of our public services. A great accession to our knowledge would result from a registration of the age at death of every person invalided and pensioned from the Army and Navy on account of disease of particular organs. Due allowance must, of course, be made for peculiarities in the habits and modes of life of the classes observed, also for errors in diagnosis; but these and similar accidents would produce but slight effect on calculations based on the experience of a large section of the Profession.

In the meantime, while the amount of extra premium to be paid by persons whose state of health is below the average must be fixed on the individual judgment of the Medical adviser of the Company, any plan by which the weight of extra payment may be more fairly apportioned demands consideration. It has been proposed that doubtful and diseased lives should be assessed at the ordinary rate of annual payment, but that a sum endorsed on the policy at the time of its being granted, and representing the extra yearly premium recommended by the Medical adviser, should be deducted from the sum for which the life was assured in case of death taking place before the annual payments had covered the liability of the Company. In case of the life being prolonged beyond that time, the whole sum for which the deceased insured would be paid to his representatives at death. Such a plan would in part meet the requirements of the case, but would still be open to the objection that the amount to be deducted, in the case of early death, not having been fixed on any acknowledged basis of calculation, would in the majority of instances fail to represent the real amount of extra risk incurred by the assurers.

THE WEEK.

A BULLETIN of the health of the Prince Consort was issued from Windsor Castle on Wednesday:—

"His Royal Highness the Prince Consort is suffering from fever, unattended by unfavourable symptoms, but likely, from its nature, to continue for some time.

"JAMES CLARK, M.D.
"HENRY HOLLAND, M.D.
"THOMAS WATSON, M.D.
"WILLIAM JENNER, M.D."

From the above bulletin our readers will learn that H. R. H. the Prince Consort is suffering from a disease popularly known by as many names as it has forms. For nervous fever, gastric fever, intestinal fever, low fever, continued fever, are all essentially the same disease. An epidemic of this disease, it may be remembered, affected Windsor some two or three years ago. The earlier symptoms of the disease are, in very many cases, those of a feverish cold, and the first information of [the Prince's illness the public had was from a notice in the *Court Circular* to the effect that he was suffering from such an attack; then we were informed that the feverish attack continued, and was considered to be likely to last some time longer. From these two notices the nature of the illness was pretty clear to the Medical Profession. Sir James Clark, Dr. Jenner, and Mr. Brown of Windsor have been in constant attendance on the Prince for some time, and either Sir James or Dr. Jenner have always been in the Castle. On Monday last Sir Henry Holland and Dr. Watson were joined in consultation with Sir James Clark and Dr. Jenner. As the life of the Prince is of the highest importance to the country, it will afford the greatest satisfaction to the Profession and to the Public to know that a Physician who has so long and so justly possessed their confidence, and who has attended the Prince for every ailment from his early manhood, is not only in the enjoyment of all his mental vigour, but has sufficient physical strength to enable him to be unremitting in his attentions to his illustrious patient; and it is equally satisfactory to know that the Prince has the advantage of Dr. Jenner's care—for there is no living Physician who has enjoyed a larger experience of Fever in general, or to whom the Profession are so much indebted for their present knowledge of its various forms, and especially of the characters which distinguish the precise form of fever under which the Prince is now suffering from the dreaded Typhus.

Dr. Edwin Hearne is indefatigably stirring up the "dirty party," who have so long held undisturbed reign at Winchester. The lower part of the town is said to be very unhealthy. Some of the ratepayers deny that this is due to want of drainage. "The truth is, the *higher mortality* of St. Maurice, and the lower portions of the town, *does not arise from a want of drainage*, but from causes which drainage cannot remedy or remove—overcrowded dwellings, filthy habits, poverty, intemperance, and, above all, a want of wholesome water." To which Dr. Hearne justly replies: "As if anything but unwholesome water can be obtained from the immediate locality of an undrained populous district! And what can more aid the development of filthy habits, poverty, and intemperance, than the unwholesome emanations and consequent diseases certain to result from an accumulation of cesspools?" We learn that one death from *typhoid fever* has again occurred at Winchester College. It is gratifying to find members of our Profession in all parts of the kingdom not quietly sitting down to treat the sick, but actively bestirring themselves to effect the removal of the causes of sickness. Dr. Balman, of Exeter, is advocating the reconstruction of the dwellings of the poor. In a letter to a local paper, he describes a state of things in Exeter which we are accustomed to associate with larger cities only; whole families stowed away in single rooms, large infant and general mortality, the death-rate being twenty-five in the thousand, and wholesale destruction of poor dwellings with inadequate efforts to build new ones. He advocates the formation of Societies which shall buy and improve dwellings, and let them at remunerative rates, keeping, of course, a control over the number of inmates, and having strict regard to their character and habits. He gives just praise to the Rev. Mr. Turner, of St. Mary Major, who has carried out such a scheme in his own parish, and provided fourteen wholesome tenements, and suggests that the best monument to the late Lord Fortescue would be the foundation of some Society for improving the poor man's dwelling. Members of our Profession are sure to win the solid respect of their fellow-citizens, when they furnish them with such temperate, well-considered statements on the prevention of immorality and disease.

