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Publication/Creation

New York : J. F. Trow, 1859.

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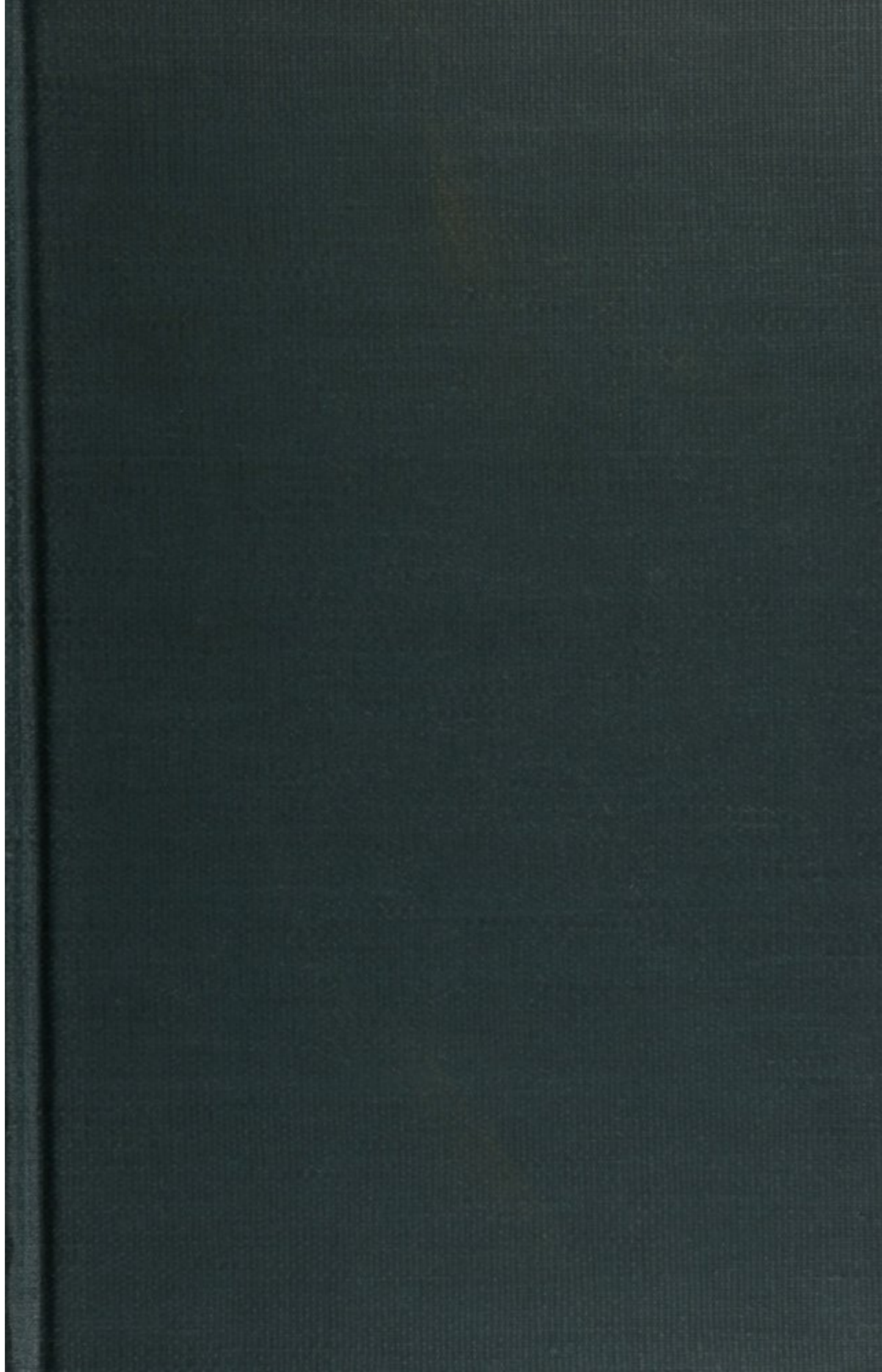
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HOSPITAL HYGIENE

A THESIS

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BY

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A THESIS

ON

HOSPITAL HYGIENE,

FOR THE

DEGREE OF DOCTOR OF MEDICINE IN THE UNIVERSITY
OF NEW YORK.

BY

VALENTINE MOTT FRANCIS,

MEMBER OF THE N. Y. HISTORICAL SOCIETY.

"Quemcumque miserum videris, hominem scias."—*Seneca*.

SESSION 1858-9.

(PRINTED BY PERMISSION.)

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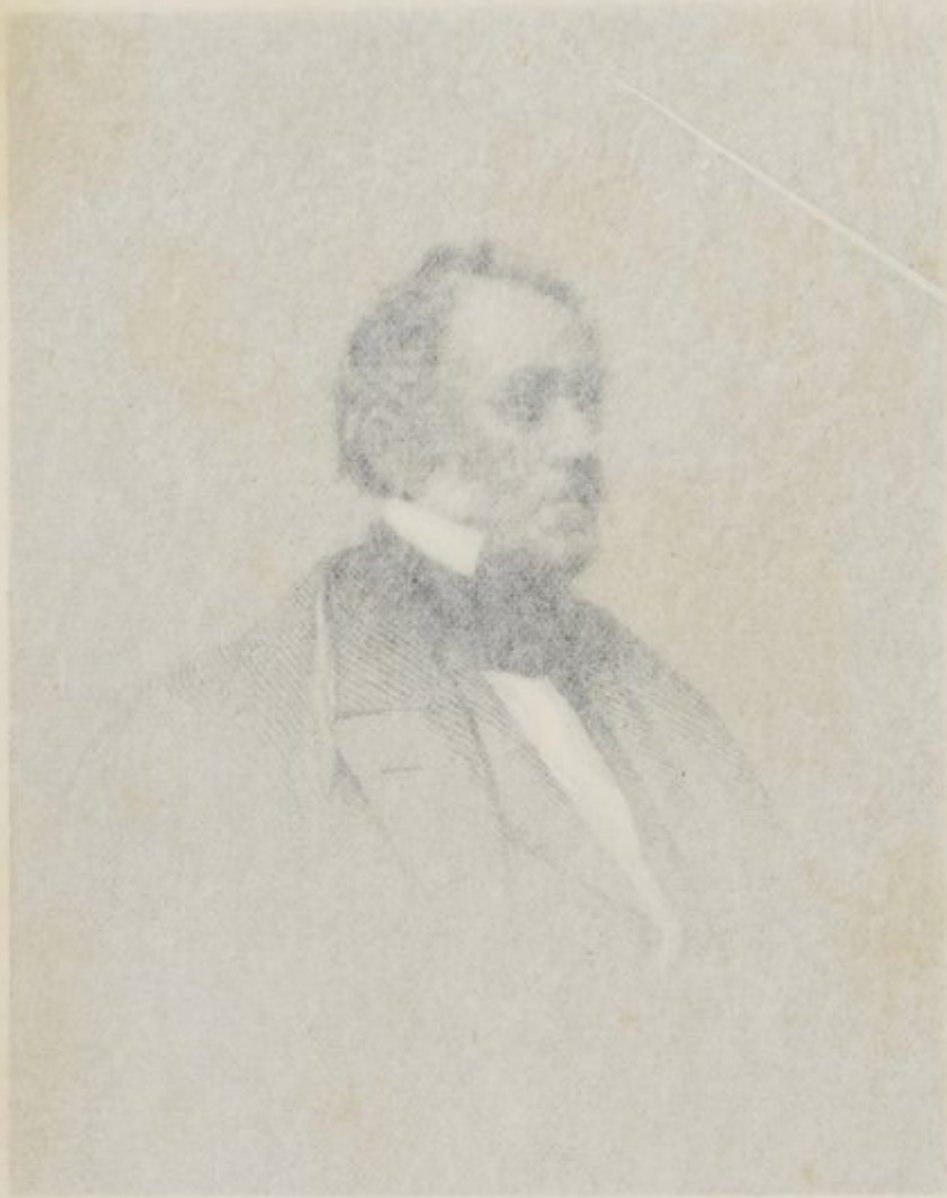


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John W. Francis.

TO
VALENTINE MOTT, M. D., LL. D.,
THE FATHER OF AMERICAN SURGERY,
EX-PRESIDENT OF NEW YORK ACADEMY OF MEDICINE,
CONSULTING SURGEON TO THE BELLEVUE, NEW YORK, AND WOMAN'S HOSPITALS,
FELLOW OF KING AND QUEEN'S COLLEGE, DUBLIN, ETC., ETC.,
AS A TOKEN OF THE ESTIMATION
IN WHICH I HOLD YOU AS A MAN AND A CHRISTIAN, AND THE ADMIRATION I FEEL FOR HIM
AS AN INSTRUCTOR.

AND TO MY FATHER,
JOHN WARFIELD FRANCIS, A. M., M. D., LL. D.,
MEMBER OF THE MEDICAL BOARD OF BELLEVUE HOSPITAL, ETC., ETC.

Epic Poem
IS MOST RESPECTFULLY AND AFFECTIONATELY
DEDICATED BY,
THE AUTHOR.

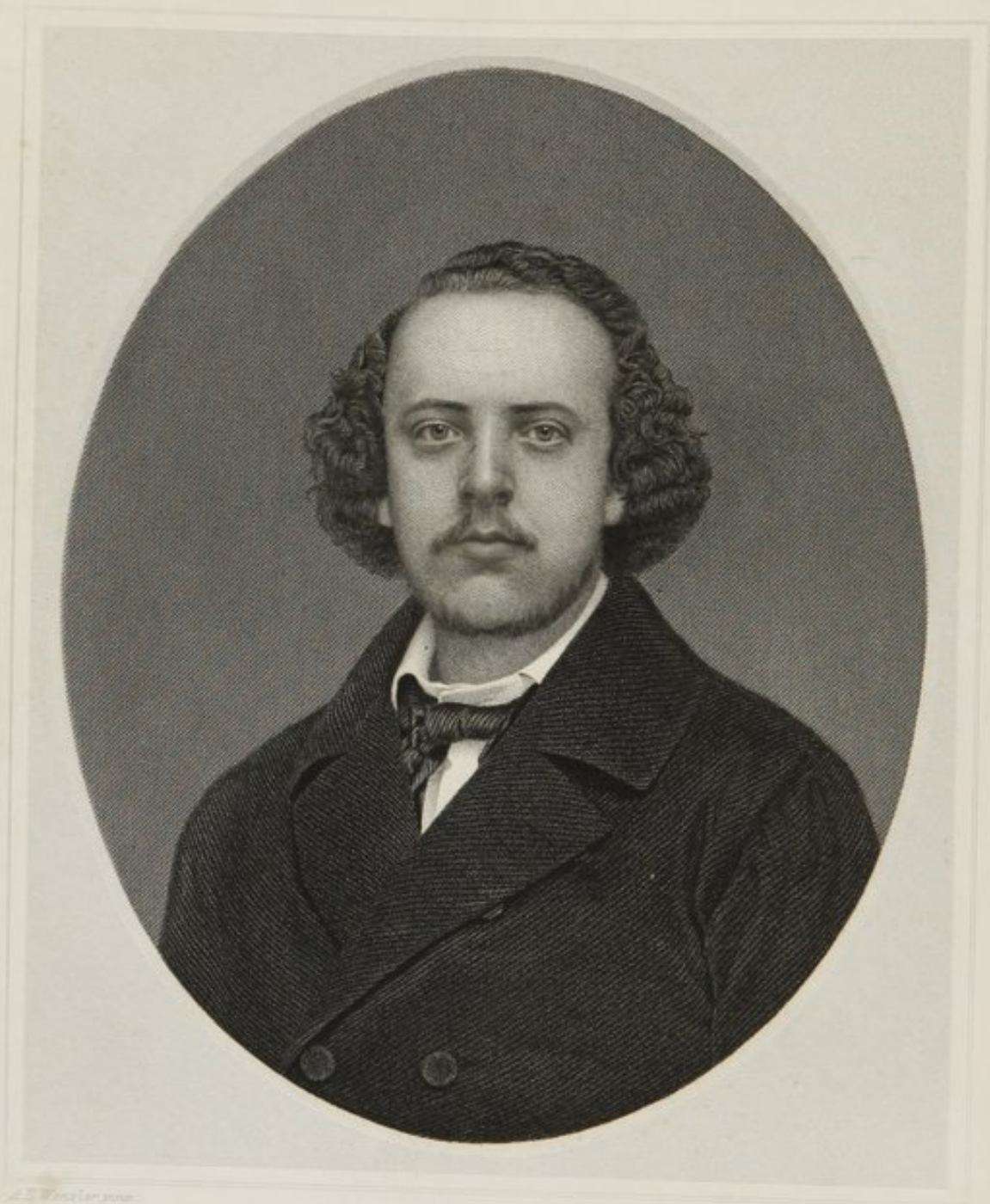


John W. Francis

TO
VALENTINE MOTT, M. D., LL.D.,
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CONSULTING SURGEON TO THE BELLEVUE, NEW YORK, AND WOMAN'S HOSPITALS,
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AS A TOKEN OF THE ESTIMATION
IN WHICH I HOLD HIM AS A MAN AND A CHRISTIAN, AND THE ADMIRATION I FEEL FOR HIM
AS AN INSTRUCTOR.

AND TO MY FATHER,
JOHN WAKEFIELD FRANCIS, A. M., M. D., LL. D.,
PRESIDENT OF THE MEDICAL BOARD OF BELLEVUE HOSPITAL, ETC., ETC.,

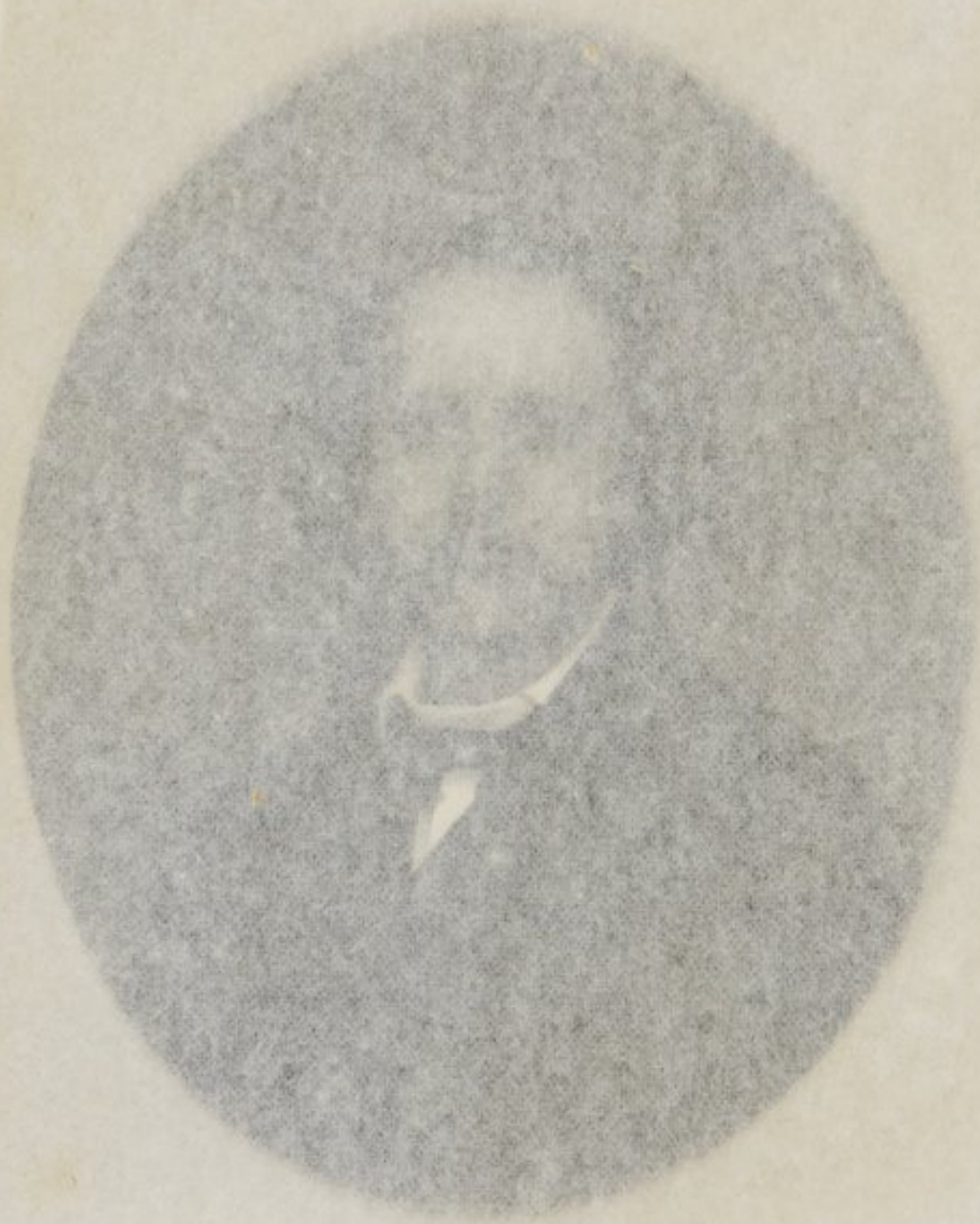
This Thesis
IS MOST RESPECTFULLY AND AFFECTIONATELY
DEDICATED BY,
THE AUTHOR.



A. S. Woodman

T. G. Johnson

John W. Francis Jr.



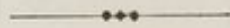
TO THE
MEMORY OF MY ENDEARED BROTHER
JOHN W. FRANCIS, JR., A.B.,
THIS DISSERTATION
IS MOST LOVINGLY
INSCRIBED.

PREFACE

The importance of this subject is placed before the public with becoming brevity in the opinion of those who have written this subject in a series of papers of time elapsed between the date of the discovery and its application to practice in a general form of practice occurring in connection and available in their hands.

The dissertation has been enlarged upon in original limits and published from notes published subsequent to its presentation to the faculty of the University Medical College as an inaugural address for the degree of Doctor of Medicine has been cited as bearing upon the nature of the disease. The dissertation I have referred to herein as it is for the reason that it was given in that form by

P R E F A C E .



THIS unpretending volume is placed before the public with becoming deference to the opinion of those who have made the subject it treats of a study. The length of time elapsing between the date on the title-page and its appearance in print, is owing to a peculiar train of events occurring in succession and unavoidable in their nature.

The dissertation has been enlarged beyond its original limits, and quotations from works, published subsequent to its presentation to the faculty of the University Medical College as an inaugural address for the degree of Doctor of Medicine, have been cited as bearing upon the nature of the treatise.

The dedication I have suffered to remain as it is, for the reason that it was seen in that form by

the parent, now no longer among us, for whom it was partly intended, and under whose care I first commenced to study my profession, on Thursday night, October 2d, 1856. I may add, that it is chiefly in consequence of his oft-repeated and urgently expressed wish, that the book was put to press.

If the length of the introductory observations demand explanation, I can only plead in their defence, the absorbing nature of the several considerations treated of, and the deep concern felt by me in regard to them.

In conclusion let me remark that I feel truly that he who had listened to the lectures of so renowned and scientific a body as the faculty of the institution from which I received my diploma, and had the honor to graduate on the evening of Friday the 4th March, 1859; who has received instruction in the offices of the skilful physician and obstetrician, Dr. Theodore Gaillard Thomas, and of that most accomplished surgeon and master of anatomy, Dr. William Rice Donaghe, of this city; who has had the privilege of hearkening to the golden aphorisms of the father, so recently deceased, should have produced something far more worthy of the source from which his professional education was

derived. Allow me to hope, at least, that I can lay claim honestly to the faithful endeavor to deserve the approbation of the Horatian precept, "Scribendi recte sapere est et principium et fons."

V. M. F.

NEW YORK, 37 EAST 16TH STREET.

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HOSPITAL HYGIENE.

“They spy’d a goodly castle, placed
Foreby a river in a pleasant dale,
Which, chusing for that evening’s *hospital*,
They thither march’d.”

Spenser’s Fairy Queen.

OF the numerous charities which call on us for sympathy and support, none deserves a more energetic action in its behalf than the Hospital. Hospitals, as is well known, are intended for the immediate relief of any sufferer; their doors always open to welcome those who stand in need of succor; the nursery where afflicted humanity is tendered such care as will cure the body of its diseases, and restore to the mind its full powers, so as to enable the unfortunate victim again to mingle with the world, and fight manfully in the battle of life; until it shall please his Maker to take him to a brighter, and a happier sphere.

No charities have accomplished more good, or have been of greater benefit to mankind at large,

than Hospitals. In them the bold mariner, separated from kindred and friends by thousands of miles of tumultuous sea, finds comfort and repose. There all, from the wounded soldier to the starving pauper, receive shelter and assistance. Every nation, all classes, are equally the recipients of their benefits; their portals are open to all, irrespective of creed; and upon each child of want are bestowed the purest offerings of that science which glories in its mission—the mitigation of human woe.

If Institutions of this kind are so necessary to the world, then it becomes us to use every means in our power to improve their condition, and render them as healing to the individual body, as they are beneficial to society. Shall we, a Christian people, be backward in a work so noble as this, when the Heathen spend willingly so much time and means in founding similar institutions for the brute creation? Shall the cat and the dog receive more care from the benighted Pagan, than is given by civilized man to his helpless brother?

In order to render Hospitals as successful as they may be, a much stricter attention should be paid to those sanatory regulations commonly denominated Hygiene.

And what is Hygiene? The word is derived from the Greek *ὑγιειά*, Health, and is applied to those principles and laws, made for the preservation

of health by government and by individuals. This subject, in all its ramifications, is at the present moment agitated widely throughout both hemispheres; and, when we consider the vast importance of the theme, we can only wonder that the rulers of this, and other countries, have been so dilatory in promoting this branch of medical science. A great moralist has remarked, "What is worth doing is worth doing well," and, in this age of progress, there is certainly no excuse for neglecting the interests of the community, regarding a question of such vitality.

Much has been done of late years; but far more needs to be accomplished, before we can fairly consider that the work has been fully executed. From the time of Hippocrates, the Father of Medicine, to the present day, that Science has been slowly but surely developing itself, until it has culminated to its present symmetrical altitude. But, notwithstanding the vast improvements that have been made, those, who stand highest in the ranks of the healing art, are but too often compelled to acknowledge their ignorance. It is well known that there are many diseases which baffle the ingenuity and skill of the most astute and learned practitioners. From time immemorial the wretched victims, who have been seized by the iron grasp of those cruel allies of death, Phthisis Pulmonalis and Cancer,

have had to succumb and sink helpless into the cold embrace of the gloomy tomb with a certainty appalling to contemplate. Where lives the Physician who has the temerity to defy all the maladies to which poor, frail humanity is subject? Methinks he, who could evince such boldness, would soon be abashed by the drivelling smile of the miserable Idiot; the feeble entreaty of the unhappy being whose form was slowly wasting away under the invasion of the dread Diabetes; the cry of the sad and solitary fellow-mortal, whose eyes were forever closed to the precious light of Heaven's cheering sun, by the silent, subtle encroachments of Amaurosis. If these fail to shake his self-confidence, let him grapple with grim Tetanus; mysterious Epilepsy; remorseless Aneurism, in its fatal forms; with the insidious advances of Cardiac valvular disorder, and the agonizing ravages of sleepless Neuralgia. If still unconvinced, what an array of congenial companions to these direful human afflictors, could present themselves, with the laurel of victory placed on their brow by old Father Time, in token of the unflinching fidelity with which they have fought, side by side with their brethren, the most devoted followers of *Æsculapius*; and not only fought them, but attacked their very persons with the self-same Plague they tried to stay. Were each disease a fiend endowed with speech, (and such a

possibility were not hard to conceive, for Satan, when permitted to persecute Job,* chose a hideous sickness to gain his end,) then would the truth be spoken: None ever made us fear but the Great Physician of the soul, and of the body. Man has striven nobly, but has been foiled. Some good reason, known only to the Creator, allows this to be. But we must not be discouraged: "for in due season we shall reap if we faint not."† We have the consolation of that knowledge, which teaches us how to assist nature in her efforts to escape from the bed of languishing and pain; and, though we have not the power to prevent, at all times, the inroads of morbid agents, nor even the ability to hasten the departure, to any appreciable extent, of the lazy, lagging, torturing steps of such invaders as Gout and Rheumatism, we can nevertheless alleviate the anguish caused by their presence in some degree, and have the great sheet-anchor of life, Hope—to strengthen our endeavors in the Titanic struggle. We would not be understood to intend any reproach to the profession, which has for so many centuries sought the public welfare; nor have it imagined that abuse or detraction has been cast by us upon the honored members of the same. By no means should our motive be so construed. Our object has been merely to demonstrate that the

* Job, chap. ii. ver. 6, 7. † Galatians, chap. vi. ver. 9.

noble and sublime science cannot as yet claim even for its most illustrious devotees an entire control over each individual malady to which flesh is heir. However singular it may appear to the ignorant and uninitiated, that such should be the case, to all Medico-Chirurgical investigators, it is as palpable as the words of Holy Writ, spoken to the first mortal ever placed on this terrestrial sphere, "For dust thou art, and unto dust shalt thou return."*

The fiat of an offended God from that time has been enforced, and each peculiar sickening of our mortal body is but a single agent in the accomplishment of its fulfilment. The man, who labors under the impression that medical science is not advancing, because it is not conversant with the requisite means to assist nature in all her battles with disease, or that its followers are in an apathetic state for some similar reason, is unworthy the fellowship of any but those who are as unenlightened, and as devoid of understanding as himself. The delusion is too culpable to admit of extenuation or palliation, and the insensate being who allows even thoughts of a like character to permeate through his brain, deserves to be buried in an oblivion as obscure as his own intellectual faculties. At no time, since the foundation of the world, could the

* Genesis, Chap. iii. ver. 19.

faithful student of medicine have used the beautiful quotation from Virgil, "Miseris succurrere disco," with more propriety than at the present day. As year by year rolls on, so discovery follows upon discovery, invention on invention, and success rewards the arduous studies of the patient and determined, and crowns, with a halo of immortal glory, the ennobling aspirations of the sincere lover of his kind. No profession has ever been dignified with greater intellects or more devoted followers than that of medicine. *Kings, queens, princes, and those in the highest walks of life, have exerted their best influence in its favor. Bards have tuned afresh their harps to sing its praises. Philosophers, historians, and poets have written in prose and verse of its worth. All pure philanthropists rejoice at each successive triumph, and the sweetest emotions of the soul arise in the bosoms of all, from the inmate of the wretched hovel, to the luxurious occupant of the marble palace, to swell the chorus that chants its Heavenly attributes. The late Dr. James Thacher, of the United States army, in his "Medical Biography," devotes the first five pages of his

* The Czar of Russia, Peter the Great, when travelling through Holland in the year 1698, often dined with the great human and comparative anatomist, Frederic Ruysch, and spent days in examining his museum. In 1717, the Czar bought his magnificent collection for 30,000 florins, and had it removed to St. Petersburg.

book to a brief review of the "History of Medicine." The first eight lines of this sketch contain such a concise and truthful description of the science, that I feel it incumbent upon me to quote it. He says: "Among the various sciences and literary pursuits of life, there is no one more pre-eminently important than that which is emphatically styled the healing art; that which restores health, and brings comfort and joy to suffering humanity. It is an inestimable blessing, bestowed in mercy, to counterpoise the frail condition of our nature, and to meliorate or remedy the miseries which result from the indulgences of our vicious propensities. It assuages the anguish of corporeal disease, and soothes that keen mental distress which overwhelms the faculties of the soul."

It would be impossible for even the most cohesive memory to retain any thing like an accurate list of the great men who have devoted their lives to the healing art; or of those who, though engaged in a different calling, have contributed so largely to its precious lore. Of the latter, that most voluminous writer, the great peripatetic philosopher, Aristotle, has bequeathed his full share. His works, on comparative anatomy and physiology, were the earliest distinct writings ever published on those subjects. The indefatigable Pliny, by his philosophical inquiries, laid the foundation for future research. His books

on Natural History, thirty-seven in number, opened new fields for the explorer in the dark labyrinths of the phenomena of disease, and threw fresh light on the *Materia Medica* and Pharmacy. How valuable are the acquisitions unveiled by the exquisite penetration of the gifted Lord Bacon. Can we ever be sufficiently grateful to John Howard, the king of philanthropists, for his successful—and to him destructive—exertions in behalf of the poor, the prisoner, and mankind at large? He was like a meteor, so quick were his movements, so luminous the rays he cast on all sides in his unceasing struggles to uproot and forever do away with the infamous corruptions, cruelties, and negligence which resulted from slothfulness, indifference to human misery, inexcusable ignorance, and the grossest abuse of even the most trifling authority. It is impossible to think of the sacrifices he so willingly made, without feeling a deep conviction of the true nobleness of his soul. Does not the simple story of his sailing to Venice from a plague-stricken port, so that he might be quarantined, and have time to study the good and bad phases of the loathsome lazaretto, fill us with a joy refreshing, and a desire unquenchable to follow in his footsteps? He lived for all, not for himself; but the poor and unfortunate were his especial children. The hideous and deadly complaints which swept the wards of the hospital and

the cells of the prison, were his terrible enemies; and, in his combat with them, he never took thought for his over-worked frame. To him, the damp, dismal dungeon, filled with the groans of the dying, and the charnel-house, reeking with the impurities of the decaying corpse, presented no terrors; he cared not for home, wealth, fame—for naught but his fellow-men. In the sixty-three years of his eventful life how much he performed, and what an example has he not left us in himself. He wrote, he spoke, he thought, he acted, he lived, and he died for his fellow-creatures; and his death lost to a weeping world a man it could never replace. What a rich mine of instruction has the devout Paley opened for our contemplation in his "Natural Theology." How important are the successful experiments of the American sage, Franklin, to the scientific student of medicine. Of what inestimable value are the contributions of the prodigious Humboldt; and the no less important solutions of the learned Agassiz.

