."

It would seem that even in Chaucer's time the advertising druggist was as pushing as at present.

> "Wel knew he the olde Esculapius,
> And Deiscorides, and eeke Rufus,
> Old Ypocras, Haly and Galien;
> Serapyon, Razis and Avycen;
> Averrois, Damascen and Constantyn,
> Bernard and Gatisden, and Gilbertyn."

Our friend's library was tolerably complete, for here we have a list of the medical "scriptures," Greek, Roman, and Arabian, an acquaintance with which was the whole duty of a physician, and which to doubt was heresy. The last two names on the list refer to John of Gaddesden and Gilbert, both English writers, of whom I shall have a few words to say presently.

> "Of his diete mesurable was he,
> For it was of no superfluité,
> But of gret norisching and digestible."

Doubtless there were many things then which took the place of pancreatic emulsion and extract of malt.

> "His studie was but litel on the Bible."

This line is frequently quoted to show that the scepticism with which doctors are often charged is of no modern growth. The point of the line is, however, to be found in the fact that Chaucer's doctor was certainly a priest, as were all the physicians of his time, and that the practice of medicine had drawn him away, somewhat unduly perhaps, from the clerical profession, to which he also belonged.

> "In sangwyn and in pers he clad was al,
> Lyned with taffata and with sendal."

A robe of scarlet and sky-blue, lined with silk. Equally gorgeous doctors may be seen at the present time by those who attend at Burlington Gardens on "Presentation Day.'

"And yit he was but esy in dispence;
He kepte that he wan in pestilence.
For gold in phisik is a cordial;
Therefore he lovede gold in special."

The priest-physician was fully as fond of his fees as are any of his successors. But to come to particular instances which prove the truth of Chaucer's graphic picture.

EARLIEST LONDON PRACTITIONERS.

The "Gilbertyn" of Chaucer's doctor was **Gilbertus Anglicus**, an Englishman who wrote a work on medicine about the year 1290, and it is remarkable from the fact that it gave the first description of leprosy written by western writers, leprosy being a disease which has long ceased to exist in this country. He treated apoplexy with ants' eggs, scorpions' oil, and the flesh of lions; but where he obtained this latter commodity it is hard to tell. For urinary calculi he advised the administration of the blood of a he-goat fed upon parsley and saxifrage.

John of Gaddesden was a graduate of Merton College, Oxford, and wrote his famous medical treatise, "Rosa Anglica," about 1305. He is said to have been greedy of money, and he recommends his contemporaries to make arrangements about fees before undertaking a case. He was an ecclesiastic, and was court physician to Edward II. and Edward III. He tells us that bleeding is hurtful at the time of the feasts of St. John and St. Stephen, but necessary at Christmas because of the custom of overloading the stomach with cakes at that season. Pigs' dung was his favourite hæmostatic; and when the son of the King had small-pox, he was careful that everything about his couch should be red.

In South's "Craft of Surgery" is a most interesting and full account of **John of Arderne**, one of the earliest English writers on surgery. This worthy was a specialist

for the cure of fistula, and dwelt at Newark between 1349 and 1370, when he moved to London. His work "Praxis Medica" is among the Sloane Manuscripts in the British Museum. He made his great reputation by curing Sir Adam Everyngham of fistula after he had been pronounced incurable by the chief doctors in France. He relates the cases (some of them with details) of other patients. The most interesting of the writings of John of Arderne is that entitled "Of ye Manere of ye Leche," because it throws a flood of light on professional manners and ethics in the fourteenth century. The following paragraphs (taken from South) are well worth quoting; but in doing so I think it advisable to (in some degree) modernise the spelling and the expressions:—"First, it behoveth him that will profit in this craft that he set God ever before him in all his works, and evermore call meekly with heart and mouth his help, and occasionally, according to his power, give of his earnings to the poor, that they by their prayers may get him grace of the Holy Ghost. Let him not be found rash or boastful in his words or deeds. And let him abstein from much speaking, especially among the great. And let him answer questions warily, lest he be overtaken by his words. . . . Also be a leche not much laughing nor much playing, and let him as much as may be fly the fellowship of knaves and disreputable persons. And be he evermore occupied in things beholding to his craft, whether he read or study, write or pray, for the exercise of books whorshippeth a leche. . . . And above all this, it profiteth to him that he be found evermore sober, for drunkenness destroyeth all virtue, and bringeth it to nought, as sayth a wise man. Be he content in strange places with the meat and drink there found, using measure in all things. . . . Scorn he no man. . . . And if there be made speech to him of any leche, neither

set him at nought, nor praise him too much, nor commend him, but thus may he courteously answer: 'I have not any knowledge of him, but I have neither learned nor heard of him but good and honest.' . . . Consider he not over openly the lady or the daughters, or other fair women in great men's houses, 'ne profre them not to kisse, . . . that he come not in to the indignacion of the lord ne of noon of his.' . . . When such men come to the leche to ask help or counsel, it speedeth that he make seeming excuses, that he may not incline to their asking without harming or without indignation of some great man or friend, or for necessary occupation; or feign he him hurt, or for to be sick, or some other convenient cause by which he may likely be excused. Therefore if he will favour to any man's asking, make he covenant for his travail and take it beforehand. . . . And if he see the patient, pursue busily the cure then, and ask he boldly more or less, but ever be he warre of scarce askings, for over scarce askings setteth at nought both the market and the thing. Therefore for the cure of fistula in ano, when it is curable, ask he competently of a worthy man and a great an hundred marks or forty pounds, with robez and feez of an hundred shillyns terme of life, by year. And take he not less than an hundred shillyns, for never in als my life took I less than an hundred shillyns for cure of that sekeness." John of Arderne advises that prognosis should be very guarded, and that as to the time of recovery it is good to say double what you think, and if the patient ask "why he putte him so long a time of curying, sithe that he heled him by the halfe? Answer he, that it was for that the patient was strong hearted and suffered well sharp things, and that he was of good complexion and had able flesh to heal, and feign he other causes pleasable to the patient, for patients of such words are proud and

delighted." The leech is further advised to dress like a clerk (*i.e.*, a priest), "for why it seemeth any discrete man clad with clerk's clothing to occupy gentlemen's boards." "Have the leche also clean hands and well shapen nails, cleansed from all blackness and filth." There are many other directions for conduct given in this remarkable document, and sundry extracts from Scripture are given as suitable for quotation by the bedside: "And it speedeth that a leech can talk of good tales and of honest that may make the patient to laugh, as well of the biblee as of other tragediez." Finally, he is charged to most scrupulously observe all professional confidences. It is evident that John of Arderne was a consummate man of the world, and knew all the tricks of his trade. His fees seem to have been enormous, and, indeed, he is only one out of many examples among our early professional forerunners who made very large professional incomes.

Whether Gilbert, Gaddesden, and John of Arderne were associated with any guild which took upon itself the duty of protecting the interests of physicians and surgeons is not known. Certainly they belonged to no association of which we have any trace remaining. I shall now endeavour to show how the medical corporations of London had their origin, and it is necessary to make a few preliminary remarks.

THE SEVERANCE OF MEDICINE AND SURGERY.

The physicians and surgeons were originally very different orders of men. Medicine is in most Christian countries an offshoot of the clerical profession. So profitable was the practice of medicine, that not only monks, but many of the higher clergy, devoted themselves to it. The union of the two professions of medicine and divinity existed up to the middle of the

seventeenth century, and evidence of it is still found in the "Lambeth M.D.," a degree which the Archbishop of Canterbury still has the right to confer, but only upon a legally qualified practitioner. It was thought necessary by Pope Innocent III. (1198–1216) to forbid the clergy to undertake any operation involving the shedding of blood, and by decrees of other popes in the thirteenth and fourteenth centuries they were forbidden to practise surgery in any form. In this way medicine and surgery became divorced, and this forcible and arbitrary separation of two branches of the same subject served undoubtedly to hinder the progress of medical knowledge to an enormous extent. Medicine was thus left mainly in the hands of scholars, of men who at that time stood alone in the possession of scholastic learning, while surgery was handed over to men who had little or no scholarship, but who amassed a considerable amount of practical wisdom in the daily struggle with the difficulties of their craft.

The early physicians, like Chaucer's "Doctour of Phisik," often had an extensive knowledge of the writings of the Greek, Latin, and Arabian writers, who may be considered as the medical "fathers." These were their scriptures, which to doubt was heresy. They knew nothing beyond them, and it is not surprising that priestly medicine, divorced as it was from those practical matters in overcoming which we alone get wisdom, was absolutely unprogressive and unproductive. If the early clerical physicians did little for medicine as a science, they did a great deal for it as a profession. They were men of learning and high culture ; they had had a university training ; and we shall see that many of them were well born and had been brought up amongst high-minded gentlemen ; and undoubtedly it is due to the College of Physicians, and largely to some of its earlier members,

that the profession of medicine has been practised in this country in a manner which is mainly creditable. Glaring exceptions, of course, have occurred ; but, as a rule, the men who have neglected to conduct themselves as gentlemen have met with no encouragement from the College of Physicians, and I believe it would be difficult to over-estimate the influence for good which the College has had in this direction.

The early surgeons were many of them illiterate and rough. Some of them—perhaps most of them—were, in this country and in France, evolved from the barbers ; and this is not surprising, for the man who can shave with dexterity has acquired no small skill in handling sharp instruments, and must be often called upon to treat wounds of his own making. It is not surprising that these men should have been called in to attend to cases of injury, and we know that they very early added tooth-drawing and bleeding to their tonsorial art, and practised all three till a comparatively recent date. War with its wounds must have made surgery a necessity in every country, from the time of the siege of Troy downwards ; and Mr. South gives an interesting account of Thomas Morstede, who was chief surgeon to Henry V.'s army at Agincourt. Again, many doubtless acquired their first knowledge by practising on animals, and it must be remembered that there are now throughout this country scores of illiterate men who operate with consummate skill on the lower animals. It appears that as early as 1308 the barbers of London were incorporated into a guild, and there appears to have been a gradual separation of them into those which practised surgery and those which practised barbery, and in 1460 the Guild of the Barber-Surgeons was one of the livery companies of the City. Outside this body there was an Association of Surgeons, and also an Association of

Physicians, and, according to Mr. South, there appears to have been in 1423–24 a veritable Conjoint Board of Physicians and Surgeons, which, however, survived its birth only a few months. At the time of the accession of Henry VIII. it appears that public opinion was getting ripe for legislation.

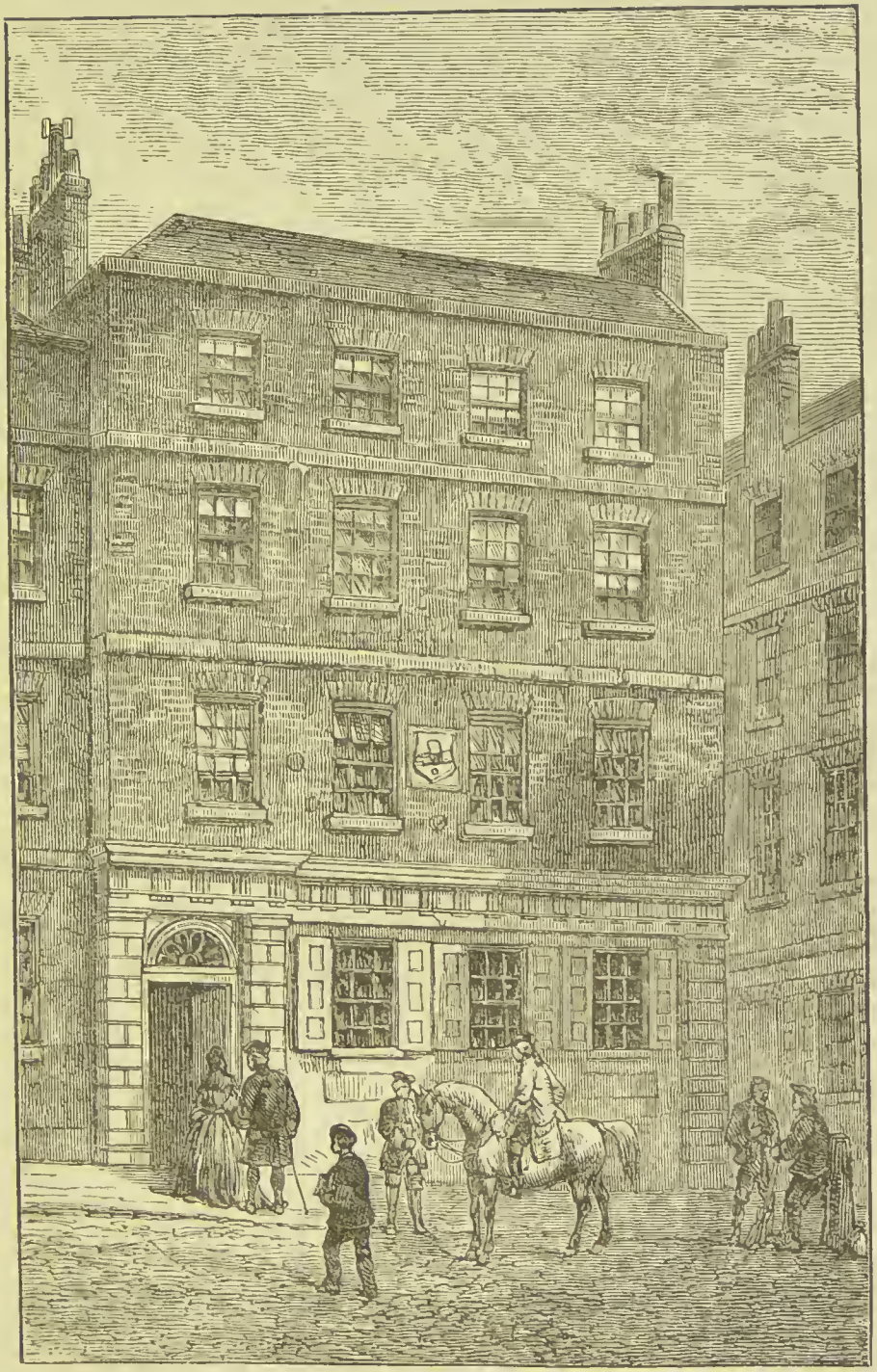
THE EARLIEST MEDICAL ACT.

In the third year of the reign of that monarch (1511–12) an "Act for the Appointing of Physicians and Surgeons" was passed, the preamble of which was as follows: "Forasmuch as the science and cunning of physick and surgery (to the perfect knowledge whereof be requisite both great knowledge and ripe experience) is daily within this realm exercised by a great multitude of ignorant persons, of whom the greater part have no manner of insight into the same, nor in any other kind of learning; some also can no letters on the book, so far forth that common artificers, as smiths, weavers, and women, boldly and accustomably take upon them great cures and things of great difficulty, in the which they partly use scorcery and witchcraft, partly apply such medicines unto the disease as be very noxious and nothing meet therefore; to the high displeasure of God, great infamy to the faculty, and the grievous hurt, damage, and destruction of many of the King's liege people; most especially of them that cannot discern the uncunning from the cunning. Now therefore . . . be it enacted," &c. And the Act goes on to provide that all who practise medicine and surgery (except graduates of the University) shall be previously examined, approved, and admitted by the Bishop of London or the Dean of St. Paul's, or (for the country) by the bishop of the diocese, who shall call to his aid for this purpose four doctors of physick, "and for surgery other expert persons

in that faculty." The penalty for evading the Act was £5 for each month of illegal practice. Two years later an Act was passed giving to the members of the Guild of Barber-Surgeons (not exceeding twelve) exemption from bearing arms or serving on inquests.

THE COLLEGE OF PHYSICIANS.