"Murder and suicide continue to give alarming evidences of the UNCONTROLLED passions which rage in the bosoms of persons, whose education and religious training have been imperfect. At Sheffield, a man first of all attempted to murder his step-daughter, whom he had vainly endeavoured to persuade to live with him in an incestuous manner, and afterwards murdered himself. His purpose had been so clearly expressed, and his arrangements so deliberately made, and there was such absence of any previous symptoms of insanity, that the jury returned a verdict of *felo de se*. One witness deposed that "On one occasion, about a month ago, after speaking to the injured girl, he remained and had tea with witness, and subsequently remarked that it was the last tea he should have, saying that he would destroy himself either on the following morning or on the succeeding Saturday. Witness remonstrated with him, and he then said that 'She (Eliza Fisher) had said the word' (meaning that she would not go back with him), and added that 'he had made it all

under the influence of chloroform once a-week, and seemed to require a larger quantity to produce its full effect.

On May 30 the following note was made:—"She has steadily improved. The sulphate of zinc was increased gradually, so that, on April 25, the dose was twenty grains three times a-day. There was then a little sickness, and quinine and iron were given instead of the zinc. On April 18 tepid shower baths were ordered, and on May 2 cold shower bathing was ordered."

Her condition was very much improved. When last seen the shoulders were about equal in height, but when she was spoken to, the left shoulder still became somewhat elevated. Her general health also was good. She was stouter, and the catamenia were regular.

KING'S COLLEGE HOSPITAL.

SPONTANEOUS DISLOCATION OF PATELLA.

(Under the care of Mr. WOOD.)

[Reported by Mr. MAUNDER.]

Margaret H., aged 13, a native of the West Indies, was admitted on September 13, 1861. Five years ago she had rheumatic fever, and the inflammation affected the left knee especially. On her convalescence from the fever the knee continued swollen; she had no pain in it; could walk. At this time the patella began to slip out of position, being dislocated outwards whenever she bent her knee; on straightening her leg the bone went into position again. The dislocation and reduction were painless. On walking, sometimes the knee gives way, the foot turns in, and she falls, from the dislocation taking place on bending the knee, and the knee then bending under her, thus preventing her walking safely.

September 14.—Soap plaster on leather to be tightly applied round the knee, so as to strap the patella in position; over this a bandage from the foot to above the knee; a back-padded splint was next bandaged behind the knee, and she was kept in bed

October 4.—A dextrine splint applied thus:—Three pieces of card-board, the breadth of the hand, are dipped in cold water and moulded to the knee—one behind, the others one on either side—to extend from the middle of the thigh to the middle of the leg. A paste of dextrine is now applied on both sides of each piece, and on the side to be applied to the leg a layer of cotton wadding is laid: to the external surface the roller adheres, which is further smeared with the dextrine during its application: over the whole a dry bandage. (The cotton-wadding prevents such compression being made by the roller as would impede the circulation—a point of importance in applying this form of splint in recent fractures.) The splint was kept on, and she was able to walk. Discharged October 16.

Medical Times and Gazette.

SATURDAY, DECEMBER 21.

DECEASE OF THE PRINCE CONSORT FROM TYPHOID FEVER.

WITHIN a very few hours after the issue of our last week's Number, in which we had furnished our readers with an authentic account of the Prince Consort's illness, it pleased the Almighty that the illness should prove fatal. Thus, in the very prime of manhood, in the midst of apparently flourishing health, and of every outward circumstance which could make his life happy for himself and most desired by others, was the Prince suddenly cut off. The great mass of the community were stupefied. It was not so much the sudden spectacle of the instability of all human grandeur, as the thought of the family whose exalted rank could not exempt them from the griefs of the fatherless and the widow. What will the Queen do? How can she bear so great a shock? were questions which brought tears to the eyes of many a strong man, and, as we can testify, disturbed the sleep and prostrated the spirits of many a weak and nervous invalid. Since the death of the Princess Charlotte, no grief so universal has filled the public thoughts. Thankful we are to be able to assure our readers that the fortitude and resignation, and that quiet courage which can find in duty the solace of grief, show our Queen to be in every respect worthy of her exalted position.