In looking over the catalogue of eminent men who have passed their existence in endeavoring to elucidate the complex and almost innumerable mysteries which envelop our birth, life, and death; and who have rescued from the chaos of ignorance, fanaticism, and superstition, remedies, both palliative and radical, for our numerous mental and physical

infirmities, we find the name of the immortal Hippocrates, who first caused medicine to be acknowledged as a science: of Erasistratus and Herophilus, the first dissectors of the human body. Also of the mighty Galen, whose works included every branch of medicine, and are estimated at nearly two hundred in number, who was held up for example and authority for centuries after his decease. Rhazes, one of the earliest writers on small-pox and measles, whose "Aphorisms" were deemed, for so long a period, of the highest value. Avicenna, the author of the "Canon Medicinæ," which work procured for him the title of Prince of Physicians, and was for centuries accepted in the European and Arabian schools of medicine. Mondini, an instructor attached to the university of Bologna, who, it is asserted, dissected two human females in public, near the year 1315, whose work on human anatomy was studied in the universities of Italy for three hundred years, and who has immortalized himself by his early preparation of anatomical plates. Vesalius, the earliest anatomical investigator, possessed of the courage to cast off the shackles forced upon his predecessors by too great a respect for the doctrines of their ancient brethren, dared to intimate that even the great Galen might have been mistaken in his opinions, and finally proved his anatomical assertions to be correct. Eustachius,

the discoverer of the tubes which bear his name. Fallopius, whose patient researches brought to light the tubes named after him. The never-to-be-forgotten Harvey, who unfolded the circulation of the blood. Asselli, Rudbeck, and Bartholine, who discovered and unwove the intricate web which enfolded the absorbents. Malpighi, the expositor of the bodies, known as the Malpighian; and who, in conjunction with Hooke and Mayow, rendered clear the opaque complexity which invested the structure and duty of the lungs, and their importance in connection with the heart. The intellectual Sydenham, who, by his learning and modesty, was deserving of the honor conferred on him in calling him the English Hippocrates. The vitalist Van Helmont, to whom belongs the honor of having first declared in unmistakable language the great fact, that the animate body contains a specific power, differing from inanimate matter. The industrious Stahl, who by his labors threw additional light on the subject of vitality. The pathologist Hoffmann; and the unwearied chemist, botanist, physician, and lecturer of Leyden, Boerhaave, who was considered great enough to be compared to Galen. Haller, whose "Elements of Physiology" gave renewed vigor to the ambitious followers of medical science. Cullen, his celebrated contemporary, whose Nosology, Lectures on Materia Medica, and "First Lines of the Practice of Physic," will al-

ways maintain for him an immortal reputation. Bonet, the author of "Sepulchretum," and who deserves the chief credit of founding anatomical pathology. Manget, whose knowledge enabled him to add to the precious matter contained in "Sepulchretum." Valsalva, the distinguished teacher of Bologna. Morgagni, the wonderful anatomist, whose immense pathological work, "De Sedibus et Causis Morborum per Anatomiam indagatis," which records the investigations of his instructor Valsalva, as well as his own, and is considered one of the greatest and most accurate works ever published on anatomy and pathology. Pringle, who has given us such interesting and truthful accounts of diseases of the army. William Hunter, the accomplished teacher of anatomy, the skilful obstetrician and physician; to whom we are obligated for first pointing out a disease which occurs when an artery is wounded through a vein, which has since been named, by the advice of Dr. Cleghorn, an aneurismal varix. "The Anatomy of the Gravid Uterus" was one of the many products of his pen; in it he first described the retroverted uterus, and the membrana decidua reflexa, of which he was the discoverer. His costly museum, consisting of anatomical preparations, fossils, rare Latin and Greek books, and coins, is, by his will, in possession of the University of Glasgow. His brother, John Hunter, the

great surgeon, and wonderful comparative anatomist and physiologist. His discoveries in these branches of science will maintain for him an undying renown. His extensive and extraordinary anatomical museum seems to have been the delight and aim of his life: it exhibited nature in her numerous gradations, from the simplest condition of life to man's perfect animal mechanism. His greatest surgical achievement was ligating the femoral artery on the anterior part of the thigh for popliteal aneurism. His book "On the Venereal Disease," showed the intuitive perception which he possessed, and his description of the horrible affliction which bears his name, the "Hunterian Chancre," serves as a guide to all who desire to rid the earth of that terrible curse, syphilitic communicability. John Bell, the Scottish surgeon and anatomist. This great man, notwithstanding the success of the Gamaliels in power, who caused him to be excluded from the infirmary, where he attended the poor free of charge, and gave his students the advantage of thus practically learning how to treat disease, has left an immortal name: his "Discourses on the Nature and Cure of Wounds," and his "Principles of Surgery," clearly show his ability, his close application, and his abundant supply of surgical information. To Sir Charles Bell, his brother, the British surgeon and anatomist, we owe the discovery that the same

nerve cannot convey both motion and sensation, but that some convey sensation from the body to the brain, while others transmit volition from the brain to the body ; and, that where three nerves are held and covered by the same sheath, they all have their separate functions to perform. He has left us a valuable work on the "Anatomy of Expression," and his contribution to the Bridgewater Treatises on "The Hand," is enough of itself to render him immortal. John Abernethy, the eccentric but bold and competent surgeon and pathologist, was one of the first to ligate the carotid, and the first to ligate the external iliac artery ; and to him redounds the merit of first treating local disease constitutionally. His work named "Constitutional Origin and Treatment of Diseases," deservedly attracted the attention, and won the admiration of all medical men. Sir Astley Cooper ; this wonderful surgeon performed the first ligation of the carotid artery for aneurism, and was the first to meet with success ; he also executed that most daring operation—ligation of the abdominal aorta. His treatise on "Articular Fractures and Luxations," was a most interesting and important addition to surgery. He contributed largely to surgical literature, and his wish to "die in harness" was gratified. By his death the science to which he devoted his life sustained an irreparable loss, and was deprived of one of the brightest of her sons.

But time fails us to describe the useful and brilliant careers of the immortal Jenner, the obstetrician Denman, the Italian anatomist Scarpa, the faithful surgeon of the French army Baron Larrey, the physiologist Bichat, the "rough-and-ready" surgeon Dupuytren, the great Dieffenbach, and many more of the justly celebrated sons of the science. Our own land rejoices in being the birthplace of those truly great men, John Jones, Samuel Bard, Benjamin Rush, William Moore, Nathan Smith, Richard S. Kissam, senior, the successful lithotomist; Samuel L. Mitchill, Wright Post, David Hosack, the late Warren, and wonderful Dr. Kane. The names of these mighty geniuses fill us with fresh hope; serve as beacon lights to our weary feet, and kindle anew the flame in the hearts of all who love their sublime avocation. Imperfect as this enumeration is, the occasion will not admit of a more extended account of the distinguished dead than that which has just been indulged in.

In glancing over the names of those now living, who have enriched the science and conferred such signal blessings on the present inhabitants of the globe, and their successors, till time shall be no more, we cannot but bow our heads, in humble reverence, before their noble, self-sacrificing, and laborious exertions in behalf of the profession to which they belong, and the unhappy victims of disease. It seems scarcely fair to speak of a few

when so many deserve our deepest and most heartfelt gratitude and praise. We feel it impossible, however, to refrain from mentioning the names of Andral, Louis, Ricord, Desmarres, Velpeau, Simpson, Syme, Bennet, Brodie, Ferguson, Paget, Carpenter, Stokes, Rokitansky, Gräfe, and Tyler Smith. It is with infinite pleasure that we turn to the numerous libraries and scientific records, journals, and statistics, which overflow with the writings, achievements, and discoveries of the medical men of our country. Here we find the philosophical deductions of Dr. Martyn Paine, and the physiological reasonings of John C. Dalton, Jr., and our adopted John W. Draper; the elaborate and important expositions of Drs. John Watson, Alonzo Clark, F. Campbell Stewart, and Samuel H. Dickson; the surgical triumphs of Alexander H. Stevens, James R. Wood, John M. Carnochan, Alfred C. Post, and Richard S. Kissam.* The eluci-

* This distinguished surgeon and oculist, in the fall of 1838, performed the operation of transplantation of the cornea, in the presence of Drs. J. B. Kissam, Pratt, Roberts, and Paul. The patient was an Irishman, 35 years of age, one of whose eyes was totally lost. The other suffered from staphyloma with adhering iris. The cornea transplanted was taken from a pig six months old. His sight improved immediately after the operation, and continued so for two weeks; but the humors being involved in disease, it was not perfect. The cornea remained transparent for a fortnight, when it lost its pellucidness, and in a month it was absorbed. For full particulars see "New York Journal of Medicine" for March, 1844, and "Walton's Operative Ophthalmic Surgery," page 381.

dations of the assiduous and learned anatomists, William H. Van Buren, and Charles E. Isaacs. To Dr. J. Marion Sims belongs the glory of one of the greatest surgical discoveries of the nineteenth century—"Silver Sutures;" to his genius the, before, almost incurable diseases visico vaginal and recto vaginal fistulæ have succumbed. With Cæsar he might exclaim: VENI, VIDI, VICI. Many may envy, but none can rob him of his fame. Henceforth the name of Sims is but a synonym for another constellation which illumines the broad avenues of medical science. Dr. A. K. Gardner has enriched us with many productions of his active brain and pen; among these we may mention his papers on Swill Milk, Puerperal Hemorrhage, Ergot, and Rupture of the Uterus. He recently edited Tyler Smith's great work, and is the author of a valuable book entitled "Gardner on Sterility." The popular and accomplished obstetrical lecturers, Drs. Gunning S. Bedford, Fordyce Barker, and T. Gaillard Thomas* of this city, and Dr. Charles

* Dr. Thomas, on the 3d of February, 1858, read before the New York Academy of Medicine an "Essay on Prolapse of the Funis," with an account of a new method of treatment, as discovered and practised by himself. It was published by order of the Academy, and is to be found in their transactions, 2d part of vol. ii., page 21. His discovery attracted the attention of the Old as well as the New World, and has earned for him a position in the first rank of obstetricians. His "Essay on the Hymen," delivered, by appointment, before the "New York Medical Union," was pronounced a masterpiece, and served to strengthen the high opinion always entertained for his erudition, his unsparing devo-

D. Meigs of Philadelphia, have contributed largely to the branch of which they are such able instructors. Each revolving day gives us ocular proof of the philanthropy of Dr. J. Edward Turner, the benefactor of the forsaken inebriate; and of the auscultatory power and healing skill of the erudite and successful Dr. John T. Metcalfe. Last, but not least, comes the venerable surgeon, anatomist, and medical instructor, Valentine Mott, the Father of American Surgery; who, though covered with honors from the most civilized nations of the earth, and exalted to a position so high that none have ever yet equalled it, looks with the same benignant smile upon, and extends the hand of assistance to, all who aspire, with a laudable ambition, to elevate and dignify their calling. The same calm, patient spirit of investigation that he has always had, still pervades his honest heart. When he is taken away from this land of care and trouble, none will be able to say that he ever intentionally injured a mortal being, and on his tombstone will be engraved the name of the *greatest surgeon that ever lived*, never to be effaced,

tion to this particular branch of his profession, his genius and consummate ability. The country is under great obligations to him for the numerous, interesting, and important cases and monographs which he has published from time to time. His "Lectures on the Accidents which may occur Subsequent to Parturition," delivered in the University Medical College of New York, should be learned by heart, especially by those who intend to practise in the "lying-in chamber."

except, perchance, by the tears of his friends and humble followers. To attempt to enumerate and describe his wonderful operations, would occupy a much larger space than the limits of my dissertation itself. Some idea of his vast experience may be formed from the following facts:—Professor Mott has operated one hundred and sixty-five times for stone in the bladder; tied the common carotid artery forty-six times; was the first to ligate the primitive iliac artery. “The pioneer operation” for ligature of the *arteria innominata*, was performed by him in the New York Hospital, May 11, 1818. On the 17th of June, 1828, Dr. Mott removed the clavicle for osteo sarcoma of that bone. The operation was performed, with a triumphant result, on Mr. Yates, of South Carolina, a young man nineteen years of age. Dr. Mott, in speaking of this operation, says: “This is the most difficult and dangerous operation I have ever performed.” Rightly is it called his “Waterloo operation.” Certain is it that the victory which he won for science is as great a one as that which Wellington won for England. The ligating of the *arteria innominata* and the removal of the clavicle, are the two greatest operations ever performed; and no one thought them practicable, until the “Napoleon of Surgery” solved the problem. Dr. Mott introduced clinical surgery into this country; was the first to lecture on relative

anatomy; and was the originator of the operation now performed for immobility of the lower jaw. After his return from Europe, he was appointed Professor of Surgery in Columbia College; and when that nucleus of learning and the College of Physicians and Surgeons formed a union of their medical faculties in 1813, he still continued to unfold the mysteries of chirurgical science till 1826, when some trouble arising with the trustees of the last-named college, he, with others of his colleagues, resigned, and organized the Rutgers Medical College. For four years this Institution enjoyed an enviable reputation; but, through legislative oppression, it was obliged to close its career in 1830. Since that time, Professor Mott has continued to impart instruction in the college of Physicians and Surgeons, and in the University Medical College of New York, of which latter he was one of the founders. His numerous papers, both surgical and medical, are to be found in the transactions of the New York Academy of Medicine, in the various journals of science, and in the American edition of Velpeau, edited by Dr. Townsend. In 1858 Dr. Mott published a catalogue of his surgical and pathological museum, which is the largest ever formed by any American surgeon. Dr. Mott has been three times to Europe, and has travelled over the classical grounds of Greece, explored the intricate windings

of the Nile, and in a tour of six years visited the principal cities of the continent, and journeyed into the wilds of Wallachia, Moldavia, and Asia Minor. On his return, he presented us with a classical, graphic, and deeply interesting account of his travels by sea and land. During his first residence in Europe he associated and studied with the most noted surgeons and physicians of the day; and in his two last visits he was received with open arms by all, and the respect due to his consummate skill was cheerfully and gracefully accorded. It is a source of the greatest gratification to his countrymen that he has proved himself not only equal, but superior to his distinguished companions. Sir Astley Cooper, more than twenty years ago, said of him, that he had "performed more of the great operations than any man living or that ever did live;" and since the death of that great surgeon, Dr. Mott has continued his career, characterized by the same energetic qualities which first won for him a name.

Before closing our list, it seems proper and just that we should render some acknowledgment to Woman, for the great fidelity which she has shown in her efforts to add to our stock of information concerning the various branches of our profession.

The celebrated French accoucheuses, Mesdames Lachapelle and Boivin, have, by their arduous exertions, been the means of adding much that

is useful concerning the parturient state of woman. The Countess of Cinchon was the first to introduce Peruvian bark into Europe. The benefit she has conferred on the civilized world, by the introduction of this valuable remedy, is unsurpassed by any other ever received. Her reputation must last, as the great Linnæus intended it should, when he named it after her, so long as the article retains a place in the Pharmacopœias.

How sincere a gratitude do we not owe to Lady Mary Wortley Montague, for her heroic and triumphant vindication of the Byzantine system of inoculation for the mitigation of that dreadful pestilence, small-pox. This truly patriotic woman, while residing at Constantinople with her husband, who was the British Ambassador at the Ottoman Court, endeavored, in her letters, to impress upon those at home the important fact, that among the Turks the virulence of small-pox was greatly subdued, and the number of victims sensibly lessened, by the practice of inoculation. When at Pera, near the capital, in the year 1717, she caused her *only* son, a boy six years of age, to be inoculated. A Greek woman, long accustomed to perform the operation, was employed, but proved herself so clumsy, and occasioned the child such pain, that Mr. Maitland, surgeon to the embassy, being moved by his sufferings, inserted the variolous matter in the other arm with

his own instrument, in such a manner as to satisfy both parent and patient. In England, during the month of April, 1721, Lady Montague caused her daughter to undergo the same treatment, Mr. Maitland officiating. This was the first time the remedy had been put into practice in that country. The courageous conduct of this noble woman was the immediate cause of its introduction into the British Isles.* Her example was followed by others. On

* Inoculation, when first brought into practice in London, was regarded as a foreign discovery. The experiment, succeeding upon the younger members of the Royal Family in 1722, occasioned much discussion in public, when, to the astonishment of the savans of the day, proofs were brought forward which established the fact that it had been long known and practised in South Wales, where it passed under the name of "buying the small-pox." It received this curious appellation, because the person inoculated was not supposed to derive any benefit from it, unless a present or money were given in barter to the individual from whose body the variolous matter was procured. It is a fact worthy of note, that the peasants in many places in Denmark, Sweden, and Germany, and the inhabitants of certain localities in Asia and Africa, called it "buying the small-pox," and always gave something in exchange from a like superstition. We are informed that the same was the case, as far back as could be traced, with the people of Pavia, Naples, and other parts of Europe. Dr. P. Russel informs us that inoculation is very ancient in the kingdoms of Tripoli, Tunis, and Algiers; and that it was not confined to the towns, but that the wild Arabs were familiar with the remedy. He also states that at Mosul, Bagdad, Baffora, and Damascus, and in Armenia and the coasts of Syria and Palestine, the same curious term and usage are very old. In Hindostan inoculation dates very far back. In China the practice is not of so long standing. D'Entrecolles, a Jesuit missionary, found a

the 19th of April, 1722, the Princess of Wales allowed the Princesses Amelia and Carolina to pass through a similar ordeal; the result was successful, and from that time the theory was gradually re-

medical work at Peking, which gave information of its introduction into that country. The writer of the account lived towards the close of the dynasty of Ming. Thus it has been inferred that the custom is not more than two hundred years old in that country. Francis Xavier D'Entrecolles was born at Lyons in 1664. He went as a missionary to the Celestial Empire with Parennin. They both died in that paynim land, in 1741, aged respectively seventy-seven years. Inoculation is said to have been known for ages in the Highlands of Scotland. In almost all the countries where this remedy has been in use, different methods were found to exist. In the Highlands of Scotland, a worsted thread was charged with the variolous matter, and then fastened around the wrists of the children. The people of South Wales had many ways of performing the operation, the matter from the pustules being rubbed on the skin of the arms, or the skin was scratched till the blood flowed and the pus then applied. Again, a pointed instrument was dipped in the pus and the skin pricked with it, while many produced the desired result by holding some dried pustules in the hand for a long time. In Barbary, the matter was placed in a small cut in the fleshy part of the hand, between the index finger and the thumb; and in Tunis, Algiers, and Tripoli, the inoculation was performed on the back of the hand, in the same manner, between the thumb and fore-finger. The Armenians were sometimes inoculated on both thighs, but generally preferred the hand. The Georgians seem to have shown a partiality for the forearm. In China, some musk is placed between two or more dried pustules, and both are covered with cotton; they are then inserted into the nostrils. A certain sect of Bramins perform the operation in Hindostan. They inoculate on any part, but prefer the shoulder of the female and the outside of the arm between the elbow and wrist in the male. For

ceived, notwithstanding the violent opposition it met with from the ignorant and timid. In 1738, the doctrine was extensively adopted, and in 1746 the Inoculation Hospital was ushered into existence.

some ten minutes the part is rubbed with a dry cloth, and then scarified gently at many points. A piece of cotton, dampened with the water of the Ganges, having previously been imbued with the variolous matter, is then placed on the part, and bandaged there for six hours. The bandage is then removed, and the cotton allowed to drop off. In Hindostan the matter from the natural distemper is never used. The matter in the cotton is not fresh, but from pustules of the year before. Although inoculation had been practised for so long a time in many countries, the English were ignorant of its virtues until they received knowledge of it from Constantinople. The information, forwarded to them by Drs. Timone and Pylarini, was not taken advantage of. The Londoners were unaware that in South Wales the practice had been in use for a great many years; and the only excuse we can allow for their ignorance is, that most probably it was often ineffectually performed, not understood, and, in fact, known to comparatively few. Looking at the subject in this light, we cannot but feel that Lady Montague is undoubtedly deserving of the everlasting esteem and gratitude of the British people and government for bringing before them so valuable a remedy; and that she can truly be said to have introduced inoculation into England. It may not be out of place to remark that Dr. Zabdiel Boylston first introduced inoculation into America. The small-pox was raging at Boston in 1721. The panic it produced was spread far and wide. Dr. Cotton Mather, the celebrated divine, at this time informed Dr. Boylston of the accounts of inoculation by Drs. Timone and Pylarini, published in the Transactions of the Royal Society of London. Boylston decided to adopt the remedy, and acquainted his brother practitioners with his intention. The profession wrote against it, and Dr. William Douglas, a Scotchman, and Dr. Dalhonde, a Frenchman, acted in the most violent manner, spoke against it in

By reference to page 72, number 339, for April, May, and June, 1714, included in volume 29 of the Philosophical Transactions of the Royal Society of London, we find an account of the Byzantine method

public, assuring the people that the practice, if introduced, would effectually produce the scourge it was intended to mitigate, and pronounced it as criminal as murder. Boylston's life was in danger from the excited populace. At one time he hid for fourteen days in his own residence. The mob, who had sought him with halters in their hands, went so far as to search his house at their pleasure; and actually, on a particular occasion, threw a lighted hand-grenade into an apartment then occupied by his children and wife. In consequence of the fusee becoming detached, from the grenade falling against some article in the room, their lives were saved. Boylston could only call on his patients in disguise at night. Dr. Mather remained firm in his friendship to Boylston; and on the 27th of June, 1721, this noble physician, actuated by a spirit as pure as Lady Montague's, inoculated his own child, a son thirteen years of age, and on the same day two negroes in his own house, one of thirty-six and the other two years of age, with success. It is singular that Boylston and Lady Montague should both have chosen their own children to be the first; and particularly so when we reflect that the former had not then heard of Lady Montague's heroism. Boylston was brought before the magistrates to answer for his practice; and when he requested the physicians of Boston to examine his patients and satisfy their minds, he met with indignities and menaces. He continued, notwithstanding, to inoculate all who were willing to submit to the operation. In May, 1722, the horrid distemper suspended its dreadful career. During its presence Boylston inoculated two hundred and forty-seven himself, and thirty-nine underwent the operation from different medical men—the whole making two hundred and eighty-six. Out of this number only six died, and three of these were thought to have contracted the natural disease previous to inoculation. Five thousand seven hundred and fifty-nine

of inoculation, in a letter of Dr. Emanuel Timone's, an extract of which was communicated by Dr. John Woodward. The *Ætiological* part commences on the 76th page of the same number, and is published, in Latin, in his own words. We find also in the 347th number, for January, February, and March, 1716, in the 29th volume of the Transactions of the Royal Society, a description of the same system, beginning on the 393d page. It is printed in Latin, and was written by Dr. Jacob Pylarini. In 1715, Surgeon Kennedy, the first English author on inoculation, published his "Essay on External Remedies," which contained a truthful elucidation of the method then in vogue at the Turkish capital. Strange to say, no one had the courage to try this means offered to them, until Lady Montague appeared in the arena. There can be no doubt that from the day inoculation was introduced into England in 1721, till the discovery of vaccination by the renowned Dr. Jenner, in 1775, it accomplished more good in

persons were afflicted with the natural small-pox during this epidemic, out of which number eight hundred and forty-four died—making a mortality over one in six. The success of inoculation, from that time, was acknowledged and received. The origin of small-pox and of inoculation are both enshrouded in darkness; and it remains to be discovered when and where the scourge first made its appearance, and who first practised inoculation. Many learned men have endeavored to unveil this mystery, and the most ingenious explanations have been offered, but the subject is still enveloped in obscurity.

those fifty-four years, for humanity at large, than all that had ever been written or known of the disease since the day that Ahrun, the priest and physician of Alexandria, published his work "Pandects," supposed to contain the first account of this scourge; and the writings of Rhazes, the Arabian physician, who was born at Irak in Persia, in the ninth century, and pursued his professional career in the far-famed city of Bagdad.

The name of Florence Nightingale sent a thrill of joy through the hearts of the brave men who lay writhing in agony on the wretched beds and damp floors of the hospitals of Balaclava and Scutari. No wonder is it that they kissed her shadow, when it fell upon their mangled forms, as she passed either in or out of the miserable wards. Truly it was as refreshing and soothing to their feeble bodies and shattered nerves, as it gently, noiselessly, lovingly, bathed them in its calm, serene shade, and flitted from one to the other like a guardian angel, as the cooling and soporific draught administered by its owner's hand. She was their best and truest earthly friend;—she was mother, sister, wife to them. They knew it; and those who were to leave the dreary rooms only for the still drearier grave, vied with the convalescent, soon to go forth in health, in striving to outdo them in good wishes and heartfelt blessings on their benefactress. Martinets, red tapists, and

old fogies, had to yield to her unceasing efforts in behalf of the sick and wounded soldier, who had been so unkindly used and cruelly neglected, until she stood between him and his inefficient officers. By her firmness, her clear-headed, calm, and well-directed exertions, she procured, for the battered sons of Mars, proper food, clothing, beds, comforts, and efficient nursing. She gave to them herself their medicines; dressed their wounds; consoled them with heavenly words; *prayed* with them; supported them in her arms when dying; fulfilled their last, honest, simple requests; and, with the tenderest concern for those at home, broke to them the sad tidings that the spirit of the loved one had fled from its earthly tenement. The immense tax upon her energies at last laid her on the couch of sickness. Her exhausted frame was a fit habitation for the relentless Crimean fever, but the same merciful Providence that had sustained her in the many trials which beset her undertaking, came to her aid in the hour of need, and death was deprived of his victory. To the self-devotion, pure example, and clear-sightedness of Florence Nightingale, we are indebted for knowing, that, even in the bustle, excitement, and almost pandemonian confusion, which reigns in an army hospital during war, with care, prudence, and a proper distribution and organization of ways and means, a very much

superior hygienic regime can be maintained than was generally supposed possible. The Woman's Hospital, one of the noblest charities ever founded, has been added to the large list of the benevolent institutions of New York. It was projected by Dr. J. Marion Sims, and he has left to a band of true-hearted women the honor of supporting it in its present embryotic state, and also of building a suitable edifice, of proportions sufficient to contain some three hundred patients. Both of these duties they have willingly and joyfully bound themselves to perform. They will receive the reward of an approving conscience for their disinterested labor; and, when the structure shall be completed, its lofty turrets will rear their heads high towards the deep blue sky of heaven, and serve as a lasting monument to the memories of those who have conferred such a priceless blessing on their poor, afflicted sisters.

But we must stop. Deficient as is the hasty scanning which has been given, it is enough to convince even the most skeptical, that the science of medicine is continually increasing in resources and in usefulness. Some few prejudiced and misanthropic persons may believe that the healing art is stagnating; others, that medicine is not a science; and, doubtless, not a few, that the profession is a tissue of absurdities, impossibilities, and experiments.

But these are the first ones to call to their aid, in sickness, the profession which they have calumniated when in health.