The time was now at hand when the first step was to be taken to give the profession a position of independence, and to allow it to regulate its own affairs without reference to ecclesiastical dignitaries. We owe this in all probability to Thomas Linacre, who possessed the confidence of Cardinal Wolsey, and probably also of the king. Be that as it may, on September 23rd, 1518, letters patent were granted constituting the Royal College of Physicians. By this instrument the College was given the control of all medical practitioners in London and within seven miles of it, and none were to be allowed to practise unless previously examined by the College. Four years later these powers were extended to the whole of England, except in the case of University graduates. The charter and subsequent Act gave ample power to the College to regulate its affairs, and accorded privileges and exemptions to the physicians similar to those previously accorded to the surgeons. The great fact, however, was the power of controlling the profession, and it must be remembered that the censors had power to fine and imprison delinquents. In Henry's charter six persons were named—viz., John Chambre, Thomas Linacre, Ferdinand de Victoria, Nicholas Halsewell, John Francis, and Robert Yaxley, and it will be interesting to consider the personality of some of these founders of the Royal College. The real founder and first president was **Thomas Linacre**, who was born in 1460. Having graduated at Oxford, and become a Fellow of



LINACRE S HOUSE. (*From a Print in the "Gold-Headed Cane."*)

All Souls in 1484, he went abroad in 1485, and visited Bologna, Florence (where he enjoyed the friendship of Lorenzo de Medici), Rome, Venice, and the famous school of Padua (where he took the degree of M.D.). In 1501 he was appointed physician and preceptor to Prince Arthur, and also physician to Henry VII. He was also physician to Henry VIII., and it is recorded that he was consulted by many men of note, notably Cardinal Wolsey and Erasmus. He took holy orders in 1509, and the same year was presented to the rectory of Merstham, then became prebend of Wells (1510), rector of Hawkhurst (1510), canon of St. Stephen's, Westminster, prebend of York (1517), precentor of York (1519), rector of Holsworthy, Devon (1518), and rector of Wigan, Lancashire (1520). This list of eight clerical benefices in almost as many years—benefices which were probably given as professional fees, and which were probably passed on, as soon as given, to a successor "for a consideration"—throws a curious light on the state of the Church, and helps us to understand the crash which was so soon to come. It is interesting, as showing the origin of the medical within the clerical profession, to remember that the first President of the College of Physicians was the rector of four parishes, the occupant of two prebendal stalls, a canon, and a precentor. We all owe a debt of gratitude to Linacre. He not only obtained the charter for the College, but gave his house in Knightrider Street (which is a street running parallel to part of Queen Victoria Street, E.C.) as a meeting-place for the new corporation. All who are competent to judge seem agreed in stating that Linacre was one of the greatest scholars of his age, and possessed a knowledge of Latin and Greek which for that time was quite exceptionally great. He founded lectureships at Oxford and Cambridge. He died in 1524, six years after the foundation of the

College, and was buried in Old St. Paul's, where in 1557 Caius erected a monument with an epitaph of his own composing. Of **John Chambre**, the first person named in the charter, we know little; but it is interesting to note that he was a Fellow of Merton College, Oxford; that he studied at Padua; that he was physician to the king; that he was censor of the College in 1523; that he was doubly a vicar, doubly an archdeacon, a prebend, a canon, and a dean, and the treasurer of Bath Cathedral. He died in 1549. Of the other four persons named in the charter we know very little, and they need not detain us. Linacre's house, which was given by its owner, was the first home of the College of Physicians, was occupied by the College until 1614, and remained the property of the College until 1860, when it was taken for the Crown by an Act of Parliament. Only the front part of the house was given by Linacre, the back part belonging to Merton College, Oxford, which is one of the many connexions between Merton College and the College of Physicians. The house represented at p. 61 was certainly not Linacre's original dwelling.

We have thus seen the science of medicine in London beginning with the clergy, then organised under the supervision of bishops and deans, and finally with an independent controlling body, of which the early members were many of them in holy orders. It will now be convenient to trace the subsequent history of the College of Physicians, and I shall endeavour to bring before the mind's eye some of its most remarkable early Fellows, and in so doing I shall hope to give some idea of the condition of medicine in London in the days of the Tudor and Stuart sovereigns. My information on these points is mainly drawn from Dr. Munk's learned work, entitled "The Roll of the Royal College of Physicians of London."

A very prominent figure in the early history of medicine in London is **John Kaye**, or **Caius**, as he called

himself, well known, by name at least, in connexion with Gonville and Caius College, Cambridge, which he enlarged and endowed. Caius was born in 1510, and studied at Gonville Hall, Cambridge, which was ultimately to be better known by his own name. He went to Padua in 1539, and lived in the same house with the celebrated anatomist, Vesalius. He became professor of Greek at Padua, and took the M.D. there in 1541. He became F.R.C.P. in 1547, and settled in London in 1552. He was president of the College in 1555. He was physician to Edward VI., Mary, and Elizabeth, but he is said to have been removed from the latter position because of his Romish tendencies. He died in 1573 at his house in Bartholomew Close, and was buried in the chapel of Caius College, with the epitaph "Fui Caius." Caius was certainly rich, as is shown by his splendid munificence at Cambridge. Although he was much occupied at Cambridge in the latter years of his life, he was frequently re-elected to the presidency of the College, the last time being in 1571. The frequent re-election of a president, who was latterly much of an absentee, may have been from the hope that the College would ultimately obtain some of his great wealth, but, if this were so, (of which indeed there is no evidence), the College was doomed to disappointment. Caius appears to have had great regard for form and order. He was the inventor of the insignia of office—the silver wand, the Book of Statutes, and the cushion—which are still used by the president of the College. On the occasion of the funeral of Dr. Bartlot, in 1556, we learn that the College attended in state, and that the Book of Statutes, adorned with silver, was carried before the president. Caius was very punctilious about the respect to be paid to the dead, and we find it laid down in the statutes of Caius College that the president, fellows, and students are to attend the

funerals of subjects used for dissection with as much reverence and pomp as though it were the corpse of some more worthy person, because of the advantage which they had derived from it. Caius kept the accounts of the College with great accuracy, and in 1560, on the termination of his first six years of office, handed over the whole of the funds to his successor, amounting to £55 13s. 3d. He wrote out the annals of the College with his own hand, and thus did much to establish order in the proceedings. His love of what we should call "ritual" seems to have led him into trouble in his later years, and a large amount of material connected with religious ceremonial, which was found in Caius College, was burnt by order of the vice-chancellor. Caius was a profound scholar, and edited many of the writings of Galen, Celsus, and Hippocrates. He was also a naturalist, and wrote a treatise on British Dogs. His only original medical work was a "Boke or Counsel against the Sweat"—a treatise, in fact, on the sweating sickness. Strangely enough, the first edition was in English, but its ultimate appearance was in orthodox Latin. He was much concerned about the faulty pronunciation of Latin in this country, and tried to introduce the continental method of pronouncing the vowels, to which he had become accustomed during his long residence abroad. He was something of an antiquary, and proved to his own satisfaction that the University of Cambridge was founded by "Cantaber," B.C. 394. He defended the privileges of the College, and in a case tried before the Lord Mayor in the reign of Elizabeth as to the right of surgeons to give internal remedies for the sciatica, &c., the evidence of President Caius seems to have convinced the Court that they had no such right. The name of Caius is inseparably connected with the teaching of anatomy in this country. When King Henry

VIII. in 1540 gave the charter to the Barber-Surgeons (of which I shall have more to say hereafter), the following important clause formed part of the charter: "The said masters or governors of the mystery and commonalty of barbers and surgeons of London and their successors yearly for ever, after their said discretions, at their free liberty and pleasure, shall and may, have and take without contradiction, four persons condemned, adjudged and put to death for felony by the due order of the King's laws of this realm, for anatomies, without any further suit or labour to be made to the King's Highness, his heirs and successors for the same." When the first anatomy lectures were given at Barber-Surgeons' Hall is not quite clear; but according to South it was before 1563, and according to Sir George Baker, Dr. Caius was the first lecturer appointed, and this appointment was made shortly after his return from Italy, which was in 1547. It was during Caius's lifetime, and while he was taking an active interest in the College, although not actually president (namely, in 1565), that Queen Elizabeth accorded to the physicians facilities with regard to anatomy similar to those enjoyed by the Barber-Surgeons; and it is evident from the statute of Caius College which I just now read, and which has been kindly brought to my notice by Mr. Ransom, that Caius made proper arrangements for the teaching of anatomy in connexion with his Cambridge foundation. Anatomy is the very groundwork of medicine, and without it it can have no existence as a branch of science. Undoubtedly we owe a deep debt of gratitude to the Barber-Surgeons, to the College of Physicians, and to Dr. Caius. I cannot dismiss this remarkable man without further illustrating his character by recalling three events which took place at the College during the time that Caius was president. In 1558, Christopher Langton, M.D., F.R.C.P., was expelled the

College for "rashness, levity, and foolish contentions with his colleagues at consultations, as well as for incontinency." Five years later, for this latter failing, this worthy "was carted through London in a ridiculous attire." In 1559, John Geynes, M.D., F.R.C.P., was cited before the College for impugning the infallibility of Galen. On his acknowledgment of error and humble recantation he was received into the College. In 1556 the College objected to the admission by the University of Oxford of one David Laughton, an illiterate coppersmith. The College laid before Cardinal Pole and the visitors the following instance of his illiteracy: "Cujus infantia, cum suggessit ut quomodo *corpus* declinaretur, exigeremus, respondit *hic*, *hœc*, et *hoc corpus* accusativo *corporem*," adding "egregius certe ex universitate medicus cui humana vita committeretur." This objection was successful. Clearly formal President Caius was not the man to countenance loose morals, heterodoxy, or bad grammar. We must not dismiss Caius without alluding to the Dr. Caius of Shakspeare, as drawn in the "Merry Wives of Windsor." Shakspeare's Caius is described as a French physician, and throughout the play he is made to speak broken English. Caius died in 1573, when the poet was ten years old, and it is very probable that Shakspeare borrowed the name without thinking of the man. On the other hand, it must be remembered that Caius probably spoke Latin like a Frenchman and that he lost favour at the court of Elizabeth, and it is possible that Shakspeare may have heard him held up to ridicule.

But to proceed with the history of the College and its relations to medical education. In 1581, Dr. Caldwell and Lord Lumley founded the *Lumleian Lectures on Anatomy and Surgery*, and the importance of this foundation will be appreciated when it is stated that

Harvey was Lumleian lecturer from 1615 to 1656, and that it was in these lectures that the great fact of the circulation was first demonstrated. In 1587, we find the College renting a garden for forty marks a year, and engaging John Gerard, the author of the well-known "Herbal," to keep it stocked for them with rare plants. Gerard himself had a garden in Holborn, where among other things he propagated the potato.

William Gilbert, who was president of the College in 1600, was the first really scientific Fellow. He was physician to Elizabeth and James I., and his great work on magnetism, "De Magnete Magneticisque Corporibus et de Magno Magnete Telluræ, Physiologia Nova," commanded the admiration of Bacon and Galileo, and of many succeeding generations of scientists. It is a work worthy of being placed alongside of Harvey's work on the Circulation, and the College of Physicians is honoured to have reckoned him among its presidents. The importance of Gilbert's investigations to a great naval Power seems to have been recognised by Queen Elizabeth, who, to her great honour, assisted him with a pension. He died in 1603, aged sixty-three, and was buried at Colchester. He was the contemporary of Shakespeare and Bacon, and was one of those who helped to make the Elizabethan era the wonder of all subsequent generations.

The post-mortem examination made on the body of James I. is an interesting record of the state of pathology in 1625. It is recorded "that the head was found so full of brains that they could not keep them from spilling—a great mark of his infinite judgment; but his blood was wonderfully tainted with melancholy, and the corruption thereof was the supposed cause of his death."

I have now to mention the man who, above all others, has tended by his work to make medicine a

science, and who probably did much by his lectures at the College to disseminate a knowledge of anatomy and physiology. Harvey was the first English physiologist, and lectured for forty-one years at the Royal College of Physicians on anatomy and surgery. **William Harvey** (1578–1657) went to Padua in 1598, and studied under Fabricius, Minadous, and Casserius, and took his M.D. in 1602. He came to London in 1604, became F.R.C.P. in 1607, and succeeded Dr. Wilkinson at St. Bartholomew's in 1609. He was Lumleian lecturer in 1615. He expounded, as is supposed, the doctrine of the circulation in 1616, and finally published his views in 1628. He was physician to James I. in 1618 (?). In 1638 he was appointed physician in ordinary to Charles I., and there is a curious order in the letter-book of the Lord Steward's office for the settling a "diett of three dishes of meat and meale with all incidents thereunto belonging upon the said Dr. Harvey," which daily "diett" was subsequently commuted for £200 a year. Harvey followed the fortunes of the King, and was at the Battle of Edgehill in 1642. Meanwhile his house in London was plundered of goods and anatomical records. He became warden of Merton College, Oxford, in 1645, from which post he was ousted by the Parliament in 1646. By the solicitation of Sir George Ent he was induced to publish his work on Generation in 1651. He gave a new library and museum to the College of Physicians in 1653, whereupon the Fellows placed his statue in their hall, and, in his absence, elected him president in 1654, which honour, however, he gracefully declined, and recommended the College to elect Dr. Prujean instead. He remained Lumleian lecturer until 1656, when he resigned, and presented the College with his patrimonial estate at Burmarsh, Kent. He died of the gout in 1657 in his eightieth year. In his will he

says: "I give to the College of Physicians all my bookes and papers, and my best Persia long carpet, and my blue satin embroyedyed cushion, one pair of brass and irons, with fireshovell and tongues of brass, for the ornament of the meeting-room I have erected for the purpose. Item, I give my velvet gown to my loving friend Mr. Doctor Scarborough, desiring him and my loving friend Mr. Doctor Ent to looke over those scattered remnants of my poore librarieie, and what bookes, papers, or rare collections they shall think fit to present to the College, and the rest to be sold, and with the money buy better." Thus, it will be seen that Harvey is not only the greatest ornament of the College, but also its greatest benefactor. He was the second in order of time of the great lights of science connected with the College, Gilbert being the first. His will is interesting from the choice of his executors, who were both Fellows of the Royal Society and leaders of science; and, secondly, by the mention of the velvet gown, which possibly is the one represented as worn by Sir C. Scarborough in the picture at Barbers' Hall. I abstain from any mention of Harvey's great discovery, because we all know it and appreciate it, and no words of mine could increase your admiration.

I may here mention that in 1614 the house in Knightrider Street had become too small for the business of the College, and accordingly new premises were taken on lease from the Dean and Chapter of St. Paul's at Amen Corner, at the end of Paternoster Row. A botanical garden was planted and a theatre was built, and here it was that Harvey made the College a present of a great parlour and a museum, which he erected at his own cost. The garden extended from the Old Bailey to the Church of St. Martin, Ludgate, and included the site of the present Stationers' Hall. The museum and library soon became enriched by many

contributions, the greater part of which were, however, unhappily destroyed by the fire in 1666.

Dr. Goulston (F.R.C.P. 1611) founded by will the *Gulstonian Lectures*, to be read "between Michaelmas and Easter by one of the four youngest doctors of the College." **Sir Theodore Mayerne** (F.R.C.P. 1616), was by birth a Swiss Protestant, and after serving as physician to Henry IV. of France, settled in London, where he became physician to James I. and his Queen, and subsequently to Charles I. He was the fashionable physician of his day, and was one of the first to use chemical medicines, which was looked upon as heretical by the strict Galenists, who used only "simples," drawn from organic nature. He introduced calomel and black-wash, wrote the dedication to the first edition of the Pharmacopœia Londinensis (1618), accumulated great wealth, and died at Chelsea in 1655.

Sir Charles Scarborough succeeded Harvey as Lumleian lecturer, and was lecturer on anatomy to the Barber-Surgeons. He was physician to Charles II., James II., and William III., and was a great mathematician.

Baldwin Hamey, jun. (F.R.C.P. 1634), a devoted Royalist and Churchman, enjoyed a lucrative practice among amorous Parliamentary Puritans. He presented the lease of the College in Amen Corner to his colleagues (1651), contributed largely to its rebuilding after the fire, and left it a considerable landed estate near Ongar, in Essex.

Francis Glisson (F.R.C.P. 1635), Regius Professor of Physic at Cambridge, was president of the College in 1667–8–9. He wrote a treatise on Rickets, was a serious anatomist, wrote a treatise on the Anatomy of the Liver, and has given us "Glisson's Capsule" as a record of his industry and talent. He was one of the original

members of the Royal Society, and one of the few of the Fellows of the College who stopped in London during the plague. He was a friend of Anthony Ashley, Earl of Shaftesbury. We are indebted to Dr. Glisson for positive additions to our knowledge of the human body, and he is to be regarded as the third in order of time of the scientific Fellows.

Thomas Wharton (F.R.C.P. 1650), **Thomas Willis** (F.R.C.P. 1664), and **Richard Lower** (F.R.C.P. 1675) were three earnest and distinguished anatomists, who added new facts to medicine, and whose names are still enshrined in our anatomical nomenclature.

THE PLAGUE.