Cut off as the late Prince was from all active interference in political life and in warfare, he did his duty well in all the offices which he could legitimately fill. As a husband and father he was a model to the whole realm: no breath of scandal ever sullied his name. He gave his leisure to the cultivation of the arts and literature. He was the promoter of every attempt to develope the material resources of the country, to enlarge the mental capacity, and increase the comforts of the people, and thus to lay wider and deeper foundations for the prosperity of future generations. We gratefully record his promotion of art, science, and literature, and, as the highest eulogy we can bestow, hope that his sons will follow in his steps.

Our Medical readers doubtless suspected something serious when on Monday, the 9th, they saw the announcement that the Prince had been ill for a week "with a feverish cold and pains in the limbs, and that within the last two days the feverish symptoms had rather increased, and were likely to last some days longer." Our Medical friends began to whisper the ominous word *typhoid*, and their suspicions were realised when the first official bulletin appeared on Wednesday, the 11th, with the names of four Physicians attached to it. It stated that the Prince was suffering from "*fever*, unattended by unfavourable symptoms, but likely from its nature to continue for some time." The bulletin of the 12th announced that "His Royal Highness the Prince Consort has passed a quiet night. The symptoms have undergone little change." On the 13th matters looked more ominous, for the Royal patient had "passed a restless night, and the symptoms assumed an unfavourable character during the day." On the 14th, in the morning, it was announced that "His Royal Highness the Prince Consort has had a quieter night, and there is some mitigation of the severity of the symptoms." But the gleam of hope furnished by this amendment soon passed away. There were fluctuations from time to time, and even within an hour of his death the Prince expressed himself as strong enough to get out of bed; nevertheless, a

terrible fit of congestion of the lungs ensued, in which he expired, shortly before eleven at night.

The Prince's constitution was one of those which was not calculated to bear the brunt of an enfeebling zymotic disease. Spite of an active athletic life and of careful diet, he displayed an early tendency to increase of bulk which is rarely compatible with a healthy rigidity of fibre. He was easily depressed by a common cold or any other slight accidental illness, had a feeble circulation, and firmly believed that any severe illness would at any time be fatal to him. How and when he contracted his fatal illness is matter of conjecture purely. The succeeding article will show how impossible it is to lay the blame on the sanitary arrangements of Windsor. It is said that he had suffered from "cold," and had got wet through in shooting, and had exposed himself imprudently while seeing the Eton boys drilled. Nevertheless, "cold" does not create typhoid fever, though it may enhance the susceptibility to its influence. All maladies of this class have a "period of incubation." The fatal zymotic poison is imbibed, but it does not at once show its full effects. It broods for a certain number of days, like leaven, in the veins of the victim before there ensues that shivering fit, of greater or less intensity, which is the starting point of the actual fever. Some poisons, like the small pox, have fixed periods of incubation; others, as the scarlet fever, are uncertain, for there may be no interval whatever—the fever may begin immediately on the receipt of the poison. In the typhoid the period of incubation is probably about a week, and the source of the fatal poison must have been at some place which the Prince visited during the last week of November. Was it Cambridge? Was it South Kensington? It is vain to speculate. The causes of typhoid fever still abound even in places which ought to be the most exempt from them. Like poisons of their class, they evidently do not affect all alike, but only some persons who are predisposed, and no one who travels much can be sure that he may not meet with them.

As we said in our last Number, it is a fortunate thing that the Prince was attended by that estimable Physician who had most knowledge of the peculiarities of his constitution, assisted by one whose Professional "spurs" were (if we may be allowed to use the expression) won in the exploration of the particular disease which had to be combated in this instance. So soon as unfavourable symptoms manifested themselves, Sir James Clark and Dr. Jenner requested that the patient should have the benefit of additional advice, and that their own responsibility should be divided. This proposition was very unwillingly entertained at first by the Personage most nearly interested, partly from her unbounded confidence in her advisers, and partly from fear of still further depressing the vital powers of the Prince, and increasing his despondency by alarm at indications of increased danger. The repeated request of the Physicians, however, was at length complied with; and two Physicians were specially selected by the Royal Family—Sir Henry Holland and Dr. Watson: the former distinguished by his knowledge of the minutiæ of therapeutics and the peculiarities of aristocratic life, the latter for having enjoyed some of the largest fields of experience, and for the reputation of possessing a most mature and sober judgment and unimpeachable conscientiousness. The confidence which the Royal Family placed in their advisers is fully shared by the public and by the Profession. They may be sure that the most refined and energetic resources of medicine and diet were employed to save and sustain the patient's vital powers. After the fatal event, the Queen, with a calmness and dignity which never desert her, expressed her warmest thanks to Sir James Clark, as one of her oldest and best friends; and more than one member of the Royal Family testified to Dr. Jenner their gratitude for the attention which he had lavished—unavailingly, alas!—on their departed relative. We have these details from a patient, high in office, who received them from a member of the Royal Family.

