and saline deposits. The abstractions of blood from the cardiac region help to relieve the lungs and whole body, as well as the heart; but they may be required to be practised for congestion in other organs, especially the brain, liver, or kidneys; and it need only be added, that dropsies are to be opposed by purgatives, diuretics, or sudorifics, according as the respective emunctories are in a condition to bear their action. But the grand general rule, under all circumstances, is to make the circulation and respiration as easy as possible, and keep them so. (This has proved successful in the cases of Charlotte Wheeler, now once more in the hospital, and several others.) If not too far gone, such cases, indeed, afford much room for the satisfactory efforts of the physician, not, indeed, as regards a perfect cure, but certainly with respect to a comparatively easy and prolonged life, provided the patient be not compelled by his circumstances to follow a laborious or exciting occupation, or be too stupidly obstinate to discipline himself in any way whatever.

The malignant formations of SCIRRHUS OR CANCER, in their varied forms, are not common in the heart; and, as the general principles that govern such heterologous deposits will be treated of separately under the head of blood diseases, I shall not at present enter into them at all. They are the same whether they occur in the heart or anywhere else, and therefore require no special comment on account of their locality. It is sufficient to say that, from the rareness of the event, I am precluded from making any observations founded on practical experience, and that medical literature does little to fill up the blank. It has been asserted, and, from abstract reasoning, I should think the assertion true, that cancer cordis produces all the range of symptoms generalized under the name of angina pectoris. As to treatment, as there is nothing known with any certainty as to the nature and curative of such an affection in less vital and more visible parts, so we know less than nothing (so to speak) in regard to these attacks on such an organ as the heart. There is required, on this subject of malignant action, a most combined and systematic study amongst physicians and physiologists; and, until ardent and persevering minds are brought into freer and more immediate intercommunication with each other, and with practical men, little progress will be made; because the subjects of study are so few and so isolated that few individuals of themselves can have a sufficient basis of fact for generalization, unless they be helped out by the observation and experience of others. A metropolitan hospital for malignant disease would be one of the greatest means of benefiting mankind. Nay, such a hospital might be open for the reception of all so-called incurable cases, only admissible, however, upon the certificate of a body of hospital physicians and surgeons, or other responsible and official persons; and then the statistics of such an institution would be truly instructive and beneficial, as they might ultimately prove the means of removing a few more formidable and mortal names from our nosological black-list.*

As to CARDIAC MALFORMATIONS, such as the absence of one ventricle, or of one ventricle and auricle, or the continuance of the foetal intercommunication of the two sides by means of the foramen ovale, and ductus arteriosus, each of them is not so much a positive disease, as a mere arrest of development, and therefore does not properly come under the practice of physic, but rather under the notabilia of physiology. Such anatomical deficiencies can no more be supplied than we can supply horns to hornless cattle, or beards to hairless men, and therefore they come not under any hospital notice. As to the secondary inconveniences that may arise from the imperfect oxygenation of the blood accompanying these malformations, they must be treated in accordance with the principles laid down for their management in other parts of these lectures, from whatever cause they proceed.

ON THE PROGRESS
OF
PUBLIC HYGIENE AND SANITARY
LEGISLATION IN ENGLAND,
AND THE ADVANTAGES TO BE DERIVED FROM THEIR
FURTHER EXTENSION.

BY J. INGHAM IKIN, Esq.,

Fellow of the Royal College of Surgeons of England, and Lecturer on Anatomy and Physiology in the Leeds School of Medicine, etc.

Read before the Leeds Philosophical Society, March, 1851.

THE importance of my subject must be admitted by all, though some may question its interest and disregard the study of it, considering such topics fit only for the study and attention of the mere official or professional members of society. That such an impression exists so generally is a matter for regret, as it prevents the due appreciation of the labours of many scientific but unobtrusive men, as well as practical statesmen and noble-minded philanthropists.

It is really curious to observe how tardy is the public mind to take up and interest itself about really important social improvements, whilst often some political question of no great practical moment, or one of a complicated theological character possesses an absorbing interest; gradually, however, it is to be hoped, and steadily, will such questions as those involved under the head of public hygiene, steal a march upon mere controversial topics, and as science, experience, and observation must in the long run supersede ignorance, superstition, and credulity, so will questions like the one we propose to discuss to night, become every year more and more appreciated, from their bearing upon the interest and welfare of all classes of a densely-peopled country like our own.