No!—the science is daily receiving additions in all its branches. Every one, who feels for the sick, strives to contribute something that will be beneficial to its progress. The faithful minister of God's Holy Word is hourly inculcating sentiments which tend to physical as well as spiritual health. The lawyer, who aims at the preservation of peace, order, and public morality, is doing his part manfully; and the numerous writers on morals strengthen the countless proofs, that the vicious and ill-disposed suffer, while the pure rejoice in a temporal happiness, as well as an eternal hope. The purity of a nation seems to me a fair index to its health. The enormous increase of useful drugs added to the *Materia Medica*, and the superior therapeutical knowledge of their properties; the atomic mysteries, wrested from their hidden recesses by the piercing eye of the microscope; the astonishing advances made in every department, in the treatment of the insane and imbecile, and of the deaf, dumb, and blind; in botany, physiology, chemistry, surgery, obstetrics and anatomy; in the practice of physic, in sanitary measures, in dentistry, and in medical jurisprudence, are matters of fact, and cannot be denied. As regards the practice of medi-

cine, there is one fact that needs but to be mentioned to be understood and appreciated, and it is this: in olden times, and even in days not very far back, the practitioner was not only unable to heal the disease, or alleviate the anguish, caused by its presence and by the remedies resorted to for the purpose of relieving the patient of the pain and restoring health; but, in many instances, he could neither diagnose the malady nor prognosticate the issue. But, thanks to a benignant Providence, the patience of the profession has been rewarded; and we can truthfully assert, at this present time, that though there are many disorders which are as incurable now as they were a hundred years ago, still it is not very often that we encounter a disease which baffles our diagnosis; and it is comparatively rare that our prognosis is at fault. The more thorough and extended acquaintance which we have with drugs, and our superior knowledge of the specific action which they exercise on the human constitution, enable us to avoid those which occasion suffering, and to employ others of equal utility. The therapeutical properties of medicines are so much better understood, in this enlightened period, that we are seldom at a loss to select one which will meet the exigencies of the case under treatment, and, to a certain degree, relieve pain. In regard to surgical operations, the agony of thousands of

victims, the tears of their friends, and the prayers of both, seem to have been heard by Him who has said, "And whatsoever ye shall ask in my name, that will I do;"* and those inestimable blessings, Ether and Chloroform, have been given in mercy in answer to their supplications. The cold glistening steel of the surgeon's knife no longer sends a thrill of anguish through the patient's feeble frame; and the burning torture of the quivering limb gives place to the calm, unconscious repose, superinduced by the magical anesthetic. The constantly increasing number of medical schools is a convincing argument in behalf of the science; and, if we turn to the material part, what an incredible number of inventions in surgical instruments, false limbs and appliances, beds, conveniences and comforts for the sick, do we behold? It will be seen how much the science has done for human life by a glance at the statistics of mortality of the great cities of Europe which have been blessed with truly scientific physicians, and have yielded to the mild authority of the Goddess Hygeia. In Paris, in the fourteenth century, the mortality of the city was one in twenty; in 1830, the number of deaths was one in thirty-two. Within a very recent period the hygienic measures resorted to have reduced the

* St. John, chap. xiv., ver. 13.

mortality to one in 36·71. M. Marc d'Espine, in a work on "Comparative Mortuary Statistics," proves that in the sixteenth century the duration of life in the city of Geneva was less than 5 years; in the seventeenth century, 11 years; in the early part of the eighteenth, 27 years, and at its close, 32 years. At this present time it is 44 years. The population of London, in 1665, was no greater than that of New York now, and yet so miserable was the hygienic government, and so horrible the dirt and slime of the city, that in that year, besides sixty-eight thousand deaths by the plague, there were twenty-eight thousand deaths from all other diseases. We here behold a mortality frightful to contemplate—one in twenty-four. What is the case now, since a thorough and proper hygienic supervision has been exercised in that vast metropolis? Longevity has been steadily increasing, and we see, with joy, the fruit of our reward, in the happy result which the statistics of the British capital presents. One in forty is the ratio of deaths at this present day. Our own country suffers not from ignorance so much as from the indifference of those invested with official authority. Our legislators and city rulers seem only to care about filling their bottomless pockets, and not for the lives of the thousands who perish annually from their avarice and gross neglect of the high duties they pledged

themselves to perform when asking the votes of their fellow-citizens. The statistics of the four great cities of the United States prove that their sanitary government is a farce. Let us look at them for a moment. In 1850, the deaths in New York averaged 1 in 33·52; in Philadelphia, 1 in 37·84; in Boston, 1 in 37·84; in Baltimore, 1 in 36·19. In 1857, the mortality of New York was 1 in 27·15; in Philadelphia, 1 in 44·5; in Boston, 1 in 39·88; in Baltimore, 1 in 36·19. These figures prove that Baltimore remained stationary; that Boston improved; that Philadelphia improved when compared to 1850, but lost when compared to 1855, when only 1 in 47·81 died; and that New York has reached almost the same ratio that London exhibited nearly two hundred years ago. The rulers of New York must feel happy when they retire at night to their couches of down with the sweet reflection, that 1 in 27·15 die annually in the city which they rule. It must gratify their patriotic aspirations when they see plainly that, in a few years, New York will be first in every thing, even in the number of her deaths! What glory! The greatest city for human mortality in the world!

The different sects, which have sprung up from time to time, since the days of the Aselepiadæ, have all contributed to our information. The Pythagoreans, Dogmatists, Empirics, Methodics, Pneu-

matics, Eclectics, Chymists, Mathematicians, and Vitalists, have all, in their own time, added to the treasuries of medical knowledge; and the Hydropathic, Thermometric, Thompsonian, Galvanic, Homœopathic, and all the whole catalogue of charlatans and barefaced impostors of the present day, have been the means of benefiting the science by the favorable contrast it presents in its integrity, resources, and the good it accomplishes, when compared to the evils which these falsely called sciences inflict upon the community, and the trash and nonsense which their followers seek to force upon the unwary, misguided and ignorant. It is some consolation to know, that the quacks and humbugs now living, and pretending to practise medicine, do not, all united, possess as much science as Paracelsus did in his little finger. He could claim originality, and can truly be called the greatest quack that ever lived. His ability cannot be doubted, and none of his imitators could hold for a day the chair which he occupied in the University of Basle, by invitation of the magistrates of that town. The times in which Paracelsus was born, 1493, and the period in which he promulgated his absurd and rascally doctrines, in the early part of the sixteenth century, were not as enlightened in either medicine or religion as we are at the present day. Medicine, particularly, was in a sort of hyber-

nating condition. Occasionally the science was roused from its torpor by the restless investigating spirit of some one of its true-hearted followers, and the world was astonished by the exhibition of its worth in a new light. This state of things affords some palliation for the crimes of Paracelsus. His publicly burning the works of Avicenna and Galen, and declaring them to be of no use, as he had discovered, in his elixir vitæ, the great preservative of life, which man had sought for so long, was an act of folly so great as to descend at once from the sublime to the ridiculous. In his desire to demolish the Galenistic doctrine, his mean spirit prompted him to resort to the vilest quackery, and to maintain the most impudent assertions conceivable. His death, at forty-eight years of age, served to convince his disciples, that the boasted virtue of his elixir vitæ was an impalpable truth. As is often the case with those who have acquired distinction by fraud, his eminence passed away with his life. The screen of ignorance which the kindly disposed throw over his memory, cannot be used for those who follow his example in these modern days. The calm, well-informed, and reflecting lover of his species, cannot but feel that the brain which brought the elixir vitæ into being, did not possess any thing approaching to the maliciousness, cupidity, and selfishness which is to be found in the hearts of any

single one of the sordid sycophants, who, in this Christian nineteenth century, procure their livelihood by deceiving, injuring (often irretrievably), and, in some instances, absolutely causing the death of their fellow men. The evidences of the vast strides which have been made in medicine are plain to those who invoke her aid, as well as to the students of her history.

To write a thorough and minute account of the healing art, from its earliest existence to the present time; one which should contain a full, accurate, and satisfactory description of the rise and progress of the collateral sciences, and also of the lives, writings, discoveries, inventions, theories, suppositions, and achievements of her followers; would be a task far more difficult than the one the poet Cowper took upon himself. Truly, it would be too severe for even the strongest intellect, though blessed with the highest cultivation, unbounded patience, redundant health, and the longevity of a century. To complete a perfect record of only the different histories of medical science, would be a labor of great arduousness; and it must be borne in mind that such a history of medicine as the one I have already alluded to, would necessarily involve, as far as practicable, an account of each and every treatise, essay, or writing ever published on any subject connected with the science or the profession, not except-

ing works of unprofessional men, and containing a truthful exposure of all impostors from their most primeval existence. Far be it from me to assert that we are destitute of medical history. On the contrary, the libraries of the Old and New World are well stored with the richest lore of the science, and its branches in all shapes, from that of the ponderous folio to the unpretending little tract. But, as far as I know, a history of the character I have described is not in existence. The history of the science is scattered over a field too wide, and buried in recesses too deep for even the practised eye of the ardent and experienced student. In Aristotle we find one thing, in the metaphysical deductions of Plato another, and in Pliny, Sprengel, Le Clerc and Freind, others. The different cyclopædias contain much that appertains to the subject. Again, we descend from such works as the *Dictionnaire des Sciences Médicales*, in fifty-eight octavo volumes, and the transactions of philosophical and medical bodies, to single tracts, essays, and dissertations. The reader of "Moir's Ancient History of Medicine," and of Dr. Watson's elaborate discourse on the "Medical Profession in Ancient Times," certainly passes his time pleasantly and profitably; and the student, who dives into any authentic work, connected with his profession, from the *Anatomy of Cruveilhier*, to "Pym on Yellow-Fever," and Dr.

Thomas Watson's "Principles and Practice of Physic," is amply repaid for his trouble.

It is true, that whoever desires to procure information on almost any topic relating to medicine from the principles of Archagathus the Peloponnesian, and first regular practitioner of Rome; the writings of Celsus, and the cabalistic dogmas of the old alchemist, Roger Bacon, to the wonderful expositions of the great comparative anatomist, Cuvier, can do so by application to any public library. Although the writings of that great physiologist and benefactor of the human race, Sir Marshall Hall, the originator of the "ready method" for Artificial Respiration, are readily obtained, and the works of the indefatigable physiologist, Edward Brown-Séquard, easy of access; notwithstanding the fact that the student of the science can soon learn how the French physician Laennec discovered Mediate Auscultation, or that Chloroform was discovered by Dr. Samuel Guthrie, of Sackett's Harbor, New York, and introduced into practice first by Dr. Simpson, of Edinburgh; that Baudelocque invented the Cephalotribe, and the Frenchman Sigault was overwhelmed with honors for first proposing that reprehensible operation, symphysiotomy, or the division of the ossa pubes, with a view to increase the antero-posterior diameter of the pelvis, thinking that the delivery of the child would be safely secured by it; that Naëgelé, of Heidelberg,

has written learnedly on the posterior plains of the pelvis, explaining the mechanism of the third and fourth positions of labor; although information can be procured in the way already mentioned, namely in libraries, and by the generosity of those who are willing to lend their volumes; we often find it almost impossible to obtain some particular book, or a description of some occult disorder or its treatment. The question naturally arises, how is this trouble to be done away with? It seems to me that, although we have so abundant a supply of material, in all manner of forms, even medical cyclopædias and dictionaries, it would be a blessing to the medical man to have a thorough and perfect history of the science, and every thing connected with it.

To accomplish such an undertaking, a number of physicians, surgeons, and savans would have to be commissioned and paid by government, and by the various medical associations they were connected with, to perform the task. Let there be delegates from all civilized countries. Let them meet at some city agreed upon by their governments, and then and there set about the work. It would be their duty to omit nothing whatever connected with the science, even to the most trivial minutiae. Their lives would be devoted to the object. All vexed questions would then be settled by the united wisdom and experience of the most distinguished and learned medical men of

the world. Yellow Fever would then have a character given to it, that would enable even the veriest tyro in the profession to comprehend at least some of its idiosyncrasies, and it, together with its companion, the bugbear Fomites, would receive all the honor and attention they merit. Something new, on the origin of Small Pox and of Inoculation, might be unfolded. Considerable knowledge might be added to that which we already possess regarding old Æsculapius, and his instructor, Chiron, and of the former's sons, Machaon and Podalirius, and a little of the obscurity which surrounds the early followers of the science be dispelled, while the mythological fabrications investing the history of its first appearance on this terrestrial sphere, would unfold new charms to the enraptured gaze of its most inveterate speculator.

The curious statement of Aristotle, that the Egyptians never practised any active means until the fourth day after the patient sickened, might elicit some very interesting discussions regarding the patrons of the depleting system, and in all cases immediate antiphlogistic treatment. The fact that the Egyptian physicians of old gave squills in dropsy, and iron in diseases of a cachectic nature, might lead to an argument which would probably redound to their merit. The well-recorded fact, that during the time of Herodotus the practice of

physic underwent a change, and "every distinct distemper had its own physician, who confined himself to the study and cure of that, and meddled with no other; so that all places were crowded with physicians; for one class had the care of the eyes, another of the head, another of the teeth, another of the stomach, and another of occult diseases," would oblige them to show us whether Herodotus meant the priest-physicians in this passage, or the exoteric practitioners of medicine, such as *Jatraliptæ*. In the fiftieth chapter, second verse of the book of Genesis, we read: "And Joseph commanded his servants the physicians to embalm his father: and the physicians embalmed Israel." It would be impossible to pass by this passage in Scripture, without enlightening us as to whether the earliest physicians of Egypt were of the order of priests or not. The article, "Medicine," in the *Encyclopædia Britannica*, is favorable to the opinion that they were not; while those entitled to great consideration assert that long after Joseph's time, the Jews' priests were their physicians, and that the ancient Egyptians never interfered with each other, every one pursuing a distinct calling: and it certainly seems clear, notwithstanding Warburton's commentary to the contrary, that even if Joseph were rich enough to retain several physicians about his person, they would not undertake, or be permitted to

act the part of embalmers. We might have it settled whether Errasistratus and Herophilus were the first dissectors of the human body, or if they must yield the palm to Democritus, of Abdera, who, it is asserted, first dissected the human cadaver, in order to trace the origin and track of the bile; or if Hippocrates, of whom it is said that a human skeleton was discovered in his study, was not the earliest to examine the mysteries of his fellow-beings' animal economy. The work could be issued in numbers, and printed in a becoming and appropriate form. Although it might reach a very unprecedented number of volumes, it would undoubtedly repay the outlay and labor. In my project many may view an Utopia equal to Sir Thomas More's; but it appears to the originator, that, if it were accomplished, the often baffled and bewildered student would, like Archimedes of old, exclaim in rapture, Eureka! Eureka!

The origin of medicine has been deemed, by some writers, to date as far back as the fall of man. The learned Schulze, a teacher at Altorf, in the early part of the eighteenth century, advocated this view; and, in his writings, gravely endeavored to explain the opinions which Adam and Eve would probably form of their natural appetites, the evacuations which succeeded their gratification. What a mine of physiological information they must have amassed: "quum se mutuo contemplantur, quum

amplecterentur, coirent:" and in trying to prove that Adam must have coincided with the generally accepted fact, that necessity is the mother of invention, he remarks: "laboranti amicæ, obstetricias manus adhibuisse, sicque chirurgiæ primam forte operationem exercuisse!" Le Clerc deems it indispensable to agitate the proposition, "Si la médecine est venue immédiatement de Dieu?" and to prove that, as Adam was the first man, he must, as a matter of course, have been the first practitioner of medicine. Brambilla, a surgeon of Vienna, maintains that Tubal Cain invented and made some surgical instruments. The statements just made surely prove what an unbounded horizon encircles the history of the science. Truly, when we contemplate the idea of a history of the science, that shall include every thing connected with or appertaining to it, not excepting even the most trivial details, we almost feel as if many would pronounce us guilty of entertaining a chimera as foolish and fantastic as the monster spoken of in fabulous history, which, we are told, had the head of a lion, body of a goat, and tail of a dragon, and vomited flames at his dreadful pleasure. Indeed, I doubt not that some, upon *deliberate* reflection, would avow it an hallucination equal in deceptiveness, to that which has caused such tribulation and anguish to many a dear old philosopher, the search for the mys-

terious but never forthcoming Philosopher's Stone ; and almost as impossible as the discovery of perpetual motion, or the solution of the abstruse mathematical problem, squaring the circle. But, if placed before the public in a suitable form, comparatively cheap, I cannot but declare the conviction that it would meet with approbation. Surely, it could be productive of no evil. Moralists would find much to condemn, in the superstitious practices which the priests, magicians, and sorcerers of bygone ages availed themselves of, to further secure the power which they held over their dupes and victims. The lovers of mythology might, with profit and pleasure, study the peculiar honors paid to Thouth or Taaurt, who Diodorus asserts to have been the Hermes Trismegistus of the Greeks, and Secretary to Osiris ; and also dive into the mysteries of his doctrines which the priests were bound to obey, and which were collected after his death in a book, and called " Embre " (Scientia Causalitatis).

The history of the Egyptian deities, Apis, whom some regarded as the founder of medicine, and Serapis, whose authority was greater than his, and whose temple was at Memphis, both of whom Greeks and Egyptians worshipped, would be likely to afford some gratification to their heathenish imaginations. Theological students would surely sympathize with the motives and laws which caused the olden kings

of Egypt to be selected from the priests, and doubtless draw useful moral comparisons from the foolish prophesyings and magic rites of the chief priests, and the singular duties of the Pastophori or image bearers, an inferior order of priests, whose business it was to study the six hermetical books on medicine, and to administer to the patient whatever the sacred volumes ordered; while the chief priests contented themselves with prognosticating the direction and end of the malady. The lovers of ecclesiastical domination would repine when they read of the good old days, in which it was customary for the rank of the Egyptian priests to be hereditary. Sportsmen would groan in spirit when they learned that Darius, the son of Hystaspes, had to relinquish hunting for many a long day, until cured by Democedes, because, among all the medical men of the Egyptians, not one could be found who was able to reduce a simple "luxation of the foot."

But we must not proceed any further; this introduction has already far exceeded our intentions. The interest we feel in the subject must be our apology, if any be necessary. We will now proceed to the theme we have chosen—HOSPITAL HYGIENE.

Since the days that the Goddess Hygeia accompanied her venerable father Æsculapius to his temple at Epidaurus (his supposed birth-place),

down to the present time, that branch of medical science called Hygiene has been increasing in importance and utility. Her numerous admirers have each striven to contribute their due proportion to her advancement, and her growth has been as steady as the fidelity of her followers. To trace the history of hygienic science, from its origin up to this day, would occupy too much space for my purpose. No deity, presiding over the welfare of our profession, has ever had more homage paid to his or her shrine than the Goddess Hygeia. Hygienic laws, in some form or other, have always been acknowledged by every nation under the sun. The Hindoo practises ablutions. The natives of the Pacific islands, from the ferocious Fegee to the partially civilized Sandwich Islander, have their laws of physical health. Bathing, dancing, feats of strength and agility, form a part of their Hygienic regime. The Red man of America has always been distinguished for his zealous devotion to physical training, and that most miserable specimen of humanity, the Root Digger Indian,* by the systematic teachings of his parents, is enabled to perform feats of endurance and activity in a manner surprising to behold. All nations have general laws of their own appertaining to health and diet. The benighted Esquimaux

* For an account of the Root-Digger Indians, called "Shoshokoes," see Bonneville's *Adventures* by Washington Irving: pp. 257-261.—Also N. J. Wyeth's letter: *Schoolcraft*, Part 1st, p. 206.

knows that he can resist his greatest enemy, cold, if well clothed, for a time; but that his powers of resistance are increased tenfold by a hearty meal. He is also aware of the peculiar diet which suits his condition. In every season of the year he brings this knowledge into requisition. If we go back to the Gymnasia of the Greeks, we find that they not only employed every study calculated to improve and strengthen both their moral and intellectual welfare, but that a most thorough course of exercises, of a physical nature, were rigidly enforced. The athletic pastimes were not practised alone, but in connection with a complete course of Hygienic regimen. Dr. John Watson, in the 2d chapter, 19th page, of his elaborate discourse on the "Medical Profession in Ancient Times," delivered before the New York Academy of Medicine, November 17, 1855, expresses himself in the following terms, when speaking of the physical course of training followed by the Greeks: "These latter embraced not merely wrestling, racing, and other athletic sports; but also the general rules of health; attention to the food most proper for invigorating the frame, for increasing the powers of endurance against fasting, fatigue, watching, exposure to the weather or to the vicissitudes of the seasons; and to every circumstance likely to prepare the youth for serving as soldiers in defence of their country, or for acquiring

applause in contests with one another at the Olympic, Pythian, or other national festivals.”

It is known that the course of manual training was not exclusively followed by youths, and that all classes practised them. The Romans, of old, were by no means ignorant of, or indifferent to Hygienic regulations, both as regards diet and physical training, and it is probable that the Gladiator was as much cared for, in his day, as his far less brave, and most brutish imitator, the pugilist is at the present time. It seems impossible to believe that any nation could have ever existed so utterly debased, and devoid of intelligence, as not to have some ideas concerning the laws of health. The senses which they possessed, sight, taste, smell, touch and hearing, must have enabled even the most degraded to have formed some opinion of physical prosperity, even though their knowledge might have assumed the feature of instinct rather than intelligence. We cannot believe that a Righteous God would place a race of human beings on this earth entirely deprived of all the faculties which tend to the preservation of life. It therefore seems reasonable to conclude that, from the days of our first parents, Adam and Eve, these faculties have been in constant use by every inhabitant of the globe; and, although, at the beginning, they may have been developed in a very limited degree, still the experience of one being

communicated to the other must, in time, as the population of the earth increased, have caused a vast amount of information to be collected. The eating of the forbidden fruit caused our first parents to become aware of the difference between good and evil; and this knowledge, acquired by disobedience to their God, was productive of a punishment which alone was sufficient to form a basis on which to build a temple of information. The transgression not only caused Adam and Eve to be able to distinguish between right and wrong, but brought upon them the penalty of death. The "tree of life" was guarded by "Cherubims, and a flaming sword," and, as it was impossible to approach it, they knew that they must die. Besides this, the punishment: "In the sweat of thy face shalt thou eat bread, till thou return unto the ground;" was added. Physical exertion then was one of the strata on which an acquaintance with health was to be founded; and it seems plausible to suppose that the rest, which followed the first physical labor of the first man, afforded food for reflection, which was the corner-stone of the science of medicine.

Although we read in the 20th verse of the 2d chapter of Genesis, "And Adam gave names to all cattle, and to the fowl of the air, and to every beast of the field:" and again, in the 23d verse of the same chapter, "And Adam said, This is now bone

of my bones, and flesh of my flesh:” I say that although Adam named all the cattle, birds, and beasts of the field, and was aware that his helpmate was “bone of his bones, and flesh of his flesh:” still as he had not then experienced any fatigue consequent upon physical exertion, and as far as we know was not to die, he had no necessity or use for such knowledge. But, after his fall, the punishments he suffered were the ones that would be productive of the very knowledge itself, namely, the preservation of life and relief of pain. The first murderer, Cain, when trembling under the sentence of an insulted God, seems, by his words, to convey to us the idea that he was fully aware of the increased difficulties which his punishment threatened to his life.* “And Cain said unto the Lord, My punishment is greater than I can bear. Behold, thou hast driven me out this day from the face of the earth; and from thy face shall I be hid; and I shall be a fugitive and a vagabond in the earth; and it shall come to pass, *that* every one that findeth me shall slay me.”

This lament of the first murderer conclusively proves that he was sensible of the dangers to which his life was exposed, and the precariousness of his future existence. On the other hand, the awful crime which he committed gave him the knowledge

* Gen. iv. 13, 14.

that life not only ceased by natural, but could be taken by artificial means. It is true that the sacrifices which he, as well as his brother, offered up to their Creator, must have caused him to know that the life of animals could be taken; but although from this he might have inferred that it was the same with regard to human life, still he was not, nor could not have been certain until the bloody deed had been consummated. But we will cease from this manner of arguing. To follow out the thread in an appropriate form, would be entering upon a discussion which could be continued *ad captandum, ad libitum, ad infinitum*. Besides, it seems, upon due reflection, as if one were trespassing too much upon things sacred, to intermingle them with our theories and suppositions in regard to things profane, which never can be determined. Practical illustrations of Hygienic laws, can be deduced at all times by him who watches the brute creation. What makes the hen shield her chirping brood beneath the soft, warm canopy of her motherly wings, unless it be that instinct which causes her to know that shelter from enemies and from the elements is essential to the welfare of her little ones? The hollow tree which the bear selects for his winter's nap; the beautiful little abode of the industrious ant; the secure, well-built nest of the songster of the grove; all go to prove that even in the lower

orders of animal creation, we have daily lessons given to us in the great art of preserving life. Again, we have before us the instinct which even inanimate nature exhibits in her numerous ways. Mark how the feeble vine clings to and entwines itself around the sturdy giant of the forest, knowing that its existence depends upon the friendship of its more robust companion. Aye, and thoughtful man reflect, that if the homely plants which provide you food each day of your life, refuse to yield their precious fruit, in all its luxuriant sweetness, unless you watch and nurse them faithfully, how can you expect that your fellow creatures will thrive without the same attention to their physical prosperity?

The poet tells us that Life is a fleeting dream: the materialist that it is a time of action: the divine that it is but a short period, even at the best, in which we are placed for the glory of God; a probation in which we must prove our fitness for eternal happiness by keeping his commandments: the philosopher that it is merely an existence, of intellectual accumulation: the fool that it is a farce: and the physician that it is but the path to the grave; which, according to our mode of living, may be shorter or longer.

The learned have puzzled their brains, in vain. Each one has a different solution for the problem.

Men of science may give various and numerous philosophical and scientific definitions of life ; but even savans cannot concur as to what it is. If all find it so difficult of solution, all agree that it is easily lost, uncertain, and cannot exist without care. This is enough, if life can, in certain instances, be prolonged; and if we have been blest with a knowledge of those laws which tend to promote it, we must answer the demands of our conscience, and put into practical use every resource known to us for its preservation.

Among civilized nations, we find that the people who live under a monarchical form of government generally enjoy much superior laws in regard to the health of their cities and country, than those who dwell within the pale of republican institutions. Despotic governments always open the path of distinction to men of science, and are ready to reward with honors and high positions those who honestly acquire a merited reputation. The reason of this has been declared, by those hostile to these forms of government, to be a desire on the part of the monarch and his aristocracy to afford every facility for the perfect enjoyment of peaceful pursuits, with a view to prevent their subjects from indulging in revolutionary projects and warlike demonstrations. It is by many looked upon in the same light with the holidays, and festivals, both religious and secu-

lar, in fact, as a sop thrown to the parties most likely to give trouble, and who must have some outlet for their superfluous ambition.

But, be the reason what it may, it is an indisputable fact that cannot be refuted, that the crowned heads of Europe are far more attentive to the arts and sciences than our own or any other republican government. Why this should be so is not to be accounted for in any way, unless it be that men, when living under free institutions, where every one regards himself the equal of a king, a sovereign himself, becomes, from this surfeit of liberty, indifferent to all pursuits but those which produce money, political exaltation, and, above all, power. Men, who feel that they have the path of political distinction open to them; that no office, not excepting the chief magistracy of the nation, is beyond their power or their deserts, and that the only aristocracy is a monied one, are not inclined to stop by the roadside and cull the sweetest flowers; but push on with all their might, rushing headlong to the goal of their ambition, reckless of their brethren who are crushed and trampled under foot by their more powerful competitors. Then, when high office is obtained, friends political must be looked after before friends of the people, and persons utterly unworthy of public confidence are too often placed in situations that they have neither the knowledge nor

the ability to fill. These men, for the sake of popular favor, often oppose any law, no matter how productive of good it might be, in order to maintain the good will of their party; and, even if a good law be passed, crush it with amendments, or appoint one to execute its demands totally unfitted for the position, which not infrequently causes disgust for the entire affair.

It certainly seems strange, that the nations blessed with liberty in its purest forms, and dwelling on this earth like the Israelites of old, before they chose a king, having no king but their Heavenly Creator, should prove to be the most ungrateful to their best men, and the most unfaithful to their government, constitution and laws; thus showing that they are unwilling to submit, not only to an earthly sovereign, but live in direct opposition to the commandments of their Maker, and the instructions of his Holy Bible.

I will quote a few words in support of my view, from the preface of Dr. Cornelius G. Comegys, appended to his translation, from the French of Dr. P. V. Renouard's "History of Medicine, from its Origin to the Nineteenth Century."

At page fifteen we find the following paragraph: "When we think what interest Deity has taken in diseased humanity, inspiring Moses to write those extraordinary precepts found in Deuteronomy, how

He conferred on priest and prophet healing powers ; that Jesus performed the functions of a physician as well as that of a divine teacher, and endowed His apostles with power to heal the sick, thus sanctioning the profession of Medicine, as well as giving proofs of a divine nature ; that the ancient civilization of Greece and Rome legalized Medicine, and all modern Europe lavishes upon it favors and protects it from impostors ; why, I repeat, in this great Republic, is this learned and valuable profession unsustained, and society unprotected ? ”

The science of hygiene has attained its present proportions, after passing through a series of ordeals which, instead of injuring, have only served to bring forth her claims in a stronger light than ever. She has passed through the stormy times when theory was every thing, and practical demonstration uncared for and unknown : she has outlived the numerous dissensions of the ancient philosophers : survived the Stygian darkness of the middle ages ; and, in our own time, with Physiology on her right hand, Chemistry on her left, and common sense for her pilot, cleaves the billows of discord ; and, like the fleet clipper, sails from one land to another, leaving in her wake the phosphorescent light of truthful statistics.