It is beneath the dignity of a Medical Journalist to notice the absurd rumours which are forged and circulated by the idle and unprincipled—such, for instance, that the Prince was poisoned by a Russian spy! The symptoms of typhoid during fourteen days were unmistakeable; and we may now be permitted to give a short *resume* of the present state of our knowledge respecting that disease.

Throughout the whole range of Physic, there is no disease respecting which a more clear and decided advance has been made in our knowledge not only of symptoms and causes, but also of prevention and treatment, during the present generation.

Let us turn to the first edition of Dr. Watson's Lectures, published in 1843, and we there find that the inferences which this most able Physician had then drawn from the experience of ages and his own observations were, that "fever," or "continued fever" was essentially *one* disease,—that it might have *varieties*, or divers *forms*, but that these varieties ran into each other, and were not defined by any distinct line of demarcation, and might arise from the same contagion. He gives as the typical form of fever, that which is attended with hæmorrhage from the bowels, diarrhœa, and ulceration of the ileum; yet relates that in various epidemics the symptoms had varied, insomuch that the bowel affection was well-nigh absent in some of them. He describes the fever with diarrhœa as being most prevalent in the autumn. He believed that all fever arose from contagion, although it might be sometimes difficult to trace it; he did not believe that it could be *generated* by the crowding of human bodies together, nor yet by the effluvia of putrescent animal matters, nor yet by cold or starvation; although these might be powerfully predisposing causes. As to the treatment, the conclusions arrived at by Dr. Watson at that day, of the dangers of bleeding, and the benefits of wine and beef-tea, were anticipatory of the practice which is now generally adopted.

But almost immediately after this date, observers in various countries noticed that the symptoms and anatomical characters of fever varied, and varied essentially in different places. A writer in 1844 said that we might look in vain in this country for the Continental typhus with intestinal ulceration. Soon afterwards at the French Academy, a discussion, celebrated as a turning point in the history of Medicine, was held on the question, Whether, under the name "continued or typhus fever," two distinct diseases were not confounded, one to which it was proposed to appropriate the name "typhus," to the other "typhoid." It was affirmed by Louis, and others who maintained the diversity, that typhus was contagious, typhoid not so; that typhus attacked all ages, typhoid having a predilection for the ages from 15 to 40. This question was eagerly worked out by a number of competent observers in this country, amongst whom the names of A. P. Stewart and Sankey readily occur to us, and by Dr. Jenner, whose able summary of the subject, presented to the Royal Medico-Chirurgical Society on December 11, 1849, brought conviction to the minds of the great mass of the Profession in this country. Some there were to whom the evidence still did not appear conclusive; for instance, the late Dr. Todd, who in a conversation with the writer in 1852, expressed his doubts as to the validity of the essential distinction; yet since Dr. Jenner's paper, *his* doctrine of the essential diversity has been accepted and taught throughout the country. He showed that up to Withering's time scarlet fever and measles were considered as one disease, and that an extension of the analytic process which shows them to be distinct (much as they have in common), also shows the non-identity of the affections which had been described as continued fever. He showed that one species of continued fever, the *typhoid* was distinguished by

the presence of disease in the Peyerian glands of the small intestines; and by an eruption of *successive* scanty crops of rose-coloured spots on the trunk, each lasting about three days; whereas in *typhus*, there was an eruption of persistent dusky, non-papular spots, and the affection of the bowels was absent. Dr. Jenner shewed, from his experience at the Fever Hospital, that patients with typhoid, typhus, and the relapsing fevers, when these occurred at the same time in London, did not come from the same houses—that these fevers did not pass into each other—and that the causes were probably altogether distinct from each other.