State medicine, medical police, and hygiene, are terms which have been used synonymously, and defined to express the art or science which has for its object the application of physiological and medical science, to securing the well being and amelioration of society—

* I am now glad to learn that a "Free Hospital for Cancer" does exist in Cannon Street, London.—D. N.

that is, of improving the sanitary condition of the people, and promoting the health, ease, and welfare of the human race, especially that portion of it doomed to live in towns. Indeed, as has been well said by a writer in the *Quarterly Review*, in an article "On Water and its Sources," "Physiological and chemical science have now demonstrated beyond all contradiction, that the mortality of towns and the premature degradation of the townsman's body, year by year, is the result of minute and almost, at the time, unappreciable impairment occasioned by a multitude of noxious influences, and sometimes even collectively inadequate to produce violent and definite disease, but not on that account less fatal in their ulterior effects; for, as when litmus paper is dipped in acid it turns red, when a *rosy* child is dipped in town air, and kept in it for some time it turns *white*. The first change it is true is instantaneous, but the second is not less certain, though it may take months or years to accomplish, and is certain in the long run." I need scarcely add that such deleterious influences are often rapidly and wonderfully checked by removal to the sea-side, or by breathing pure bracing country air; the appearance alone soon indicates this in a striking manner. In using the term *hygiène*, you are not to suppose as many absurdly do, that it has reference to and is merely connected with mere matters of diet, regimen, gymnastics, and the routine regulations for the attention of the valetudinarian. Important as are diet regimen, clothing, variations in climate, exercise, &c., there are branches of *hygiène* more correctly confined to the division termed private *hygiène*. "The public are apt to think," says the *British and Foreign Review*,* a journal to which I shall have to refer hereafter in terms of the highest commendation for its services in the cause of the progress of public *hygiène*, "that medical police, implies nothing more than the seizure of stinking fish, or the detection of unsound meat, the adulteration of beer, &c., or at most a fear-spreading contrivance, termed a Board of Health, brought into action when the cholera rages." But with the definition given above, our subject takes another higher and more comprehensive scope of inquiry, but till the last fifteen or twenty years at most, it has been little cultivated in England, and even now, notwithstanding the numerous detached essays and treatises of the different branches of private *hygiène*, we do not possess a comprehensive work on State *hygiène*, although abundance of materials of a most valuable nature exists in the various Parliamentary reports to which I shall have occasion to allude, and which, fortunately, from having access to the Town Clerk's† library, I am able to obtain and peruse at leisure, from which an excellent work might be composed. In France, Germany, and America, State *hygiène* constitutes a separate chair in the universities and colleges, and numerous essays and treatises on the subject, from our continental neighbours, are constantly brought before our notice in the standard reviews; indeed our neglect and indifference have called

forth the censure of foreign authors, and the laborious investigations and efforts of a numerous class amongst ourselves, are now only beginning to be appreciated, and their suggestions and remedies are now only in the course of being partially carried out.

Dr. Kilgour* well puts the importance of this question to all classes of society:—"To the legislator and the political philosopher, as physicians of the State, the knowledge of this science is imperative. In modern times the interference of Government, till within the last few years, has been confined to laying down such regulations as were supposed to be best adapted for preventing the entry of the plague or cholera into the country, or removing, by the indictment of nuisances, those sources of disease which were too apparent and flagrant to be overlooked, though, as we shall have occasion to repeat, the law in this respect, either in the local or general acts, is almost impotent. It is true quarantine may have been enforced, and on extraordinary occasions the sick are separated, compulsorily, from the healthy. Adequate means are not yet applied to improve the strength, and preserve the health of the community, by preventing the naturally strong, as well as the weak, from becoming exposed to those influences which would exercise an injurious effect upon the body. It is the principle of life itself which is the care of the State, and happily for us, and in accordance with Christian precept, life is as valuable, and as deserving of protection, when tenanted by a weak and deformed body, as when encased in the most Herculean power, whether clad in rags or clothed in purple and fine linen. The most miserable object of corporeal deformity may do the State as good service as he who can perform the most laborious work of husbandry, or can march, fully accoutred, to repel the nation's foes; and he who is strong and valiant may, nevertheless, owe his subsistence to the crooked and feeble citizen who faints at the sight of a drawn sword; still there is no reason why a weak and sickly race should be allowed to spread, and the old expression that the sound mind is to be found connected with the sound body, is, as a general rule, indisputable. The ancient legislator, we read, laid down the most strict laws for rearing a hardy and vigorous people. They made, however, physical force paramount to everything else, and looked upon the strongest man as the best citizen, and considering the state of society at the time this was necessary. Where nations are small and close to each other, and where mutual jealousies and antipathies are bringing them into constant collision, powerful and expert soldiers were required, and every citizen must be a soldier. The cultivation, therefore, of the physical power was incorporated with the well-being and freedom of the nation, and was carefully provided for by the laws. The deformed and weakly offspring were troublesome in the rearing, and useless when arrived at manhood. The principal care was devoted to the