The writers on hygienic science are, and have been, men of the highest intellectual culture : their

numbers are constantly on the increase, and the practical utility of the suggestions they are continually proposing is evidenced, in many cases, by their almost immediate adoption. The great and inspired law-giver, Moses, has written not a little on this branch, both in its moral and physical relationships: and, in many of the works of the ancient members of our profession, we find much that exhibits the high consideration in which they held this peculiar branch of knowledge. If we go back to the time of that most wonderful genius, Hippocrates, the master mind of his day, on all topics concerning our art, the "Father of Medicine," we find that he had as an instructor Herodicus of Selymbria, whom, we are informed, was the first to invite attention to gymnastics as a means of cure for disease.

The "Old Man of Cos" wrote, himself, on Airs, Places and Waters, in which book, to quote the language of Dr. W. Black, who wrote a work entitled "Black's History of Medicine," which was published in London, 1782, "He examines the effects of the air, whether cold, hot, dry, or moist; of the winds, blowing from different points; the effects of different regions and habitations of men; of the different seasons of the year, of the Solstices, Equinoxes, the rising and setting of Stars, and their respective influence upon the human body. He compares the seasons with respect to health, and

remarks what diseases are most prevalent during each season. In one chapter he gives a sketch or annual journal of the weather and seasons, and the predominant diseases. He examines the effects upon the constitution of sleep and watching, of hunger and thirst, of exercise and indolence, of the excretions and retentions, and of the passions of mind, and lays down precepts for their regulation. He is very minute in determining the nature and qualities of different foods; of flesh, and of fish taken from fresh and salt waters, of fowls and the feathered tribe, of vegetables and fruits, of wines and waters." And again, at page 27 Dr. Black happily observes, "Very few internal remedies were prescribed by Hippocrates in Fevers; his practice in them is exceedingly simple: he intermeddled with extreme caution, fearful of interrupting the progress of nature."

Diocles of Carystus, we are informed, wrote many works; among them, one on Hygiene, and one on Gymnastics, in the cure of disease. In speaking of the school of Cos, Dr. Watson remarks, "The school of Cos, though at times more heroic, especially in the use of the lancet and active purgatives, were in the habit of managing acute diseases by a restricted regimen; barley-water more or less diluted, hydromel, and oxymel, being among their most frequent prescriptions. In the management

of chronic diseases, they favored the medical gymnastics of Herodicus." Of Erasistratus, one of the earliest, if not the first, to dissect the human body, and who is said to be the inventor of the catheter, the same author says: "He treated diseases almost exclusively by diet and regimen, and was among the first to systematize gymnastics, or what would now be called hygiene, as a department of the healing art." The occasion will not allow us to dwell any longer on this most important subject, the history of hygienic science. We should like to linger a little while on the exploits of Asclepiades of Bithynia, Cicero's friend, who made Rome his residence during the days of Pompey, some 63 years previous to the birth of our Saviour; a most successful practical hygienist, a man whose perceptive faculties gained him high position, and whose *suaviter in modo, fortiter in re*, must have surely equalled, if not surpassed, that of the renowned Lord Chesterfield.

Turn which way we will, we are sure to find something concerning this all-important branch of our art. If we read on cookery, with a view to improve it, and bring it under hygienic laws, we find that the Spaniard, Apicius Cœlius, was a writer on that subject, equal to our late Monsieur Soyer, and one feels inclined to be irritated, when he learns that the Romans of old were probably better off in

their day in that respect than many of us at the present time. The efforts of Howard and Count Rumford to find a way to secure to every human abode, no matter how humble, a healthy atmosphere, fill us with admiration. The exertions of the great sage Franklin for a similar result, create the same feeling, and offer a storehouse of information. The vast improvement in sanatory science, made by the noble Jenner, will never be forgotten while humanity exists. The history of architecture is replete with hygienic experience. Dr. James H. Pickford, in the preface to his book on Hygiene, remarks truly: "Hygeine has been defined to be that branch of medicine the end and aim of which are to point out the conditions on which health depends, and the means by which that inestimable blessing may be sustained in all its purity and entirety." Dr. P. V. Renouard, in his History of Medicine, page 406, in speaking of this particular branch, observes: "Considered from the most elevated point of view, hygiene embraces all the objects of nature, and all the productions of art; for there is nothing in the universe which may not be beneficial or injurious to the health of man." The writings of such men as Pringle, Van Swieten, Donald Monro, Rouppe, and Lind, prove its value. Productions of a character similar to Ramazzini's on the Diseases of Artisans; J. P. Frank's Treatise

on Medical Police; John Sinclair's Code of Health and the works of Tissot, cannot be looked upon with indifference.* The good they have accomplished will never be blotted out.

The meetings of scientific bodies, with a view to improve sanitary measures, and the articles with which the numerous periodicals teem, give strong proof of the interest felt in the subject. Ventilation, good water, proper drainage, food, exercise, bathing, gymnastics, healthy amusements, etc., etc., all occupy the attention of thinking men, and the physician who neglects to interest himself in these subjects, is not regarded as competent to practise his profession. We must not doubt our ultimate success, but persevere to the end; let us be as faithful as those who have gone before us. The efforts of the celebrated physician, Dr. Cheyney, of London, to recover his health, would never have been crowned with triumph, had he not determined, so long as he could, to persevere in his self-imposed task.

We must make use of the lesson taught us by Agrippa, the son-in-law of Augustus, whose inde-

* The writers on hygiene, in our own country, are many in number. The exertions of Dr. John H. Griscom, of this city, have long since obtained for him an enviable reputation. The contributions of Drs. D. Meredith Reese, Elisha Harris, and others, have thrown much light on this important subject.

fatigable exertions gave to Rome aqueducts, sewers and baths, for which countless thousands have blessed his memory. But even if no human voice ever uttered a single word to praise us, or bless our memory, we have a higher commendation than man can confer—the knowledge that we have done our duty. We may not have a monument erected to our memory as the great Sanctorius, the inventor of the Sanctorius Thermometer did, by the people of Venice; who died there in 1636, whose work, entitled “Aphorisms on Static Medicine,” was looked upon as coming from the gods, and who was called the second Hippocrates. Our march is onward—all classes are interested in the great question, doctors of law and divinity, as well as doctors of physic, magistrates, military men, both of the army and navy, merchants, manufacturers, yes, and rulers, whether kings or presidents, emperors or governors, and even aldermen, must lend their hearty co-operation and exert themselves to their utmost in the unspeakably important administration of a rigid and impartial sanitary reform.

Hygiene is at present divided into Private and Public. This arrangement seems most appropriate: and although both are so intimately blended that what is applicable to one is also to the other, still this division permits of a greater scope to the subject, invites a more orderly and scientific classi-

fication of it, and admits of a regular systematic course of investigation. We will close this incomplete and hasty sketch of hygienic science with a quotation from the beautiful didactic poem of Dr. John Armstrong, entitled, "The Art of Preserving Health."

" Daughter of Pæan, queen of every joy,
Hygeia; whose indulgent smile sustains
The various race luxuriant Nature pours,
And on the immortal essences bestows
Immortal youth; auspicious, O descend!
Thou, cheerful guardian of the rolling year,
Whether thou wanton'st on the western gale,
Or shakest the rigid pinions of the north,
Diffusest life and vigor through the tracts
Of air, through earth, and ocean's deep domain.
When through the blue serenity of heaven
Thy power approaches, all the wasteful host
Of Pain and Sickness, squalid and deform'd,
Confounded, sink into the loathsome gloom
Where, in deep Erebus involved, the fiends
Grow more profane."

It cannot be denied that hospitals and institutions of a like character have been of vast assistance to the rapid advancement of hygienic science. From them, we may truly assert, radiate the brightest sunbeams of sanatory knowledge. The centralization they create of all the ways and means, as well as of the material, from which the temple is being built, is incomprehensibly superior, in every respect, in the accumulation of information of a hygienic

character, than would be the collection of the same facts from diffused or isolated cases, even though conducted by the most faithful men.

Our knowledge of the origin of hospitals is not as satisfactory as it might be : ecclesiastical history contains not a little regarding the subject ; and the histories of our art, although they contain much learning upon this interesting topic, are sadly deficient, as a whole, in regard to this peculiar department of the literature of the profession. The history of hospitals is to be found in scattered fragments ; and it yet remains for some enterprising individual to collect, arrange, and publish, in an appropriate form, a book which will prove as thrilling as Thiers' History of the French Revolution ; as interesting and absorbing as De Foe's History of the Plague in London ; as instructive as Bunyan's Pilgrim's Progress, and as entertaining as Don Quixote, Robinson Crusoe, or the Arabian Nights.

The word Hospital is from the Latin Hospes, a guest. Addison defines it as, a building in which provision is made for the sick, the wounded, lunatics, or other unfortunate persons ; and Spenser as, a place of entertainment, an inn,* in which sense he uses it in the lines appended to the commencement of this book. At one time, hospitals, so called, were

*The classical essayist and poet, Henry Theodore Tuckerman, is the author of an elaborate article on Inns, which is to be found in the June

intended as an abode where strangers, travellers, and particularly pilgrims, could obtain entertainment and protection from the dangers of the roads. St. John's hospital, at Warwick, and others were built for this special purpose. In England, quite a number of the charitable bequests are named hospitals, and have brethren, a master, and other members as a body corporate. Schools are connected with some of them. The Knights Hospitallers, who settled in England, were a religious order; their name and origin came from the hospital constructed at Jerusalem, which was dedicated to St. John the Baptist, and was built to receive pilgrims to the Holy Land.

The article, "Hospitallers," in the Penny Cyclopædia, Vol. XII., says: "The first business of these Knights was to provide for such pilgrims at that hospital (St. John Baptist's at Jerusalem), and to protect them from injuries and insults upon the road.

number, 1853, of Putnam's Magazine, which he heads with this quotation from the poet Shenstone:

Whoe'er has travell'd life's dull round,
 Whate'er his fortunes may have been,
 Must sigh to think how oft he's found
 Life's warmest welcome at an inn.

"At the 'Red Horse,' Stratford, is the 'Irving Room,' precious to the American traveller; and how renowned have sweet Ann Page and jolly Falstaff made the very name of the 'Garter Inn!' In the East a monastery, in the Desert a tent, on the Nile a boat, but in England an inn, is the pilgrim's home—and one not less characteristic."

They were instituted about A.D. 1092, and were very much favored by Godfrey of Bouillon and his successor Baldwin King of Jerusalem. They followed chiefly St. Austin's rule, and wore a black habit with a white cross upon it. They soon came into England, and had a house built for them in London A.D. 1100; and from a poor and mean beginning obtained so great wealth, honors, and exemptions, that their Superior here in England was the first lay-baron, and had a seat among the lords in parliament; and some of their privileges were extended even to their tenants. There were also sisters of this order, of which one house only existed in England, at Buckland in Somersetshire." The Knights Hospitallers were known by other names; first they were Knights of St. John of Jerusalem, afterwards Knights of Rhodes. When that island was lost to them, in 1522, they were named Knights of Malta, after the island given to them by the Emperor Charles V.

The word hospitaller is derived from the Latin *hospitalarius*, and means one who lives in a hospital with a view to entertain poor persons and strangers. In the language of the lower age, the word *hospitalarius* is alone to be discovered. Hospitals, in the present acceptation of the term, are considered as belonging strictly to Christianity. In a certain sense this is true; but the temples of old must not

be entirely overlooked. At the eleventh page of Surgeon D. M. Moir's "Ancient History of Medicine," we find the following words, when speaking of the temples of Æsculapius, particularly those of Pergamus, Epidaurus, Cos, and Cnidos: "These temples were spacious and elegantly constructed, with commodious lodgings alike for patient and priest. The former were not, however, allowed to die within them; and, when symptoms threatening to prove mortal made their appearance, were conveyed thence to some convenient situation in the neighborhood." Now, although the patients were not allowed to die within the temples, and though they were not built, supported, or attended by Christians, still they were institutions intended to relieve the sick, and the ancients must therefore have full credit awarded to them for their originality. Dr. John Watson, in his discourse on the "Medical Profession in Ancient Times," at pages 26 and 27, remarks, "As asylums, the temples bore no inapt resemblance to the hospitals and infirmaries of modern times; into which, in fact, some of them were ultimately converted." These facts, for which the gentlemen above quoted give their authorities, go to prove that, although in the present day, every thing appertaining to institutions of this character is incalculably improved, still we cannot rob the ancients of the honor of being founders of these great charities.

We are informed that buildings, intended expressly for charitable purposes by the church, were not in existence previous to the reign of Constantine, who governed from A.D. 306 to 337. During his rule the religion of the state became Christian. He issued an edict which caused not only those of the Asclepions, but all other heathen temples, to be closed. At this time hospitals and similar charities were created and placed under the care of the church. Helena, his mother, exerted herself nobly in the cause. In A.D. 357, Gallus Cæsar gave to the church the groves of Daphne: and the ground on which the superb temple of Apollo Daphnæus once reared its majestic form, was presented to the same body, although his brother Julian did all he could to prevent it. That at Cæsarea was established A.D. 370-380. Archbishop Basil was the founder of it. The Emperor Valens endowed the institution with the lands. It was named the Basilides: and, from all we are told, must have been a most extensive establishment. Subsequently, at Constantinople, were founded the hospitals of Chrysostom; and Rome, we are informed, boasted, as early as the ninth century, of as many as twenty-four hospitals.*

* On the twelfth page of this work, the author has asked the question: Shall we, a Christian people, be backward in a work so noble as this, when the Heathen spend willingly so much time and means in founding similar institutions for the brute creation? Shall the cat and

The seed has sprung up, and borne abundant fruit. The number of hospitals now in existence proves truly the fast increasing desire to imitate the

the dog receive more care from the benighted Pagan, than is given by civilized man to his helpless brother? The following facts give a brief but satisfactory explanation of the cause of the question. At page 44, vol. 3 of "Wilkinson's Ancient Egyptians," we find these words, used when speaking of the Egyptians and their kindness to cats: "And some have carried their humanity so far as to bequeath by will a fund for their support, in compliance with which these animals are daily fed in Cairo at the Cadi's court, and the *bazár* of Khan Khaleel." The Egyptians, according to Herodotus, were very severe in punishing those who hurt animals. In Bohn's edition, Book II., c. 65, we find the following language used in regard to the subject: "But whoever kills an ibis or a hawk, whether wilfully or by accident, must necessarily be put to death." Again, in the same book, c. 67, he says: "All cats that die are carried to certain sacred houses, where being first embalmed, they are buried in the city of Bubastis. All persons bury their dogs in sacred vaults within their own city." Of the Egyptians, Herodotus remarks, in book II., c. 65: "They have a custom relating to animals of the following kind. Superintendents, consisting both of men and women, are appointed to feed every kind separately; and the son succeeds the father in this office." The Egyptians were not the only nation that practised kindness to the brute creation. Mr. Ward, an English missionary to the East Indies, in his book named "Ward on the Hindoos," vol. 1, chapter x., informs us that certain sects worship not only the cow, but the "monkey, dog, elephant, lion, bull, buffalo, rat, deer, goat, peacock, owl, goose, etc., etc." The great care taken by the Hindoos of the cow is a fact too well substantiated to dwell upon. In vol. 1, page 251, of the same work, we find the following extraordinary statement: "Eeshwürü-chüन्द्रü, the Rajai of Nädēeya, spent 100,000 roopees in marrying two monkeys, about the year 1800." Truly, the solicitude of the Rajai for the poor couple must have been very great, and his devotion very pure. But

good Samaritan, and take the burden upon our shoulders, with the same spirit of love and compassion that he did. We must be careful to bear in mind, however, that quality as well as quantity is a most important desideratum to be obtained. St. Bartholomew's Hospital, London, founded in 1102, gave great credit to its builders; but, to fill the world with institutions built in no more scientific a manner than the one which was constructed seven hundred and fifty-seven years ago, would be an unpardonable error.

It is surprising that hospitals and their hygienic laws, have not engrossed more attention than has been paid to them. We can hardly realize, when we reflect calmly on the question, that men following the profession of medicine should have served thirty and forty years in hospitals of all kinds, both civil and military, and yet have given so little thought to them, and improved so poorly the great advantages they possessed.

we all know how devoted many people are in this age to cats and dogs. Old maids have been known in very recent years to support as many as thirty and forty cats in their own houses. In the year 1857, the writer saw a hospital situated on the Bloomingdale road, about five miles from this city, for cats and dogs. It is known that persons make quite a decent livelihood by attending on animals of this class. I have been unable to find an account which I once saw of a hospital for cats; but enough has been said to show the care bestowed on the inferior animals to warrant the question already mentioned.

Surely the direful effects of hospital mismanagement have, at all times, been plain enough to those who chose to pay the slightest consideration to the subject. But those who have had the facts before them, and the power to redress the evils, have been indifferent to the grave responsibility resting on their shoulders. Let us pass over the early period of hospital history and begin with the foundation of the Lazaretto of Venice, which was built on a small island formerly named "St. Maria of Nazareth," after a church of that name, which was erected there in 1249 by Augustin Hermits. This lazaretto is said to be the earliest regular establishment of the kind founded. As early as 1422, vessels, arriving at the Levant, had to undergo quarantine there. In 1448, the Venetian Senate created quarantine laws. The first board of health was organized by the Venetian Republic, and its control and authority increased in 1504. In 1527, Bills of health were ushered into existence. Since the foundation of the Venetian Lazaretto, similar institutions have been springing up in every land. The world is now encircled with them; and yet, in the nineteenth century, we find many of the evils connected with the older ones still in existence: and now, as then, bad management, negligence, and fraud deprive them of many of the good results which might be achieved through their instrumentality.

Notwithstanding all that has been known and written of them, previous to the days of Howard, and since his time, we find the same ignorance, abuse, and misrule characterizing their government in this century. We do not desire to enter into the pros and cons of the case on this occasion, but it is well known that, within the last few years, the abuses which have existed in our own quarantines, instead of decreasing, have increased. The outrageous expenses, forced upon the unhappy victims, have become a matter of notoriety, and at this time the regular quarantine establishment of New York, the metropolis of the western world, is in a state of unutterable confusion.

If we turn to study the hygiene of hospitals, we are horror-stricken when we contemplate the fearful statistics of the Hospital of Scutari, in the war with Russia, 1854-56, when the deaths, in February, 1855, were as high as 41.5 per cent. per annum.

Why, we ask, is this? Was there nothing known of the subject? Was there no guide to those in charge of the Hospital of Scutari to follow? Yes, there was a guide. They had the history of all the lazarettos and hospitals ever founded to instruct them. They had the writings and advice of such men as Sir John Pringle, who, in 1764, in the preface to his book on "Diseases of the Army," clearly states that to hospitals is to be attributed the vast

loss of life of armies. They had all of his valuable observations to guide them; and they had the writings of Dr. Richard Brocklesby, a man whose "Medical and Œconomical Observations" were entitled to consideration. They had the Surgeon John Aikin's "Thoughts on Hospitals," in which he says: "Hospitals, instead of a blessing, have proved an additional misfortune to the afflicted." And asserts that all hospitals have their own particular diseases within themselves, and that he had seen fevers arising from putridity, in those afflicted with other maladies, become the chief disease, resist all means known, and the patient not get well till discharged, and then recover spontaneously. They had the terrible mortality of the Hôtel Dieu of Paris before them, and the means adopted to stop it, if they had chosen to read the account. They had the writings of such men as Sir Gilbert Blane, Sir William Blizard, and besides the history of every epidemic from that of the terrible Black Death, Sweating Sickness, Dancing Mania, down to those of Yellow Fever and Cholera. And why was the Scutari Hospital such a hot-bed of misery and death? We answer, because its rulers were either ignorant of their duty, or indifferent to the unhappy lot of their brother-men. But a storm of just indignation burst forth; the people cried shame with one voice, and the error was rectified, but not until death had

revelled long and savagely, feasting on the poor wretches who might have been saved.

The demands for institutions of this class are on the increase, and will continue to be so. As the population of the earth accumulates, and civilization spreads herself over the world, and those curses of our race, wars, die away; and peace and science usurp the place of riot, revolution, and ignorance, so will the human race prosper and multiply.

We have in this day hospitals of all descriptions,* for Fevers, Small Pox, Cholera: Lazarettos on land and water; Infirmaries, Dispensaries, Alms Houses, Asylums for the Blind, Idiotic, Insane, Deaf and Dumb, and for the poor Inebriate. This is a most

* For a most interesting and truthful account of the hospitals of Paris, see Dr. F. Campbell Stewart's book entitled, "The Hospitals and Surgeons of Paris," published in 1843. It is a work of great merit, and the clearness of the Doctor's perception is visible on every page. It contains brief biographical notices of some twenty of the most noted Parisian surgeons. It is a book which must always occupy a prominent place in the history of hospitals. Dr. Stewart was for many years a practitioner in New York, where his skill was recognized by his professional brethren, and all of the numerous patients who were fortunate enough to obtain his attendance. For two years he was "Physician of Marine Hospital" to the port of New York, and the great ability he displayed in the administration of the Quarantine of this city, in its numerous departments, convinced all that, in his resignation, the community must mourn, as having lost the services of a man of rare ability. Dr. Stewart has contributed much to the literature of his art, and as a man of the strictest truth, sternest honor and most exemplary life, stands in the vanguard of his calling.

cheering truth, and let us strive each in our own way to improve their usefulness. Some of the last built hospitals have been constructed with peculiar care, and on the most approved methods. The new hospital at Blackburn, England, the Bordeaux Hospital in France, and the superb hospitals of Paris, furnish strong proofs of the care taken in their erection. In this country, we can turn with pride to the new addition to the New York Hospital; to the improvements in the Great Bellevue Hospital, in this city; to the commodious charity named St. Luke Hospital, a most elegant, well-built and regulated institution; to the magnificent building (almost completed) for the relief of the inebriate, situated at Binghamton, New York, and called the New York State Inebriate Asylum,* and last but not least

*Dr. J. Edward Turner, the founder of the "New York State Inebriate Asylum," practised the profession of Medicine in New York city for many years, where his attention was early directed to the awful and devastating effects of inebriety. For twelve years Dr. Turner has devoted himself to the study of this great social evil. He has travelled throughout the United States, Canada, England, France, Germany, and Russia, with a view to study this hideous malady in all its forms and shapes. For twelve years he has been engaged in maturing the means to build this vast charity. He has collected all the funds thus far subscribed to the institution, amounting to some 100,000 dollars already. He has never received, in any shape or way, a single cent for his services. They have been spontaneous and gratuitous. The building, one of the finest of modern times, is nearly completed; and the Doctor may rest assured that his name will pass to posterity, as a philanthropist of the purest nature.

to the Woman's Hospital, which, although it belongs to the future, bids fair, from its founder's (Dr. J. Marion Sims) zeal, to equal the highest expectations.

In the following pages on Hospital Hygiene, I have endeavored to compress into as limited a space as possible the observations I have to make on this most interesting topic. At the same time, I have striven to render my remarks clear and pertinent to the question under consideration. Although the views taken by the author on the subject may differ from those entertained by men of vast experience and great wisdom, still they are the result of some experience, not a little study, a considerable amount of observation, and a sincere desire to contribute his share to the noble efforts which are now being made to ameliorate the sufferings of his fellow-men, to promote the advancement of science, and the welfare of the profession which he loves.

The first question to be considered in the erection of an hospital is its SITE. It is a fact, now firmly established, that unless the situation be healthful, no treatment, however judicious, can prevent a great mortality. Many circumstances may combine to hinder as desirable a spot as might be chosen from being selected. Hospitals, in times of war, both on land and water,* are generally temporary

* The Floating Hospital Ships are very often towed to a place where they may be temporarily wanted.

in their nature, and their location may depend entirely upon conditions over which the officers have no control. Again, in seasons of pestilence, institutions of a similar nature are erected merely for the time being, and the exigencies of the case often preclude the possibility of choice of position. But in erecting a permanent structure, intended for the reception of the sick, the site becomes a matter of the gravest importance. The location of a hospital should be selected with a view to obtain pure air, good drainage, a dry foundation, freedom from noise, commodious grounds, exemption from all miasmatic influences, and the presence of poisonous effluvia and gases, whether proceeding from manufacturing establishments, their refuse, the decomposition of garbage and vegetable matter, the emanations arising from the waste material of slaughterhouses, from cesspools, sewers, grave-yards, immunity from all mephitic exhalations; a plentiful supply of the purest water; a situation easy of access for patients, and for a regular supply of the various articles of consumption of all kinds; and absence of all swamps, morasses, or fresh water, ponds, lakes, rivers, dense foliage, or vegetable cultivation.

These indispensable requirements can be procured in the country; but to succeed in obtaining them in the city, especially in large ones, is a matter of no small difficulty. The numerous asylums

for the blind, deaf and dumb, idiotic, insane, inebriate, etc., etc., can select their site with comparative ease; they may choose the country, or the suburbs of the city. The class of inmates they receive can readily be conveyed for many miles without detriment to their health; and the same rule is applicable with all institutions of a like benevolent character. But with the hospital, using the word in its purest meaning, it is a very different affair. It is true that hospitals are built in the country, and for the best of reasons; the inhabitants of the towns and villages require these charities, as well as those who dwell within the precincts of a city. But, as a general rule, very few institutions of this nature are erected in rural districts. The people cannot afford to support them; they do not need them as much, and patients are almost invariably treated in their own homes. The reasons for locating retreats for those whose organs of sight, hearing, and speech are defective, totally lost or wanting, and for orphans, widows, and old persons, etc., in the city, are to me enigmas. All this class of persons would be infinitely better off in the country, and would most probably prefer it. The agents of the institutions might have their city offices; and, in these days of rapid travel, the poor wretches could be quickly conveyed to their various destinations. It seems also to me, that very many of those afflicted with

chronic complaints, would be far better off in the country than the city. The expenses would be less, and the pure air of the former, the beautiful landscape, quiet and ample room for proper exercise, etc., etc., would be infinitely preferable to the close wards, small yard and continual noise of a city hospital. Let us hope that the spirit of improvement may yet get the mastery over that of imitation and obsolete ideas; and the friendless orphan and widow, the feeble old, and all of the classes already mentioned, may have that home given to them, which is their proper one, and, in most instances, their desire.

To procure an appropriate site for a hospital, some spot must be selected at such a distance from all buildings, as will guarantee an uncontaminated atmosphere. All authorities agree that crowded localities are prejudicial to the maintenance of, not to say restoration to health. The reason of this is obvious, as soon as we look into the matter; and the deleterious effects, which have arisen from neglect of this salient point, are plainly perceptible to all who study hygienic science. The awful mortality among the miserable beings thrust into the "Black Hole" of Calcutta, when overcome in 1756 by Surajah Dowlah, proves, with the most horrible truth, the effects of overcrowding. Out of one hundred and forty-six persons placed in this hideous

dungeon, some eighteen feet square, on a hot night, in such a climate as that of Bengal, from eight at night until six in the morning, only twenty-three lived. The ghastly statistics of disease and death, occurring among the poor slaves in the middle passage, and the fearful loss of life on board the crammed emigrant ship, are startling facts which cannot be denied, and exhibit, in the strongest manner, the dreadful results of too many living in a limited space. The pale, cadaverous face of the occupant of the vile tenement-house, where sometimes a dozen sleep in one room, is but another proof of the evil. The history of epidemics is fraught with the most direful details, all going to prove this well-substantiated fact. Dr. Jonas Adams, in his "Inaugural Dissertation on Yellow Fever," at page seven, records the following observations: "About the middle of August, 1791, a contagious fever appeared in the city of New-York, which first discovered itself near Peck-slip, a part of the city thickly inhabited, its houses generally small, and badly ventilated; many of the inhabitants were in indigent circumstances, which is a frequent cause of the want of cleanliness. Here it raged a considerable time; it then began to spread, and some attendants on the sick became infected who lived in other neighborhoods. By this means it was carried to other families, and most generally

could be traced to this source. It likewise proved more particularly fatal near the place where it first appeared, than in any other part." The late Dr. David Hosack, of this city, in a paper entitled, "Observations on the Laws governing the Communication of Contagious Diseases, and the means of arresting their progress," read before the "Literary and Philosophical Society of New York," June 9, 1814, and afterwards published in the transactions of the society, in speaking of the yellow fever which visited this metropolis in 1795, observes: "In that year the disease appeared upon the east side of the city, first affecting some seamen who had received the infection from a brig directly from Port-au-Prince; from thence it spread in the vicinity from Doverstreet to Peck-slip; but throughout that season it was confined, in a great degree, to that part of the town where the local condition of the atmosphere was peculiarly favorable to its diffusion; for not only an unusual quantity of filth was accumulated in Peck-slip, but at that very time a great number of emigrant poor had arrived from England, Ireland, and Scotland, so that the numerous lodging-houses, especially in that neighborhood, were unusually crowded." In 1857, Dr. D. Meredith Reese, of this city, published a "Report on Infant Mortality in Large Cities, the Sources of its Increase, and Means for its Diminution," in which he states that in the

year 1853, 12,963 children, under five years of age, died in New York. This is but another proof of the disastrous effects of residing in densely populated districts. Throwing aside all other causes, we cannot but believe that very many of these deaths occurred from this source. At page fifteen, Dr. Reese remarks: "The habitations of the poorer classes of our population, are for the most part in narrow, contracted alleys, filthy courts, or underground cellars; or, at best, in what are called tenant-houses, in the miserable apartments of which, thousands of families, each cook, eat, and sleep in a single room, without the light, ventilation, or cleanliness essential to the life of either parents or children."