Meanwhile, the sanitary reformers were actively at work, and proving beyond question that *fever*, generally, flourished in the presence of famine, filth, impure water, overcrowding, and want of ventilation. But it was reserved for Dr. Murchison to show definitively the exact relation which each of these causes bears to a specific form of fever. He divides fever into four classes, the *febricula*, occasioned by heat, fatigue, errors of diet, etc.; the *relapsing* fever, caused by famine; the *typhus*, caused by the combined influence of destitution and of the exhalations from human bodies crowded together; and the *typhoid* (or pythogenic, as he calls it), caused by putrid emanations, especially from sewers. The true typhus, and the relapsing fever, are those which arise after famine, and after protracted crowdings, as in the old-fashioned jails. The awfully contagious nature of the true typhus was exemplified by the recent importation of it into Liverpool, by the crew of an Egyptian frigate; it occurs at all seasons and all ages, and of course selects its victims from the lower classes of society.

Not so the typhoid. This is a disease of early adult life, *par excellence;* it is always most prevalent in autumn; it affects rich and poor; and seems to be more fatal to the rich. If evidence have any weight at all, this fever has been distinctly proved to be due to sewer poison. This was the kind of fever which, in 1848, broke out in the cloisters at Westminster, in houses which were proved to communicate with an old rotten sewer underneath; those houses which did not communicate with the sewer were spared. This was the fever which, in 1857, broke out in the National Hotel at Washington, which was exposed to the vapours of a foul sewer. This form of fever ravaged Windsor in the year 1858, producing thirty-four deaths in the town; besides that five persons died after removal to their own homes. The total number of cases which occurred in Windsor at that time is estimated at 440. We believe that the experience of most Medical Officers of Health leads to the conclusion that the origin of scarlet fever is closely allied with that of typhoid, although the scarlet, when once generated, spreads rapidly by contagion, whereas the typhoid, although it *may* be contagious in certain bad cases, is usually not so. It is also closely allied to the causes of diarrhœa. In the epidemic at Windsor in 1858, it was distinctly shown by Dr. Murchison, that the sewers had been imperfectly cleansed in consequence of the unusual drought, that the escape of sewer gases into the interior of respectable houses was easy, and that such escapes were complained of, and did exist. The worst houses with no sink or closet *within them* escaped. The Castle at that time was exempt from fever; the only place near it where fever prevailed being part of the Mews in which occurred thirty cases and three deaths. It was shown, that whereas the Castle, which was exempt, had a system of drains of its own, which were carefully flushed out every morning, the part of the Mews where fever prevailed was connected with the uncleansed town sewer, and that the arrangements in the inside of the residences in the Mews were such as to render the escape of sewer gases into them certain. The instances collected by Dr. Murchison prove beyond doubt that sewer poison can produce typhoid fever.

The moral is, that where typhoid fever prevails in a house, there it is certain that sewer gases, or some analogous putrescent vapours, find their way. It must be remembered that in modern houses, the access of these vapours is facilitated by every sink and aperture which leads to the drains, and that all the conveniences of modern civilization require the most vigilant care to hinder them from being dangerous nuisances. It may be extremely difficult to find the source of the sewer poison; nevertheless if one thing be absolutely true, we believe it to be, that *multiplied* cases of typhoid fever in any house prove the existence of sewer gases there.

This is well exemplified by a case related by Dr. Druitt in a lecture at the Royal Institution. In the autumn of 1856 two young persons were one after the other taken ill of typhoid fever in a house in one of the streets which lead from the Strand to the Thames. In the same house had been many cases of diarrhœa in 1854. The patients were removed to the suburbs, and recovered. Their father became ill in November, and, although he did not get Medical advice, was for more than a week excessively low, shivering, and ill. One morning, on getting out of bed, he felt as if shot, and died in a few hours. The body was examined by Mr. Henry Lee, who discovered ulceration and perforation of the ileum and enlargement of the adjoining glands—the pathognomonic appearances of typhoid. The house was examined, but in vain, for any defect in the sanitary arrangements. About two months after the burial of the poor man came a communication from the surveyor of St. Martin's parish to the effect that there was a large old forgotten sewer under the house, which received the drainage of two streets, and had been almost entirely bricked up when Hungerford Market was built, so that in reality the house stood over a putrid sewer containing the solid filth collected during thirty years.

In any case, then, the occurrence of typhoid fever renders imperative a thorough examination of the premises in which it has occurred. If there be but one case, that may have been contracted elsewhere; but the occurrence of two or three in the same house renders it nearly certain that some source of impurity lurks near the sleeping place of the person affected. We are sure that no precaution has been neglected in the case of persons so dear to the Nation as the Royal Family of England, as we trust the following article will prove to our readers.