* In an article on medical police, October, 1842.

† John Arthur Ikin, Esq.

* Vide Kilgour's treatise on "Private Hygiene, and Lectures on the Ordinary Agents of Life." A very pleasantly-written, agreeable, and instructive work. It does not, however, profess to treat of public hygiene at any length.

healthy, and the death of the weakly and deformed was received without regret. It is still the same where hostile and savage nations exist. With them, although there are no codes of laws, yet the impossibility of procuring food, except by the most laborious bodily exertions, begets an active and powerful race of men, (e.g., the North-American Indians,) and fits them, (as well as training in the gymnasium, or fighting like gladiators,) for opposing their foes. But if policy made the Greeks desirous of a race possessed of great physical power, humanity as well as policy, not to speak of the higher motive which we have the privilege of being influenced by, teaches us to preserve the weakly, cure the sick, and provide for the worst affliction of all—malady of the mind. The best gymnasium of antiquity sinks into insignificance before the pile which individual or public beneficence has raised for receiving the sick, the maimed, and the imbecile, for furnishing to them the means of recovery and alleviation, and for sending them back sound and useful members of society. What are the baths of Caracalla or of Dioclesian, compared to a Guy's Hospital or Bartholomew's, or the Asylum at Hanwell? What the skill and labours of a Galen and a Celsus to the discoveries of a Jenner, and the labours of a Howard?

Experience has demonstrated the superior value of modern practice, which, though imperfect and capable of immense extension and improvement, as the public records I shall have to refer to and commend, abundantly testify; for we find that, notwithstanding the greater number of diseases of a contagious nature to which mankind are exposed;—notwithstanding the greater number of diseases to which, from their luxurious habits and artificial manners of life the higher classes are liable;—notwithstanding the close and continuous labour to which so many of the poorer classes are obliged to submit, in order to obtain a livelihood;—notwithstanding the greater size of our cities and towns, and the noxious murky atmosphere breathed by the inhabitants of our manufacturing and populous cities, the average duration of life is much higher than ever it was in Greece or Rome. In England the average of life is about 45 years, whilst in ancient Rome it was only about 30. To what is this owing? It is to our feeding the hungry, clothing the naked, and aiding the sick and broken-hearted;—to our founding useful charities and associations for the aged and infirm, as well as establishing hospitals for the sick, and preventing, to some extent, the intercourse of the contagious with the healthy;—to our obeying to some extent, though I must add only in an imperfect and inefficient manner, the laws of hygiene;—by inculcating and practising cleanliness;—by procuring an adequate supply of water, and being able to furnish the masses with cheap food, clothing, and fuel, adapted to our variable climate;—by attending, in an increased (though as yet very inadequate) degree to ventilation, and improving the construction of mills, work-shops, &c.;—to removing nuisances, and preventing miasmata from decaying vegetable and animal matter; attention to all of which circumstances tends to prolong life, and promote the health, well-

being, and comfort of the community. No subject connected with hygiene has been more difficult effectually to carry out in practice than the ventilation of public buildings, churches, chapels, museums, &c., as well as that of dwellings and work-shops, especially amongst the lower orders.

I shall conclude these introductory remarks by appending, in a few lines, a statement which must demonstrate to the satisfaction of every one the necessity that exists of procuring a due supply of fresh air for the requirements of the living economy.

