Original Communications.

ON THE SANITARY STATE OF ENGLAND DURING THE MIDDLE AGES;

AS DEDUCED FROM THE DOMESTIC HABITS OF THE PEOPLE.

By JAMES RUSSELL, M.D., Birmingham.

[Read to the University Graduates' Club, Birmingham.*]

I PROPOSE to present to the Club this evening a few statements respecting the habits of our forefathers in the Middle Ages, deduced more especially from the construction of their dwellings, by which we may be able to draw a fair inference respecting the sanitary state of the time. The laws of sanitary science are now so well understood, that we can form a safe estimate respecting the health of a community from knowing the habits of its members.

The great factors of our life are properly stated by Dr. Lankester to be air, water, food, and heat. Adopting these as the heads of my paper, I will first take air. Now it is absolutely necessary that the air should be pure in order for it to perform its appropriate office as a supporter of life. It is one of the triumphs of modern preventive medicine to have succeeded in eliminating the several elements which have been in operation in causing most of the serious outbreaks of disease of which we possess records. Among these elements, none holds a higher place than the overcrowding of human beings in ill constructed and badly ventilated apartments; the disappearance of the plague from London was coincident with the improved condition of the dwellings which followed the great fire; and the same disease now ravages the East under the operation of precisely the same cause.

What inference can be drawn on this subject from the information which we possess respecting the dwellings of our forefathers?

The material employed in construction forms, of course, an important consideration in relation to our present inquiry. Although the Roman style of building in this country appears to have been of the most substantial character, and although many of the best quarries known at the present day were worked during the Roman occupation, yet, on the departure of the Romans from our island, wood became the material chiefly employed in domestic architecture; and, although stone came again by degrees into use under the Normans (witness, *e.g.*, their well known keeps), yet, with the exception of mansions belonging to the nobility and more wealthy gentry, wood continued to be the material principally in use; the interstices of the wooden framework being filled with a composition of plaster

composed of lime and mud mixed with straw, and laid upon laths.

Passing from the materials to the plan on which the house was built, the general plan of domestic edifices outside the walls of towns, during the period under review—the ordinary manor-houses, and even erections of still greater pretensions, as royal palaces—much resembled that observed in Roman houses, both Saxons and Normans deriving every improvement in their style from imitation of the details of Roman architecture. The house included a hall, often of considerable dimensions, to which indeed, from its occupying the principal position in importance, the inclusive term of “domus” or “house” was sometimes applied. To this was added a chamber or chambers adjoining, together with offices, as kitchen, larder, sewery, and buttery, occupying various positions in the establishment. The edifices of later construction were distinguished by possessing a larger number of private chambers, and a more regular arrangement of the offices. This change is chiefly apparent in the fourteenth century, when the plan of the houses was extended, and various evidences of greater refinement in manners present themselves, coinciding with a rapid advance in agriculture and commerce.

Even in the castles, when, in the thirteenth century, they assumed a more domestic character, and the ancient donjon or keep was abandoned, precisely similar buildings were erected in the inner enclosure, often of very perishable materials. The remains of the Edwardian castles, as of Conway, also testify to these later constructions being arranged on precisely the same system; the only respect probably in which the houses of the monarch differed from ordinary manor-houses being in their greater scale, and in always having a chapel annexed.

The hall—“the great house-place”—was situated either on the ground floor, or frequently over a lower vaulted story, which was sometimes half sunk in the ground, and was variously used as a store-room, brewery, or even, when purposes of defence rendered it necessary, as a stable; in farm-houses it was appropriated to the use of the cattle. The hall, as already stated, was the chief feature in the edifice throughout the Middle Ages, and indeed after their close; hence the term became vernacularly extended, in Saxon and Norman times, to the entire of the mansion, a custom perpetuated to our own day.