We now approach the year 1665, so notable for the terrible pestilence which afflicted London, and we may well take the opportunity of seeing what was the practice of physicians at this time. The best account of the plague is that written by **Dr. Nathaniel Hodges,** under the title "Loimologia." This treatise, originally written in Latin and published by the author in 1672, was translated by Dr. John Quincy in 1720. From this valuable work we gain some insight into the moral and physical conditions of the population, and of other causes which tended to increase the virulence of the epidemic. It was at the close of the year 1664 that cases of plague—a disease which had previously committed extensive ravages in London—began to occur, and the fears of the inhabitants were fomented by astrologers and others, who tormented the ignorant with prophecies as to the evils which would occur from the "conjunction of Saturn and Jupiter in Sagittarius" and the like. Again, the action of the magistrates, who ordered that infected houses should be marked with a red cross and the legend "Lord, have mercy upon us," and who further set a guard upon such

houses to prevent either ingress or egress, was probably most mischievous, as tending to spread the infection amongst all the inhabitants of a house, and to keep it alive within the confined area of the city. Hodges truly remarks that the proper course would have been to immediately remove the infected to proper lodgings provided without the walls. He continues: "But what greatly contributed to the loss of people thus shut up was the wicked practice of nurses (for they are not to be mentioned but in the most bitter terms). These wretches, out of greediness to plunder the dead, would strangle their patients and charge it to the distemper in their throats; others would secretly convey the pestilential taint from sores of the infected to those who were well," &c. If we are to receive the statement seriously (and Hodges is a temperate writer), it throws considerable light on the moral condition of the lower orders.

The first symptom of the plague appears to have been, as a rule, a violent shivering or rigor, lasting from half an hour to four or five hours. This was followed or accompanied by vomiting. Upon this delirium quickly supervened, and if not restrained the infected would run "wildly about the streets." Vertigo, headache, and coma were also common. The signs of fever were strongly marked, such as "extreme inquietude, a most intense heat outwardly, attended by unquenchable thirst within, dryness, blackness of the tongue, intolerable heat of the præcordia, and all other usual concomitants of a fever's accession." In many cases there seem to have been well-marked exacerbations and remissions, but this was not constantly observed. Insomnia was occasionally troublesome, and palpitation of the heart appears to have been often strongly marked. Sweating was a common feature, and seems often to have been "critical," the plague subsiding at once by crisis. Pustules upon the skin,

varying in size from a pea to a nutmeg, and called blains, as well as buboes affecting the lymphatic glands, were among the ordinary symptoms. Further, in addition to these, carbuncles seem to have been very usual, and also a petechial eruption; and, further, Hodges describes (in addition to the foregoing pustules, buboes, carbuncles, and petechiæ) certain prominent spots with pyramidal heads, which were called "plague tokens" by the vulgar.

The treatment adopted was very far from being of the so-called "expectant" form which is now so much followed in the management of patients suffering from infective disorders. They were put to bed between the blankets, and the patient was addressed by his physician "with cheerfulness." Hodges seems to have discouraged phlebotomy, but he states that many "let blood largely." If the patient did not vomit he was given an emetic, and this in many cases was followed by an expulsive cathartic. In all cases were strong diaphoretics administered, and sweating was encouraged to the utmost. A marvellous assortment of drugs was poured into the patient. Those used by Hodges were mostly fresh indigenous herbs, and he mentions angelica, rue, sage, veronica, centaury, scabious, pimpernel, marygold, scorzonera, ivy berries, balm, valerian, garlic, gentian, elder berries, juniper berries, and dozens of others; but he speaks scornfully of the Oriental bezoar, powdered unicorn's horn, and powder of toads, which many thought very efficacious. "To all who sweat," he says, "change of clothes is to be denied, for the patient takes harm by clean coverings, not so much from any prejudicial quality of the soap abounding in them, as from a dampness which is inseparable from them, and the approach of air which is unavoidable in the shifting, both of which will check the sweating." Sleep was industriously kept off, although sometimes, through sheer weariness, the patient would

drop into a doze. The diet given was light and generous —eggs, strong broths, and good wines; but of the usefulness of gold boiled in the broths Hodges has "nothing to say." The patient was most rigidly kept in his bed, and those who were delirious were tied in them. During the sweats "the patients were forcibly kept awake," and if later in the disease a little sleep was allowed, they were roused every four hours to take medicine. Scents were used in the room, and odorous gum resins, such as styrax, were burnt upon live coals. Blisters were applied to several parts, such as the nape of the neck and the insides of the arms and thighs. These blister plasters were made of pitch, galbanum, wax, cantharides, yeast, euphorbium, and vinegar of squills, worked into a mass. The parts thus blistered were not suffered to heal till the malignity of the disease was spent. "Besides epispasticks, it is not lost labour to apply proper things to the feet. I commonly used a plaster made of the compound betony plaster, adding to it some euphorbium, saffron, and London treacle, and I found this to do more good than cataplasms, which some, however, liked better to use, and were made of bryony root steeped in vinegar, the flesh of pickled herrings, black soap, rue, scordium, and arum, with a sufficient quantity of vinegar; sometimes also pidgeons were applied to the feet." Similar applications were also made to the wrists. The buboes were treated with cataplasms and discutients, and were often opened by the surgeon and subsequently washed with a "Lixivium of ashes, scordium, betony, bugloss, sanicle," &c., in which also was dissolved some London treacle. Carbuncles were treated in a similar way, but when the eschar did not fall off the actual cautery was liberally applied. In order to prevent the necessity of using a hot iron, it was suggested that "sometimes the pestilential venom is to be drawn out by cupping or scarrification

or epispasticks; sometimes also for the same purpose is applied the bare rump of a fowl, repeated until these creatures appear not to be hurt by it; for this natural warmth soothes the vital heat of the part it is applied to, and entices away the morbifick venom through the pores; pidgeons, used alive, and warm sheep's lights have likewise been observed thus to asswage the acrimony of this pestilential virulence."

Hodges is by no means silent on the important subject of prevention, and he justly says: "When the nature and peculiar qualities of this disease are known and reported by physicians, such laws should be provided as might best conduce to prevent its spreading, if not to its utter extirpation." The punishment of those who frighten the populace by prophecies and the like; the timely separation of the sick from the well; house-to-house visitation (which was actually carried out); the disinfection of the air by fumigations; the daily cleansing of streets, sinks, and canals ("because stench and nastiness are justily reckoned the entertainers of infection"); the burning of pastilles; the killing of "dogs, cats, and other domestic brutes," which carry the infection from place to place; and great attention to personal health, are among the measures which he advocates. He has no belief in the benefit to be derived from taking excrement and urine, which were given as antidotes by some old nurses; but, on the other hand, he had implicit faith in liberal potations of sack ("middle-aged, neat, fine, bright, racy, and of a walnut flavour"). With regard to the use of tobacco, he says: "I must confess myself at uncertainties about it, though as to myself I am its professed enemy, and was accustomed to supply its place as an antidote with sack." He did not believe in amulets, which were then much in vogue; some being alleged to have a diffusive magnetic value; others drawing the poison out

of the body "as amber attracts straws," some serving to invigorate nature. Walnut shells filled with mercury, arsenic mixed with wax and a variety of other drugs, and dried toads seem to have been the amulets most generally worn.

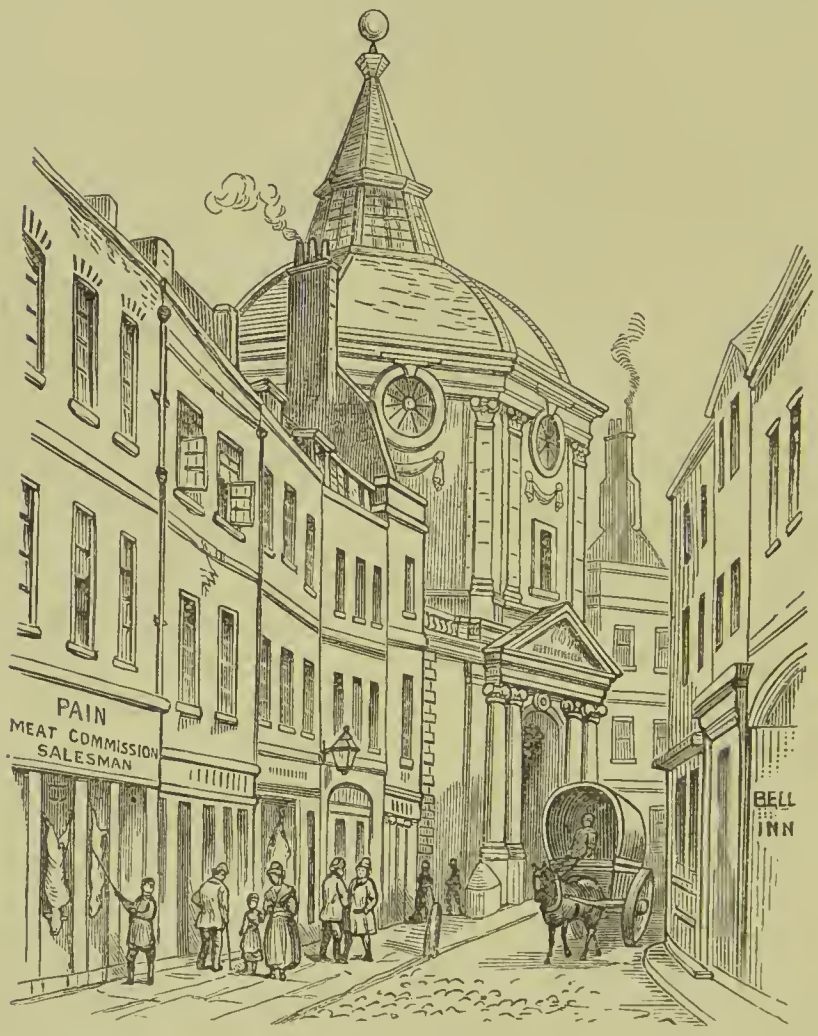
Among the physicians who stayed in London to minister to the sick, Hodges mentions "Dr. Glisson, Regius Professor at Cambridge, Dr. Nath. Paget, Dr. Wharton, Dr. Berwick, Dr. Brookes, and many others." And he further states that of these, eight or nine died. Hodges, however, survived, and he says: "I think it not amiss to recite the means which I used to preserve myself from the infection during the continual course of my business among the sick. As soon as I rose in the morning early, I took the quantity of a nutmeg of the antipestilential electuary; then, after the dispatch of private concerns in my family, I entered into a large room, where crowds of citizens used to be in waiting for me; and there I commonly spent two or three hours, as in an hospital, examining the several conditions and circumstances of all who came thither; some of which had ulcers yet uncured, and others to be advised under the first symptoms of seizure; all which I endeavoured to dispatch with all possible care to their various exigencies. As soon as this crowd could be discharged, I judged it not proper to go abroad fasting, and therefore got my breakfast. After which, till dinner-time, I visited the sick at their houses. . . . After some hours visiting in this manner I returned home. Before dinner I always drank a glass of sack, to warm the stomach, refresh the spirits, and dissipate any beginning lodgement of the infection. I chose meats for my table that yielded an easy and generous nourishment, roasted before boiled, and pickles, not only suitable to the meats but the nature of the distemper (and, indeed, in this melancholy time,

the city greatly abounded with variety of all good things of that nature). I seldom likewise rose from dinner without drinking more wine. After this I had always many persons come for advice, and as soon as I could dispatch them I again visited till eight or nine at night, and then concluded the evening by drinking to cheerfulness of my old favourite liquor, which encouraged sleep and an easy breathing through the pores all night. But if in the daytime I found the least approaches of the infection upon me, as giddiness, loathing at stomach, and faintness, I immediately had recourse to a glass of this wine, which easily drove these beginning disorders away by transpiration. Yet in the whole course of the infection I found myself ill but twice; but was soon again cleared of its approaches by these means, and the help of such antidotes as I kept always by me." It should be mentioned that during the infection Dr. Hodges wore an "issue" as a preventive measure, and he says: "Whenever I was most beset with pestilential fumes I could then immediately perceive a shooting pain in my issue, and had a great deal of ill-conditioned matter discharge therefrom; and this I always looked upon as a sure warning to have timely recourse to alexipharmicks." The facts given by Dr. Munk concerning Hodges are the following: Nathaniel Hodges, son of the vicar of Kensington, was born in 1629, educated at Westminster, Cambridge, and Oxford, and appears to have been a Parliamentarian; M.D., 1659; F.R.C.P., 1672; censor, 1682; Harveian orator, 1683. During the latter part of his life he received a pension from the City on account of his services during the plague. He fell into debt, and died in Ludgate Prison in 1688. There is a tablet to his memory in St. Stephen's, Walbrook. Let us not be hard on this brave man. He did his duty nobly. True, he was fond of sack and got into debt. Perhaps had his

nature been less generous, and had he been less full of the milk of human kindness, he might have amassed a large fortune. He is a noble exception to Chaucer's doctrine that "gold in physick is a cordial," and it would ill become us to sit in judgment on one who in an important respect affords us an example of noble conduct.

The year 1665 and 1666 were eventful ones for the College of Physicians. At that time the president was Sir Edward Alston, who had managed to repair the financial ruin caused by the civil wars by the expedient of admitting honorary Fellows, and making them pay for the honour. It was in this year that Charles II. attended one of the anatomy lectures, and knighted the lecturer (Sir George Ent) at its termination. Misfortunes, however, were in store, and we can hardly say they were undeserved. When the plague appeared, the president and most of the Fellows fled from town, and during their absence the treasure chest of the College was emptied by thieves. After the plague came the great fire, and in it the College at Amen Corner was destroyed. When the College was rebuilt, a new site, not far from the old one, was chosen. This was in Warwick Lane, Newgate Street, on a piece of ground purchased from Mr. Hollier, a surgeon, for £1,200. The new College was designed by Wren. It was in the form of a quadrangle, with a botanical garden behind it, running down to the City walls. The entrance was through a fine gate, and over this Sir Christopher Wren built a magnificent theatre, forty feet in diameter, with an octagonal-domed roof. This theatre was said to be a model of what a theatre should be. There were, in addition, fine rooms for transacting the College business, and a good library. Only about 140 books had been saved from the fire, but the new College was soon furnished with books by the library of the Marquis of Dorchester, which that nobleman

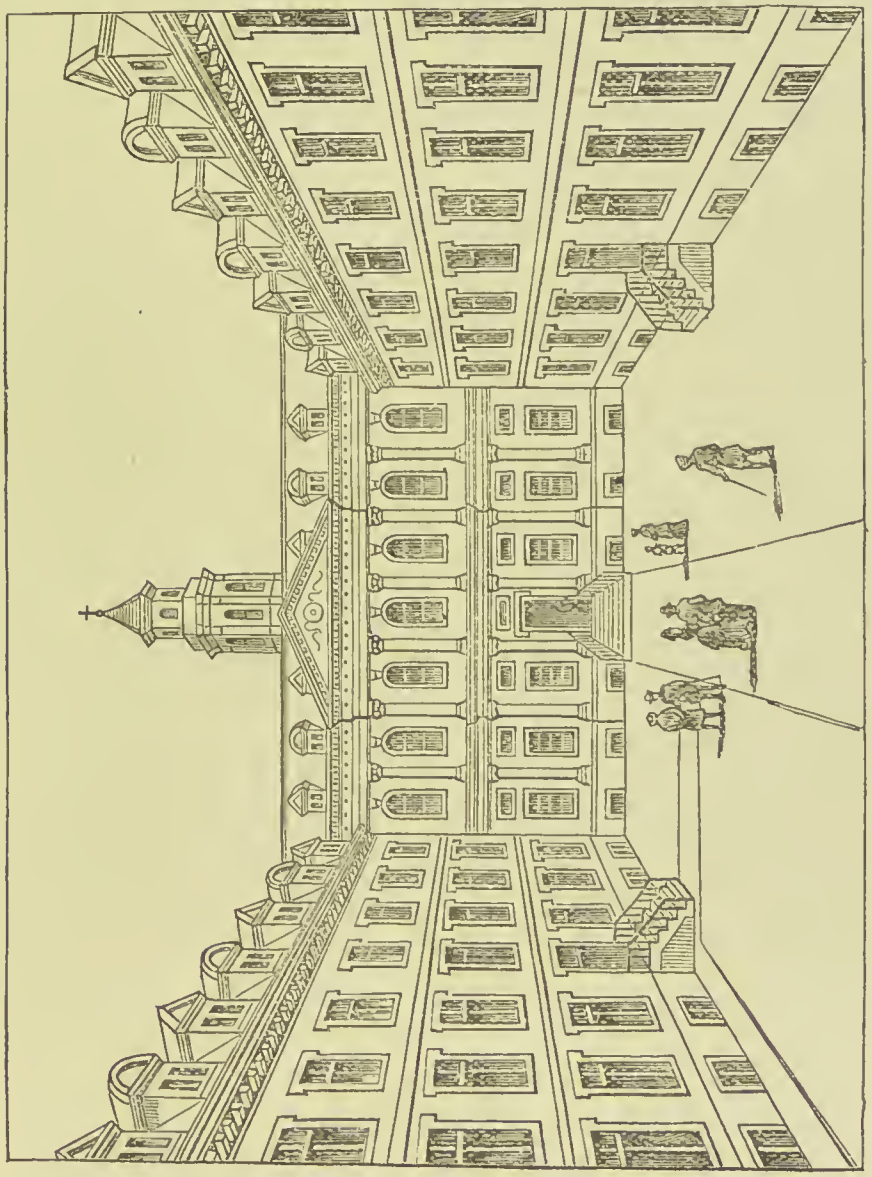
bequeathed to it. He appears to have been a learned and somewhat eccentric man, who studied "all manner of learning, both divine and human." He became a



COLLEGE OF PHYSICIANS, WARWICK LANE. ENTRANCE.