DRAINAGE OF WINDSOR AND OF THE CASTLE.

The recollection of the epidemic of typhoid fever which occurred in Windsor in 1858, and which was attributed with good reason to the state of the town drainage, will no doubt have led many persons ere this to question whether the melancholy death of the Prince Consort may not possibly belong to the class of preventible calamities, and to reflect, with something akin to humiliation, on the readiness with which but a few short weeks ago we were offering advice on sanitary matters to the afflicted Royal family of Portugal. As everything bearing on this question is of universal interest at the present time, we thought it our duty to commission a competent member of our Profession—one, too, who is distinguished for his knowledge of architecture,—with suitable introductions, to Windsor. There, the means of making the most searching examination of the facts were at once placed at his disposal by the able and intelligent Clerk of the Works at Windsor Castle, and by the Registrar of Deaths, and other officials. The substance of his observations is embodied in the following description of the drainage systems of the town and Castle of Windsor. By this, aided by the accompanying map, for which we are indebted to Dr. Murchison, our readers will see that it is not possible to lay the blame of this great public calamity on the neglect of known and preventible causes of illness.

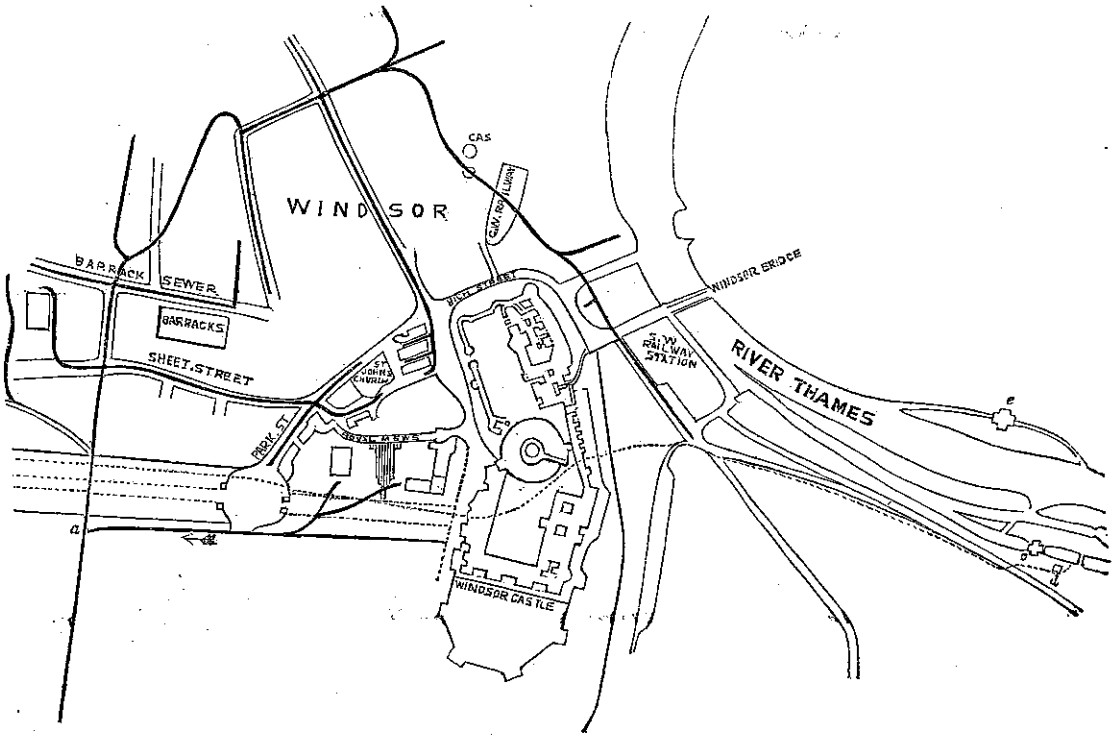
The able and complete reports of Mr. Simon, the late Mr. Austin, and Dr. Murchison, made after careful investiga-

tion, at the close of the year 1858, furnish us with an excellent description of the state of the drainage during that epidemic. That a change for the better has taken place since that time is sufficiently proved by the fact, that whereas between the first of August and the middle of December of that year 32 deaths from typhoid fever were registered in Windsor, in the same period of the present year but one from fever has occurred, and that in a particular spot to which we shall refer presently.