The dimensions of the hall were often considerable, even attaining a length of one hundred feet or more, as evidenced by existing remains, *e.g.*, of Westminster Hall; in many cases, it possessed high architectural merit. This apartment was essentially feudal in its origin and objects, and served the various purposes of feudal administration; but its chief use was to accommodate the owner and his numerous followers and servants. In it they took their meals, the lord seated on the dais at the end. It was also the sleeping apartment of the retinue and guests, no regard being paid to the admixture of sexes. Even the stables were sometimes pressed into the service as dormitories for servants and guests. So late as the reign of Edward IV, many officers of the royal household had no better sleeping accommodation than the hall of the royal mansion.

Of the same character with the domestic halls were those connected with the different guilds, for the purpose of a common refectory, and for other objects connected with such associations. These buildings are familiar to us under the name of guild-halls; and with them we may closely associate the halls of the inns of court, the college halls, and the halls of our public schools. In the fourteenth century, the hall began to appear as an element in the houses

* I am indebted for the architectural data which constitute the substance of the following paper, entirely to the late Mr. Hudson Turner's classical work on the *Domestic Architecture of the Middle Ages*, continued, after his death, by the editor of the *Glossary of Architecture*. I have also to acknowledge information derived from a paper by Dr. W. D. Cookson, in the *Transactions of the Lincolnshire Topographical Society*. It will be seen that Dr. Murchison's valuable work on *Continued Fevers* has guided me in the application I have made of the facts gained from other sources.

built within towns, the property of wealthy merchants.

The private chamber attached to the hall was designed as the withdrawing room for the lord and his guests at the end of the meal. In it was placed the bed, separated, when the apartment was of good size, by a partition of plaster or of hanging. This chamber, called the solar, often built of wood, was erected over a vaulted room of stone, with which it had no communication, termed the cellar, and used as such.

Strange as it may appear, even in the twelfth century, and not excepting royal mansions, there was but one such chamber in the house; though, in the thirteenth, and especially in the fourteenth, the number increased; and in the latter century we sometimes find mention both of parlours and of chambers distinct from each other. Kings and nobles received their courtiers, held councils, and granted audiences in their sleeping apartments. The chapel also, in royal residences, was at times appropriated to some or other of these secular purposes.

Such is a general description of the habits of our Norman forefathers; but in the Saxon time the habits were still more rude. The hall of the Saxon thegn is described as being little more than a capacious apartment, which in the daytime was adapted to the patriarchal hospitality of the owner, and formed at night a sort of stable for his servants, to whose rude accommodation their master's was not much superior in a small adjoining chamber. The fire was kindled in the centre of the hall; the smoke made its way out through an opening in the roof, or by the door, windows, or eaves of the thatch. The lord and his hearthmen sat by the same fire at which their repast was cooked, and at night retired to share the same dormitory, which served also as a council chamber. So late as the fourteenth century, states Mr. Turner, it was the custom of a King of France to distinguish those courtiers and counsellors whom he particularly favoured, by inviting one or more of them to share his bed or to sleep in the same room.

It is hardly necessary for me to pause here in order to comment on the obvious insalubrity of a mode of life such as I have been describing. We may confidently predict the presence of all those evils now known to result from the practice of crowding a large number of individuals in a single apartment, breathing the same air by night and by day; the very sleeping apartment being also contaminated by its being constantly employed in transacting the business of the day.

But the statement already made does not express the whole extent of the evil. The tendency to overcrowding in the houses, and the dangers it entailed, were augmented by the necessity, then universally existing, for fortifying all houses situated outside the defences of a town. The extensive forests and woodlands, which extended so widely over the country, afforded shelter to outlaws of the most desperate character. Nor were the offenders solely of this description. There were knightly robbers also, even retainers of the court, who banded themselves against travellers and traders; and nobles, ecclesiastics of high degree, and even kings themselves, were sometimes waylaid and plundered with impunity. Hence the necessity for armed retinues; hence also the formation of trading companies for mutual protection. The siege of the Castle of Torquilstone in *Ivanhoe*, will at once present itself in illustration to the minds of my hearers.