The terrible percentage of deaths in the hospitals of Scutari, present a record most appalling; surely they were overcrowded. But let us take a look at the effects of thousands living where only hundreds should have been placed. I refer to Balaklava, when occupied by the British and Turkish troops in 1854. Mr. W. H. Russell's book, "The War," being a collection of letters in two volumes, written by him, as correspondent of the London Times, from the Crimea, during the years 1854, '55, '56, contains a most graphic account of the sufferings of the English soldiers, during the siege of Sebastopol. He was a gentleman of great intelli-

gence; and a new branch of literature has been originated by him. His letters aroused universal attention, and were the means of greatly benefiting the condition of the army. At page 289 of vol. 1, he draws a most thrilling picture of the bad sanitary state of that unfortunate town. He says: "As to the town itself, words cannot describe its filth, its horrors, its hospitals, its burials, its dead and dying Turks, its crowded lanes, its noisome sheds, its beastly purlieus, or its decay. All the pictures ever drawn of plague and pestilence, from the work of the inspired writer who chronicled the woes of infidel Egypt, down to the narratives of Boccaccio, De Foe, or Moltke, fall short of individual 'bits' of disease and death, which any one may see in half-a-dozen places during half-an-hour's walk in Balaklava. In spite of all our efforts, the dying Turks have made of every lane and street a *cloaca*, and the forms of human suffering which meet the eye at every turn, and once were wont to shock us, have now made us callous, and have ceased even to attract passing attention. Raise up the piece of matting or coarse rug which hangs across the doorway of some miserable house, from within which you hear wailings and cries of pain and prayers to the Prophet, and you will see, in one spot and in one instant, a mass of accumulated woes that will serve you with nightmares for a lifetime. The dead, laid

out as they died, are lying side by side with the living, and the latter present a spectacle beyond all imagination. The commonest accessories of a hospital are wanting; there is not the least attention paid to decency or cleanliness—the stench is appalling—the foetid air can barely struggle out to taint the atmosphere, save through the chinks in the walls and roofs, and, for all I can observe, these men die without the least effort being made to save them. There they lie, just as they were let gently down on the ground by the poor fellows, their comrades, who brought them on their backs from the camp with the greatest tenderness, but who are not allowed to remain with them. The sick appear to be tended by the sick, and the dying by the dying.” Truly the quotation just cited is vivid enough, one would think, in its ghastly details to satiate forever all appetite for military renown. Who could desire to obtain glory even for a moment at the sacrifice of so many precious human lives?

But “*sic est vitæ.*” We will not stop to criticize the acts of those who caused so many to lay down their lives in the cause they deemed just, many of whom have themselves passed away. We will remember the old Latin proverb, “*De mortuis nil nisi bonum,*” and only look at the facts, from the point of view we have selected. We need not de-

lay long to seek for the cause of this iniquitous waste of life; it is self-evident. Thousands being packed into a space too small for hundreds (and they in the enjoyment of perfect health) to dwell in with safety, what other termination could any one expect—what other sequel would the intelligent mind anticipate?

In the year 1665, there died in London, 68,596 persons of the plague. London, at that time, contained about as many persons as New York does at the present day. It is probable that a far larger proportion of its inhabitants, at that date, were in wretched circumstances than is the case with New York in our day. This, added to the fact that the hygiene of the city was in a very bad condition, and that many more people than usual were living in the place when the plague made its appearance, may account for the frightful hold the dreaded pestilence took upon the devoted city. Daniel De Foe, in his "Journal of the Plague Year," which draws a most thrilling picture of the career of the pestilence in London in the year 1665, states that the city was unusually crowded at the breaking out of the "pestilence that walketh in darkness."

At pages 27-8 of the edition edited by Edward Wedlake Brayley, F. S. A., M. R. S. L., &c., &c., and published in London in the year 1848, we find the following statement:

“It must not be forgotten here, that the City and suburbs were prodigiously full of people at the time of this Visitation, I mean at the time that it began; for though I have lived to see a farther increase, and mighty throngs of people settling in London, more than ever, yet we had always a notion that the numbers of people which, the wars being over, the armies disbanded, and the royal family and the monarchy being restored, had flocked to London, to settle in business, or to depend upon, and attend, the Court for rewards of services, preferments, and the like, was such, that the town was computed to have in it above a hundred thousand people more than ever it held before: nay, some took upon them to say it had twice as many, because all the ruined families of the royal party flocked hither; all the old soldiers set up trades here, and abundance of families settled here; again, the Court brought with them a great flux of pride and new fashions; all people were grown gay and luxurious; and the joy of the Restoration had brought a vast many families to London. I often thought, that as Jerusalem was besieged by the Romans, when the Jews were assembled together to celebrate the Passover, by which means an incredible number of people were surprised there, who would otherwise have been in other countries, —so the Plague entered London, when an incredi-

ble increase of people had happened occasionally by the particular circumstances above named. As this conflux of the people to a youthful and gay Court made a great trade in the City, especially in every thing that belonged to fashion and finery, so it drew, by consequence, a great number of workmen, manufacturers, and the like, being mostly poor people, who depended upon their labor." At page 21, De Foe observes: "But we perceived the Infection kept chiefly in the out-parishes, which being very populous, and fuller also of poor, the Distemper found more to prey upon than in the City." This was in the month of July, but the city itself soon had its full share. It only shows, however, that De Foe argued that the more populous the section, the more violent the disease, and the greater the mortality, and particularly if the people of the infected section were poor. But the experience of all countries goes to prove that the poor generally suffer most, no matter in what part of a large city an epidemic be raging; for the simple reason that the rich can afford to leave the plague-stricken spot, while the poor must remain and face the danger which their opulent brethren can so easily escape.

" Within the walls,
 The most frequented once, and noisy parts
 Of town, now midnight silence reigns ev'n there;
 A midnight silence at the noon of day;
 And grass, untrodden, springs beneath the feet."

This verse of Dryden's surely presents a graphic idea of a city laboring under such a visitation.

The private and public hygiene of the large and prosperous cities of England, in the sixteenth century, was of so bad and inefficient a nature that the evil could not be overlooked. Dreadful forms of fever called by some the "sweating sickness," swept the crowded cities. Portions of country, densely inhabited, were filled with lamentations at the horrible mortality from this source. The jails, filled to overflowing, were ravaged with the scourge. In 1557, at Oxford, during the Black Assizes, over five hundred individuals were destroyed by the fever in less than a week; and we are informed that as many as six hundred were taken ill of it in one night.

Dr. Elisha Harris, in his valuable and interesting "Introductory Outline of the Progress of Improvement in Ventilation," which is prefixed to Dr. David Boswell Reid's most important work on "Ventilation in American Dwellings," remarks, at page 7, "Those terrible visitations, as well as most of the great epidemics of fever, which repeatedly desolated the rapidly-growing cities of England, appear to have arisen from the gross neglect of domiciliary and public hygiene." In 1602 a royal proclamation was sent forth by the Queen, in which the following language is to be found: "that here

tofore, in her princelie wisdom and Providence, she had foreseen the great and manifold inconveniences and mischiefs which did then grow by the accesse and confluence of the people; and that such great multitudes being brought to inhabit in such small rooms, whereof a great part being very poor, and being heaped up together, and in a sort smothered with many families of children and servants in one house, or small tenement, it must needs follow that if ane plague or other universal sickness should, by God's permission, enter among these multitudes, the same would spread itself, out of which neither her Majestie's own person, but by God's special providence, nor any other whatsoever could be exempted." Dr. Harris says truly, at page 15 of his introduction: "The most important effort ever undertaken in any country for general sanitary improvement and reform, was the 'Health of Towns Commission,' which was organized by the reigning* Queen, in the year 1843, under the title of '*The Commission for Inquiring into the State of Large Towns and Populous Districts.*'" "This Board of Commissioners was composed of thirteen distinguished scientific and philanthropic gentlemen, among whom was the Duke of Buccleugh, the Earl of Lincoln, Sir Thomas de la Beche, Dr. David Boswell Reid, Dr. Lyon Playfair, and Richard Owen. The stupendous re-

* Victoria.

sults of their investigations and labors may be judged of by their final Reports, which are comprised in three large folios, every page of which is full of most instructive facts." We will cite a few lines from the conclusion of the report of the commissioners. "The vitiation of the atmosphere from over-crowding, and the absence of proper ventilation in individual apartments, produces in the rural districts the same diseases that arise from the same causes in a town population." The baneful results which have been occasioned by filling barracks with soldiers, beyond their proper capacity, are matters too well known to dwell upon, and the same was the case with the lazarettos which the noble Howard visited.

In this country not only are jails, hospitals, and pauper houses overcrowded, but the benevolent charities of the day, intended for the homes of all classes of afflicted humanity, suffer from the same fault. Even those most important departments of government, the Courts of the States and United States are unable, at times, to continue their judicial duties in consequence of the miserable apartments allotted to them, many of which are so small and badly ventilated, that the health of the judges and lawyers has been, in some instances, seriously impaired. The rooms in which these tribunals are held, in consequence of their limited accommoda-

tion, are over-crowded, and neither the spectators nor the parties interested in the trial can long continue in any one of them. As a result of this, judges of high character, both private and public, have been obliged to resign their office; and we all know how great a misfortune it is to lose a good and honest judge in these days. Their presence, like that of "angels' visits, being few and far between." Indeed, on several occasions, the pernicious effects were so palpable, that we might with reason have looked forward to a recurrence of the zymotic influences which, in 1750, when the Spring Assizes were opened at the Old Bailey, created so fatal a disorder, that the apprehensions of the public were justly excited to an alarming degree.

The immense number of deaths, which occurred in the Hôtel Dieu of Paris, caused a commission of the Academy of Sciences to be appointed in 1773. The hospital was filled to overflowing, none demanding admission was refused; and the mortality which arose from this indiscriminate admittance, and dense crowding, has never been exceeded until the hospitals of Scutari, during the late war, exhibited their unparalleled superiority in this awful respect. The commission proposed changes which were a great improvement, but in 1785-86, a new commission was appointed. They enlarged and

approved of the proceedings of the previous commission; and, from their report, we find that those recovering and those slightly sick, were crammed into the same apartments with the most contagious diseases; that patients with small-pox had been placed two in a bed; that the building contained 1,200 beds, but that, at times 2,000, and even 5,000 were taken into the hospital; and that, when pestilence stalked abroad, as many as 7,000 had been jammed into the institution. Independent of the inhuman brutality of such actions, it seems as if the officials possessed no *mens sana in corpore sano*, or else were fiends in human form. It is hardly necessary to bring forward any more evidence to show the evils emanating from the prolific source already mentioned. We will, however, add a few words more.

Sir John Pringle in his "Observations on the Diseases of the Army," at page 22, states the following fact: "The village of Feckenheim, a league from the camp, was employed for an hospital, into which, during our stay at Hanau (besides the wounded from the field of battle) about 1,500 sick were sent from the line; and of that number the greatest part ill of dysentery. By these men, the air became so much vitiated, that not only the rest of the patients, but the apothecaries, nurses, and others employed in the hospital, with most of the

inhabitants of the place, were infected. To this was added a still more alarming distemper, the jail—or hospital—fever, the common effects of foul air from crowds and animal corruption. These two combined, occasioned a great mortality in the village, among the natives as well as the soldiers; while such of ours as were seized with the dysentery, and not removed from the camp, though wanting many conveniences others had in hospitals, yet kept free from this fever, and commonly recovered of the flux.” In his sixth chapter, which gives “A General Account of the Diseases of the Campaign in Great Britain, 1745 and 1746,” at page 39, he writes: “At Newcastle, an hospital was made for the sick that landed there; and the houses taken for that purpose, receiving also those who fell ill in the army commanded by Marshal Wade, were so much crowded, that the air was soon corrupted. The fever became so contagious, that most of the nurses and medical attendants were seized with it; and three of the apothecaries of that place, with four of their apprentices and two journeymen employed in the hospital, died of it.” The improper manner in which the men were huddled together, and packed into buildings and apartments far too small to accommodate them, is most certainly the cause of the effects above described. Enough has been said to prove how dangerous excessive crowd-

ing is to life; and, if the healthy suffer so much from it, and are so soon diseased and destroyed by it, how can we expect the sick to recover while laboring under the identical disadvantages? The poor generally live in miserable buildings, and they are commonly collected in some particular spot, and as poverty breeds carelessness, they become indifferent to cleanliness, without which health cannot be maintained.

From the facts above presented we can readily understand how detrimental the effects of a crowded neighborhood would prove to be to the health of a hospital. But independent of the structure being in a locality swarming with human life, or even in its proximity, there is another evil which must be carefully guarded against. The erection of hospitals within the limits of a city, though not, strictly speaking, a fitting place for them, is a necessity which cannot be neglected or prevented, as, at all times, accidents are occurring which require immediate attention, and the larger the city the more frequent the cases, and the greater the demand for these institutions. If, therefore, they must be built in a city, let us select the most proper site for them according to the best of hygienic knowledge.

It is of vast importance that no manufacturing establishment should be next to them, or in their proximity. The large collection of people they

bring into a limited area, the refuse, fumes, dirt, noise, etc., etc., which they create, are incompatible with the well-being of such asylums as those intended to receive the sick. The nitrous fumes of a mint would soon counterbalance the physician's best care; and the pestilential and abominable effluvia arising from slaughter-houses, bone-boiling factories, distilleries, and large stables, would speedily add to the mortality lists of the most thoroughly regulated hospital. No sick person, much less many living in one house, can thrive when exposed to the poisonous influence of the noxious and fatal gases of sewers, drains, and cess-pools, or to the impurities produced by collections of garbage or vegetable material. Disastrous and ruinous would be the result of such evils; malignant fevers, marasmus, diarrhœa, dysentery, and many other complaints would rise up with unerring certainty; diseases would become endemic: the introduction of a single case of small-pox, yellow fever, cholera, typhus or typhoid fever, would prove an agent of awful suffering, and "spread like fire to the grass of the prairie." Let us take an example of the direful effects of such nuisances. In vol. vii., 1851, article first, of "the British and Foreign Medico-Chirurgical Review," there are many very interesting statistics in the article on "Cholera in its Relations to Sanitary Measures." We will cite the following:

“Immediately opposite Christ Church Workhouse, Spitalfields, belonging to the Whitechapel Union, and only separated from it by a narrow lane a few feet wide, there was, in 1848, a manufactory of artificial manure, in which bullock’s blood and night-soil were desiccated by dry heat on a kiln, or sometimes by mere exposure of the compost to the action of the sun and air, causing a most powerful stench. The workhouse contained about 400 children and a few adult paupers. Whenever the works were actively carried on, particularly when the wind blew in the direction of the house, there were produced numerous cases of fever, of an intractable and typhoid form; a typhoid tendency to measles, small-pox, and other infantile diseases, and for some time a most unmanageable and fatal form of aphthæ of the mouth, ending in gangrene. From this cause alone 12 deaths took place among the infants in one quarter. In the month of December, 1848, when cholera had already occurred in the Whitechapel Union, 60 of the children in the Workhouse were suddenly seized with violent diarrhœa in the early morning. The proprietor was compelled to close his establishment, and the children returned to their ordinary health. Five months afterwards, the works were recommenced; in a day or two subsequently, the wind blowing from the manufactory, a most powerful stench per-

vaded the workhouse. In the night following 45 of the boys, whose dormitories directly faced the manufactory, were again suddenly seized with severe diarrhœa; whilst the girls, whose dormitories were in a more distant part and faced in another direction, escaped. The manufactory having been again suppressed, there has been no return of diarrhœa up to the present time."

Here we perceive that, as soon as the nuisance was abated, the evil effects took their flight, and *vice versa*. If, in twenty-four hours, forty-five boys were taken with a severe diarrhœa, we may safely calculate that in a day or two more, all in the house would have been affected similarly; and, if the manufactory had not then been closed, it is probable that many would have died. With such facts before us we cannot but wonder when we behold buildings intended for a large number of persons, erected alongside of, and in proximity to, these agents of disease.

The foul air of the cesspool, sewer, and drain, is a prolific cause of disease; and one needs but to read of the experiments made in regard to it to be convinced of its dangerous nature. Toxicologists have exposed the inferior animals to their poisonous gases with a view to test their pernicious effects. In one instance a poor little mouse was for five days made to dwell in the reeking atmosphere of a

cesspool; although he was fed freely, he succumbed on the last diurnal revolution, and "*requiescat in pace.*" An unfortunate member of the canine species who experienced the hard fate to be placed under similar circumstances was seized with diarrhoea, vomiting, loss of all desire for nourishment, chills, etc. A young member of the same species became a corpse in 130 seconds, from the effects of somewhat less than two per cent. of sulphuretted hydrogen being in the air which he was forced to breathe. We are all familiar with the numerous accounts of the death of persons who have descended into sinks, sewers, wells, and cisterns; and, in Mr. W. H. Russell's book, "The War," already alluded to, at pages 402-3, vol. ii., we find a very curious account of an accident produced by this very means, when the English were blowing up the great docks at Sebastopol. The letter I am about to quote from was written by a friend of Mr. Russell's from Sebastopol, while he was temporarily absent from the Crimea; it has been inserted in the book by its writer's permission: "Of accidents occurring from the explosions I have heard of none, except the one on Saturday last, referred to above, and which was of a peculiar nature. The explosion by the dock-gate had taken place, and some Sappers were busy at the bottom of a shaft forty or fifty feet off, when a noxious gas, generated by the explosion,

entered the gallery, filtering through the intervening earth. The effect was gradual—one after another the men became giddy, and some of them insensible. With infinite alacrity and courage non-commissioned officers and soldiers descended the shaft, braving a danger which seemed the greater because its extent and nature were unknown, to succour their comrades, and as they got down they in turn were overpowered by the offensive gas. Major Nicholson and Lieutenant Graham also went down, and suffered in consequence. The former was insensible, when, supported by his men, he reached the top of the shaft, and it was some time before he recovered. To sum up the accident, one man perished, and seven or eight were seriously affected, but have since recovered. A man went down into the mine, after the accident, holding in his mouth the extremity of a tube, down which air was pumped to him, and he walked about with perfect impunity and collected the men's caps and things they had left behind. The man who died was a soldier of the 48th regiment. Two surgeons were on the spot, and tried every means to recover him, but in vain."

In this instance the generation of the poisonous gas was caused by a somewhat unusual occurrence: the concussion of the atmosphere produced by the explosion of the vast quantities of gunpowder, used

in blowing up the docks of the devoted city. The gas escaped from its confinement, and, to repeat the expressive language of the writer, "entered the gallery, filtering through the intervening earth." Many, if not all, would have lost their lives had it not been for the self-devotion of their comrades and commanders.

The proofs of the injurious results produced by such measures as have already been mentioned, are too numerous and well authenticated to require repetition. The public authorities constantly cause them to be abated, and not unfrequently enforce the removal of those, which are capable of being moved, to grounds where their noxious effluvia, refuse, and disgusting business will be far out of the way; hoping thus, by isolation, to deprive them of their baneful proclivities and power to generate disease.

Independent of the reasons just given, another advantage to be derived from seclusion, is that quiet so essential to the well-doing and comfort of the feeble inmate. The ceaseless din of a populous neighborhood but too often exerts the most pernicious influence, by disturbing the sleep and keeping the imagination in a constant state of excitement, thereby counterbalancing the medical aid administered.

By isolating as much as possible the hospital, a

proper regard is exhibited for the feelings of the community at large, whose fears of contagion and infection at all times are easily aroused, but especially in seasons of plague and pestilence assume such terrible proportions as to cause them to destroy these inestimable blessings, regardless of the fate of any but themselves. The outrage recently committed by the people of Staten Island in burning the Quarantine Hospitals, is one that even the Sepoys of India (whose name is not inappropriately applied to them) would hardly have been guilty of. It is an act of wickedness, of recklessness, of insubordination against all laws, both human and divine, of so great and grave a nature, as to afford no parallel; and the only plausible excuse for which must be that of temporary insanity, the most lenient punishment, imprisonment for life.*

* It would be a nice question as to which was the worse crime, the burning of the Quarantine Hospitals at Staten Island, which act not only deprived the sick of their shelter and comfort, and forced them to lie out in the night air, exposed to the chill of an autumnal atmosphere, with no other covering than the starry firmament, but exhibited an utter want of sympathy for their suffering condition, and a total disregard for the safety of their lives, (yet Americans committed this outrage, and against their brothers and fellow-countrymen who had never harmed them in thought, word, or deed,) or the brutal neglect shown by the Russian commanders to their sick and wounded soldiers, when, after the fall of Sebastopol, they left not only the hospital, but its wretched inmates to their horrid fate. At pages 181-2, vol. ii., of Mr. Russell's book, "The War," he gives a description of the interior

In the erection of an hospital we must endeavor to avoid those localities which seem to be tainted with miasmatic influences. This, however, is not

of the hospital, and of its wretched occupants that almost makes one sick to think of, and one which the writer, long accustomed to scenes of awful suffering, could not behold without the liveliest emotions. I cannot refrain from quoting the account, which proves, in language too clear, the fearful depravity of man's unregenerated nature. "Of all the pictures of the horrors of war which have ever been presented to the world, the hospital of Sebastopol presents the most horrible, heart-rending, and revolting. It cannot be described, and the imagination of a Fuseli could not conceive any thing at all like unto it. How the poor human body can be mutilated and yet hold its soul within it when every limb is shattered, and every vein and artery is pouring out the life-stream, one might study here at every step, and at the same time wonder how little will kill! The building used as an hospital is one of the noble piles inside the dockyard wall, and is situated in the centre of the row at right angles to the line of the Redan. The whole row was peculiarly exposed to the action of shot and shell bounding over the Redan, and to the missiles directed at the Barrack Battery, and it bears in sides, roof, windows, and doors, frequent and distinctive proofs of the severity of the cannonade. Entering one of these doors, I beheld such a sight as few men, thank God, have ever witnessed! In a long, low room, supported by square pillars, arched at the top, and dimly lighted through shattered and unglazed window-frames, lay the wounded Russians, who had been abandoned to our mercies by their general. The wounded, did I say? No, but the dead—the rotten and festering corpses of the soldiers, who were left to die in their extreme agony, untended, uncared for, packed as close as they could be stowed, some on the floor, others on wretched trestles and bedsteads, or pallets of straw, sopped and saturated with blood, which oozed and trickled through upon the floor, mingling with the droppings of corruption. With the roar of exploding fortresses in their ears, with shells and shot pouring through the roof and sides of the rooms in

always to be avoided. The temporary hospitals of armies at times are obliged to undergo this misfortune, and, again, in certain sections of country the

which they lay, with the crackling and hissing of fire around them, these poor fellows, who had served their loving friend and master, the Czar, but too well, were consigned to their terrible fate. Many might have been saved by ordinary care. Many lay, yet alive, with maggots crawling about in their wounds. Many, nearly mad by the scene around them, or seeking escape from it in their extremest agony, had rolled away under the beds, and glared out on the heart-stricken spectator—oh! with such looks! Many with legs and arms broken and twisted, the jagged splinters sticking through the raw flesh, implored aid, water, food, or pity; or, deprived of speech by the approach of death, or by dreadful injuries in the head or trunk, pointed to the lethal spot. Many seemed bent alone on making their peace with Heaven. The attitudes of some were so hideously fantastic as to appal and root one to the ground by a sort of dreadful fascination. Could that bloody mass of clothing and white bones ever have been a human being, or that burnt black mass of flesh have ever had a human soul? It was fearful to think what the answer must be. The bodies of numbers of men were swollen and bloated to an incredible degree, and the features distended to a gigantic size, with eyes protruding from the sockets; and the blackened tongue lolling out of the mouth, compressed tightly by the teeth, which had set upon it in the death-rattle, made one shudder and reel round. In the midst of one of these 'chambers of horrors'—for there were many of them—were found some dead and some living English soldiers, and among them poor Captain Vaughan, of the 90th, who has since died of his wounds. I confess it was impossible for me to stand the sight, which horrified our most experienced surgeons; the deadly, clammy stench, the smell of gangrened wounds, of corrupted blood, of rotting flesh, were intolerable and odious beyond endurance. But what must have the wounded felt, who were obliged to endure all this, and who passed away without a hand to give them a cup of water, or a voice

necessities of the case require the institution to be built within the malarious district. If a city or town has been reared on a site where miasma contends with man for supremacy, we must be content to select the most approved spot to be procured within the unhealthy district for the structure.

Much might be written on this subject, but I will leave it after stating a few well-recorded cases of the sad and most pernicious results accruing from these pestiferous sources. In Mr. Russell's book "The War," vol. i., at pp. 143, 144, we read the following words, which he has written on the condition of that portion of the British army encamped at Devno, or, as the Turks call it "The Valley of Death," and at Aladyn: "Whoever gazed on these rich meadows, stretching for long miles away, and

to say one kindly word to them? Most of these men were wounded on Saturday—many, perhaps, on the Friday before—indeed, it is impossible to say how long they might have been there. In the hurry of their retreat, the Muscovites seem to have carried in dead men to get them out of the way, and to have put them upon pallets in horrid mockery. So that their retreat was secured, the enemy cared but little for their wounded. On Monday only did they receive those whom we sent out to them during a brief armistice for the purpose, which was, I believe, sought by ourselves, as our over-crowded hospitals could not contain, and our over-worked surgeons could not attend to any more." The great Scottish poet, Robert Burns, was certainly justified when, in the seventh verse of his Dirge, "Man was made to mourn," he wrote:

"Man's inhumanity to man
Makes countless thousands mourn!"

bordered by heights on which the dense forests struggled all but in vain to pierce the masses of wild vine, clematis, dwarf acacia, and many colored brushwoods—on the verdant hill-sides, and on the dancing waters of lake and stream below, lighted up by the golden rays of a Bulgarian summer's sun—might well think that no English glade or hill-top could well be healthier or better suited for the residence of man. But these meadows nurture the fever, the ague, dysentery, and pestilence in their bosom; the lake and the stream exhale death; and at night fat, unctious vapors rise up, fold after fold, from the valleys, and creep up in the dark and steal into the tent of the sleeper and wrap him in their deadly embrace. So completely exhausted, on last Thursday, was the Brigade of Guards, these 3,000 of the flower of England, that they had to make two marches in order to get over the distance from Aladyn to Varna, which is not more than (not so much, many people say, as) ten miles. But that is not all. Their packs were carried for them. Just think of this, good people of England, who are sitting anxiously in your homes, day after day, expecting every morning to gladden your eyes with the sight of the announcement, in large type, of 'Fall of Sebastopol:' your Guards, your *corps d'élite*, the pride of your hearts, the delight of your eyes, these Anakim, whose stature, strength,

and massive bulk you exhibit to kingly visitors as no inapt symbols of your nation, have been so reduced by sickness, disease, and a depressing climate, that it was judged inexpedient to allow them to carry their own packs, or to permit them to march more than five miles a day, even though these packs were carried for them! Think of this, and then judge whether these men are fit in their present state to go to Sebastopol, or to attempt any great operation of war. The Highland brigade is in better condition; but even the three noble regiments which compose it are far from being in good health or in the spirits in which they set out for Varna. The Duke's division has lost 160 men; of these nearly 100 belonged to the Guards. In the Brigade of Guards there were before the march to Varna upwards of 600 men sick. The Light Division has lost 110 or 112 men. Sir De Lacy Evans has lost 100 men, or thereabouts. The little cavalry force has been sadly reduced by death, and the Third (Sir R. England's) Division, which has been encamped to the north-west of Varna, close outside the town, has lost upwards of 100 men also, the 50th Regiment, who were much worked, being particularly cut up. The ambulance corps has been completely crippled by the death of the drivers and men belonging to it, and the medical officers have been called upon to make a special report on the

mortality among them." Mr. Russell adds: "I believe the fact to be, there were rather an unhappy selection of men, and that many of them were old soldiers, rather addicted to free living and spirits; and in Bulgaria drunkenness is death."