Suppose "we take the ordinary computation of twenty cubic inches of air being drawn into the lungs at each inspiration, and that there are about twenty respirations in a minute, then 333 cubic feet, or thirty-three hogsheads are used by each person per diem. Not less than between ten and twelve cubic feet of carbonic acid are therefore evolved in the course of twenty-four hours, a quantity which will be found to contain at least six ounces of solid carbon! The consideration of this fact alone must suffice to show the extreme importance of there being no impediment to the due exercise of the function of respiration, and prepares us at once for the pernicious results that inevitably attend upon the breathing of an atmosphere which does not enable the system to remove its self-generated poison. The retention or inadequate discharge of the carbonic acid, besides the more direct effects of oppression, ennui, loss of appetite, and greatly-impaired muscular energy, renders the body more prone to the every form of diseased action, (in the same way as extreme fatigue and continued fainting,) and far less capable of resisting the influence of baneful agencies from without."*

The title of my paper implies two divisions of the subject;—the history and progress of public hygiene, and the desirability of its extension in accordance with our present knowledge, and agreeably to the testimony of a numerous class of scientific as well as practical observers. I shall avoid detail as much as possible, and confine myself (in the mere general sketch which I can alone take of such an extensive question in a single paper) to the grand features of the case, hoping in this way the better to keep up your attention, and the more forcibly to impress upon your mind the important bearing of my subject on the general well-being of society. And if I can succeed in furnishing you with some small degree of information, and in pointing out to you the sources from which further knowledge may be gained, and if I can cause the labours of others to be more duly appreciated, and give you some idea of the extent of these labours and of the praiseworthy exertions of the modern promoters of public hygiene, I shall not have cause to regret having selected this subject for our attention and discussion this evening. It is a subject in which I have felt, I may say, a deep interest ever since I entered the medical profession, and the importance of which I have frequently dwelt upon in public lectures and on other occasions; feeling convinced that the

* *Vide British and Foreign Medico-Chirurgical Review for June, 1851.*

principles of hygienic science were as little understood as appreciated by the public at large; and feeling certain—and as all sincere friends of medical science must feel—that as these principles were more generally known, so would they be acted upon, longevity would be promoted, civilization extended, and happiness diffused. If medical men were influenced merely by narrow-minded, selfish, or pecuniary motives they would not wish to see public hygiene make any progress. But, to the honour of our profession, selfishness is not its leading principle; for, as a body, I may fearlessly state we are always found willing to risk our lives in the prosecution of any path in which duty or the claims of suffering humanity may lead us. We deal more generously to the public than the public are in the habit of dealing with us;—we are ever willing to give information on matters of which the majority must necessarily be ignorant. Unlike the charlatan, the empiric, and the unworthy and degraded members of our body, (for in all professions and classes there are such, alas! to be found,) we deal in no secrets, for we know our science cannot be gainsayed or overturned, though it may be misapplied and brought into disrepute. Knowing that physiology and anatomy, the handiwork of the great author of all things, are the groundwork of our art, and that the rules of the one, and the facts of the other, cannot be controverted, refuted, or explained away like the edicts of the lawyer, or the doctrines of the theologian.

In bringing before you a hasty glance of the progress of hygiene up to the present time, (for it is still in its infancy,) it is a proud and gratifying fact to find that this progress—this development, so to speak, of a new science, has been principally (I do not say altogether) effected by members of the medical profession. We may trace hygienic institutions strictly speaking, as far back, in this country, as the time of the Crusades, for it is to them we are indebted (according to Kilgour) “for the institutions for the separation of the sick from the healthy, and for the reception and curing of the diseased. The irruption of the barbarians into the Roman territories made an end of those habits and customs which had been considered requisite for preserving the health of an enervated and luxurious people. There was no occasion for a gymnasium to those whose very existence depended on constant labour and exertion. Their whole life was a struggle, and the broad canopy of heaven the covering of their gymnasium. They transmitted their powerful bodies and their warlike dispositions to their sons, and the almost continual wars kept aloof enervating luxury. When the descendants of these same barbarians assumed the titles of Crusaders, and joined the holy army—when they buckled on their armour to fight for the Holy Land, although often beaten back and foiled in their object, yet out of this failure came good; they returned furnished with the laws of the East, and with many of the practices, customs, and institutions of the enemy. The enthusiasts brought with them the leprosy, but they brought with them the antidote as well as the bane. The disease soon disappeared, probably more from the change of climate