A striking proof of the lawless character of the times is afforded by the circumstance that, in the reign of Edward I, the Dean and Chapter of St. Paul's obtained a licence to surround their church and pre-

cincts with a stone wall, in order to protect themselves from malefactors; and the Canons of St. Martin's-le-Grand did not dare to cross the road to their collegiate church, but obtained permission to build a wooden gallery or bridge to connect their lodgings with the church tower. Occasionally the churches themselves were so constructed as to be available as a fortress for temporary use, in case of an incursion by the lord and his vassals, or by robbers.

In consequence of this state of things, even farm-houses were protected by hedges and dykes or moats. The larger houses, fortified by royal licence, were built with thick walls and fortified gateways, and sometimes presented so close a resemblance to castles as to create difficulty in discriminating between the two. They were further enclosed by outer walls, and often by a moat; indeed, the custom of protecting manor-houses by a moat continued down to the time of Elizabeth, or even later. Towers were sometimes added, as well to indicate the rank of the owner as with a more directly practical purpose. In the case of the Pele towers in the northern counties, these towers constituted the entire habitation. Within these narrow limits stood the various buildings connected with the house, together with the out-offices—the stables, the sties, the ox-stalls—of considerable extent, from the necessity then universal of keeping the entire stock of food upon the premises. To these sources of contamination thus crowded in a confined space must be added the large number of servants then retained, together with the extensive company, not only of guests, but also of minstrels, buffoons, and jesters, who attended the owner's hospitality.

To answer the large demands occasionally made by the profuse hospitality of the time, it was the practice to throw up temporary erections in the courts, as chambers, kitchens, etc. Mr. Turner refers to the coronation of Edward III, when all the vacant ground within the enclosure of the Palace of Westminster was entirely covered with "houses" and offices. In 1265, when Simon de Montfort visited his countess at Wallingford Castle, three hundred and thirty-four horses were accommodated in the stables, as it would not have been safe to picket them without the walls.

Of the houses *within towns*, few remains exist. During the Saxon period, they appear to have been low huts closely packed together; rows of wooden and mud hovels adapted only for affording protection from the weather. In later times, they continued to be built of wood, with roofs of straw, reeds, or similar materials; nor were more durable materials generally employed in London until the period of the great fire. In the thirteenth and fourteenth centuries, stone buildings were objects of mark in London, and were frequently named as boundaries, without any more special description than the material of which they were built.

The frequency of disastrous fires consequent upon this mode of construction at last rendered some provision necessary to meet the evil; and Mr. Turner has translated the record of an assize held by the citizens of London in 1189, for encouraging the use of stone in their edifices. It regulates with singular minuteness the provisions and privileges of stone party-walls between the houses, which constituted the extent of the remedy proposed. A curious direction issued by a later assize in 1212, assembled for the same purpose, that every alderman should be provided with a hook and cord, to pull down the houses in an emergency, gives no very exalted idea of the stability of intraurban erections. The inns of our universities, and the inns of court, were originally

mean lodgings for scholars clustered round a common hall and a common kitchen.

It should also be remembered that, as population increased, the defences of the cities (their walls and dykes) would often give rise to inconvenient crowding, it being unsafe to build outside the protection of the fortifications.

One other consideration presents itself in connexion with the present aspect of our subject. Dirt and squalor, the want of cleanliness in the person and in the dwellings, have constituted a very important element in causing disease, when in unison with overcrowding, not only adding on its own account a large contribution to the emanations which infect the atmosphere, but probably taking an active part in producing from within the body the exhalation of peculiarly malignant gaseous products.

The floor of the hall—the apartment which, as already stated, constituted the living-room by day and by night of so many persons—when on the ground-level, was formed, below the dais, of the natural earth rammed down; over it, as also over the floors of the chambers, dried rushes or green fodder, sometimes mixed with sweet herbs, were plentifully scattered. The space below the dais was sometimes termed the “marsh of the hall”—a name strikingly descriptive of its damp and dirty condition. It was the receptacle of all kinds of filth and refuse; even the guests, during meals, cast the refuse of their plates on the floor, for the dogs who were present, expectant of their contribution.