We have here most truly a picture of disaster and wretchedness too great to read of without almost weeping. The carelessness, ignorance, and want of common sense exhibited in thus placing the very flower of the British army in such a hot-bed of disease and death, is too gross a libel on the human understanding, for even that bloody, human-sacrificing murderer the King of Dahomey to be guilty of. The bitter experience gained will most probably prevent a recurrence of such a terrible misfortune.

By reference to a very unique book named "Stavorinus's Voyages," a highly interesting account of the horrible climate of Batavia may be obtained. The work comprises three volumes, and was translated from the Dutch by Samuel Hull Wilcocke, who has added notes, and material to the body of the book, 1798. It contains a truthful account of Rear-Admiral John Splinter Stavorinus, Esq.'s voyages to the East-Indies. At page 394, book iv., vol. iii., he remarks: "What, however, is the most disagreeable circumstance attending a residence at *Batavia*, is the insalubrity of the climate, and the great de-

gree of mortality which prevails there, especially among transient visitors, or people that first arrive; this is apparent to such a degree, that the English, who circumnavigated the globe, (1768–1770,) and had experienced almost every vicissitude of climate, declared that *Batavia* was not only the most unhealthy place they had seen, but that this circumstance was a sufficient defence or preservative against any hostile attempts, as the troops of no nation would be able to withstand, nor would any people in their senses, without absolute necessity, venture to encounter, this pestilential atmosphere.” The sixth chapter of book iv., vol. iii., is so replete with startling facts concerning the dreadful nature of the climate, that, even at the risk of being tedious, I cannot forbear quoting from various portions of it. He commences the chapter as follows:

“Sound reason, and the united experience of ages, have incontrovertibly demonstrated, that low, swampy land, such as has been abandoned, or thrown up, by the waves of the sea, and countries overgrown with trees and underwood, are all extremely unhealthy, and frequently fatal, to the greatest proportion of their inhabitants. And the insalubrity of the air has been found to augment, or decrease, in proportion as the habitations of mankind have been placed nearer to, or farther from, morasses, or stagnant waters, or woods, which, by their proximity,

prevent the noxious exhalations from being dissipated by a free circulation of air.

“ All these causes of disease and death combine, in a greater or less degree, their baneful influence, to render *Batavia* one of the most unwholesome spots upon the face of the globe.

“ They make their appearance throughout all the neighboring foreland ; and from the point of *Ontong Fava*, on one side, to two leagues beyond *Ansjol*, on the other, where the firm sandy beach commences, a dismal succession of stinking mudbanks, filthy bogs, and stagnant pools, announce to more senses than one, the poisonous nature of this dreadful climate.

“ Along this shore, the sea throws up all manner of filth, slime, mollusca, dead fish, mud, and weeds, which, putrefying with the utmost rapidity, by the extreme degree of heat, load and infect the air with their offensive miasmata. This aggregation of mud and putrefaction, receives a more peculiar increase during the bad or west monsoon, than at another time ; and the constant prolongation of the pierheads of the river, contributes also a share towards this accretion. The mudbanks, thus recently thrown up, are soon covered with such bushes and shrubs as are proper to morasses, whereby fresh supplies of mud and filth are caught and retained, and the accretion and noxious exhalations are augmented

and strengthened, while the north-west winds convey the whole of the putrid effluvia to the city."

In addition to these evils, he informs us that there are tracts of land near the city which are inundated in the rainy season, and that swamps filled with large trees are embraced in these lands, which, to use his own words, "augment the corruption of the atmosphere by their foulest vapors." Not only do canals take their course through the city, but they have very little water in them in the dry season, and sometimes overflow in the rainy season. Though they are occasionally cleaned, this salutary undertaking is rendered useless in consequence of the mud taken out of them being left in the streets until it becomes dry enough to remove in boats. The poor people having to endure this awful stench until it is fit, in the opinion of the authorities, to be taken away. Added to this we find that the material of which this mud is principally composed is human ordure, which is always thrown into the canals, for the best of reasons, the town possessing scarcely a necessary. If we add to this the fact that dead hogs, horses, etc., are suffered to lie beached upon the banks, and that many of the houses first built are suffered to go to decay in consequence of the decrease in trade, and which are never cleansed because no one lives in them, we can readily see what a pestilential atmosphere must be

created by man's negligence alone, which, added to the dreadful nature of the climate, almost makes it appear as if no human being could live a day in such a place. In regard to these houses the Admiral observes: "The buildings remaining thus uninhabited, and uncleaned, speedily contract, in this low, warm, and marshy place, an infectious and foul air, and contaminate even the houses that are adjoining; and that this both causes and augments the unhealthiness of the place, is evident from the circumstance, that the mortality is greater in the lower town, or on the north side, than in the other parts of the city that are more fully inhabited."

In a note at page 403, we are told that a gentleman, while visiting the gardens which the Dutch are so fond of nurturing, gave utterance to the emphatic language, "that the air was pestilential, and the water poisonous," and the note goes on to say: "Yet the country is everywhere so verdant, gay, and fertile; it is interspersed with such magnificent houses, gardens, avenues, canals, and drawbridges; and is so formed in every respect to please the eye, could health be preserved in it, that a youth coming just from sea, and enraptured with the beauty of every object he saw around him, but mindful of the danger there to life, could not help exclaiming, 'What an excellent habitation it would be for immortals!'"

At page 397 we find in a note the following language: "It is not strange that the inhabitants of such a country should be familiar with disease and death. Preventive medicines are taken almost as regularly as food, and everybody expects the return of sickness, as we do the seasons of the year." In the words of a late intelligent and polished traveller: "the European settlers at *Batavia* commonly appear wan, weak, and languid; as if laboring with the 'disease of death.'" The same note, which occupies the greater part of pages 398-9 is full of instructive facts. It states that examples of strangers living any length of time in *Batavia* without taking the fever are very rare, that the disease is at first, 'commonly a tertian ague, which, after two or three paroxysms, becomes a double tertian, and then a continued remittent, that frequently carries off the patient in a short time.' Peruvian bark is little in use, and when given is administered in too small doses to be of benefit. The only medicine in use is a "solution of camphor in spirit of wine." The medical men of the country (who are very ignorant) are, we are told, "satisfied, as to theory, with considering the nature of the fever as being to rot and corrupt the human frame; and, as to practice, that camphor being the most powerful antiseptic known, it is proper to trust to it, by a rule more simple even than Molière's, and to exhibit it in every

variety and period of the complaint." The Intermittent Fever is not invariably attended with a deadly termination; some have it for many years off and on, and proceed with their business and pleasures between the attacks. So accustomed are they to it that they hardly regard it even as a disease.

The following singular anecdote is given in illustration of this curious statement. "A gentleman in that predicament, conversing upon the nature of the climate, observed, that, in fact, it was fatal to vast numbers of Europeans who come to settle there; that he lost many of his friends every year; but, for his part, he enjoyed excellent health. Soon after, he called for a napkin to wipe his forehead, adding, that this was his fever-day; he had a shocking fit that morning, and still continued to perspire profusely. Upon being reminded of his late assertion of being always healthy, he replied, he was so, with exception of those fits, which did not prevent him from being generally very well; that he was conscious they would destroy him by degrees, were he to remain in the country long, but that he hoped his affairs would enable him to leave it before that event was likely to take place." The note concludes in language terse and clear, giving a vivid description of the deadly nature of the climate and the familiarity it begets with scenes of suffering

and sorrow. "It is supposed that of the Europeans of all classes, who come to settle in *Batavia*, not always half the number survive the year. The place resembles, in that respect, a field of battle, or a town besieged. The frequency of deaths renders familiar the mention of them, and little signs are shown of emotion and surprise, on hearing that the companion of yesterday is to-day no more. When an acquaintance is said to be dead, the common reply is, 'Well, he owed me nothing,' or 'I must get my money of his executors.'" So strongly does the old Admiral feel about the fatal nature of the place, that after enumerating all the evils just mentioned, he closes his sentence in the following strain: "whereby the destructive unhealthiness of the climate is carried to the very pinnacle of corruption."

In a statistical table, which shows the number of deaths which occurred in the hospitals* at *Batavia*,

* Before taking leave of the indefatigable Stavorinus, I will refer for a moment to an account which he gives of an hospital situated at *Surat*, and which institution was established for the support of animals. In vol. ii., book ii., chapter 14, we find a most interesting description of this sort of omnium-gatherum. The Banians, and Gentoos, particularly the former, contribute to its support. We will quote a few facts: "The rate by which they pay is, one *ana*, or one-sixteenth of a rupee, out of every hundred rupees, clear gain. In the same manner, the pecuniary mulcts, to which they are condemned by their Brahmins, for the speaking of untruths, or other venial offences, are appropriated to the support of this hospital. The chief direction over it is confided

from 1714 to 1776, we find that the mortality was greater during the latter year than any other—it reached the awful number of 2,877. But some of

to the chief of the Banians, who receives the revenues of the institution, and pays the daily expenses of it out of them. Although by the decay of the trade of *Surat*, this institution has suffered in common with it, these revenues yet amount yearly to full six thousand rupees, or nine thousand Dutch gilders." The hospital is named the *Panjeropor*, which word is equivalent to a synonym for society. It was originally erected out of the city limits, but has been surrounded by a wall which is built around the suburbs. The ward, in which it is placed, is named *Sagurampoura*. It is close by the gate called *Madjara*. At page 490, we find the following words: "From this (speaking of the revenue) forty servants are kept, who take care of and feed the animals committed to their charge. Every year, five hundred thousand trusses of hay, and every day, sixty *eer* of corn, and fifty *eer* of milk, are required for keeping the sick cattle; besides which, the cows and oxen are sent to pasture out of the city, unless they are lamed, or unable by extreme age, to crop their food themselves." This most singular asylum consists of a plain of twenty-five acres, having a high wall around it. There are sheds made for the animals to sleep under. A fine gate marks the entrance, to the left of which is a stone house, the floor of which is some fourteen feet above the earth. There the supporters of the institution place all the grain containing worms or weevils. When it has been left there a sufficient time, it is passed through holes in the floor into the cellar of the edifice, where it remains until both corn and animals turn to dust, after which it is spread on the grounds. Although Stavorinus tells us he did not see any of them, still he asserts that "lice and other vermin are likewise kept and fed in this place," and that "the birds that are sick or maimed, are kept in cages; but the greater part of the quadrupeds were unconfined." He says that he did not see any carnivorous animals, "but there were a number of apes and monkeys of all sorts, who were either sick, lame, or maimed." He also saw a very large "land tortoise," which he

the other years were nearly as sickly. In 1775 nearly as many died, namely, 2,788. In 1767 as many as 2,404 died. In 1770 no less than 2,434 succumbed; and, in 1771, the mortality was 2,480. The old voyager gives statistics of the mortality during the year 1769. I cite his own words: "In the year 1769 alone, there died, both in the hospitals and out of them:

2,434	of the Company's servants,
164	burghers,
681	native Christians,
833	Mahomedans,
1,331	slaves, and
1,003	Chinese.
<hr/>	
6,446	together.
<hr/>	

He adds: "And of the latter the number may at least be augmented by one-third, as so much may

supposed to weigh "at least one hundred and fifty pounds." The Banians told him that it had been in the hospital for "seventy years." When he saw it, it had lost its sight and was fed on milk alone. In a note on page 491, a most extraordinary statement is made which is quoted from Ovington. It is this: "To maintain the vermin with that choice diet to which they are used, and to feed them with their proper fare, a poor man is hired now and then to lie all night upon the cot or bed where the vermin are put; and he is fastened upon it, lest their stinging force him to take his flight before morning; and so they nourish themselves by sucking his blood, and feeding on his carcass." Although this kindness is the offspring of a superstitious, religious belief, still it only proves how far inferior the most civilized nations are to them in the care of animals.

be taken for the deaths that are concealed, in order to avoid payment of the tax imposed upon funerals; and the numbers mentioned above, are only such as have been declared."

At page 413, he remarks: "The Company, therefore, lose, in general, every year, one-sixth part of their servants." And in a note on the same page, he gives statistics with which I shall close my account of Batavia:

"If out of	5,490 at <i>Batavia</i> ,	there died	2,434
	and out of 14,470 at the out-factories		1,637
	<hr/>		<hr/>
then out of	19,960, the whole number	4,071 died in one year,	

which is full one-fifth, instead of one-sixth."

It seems hardly necessary to remark, after this thrilling picture, that even the best regulated hospital would present the most alarming mortality if situated in such a climate.

Our desire has been merely to exhibit the injurious effects produced by such agencies. But Batavia is not the only spot in the world where the

Their idea respecting metempsychosis doubtless prompts them to do much more for animals, even the most hurtful as well as the most harmless, than would be the case if such was not believed by them. Some search for the abode of ants in order to feed them, others sweep a path for themselves when walking so as not to injure any insect which might be otherwise trodden upon; and, again, some go so far as to wear a kind of veil over the mouth, in order that their breath may not cause the loss of life to any creature whatever.

climate exerts such pernicious influences ; there are many other localities which would prove equally disastrous to human life, in spite of the most skilful men and the most approved scientific hygienic measures and treatment. Not only are certain countries affected with individual diseases, but even sections of a particular county may each have their peculiar disorders. And, if we look into the matter farther, we find that even, in a single county, there may be several localities, each one of which exhibits a marked endemic tendency to some distinct affection. We often find that, in a large city, there are well known spots where a great amount of sickness prevails at almost all times ; and that in particular wards or streets some certain forms of disease become as it were almost localized. Let us take an example. At page 857, vol. i. of "Dr. Thomas Watson's Lectures on the Principles and Practice of Physic," delivered by their most accomplished and distinguished writer at "King's College," London, we find these words used by the author, when speaking of Cynanche Trachealis, or croup, as it is commonly called: "It frequently occurs sporadically ; but there are places in which the disease appears to be endemic. Dr. Cheyne found it so on the coast of the Frith of Forth. Indeed, the first distinct account of it that we possess was drawn up by Dr. Home, of Edinburgh, in 1765,

from much personal observation of its ravages in Leith and Musselburgh." A little further down on the same page, he observes: "It is more common at Leith than it is in Edinburgh; and in Edinburgh it is most frequent in the lowest parts of the town. This I learned from Dr. Alison, who, having long been physician to a dispensary there, had had ample means of observing the disease." He adds: "Canal-street and the Cowgate, both low spots, as some of you may know, have long been famous, or rather infamous, for cases of croup."

If a disease become endemic, there is always some good reason for it, which patient research and carefully conducted investigations may do much towards revealing. There are, however, some particular maladies which attack the inhabitants of certain localities, the origin of which it would be extremely difficult to account for. Let us take, for example, that most curious affection named goitre or bronchocele, as it is often called, which is a disease characterized by hypertrophy of the thyroid gland. This malady is to be met with most generally at the foot of high mountains, in almost all parts of the world, but it has its more favorite haunts. We find it in the mountainous districts of China, Sumatra, Bengal, in the western part of the State of New York, and many other places. Persons afflicted with it are often called Cretins. Sir George

Stanhope found them in Chinese Tartary. It exists, to a great extent, in the valleys of Switzerland, and in the Republic of Valais. In the last-named country Cretins are very numerous. The disease is endemic in the above-named, and in many other places. Its cause is not yet considered by many, as fairly elucidated. Again, we find certain forms of elephantiasis endemic in Arabia, and in certain parts of Spain, Italy, Iceland, and Norway. The peculiar species of elephantiasis so called by modern writers, and which is characterized by the almost elephantine proportions which the legs, arms, scrotum, etc., attain, is also endemic in many places, particularly in the warm latitudes. The disease is sporadic in this country, and is, in fact, indigenous at times in many. To describe the various forms of the complaint would be out of place, but the disorder has its peculiar characteristics in each country. Certain sections are known to be singularly affected with an endemic tendency to tetanus; the most trifling wound producing that result. We might enumerate other diseases which are endemic, or describe the annual visitation of yellow-fever to particular localities; the prevailing diseases of different climates and places; and the nature of maladies which, during some years, evince a predisposition to decrease in severity and extent, or advance in the inverse ratio; but we think that we have said enough

to show that, if an hospital be erected in a district where there is an endemic disease, the inmates must be liable to contract the affection. If an asylum of such a nature were built in a section of country where the miasmatic poison, which gives rise to the numerous forms of fever, holds full sway, we could not but expect that the patients, and also the attendants and officers, would be likely to be attacked by it.

There are many other causes to be considered in choosing the site of an hospital which we will briefly look at, and then pass on to other considerations. Having glanced at the evils which arise from crowded localities, from the proximity of manufactories, nuisances, such as bone-boiling establishments, distilleries, stables, etc.; from the poisonous effluvia and gases of drains, sewers, cess-pools, and the disastrous effects of an unhealthy climate, we will, for a few moments, advert to several more of the subjects to be considered before selecting the ground on which to build an institution of this character.

The erection of an hospital near to, or surrounded by, fresh water, no matter whether ponds, creeks, rivers, or lakes, is always to be deplored, and, if possible, to be avoided. In the account, which we have just given, of the unhealthiness of Batavia, we find that that city is intersected by canals, which

sometimes overflow and again become almost dry ; when the horrible filth, which has been accruing for a longer or a shorter period, as the case may be, is exposed to the action of the sun, and its presence is not only visible, but can be detected at a great distance, through the olfactory nerves. The rapid decomposition which ensues, particularly in a climate where the atmosphere is in so highly rarefied a condition, is terribly injurious in its effects to human life. To this and to the fact that the town has large tracts of land covered with trees and dense foliage, which are often inundated, and also swamps and morasses of great extent, in its immediate neighborhood, Stavorinus attributes much of the fatal nature of the climate ; and he is right. The miasmatic poisons which are found in such regions, are incompatible with health. Dense foliage prevents the free circulation of air, and, together with the exhalations which arise from such sources, (particularly at night,) and the vapors which have origin in swamps, morasses, and stagnant pools, renders it impossible for human beings to live in such regions, for any length of time, without danger to life and great injury to the body. We are all aware of the fatal effect produced by living, in the summer season, on the plantations (especially those which cultivate rice) of our Southern States. The white man cannot do so without dying, in the vast

majority of cases, a victim to the terrible fever, and his own folly.

I do not purpose to enter into a disquisition on the theory of miasmatic agencies. The subject may be said to be almost inexhaustible; and, though I should discuss for a year, I could only arrive at the point from which I started; namely, that such conditions do give birth to those pernicious miasmatic emanations which have and do destroy so many of our fellow-men. They, whose imaginations are vivid and fertile, and whose eyesight is as swift and piercing as the electric fluid, may take their microscopes and revel, if they so desire, in the delightful contemplation of the capricious gambols of a billion of the cruel little spores, or zoöphytes, which they assert have chosen the miasm of yellow-fever and other diseases for their happy home.

Malaria (Ital. *mala aria*, bad air), or marsh miasm (Gr. *μιασμα*, to infect), is a peculiar poison which has not as yet been detected by the most minute and thorough chemical examinations. Nor can the senses recognize it. In the higher latitudes of the temperate zone, it does not attain any degree of importance. But, in places and under circumstances favorable to its presence, it assumes a most malignant character. Meadows that are wet, and either salt or fresh water marshes, are eminent-

ly liable to malaria, especially so when a burning sun scorches them with its fiery beams. Lands overgrown with dense masses of brushwood, grass, etc., are called jungles in India; and the fevers of a malarious nature, to which they give origin, are named jungle fevers. The cutting down of a wood in order to clear the land, the ploughing of a meadow, or the cleaning of a pond, will produce the disease; and a most fructive source of the malaria is to be found in districts which are subject to inundation, and, at other times, are parched up by the mid-rays of the king of light. Low lands, or the borders of lakes and rivers, in warm regions, are the hot-beds of malaria. At times, instead of finding the miasm in low, swampy lands, we detect it on the hills in their vicinity. The malaria, it has been supposed, can be conveyed for a distance of three or four miles by the wind, and this may account for its presence upon the summits of hills within those limits. Diseases of an intermittent and remitting form, are not the only ones malaria gives rise to. In hot regions, and in peculiar localities favorable to its emanation, it produces the saddest constitutional effects. The hair becomes thin and falls away, the complexion takes on a sallow hue; a tumidity of the abdomen is plainly perceptible; the teeth decay, and the legs and arms shrink as it were away, undergoing a sort of

atrophy. The inhabitants of such a climate generally die before reaching two score years, and the constant arrival of healthy persons alone prevents the place from becoming depopulated.

We cannot but feel that it must be evident, even to the most unenlightened, that a hospital built in a malarious district could not calculate on a very superior rate or table of recoveries, no matter how wise the hygiene, experienced the attending physicians and surgeons, or rigid and scientific the administration. The foul mud which is to be found in the beds of rivers, running through or by great cities, is, at times, exposed to the sun's rays when the tide is out, or when, from some reason, such as a drought, the body of water is very much diminished in quantity. The mephitic exhalations which accrue from this source, are, independent of their offensiveness, very dangerous to life; and, in times of pestilence, augment the mortality to a frightful degree. At Hamburgh, when the cholera was ravaging the devoted city, the number of deaths which occurred in the streets which faced the place where the canals, which take their course through the city, empty into the Elbe, was equal to three per cent.—a much greater mortality than at any other spot. London, as we all know, was in a ferment but a year or two ago from the dreadful condition of the river Thames; and, were it not

out of place, we might cite numerous instances of the ill effects of such conditions, but we will pass on to a different question.

It is a strange fact, but one nevertheless true, that buildings intended for the sick, should have been erected over grave-yards. Putting the want of respect paid to the dead and the living out of the question, we will merely give a statement of the effects of such proceedings.

Inside of the walls of Ciudad Rodrigo, twenty thousand persons were buried only a very little while previous to its being occupied as hospital head-quarters. The result of this was that, as soon as it was filled with sick troops, dysentery, tetanus, and that awful disease, hospital gangrene, ravaged the wards. Thus, says Sir James Macgregor. Soil containing a large amount of such material, is unfitted for purposes of a similar character. That the situation of an institution of this nature should be one easy of access to those who seek its shelter, and where a bounteous supply of the purest water can be readily obtained, and which admits of a safe and sure transit for furnishing all of the necessary provisions, materials, etc., which are requisite, is a fact too evident to dwell upon. Leaving it with this notice, we will proceed to consider the nature of the ground that should be selected for the foundation of an hospital.

The soil on which institutions of this kind are built, should be of a gravelly and sandy nature, possessing a sub-strata of marl, somewhat elevated; the elevation offering additional security against impure air, and also furnishing facilities for natural as well as artificial drainage; while the sandy soil forms a dry foundation, which is universally acknowledged to be of such great importance. It is well known in the economy of builders that an argillaceous soil retains a superabundant moisture; while a rocky surface admits of but poor drainage, and is liable to collections or pools of water. It must be borne in mind that the climate is, at all times, affected by the nature and qualities of the soil.

Before leaving the subject of the site of hospitals, I will quote a few lines from the "Essay on Building," of Francis Bacon, Lord Chancellor of England. "He that builds a fair house upon an ill seat, committeth himself to prison: neither do I reckon it an ill seat only where the air is unwholesome, but likewise where the air is unequal; as you shall see many fine seats sat upon a knap of ground, environed with higher hills round about it, whereby the heat of the sun is pent in, and the wind gathereth as in troughs; so as you shall have, and that suddenly, a great diversity of heat and cold as if you dwelt in several places. Neither is it ill air

only that maketh an ill seat; but ill ways, ill markets; and, if you will consult with Momus, ill neighbors."

Having considered the site we will briefly discuss the GROUNDS. The grounds pertaining to an hospital should be enclosed by a high wall, and cover an area of at least seven times the size of the edifice; be well drained, laid out in walks, and ornamented in such a manner as would serve not only to please the eye, but afford a pleasant resort for convalescents, and those whose complaints do not confine them to the house in fine weather. A few trees and flowers, if of a proper kind, and suitably arranged, would not be detrimental to the hygiene of the establishment. It is worthy of notice that, it having been found unavoidable to erect buildings intended for a large number of persons in certain districts where miasma prevailed, the planting of an acre of sunflowers (*helianthus*) in the immediate vicinity, caused a very great absorption of the noxious vapors. The grounds should be kept in perfect order by any of the patients who are able to attend to it. Their cheerful compliance with such a request could be relied on, and their movements directed by some officer of the institution. The occupation it would afford to those who have nothing to do, and who, as a general rule, spend their time during the last few days in the hospital previous to

being discharged cured, in lolling through the wards and grounds, would prove a choice boon and be appreciated accordingly.

Regarding the MATERIAL of which hospitals should be constructed, there exists a diversity of opinion. It would seem that brick is the best adapted to maintain a dry interior; many of the finest hospitals, and most of the great libraries abroad and at home, being built of brick. The latter class of institutions have chosen this material as the surest means of preserving the books contained in them; and our own Astor Library has followed their example. In the warm regions of the tropics an hospital, if built of wood, would very soon fall into a state of decay; and this would prove extremely injurious to its hygiene. Brick is a much more economical material than stone; but that should be no reason for selecting it, for the sick should never be grudged any thing that tends to their welfare. It is, however, not only less expensive, but equally good for the purpose, and just as durable if constructed originally with care, and kept in order. A proper coating of paint every two years would prevent the elements from injuring it in the least degree, and preserve satisfactorily its cleanliness of appearance. Cement instead of mortar should be used. The wood-work of the structure should be of seasoned oak, or some equally

consistent material. To use soft pine or other porous or green wood would be wrong, as it would undoubtedly absorb moisture and any greasy substance with which it came in contact, the spiracles of this pine being more numerous. The closets or drawers for clothes, and the banisters, cases for instruments, or for the anatomical museum, the tables, chairs, and shelves for the library, should be composed of black walnut, rosewood, or mahogany. The roof should be of slate, and the gutters of zinc, for the reason that they are as durable, if not more so, than other articles, and combine with this advantage that of being of a non-combustive nature.

As regards the ARCHITECTURAL PROPORTIONS of such an asylum, there are very many points to be looked at. Sir John Pringle, in his "Observations on the Diseases of the Army," at page 104, has remarked that "not only barns, stables, granaries, and other out-houses, but, above all, churches make the best hospitals, from the beginning of June till October;" and, on the bottom of the same page, he observes: "The want of pure and wholesome air cannot be compensated by diet or medicine." From these observations we perceive how great a danger he considered impure air to be, and that the more commodious the edifice intended for the sick, the larger the number of recoveries. But, in erecting a permanent structure, allowance must be made for

all the seasons of the year; and, though a church might be suitable in summer, it would be too cold in winter. We must therefore endeavor to devise a proper medium. The great Lord Chancellor of England, Francis Bacon, in his "Essay on Building," which I have before alluded to, commences it in the following words: "Houses are built to live in, and not to look on; therefore let use be preferred before uniformity, except where both may be had. Leave the goodly fabrics of houses for beauty only, to the enchanted palaces of the poets, who build them with small cost." The wisdom of his remark cannot be contradicted, and it would be well if his advice had always been followed. The idea of allowing a poetical fancy to cause us to erect an hospital after such a manner as will deprive it of the good for which it was intended, is a farce which the spirit of the age would cry out against with a voice too unmistakable for the ear of the meanest of modern jobbing contractors to hear without his cheek paling. 'Tis true and yet strange that men, possessing ordinary common sense, should have constructed these charities with a view to see how many they could cram and jam into them. Why should this be? Is it because the inmates of hospitals are generally poor, that they are to be crowded together like sheep in a pen, or chickens in a coop? Are they not our *brethren* and fellow-

creatures, with souls as good, and, in many instances, purer than our own? Oh! man, remember that God has "chosen the poor of this world" for His own, and learn to be humble and loving. The supposition many ignorant persons entertain, that the larger the hospital the better conducted it is, the more successful the treatment, the greater the number of recoveries, and the more magnificent the charity,—is fallacious, stupid, and absolutely ridiculous. The ambition of others, whose mean spirit only seeks to find out how cheaply they can conduct such an undertaking, and how skilfully they can contrive to make a building contain the most, no matter whether it be injurious or not to the intended recipients, is absolutely sickening to behold.

Large hospitals are very often but synonyms for a large percentage of deaths. If it is injurious to the hygiene of a hospital to be erected in a populous locality, it ought surely to be very unhealthy for a thousand sick persons to be crowded into one building. If the healthy contract disease by dwelling in too large numbers together, what hope is there for the recovery of the sick under similar circumstances? The principle is the same as that of the miserable tenement-house, where two or three families occupy the same apartment, and very many live in a single house. Again, in this, as in almost all countries, the people who repair to hospitals are

mostly very poor, and seldom go into them until driven to do so from a severe stress of circumstances. When they cross the threshold they are found not only suffering from disease, but in a half-starved condition, poor, broken-down wrecks of humanity, stranded on the cold, bleak shores of that most forbidding of all coasts, charity. Those whose morals have been good enter the institution with their spirits gone, and physical status worn out with hard work. The other class of patients, who have spent their lives in the haunts of crime and in the indulgence of their vilest passions, are received into the wards with the constitution of their earthly tabernacle in so rotten and lost a condition that the speedy flight, in many instances, of their souls from their terrestrial prison, would almost seem to indicate that they could not, although so blackened themselves, remain a moment longer within the putrid and gangrened temple of what was once the most perfect of God's wonderful works.