than from skilful treatment, but the ‘maladeries’ remained, as the seed from which sprang the lazarettoes, the hospitals, and the infirmaries. In later times, charities and hospitals of every kind have been established along with the extensively useful institutions, the public town hospitals and dispensaries, as well as the monasteries and nunneries of old, brought harbour for the sick for a time, and sisters of charity might do much in their way, and what are these compared to the nurseries and noble hospitals of the present day. And where, may I ask, but in old England, can you see members of a learned profession giving their services gratuitously to charities and public institutions of every description for the relief of sickness and disease? The science of medicine according as it has marched forward in its career of improvement, has picked up the invalid and made him sound, when formerly he would have been left by the way side as incurable; (and many good Samaritans now exist in our body, who conceal their charity from the world, and boast not of the cures they have performed.) Thousands are now sent back to society from the hands of the physician and surgeon, and from these noble institutions, who would formerly have been allowed to pass uncared for to the grave. It was from the East—from Constantinople, that Lady Mary Wortly Montague brought the first preventative of the spread of small-pox—the inoculation, to be succeeded by that of the illustrious Jenner—vaccination, which has been calculated to have added nearly a *fifth* to the human race. Another child of England, too, spread his love for his fellow-men, over the civilized world. Howard saw in our prisons but dens of misery, disease, and loathsomeness, too frequently a grave for those confined, and a hot-bed of infection for those who visited them.” Howard taught that the object of a prison, (the same as Pinel did for Asylums,) formerly so wilfully mismanaged, was not to confirm its inmate in his ways but to send him back an improved member of society; and he showed that cleanliness and mercy were compatible with security and punishment.

Laws relating to the management of drainage, though inadequate, have existed in England from a very early period. The crown was first invested with authority to determine the areas of foundations for drainage, as well as to constitute the authorities which should have power to act for the public protection within them. It is (*vide* second Report of Commissioners of Inquiry into the state of large towns) apparent that serious attention was given to works of drainage from the earliest period of our constitutional history. The earliest fundamental provisions have been laid upon the footing that such works, as well as measures for the maintenance of the free flow of running waters, were of general, public, and national, rather than of exclusively local, consideration. Special commissions on the subject of drainage and sewers were very early in our history. Indeed the 16 c. of Magna Charta is a defence of the public rights against the encroachment of private interests upon the great public water courses. In the reign of Henry III., a special Commission was issued to regulate the laws and customs of Romney Marsh.

These commissions extended to the formation of new roads and maintenance of old ones as well. In the third year of Henry IV., there was a commission for providing the means of carrying pure water to the inhabitants of Kingston-upon-Hull, as well as for draining that town and removing impure sea or marsh water. The Commission recites "that there appears to be need in those days of great charges and expenses for the protection of the same town against the force of the water aforesaid; and so as well as on account of charges and expenses of this kind, there daily arising to be sustained and supported, so that sweet water is not had, coming and flowing to that town except only by boats, and that at sumptuous cost, whereby the poor inhabitants of the town aforesaid, in large numbers every year, during the summer time, of necessity, on account of the scarcity and dearness of water of this kind, depart from the same town, and renounce and avoid it, to the injury of the town aforesaid; and in process of time to the final destruction of the same, unless a suitable and speedy remedy in this matter be speedily applied," &c. Here then we have an early example of legislation for the supply of water to towns.

With regard to the history of water-supply for London, a few remarks will suffice, but such an important matter we cannot pass over. According to a very clever article in the *Quarterly Review*, for September, 1850, (to which I was referred by Mr. West,* an authority in these matters which will amply repay the perusal, and from which, had time allowed, I might have extracted much useful matter in elucidation of this now really fashionable question.) The first or primitive water epoch (for London) includes the whole lapse of centuries preceding 1235. During this long period no artificial arrangements were employed in the metropolis for the collection or distribution of water, which the Londoners fetched, like simple villagers, with pitcher and pail from the neighbouring streams, in the same way as their perished progenitors had done, or "stooped with hollowed hand to drink." During the second period, which we may date from the completion of the Tyburn conduit in 1235, art was first employed to utilise the gifts or to correct the local deficiencies of the supply by storing in tanks the water of adjacent springs, or bringing through conduits ampler currents from afar.† During the third period, commencing from the plan of Peter Mons, in 1580, these conduits were extended to the very houses of the citizens, by branching ducts, through which the downward flowing river water was made to force itself up by tidal wheels and pumps, so as to sketch out for the first time a true circulating water system, with its central heart, arteries, and capillary ramifications. During the fourth period, dating from 1782, the water service of London extended concurrently with all the main branches of industrial art, was gradually trans-