An idea of the condition of the apartment may be formed from an order of Henry the Third to widen the doorway of Winchester Hall, for the purpose of admitting carts. In another precept, he directs payment for a certain conduit through which the refuse of the king's kitchen at Westminster flows into the Thames; which conduit the king ordered to be made on account of the stink of the dirty water which was carried through his halls, which was wont to poison the people frequenting the same halls. It must be noted, that in the kitchen the butchers flayed and dressed the carcasses of the animals slaughtered on the premises for food.

It was on account of the filthy state of the mansion, as well as from the necessity of collecting and consuming the provisions on the spot, that noblemen and gentlemen were obliged to divide their time between their different residences. In the Liberate Rolls examined by Mr. Turner, directions are given by Henry the Third for repairs and alterations of no less than thirty-eight different mansions and palaces belonging to himself. As late as the time of Edward the Sixth, Lord Paget complains of the hardship of being confined at his seat at Beaudesert, which had become withal, by some months' residence, horribly unsavoury, and could not be sweetened without the removal of his family. Erasmus speaks of the litter on the floor remaining for twenty years, fresh layers being superimposed; the dejections of dogs and men, remains of food, and other filth not to be named, festering beneath.

It must, however, be added, on the other side, that careful provision was made, at least in large houses, for privy accommodation. The “privy chambers” received a large share of attention, and their arrangement was regarded as being of much consequence. This fact has the closer connexion with our present subject, that there is much reason to attribute one class of our endemic fevers solely to the decomposition of animal excrement. In large houses, privies were numerous; and, in the fourteenth century especially, there was one attached to each room. Much ingenuity was displayed in their construction. In some cases, one of the principal towers

was used almost entirely for this purpose, or a small turret was introduced. Shafts were carried down from the chambers through the substance of the walls; and, whenever there was a running stream in the moat, a portion of it was diverted through the dirt-pit. In the assize of London already alluded to, the position of the pit is very strictly regulated. Indeed, the drainage of towns was not neglected during the Middle Ages. It was chiefly cared for by the Government, though, as demonstrated by many proofs, with very imperfect success, owing to circumstances which no Government could control.

Nor should it be forgotten that, at the close of the thirteenth century, baths were introduced; and that a lavatory was often connected with the hall—the more needful, as the guests usually took up the food in their fingers; forks, even in the fourteenth century, being regarded as indications of foppery and fastidious refinement, though spoons were generally in use.

A conduit of water was first established in London in the thirteenth century, by the monks at Westminster. Water was hawked about the streets. Wells were much in use. Henry the Third condescends to giving directions for the repair of the wells at his various seats.

The common idea of a town of the Middle Ages—more often called a Gothic town—is an accumulation of houses crowded together without any order, separated by narrow lanes, over which the upper stories of the houses project so much that the inmates might shake hands from the upper stories across the street. This idea Mr. Turner quotes as correct of many of our old towns. The streets of London, though provided with some sort of footway, were frequently left to chance; and those leading to the river, which afforded means of natural drainage, had usually open sewers flowing through them, and were kept in a continual state of mud. Dr. Heberden describes them in 1666 as narrow and crooked, many of them unpaved, and nearly shut in by the overhanging houses. The burgesses of Northampton valued the privilege of going along the wall of the city, to avoid the noisome and muddy way beneath. The public roads were precarious and full of ruts and bogs, and were often rendered impassable by floods.

It may add force to what I have been stating, as well as suggest some feeling of humility, if we pass for a single moment from the Middle Ages to the year of grace 1865, and note what was said of this same London in the *Medical Times and Gazette* for last November. Describing one of the present nests of fever and cholera in the parish of St. George the Martyr, the reporter says: “Many of the general features of the place resemble those which your commissioner described last week in Bethnal Green. We have the same condition of roads, converted by the late rain into swamps of greasy mud, interspersed with pools of black water. A good, hard, firm, macadamised road is scarcely to be found in the parish. The pavement of the larger streets in many places is dilapidated and out of repair, whilst the courts and alleys can only be called paved by a charitable figure of speech. A central gutter, leading to a drain.....with mud on each side, interspersed with round stones, constitutes the general footway of the Southwark courts. Many of the houses in the parish are built of wood, and have probably stood for a couple of centuries.”