The town of Windsor, and a great part of the Home Park, are included in a large bend of the river Thames, the convexity of the bend being towards the north. Between the town and park stands the Castle, on an abrupt ridge of chalk, which rises suddenly from the clays around. It is precipitous on the north side, towards the river, but slopes more gradually down towards the south.

The main sewer of the town runs directly eastward from the junction of Sheet-street and Keppel-street to the river, into which it falls at a distance of about a mile from the town. It is thus easy to understand the complaints of the prevalence of foul smells in the town when the wind is in the east, *i.e.* when it blows into the mouth of the sewer. The level is low enough to allow water to flow through from the river above the town. The dimensions of the sewer are 8 feet by 4 feet.

To the point mentioned, at the head of this large tunnel, almost all the drains converge; some coming from the further side of the Castle and the flat parts of the town, a long distance round, with a slight fall; others from the higher parts in the neighbourhood of the Castle, a shorter distance, with an ample fall. It may readily be believed that at the point of convergence is to be found the most offensive gulley-hole in Windsor—a hole, indeed, which emits a stench so abominable that its continued existence causes wonder as well as disgust in the mind of the passer-by. The inhabitants of the nearest house complain seriously of the annoyance, but have not suffered from illness; behind this house, however, and parallel with the main sewer, is a row of small and low-lying tenements, called by a kind of grim joke, "Pleasant place," in one of which occurred the only death from typhoid fever which has been recorded this autumn. At a short distance below this point the drains from the remaining part of the town, consisting chiefly of terraces and cottages in the neighbourhood of Sheet-street, find



their way into the main sewer, their entry being connected with a flushing apparatus and tank, supplied by a muddy and scanty stream called the "Bourne ditch." All this system of sewerage was reported by Mr. Austin to be well constructed, and in good condition, except in a few particulars, one of which was ventilation. It is now apparently in perfectly good order, and has a sufficient stream of water running through its main trunks, but the ventilation must still be pronounced defective at several places, the worst being at the corner of Keppel-street. "Nothing was easier to see," writes Mr. Simon, in 1858, "that in Windsor generally there was extreme slovenliness as to the removal of filth." If the appearance now presented by the back parts of the town is any considerable improvement upon their state three years ago, then, indeed, must this reproach of Mr. Simon's have been well deserved.

The drainage of the Castle forms an entirely distinct system from that of the town, the Castle sewer joining the main tunnel in the Home Park, nearly at a right angle. (a) Into it are now drained the whole of the Royal Mews and the whole of the Castle, the western parts of each of which had, till the year of the epidemic, discharged into the town sewers.

A more elaborate set of drains than that by which the refuse of the Castle is collected into the outfall sewer probably does not exist. And the care with which the daily cleansing of the whole system is carried out is quite as remarkable as the completeness of the system itself. An ample supply of water for flushing is procured from the Castle water-works, near the river, by means of which a large and sudden rush of water is sent down the drains every morning from tanks in the Castle and the fountain-basin in the garden; besides which, an apparatus is provided for flushing all the smaller

(a) See the point *a* in the map.

drain-pipes, and used daily; and the overflow of cisterns causes a constant stream through the sewers, both day and night. Moreover, the branch drains are all trapped at their outfall into the shafts to which they converge, as well as at their commencement, and are furnished with ventilating-pipes opening above the roof, to avoid the risk of the return of gases to which the highest point of a sewerage system is always liable. An examination of one of these pipes is enough to prove that it performs its duty; while a careful testing of the air at the various shafts and man-holes must convince the observer that little or no sewer gas really does find its way up the hill from the main tunnel. Gas does escape from many of the shafts into which the smaller drains discharge themselves to join the main drains, but not in greater quantity than might be reasonably expected from an establishment of such magnitude.

The construction and arrangement of the basement story of the Castle is so extremely complex and inconvenient, that the proper ventilation of many of the sinks, closets, etc., in that part is a matter of some difficulty, and occasional stenches are certainly perceived; but the only palpable failure in the Castle drainage is at the south-west angle of the lower ward, where an old drain which led from the guard-room and its neighbourhood into the town sewers has been found to have been clogged for a considerable time. Workmen are now engaged in clearing out and removing the obstructed drain, with the intention of making a new one, which is to lead from the town sewer to the new guard-room in course of erection in the quadrangle. It has been found necessary to sink a shaft to a considerable depth, in order to reach the point of junction, and several trenches had to be dug before the course of the old drain could be discovered. There is no communication, however, between this faulty spot and the general drainage of the Castle; and though an explanation of the failure is necessary in order to guard against misapprehension, there need be no fear that any contamination of the atmosphere of the Royal apartments, which are separated from it by the entire length of the Castle, could possibly be derived from this source.