formed by the invention of the steam engine, which impelled the circulating fluid so powerfully through its channels, that the wood of which these were made were inadequate to sustain the increased hydraulic pressure, and was superseded by the introduction of cast iron. During the fifth period, which dates from the establishment of the first London filter, in 1829, and which seems still to be in its infancy, (as an epoch), the attention of engineers and chemists has been more and more strongly directed to the artificial purification of the water, previously supplied either in a strongly impregnated state or from an impure source. With the last three periods of this gradual evolution the history of the London Water Companies is naturally interwoven, and the monopolies of which will now be no longer allowed to exist, and London, which should be our model in industrial improvement and Sanitary Reform, must not submit to suffer from the inadequate quantity, quality, and cost of its water.

This subject, from the time of the publication of the reports and evidence of water-supply in 1821, 1828, 1834, and 1840, up to the present year, has repeatedly occupied the attention of Parliament, and the inhabitants of large towns have oft, like London, had to seek its aid, and incur much expense and opposition in order to procure that necessary of life—that boon of heaven—a cup of pure cold water, which even in these luxurious and flourishing times has oft to be sought for in vain, and may now even fairly be estimated as a pearl of great price. Filtering, boiling, chemical reagents, and all other artificial means that the ingenuity and skill of man and science can invent, cannot render any supply of water equal to that of a pure unadulterated spring. The water-drinking part of the community would, doubtless, find their opinions and habits more extensively adopted, could they even supply a genuine article. The products of the vine, and that of the barleycorn, would then become less generally patronised; but unfortunately for the public genuine articles in the form of food and drinks are rather the exception than the rule, as we shall have occasion to prove before concluding this paper. Adulterated tea and coffee are often quite as injurious to the health as any spirituous beverage. But to proceed with the immediate subject before us. With regard to drainage and sewerage previously to the statute of Henry VIII., (a law still in force,) the commissioners of sewers were named directly by the Crown. By this statute it was provided that they should be named by the Lord Chancellor, the two Chief Justices, and the Lord Treasurer. This act governed the metropolis and about eighty rural districts. It also enacts that commissioners of sewers should be appointed for other parts in this section,† for making laws, decrees, and ordinances. It gave also powers to execute works, and levy rates, &c. In modern times, however, the working and government of these commissioners is not in force.

As medical science became more cultivated, hygienic knowledge was more diffused; and we find an infinity of local acts and municipal bye-laws providing for the supply of water and the sewerage of towns, the cleansing

* Mr. West, our eminent chemist, I much regret to say, has just died, whilst this paper is printing.

† Considering our early connection with the Roman Empire, famed for its gigantic aqueducts and sewers, it is curious no adequate means, with regard to a supply of water, were not undertaken.—1.

of streets, the discovery and destruction of unwholesome food and drink, &c. "Boards of health were established in Ireland, but failed in achieving any permanent good. The most important authorities for removing nuisances were vested in court's leet. Juries were empanelled at these courts, and authorised to perambulate districts, and judge of nuisances upon the view. These 'annoyance juries' as they were named, have been discontinued in many parts of the country since the Poor-law came into operation; and they were not found effective, from the incompetent class of persons selected to serve upon them, and the Boards of Health which were instituted to replace them were little better."*

The inadequacy of these acts, and their inapplicability to the present condition of our country, have led to the necessity of amending the laws, and passing more efficient ones, such as the numerous local improvement acts, as the one in Leeds, for example—an act much in advance of those for most other towns, though very inadequately carried out as yet; bills for the sewerage of large towns, powers to appoint local surveyors, inspectors of nuisances, and, lastly, to the passing of the Health of Towns' Bill, and the establishment of a Central Board of Health. The benefits to be obtained from these measures are still partial, but undoubtedly they are extending, and will extend in a few years still more rapidly, and thus tend in a remarkable degree to improve the sanitary condition of the people.