To return from this digression: an immense portion of the kingdom was covered with wood. In 1250, there were seventy forests and woods in England, directly or indirectly under the control of the Crown alone. Wide districts, too, were fen and morass, and were chiefly valuable for the supplies of eels

and water-fowl which they yielded. Hence arose the prevalence of ague and other malarious diseases, which, even two hundred years ago, were among the most common diseases of the country. James the First and Oliver Cromwell both died of ague in London. In Cromwell's time, the country surrounding London was as marshy as the fens of Lincolnshire now are; so that he was nicknamed the king of the marshes. The description given by Sydenham of the regular epidemics of intermittents in London forms one of the most important parts of his writings. In no respect has sanitary science formed a more useful alliance with engineering operations, than in the various works by which our land has been freed from this terrible pest, deteriorating the health, even when not visiting the patient in the still more serious form of ague.

Now let me pause for a moment, to observe that the domestic habits of a people are reflected in those of a more public character. Hence, from the preceding details, we may well infer the condition of public establishments. How fearfully the evils of overcrowding and of squalor combined have shown themselves in our jails! How awfully, too, the paramount authority of those laws which our Creator has imposed upon his creatures has been asserted, in the contagious poison which has spread from those centres of living corruption, let the records of the various Black Assizes, at a period later than that under review, testify. A century ago, says Dr. Murchison, there were no greater hotbeds of typhus than the jails of England; but, thanks to the philanthropy of Howard, the nation has been freed from such an imputation.

I must occupy only a short time in glancing at another of the great factors of life—viz., *warmth*. "Look," says Dr. Lankester, "at the thermometer on your garden-wall at this season of the year. Night after night it falls lower; and as it falls degree after degree, the rates of mortality rise. A cold day in winter is the death-knell of thousands."

The interior provisions for comfort in the houses of the Middle Ages were of a very rude and meagre description. Plastering and whitewash, indeed, were in use from very early times; wainscoting also was partially employed; and, in the fourteenth century, the looms of Arras began to furnish their contribution to the comfort and decoration of domestic interiors.

As is well known, the manufacture of glass was a very late introduction into this country. It cannot be said to have been established until the reign of William and Mary: the glass previously in use was imported from the Low Countries, Lorraine, and Venice. It was not until the thirteenth century that glass was at all employed for the purpose of filling in the windows of other than ecclesiastical edifices; and then it was a luxury barely known even to royalty. Even when it became more generally employed for this purpose, the windows were moveable, and were packed up when the family was absent; they did not become fixtures until the reign of Henry the Eighth. Shutters and canvas were employed as substitutes. Even glazing was often employed for one portion only of a window. Such constructions, it is obvious, could have afforded but an imperfect defence from the weather, especially in our severe climate; though, on the other hand, some imperfect provisions were thus inadvertently made for ventilation. A charge for making windows shut better than usual was not uncommon. A precept of Henry the Third directs glass to be substituted for wood in a wardrobe of the Tower, "so that that chamber might not be so windy." The windows were sometimes placed at a considerable elevation in the apart-

ment, to lessen the evil; and occasionally a kind of penthouse was erected over them on the outside.

Let us note, however, one comfortable feature in the scene. These windows, large and deeply recessed in the later periods, with their stone benches, were "the favourite nooks and corners of domestic life, and the votaries of chess haunted these pleasant old-fashioned retreats. It was here, too, that my lady and her fair damsels brought their spinning and their broiery, and wrought those marvellous and beautiful fabrics for which, in mediæval times, their needles acquired a European fame."