Fellow of the College in 1658, and shortly before had been made a Bencher of Gray's Inn. It is impossible not to regret the fine old College, with its spacious courtyard and physic garden and its historic associations. But it would seem as if no purely educational establish

ment can flourish in the City of London. The Royal Society, the College of Physicians, and the College of



COLLEGE OF PHYSICIANS, WARWICK LANE. QUADRANGLE.

Surgeons have all moved away, and Gresham College alone is left, as if to show the impossibility of flourishing in the richest city of the day. Much as one may regret

the old College, it is probable that Sir Henry Halford did right in advising in 1824 a move to Pall Mall, notwithstanding that the present house is much smaller than the old one, and by no means remarkable for the convenience of its arrangement.

Of the London physicians of the seventeenth century none is better known than **Thomas Sydenham.** He was born in 1624, joined the Parliamentary army in 1643, and became M.B. Oxon. in 1648. In what his medical education consisted is not clear. It is very doubtful if he was ever at Montpellier or any foreign school. He was a great friend of John Locke. He came to London in 1660, and was a licentiate of the College of Physicians in 1663. Like the rest of the world, he ran away from the plague; but, as he lived in Westminster, he did not probably suffer from the fire. He died in 1689. His "Medical Observations concerning the History and Cure of Acute Diseases" was published in 1666, and was dedicated to Robert Boyle. In the preface of this work he strongly advocates an attempt at a scientific classification of disease by a careful comparison of the phenomena observed in different cases. Accurate diagnosis was the necessary preliminary to finding a reliable *methodus medendi.* His own descriptions of disease are excellent. Perhaps his account of the gout, from which he suffered, is more often quoted than any other. He was never a Fellow of the College of Physicians. There is no evidence that he ever applied to be made a Fellow. Expressions are frequent in his writings which seem to show that he was not on the best of terms with some of his contemporaries. Sydenham was undoubtedly a man who could think for himself, and perhaps his chief merit lies in the fact that he appreciated much of the medical writing of his time at its true value. It is recorded of him by Dr. Johnson that, "when Sir Richard Blackmore

first engaged in the study of physic, he inquired of Dr. Sydenham what authors he should read, and was directed by Dr. Sydenham to "Don Quixote," "which," said he, "is a very good book; I read it still." In this answer of Sydenham's we perhaps get a clue to his attitude towards the profession. He was one of the first to use Peruvian bark in the treatment of ague, and this must have done much to advance his practice at a time when London was scourged by malarious fever. One of my objects is to bring before you personal facts with regard to some of our professional ancestors, and we get a good idea of Sydenham in that chapter of his "Schedula Monitoria" in which he details his own sufferings. It was in 1660 that he first suffered from the gout, and shortly afterwards symptoms of renal calculus developed, and in 1676 he began to suffer from hæmaturia. "This became," he says, "afterwards habitual, as often as I either went along a way on foot, or drove in a carriage, no matter how slowly, over the paved streets. On an unpaved road, however, I might drive as far as I chose, and no such harm would occur." He tried various remedies for this trouble without success. "I therefore made up my mind to try no further, and only guarded against the affection by avoiding as much as I could all motion of the body." When his urine became bloody he was bled, and he took frequent doses of manna dissolved in whey as a laxative, and sixteen drops of laudanum in small beer at bedtime as a hypnotic. As to the regimen he observed, he says: "On getting out of bed I drink a dish or two of tea, and ride in my coach till noon, when I return home and moderately refresh myself (for moderation is well in all) with some sort of easily digestible meat that I like. Immediately after dinner, I drink rather more than a quarter of a pint of Canary wine to promote the concoction of the food in

the stomach, and to drive away the gout from the bowels. After dinner I ride in my coach again, and (unless prevented by business) am driven out for two or three miles in the country for change of air. A draught of thin small beer serves for supper, and I repeat this even after I have gone to bed and am about to compose myself to sleep. I hope by this julep to cool and dilute the hot and acrid juices lodged in the kidneys, whereby the stone is occasioned." He goes on to state that he prefers the "hopped small beer," and "to prevent bloody urine I take care as often as I drive any distance over the stones to drink a free draught of this small beer upon getting into my coach, and also, if I am out long, before my return, a precaution which has always been sufficient." Occasionally he suffered from what may be called a gastric crisis, and "in this case I drench myself with more than a gallon of posset, or else of this small beer: and, as soon as I have got rid of the whole by vomiting, take a small draught of canary wine with eighteen drops of the liquid laudanum, and, going to bed, compose myself to sleep. By this method I have escaped imminent death more than once. In an attack of nephritic colic occurring in a patient of sanguine temperament, Sydenham took ten ounces of blood from the arm on the same side with the kidney affected. "After this a gallon of posset drink, wherein two ounces of marsh-mallow roots have been boiled, must be taken without loss of time, followed by the injection of the following enema: Marsh-mallow roots and lily-roots, of each one ounce; mallow-leaves, pellitory, bears' breech, and chamomile flowers, of each a handful; linseed and fennugreek, of each half an ounce; water in sufficient quantity. Boil down to half a pint; strain; dissolve in the clear liquor two ounces each of kitchen sugar and syrup of marsh-mallow; mix and make into a clyster. After the patient

has vomited and been purged, a full dose of twenty drops of liquid laudanum is to be given, or else fifteen or sixteen grains of Matthew's pills." Sydenham lived in Pall-Mall, and Cunningham in his Handbook of London has the following anecdote, which is of interest in connexion with his small beer and canary: "Mr. Fox told Mr. Rogers that Sydenham was sitting at his window looking on the Mall with his pipe in his mouth and a silver tankard before him, when a fellow made a snatch at the tankard and ran off with it. Nor was he overtaken, says Fox, before he got among the bushes in Bond Street, and there they lost him." Sydenham lived in Pall-Mall from 1664 to 1689, and was buried in St. James's Church. A near neighbour of his was Madame Elinor Gwynne, over whose garden wall King Charles II. used often to look as he walked in the Mall in St. James's Park. Sydenham, I have said, was a licentiate of the College of Physicians, and was never a Fellow. In Chamberlayne's "Present State of England" for 1682 I find a list of the Fellows, candidates, honorary Fellows, and licentiates of the College of Physicians. The name of Thomas Sydenham does not occur in this list, although it contains the name of his son, Dr. William Sydenham. In 1684 Dr. Hans Sloane, a young physician afterwards to be very famous, took up his abode with Sydenham. It was not till after Sydenham's death that his reputation reached the exalted position in which it has been held.

In the lives of many of the early physicians are interesting facts which throw considerable light on the progress of medicine, both as a branch of knowledge and a profession; but the exigencies of time and space compel me to be brief.

Samuel Collins, who was president of the College in 1695, was one of the earliest comparative anatomists, and wrote a work entitled "A System of Anatomy treating of

the Body of Man, Beasts, Birds, Fishes, Insects, and Plants." I am not acquainted with the work, but the title seems to indicate that he had enlarged views on the question of biology. **Nehemiah Grew,** who was secretary to the Royal Society in 1677, and an honorary Fellow of the College in 1682 (and possibly earlier), is said to have been the first who saw the analogy between animals and plants, and to establish the fact of sex in plants. In medicine he introduced Epsom salts, which he obtained by evaporating Epsom water, so that we owe him a great debt, and undoubtedly he is one of the greatest men who has been connected with the College. **Sir Edmund King** was surgeon to Charles II., and was made an honorary F.R.C.P. by command of His Majesty. Charles II. being seized with apoplexy on Feb. 2nd, 1684, King promply bled His Majesty without consultation. His act was subsequently approved by his colleagues, and he was ordered £1,000 by the Privy Council, which was never paid. **Francis Bernard** was apothecary to St. Bartholomew's Hospital, and when the staff of that institution ran away from the plague, Bernard stopped at his post and ministered to the wants of the patients. For this he was rewarded by being made assistant physician to the hospital, and became honorary F.R.C.P. in 1680. He died in 1697, and is buried in St. Botolph's, Aldersgate.

SECRET REMEDIES.

Two centuries ago, and even later than this, it was not thought unprofessional for a physician to have secret remedies. Thus Dr. Goddard, who was much trusted by Oliver Cromwell, who was one of the original members of the Royal Society, professor at Gresham College, the friend of Sydenham, and a Fellow of the College in 1646, was the inventor of "Goddard's drops." The most notable instance of "professional secrets," however, is

that of the midwifery forceps. This was the secret of the Chamberlen family, of whom I will mention two. **Peter Chamberlen** (M.D. Padua, F.R.C.P. 1628) was probably the first fashionable obstetrician, and is supposed to have been the inventor of the forceps. He made an attempt to organise the monthly nurses, was much employed about the English court, and had eighteen children by his two wives. **Hugh Chamberlen**, the son of Hugh Chamberlen and the nephew of Peter Chamberlen (F.R.C.P. 1694), was the most celebrated man-midwife of his day. He published a translation of Mauriceau's Midwifery, and in the preface to that book he says: "I will now take leave to offer an apology for not publishing the secret I mention we have to extract children without hooks where other artists use them; viz., there being my father and two brothers living that practise this art, I cannot esteem it my own to dispose of nor publish it without injury to them, and I think I have not been unserviceable to my own country, although I do but inform them that the forementioned three persons of our family and myself can serve them in these extremities with greater safety than others." This is a very pretty specimen of medical ethics on the part of one who was a censor of the College as late as 1721. What are probably the original forceps were accidentally discovered, in 1815, at Woodham Mortimer Hall, Essex, formerly the residence of Peter Chamberlen. "They were found under a trap-door in the floor of the uppermost of a series of closets, built over the entrance porch," and may now be seen in the library of the Royal Medico-Chirurgical Society. Hugh Chamberlen is buried in Westminster Abbey, where a Latin epitaph of seventy-two lines, by Bishop Atterbury, adorns his tomb.

I feel tempted to mention two or three more of the early physicians who are deservedly famous, but in doing

so I must limit myself to those who flourished mainly in the seventeenth century.

John Radcliffe, who became F.R.C.P. in 1687, appears to have been a blustering, kindly, and successful practitioner. He spoke his mind freely, even to monarchs, and seems to have made his way more by push than courtesy. His chief claim to be remembered is as a public benefactor. He accumulated a large fortune, and founded at Oxford the Radcliffe Library, Radcliffe Infirmary, Radcliffe Observatory, and Radcliffe Travelling Fellowship, and also left £500 a year to St. Bartholomew's Hospital, London, for improving the diets of the patients. Radcliffe was only one of many London doctors who have been great public benefactors. I have already alluded to Linacre, Caius, Harvey, Baldwin Hamey, Caldwell, and Croon, and the list may be enlarged by mentioning Sir Hans Sloane (who founded the British Museum and gave the Chelsea Garden to the Apothecaries' Society), William and John Hunter, Erasmus Wilson, and Richard Quain—the last and the most munificent benefactor of this (University) College.

Sir Hans Sloane was born in 1660, became F.R.C.P. in 1687, was president from 1719 to 1735, and died in 1753 in his ninety-fourth year. He was president of the Royal Society from 1727 (succeeding Sir Isaac Newton), and retired to Chelsea in 1740, where his name still lives in Sloane Street and Hans Place. In his youth he accompanied the Duke of Albemarle to Jamaica, and returned home with a valuable botanical collection. He was a great accumulator of archæological and natural curiosities, and his collection was by his will offered to the nation at a nominal sum, and thus was founded the British Museum. Sir Hans Sloane was born in the last days of the Commonwealth, only three years after the death of Harvey. In Evelyn's Diary we read how, on

April 16th, 1691, he (Evelyn) "went to see Dr. Sloane's curiosities, being an universal collection of the natural productions of Jamaica," &c. He lived in the reign of Charles II., James II., Anne, William III., George I., and George II., and died five years after the birth of Jeremy Bentham, who was so active in the foundation of University College.

THE CRUSADE AGAINST QUACKERY.

Perhaps the main object held in view by those who were instrumental in establishing the medical corporations was "protection," and certain it is that the monopoly of medical licensing enjoyed by the physicians and the barber-surgeons in London and seven miles round was very great. No small amount of the energies of the College of Physicians was in its earlier days devoted to the fighting of irregular practitioners, but this was and is a hopeless battle. We have seen how Henry VIII. protected the rights of physicians and surgeons, but then, as now, there was a great deal of public sympathy for irregular practitioners, and accordingly we find that in the thirty-fourth and thirty-fifth year of the reign of Henry VIII. an Act was passed, the chief clauses of which were to the following effect:—That the surgeons, "mindful onely of their own lucres, and nothing the profit or ease of the diseased or patient, have sued, troubled, and vexed divers honest persons, as well men as women, whom God hath endued with the knowledge of the nature, kind, and operation of certain herbs, roots, and waters, and the using and ministring of them to such as be pained with customable diseases, as women's breasts being sore, a pin and a web in the eye, uncomes of hands, scaldings, burnings, sore mouths, the stone, strangury, saucelin, and morphew, and such other like diseases, &c. &c. Therefore it shall be lawful for

any person to cure outward sores, notwithstanding the statute of the 3rd of Henry VIII." The public did not like being deprived of their favourite quacks and wise women; and the same feeling undoubtedly obtains at present in this country, where hundreds of newspapers are kept afloat almost entirely by quack advertisements, and the proprietor of a pill and ointment has recently died possessed of wealth probably greater than that of all the Fellows of both the Royal Colleges collectively. These are significant facts, and ought to warn us not to waste our energies in attempting to oppose human nature.

Dr. Goodall, in his account of the College of Physicians, published in 1684, gives many curious details of the conflicts of the College with quacks and empirics. The College possessed magisterial power, and, on conviction, the president and censors had power to fine and imprison. For instance, in 1632 Francis Roes, *alias* Vinter, was accused of undertaking to cure a woman of a tympany, for which he had made exorbitant charges: "Being asked what medicines he gave, at first he refused to discover them, saying he had them noted in his books; but after long expostulation he named jalap and elatorium (as he pronounced the word), and, being questioned what elatorium was made of, he said it was composed of three or four things, whereof diagridium was one. He was censured for giving elaterium (a medicine he knew not), and particularly to a woman at his own house, whom he afterwards sent home through the open streets, telling her it was a cordial. He was fined £10 and committed to prison." Again, we find one Richard Hammond, a surgeon, fined £5 and committed to prison for undertaking to cure a child of the dropsy. It appears that he administered a clyster composed of molasses, white hellebore, and red mercury, "which wrought so

violently that the boy died therewith." John Hope, an apothecary's apprentice, gets into trouble for giving a man two apples of coloquintida boiled in white wine, with cinnamon and nutmeg. "The medicine wrought both upwards and downwards; upward he vomited a fatty matter, and downward he voided a pottle of bloud," and ultimately died. This case was remitted to the higher courts of justice. In 1637 an order was sent from the Star Chamber "to examine the pretended cures of one Leverett, who said that he was a seventh son, and undertook the cure of several diseases by stroaking." The investigation of this case lasted over a month, and finally the College reported that Leverett was an impostor. "In the fourth year of King Edward VI., one Grig, a poulterer, of Surrey (taken among the people for a prophet in curing divers diseases by words and prayers, and saying he would take no money, &c.), was, by command of the Earl of Warwick and others and the Council, set on a scaffold in the town of Croidon in Surrey with a paper on his breast whereon was written his deceitful and hypocritical dealings; and after that on the 8th of September set on a pillory in Southwark, being then Our Lady Fair then kept, and the Mayor of London with his brethren the aldermen riding through the fair, the said *Grig* asked them and all the citizens forgiveness. Of the like counterfeit physician (saith Stow) have I noted to be set on horse-back, his face to the horse-tail, the same tail in his hand for a bridle, a collar of jordans about his neck, a whetstone on his breast, and so led through the city of London, with ringing of basons, and banished." The above are samples of dozens of similar cases; and it is interesting to note that many of these irregular practitioners had powerful friends, and we find Ministers of State writing on behalf of some of them, praying that the punishment may be remitted.