It is unnecessary, and it would be tedious, to trace the early laws relating to quarantine, carried out for the supposed prevention of the plague and Asiatic cholera, if the present theory were generally, though not universally adopted, that such laws are totally inefficacious, and founded on mistaken data, it testifies on what mistaken views our Legislature has acted with regard to them. We must not, however, speak too confidently about the propriety of the total abolition of quarantine laws and other sanitary precautions of this kind.

It is only then by degrees, and in course of time, and as circumstances rendered interference more necessary, that we find State hygiene carried into practice, and that the principles of medical police have been acted upon, and spread, and progressed in England. The earliest hygienic measures being the establishment of hospitals (certainly 600 years ago) not only for the wounded, but for the sick and weakly; early laws regulating and providing for the supply of water; laws for the regulation of water-courses, drainage, and sewerage; quarantine laws against supposed contagious disorders; the establishment of fever-hospitals, and those for cases of small-pox; the introduction of the practice of inoculation; the discovery, by Jenner, of that grand and incalculable boon to mankind—vaccination. To these we must in justice add Sir Humphrey Davy's beautiful life-preserving invention, the "Safety Lamp;" also our improved method of treating the insane, and managing asylums, for abolishing restraint and coercive measures are quite of recent date, indeed we arrive now at a new stage in the progress of hygiene, and come to that

period from whence we may fairly date its general culture as an important branch of study, and as being important both in a political as well as medical point of view. We arrive at our own day, and have to speak of the labours of the living, or of those who are either living, or have only lately quitted their sphere of usefulness. Amongst the latter we must enumerate the late Sir John Sinclair, who devoted his life to carrying out useful practical improvements, and always had in view the grand question of the best means of preserving health, and of procuring longevity. In tracing the progress of public hygiene, also, I must not omit the name of Captain Cook, who paid such attention to the health of his crew, that in his three years' voyage round the world he only lost one man. To this great navigator we are indebted for teaching us that human life is as safe from disease on board of ship as on shore. The improvement of naval hygiene, and the introduction of more wholesome diet, and use of lemon juice to prevent scurvy, are due to him; and more recently, to the able and zealous naval medical officer, Sir William Burnet, Director-General of the Medical Department of the Navy, who has rendered important services to his country for his management and improvement of the health of the navy, by attention to food, clothing, bedding, cleanliness, ventilation, climate, intemperance malaria, &c. His valuable discovery, also, of the properties of chloride of zinc in destroying the odour of bilge-water, killing vermin, and preserving timber, canvass, cordage, and ships' stores, deserves mention here. It does not emit the disagreeable effluvia which are to many so strong an objection to the use of chloride of zinc, (a French discovery of vast practical utility,) nitrous gas, &c.

Sir William Burnet, early in his career, according to a recent account of his life and labours in the *Lancet*, was forcibly struck with the insufficiency of the returns then in use to show the nature and extent of sickness and disease existing in the naval medical establishments on shore, as well as in the service afloat, he therefore first required from the medical officers periodical returns to show the extent of the particular class of diseases in each hospital or ships in every station, and also the number of deaths from each disease separately. These regulations have been of great advantage in the preparation of statistics, to show the effect of remedial systems pursued, both past and present, and from this source under the Director-General's superintendence, most elaborate and interesting statistical reports have been published and still continue in progress. He succeeded in establishing a large naval hospital at Chatham, instead of employing hospital ships at that port. He confirmed the management of the Asylum for naval lunatics at Haslar. The codes of instructions relating to naval medical service he revived and constructed afresh. Libraries and museums have been formed on an inexpensive plan at his suggestion. He established a very important alteration—a sick mess in Her Majesty's ships. The effect of all these improvements—of these labours of Sir William Burnet, are satisfactorily shown in the decrease of those frightful outbreaks of sickness

* *Vide* British and Foreign Medical Review.

with which the crews of Her Majesty's ships were formerly so often visited.

Many other names in connection with the health of the navy, particularly the valuable statistical reports of the health of the navy by Drs. Wilson and Bryson, might be enumerated, but I must forbear; the present condition of the navy—the almost entire absence of scurvy—the improvement on the health and habits of the sailor abundantly testify with what success the rules of hygiene have been here carried out.

[To be continued.]

ON UTERINE HÆMORRHAGE.

By W. NEWNHAM, Esq., FARNHAM.