Although the fireplaces form a very interesting portion of existing remains of mediæval houses, up to the beginning of the fourteenth century the lord's solar was the only apartment excepting the kitchen provided with this necessary accommodation; after that date, fireplaces increased in number. In the halls, as in the more humble dwellings, the fire was kindled on a hearth in the middle of the room, the smoke finding a vent through the *louvre* in the roof. Chimneys were unknown in cottages until the reign of Elizabeth. Although wood and charcoal were the materials chiefly employed in burning, it must be obvious to how great an extent the atmosphere of the apartment suffered by the admixture of smoke and of other products of combustion—an evil which would be augmented by the large *flambeaus* used for purposes of illumination. It must also be noted, that defective means for procuring warmth, such as the arrangements just described imply, is an additional cause of overcrowding.

I regret that I can give only a passing notice to the last factor; viz., food. I need not comment on its importance to everyday life; its deficiency or defective quality also demands consideration in another connection. Want of proper food among large portions of the community, as from bad harvests, commercial depression, strikes, etc., has united with the other influences to which I have referred, or in other cases has operated alone, in constituting the effective cause of many of our most serious epidemics.

It is enough for me to refer to the depressed condition, both of agriculture and of internal trade during a large part of the Middle Ages, to infer the poverty of the people in general, and the imperfect means of sustenance they possessed. Whilst large tracts of the country were forest or bog, foreign wars and domestic feuds carried away the husbandman, and ruined the fruits of his toil. Forest laws and the excessive passion for the chase operated, as well pointed out by Mr. Hallam, to prevent agricultural improvement; whilst the devastation committed by wild animals, and the protection afforded them for selfish purposes, formed matter for serious and frequent complaint. The passion for the chase produced, in the words of the author I have just quoted, a strenuous idleness, which disdained all useful occupations, and an oppressive spirit towards the peasantry. Thus, the peasant is stated by another author to have been a half-clad serf; his lord, a debauched, cruel, exacting tyrant. Day-labourers on farms were fed at their lord's expense, their chief diet being a sort of porridge.

At the same time, various causes, especially the insecurity of property, maintained internal trade at a very low level; for several centuries there is not a vestige to be discovered of any considerable manufacture. It is well known to how great an extent the monasteries and guilds—particularly the guilds of a religious character—operated in alleviating the general poverty.

These remarks, however, are far less applicable to the concluding period of the Middle Ages, when, under the Plantagenet line, particularly under the

first and third Edward, both agriculture and commerce received a powerful impulse. Mr. Hallam calculates that the labouring classes, especially those employed in agriculture, were better provided with the means of subsistence in the reigns of Edward III and Henry VI than they are at present. (*Middle Ages*, 1846, ii, p. 433.)

From the impossibility of preserving the summer stock, the winter's provision depended upon salted or larded meats, whence our word "larder." Although animal food was consumed in abundance, especially pork, fish was also eaten in large quantities, together with choice morsels from the whale, the porpoise, the grampus, and the sea-wolf. The fish was frequently dried, constituting stock-fish, which required to be beaten by a mallet upon a block or stock before it was fit for consumption.* Wheat bread was the luxury of the great. Among the poorer classes, missilen-meal or monk-corn was baked and stored in large quantity, and, when very dry, was damped and a second time warmed in the oven.

It is interesting to note, from the great importance of vegetables as articles of diet, that a large number of green herbs were known and used, including the cabbage tribe, peas, beans, beet-root (which was the chief esculent), pot and sweet herbs, lettuce, water-cress, onions, and garlic.

In concluding this brief sketch of a very important subject, I would beg you to observe that my time has admitted of nothing beyond a bare outline; I have been obliged to content myself with doing little beyond laying before you certain particulars which have been collected by others, respecting the habits of our forefathers, merely suggesting, as I proceeded, the conclusions to which they point in relation to the subject of sanitary science. I think that they indicate much ignorance of the very principles of health, and almost entire neglect of its laws.

With one observation, I will end. My remarks have direct relation mainly to domestic habits, but indirectly they must be accepted as bearing upon the condition of society in its public as well as in its private capacity. As I have already remarked, the habits of domestic life are reflected in those of a more public character; and where the economy of the house is ignorantly administered, we can hardly look for better regulation in municipal or public concerns.