But the viler the creature, the more consideration we should exhibit towards him. Revenge is not ours: "Vengeance is mine; I will repay, saith the Lord."* No, our duty is to care for these poor victims of sin as faithfully as we would for those who have been virtuous. God "maketh His sun to

* Epistle to the Romans, chap. xii., ver. 19.

rise on the evil and on the good."* It is not our province to judge others. The Scripture tells us, "Judge not, that ye be not judged. For with what judgment ye judge, ye shall be judged: and with what measure ye mete, it shall be measured to you again." †

Many persons are often heard to exclaim, when speaking of the poor: "Oh! they are good for nothing, they are ignorant, dirty, vicious, lazy, useless spendthrifts, nuisances to all and every one." They think that a hospital, no matter how miserable and wretched, is good enough for them, and even too good in the vast majority of instances.

Ah! this is a sad, a very sad mistake. Many a poor patient, in these charities, is truly the child of want, who has never, since coming into this world, known what it is to have a friend; who cannot conceive of goodness and religion, because always thrown in the society of those who seem to delight in leading them from their Saviour. Others there are whose very soul is honesty and virtue; children of toil from their cradles to their graves, whom the world has used harshly, on whom the fickle goddess of fortune has never smiled, and who, when, like the faithful cart-horse, they have given their youth, strength, best days, and life, to hard

* St. Matt., chap. v., ver. 45.

† St. Matt., chap. vii., ver. 1, 2.

masters, are turned out to die, uncared for and unknown. But those of us who have it in our power to care for them in the day of their desolation, must not strive to see how little, but how much we can do for their welfare. Physicians, all over the world, are proverbially disinterested men. Let us retain this good name, and forever frown down all attempts to shove into the dark, dirty corners of the earth, those who are more in need of our sympathy and assistance than any other class.

Mr. Thomson, in his *Statistics of Civil Hospitals*, quotes from the *Mém. de l'Acad. de Science de Petersbourg*, tom. ix., facts which go to prove that, in the general asylums of this description in Russia, those which held more than 30 occupants experienced a mortality of one in nine, but where there were fewer, one in ten.

Florence Nightingale, in her "Notes on Hospitals,"* is not only averse to erecting hospitals in

* I have been unable to obtain a copy of Miss Nightingale's "Notes on Hospitals," although I have sent twice to England, and have ransacked the bookstores and bookstands of the city for it. In the April No., 1860, of the "British and Foreign Medico-Chirurgical Review," in the article "On the Site and Construction of Hospitals," I have found several quotations from her book, which I shall give verbatim. At page 224, when speaking of the erection of these charities in towns, Miss Nightingale observes: "Nearly all that has been said under the last head, *mutatis mutandis*, may be repeated here. If the recovery of sick is to be the object of hospitals, they will

towns, but disapproves of placing too many in one building. Iberti seemed to consider the idea of attending to the visiting of poor patients at their homes, as well as in the hospital, as a regular part of the hospital practice, eminently proper. Of course this method would prevent the hospitals from becoming too full. Many other most distinguished physicians and surgeons entertain similar opinions.

A building intended for the reception of sick persons ought never to be more than two stories high; that altitude would preserve suitable architectural proportions. Higher than two stories, in case of fire, endangers the lives of many; and, in all instances, outside stairways and balconies should be provided, after the manner of those at Bellevue Hospital, in this city. The roof, as previously stated, should be of slate and peaked, by that means allowing the rain and snow to pass off; and

not be built in towns. If medical schools are the object, surely it is more instructive for students to watch the recovery from, rather than the lingering in, sickness. Twice the number of cases would be brought under their notice in a hospital in which the sick recovered in half the time necessary in another. According to all analogy, the duration of cases, the chances against complete recovery, the rate of mortality, must be greater in town than in country hospitals. Land in towns is too expensive for hospitals to be so built as to secure the conditions for light and ventilation, and of spreading the inmates over a large surface-area, conditions now known to be essential to recovery, instead of filling them up three or four stories high, a condition now known to be opposed to recovery."

the attic ought to be considerably elevated, by which arrangement the heat of the sun in hot weather would be prevented from exercising a bad effect upon the patients.

The wards ought to run across the building, from side to side, with the windows extending from within a few inches of the floor to the ceiling, instead of falling short some two or three feet of the height of the latter; this arrangement will be found preferable, as bad air always collects in the upper part of rooms, if not properly ventilated. The ceilings must never be less than seventeen or eighteen feet high. The width of a ward should be about thirty feet, and its length not less than one hundred. The above figures I give for a ward containing twenty patients.

In the April No., 1860, of the "British and Foreign Medico-Chirurgical Review; or, Quarterly Journal of Practical Medicine and Surgery," in an article "On the Site and Construction of Hospitals," at page 229, we find these words: "As to the size of wards, it would appear that is the best which accommodates from twenty to thirty-two sick, and with a height of from fifteen to seventeen feet. Wards of this moderate size are less subject to an hospital atmosphere than wards of double the size. The cubic space for each patient in this climate has been fixed by European sanitary science at not less

than fifteen hundred feet, and a good proportion for a ward to hold twenty patients (ten on each side of the ward), would be eighty feet long, twenty-five feet wide, and sixteen feet high. Such dimensions would give to each of the twenty beds one thousand six hundred cubic feet, and it would allow thirteen feet between foot and foot of opposite beds, with an average width of sixteen feet to each two beds."

The proportions just cited are evidently carefully arranged, and would be well calculated for the climate of England. Every part of the world where a hospital is situated, or is about to be erected, has and will have, as a matter of course, its own peculiar climate, and due allowance must be made for the climatology of each particular section or region of country.

The four main instruments with which we pursue our researches in this most interesting phenomenon, namely, the thermometer, barometer, pluviometer or rain-gauge, and, lastly, the hygrometer, must be faithfully used, and the results of the investigations taken into our calculations. In order to elucidate the laws of caloric, we must apply to chemistry. Meteorological observations are at the present time conducted with great assiduity; and, through their instrumentalities, we may some day hope to attain a degree of perfection in our knowl-

edge of the different parts of our globe that seems really wonderful to contemplate. The records kept and continually increasing, by competent men, of the weather, of the numerous phenomena of the atmosphere, of the snow, hail, rain, dew, winds, clouds, lightning, thunder, and meteors, are of vast extent and importance. At almost every accessible spot in the world the wind-dial, electrometer, anemometer, and the evaporation-gauge, are in full operation, and the exertions of men of science, from the geologist and physical geographer to the botanist and naturalist, are producing a fund of knowledge of the richest and choicest description. The empire of Russia followed the advice of the great Baron Humboldt, and instituted investigations of this character on a most superb scale. The Isothermal Lines of Humboldt, and the labors of Lieutenant Maury, regarding the currents of wind and water, are imperishable, and lead us to anticipate the day when the Aurora Borealis, Zodiacal Light, and all the other various phenomena of nature, will unfold to our enchanted vision their hidden treasures.

The advantage of having small hospitals is evident when we look at the subject carefully. First of all, the mortality is less; secondly, the police, nursing, general administration and fiscal affairs of the institution, are far more efficient, easily secured, and properly adjusted, than could be the case in a

large asylum; thirdly, should an epidemic break out, there are fewer to feed it, it is under more control, and less life is sacrificed; fourthly, should the building be destroyed by fire, it would go far to prevent any of the patients from being burned to death, would cost comparatively little money to originally build or rebuild it, and a small instead of a large number of inmates would be inconvenienced by its destruction; fifthly, were small hospitals scattered over a large city, accidents could meet with more prompt attention, the agony of being jolted with a mangled limb, on a springless cart, over the rough cobble-stones would, to a great extent, be done away with, and the patient have an extra chance of recovery; and, if a pestilence stalked through the city, its numerous victims would be cared for with far more expedition, and not crowded by hundreds together, a circumstance that almost seals the fate of the majority.

No hospital, in my humble opinion, should contain over one hundred beds, unless in instances of great emergency, such as wounded persons being brought in from a fight or riot, or from a sudden accumulation of cases of coup de soleil, or in consequence of there being no other institution in the neighborhood, or those near being already full from some such cause as a devastating pestilence. Of the hundred beds, not more than eighty should be

occupied at a time; the remaining twenty should be kept in an especial ward, which ought to be in constant readiness for any sudden demand upon the accommodating resources of the institution. The same extra ward would prove a very useful and beneficial augmentation to the hygiene of the hospital, as patients, from time to time, could be moved from other wards into it, while the one, previously occupied by them, underwent a thorough cleansing, fumigation, and ventilation. In the main or central building, the office of the superintendent should be situated, and should be on the first floor. The apothecary shop, closets for beds and bedding, storerooms, faculty room, butlers' pantries, and dining-room for officials, should be on the same floor. The chapel should be on the second floor of the main body of the structure, together with a roomy hall for the patients to promenade and meet together for recreation and amusement during the day, whenever able to do so, or when the weather out of doors forbids walking in the pleasure-grounds of the institution; and also a dining-room for those whose health and strength will admit of their attending table. The third story of the same portion of the edifice should contain the amphitheatre where the surgical operations must be performed, and the instruments, surgical appliances, bandages, lint, etc., on hand, ready at a moment's notice. The

amphitheatre should be provided with a skylight to admit light, and, if wanted, air.

Some hospitals have special rooms which they keep in constant order, ready for those who choose to pay for their accommodation. It might be well to have one or two spare chambers of this description for the reception of particular cases. A lady or gentleman, if suddenly overtaken with sickness in the street, blown up by a steamboat explosion, shot by an accident, etc., would probably require an apartment of this nature for their use, and, if insisted upon, it could by this means be granted to them. I cannot but think, however, that it is improper to have any such arrangement. The rich are always striving to keep clear of the poor, and, by seldom or never associating with them, do not understand their trials or character. If our millionaires would only cultivate more acquaintance with their poor brethren and sisters, the file-like gratings against each other would soon mellow down to a mutual interchange of friendly feelings and bonds of love. The keeping of such accommodations, besides, would require more help, or else take from the other inmates the attendance they require. Hospitals could be built, if wanted, for that especial purpose. To erect a hospital of this nature for those persons who are willing to pay for, and desire seclusion, would be an easy matter. It

might not only be made to support itself, but, by adopting such a plan, and making it known to the public, many strangers and foreigners, when overcome by disease, could avail themselves of it, and thus escape the clutches of the numerous charlatans who thrive upon their ignorance. But in a regular hospital it seems to me that no distinction should be made, and that all who seek its aid should be received joyfully, and treated with equal care.

The museum and library should be on the first story; the kitchen under the central portion of the building, and its ventilation entirely distinct from that of other parts of the house. A small building should be erected in a corner of the grounds for the laundry and wash-house, and the resident physician should live in a house of proper but moderate dimensions in an opposite one. The staircase of a hospital, containing one hundred beds, should be of iron or stone; there need be but one for an institution of this size. The halls in all hospitals should be large and airy, with windows. The stairway should be supplied with windows and a skylight at the top.

All parts of an hospital should be well supplied with light, and the building's foundation laid in such a position as will, at all times possible, admit of its being flooded with sunlight. That darkness is essential to a speedy recovery is a theory as de-

structive as the one which induced physicians in olden times to place the miserable maniac in an underground cell, cover him with chains like a felon, and beat him when in his involuntary ravings he made too much noise: which caused them to allow the patient whose lips were parched with thirst, and whose frame was burning up with a consuming fever, to have no other drink than hot herb tea to satiate his thirst, or cool his dried-up tongue; and which compelled the wretched victim of phthisis to dwell in darkness and solitude, to be bled, blistered, and purged, with a persistence in such treatment impossible to conceive of, and which approached to madness more than medicine.

To gain an idea of the effect of darkness, we have only to read the thrilling accounts of the Arctic winter, and the fearful gloom of the Arctic winter's night, and its effect on life. At page 267 of the "First Grinnell Expedition in Search of Sir John Franklin," we find these words, written by the heroic and accomplished author of the book, Dr. Elisha Kent Kane: "Worse than this, our complete solitude, combined with permanent darkness, began to affect our *morale*. Men became moping, testy, and imaginative. In the morning, dreams of the night—we could not help using the term—were narrated. Some had visited the naked shores of Cape Warrender, and returned laden with water-melons.

Others had found Sir John Franklin in a beautiful cove, lined by quintas and orange-trees. Even Brooks, our hard-fisted, unimaginative boatswain, told me, in confidence, of having heard three strange groans out upon the ice. He 'thought it was a bear, but could see nothing!' In a word, the health of our little company was broken in upon. It required strenuous and constant effort at washing, diet, and exercise, to keep the scurvy at bay." On the preceding page, Dr. Kane writes: "The complexions of my comrades, and my own, too, as I found soon afterward, were toned down to a peculiar waxy paleness. Our eyes were more recessed, and strangely clear. Complaints of shortness of breath became general. Our appetite was almost ludicrously changed: ham-fat frozen, and saur-kraut swimming in olive-oil, were favorites; yet we were unconscious of any tendency towards the gross diet of the Polar region." At page 156, vol. i. of the "Second Grinnell Expedition," Dr. Kane observes: "The influence of this long, intense darkness was most depressing. Even our dogs, although the greater part of them were natives of the Arctic circle, were unable to withstand it. Most of them died from an anomalous form of disease, to which, I am satisfied, the absence of light contributed as much as the extreme cold." In an extract from his diary of January 20, 1854, he says: "I am so af-

flicted with the insomnium of this eternal night, that I rise at any time between midnight and noon ;” and in his journal of the 25th of the same month, he gives a harrowing picture of the condition of the faithful dogs, those horses of the Arctic regions, in which he states that “their disease is as clearly mental as in the case of any human being.” He tells us that they eat and slept well. “But all the indications beyond this go to prove that the original epilepsy, which was the first manifestation of brain disease among them, has been followed by a true lunacy. They bark frenziedly at nothing, and walk in straight and curved lines with anxious and unwearying perseverance.” This vivid description needs no comment.

The water should be soft and abundant in quantity ; hot and cold pipes should be carried to parts where their presence is necessary, and waste sinks of zinc should be beneath each water-cock. Force-pumps should be used to supply the demand to the various quarters of the building ; and in each hall, room, office, and ward, there should be several fire-buckets filled with a constant supply of pure, fresh water. These could be used to extinguish a sudden breaking out of fire. The water-closets and baths should be in small rooms leading from the wards ; and the bath-room should be between the water-closet and the wards. It might be arranged after

this fashion: a door, fitting tightly, should lead from each ward into the bath-rooms, each of which ought never to have less than two bath-tubs, then a door should lead to the water-closet from the other side of the bath-room. The drain-pipes, and all pipes in a hospital, should be of iron, and the former never pass through the house, but outside of it, held firm and clear of even the building by iron braces and supports.

No sinks but those for waste water should be allowed in the building; and the slops, etc., of the kitchen, must be carried out of the house to a certain distance, and then thrown into a sewer made for the purpose, and which is so arranged that it can be ventilated, cleaned, and examined at pleasure. If a hospital is situated on the banks of a salt-water river on a slight elevation, it will prove very healthy to have the sewer empty into the river, as all the material will be removed by the tide. Care should be taken to clean out the bed of the river immediately in its neighborhood every once in a while, to prevent the accumulation which might otherwise take place. Those parts of a river from which the tide recedes, leaving the mud bare and exposed to the action of the sun, should never be selected for a site for such purposes.

The nurses should have their rooms in a separate portion of the building, especially set apart for

that purpose. The idea of sleeping in a mere pigeon-hole of a room at the extremity of a ward should be done away with. Underground wards should by all means be prohibited, as medical testimony goes to prove the injurious effects produced upon the constitution of even healthy persons residing in basements and cellars. Can we wonder that the mortality of our city is so great, when we have statistics to prove that some twenty thousand of its inhabitants dwell in these subterranean abodes? In whatever light this fact may be regarded, it certainly appears to be one of the most prolific causes of disease.

The absence of windows, skylights, and consequently of light, in tenement houses, has been justly deemed one of their most obnoxious features, and a very fruitful source of their unhealthiness. In our hospitals, care must be taken to avoid such a misfortune. A ward intended for 20 beds should be, as I have before stated, not less than 100 feet long. That length will allow eleven windows to each side. If the distance between them be 5 feet, and the width of each window itself 4 feet, it makes up a total of 94 feet; and on each side of the extreme windows there will be a space of 3 spare feet. These proportions will prove very well adapted to the number of inmates. It has been estimated that wards containing 30 inmates, must have nearly

2,000 cubic feet of air space to every patient. Distinguished men of science have asserted that 4,000 cubic feet of air every hour, should pass through a ward for 30 patients, for each individual. The efforts undergone to establish these facts are almost infinitesimal in their nature; and these are now nearly as well established as the fact that the temperature of the blood of a healthy person is 98 degrees Fahrenheit, that the pulse beats 78, and the respirations equal 17 to the minute.

The windows should be double. The advantage of this provision is that the outside ones can be removed in summer and replaced in winter. Not only ought the windows reach to the ceiling, but they should come very close to the floor; as occasionally it may prove necessary to ventilate the lower part of the ward, the carbonic acid gas always accumulating near the floor.

The walls of a hospital must be covered with a hard, non-absorbing material, such as plaster of Paris, and be white-washed at stated periods, experience proving that lime is eminently detergent. The late Dr. Samuel Latham Mitchill, of this city, has written ably in vindication of this fact, in his papers on Alkalies. The walls should never be of a dark or dusky hue; for, besides the gloomy aspect and feelings it presents and occasions, it conceals a large amount of uncleanness. All iron pipes should

be white-washed, except those which may be used for heating purposes. Separate wards must be provided for the accommodation of patients laboring under venereal diseases; and also for those suffering from any contagious affection of the eye, such as purulent conjunctivitis, etc. Inmates afflicted with scabies and other contagious or cutaneous disorders, should be assigned special apartments. Typhus and puerperal fever, hospital gangrene, and the malignant forms of erysipelas, must, as a matter of course, be isolated, as far as possible; the virulence of small-pox, yellow-fever, cholera, and the plague, demanding individually distinct institutions.* An especial apartment will have to be kept

* There are at present so many asylums for those whose organs of vision are affected, that it would be better, as a general rule, that they should avail themselves of the means created for their especial benefit. It would be impossible for a small hospital containing only one hundred beds, to receive many cases of this description. Their wards would be too few in number, and would not be adapted to the treatment of their disorders. The bright light would prove very injurious to many of the patients laboring under such diseases. With regard to pregnant females, each hospital should be able to receive a few; but lying-in institutions should be built for that particular purpose. Nevertheless, all hospitals should be prepared to receive at a moment's notice, cases of emergency of all kinds. The specialty system is not as yet so thoroughly established in this country, as to admit of an institution being built for one particular kind, or certain forms of disease only. They have to make allowances for almost all forms of sickness.

for the reception of bad cases of delirium tremens.* The cellar of the hospital should be floored with cement, and kept dry, white-washed, and well ventilated. No garbage, or waste material of any description, should be left there. All hospitals should be supplied with lightning rods of the most approved scientific make, and lighted by gas with glass shades. We might, with propriety, dwell some time longer on this subject, but hoping that we have said sufficient to prove its importance, we will pass on to the contemplation of another topic; and, leaving the onus probandi to others, a thing which many have and are still doing, pro

*. If a hospital intended for 500 or more persons must be erected the pavilion system will be found undoubtedly the best. Many different wards could then be prepared for special diseases. The plan I have selected could be carried out on an enlarged scale by erecting several hospitals for the same number of beds I have mentioned, namely, 100. All that would be required would be to enlarge the grounds. But although this might be done, I cannot but think that small and totally separate hospitals are preferable. Why should all the wretched sick of a large city, military camp, or naval force be crowded together, to breathe each other's impurities, and in order that they may be treated, fed, housed, cared for, and buried with the utmost *cheapness* and dispatch? In stating that no hospital should ever be higher than two stories, I only alluded to the wards for the sick. In allowing three for the main building, I did so because the third story would have no sick persons in it, and, with the exception of the sleeping rooms of the few young medical men attached to the institution, no other person would sleep there. In case of fire, they, being in good health, could easily escape.

bono publico, we will plunge at once in medias res, with a bona-fida spirit of earnestness, and proceed to discuss the VENTILATION of Hospitals.

Proper ventilation is an all-important consideration in hospital hygiene. Without it the most skilful treatment will often prove ineffectual. I do not say always; for, thanks to a kind Providence, the *vis medicatrix naturæ* often triumphs, when, to those who are well informed, all that could be done to retard and prevent recovery, has been tried and proved unavailing. The subject of ventilation has occasioned much discussion, and the greatest pains have been taken to lay down certain rules in connection with its management. To some it is a hydra-headed monster, to others a myth; and many would rather face the thunderbolts of Jove than seek to explore its intricate intersections and labyrinthian windings. A great physician has said: "A sound mind in a sound body constitutes the principal happiness and perfection of man. The means, therefore, by which such great and essential benefits are to be secured, have ever been the objects of his most anxious solicitude and serious inquiry. Bountiful nature has placed both, to a certain degree, within our reach; but she has not offered them gratuitously to our acceptance; and if we would enjoy, we must consent to purchase them at the price which she has invariably set upon

these and every other blessing, which she pours profusely around us. That price, (young gentlemen, I address myself particularly to you,) *that price is persevering industry and well-directed labor.*"* Such seems to have been the opinion of many, if not all, who have striven to render the various vexed questions regarding hygienic laws clear and susceptible of practicable application. Among these numerous subjects, none has received more care than that of ventilation. The writings on this subject alone, would form quite a unique little library; and the rule for success laid down by the learned physician just cited, namely, "persevering industry and well-directed labor," has been faithfully adhered to. But, notwithstanding this, the various theories of ventilation are not as yet satisfactorily established. They have not coalesced nor culminated in a symmetrical, perfect, and harmonious arrangement. Each inventor has his hobby, each savan his peculiar view; and, although many agree on one plan, others, of equal experience and capacity, cling with

* The above lines are quoted from "A Discourse on the Importance of Medical Education, delivered on the 4th of November, 1811, at the opening of the present session of the Medical School of the College of Physicians and Surgeons, by Samuel Bard, M.D., President of College of Physicians and Surgeons." The discourse is to be found in vol. ii., April No., 1812, of "The American Medical and Philosophical Register," conducted by the late Drs. David Hosack and John Wakefield Francis.

the greatest tenacity to their particular beaux ideal.

Thus, Miss Nightingale, whose experience in hospitals, has certainly not been limited, seems to prefer ventilating these asylums by means of windows, fire-places, and doors, instead of placing confidence in any other plan for its accomplishment; while others insist on the most expensive apparatus in order to obtain the desired object. The "New York State Inebriate Asylum," situated at Binghamton, is probably the finest and most beautiful building of its kind in the United States of America. No edifice, intended for the home of afflicted humanity, will compare with it, either in its usefulness, symmetrical architectural proportions, solid, magnificent, and palatial appearance, or uniqueness and originality. Designed by, and erected under the philanthropic supervision of its renowned and beloved projector, Dr. J. Edward Turner, it will ever stand a noble monument to his generous heart and intellect. He is essentially a man sui generis, integer vitæ, scelerisque purus. It may not be out of place to mention some few of its more prominent features. It is built of pure granite. The length of the structure is about 375 feet. It is three stories high, and built after the castellated Gothic manner. Its very massive towers, turrets, and buttresses, present the most impressive sight,

and produce a feeling of wonderment, not unmixed with awe, in the breast of even the most indifferent spectator. When finished, it will contain 400 patients. Its chapel is 40 feet high, 37 in breadth, and 82 in depth. The library is 30 feet broad and 60 feet in length. The conservatory is 900 feet long, being the most extensive one in this country. In the midst of the care and labor occasioned by its erection, the vital question of ventilation was not forgotten. The building contains some 350 rooms, each of which is furnished with one hot-air, and two escape flues. There are five miles of iron pipes in the asylum, conveying the steam with which the institution is heated. A powerful fan-wheel, worked by an engine, propels the cold air from a spacious tower some 20 feet or more in height, and which is only open at the top, through the air aqueducts, and over the large surface of iron pipes already alluded to, and which are covered with felt, to prevent the cold current from cooling them. In summer, the fire being out, the hot-air register becomes a cold one, and the building is thoroughly ventilated by a refreshing circulation of cool air. There are five large boilers in the engine-room. The vacuum in the tower created by the fan-wheel is constantly supplied from the opening in the top of the tower.

The expense of such an arrangement is very

great, but is more than compensated by the good ventilation obtained. But in a small hospital, it would not be necessary to have so costly or so complicated a system to produce a similar result.

A good circulation of air could be obtained by means of the windows before spoken of, and by having small openings in the walls, close to the ceiling, and near the floor, and communicating with the external atmosphere; so arranged as to admit or exclude air at pleasure. Air-pipes, constructed on the principle of "wind-sails" in vessels, and passing from the ceilings of the different wards, through, and above the roofs, would facilitate the egress of foul air. It has been proposed to have small, open, tin gutters attached to the upper and lower part of the sides of the walls of each room, with a constant supply of fresh water running in them; the argument being that the water absorbs and carries off a great amount of impure air.* Authorities have asserted it to be very beneficial to cause a zinc plate to be pierced with holes, or to procure some delicate wire-gauze, and have it placed in the win-

* Samuel Ward Francis, M.D., of New York, the brother of the author, is the originator of an elaborate plan of this description, intended for hospitals. Although not satisfactorily completed, as viewed through the medium of his synthetical mind, it is to be hoped that he will shortly let the public judge for themselves, and not allow too exact a fastidiousness to deprive the community any longer of an opportunity to test its merits.

dow, high up, at a distance from the fire or flues. It will of course preclude the necessity of having a glass pane; and should contain to every square inch, at least two hundred and ninety little openings. The air cannot enter the apartments too fast, in consequence of the fineness of the perforations; and it is a pleasant method of ventilation.

In an elaborate article in the October No., 1860, of the "North American Review," on Quarantine and Hygiene, mention is made of the above invention, and the writer (page 486), wisely adds: "This is not all the benefit; for by the law of the diffusion of gases, there is a constant interchange between the pure external air and the impure air of the room, which latter is thus carried off."