MEDICINE IN THE DAYS OF PEPYS.

In order to complete the picture of the profession in the seventeenth century, I have abstracted from the Diary of truthful Samuel Pepys a few facts having a bearing on medicine. These seem to me to throw no little light upon the science, practice, and ethics of medicine at his time: —"March 26th, 1660: This day it is two years since it pleased God that I was cut for the stone at Mrs. Turner's in Salisbury-court. And did resolve while I live to keep it a festival, as I did the last year at my house, and for ever to have Mrs. Turner and her company with me. But now it pleased God that I am prevented to do it openly: Only within my soul I can and do rejoice, and bless God, being at this time, blessed be His holy name, in as good health as ever I was in my life.—Oct. 19th, 1663: Coming to St. James's, I hear that the Queen did sleep five hours pretty well to-night, and that she waked and gargled her mouth, and to sleep again; but that her pulse beats fast, beating twenty to the King's or my Lady Suffolk's eleven. It seems she was so ill as to be shaved and pidgeons put to her feet, and to have the extreme unction given her by the priests, who were so long about it that the doctors were angry. The King they all say is most fondly disconsolate for her, and weeps by her, which makes her weep; which one this day told me he reckons a good sign, for that it carries away some rheume from the head.—Oct. 20th: Mrs. Sarah —— tells us that the Queen's sickness is the spotted fever, and that she is as full of spots as a leopard.—22nd: This morning, hearing that the Queen grows worse again, I sent to stop the making of my velvet cloak till I see whether she lives or dies.—24th: The Queen is in a good way to recovery; and Sir Francis Pridgeon [Prujean, President of the Royal College of Physicians] hath got great honour by it, it

being all imputed to his cordiall.—Jan. 16th, 1667 : Prince Rupert, I hear, is very ill ; yesterday given over, but better to-day.—28th : Prince Rupert is very bad still, and so bad that he do now yield to be trepanned.—Feb. 3rd : To White Hall.....Talking, and among other things, of the Prince's being trepanned, which was in doing just as we passed through the Stone Gallery, we asking at the door of his lodgings, and were told so. We are full of wishes for the good success, though I dare say but few do really concern ourselves for him in our hearts. With others into the House, and there hear that the work is done to the Prince in a few minutes without any pain at all to him, he not knowing when it was done. It was performed by Moulins. Having cut the outward table, as they call it, they find the inner all corrupted, so as to come out without any force ; and the fear is that the whole inside of his head is corrupted like that, which do yet make them afraid of him ; but no ill accident appeared in all the doing of the thing, but with all imaginable success, as Sir Alexander Frazier did tell me himself, I asking him, who is very kind to me.—April 3rd : This day I saw Prince Rupert abroad in the Vane room, pretty well as he used to be, and looks as well, only something appears to be under his periwigg on the crown of his head.—4th : (At the Duke of Albemarle's.) One at the table told an odd passage in the late plague, that at Petersfield (I think he said) one side of the street had every house almost infected through the town, and the other not one shut up.—June 28th, 1667 : Home, and there find my wife making of tea, a drink which Mr. Pelling, the potticary, tells her is good for her cold and defluxions.—Nov. 21st : With Creed to a tavern, where Dean Wilkins and others ; and a good discourse ; among the rest of a man that is a little frantic, and that is poor and a debauched man, that the College have hired for

20*s.* to have some of the blood of a sheep let into his body, and it is to be done on Saturday next. They purpose to let in about twelve ounces, which they compute is what will be let in in a minute's time by a watch. On this occasion Dr. Whistler [President of the Royal College of Physicians] told a pretty story, related by Muffet, a good author, of Dr. Caius, that built Caius College, that being very old, and living only at that time upon woman's milk, he, while he fed upon the milk of an angry, fretful woman, was so himself; and then being advised to take it of a good-natured, patient woman, he did become so beyond the common temper of his age.—30th: I was pleased to see the person who had his blood taken out .....saying he finds himself much better since, and as a new man. But he is cracked a little in his head, though he speaks very reasonably, and very well. He had but 20*s.* for his suffering it, and is to have the same again tried upon him; the first sound man that ever had it tried on him in England, and but one that we hear of in France.—June 23rd, 1668: To Dr. Turberville about my eyes, whom I met with, and he did discourse, I thought, learnedly about them, and takes time before he did prescribe me anything, to think of it.—29th: To Dr. Turberville's, and there did receive a direction for some physick, and also a glass of something to drop into my eyes; he gives me hope that I may do well.—July 3rd: To an alehouse; met Mr. Pierce, the surgeon, and Dr. Clarke, Waldron, Turberville, my physician for the eyes, and Lowre, to dissect several eyes of sheep and oxen, with great pleasure, and to my great information. But strange that this Turberville should be so great a man, and yet to this day has seen no eyes dissected, or but once, but desired this Dr. Lowre to give him the opportunity to see him dissect some.—13th: This morning I was let blood, and did bleed about fourteen ounces

towards curing my eye.—31st: The month ends sadly with me, my eyes being now past all use almost, and I am mighty hot about trying the late printed experiment of paper tubes.—Aug. 11th: Mighty pleased with a trial I have made of the use of a tube spectacall of paper, tried with my right eye."

Cesare Morelli (a music master) wrote thus to Mr. Pepys on April 11th, 1681: "Honoured Sir,—I did receive your last letter, dated the ninth of this month, with much grief, having an account of your painful fever. I pray God it will not vex your body too much; and if by chance it should vex you longer, there is here a man that can cure it with simpathetical powder, if you please to send me down the pearinghs of the nailes of both your hands and your foots, and three locks of hair of the top of your crown. I hope with the grace of God it will cure you," &c.

THE BARBER-SURGEONS.

Much as we owe to the College of Physicians, we owe even more to the early surgeons, and there is certainly no spot in this city which has a greater interest for us as students of medicine than the hall of the Barbers' Company in Monkwell Street, a street not far from the General Post Office. The house in Knightrider Street, the original home of the College of Physicians, is gone. The house in Amen Corner, the second home of the College, was burnt. The Grand College in Warwick Lane was deserted and sold, and has now completely disappeared. The Barbers' Hall remains and commands our respect as being on the original spot, though not the original building where the study of anatomy took its rise in this country. The barbers and surgeons have occupied premises in Monkwell Street certainly since their first incorporation

in 1460, possibly earlier. The present hall was built by Inigo Jones, and having partially escaped the fire in 1666, much of the original building remains, and certainly the present court-room and the elaborately carved shell canopy over the front door are both works which do credit to this famous architect. Originally, the hall stood

BARBER-SURGEONS' HALL.

detached from other buildings, and seems to have had a fair-sized piece of ground round it, and a garden at the back; and its theatre, one of Inigo Jones's best works, rested on one of the bastions of the old city wall. With land at its present enormous value, it is not to be wondered at, though much to be regretted, that the Company has turned every available inch to account; and the medical antiquary who now goes in search of this, to us, almost sacred edifice, will need to be warned that it is hemmed in and hidden by warehouses. It was in 1540

HOLBEIN'S PICTURE: HENRY VIII. GIVING A CHARTER TO THE BARBER-SURGEONS.

[*To face p.* 97.

that Henry VIII. gave a charter to the Barber-Surgeons, and Holbein's famous picture of this event is the chief treasure of the Barbers' Hall, which contains many other relics of medical interest. In this picture, which has been often engraved, and is doubtless familiar to many of you, there are certain points which merit our attention. It is a group of nineteen people, and it is probable that the portraits of all are faithful. The portrait of Henry VIII. was said by King James I. to be reported "very like him and well done," and it is probable that the portraits of the others are equally good. The king is seated, and the eighteen persons receiving the charter are on their knees. These eighteen are arranged in two groups—a group of three on the right hand of the king, and a group of fifteen on the left. Those on the right are probably entitled to take precedence of the others, they are all members of the king's household—viz., John Chambre, the king's physician, who was, as we have seen, one of the six persons named in the charter of the College of Physicians; Sir William Butts, physician to Henry VIII., and one of the characters in Shakspeare's play of that name; and Master J. Alsop, the Royal apothecary. The fifteen on the left are all surgeons or barbers. The chief, to whom the king is handing the charter, is Thomas Vicary, the king's sergeant-surgeon, and the first medical officer appointed to St. Bartholomew's Hospital; of the others, Ayliffe, Mumford, and Ferris were king's surgeons, and Symson, Harman, and Penn were king's barbers; of the remaining eight little is known.

THE FIRST ANATOMY LECTURES.

The original charter to the Barber-Surgeons provided that the two mysteries of barbery and surgery should be kept distinct, and it gave facilities for obtaining the bodies of executed felons for purposes of anatomical

study. There is no doubt that the anatomy lectures at the Barber-Surgeons' Hall preceded those given by the physicians. The necessity of a knowledge of anatomy must have been felt daily by these early surgeons, and, like practical men, they took steps to supply their wants. The giving of these lectures, a physician being appointed lecturer, was the chief work of the Company. Some of the particulars collected by Mr. South are of interest, as showing how this first London School of Anatomy was worked. Every member of the Company was bound to attend the anatomy demonstrations, a fine of fourpence being imposed upon those freemen who were late, and sixpence upon those who were absent. For each summons to "an anatomy" the sum of 3s. 4d. was charged, whether present or absent, and the members of the Company were bound to come "decently appareyled, for their own honestye, and also for the worshippe of the Company." The anatomical demonstrations appear to have been public, and their occurrence was a solemn festival—in fact, in the early days of the Company "private anatomies" were disallowed, except by special licence from the court. There were two masters of anatomy appointed yearly, and two stewards of anatomy to look after the creature comforts of those who attended the demonstration. It was also the duty of the masters and stewards to fetch the body from the place of execution, which was not always an enviable duty. The actual lecture and demonstration was given by a fifth officer, a "reader" specially chosen, who was generally a physician. The masters of anatomy had to make due provision for the comfort of the "Dr.," and they were specially charged to provide a "matte about the harthe in the hall," in order that he might not suffer from cold feet. They also had to provide two fine white rods for demonstrating, a wax candle to look into the body, necessary

instruments, and clean white sleeves and aprons for each day for themselves as well as for the reader. A fine of 40s. was imposed for inattention to these necessary details. The greatest formality was observed. The notices of the forthcoming demonstration were issued according to a regulated formula, which differed according to the rank in the Company of the person bidden, and, after assembling in the parlour, a procession to the theatre was marshalled by the clerk in due form. There were two demonstrations daily, at noon and at five, and between the morning and afternoon lecture the court and officials were "plentifully regaled," the doctor or reader "pulling off his own robes and putting on the clerk's, which has always been usual for him to dine in." These demonstrations went on for three consecutive days, and at their close the clerk "attends the doctor in the cloathing room, where he presents him, folded up in a piece of paper, the sum of ten pounds, and where afterwards he waits on the masters of anatomy and presents each of them in the like manner with the sum of three pounds." After each public demonstration the lecturer was allowed to give a private demonstration to his own pupils for three days, after which the body was decently interred, and the expenses incurred by the masters of anatomy (£3 7s. 6d.) were reimbursed. Seats were provided in the theatre, and the body was surrounded by a curtain until the demonstration actually began. Among the curiosities in Barbers' Hall is a portrait of Sir Charles Scarborough, the physician to Charles II., in the act of giving an anatomical lecture with a "subject" before him, and Alderman Arris at his side assisting him. Scarborough, who was a good anatomist and distinguished mathematician, is represented as seated, dressed in full robes of scarlet and ermine, wearing a velvet hat with jewelled band and with

lace cuffs, and Alderman Arris is scarcely less gorgeous. Alderman Arris, together with Dr. Gale, endowed those lectures, which are still given at the College of Surgeons, and which are known as the Arris and Gale Lectures. This Dr. Gale is not to be confounded with Thomas Gale, sergeant-surgeon to Queen Elizabeth, one of the earliest English writers on surgery.

It was on Feb. 27, 1662, that Samuel Pepys records that "about 11 o'clock Commissioner Pett and I walked to Chyrurgeon's Hall (we being all invited thither, and promised to dine there), where we were led into the theatre; and by-and-by comes the reader, Dr. Tearne, with the master and company, in a very handsome manner; and, all being settled, he began his lecture, and his discourse being ended, we had a fine dinner and good learned company, many doctors of Physique, and we used with extraordinary great respect. Among other observables we drunk the King's health out of a gilt cup given by King Henry VIII. to this Company, with bells hanging on it, which every man is to ring by shaking after he hath drunk-up the whole cup. . . . Dr. Scarborough took some of his friends, and I went with them, to see the body of a lusty fellow, a seaman, that was hanged for robbery." The cup to which Pepys alludes, and other interesting pieces of plate, are still in the possession of the Company, and they also have an excellent picture of Inigo Jones by Vandyke, and many other pictures of interest. There are also to be seen four silver wreaths worn by the master and wardens on state occasions, and upstairs is a massive oak table said to be the original table used for anatomical purposes.

The apprentices of the Company were kept in order. For example, they were not allowed to wear a beard of more than fifteen days' growth, and in case of offence in this particular the master was fined 6s. 8d. Apprentices

were bound to be able to read and write, and those that intended practising in London passed what appear to have been preliminary examinations. "How he knoweth what ys surgery and also what an anatomy ys, and how many parts it is; of what the iiij elements and the xij signes be, which is the first part of examynacion for a prentyce." The apprentice was then bound to read to the court every half-year an epistle, in order that the court might judge of his progress; and he first became a probationer and was licensed for so many years, at the end of which time, subject to good behaviour and adequate knowledge, he was admitted a master of surgery and anatomy. The fee for the apprentice's examination appears to have been a silver spoon, with his name upon it, weighing one ounce; and 7d. to the clerk for writing and seal. The examination fee for the great diploma appears to have been £6 6s.

THE APOTHECARIES.

We have seen that the physicians were an offshoot from the priests and the surgeons an offshoot from the barbers. In the same way, the apothecaries were originally linked with the grocers; and it was not till 1617 that James I. gave to the Apothecaries' Company an independent charter. The apothecaries were originally druggists pure and simple, but they took to prescribing, and this brought them into conflict with the physicians. In the end the apothecaries were victorious; and finally, in 1815, they acquired the rights of examining and licensing, which are practically the same as they now possess.

THE ROYAL SOCIETY.