Various circumstances will, of course, modify the result; an imperfectly developed condition of internal trade and manufacture may not have presented one of the chief inducements now offered to overcrowding in our towns; a country life may have produced a more hardy state of constitution than is met with in our manufacturing districts; but still, after allowing for these disturbing influences, we may safely return to the position just laid down.

An important branch of the subject relates to the history of disease, in so far as its outbreak may be referred to defective sanitary arrangements. Upon this subject, of course, I cannot enter; it has, however, been treated in a masterly manner by Dr. Murchison, for the period subsequent to the revival of letters; anterior to that period, but scanty materials can be obtained. I may venture to assert that, so far as our knowledge upon this subject extends, it entirely accords with the *a priori* conclusions to which I have been led in the course of my present paper.

* The first great encroaching of the towne (Kingston-upon-Hull) was by passing for fish into Ireland, from whence they had the hole trade of stoke fish into England, and partly other fish. (Quoted by Mr. Turner from Leland's *Itinerary*.)

ON THE TREATMENT OF STRABISMUS WITHOUT OPERATION.

By C. HOLTHOUSE, Esq., Surgeon to the Westminster Hospital, and to the Surrey Ophthalmic Hospital, etc.

In my treatise on Strabismus, published in 1858, I commenced the chapter on the treatment of this affection in these words: "If the view I have taken of the pathology of strabismus be correct, it must be obvious that no treatment can be of any avail in confirmed strabismus, except division of the shortened muscle;" but I followed up this statement by the following: "There must, however, be a stage of contraction antecedent to that of structural shortening, in which medical (that is non-operative) treatment is called for, and is, moreover, sometimes successful in removing the deformity." Into the consideration of this, I now propose to enter.

An essential preliminary to every rational mode of treatment, is a knowledge of the pathology of the affection with which we have to deal, and the more nearly we approach exactitude in this respect, the more likely is our treatment to be rational in its scope and certain in its results; I shall, therefore, premise the discussion of treatment by a few preliminary remarks on the pathology of strabismus, and the class of cases which are best adapted for tentative efforts at a cure without operation.

For practical purposes nearly every case of strabismus may be grouped under one or other of the two following divisions: 1. The nervous or paralytic. 2. The muscular, or non-paralytic; the loss of association in the movements of the eyes depending, in the first group, on a loss of innervation or paralysis of one of the ocular muscles; whilst in the second, the innervation is perfect, or may be in excess, but one or other of the muscles has undergone some functional derangement, or structural change. Of the nervous or paralytic strabismus, we are too little acquainted with the changes which take place in the nervous elements as a consequence of disease, to be able to say, in all cases, how the suspension of their functions is brought about; but reasoning from analogy, and from what we know of the causes which give rise to more general paralyses, as hemiplegia, we may assume that pressure plays a not unimportant part; and this may arise either from over distension or congestion of the bloodvessels, from extravasation of blood or serum, from inflammatory effusions, or from tumours, whether osseous, neuromatous, vascular, or of any other nature; and the action of these may be either on the brain, or on the nerves issuing from it in any part of their course. We have, therefore, to consider in the first place, whether the paralysis has a cerebral or a nervous origin; and, in the latter case, whether it is within the cranium proper or within the orbit; thus we may not unfrequently arrive at a correct estimate both of the locality and the nature of the mischief.

The larger proportion of cases of paralytic strabismus which fall under the notice of the ophthalmic surgeon, are not of cerebral origin, or at least there are no symptoms to indicate any such lesion, while of the nervous cases, rheumatism and syphilis furnish the most abundant examples. The following case, though narrated in a former work (*On Squinting, Paralytic Affections of the Eye, and Certain Forms of Impaired Vision*) is worth republication from the bearing which it has on the foregoing remarks.

CASE I. *Paralytic Convergent Strabismus, of Intracranial and Nervous Origin, from Syphilitic Periostitis of the Basis Cranii.* James P., aged 30, a compositor, applied to me at the Public Dispensary, Lincoln's Inn, March 6, 1847, with the following symptoms.