An attentive examination or the corridors, passages, sinks, closets, etc., in almost every part of the immense building fails to furnish any evidence whatever of the reflux of gases from the sewers. There are many closets and other places in which thorough ventilation could only be effected by the means used in a coal-mine. These are evils which no system of trapping can possibly avoid. The closeness observable in many of the passages, especially in the lower part of the east side of the Castle, is fully accounted for by their small size, scanty light, and insufficient circulation of air; disadvantages sometimes aggravated by the carelessness of servants, an instance of which came under notice no more than three weeks ago. But there is no reason to suspect any escape of gas from the main sewer, which tunnels through the hill at a great depth below the Castle quadrangle, and even at the point where it emerges on the slope below the south terrace, eastward of King George the Fourth's Gate-way, is many feet below the surface. The system by which escape from the branch drains is prevented has been already described. To sum up our account of the Castle sewerage, we know no place where a more complete or more carefully worked system is to be found, nor one which, considering the difficulties of the position, is more thoroughly successful. Gases undoubtedly do escape when the sewers are opened, but in such very small quantity as to prove both the extreme cleanliness of the sewers themselves, and the absence of any ascending current of importance in them.

Our conclusion therefore is, that unless some dire and unsuspected source of danger should lurk in the Royal apartments themselves—ample and well-ventilated as they apparently are—the sewerage system of the Castle must be acquitted of all share in the mischief, and the causes of the National calamity which we all deplore must be looked for elsewhere.

THE WEEK.

In our Number for September 14 we gave a pretty full account of a case of suspected poisoning at Coventry. A weaver, named Beamish, was proved to have been too intimate with a young workwoman, and therefore possibly to have had a motive for wishing to get rid of his wife. He was proved, at least, to have inquired for arsenic at a chemist's about the 14th of August, and to have purchased some at another chemist's on the 17th. His purchase was distinctly proved by the entry in the chemist's sale book, attested by Beamish's own signature. His alleged object was to poison rats, but no rats were proved to have existed. The wife and three children were taken ill on Wednesday, the 14th, after breakfast, at which the prisoner was not present. The youngest child died the next day, and the mother on the 20th. She was proved to have been sick several times after tea administered by the prisoner, and not after food and medicine given by other persons. She was proved to have expressed herself on her death-bed with religious feeling, and to have shown no propensity to suicide. Nevertheless, after her death the prisoner produced a note, alleged to have been written by the unfortunate woman, and confessing that she had poisoned herself. That note was shown to have been written by the prisoner. Arsenic was found in the stomach and blood of the deceased. From this chain of evidence the jury found a verdict of *Guilty*. We again call attention to the necessity of investigating the presence or otherwise of poison in any case in which sudden vomiting and purging occur to more than one person after partaking of food together. Also that it is better in any case to withhold a certificate of death than to give one without knowledge of the facts.

On Thursday, the 12th inst., a large and influential public meeting was held at Winchester, to consider the propriety of effecting the thorough drainage of the town. It was attended by the Mayor, the chief clergy of the Cathedral and College, by Drs. Crawford and Heale representing the Medical Profession, and by the leading inhabitants. The meeting, however, was speedily routed by an irruption of the lower order of ratepayers, headed by some public-house demagogues, who clamour against all improvement, and prefer that the poor should die of fever rather than themselves be taxed for cleanliness. So, in order to prevent a breach of the peace, the meeting was dissolved, and many respectable persons adjourned to a room at an hotel, where they might pursue their discussion unmolested. Mr. Rawlinson, C.E., then gave an account of the *cost*, per head per annum of the population, of effective sewerage, in various towns in which it had been carried out, which varies from 6d. to 13d. He thus described the proposed outlet works:—

"The site for the outlet was fixed at a sufficient distance, if possible. The area of land that they would use would be about two or three times the size of that room, five or six trenches would be constructed, and the sewage runs into those; they are constructed so that they can be dammed by hurdles, and all the flocculent matter stopped and strained away; the run was diminished till, at the further end, it was only three feet in a second; in a very short time it had parted with the solid matters, and the fluid portion, which was in appearance quite clear, was allowed to run away into the river. It must be remembered that the sewage arrives comparatively fresh and innocuous, and that excreta from any part of the city would within one hour be deposited in that tank. In summer a little chalk lime was sprinkled over the matters left behind; that was found to be sufficient to fix the