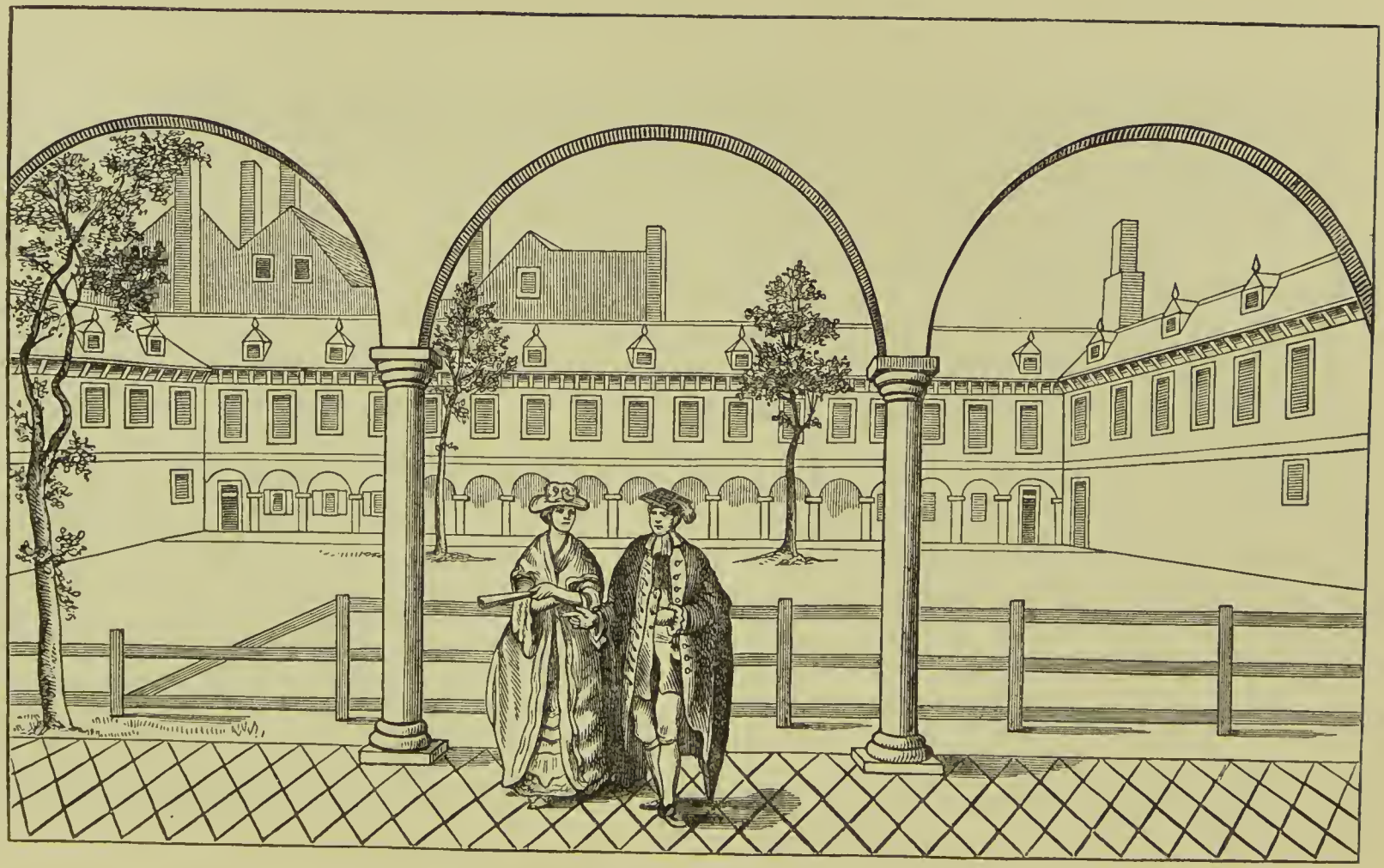
In considering the growth of medical knowledge in London, we should do very wrong to omit mentioning

the Royal Society, in the establishment of which Charles II. seems to have taken a lively interest. The first informal meetings of those who afterwards formed the nucleus of this important Society were held at Wadham College, Oxford; and after the Restoration, at Gresham College, London. Among those mentioned by Chamberlayne as the founders are Robert Boyle, Sir W. Petty, the Bishop of Salisbury, the Dean of Wells, Dr. Wallis, Dr. Goddard, Dr. Willis, Sir Christopher Wren, Lord Brouncker, John Evelyn, Thomas Henshaw, Sir George Ent, and Dr. Croone. The actual foundation of the Royal Society by charter from the King took place on April 22nd, 1663, and amongst the powers granted to the Society by their charter was that of taking and anatomising the dead bodies of persons put to death by order of the law. Their recognised place of meeting was Gresham College, but after the fire they met for a time at Arundel House. "In their discoursings," we are told, "they lay aside all set speeches, and eloquent harangues (as fit to be banished out of all civil assemblies, as a thing found by woeful experience, especially in England, fatal to peace and good manners), and everyone endeavours to express his opinion or desire in the plainest and most concise manner." Even at the present day there are not wanting those who sneer at the "ologies," and it is therefore not surprising that in 1682 it should have been necessary to meet criticism by putting forward a defence of this Society. "But what advantage and benefit," says Chamberlayne, "appears after so many meetings? It is true they have made many experiments of *Light* (as the excellent Lord Bacon calls them), and perhaps not so many experiments of fruit and profit; yet without doubt some may hereafter find out no small use and benefit even in those Luciferous experiments which now seem only curious and delightful; but it is also as true that the Royal Society hath made a

great number of experiments and inventions very profitable and advantageous to mankind. They have mightily improved the naval, civil, and military architecture. They have advanced the art, conduct, and security of navigation. They have not only put this kingdom upon planting woods, groves, orchards, vineyards, evergreens, but also Ireland, Scotland, New England, Virginia, Jamaica, Barbadoes, all our plantations, begin to feel the influence of this Society." At Gresham College they had a library, the gift of the Duke of Norfolk, and a repository or museum, filled with natural curiosities.

GRESHAM COLLEGE.

This allusion to the Royal Society has brought to our notice Gresham College, the first home of the Society. Pepys often alludes to "The College," meaning thereby the meetings of the Royal Society in Gresham College. This College, which ought to have been the nucleus of a university of London, was founded by Sir Thomas Gresham, who was born in 1519, and flourished in the reigns of Edward VI., Mary, and Elizabeth. He was himself a university man, having been at Caius College, Cambridge, and he amassed great wealth as a merchant and financier. He died in 1579, and by his will he left the bulk of his property to his widow, with the stipulation that at her death his house in Bishopsgate Street should be converted into a college, and that it should have for its endowment the rents arising from the shops in the Royal Exchange, which in Gresham's time amounted to £700 a year. The Corporation and the Mercers' Company were the trustees of this fund. There were seven endowed professorships—viz., astronomy, physic, law, geometry, divinity, rhetoric, and music. Gresham's house in Bishopsgate Street appears to have been admirably adapted for a college. It was



GRESHAM COLLEGE.

quadrangular, and had a garden and planted walks, so that the quiet and seclusion which are essential to study might have been obtained there. Be the cause what it may, the College, which escaped the fire, did not flourish.

The Royal Society left it in 1710, and in 1768 Gresham House was pulled down to make way for an Excise Office, the Government granting £500 a year in exchange for the house and land. After this date the lectures were given in a room of the Royal Exchange, and in 1843 the present Gresham College was built at the corner of Basinghall Street, the house being outwardly not to be distinguished from the mercantile houses which abound in the city. The cause of the failure of Gresham College is doubtful. Dr. Johnson was of opinion that it was due to the fact that the students paid no fees, and therefore a powerful stimulus to the professors was wanting. The condition that the lectures were to be given in Latin as well as English, a condition reasonable enough in Gresham's time, has served as a clog; but probably the chief cause is to be found in the physical and moral atmosphere of the city. The corner of Basinghall Street is a very different place from those "groves of the Academy where Plato taught the truth." Here every creature you meet appears to be in a hurry—certainly in too great a hurry to get wisdom, which, says the son of Sirach, "cometh by opportunities of leisure."

If universities, in the proper sense, have languished in London, the same cannot be said of learned societies. London, the great exchange and mart of the world, has assisted by its numerous and flourishing societies in the exchange of knowledge and ideas among learned men. The Medical Society of London was founded in 1773 in Bolt Court, Fleet Street. The Royal Medico-Chirurgical Society was founded in 1805. The other medical societies are all recent creations.

Thus it appears that the College of Physicians and the Company of Barbers and Surgeons, and also Gresham College, were the earliest schools of medicine in London, the only places where anything approaching to systematic instruction was given.

THE EARLIEST HOSPITALS.

It was scarcely before the beginning of the eighteenth century that the hospitals of London began to be of any importance in the teaching of medicine. The earliest hospitals in London were leper hospitals, for at one time leprosy abounded in this city. St. James's Palace is built on the site of a hospital for "maidens that were leprous;" the name Spitalfields reminds us that at one time there was a "spittle" here for lepers. There were other hospitals of a similar kind in Southwark and Kingsland. The next hospitals were mostly institutions founded by the religious houses, and were very much of the nature of almshouses, where the wretched, unfortunate, and diseased were received for a time. The two most important of these were St. Bartholomew's Hospital and St. Thomas's Hospital, and a few words as to their origin will not, I think, be uninteresting.

As regards St. Bartholomew's Hospital, Mr. Morrant Baker has written a most interesting monograph, entitled "The Two Foundations," to which I am indebted for much that I have to say under this head. This hospital owes its origin to Rahere, who is said to have been a minstrel jester at the court of Henry I. Concerning this pious founder, an aged chronicler (one of the monks of the Priory of St. Bartholomew) tells us: "Man born and sprung of low kynage, and when he attained the flower of youth he began to haunt the households of noblemen and the palaces of princes; where under every elbow of them, he spread their cushions with japes and flatterings,

delectably anointing their eyes, by this manner to draw to him their friendships. And still he was not content with this, but often haunted the king's palace (Henry I.), and, among the noiseful press of that tumultuous court, informed himself with polity and cardinal suavity, by the which he might draw to him the hearts of many a one." It does not seem at all likely that Rahere ever wore a cap and bells as a professional jester; but that he was rather a *persona grata* about the court, alike for his merry tongue and his handsome presence, concerning which his effigy in the church of St. Bartholomew the Great speaks clearly enough. Dr. Norman Moore, by reference to an early manuscript, has clearly shown that Rahere was no professional jester. He was early in life a Canon of St. Paul's, and Dr. Moore thinks that he was possibly famous for his wit, just as Sydney Smith was famous. His fashionable and giddy life seems to have told upon Rahere, and he ultimately turned serious, made a pilgrimage to Rome, fell ill there, saw visions, notably one of St. Bartholomew the Apostle, who commanded him to go home and build a church and asylum for the sick and weary in Smithfield. Rahere's persuasive powers were effectual in obtaining a site in the King's Market, Smithfield, and the foundation of the church and hospital took place in 1123. As to Smithfield, the monk's manuscript continues: "Right unclean it was; and, as a marsh, dungy, and fenny, with water almost every time abounding and that that was eminent above the water, dry, was deputed and ordained to the jubeit or gallows of thieves, and to the torment of other that were condemned by judicial authority." Rahere seems to have brought his histrionic talents to bear on his good work, for the chronicler records that by feigning idiocy he attracted the reverence of the superstitious, and "drew to him the fellowship of children and servants, assembling himself as one of them; and with their use and help, stones and

other things profitable to the building lightly he gathered together." It is needless to say that many miracles were performed in the early days of the Priory and Hospital of St. Bartholomew. It was distinctly a monastic institution, and more resembled, as Mr. Baker suggests, the sick and lying-in ward of a modern workhouse than a hospital as we understand the term. Mr. Baker further suggests that the jousts and tournaments of Smithfield, as well as the horse and cattle fair which had been held there from time immemorial, may have provided the monks with not a few surgical casualties.

For the following facts concerning St. Thomas's Hospital I am indebted to a paper by Mr. Rendle, read in 1882 before the Royal Society of Literature :—

Those who have travelled from London Bridge to Cannon Street by the railway, must have noticed the fine Church of St. Saviour's, Southwark. This church marks the site of the ancient Priory of St. Mary Overy, which was the original home of St. Thomas's Hospital. Southwark, in ancient times, was largely occupied by the clergy. Not far from the Priory of St. Mary was the Abbey of Bermondsey, and the palatial residences of the Bishops of Winchester and Rochester. In 1207 the Priory of St. Mary was burnt down, and with it the Hospital of St. Mary. At Winchester House was living at that time Peter de Rupibus, Bishop of Winchester. This prelate decided to rebuild the hospital in a better form and on a better site, and accordingly set to work to obtain funds by means of the usual Charter of Indulgences addressed to the faithful in 1228. "Behold," says Bishop Peter, "at Southwark an ancient hospital, built of old to entertain the poor, has been entirely reduced to cinders and ashes by a lamentable fire; moreover, the place wherein the old hospital has been founded was less suitable, less appropriate for entertainment and habitation,

both by reason of the straitness of the place and by reason of the lack of water and many other conveniences; according to the advice of us, and of wise men, it is transferred and transplanted to another more commodious site, where the air is more pure and calm, and the supply of water more plentiful. But whereas the building of the new hospital calls for many and manifold outlays, and cannot be crowned with its due consummation without the aid of the faithful, we request, advise, and earnestly exhort you all, and with a view to the remission of your sins enjoin you according to your abilities, from the goods bestowed on you by God, to stretch forth the hand of pity to the building of this new hospital, and out of your feelings of charity to receive the messengers of the same hospital coming to you for the needs of the poor to be therein entertained, that for these and other works of piety you shall do you may after the course of this life reap the reward of eternal felicity from him who is the recompenser of all good deeds and the loving and compassionate God. Now we, by the mercy of God, and trusting in the merits of the glorious Virgin Mary and the apostles Peter and Paul, and St. Thomas the Martyr and St. Swithin, to all the believers in Christ who shall look with the eye of piety on the gifts of their alms—that is to say, having confessed, contrite in heart and truly penitent—we remit to such twenty days of the penance enjoined on them, and grant it to them to share in the prayers and benefactions made in the church of Winchester and other churches erected by the grace of the Lord in the diocese of Winchester. Ever in the Lord. Farewell." The Prior of St. Mary Overy assisted in the good work, and several popes confirmed the acts of their subordinates, and thus St. Thomas's Hospital was founded on the site now occupied by part of the London Bridge Railway Station—a site which was its home from

1228 to 1862. In 1535 there were forty beds at St. Thomas's Hospital. In 1507 the hospital was enlarged and repaired, "the void ground," called the "Faucon," and afterwards the "Tenys Place" and "Closshbane" (probably connected with the game of skittles), was acquired, and the following was the bill: Paid to Mr. Scott of Kent, and Ann, his wife, for the land forty marks, and for a gown cloth of damask for the said Ann £3 16s. 8d. —in all £31 13s. 4d." When this land, or very nearly the same, was sold to the South-Eastern Railway Company in 1862 it fetched £296,000. The total cost of land and buildings erected in 1507, with the legal expenses, was £311 6s. 1½d. About the year 1527, James Nycolson, of "St. Thomas's Spyttell in Southwark," had a printing press within the precincts of the hospital, and among other notable books produced the Bible known as "Nycolson's Coverdale."

THE ROYAL HOSPITALS.

When the religious houses were suppressed by Henry VIII., these hospitals and asylums, which were part and parcel of them, were suppressed also, and for a time the poor found themselves deprived of much assistance to which they had become accustomed. It was therefore found necessary to re-establish these institutions on a new footing. This was done by Henry VIII. and Edward VI., and when we speak of these monarchs as founders we must remember that they refounded in a better form that which Henry had previously destroyed. St. Bartholomew's was refounded in 1548, and St. Thomas's in 1553; and in 1557 the four Royal hospitals —St. Bartholomew's, St. Thomas's, Christ's Hospital, and Bridewell—were, in a sense, incorporated together for purposes of management. Dr. Payne has kindly permitted me to inspect a little book bearing the date 1557,

and entitled "The Order of the Hospitalls of K. Henry the viii.th and King Edward the vi.th—viz., St. Bartholomew's, Christ's, Bridewell, St. Thomas's. By the Mayor, Cominaltie, and Citizens of London, Governours of the Possessions, Revenues and Goods of the sayd Hospitals." From this it appears that "one Hospital, called St. Bartholomew's the little," was founded by King Henry VIII., and the other three by his successor. The governors were to be sixty-six at least, fourteen aldermen and fifty-two grave commoners, whereof four were to be scriveners, "to the intent that in every house may be one or more." Two of the aldermen were "governors-general," one to be called controller and the other surveyor, while the remaining sixty-four were divided equally among the four hospitals, three aldermen and thirteen commoners to each, whereof one was to be their treasurer. The governors were appointed at a general court held on St. Matthew's Day (Sept. 21st), and held office for two years from Michaelmas Day (Sept. 29th). On appointment a solemn charge was read to them, in which the objects of the four hospitals are thus set forth: "Idelnes, the enemie of all vertue, is suppressed and banished; the tender youth of the nedy and idle beggars vertuously brought up; the number of sick, sore, and miserable people refreshed, harbored, and cured of their maladies; and the vile and sturdy strumpet compelled to labour and travaile in profitable exercises." The latter paragraph refers especially to Bridewell, which was originally established as a house of correction "for the strumpet and idle person, for the rioter that consumeth all, and for the vagabond that will abide in no place." Bridewell has been rendered immortal by Hogarth's fourth plate of the "Harlot's Progress," but as an institution it disappeared in 1863. Among the officers of the Royal Hospitals were "scruteners," who performed

the duties of "collectors" of legacies and other gifts. The charge to these officers concluded as follows: "And finally, when you shall hapen to be in the company of good, vertuous, and welthy men, you shall to the best and uttermost of your wits and powers, advance, commend, and set forth the order of the said Hospital and the notable commodities that ensue to the whole realme of England, and chiefly to the citie of London, by erection of the same; and also how faithfully and truly the goods geven to their uses are by the Governours thereof ministered and bestowed." They were also enjoined to exhort scriveners to remind testators of the hospital when making their wills, and to provide the said scriveners with prospectuses for their information. They were further enjoined to exhort the bishop and clergy, and especially the preachers at "Pawles Crosse": "That they twise or thrise in the quarter at the leaste, do move and exhort the people to further the said work." The officers attached to each hospital were "the clerke, the matron, the nurses and keepers of wards, the steward, the officer appointed to warne the collectors and church wardens, the cooke, the butler, the porter, the shoemaker, the chirurgian, the barbour, the bedles." Another institution having a similar origin to the Royal Hospitals is Bethlehem Hospital, or Bedlam. This was founded by Henry VIII., on the site of the suppressed Priory of our Lady of Bethlehem. At the end of the seventeenth century it was moved to a new building in Moorfields, and finally, at the beginning of the present century, it was established where it now is, in St. George's Fields, Southwark.