It is admitted on all hands that uterine hæmorrhage is accompanied by the most trying circumstances which are incident to professional life, and as these are often requiring the most prompt and determined assistance, as well as the nicest discrimination in the appropriation of remedies, it cannot be out of place frequently to review any of the great principles involved. I shall avail myself of the narration of two recent cases, in order to append some remarks upon these principles.

I was consulted on the 12th of April last by a lady in the sixth month of pregnancy, for an attack of uterine hæmorrhage. She had been much alarmed the previous day in consequence of the pony she was driving running away, and kicking; and an appearance of discharge, which she had previously noticed in a slight degree, became aggravated, and continued. At my visit the hæmorrhage was not great; there were no urgent symptoms, and I trusted that the effect of alarm might pass away with the cause which had occasioned it, with rest of body and quietness of mind. The principles to be acted upon here were to soothe and quiet the nervous system, to keep the patient in a recumbent position on a horse-hair mattress, to supply light and unstimulating nourishment, to preserve the several functions in their normal condition, and to afford such an amount of fresh air as should give the lungs an abundance of oxygen; and should avoid, on the one hand, the stimulation of accumulated caloric, and on the other, the depressing influence of a too rapid abstraction of temperature.

Finding, however, that hæmorrhage did not entirely subside, in a day or two I made a digital examination in order to satisfy myself that the case was not one of placenta prævia, and also to determine upon the probabilities of abortion, or the resumption of gestation. I found the os uteri patulous, its lips swollen and flaccid, but no part of the ovum was engaged within it, and the placenta was not attached over it. Believing that, under such circumstances, abortion was inevitable, I exhibited the secale cornutum, with the view of obtaining its sedative influence generally, and of provoking the uterine fibres to contraction, in order to effect the expulsion of the ovum. Finding, however, no result

from this treatment, in a few days I again examined, but the parts remained in *statu quo*.

My patient was a young lady of highly nervous temperament, and under this constant drain the action of the heart had become exceedingly irritable. During this time cold milk was one of the great means of her support, and her appetite remained unimpaired, so that she took as much as was wished; the symptoms gradually moderated, and the bowels were kept regular, still hæmorrhage was never long absent, and the case became embarrassing, from its protraction, and from the impossibility of adopting any decisive measures for terminating utero-gestation. Next there came the appearance of a blighted ovum, or as nurses call it, a false conception—membranes containing fluid—but no fetus. Pain attended the expulsion of this body, and ceased directly afterwards, but there was no diminution, or gradual cessation of hæmorrhagic action, and no sensible change of the intra-uterine relations. In this way my patient went on, with a certain degree of improvement, and occasional attacks of uterine spasm, until the 4th of May, when I was summoned at four A.M. with an urgent message that I would go over and see her directly, as she was "so very ill." On my arrival at her house, five miles from Farnham, I found that the account had not been exaggerated. The bleeding during the night had been terrific, and now her pulse was not to be counted. She complained of inextinguishable thirst, yet everything she swallowed was instantly rejected by vomiting; she was restless in the extreme, tossing about the bed, and retching continually. Hæmorrhage still continued, notwithstanding her *faintness*. Her countenance was white as the sheet, and her delicate hands were shrunk, and bloodless. The only encouraging circumstance she had about her was pain, but this only added to her sense of despondency, and to her conviction that she was dying—a conviction almost participated by myself; nevertheless hope—inextinguishable hope, clung to the manifest pain as to a sheet-anchor, I gave her at once sixty drops of Battley's sedative, with the immediate effect of quieting the sickness, allaying the jactitation, and enabling me to get nourishment and stimuli into the stomach. The actual loss, too, moderated from this time, pain went on, the os uteri became dilated, the membranes gave way, and in a couple of hours a six months' fetus was expelled—still-born, but not having been long dead—the placenta followed shortly. From this time my patient rallied, and in three more hours I was able to leave her, with the comfortable hope that she was safely landed from the present emergency, and that she would recover: in fact her restoration was more rapid than could well have been expected; and although at first she could scarcely raise her head without fainting, and the action of the heart continued feeble, and excessively irritable, yet by great attention and good nursing she was able in a few weeks to leave her home for Ramsgate.

Now, it will be remarked, that in the conduct of this case, no mention is made of plugging the vagina, or of the application of cold vinegar and water; the former was not employed, because there was yet a lingering