EARLY HOSPITAL PRACTICE.

We get an insight into the methods of practice in the London hospitals in the sixteenth and seventeenth centuries from a series of papers in the St. Bartholomew's

Hospital Reports, written by Sir James Paget, Dr. Church, and Dr. Norman Moore. In the eighteenth volume of St. Bartholomew's Hospital Reports Dr. Norman Moore gives some interesting facts with regard to the first medical officer, Thomas Vicary, who was appointed somewhere near the year 1550. He lived in the hospital, wore a smart livery which cost fifty-three shillings, was sergeant-surgeon to Henry VIII. and his three successors, and wrote a book on anatomy. Thomas Vicary is represented in Holbein's picture of Henry VIII. granting a charter to the Barber-Surgeons. He appears to have served abroad with the army, and to have been a person of considerable experience, and to have had a proper sense of his duty as a professional man and a citizen. Not so much is to be said for the first physician to St. Bartholomew's, Dr. Lopus, a Portuguese Jew, appointed in 1561, whose main object in this world appears to have been to get money. He was convicted of conspiring with the Spaniards to compass Queen Elizabeth's death by poison, and in 1594 was hanged at Tyburn. Dr. Norman Moore gives another graphic picture of an Elizabethan surgeon in William Clowes, a man who was an army surgeon attached to the Earl of Leicester, and who in the intervals of foreign service was attached to St. Bartholomew's. Clowes appears to have been a man of learning and experience, devoted to his art, and well able to do battle with irregular practitioners. Of these encounters he doubtless had many, and he gives a lively description of an interview with a quack vendor of a balm and plaster. "Then riseth out of his chayre, flering and gering, this myraculous surgeon, gloriously glittering like the man in the moon, with his bracelets about his armes, therein many precious jewels and stones of St. Vincent his Rockes, his fingers full of rings, a silver case with instruments hanging at his girdle, and a gilt spatula

sticking in his hat, with a rose and crown fixed on the same." Clowes was surgeon to Christ's Hospital, and we learn the interesting fact that in his day twenty or thirty children had the scurvy at a time—a fact due to a diet largely composed of fish and other salted provisions, with a scanty allowance of vegetables and a total absence of potatoes.

Sir James Paget, in an interesting paper (written in 1846 while he was filling the offices of Warden to St. Bartholomew's and Lecturer on Physiology) entitled "Records of Harvey," gives us some facts regarding this very great man, which help us to understand London "hospital practice" as carried on during the reigns of James I. and Charles I. Harvey was appointed physician to the hospital in 1609, seven years after taking his degree at Padua, and seven years before he imparted his great discovery of the circulation to the College of Physicians. He was appointed during the lifetime of his predecessor, Dr. Wilkinson, and was to succeed on the death or retirement of the latter, and, like candidates for hospital appointments of the present day, he came furnished with testimonials, one from the King, and another from the President of the College of Physicians; and it is almost needless to say that his application was granted. On his appointment after the death of Dr. Wilkinson, the following "charge" was read to him:—

"Physician,—You are here elected and admitted to be the physician of the poor of this hospital to perform the charge following—that is to say, one day at the least through the year, or oftener as need shall require, you shall come to this hospital and cause the hospitaller, matron, or porter to call before you in the hall of this hospital such and so many of the poor harboured in this hospital as shall need the counsel and advice of the physician. And you are here required and desired by

us in God His most holy Name, that you endeavour yourself to use the best of your knowledge in the profession of physic to the poor then present or any other of the poor at any time of the week which shall be sent home unto you by the hospitaller or matron for your counsel, writing in a book appointed for that purpose such medicines with their compounds and necessaries as appertaineth to the apothecary of this house, to be provided and made ready for to be administered unto the poor, every one in particular according to his disease. You shall not for favour, lucre, or gain, appoint or write anything for the poor, but such good and wholesome things as you shall think, with your best advice, will do the poor good, without any affection or respect to be had to the apothecary. And you shall not take gift or reward of any of the poor of this house for your counsel."

In 1626 Harvey's stipend, which had been £25 per annum, was raised to £33 6s. 8d., on condition that he relinquished his claim to one of the hospital houses. In 1630 he obtained leave of absence from his hospital duties, having been commanded by the King to travel with James Stuart, Duke of Lenox. Harvey was at this time physician extraordinary to the King, and in the year following was appointed physician in ordinary. Dr. Andrewes appears to have been appointed as Harvey's substitute during his absence, the governors showing themselves somewhat unwilling to accept Dr. Smith, who was Harvey's nominee. It appears that the work of the hospital increasing, and Harvey being much occupied at court, Dr. Andrewes was definitely appointed Harvey's coadjutor, or, as we should say, "assistant physician," with the yearly stipend of £33 6s. 8d. A set of rules was drawn up by Harvey and accepted by the governors, which are interesting in two particulars: first, as showing

that Harvey was impressed with the necessity of limiting the relief afforded by the hospital, and that he foresaw the inconvenience likely to arise from a press of what we should call "out-patients;" and secondly, that in the matter of prescribing internal remedies the chirurgeons were unable to act independently of the physicians. It further appears that there were "lock" hospitals in connection with St. Bartholomew's, established in Southwark and Kingsland, in the disused Leper Hospitals (leprosy having then disappeared from London), for the reception of venereal cases. That venereal disease had long been very rife in London appears from the statement of William Clowes in 1596, that within five years over 1,000 cases had been cured at St. Bartholomew's, and he adds, "I speak nothing of St. Thomas Hospitall, and other houses about the city, wherein an infinite multitude are daily cured." Harvey retired from St. Bartholomew's in 1643. In Harvey's time the staff consisted of two physicians, three surgeons, one of whom, John Woodhall, was the author of the "Surgeon's Mate," and in his twenty-four years' service amputated "many more than 100 of legges and armes," with a mortality of 20 per cent., one surgeon for the stone, two surgeons or "guides" for the lock hospitals, an apothecary, and "a curer of scald heads." This latter functionary appears to have been a woman, and the salary paid to her for her services varied from £27 in 1623 to £126 in 1642, and there is evidence to show that she received three or four shillings for each scald head cured. According to Dr. Church, at St. Bartholomew's Hospital, where the diet, owing to the munificence of Dr. Radcliffe, has, since his time at least, been exceptionally good, so late as 1767 potatoes do not seem to have been introduced into any of the diets; greens were given on certain days of the week, but no other vegetables are mentioned.

THE PHARMACOPŒIAS.

Dr. Church, in an article in St. Bartholomew's Hospital Reports (vol. xx.), called "Our Hospital Pharmacopœia," gives many interesting facts. The surgeons found their own drugs in 1549, and they were allowed £18 a year "because things pertaining to their faculty be very dear." In a note appended to an old formula in the St. Bartholomew's Pharmacopœia for a poultice, of which cow-dung was one ingredient, Dr. Church says: "Those who have not had the curiosity to look back at the old Pharmacopœias of the London Colleges of the sixteenth and seventeenth centuries, can hardly imagine the disgusting nature of the substances they contained. In the catalogue of the official simples of our own London College for the year 1689 occur—'Homo Vivens: Capilli ungues, saliva, cerumen, sordes, sudor, urina, stercus sanguis, calculi, semen, lac, menses, secundinæ. Homo mortuus: Cadaver caro, cutis, pinguedo, ossa, cranium, cerebrum, cor, fel, manus.' And this at a time when R. Morton, Edward Tyson, Hans Sloane, and Richard Blackmore were Fellows of our College and Sydenham a Licentiate. . . . It is not until the fifth edition of the Pharmacopœia of our London College that we get rid of the old traditions handed down from the earliest periods of medicine. The 1746 Pharmacopœia may be said to mark a perfect revolution, or rather, I should say, reformation in the annals of pharmacy." This purging of the Pharmacopœia of disgusting things, "for the most part superstitiously and doatingly derived from oracles, dreams, and astrological fancies," was largely due to Dr. Plumptre, who was president of the College from 1740 to 1746, and the extent of it may be gained from the fact that the "simples," which numbered 645 in the fourth edition, had, in the fifth, dwindled to 208. Many of the formulæ previously in use had been derived from

the East, and notably from a learned pharmacologist called John of Damascus, concerning the date of whom authorities agree to differ.

The complexity of some of the old formulæ was prodigious. The antidote of Matthiolus against poisons and plague contained 131 ingredients, and Venice treacle, which was largely prescribed by Sydenham and even later physicians, contained over sixty. In the sixth (1788) edition of the Pharmacopœia, sixty-three articles which appeared in the fifth edition were discontinued.

Among those who stayed at his post during the plague must be mentioned Dr. Francis Bernard, apothecary, and subsequently physician (1678) to St. Bartholomew's Hospital. To rightly estimate his conduct we must remember that the governors of the hospital, as well as the physicians had deserted it. Dr. Church gives the following extracts from the minutes of the Court: "Held at the 'Green Man,' near Laieton, in the county of Essex, Sept. 28th, 1665. Forasmuch as it was now understood that the two doctors were remiss to officiate or procure their business to be done as it ought to be. It was therefore thought fit for Dr. Bernard, the apothecary, whose ability is so well approved, should prescribe at the present for the patients in the said doctors' stead, until further orders thereon." At the same Court the salaries of the two doctors, Dr. Micklethwaite and Dr. Tearne, were ordered not to be paid.

The treatment of the patients in the early days of the hospitals was occasionally a little severe. Thus Dr. Steele of Guy's has kindly furnished me with a few extracts made from one of the old committee books of St. Thomas's: "1567. Patients were ordered to be whipped at the cross for misdemeanour. 1573. A hand-mill was ordered to grind corn to keep patients from idleness. 1598. Foul patients (*i.e.*, venereal),

notoriously lewd livers, were ordered when cured to be punished at the cross before being discharged." This reads like great severity, but severity was probably necessary in Southwark, which was rather a rough suburb of London. Thus an old map of Southwark given in Mr. Rendle's paper shows that in the year 1542 there were some eighteen large inns, of which the "Tabard" or "Talbot" was one. Here also in later times was Paris Garden, bull rings, bear rings, the Globe Theatre, and lastly, the brothels or stews which were under the control of the Bishop of Winchester, the denizens being known as Winchester geese. Perhaps, therefore, it is not surprising that in this map are shown two sets of pillories and cages, and that the governors of the hospital found strong measures to be necessary to maintain discipline.

THE RISE OF THE MEDICAL SCHOOLS.

The anatomical lectures given by the Barber-Surgeons and Physicians were for a long time the only sources of practical anatomical knowledge; but the want of more opportunities for dissecting began in time to be felt by the apprentices of the surgeons employed at the hospitals. In the later days of the Barber-Surgeons' Company difficulties were experienced in obtaining subjects for dissection, and there is evidence to show that the officials having charge of executions were bribed to let the bodies of felons pass into private hands. William Cheselden (1688-1752) was one of the chief offenders in holding "private anatomies," which were contrary to the rules of the Company. Cheselden was renowned as an anatomist and surgeon, and did much to perfect the operation of lateral lithotomy, and must be looked upon as the real founder of the medical school of St. Thomas's. Before his time, however (viz., in 1695), complaint was made that the surgeons of St. Thomas's taught surgery to other than their own

apprentices; and in 1702 the governors of St. Thomas's, while recognising the right of the surgeons to take pupils, ordained that "none shall have more than three cubbs at one time, nor take any for less than a year." "Private anatomies" began gradually to be more common, and in 1717 we come upon a record of "body-snatching," when "the widow of William Childers made complaint that her husband's corps, after its buryal in the burying place in Moorfields, was taken up by the gravedigger and sold to some surgeons, which corps was stopped at an inn in a hamper to be sent to Oxford" (Church). In 1726 the anatomical museum at St. Bartholomew's was commenced by John Freke, which is strong evidence of the growth of anatomical teaching, and in 1734 mention is made in the records of "the dissecting-room belonging to this house."

It was not till 1750 that leave was obtained for the regular making of post-mortem examinations at St. Bartholomew's. In 1767 an operating theatre was erected; and finally, in 1822, an anatomical theatre was built for John Abernethy, who was really the founder of the Medical School of St. Bartholomew's.

HOSPITALS BUILT BY PUBLIC BENEVOLENCE.

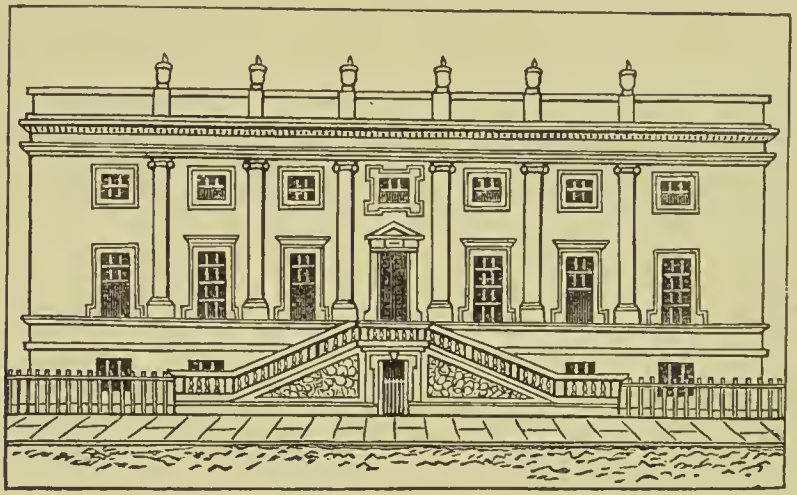
It was in the eighteenth century that the Royal Hospitals were found to be insufficient for the wants of the population, and private benevolence began to supply the deficiencies of Royal foundations. The Westminster Hospital is said to have been the first hospital established by subscription—viz., in 1719, the present building dating from 1732. I can do little more than mention these hospitals; but in doing so, with their dates, I would call attention to the fact that most of them were originally built in what were then the outskirts of the town, just as St. Bartholomew's was outside the walls, and St. Thomas's in the unimportant

suburb of Southwark. Guy's was founded in 1722 by Thomas Guy, a bookseller, and, according to recent information, a publisher. He is said to have made his money partly by selling Bibles, partly by buying up sailors' prize tickets, and partly by successful speculations at the time of the South Sea Bubble. Be that as it may, he spent over £18,000 on the building of his hospital, and endowed it with other £220,000. St. George's was founded in 1733; the London Hospital in 1740; the Lock Hospital in 1746; Queen Charlotte's Lying-in Hospital in 1752; the Small-pox Hospital (originally at King's Cross) in 1746; the Middlesex Hospital in 1745; St. Luke's Hospital for Lunaticks in 1751; the Ophthalmic Hospital, Moorfields, in 1804; Charing-cross Hospital (originating from a dispensary existing in 1818) in 1831; the Royal Free Hospital in 1828; University College Hospital in 1833; King's College Hospital in 1839; Brompton Consumption Hospital in 1844; and St. Mary's Hospital in 1851. The above list includes only some of the chief hospitals of London, and it is impossible to overestimate the service they have have done to humanity, not only by relieving distress, but in disseminating a knowledge of medicine and surgery.

In bringing this part of my address to a close, I have only to mention that in 1745 the surgeons finally separated from the barbers. They obtained a new charter and removed to Surgeons' Hall in the Old Bailey, where they remained till 1800, when they again removed to the present house in Lincoln's Inn Fields, and became the Royal College of Surgeons of England.

In treating of a subject like that which I have chosen, it becomes necessary to adopt some plan of limitation, otherwise one would talk interminably. On this account I have resolved to give no details concerning the great London physicians and surgeons who flourished in the

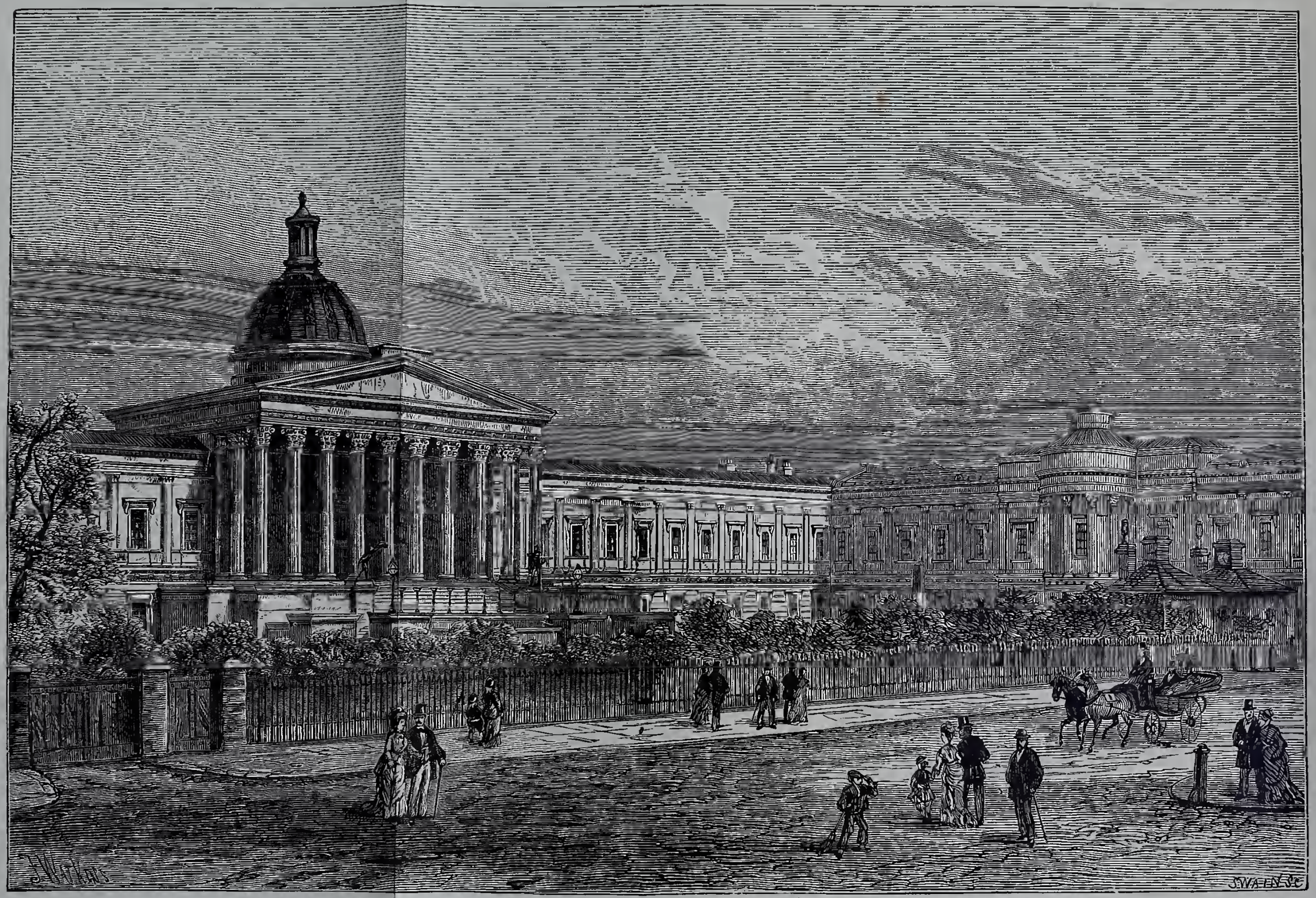
eighteenth and the beginning of the nineteenth centuries. If, therefore, I say nothing of Arbuthnot, Akenside, Mead, Pringle, Smellie, Baker, William and John Hunter, Cline, Sharpe, Percival Pott, Abernethy, Sir Charles Bell, Liston, Brodie, Astley Cooper, John Abernethy, William Lawrence, and many others, it is not from want of appreciation of their merits, but merely because to do so would take me too far. I purpose, therefore, to skip over the eighteenth and the beginning of the nineteenth century



SURGEONS' HALL, OLD BAILEY.

and conclude my paper with a few remarks on the teaching of medicine in modern London.

Fifty years ago medical schools were very different from what they are now. The teaching was far less thorough, the examinations far less complete. For example, according to Sir James Paget ("St. Bartholomew's Hospital Fifty Years Ago"), it was the universal custom for students to be apprenticed in the country, and to spend eighteen months in London before going up for the College and Hall. The examination at the College of Surgeons was conducted by ten examiners, who sat at a semicircular table, was entirely *vivâ voce*, and lasted



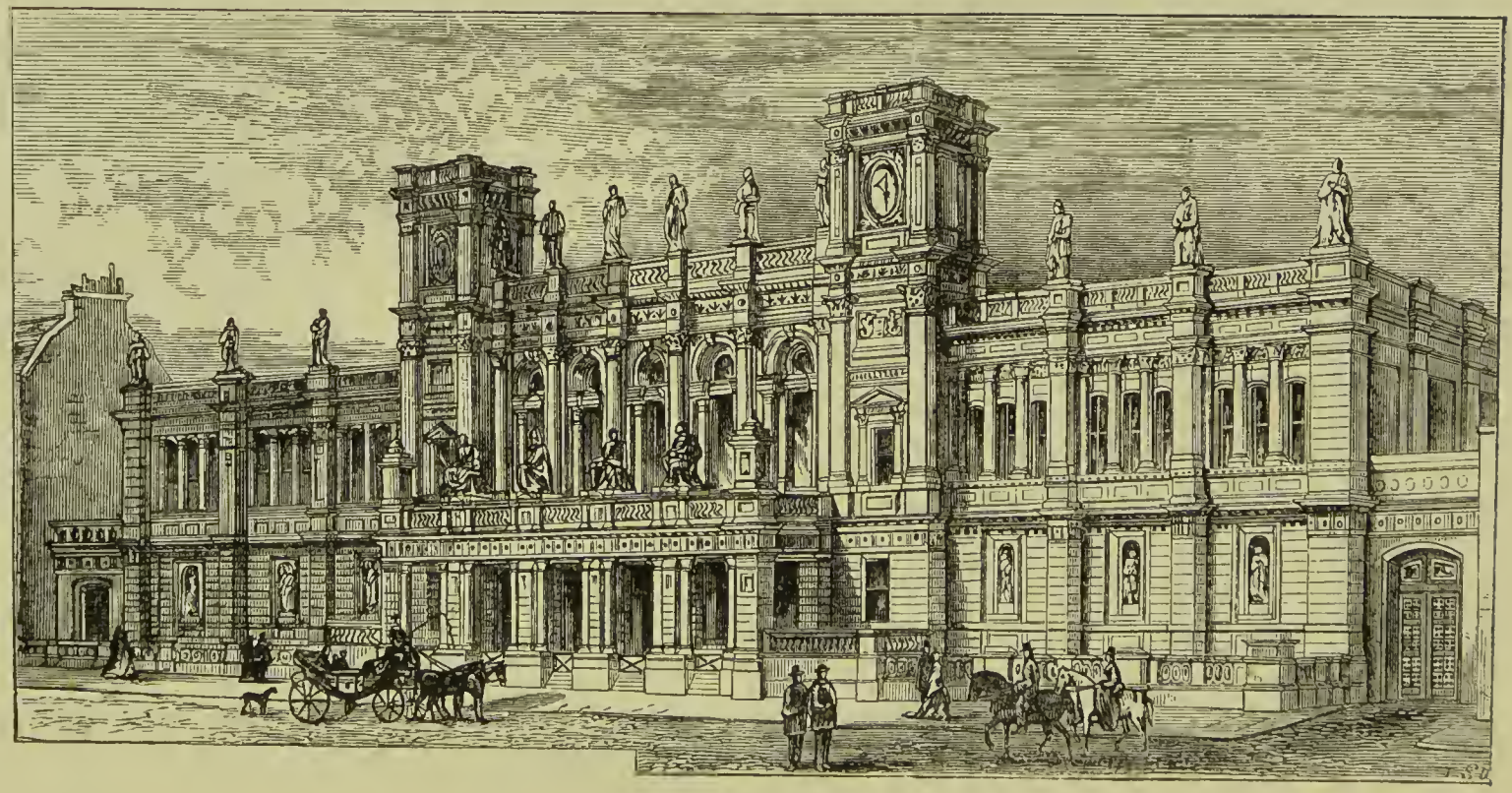
UNIVERSITY COLLEGE, GOWER STREET.

[*To face p.* 123.

twenty minutes. The teaching for these examinations was entirely by lectures, and it was no uncommon thing for one man to lecture on more than one subject. Thus, at St. Bartholomew's, Stanley, who was surgeon to the hospital, lectured on anatomy and physiology, and the senior physician on medicine and chemistry, while of clinical instruction there was practically none. The operating was swift and dexterous, the mortality after it great, "for there was scarcely a thought about blood infections.....none would hesitate to go straight from a dissection of a dead body to an operation on a living one, and at the first dressing of an amputation or any large wound the stench of the decomposing bloody fluid running from it was enough to infect the whole ward." The nursing at that time was of a rough order. The nurses were often intemperate, and almost always women who morally and intellectually might fairly be classed among the lower orders.

MODERN MEDICAL SCHOOLS AND EXAMINATIONS.

Things are very different now, and it is only fair to state that this College and the University of London were undoubtedly the pioneers in that great improvement in medical education and medical examinations which has taken place during the reign of Her Majesty. University College was established in 1828, and within ten years of that date we find an illustrious staff of professors, nearly every one of whom has had an important share in increasing our knowledge of natural science in its widest sense. Turner and Thomas Graham, the latter certainly the greatest chemist of his time, were teaching chemistry; Lindley and Grant, each of them pre-eminent in his own department of knowledge, held the chairs of botany and comparative anatomy; while Dionysius Lardner, a man of great learning, in whom the power of expounding and lecturing was developed to an extraordinary degree, was



LONDON UNIVERSITY, BURLINGTON GARDENS.

professor of natural philosophy. Quain and Sharpey were teaching anatomy and physiology, and writing the world-famous text-book still known as "Quain and Sharpey." Carswell was professor of morbid anatomy, and producing the series of marvellous water-colour drawings illustrative of his subject which are, and ever must be, reckoned among the greatest treasures of our museum. Samuel Cooper and Liston were teaching surgery; Anthony Todd Thompson, materia medica; Davis, midwifery; Gordon-Smith, medical jurisprudence; while Elliotson and C. J. B. Williams, who but lately was the sole survivor of his then colleagues, were setting an example in the teaching of medicine the effect of which is doubtless felt amongst us still. Here, then, more than fifty years ago, was a medical school complete in the modern sense. Our teaching has been altered in its details, and has tended to become more and more practical, but in principle it is the same now as it was then. Each branch of knowledge which is necessary for a medical man is provided for and controlled by a separate professor; and it is a remarkable fact, and redounds greatly to the foresight and wisdom of our founders, that the number of professorial chairs remains the same, the only addition being the all-important one of Public Health and Hygiene, in the establishment of which we were again the pioneers among medical schools. If imitation be the sincerest form of flattery, we ought to feel proud, for every school in London is now formed more or less perfectly on the model established here in 1828. Fifty years ago, as Sir James Paget reminds us, medical examinations were conducted in practically the same manner as that which is immortalised by Smollett in the pages of "Roderick Random." But fifty years ago was founded the University of London, an institution which lives and progresses in spite of torrents of abuse, and which has had a greater effect for good upon medical

education in this country than all the other universities and medical corporations put together. The great merit of the University of London consists, not in the severity of its examinations (in which particular it is fully equalled by the corporations), but in the *training* which it obliges each of its graduates to undergo, and when the General Medical Council some few years since reported on the final professional examinations, without reference to the two earlier examinations, it showed a want of appreciation of the principles which have guided this University. The University of London from the first decided that no one should become even an undergraduate who had not mastered his A B C, not merely the A B C of mathematics and certain selected languages, but the A B C of science also. There are many who still cavil at the breadth of the matriculation, and seem to forget that it comprises no subject that a decently educated man can in the present day ignore. It is argued that this wide smattering of knowledge which the matriculation involves is wrong, and that the best training for the mind is to master one subject thoroughly, a thing which nobody in this world ever did, and schoolboys of sixteen least of all. The correlation of knowledge is so complete that no one can attempt to master any one branch without some knowledge of many other branches; and in this fact is found the justification for the first examination which a medical student has to undergo. Which of the subjects of the matriculation is unnecessary for a decently educated doctor?

The Preliminary Scientific Examination is the most abused of all, but in making a knowledge of natural philosophy, chemistry, and biology precede the study of anatomy and physiology the University of London is undoubtedly right, and there are signs that the other examining bodies are coming round to the same opinion. Of the final examination I need say nothing. There are

those who say (even eminent persons, and notably one Aberdeen graduate) that the effect of the University of London has not been good, and that the medical graduates are not "practical" men. This assertion is too ridiculous to require an answer, for it is notorious that the London medical graduates have had more than their fair share in all the practical advances made by medicine in the last half century; and in medicine, surgery, midwifery, and public health they have more than held their own. It is very possible that a scientific training makes it rather difficult for a conscientious man to be dogmatic, and until the public is more highly educated than at present, the dogmatic practitioner is sure to have a large *clientèle* and will pass for a practical man. Scientific medicine has made enormous advances; but for a knowledge of the little arts, not always honest arts, which tend to increase our gains, John of Arderne was quite equal to any practitioner of the present day. He was, in one sense, pre-eminently a practical man, but whether we should do well to imitate him is more than doubtful.

LONDON AS A PLACE OF STUDY.

There can be no doubt that, as a place to study medicine, London is, because of its enormous population, unrivalled.

In the year 1887, according to *The Hospital*, there were treated at the London hospitals and dispensaries 79,261 in-patients and 1,180,251 out-patients, or a total of over one million and a quarter, exclusive of those who received relief at the workhouse infirmaries, sick asylums, and lunatic asylums. It is true that a considerable portion of these patients are not so readily available for the student as they might be. The following are the numbers of patients (according to *The Hospital*) treated at the hospitals attached to medical schools in 1887:—

	In-patients.	Out-patients.	Total.
St. Bartholomew's ...	6,000	150,000	156,000
London	8,260	95,760	104,020
University College ...	2,964	44,382	47.346
Guy's	5,204	38,004	43,208
Middlesex	2,413	27,714	30,127
St. Mary's	3,315	26,637	29,952
St. Thomas's	4,643	25,000	29,643
Westminster	2,580	20,912	23,492
Charing Cross	1,686	20,306	21,992
King's College... ...	1,811	17,248	19,059
Total ...	38,876	465,963	504,839

This gives a total of 1,386 different patients for every day throughout the year. It is certain that no city in the world offers a field for medical study in any way equal to that of London. I think it is much to be regretted that, for qualified men, a composition ticket admitting freely to the practice of all the hospitals in London is not arranged for. If such a ticket were issued, and qualified men anxious to prolong their studies might, in return for a payment, feel themselves free to visit any or all of the great London hospitals, there can be no doubt that we should have a great afflux of students. I very much doubt the wisdom of the policy of trying to attract numbers of students by lowering the examination tests for a degree. This is an educational age, and we must not forget that some of the boys at the Board Schools have possibly a juster notion of physiology than had many of our professional ancestors. Science is being taught to all more and more every day. The druggist is now a highly-educated man, and nurses are being drawn more and more from the educated classes. If the medical profession is to hold its own and to grow in popular esteem, it must be chary about lowering its educational standards at a time when the education of all classes is advancing.

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