The same writer goes on to inform us that persons are prone to pass over the fact that our habitations can be warmed much more expeditiously by allowing the escape of the air already in the room. It is a well known fact, that a draft is necessary to establish ventilation, and that heat procures this result most readily. This point has not been neglected by the author, who proceeds to state as follows: "As a rule, the pure air should be admitted near the floor, and the hot, impure air let out near the ceiling. Advantage has been taken of the power of heat to create a draft upward, to construct a very effective mode of ventilation, in connection with

the hot-air pipes of the furnace. Independent ventilating flues are built in the walls, in proximity to the hot-air tubes, so that they can be connected together by means of a lateral branch tube and register. Thus, the current of hot-air can be diverted from the hot-air tubes to the ventilating tubes, when the ordinary furnace register is closed, as at night. The ventilating flues terminate in the open air, like a chimney, or through the shaft of the chimney, if one wishes. Now, if the hot-air register of a room be closed at ten o'clock at night, and the heat, instead of being thrown back into the furnace, is allowed to pass through the branch tube into the ventilating flue, and so continue until six in the next morning, the interior of the ventilating flue will become so thoroughly heated, that it will continue to rarefy the air in it sufficiently to create an upward draft for many hours the next day. At six in the morning, then, the furnace-register is reopened to warm the house, and the communication with the ventilating flue closed. Now if this ventilating flue be connected with the room by an aperture near the ceiling, the course of the air will be as follows. Entering the cellar air-box cold and pure, it passes round the furnace, and ascends to the room warm and pure. After serving to heat the room, circulating through it and becoming old, respired air, it is sucked up into the ventilating

flue and passes off to make room for more. Thus, a constant current of pure, warm air may be kept up." He adds, "The noted apparatus of Van Hecke, in use at the Necker Hospital in Paris, is very similar to this, with the exception of a ventilating fan, driven by steam, in the cellar. The ventilating apparatus propels from sixty to one hundred and twenty cubic inches of pure air, hourly, for each bed." In the Appendix to a pamphlet, containing the "Address delivered on the occasion of the Inauguration of the New South Building of the New York Hospital, on the 18th of April, 1855, by Joseph M. Smith, M.D., of this city, there is a "Description of the New South Building of the New York Hospital, by John Watson, M.D., of this city, Surgeon to the Hospital." The erection and plan of the edifice to its most minute hygienic details, originated in the well regulated, clear, and often tried brain of Dr. Watson. I will quote from his description of the "ventilating arrangements." At pages 39, 40, he remarks: "Each ward is lighted on every side by spacious windows reaching to the floor; but the ventilating arrangements are independent of these, and are, perhaps, even more efficient in the winter time, while the windows and doors are shut, than when the steam is off and all the windows are open to the air, in the summer season. Such, at least, is the fact in the main hos-

pital edifice, within which this improved system of heating and ventilation has been in operation now for several years, and in which patients suffer less from erysipelas and other depressing maladies from impure air, in winter than in summer. The fresh air, when the windows and doors are closed, is introduced from without through two upright shafts, each at the distance of twenty-six feet from the house—one opposite its eastern, and the other opposite its western entrance. Passing downwards through each of these shafts, by an opening of 4 feet 4 inches square, the air enters a horizontal continuation of this opening, and is conducted through this, onwards several feet beneath the surface and parallel with the main hall, towards the central portion of the building; and reaching, in this course, the smaller conduits in communication with the air chambers, it enters these through openings in the floor; and here, exposed to coils of steam-pipe, it receives the requisite temperature in the chambers, and is allowed to escape upwards by separate flues for each point of destination, into the wards or other apartments of the building. Each of the principal wards receives through the wall, near the floor, fresh air by four flues, which are constantly open, and regulated by registers wholly beyond the control of the patients. The foul air of the wards and other apartments, is carried off by upward currents

through the chimneys to the open air, by special foul-air flues, which communicate with open belfreys in the attic. Of these belfreys or cupolas there are four, two to each wing; and through these an upward current is constantly secured by coils of heated steam-pipe placed within them, and which can be kept in operation winter and summer, independent of the apparatus for warming the house. In each of the large wards there are two wide chimneys—one at either end, and from thirteen to fifteen special foul-air flues, ranging lengthwise along the sides of the ward, with registers at top and bottom alternately. There is also a smoke-flue for each of the air chambers, (of which there are eight on the sub-basement floor,) so that stoves or other heating apparatus may be used if the present plan should be abandoned.”

The edifice can contain 250 persons for treatment. The walls are built of gneiss, from Westchester County, New York, and cost about one hundred and fifty thousand dollars. The water-closets, the Dr. remarks, “are ventilated by a downward current. There are no traps connected with the seats, but the air, descending with the soil and foul water, is drawn off at a point just above the bottom of the perpendicular soil shafts, and conducted horizontally underground, through iron pipes, till it reaches the smoke-shaft coming from

the furnace room, into which it enters, and, together with the smoke and heated gases of the furnace, is carried off through the high chimney of the main building. The liquid soil, separated from the current of descending air, after reaching the ground, passes through a trap which prevents regurgitation, and is thence conducted underground to the public sewer in Duane Street."

Many ingenious devices have been resorted to, from time to time, for the purpose of ventilating hospitals. In some a pane of glass has been removed from the upper part of the window, so as to admit fresh air. Some gentlemen have proposed common sheds of wood, containing but ten or twelve patients, and eight or ten of them to be placed within a large enclosure. Certain individuals have on occasions gone so far as to assert that tents alone should be used for the sick. But sufficient has been said to show how large a ground the subject of ventilation covers. The emanations from persons in ill health are thrown out more rapidly, and in larger quantity, than with those who are well. The air of a room containing many sick, would become vitiated much sooner than if it only held healthy individuals. In institutions intended for fevers alone this is strictly true. In the article previously cited, "On the Site and Construction of Hospitals," at page 232, we find this language, which is quoted

from the Builder, newspaper, edited by George Godwin, Esq. "Many gases, we know, are also diffused with great rapidity, as when liberated from decaying animal substances and fermenting organic matter, by chemical decompositions of various kinds. The diffusion of these gases takes place with a rapidity proportioned to the square roots of their densities; and no artificial cements will prevent such diffusion. Many gases also pass through fluids and so-called solids. Hydrogen gas and its compounds easily pass through the pores of stucco; so that plastered walls and ceilings are no barrier to the diffusion of cesspool emanations. Hence the intolerable and incurable nuisance of them. Latrines, therefore, as generators of this gas, ought not to be placed in contact with hospital wards." If the water-closet be arranged after the manner I have detailed, it should have a window on each side of it, and one pane should be taken out of each window and replaced by the fine wire gauze already mentioned. John Howard, the philanthropist, procured the passage of an act in 1775, which recommended those in authority to cause the walls and ceilings of jails and charities to be "scraped and whitewashed once a year at least, and supplied with fresh air by hand-ventilators or otherwise." He also caused that orifices should be created near the ceilings of every room of the lazarettos, and had the

windows so arranged that a draft of pure air should be thrown up towards the ceiling. We might spend a much longer time in discussing the numerous ways and means of ventilating buildings, for the subject is almost inexhaustible, but will leave it to consider the question of heating hospitals. I cannot but believe that, in an institution of the capacity I have selected as a model, doors, windows, fire-places and the few simple contrivances enumerated would be sufficient. The interest of the money laid out on the expensive arrangements described, would support many sick, and the principal nearly build a hospital of its size. The results of these costly hygienic contrivances have not, as yet, in the opinion of many, justified their adoption.

IN HEATING HOSPITALS, many consider the hot-air furnace as the most proper and best means in our power of obtaining that end. These are not, however, entirely satisfactory, in consequence of the great heat they give to the already close and fœtid air. There is, moreover, danger of fire arising from defective flues. Fire-places, though good ventilators, do not heat all parts of the wards equally; the patients near them being too warm, while those at a distance suffer from cold. Stoves, according to excellent authority, ought never to be used. Hot-water pipes are better than hot-air fur-

naces, but are, in addition to their expense, difficult to regulate and liable to burst, if the fire should go out or be neglected, when the water freezes in winter. Steam-pipes, although costly, are probably the purest and surest means of attaining an equal temperature. The expansion and contraction, occasioned by change of temperature, at times make a noise sufficiently loud to disturb patients; but, as far as I have been able to ascertain, they are the best in all points of view. A thermometer ought to be kept in every room and ward, and in large wards several, and should be watched by competent persons with care. The temperature must be regulated properly if a room is to be occupied by sick persons; it must not be suffered to decrease or increase in intensity to any extent, and should always be maintained at a given figure by order of the attending physician.*

As regards DISINFECTING AGENTS, all we have to say is, that the wards, and in fact all parts of a hospital, should, on stated occasions, be subjected to a thorough course of this nature. William P. C. Barton, A.M., M.D., a surgeon of the United States

* It would be found a good plan to have small windows above the doors of all the rooms of a hospital, as they would create a downward current of air if required. For the private rooms of the medical staff and other officials, it might be found a good means of ventilating their apartments.

Navy, published in 1814, a volume with the following title: "A Treatise containing a Plan for the Internal Organization and Government of Marine Hospitals in the United States; together with a Scheme for Amending and Systematizing the Medical Department of the Navy." At page 52, when speaking of the fumigation of hospitals, after stating that there are so many methods recommended that he will not specify any one of them, but leave it to the medical officer in charge to select which one he pleases, he goes on to observe: "The plan however most to be depended on is, I think, that which prevents the introduction of foul and infected articles into the wards, and great care and attention in keeping them clean and well-aired."

Miss Nightingale, in her "Notes on Nursing," at page 23, writes: "Let no one ever depend upon fumigations, 'disinfectants,' and the like, for purifying the air. The offensive thing, not its smell, must be removed. A celebrated medical lecturer began one day: 'Fumigations, gentlemen, are of essential importance. They make such an abominable smell that they compel you to open the window.' I wish all the disinfecting fluids invented made such 'an abominable smell' that they forced you to admit fresh air. That would be a useful invention."

There is a good quantity of wholesome truth in

what the distinguished lady says; and, although I do not advocate the idea of doing away with these means, I think that we should bear in mind her observations and act upon them more frequently than perhaps we have done. Fumigating pastiles and the deodorizing and disinfecting fluids, such as Sir William Burnett's, are not to be thrown aside entirely. Antiseptic remedies, either external or internal, such as Acidum Muriaticum, Carbo Ligni, Creosote, Zinci Chloridum, Calx Chlorinata and many others, cannot be cast away with impunity. In the "Medical Dictionary of Robley Dungleson, M.D., LL.D.," in speaking of disinfectants, he remarks: "This term has been restricted by some to agents that are capable of neutralizing morbid effluvia; but the author includes under it, also, antiseptics or agents that are capable of removing any incipient or fully formed septic condition of the living body, or of any part of it." Under the head of the many disinfecting means to be called into requisition, he gives "chlorine, sulphurous and chlorohydric acid gases, vapors of vinegar, nitrous acid, and chlorinated lime." We might go on with the preferences of distinguished men for an indefinite period, and refer to the benefits of nitrous fumigation and many others. As it is we will merely observe, that we ourselves have at times been more sickened, oppressed, and generally disturbed by such means,

than by the evil which it was intended to rectify. Commodore David Porter, of the United States Navy, sailed on his famous cruise in the frigate *Essex* from the Capes of the Delaware in October, 1812, and on his return, in 1815, published a journal of his cruise. At page 3, we find evidence of his strong belief in fumigation. He writes: "I directed, as a standing regulation, that the ships should be fumigated in every part every morning, by pouring vinegar on red-hot shot;" and on the 27th page, he observes, after detailing his various plans for preserving the health of his crew: "with proper ventilations and fumigations, a young, active, healthy, and contented crew, a ship in good order for the service we were engaged in, well found with the best provisions, and the purest water, perfectly free from all bad taste and smell, I do not conceive why we should be in greater apprehension of disease originating on board now, than on the coast of North America." At pages 30, 31, he reiterates his confidence in fumigating with vinegar, and tells us that the surgeon, Dr. Miller, objected to it, pronouncing it "to be extremely injurious, in consequence of the corrosive qualities of the vinegar." On page 67, however, he states, that as the weather was getting cool he gave up using the wind-sails, and adds: "I also discontinued fumigating with vinegar, believing that it would be more conducive

to health, to issue it, and let it be used as part of the ration."

Before proceeding to speak of the police, nursing, fiscal regulations and some other subjects, in a general way, we will for a brief period allude to the important subject of DIET. Many ignorant persons believe that in hospitals all patients receive the same kind and quantity of food at certain hours. This conviction is not entirely their fault. Probably in no one thing has hospital hygiene been neglected as much as in diet. The quality is in many instances so bad, the cooking so wretched, the administration so untimely, and the quantity so inadequate or in excess, that we wonder when we reflect on the grossly apparent neglect of this most valuable and important consideration. All patients cannot be fed alike. None but a madman would entertain such an idea for a moment. It would be impossible to feed all the inmates of such an institution at the same time. If such a thing were insisted on, the evil effects would soon exhibit themselves. Those who are convalescent and able to go to the dinner-table, might, with some propriety, be fed at the same hour; and, to some extent, with similar food. But to lay down a law for the regular performance of such rules as I have already spoken of, would be almost equivalent to poisoning the patients in many cases. Neither do I agree that

persons in health can be sustained by the same quality or quantity of nourishment. With some a particular dish disagrees; with others it proves refreshing and nourishing. Some require more than others, etc., etc.

Miss Nightingale in her "Notes on Nursing," at page 63, writes as follows: "Every careful observer of the sick will agree in this that thousands of patients are annually starved in the midst of plenty, from want of attention to the ways which alone make it possible for them to take food." She asserts truly that the fault lies as much with the attendants as with the patients. The proper administration of nourishment and stimulants, in such diseases as typhus and typhoid fevers, is a point that cannot be too frequently instilled into the minds of nurses. It is very often the case that those who have charge of the sick, do not know how much or how little to give the patient to eat or drink, and they not unfrequently disgust his weak stomach by piling up his plate with food enough for a strong, healthy man. Some persons exhibit so little discrimination in this most important particular, that they are constantly irritating and annoying the miserable victim of their would-be kind intentions.

I am indebted to my friend, Dr. George K.

Smith, for the following epitome of the diet of the Brooklyn City Hospital, Long Island.

BROOKLYN CITY HOSPITAL.

House Diet.

Breakfast, 6½ A. M.	Black Tea and Bread.
Dinner, 12 M.	Beef and Mutton, $\frac{2}{4}$ of a pound, of either one, to each patient. The Beef and Mutton are boiled, and the soup thus made is administered. q. s. Potatoes, q. s. Salt, etc.
Supper, 5 P. M.	Black Tea and Bread.

Extra Diet.

Beef Steak, $\frac{1}{2}$ pound to a patient,	Mutton Chops the same amount,
Chicken Broth,	Boiled Eggs,
Farina and Milk,	Arrow Root,
Beef Tea,	Sago and Wine,
Oysters Stewed,	Wine Whey,
Buttered Bread,	Buttered Toast,
Rice Water,	Milk, $\frac{1}{2}$ pint to each patient.

Stimulants.

Brandy,	Whiskey,
Porter,	Wine.

The Doctor writes at the bottom of his communication: "The hospital is situated on the south side of Washington Park, memorable in history as the location of Fort Green, and is thus secured an

unfailing supply of the best medicine, God's fresh air." Independent of the above enumerated articles, the skilful and humane physicians and surgeons of the institution, stand ready at all times to furnish any desirable addition that the exigency of the occasion may require.* We will finish our observations by stating our firm belief that the diet generally given to invalids would be three times as beneficial if cooked in a scientific manner. Each hospital should have a head cook of well established proficiency, and the salary ought to be sufficiently

* I consider myself happy in being able to pay tribute to the merits of my friend, Dr. George K. Smith. It is now a period of five years since we became acquainted with each other, and during that time our intimacy has flowed along in one sweet current of congenial reciprocities. Dr. Smith was born at Lisle, Broome County, in the State of New York. We were classmates and companions in the Medical University College of New York, and were graduated together in March, 1859, from that nucleus of medical knowledge. Dr. Smith received the gold, Mott medal, for the best "Anatomical Preparation," made during the session. After graduating, he entered the Brooklyn City Hospital, acting as Assistant House Surgeon for three months, House Surgeon for four months, and House Physician for four months. Upon retiring from the hospital, he received the appointment of Demonstrator of Anatomy in the Long Island College Hospital, a position which he still continues to fill with honor to the institution, and distinction to himself. Although I do not lay claim to the power of prophecy, I cannot but feel that should it please Providence to spare his valuable life, he will at no very distant day win for himself an imperishable name, and what is of more importance, by the blessing of God "an house not made with hands, eternal in the heavens."

ample to induce individuals to accept the situation. I am thoroughly convinced that the pay of both cooks and nurses is too insignificant to admit of procuring the services of competent and reliable persons. Some of our moneyed aristocrats pay a thousand dollars a year for the services of an accomplished chef for themselves and family—surely our hundreds of sick poor should be treated as well as the one rich individual. Let philanthropists look to it at once.

A witty Frenchman is said to have remarked that “in this country there are more than two hundred kinds of religion, and only one kind of gravy.” Let the truth of this observation be met by an increase in that branch, at least, of the culinary department.

GOOD NURSES are of unspeakable importance in the treatment of the sick, and should be selected with care, and not even then without satisfactory credentials. I think the pittance generally given for their services is totally inadequate. No nurse of experience and intelligence will be procured for the sum of twelve or sixteen dollars a month.

Their work is very laborious and trying, requiring the exercise of great patience, an unvarying kindness to all, no matter how mean or disagreeable, necessitating a good constitution, experience and a love for the work. Patients may

assist in small matters, such as helping to clean a ward, carrying a message, etc., but must never be allowed to nurse the sick, as their want of knowledge, together with a desire to "do something extra" for their fellow-patient, often retards, and at times endangers his recovery.

The plan of making the nurse sleep in a little room at one end of the ward is, in my opinion, a very improper and poor one. On page 160, I have stated "the nurses should have their rooms in a separate portion of the building, especially set apart for that purpose," and my reason is this: Nurses when attending to their duties in the wards are not only breathing the impure air, but are undergoing great exertions at times, both mental and physical. If when their watch is over they have to lie down to rest in the same atmosphere, where is the time they have to inhale fresh air save at their meals, or when allowed to go out for a walk? Now a person cannot nurse well unless in health, and a nurse, living in this manner, cannot retain health. They become languid, weak, fretful, irritable and consequently inefficient. But if the plan I have spoken of were carried out, they would remain comparatively well. This could be accomplished by having a suit of rooms between the central building and the spare ward I have alluded to. Four nurses for each ward would be sufficient for all purposes in a hos-

pital such as I have described.* All nurses should be *made* to walk out at stated periods, and thus procure a proper amount of fresh air and exercise, and each nurse should be sent in the country for a fortnight every six months. By living too long at a time in the discharge of such duties, the body will become enfeebled and the mental faculties impaired, notwithstanding all means employed, unless a change of scene, air, and occupation is insisted on at least as frequently as I have stated.

Female nurses should always be employed, except in the venereal wards of males. They are neater, more gentle, sympathizing, and patient in the sick room than men. It seems to be a proper field for neglected woman to prove how strong she really is. If occupations of this nature were thrown open to them, we would hear and see less of "Free Love," "Woman's Rights," and "Female Doctors." At page 52, of Dr. Valentine Mott's work, entitled "Travels in Europe and the East," published in 1842, in speaking of the Sisters of Charity, he observes: "This heavenly, I might almost say God-

* I do not approve of nurses sleeping when in charge of wards. They should be made to keep awake. Many poor patients long for little comforts which they are afraid to call for, as they do not wish to disturb the nurse; and nurses are often very peevish and unkind when aroused. If such an arrangement requires more nurses let their services be secured at once.

like office, so peculiarly appropriate to *Woman*, involves a self-denial and sacrifice of every worldly object and enjoyment that woman alone can endure. Next to the duty of being a mother, this is truly the most morally sublime and angelic of all human employments."

The HOUSE STAFF for an institution containing one hundred beds, divided into four wards, of twenty each, with a spare one, should number: one house-surgeon and one assistant house-surgeon, also one house-physician and one assistant house-physician. This number would prove sufficient for all purposes. They would have to occupy rooms in the third story, four in number, which could be arranged on the four sides of the amphitheatre. A resident physician should be attached to all hospitals. The fact, that when this is not the case, patients are often taken in a critical condition both day and night, and the regular attending physician has to be sent for, frequently unsuccessfully: that surgical cases of great gravity require immediate attention, and are liable to be brought in at any moment, is enough to decide this point once and for ever. Each hospital should have appointed to it two consulting physicians and an equal number of consulting surgeons. They should be consulted on all occasions of importance, and lay themselves under obligation to perform the duties in turn of the resident physi-

cian if the latter at any time were absent, sick, or otherwise prevented from the performance of his official capacity. The young medical internes, before being appointed, must be required to present not only diplomas and certificates of good character and proper qualification, but, in addition to these, should undergo a strict and impartial examination by the resident and consulting physicians and surgeons, which number constitutes the medical board. Externes in a small asylum of this nature are not needed, but if desired, might be appointed.

The apothecary ought to receive a salary of at least one thousand dollars, and should have an assistant if the hospital were large. He should agree to instruct the young internes in pharmaceutical science and should be a dentist, graduating at some established school of that description. The cupping, leeching, blistering, and bloodletting, ought to be performed by the internes, also the bandaging and dressing. Every patient should be vaccinated by the internes, if necessary, before leaving the institution.

Of the POLICE REGULATIONS, all that is necessary to say is, that they should be enforced with the utmost impartiality and rigor. The cleanliness of hospitals is a matter of too much importance to be for a single day neglected. All rules of the institution should be printed and hung up in conspicu-

ous places. No person should be allowed to enter or leave the premises without presenting a permit to the porter; and all those coming to see friends must be deprived of the power to bring them any eatables or stimulants, and if detected punished by expulsion and by prohibition for the future. I do not approve of having especial days to visit the asylum, and prefer to let all who wish to see friends come when they will. If they have no permit, the porter must send for one to the superintendent, and if procured they may be admitted. Respect for officials, punctuality at all times, the prohibition of profane and vulgar language, etc., etc., should be insisted upon.

The DEAD HOUSE ought to be placed in one of the corners of the grounds, and should be supplied with a laboratory, wash room, carpenter's room, autopsical chamber and spare room for coroner's juries. It should be kept in a state of great cleanliness, whitewashed several times a year, fumigated often, and should be supplied with pails, tables and chairs; with a case for instruments and with means for preserving and preparing morbid pathological specimens. It should never be more than one story high. *No person should ever be examined who had expressed a desire that it might not be done. No corpse must be kept for dissection, unless by the consent of the person ante mortem.*

The GOVERNMENT OF HOSPITALS is not a matter of great difficulty. The reason it frequently proves inefficient is, because those placed in charge are often ignorant of their duties or indifferent to the dictates of humanity. In this country hospitals, having persons in charge of their interests who merely accept the office from motives of love and disinterestedness, are much better cared for and conducted with less expense and greater exactness and capability. It is to be regretted that asylums of this nature, when under the authority of the government, become burdens of vast weight; are frequently ill conducted and serve to furnish a perennial source out of which to create political capital. All institutions of this kind should be placed under the care of good, intelligent men, of whom there are plenty in this blessed land, and who should undertake the supervision of its affairs without any remuneration and in the spirit of love and charity.

The larger the hospital the more complicated its affairs and consequently the necessity for an increase of governors. In one that is of the dimensions I have selected, it will be found that a board of four governors, acting yearly by turns in the capacity of president, vice-president, treasurer, and secretary will be a sufficiently large number. The governors should be obliged to attend to all the moneyed concerns of the charity; and in every thing

connected with the hygiene, or any part of the medical administration, should be by law compelled to yield to the decision of the medical board. All officers and servants, from the superintendent to the scullion, must be appointed by the governors, who will in addition to their other duties see that the views of the medical board be carried out faithfully. One of the greatest evils that can happen to an institution of this character, is to have its medical regulations emanating from and under the control of the governors, who know very little or nothing of such matters.

The welfare of the mind as well as that of the body, must be cared for. And yet many in authority seem never to think of this fact; their little intellects cannot grasp so broad an idea. In the perfect enjoyment of health themselves, surfeited with pleasure, amusement and the most luxurious living, it does not occur to them that any one save their own important selves could ever desire similar enjoyments, even on the most limited scale. In fact, many who have paused for a moment in their foolish and selfish career, seem after cogitating *profoundly*, to deem it absurd to gratify any such whims and weaknesses. Let them remember the story of Dives and Lazarus.

Instructive books and games, such as chess and checkers, provided for those who are able to

enjoy them, would prevent the patients from brooding over their troubles, and thereby retarding their recovery, besides lessening the weariness of a monotonous existence. Paintings and engravings of an elevating character, would take from the sameness of the walls and divert those who are unable to participate in any other amusement. Such means will not only serve to hasten the recovery of those who are convalescing, but will fill their hearts with a gratitude as beneficial to their souls, as it will be gratifying to the bestower.

The servants of hospitals should be compelled to dress in clean garments, and not be allowed to wander over the building looking like the off-scouring of the city. Each individual should have his or her work distinctly marked out, and there should be a place for every thing, and every thing should be in its place. I think that, if the nurses and servants should have some particular badge or mark, by which their station and position could be determined at sight, it would do much for the discipline of the charity. The beds and bedding should be carefully attended to, and when necessary thoroughly aired. A matron should be appointed to superintend such matters. The linen, etc., should be dried in the yard and no collection of them ever allowed in the hospital. In regard to the use of tobacco, although I do not consider it

beneficial to health, and think that no patient should ever be permitted to use it in the building, still I think that convalescents, if the attending physician give his consent, may be allowed to partake of it in a very moderate degree while out of doors. I do not carry my antipathy to tobacco quite as far as the late accomplished surgeon of Edinburgh, John Lizars, professor of surgery in the Royal College of Surgeons. He, indeed, seemed to consider its use in any way, and even in the smallest extent, as highly injurious to health. The privilege would be a great one to those who have become addicted to its use, who can neither read nor write, and are ignorant of games or any other amusement. Stimulants should never be allowed to patients or to the attachés of the institution, unless by order of the medical attendant. Some distinguished gentlemen, both in and out of the profession, have opposed their use. But in this they err, for very many would sink without it, as they might have become so habituated to the indulgence, that to deprive them of it when laboring under disease would almost certainly prevent their recovery. What would a patient laboring under typhus or typhoid fever do without stimulants? The stimulants should be of the purest quality and selected by competent persons.

The servants should have quarters erected in

some part of the grounds, or else in a special part of the hospital set aside for that purpose. They ought never to be allowed to sleep in the basement if it be underground. In the plan which I drew for such an institution, I had purposed that rooms should be made for their special benefit in the back wing under the spare ward.

There are many other points which could be touched upon with great propriety; and those which have been alluded to might be enlarged to an almost indefinite extent with perfect consistency. But we will only stop to speak in a very general way for a few moments, and then take our leave of those who have been sufficiently interested in the subject to follow us in our endeavors to show forth its vital importance.

And we would ask, is not the great object of these asylums, firstly, to strive to restore our fellow-creatures to society in perfect health as soon as possible? Secondly, failing in the attempt to cure, to alleviate and provide a home for them to pass the remainder of their days in? The truthful answer will undoubtedly be in the affirmative. Then why is it that they are often conducted in so miserable a manner? why is it that they should be prevented from accomplishing the very result for which they were founded? The only answer I can give is, because those generally in charge are

poor, ignorant, lazy, honor-loving creatures, that become so inflated and puffed up with the importance of their official station, that the gaseous infiltration of their system becomes so universal that the heart ceases to pulsate with the smallest emotion of love, and the befuddled brain, in many instances of originally wretched development, becomes so thick, lethargic, and sickeningly stupid, that the use it was primarily intended for is lost in the delirium caused by the vivid light reflected from its endless little meannesses.

We find that our people are willing to pay the heaviest taxes for navies and armies, and will subscribe largely to literary societies, opera-houses, and race-courses: that they keep their yachts, and fast horses, and live in the most expensive and luxurious manner. Why not pay a little more for hospitals? I believe they would if properly asked; if the subject were explained to them thoroughly. The American people are not selfish as a rule, and can always be depended upon when their humanity is appealed to. Let them be asked then, and their response will be *prima facie* evidence of their good will. The persuasiveness of many of those who seek to collect funds for these charities will often be found most unhappy and abortive.

If we bear in mind the beautiful *Elegy* of the gifted Gray, we will remember that:

“ Full many a gem of purest ray serene
 The dark unfathom'd caves of ocean bear ;
 Full many a flower is born to blush unseen,
 And waste its sweetness on the desert air.”

We will try and dispel the heretofore gloomy feelings which almost always pervade the simple bosoms of those who are compelled to seek shelter in rude asylums from the pangs of poverty, and relief from insidious disease. Let us improve the means at our disposal, so that the faint-hearted, and weary comer may be able to recall as sweet associations upon his arrival, as those stirred up by the eloquence of Tom Moore's touchingly pensive lines :

“ I knew by the smoke, that so gracefully curl'd
 Above the green elms, that a cottage was near,
 And I said, ‘ If there's peace to be found in the world,
 A heart that was humble might hope for it here ! ’ ”

If we look at the question with a true spirit of philosophy, to say nothing of religion, we will see that by attention to the various points I have spoken of, we will not only behold patients recover more rapidly, but will be able to treat a larger proportion ; for the sooner a patient is discharged, the sooner his place can be filled. In my opinion no pains should be spared, no expense objected to, in order to obtain this acme of hospital success. The mass of mankind can readily comprehend the

inexpensive means resorted to, to achieve such an end, but profess not to see clearly the reason why those which are expensive should be allowed. In the future those in power must first apply the principles, and the beneficial results will soon enough force themselves upon the mind of the most callous and obstinate unbeliever. Let the inmates of hospitals from this day be treated as kindly and as well as the *patients of private practice*. Allow them their Congress, Avon, and Pymont waters. They need them more, if any thing, than their rich brethren, who flock to the different watering places yearly. They have surely as strong a claim on the beneficent effects of waters of the Red Sulphur Springs of Virginia as the pampered would-be aristocrat has. It is quite as necessary for them to enjoy the benefit of a chalybeate or an alkaline as it is for us. And in the numerous material comforts, such as feeding bowls, tables, chairs, sofas, etc., let us be none the less liberal. In other words, what we undertake to do let us do thoroughly; let there be no half-way business in the matter. To talk and complain of expense, of taking proper care of our sick and helpless fellow-creatures, and at the same time to submit tamely to the impositions fastened upon the community by drunken, swindling, political demagogues, is a glaring inconsistency and an utter and complete absurdity.

Little details ought not to escape our notice. When a patient is brought to a hospital, why should it take, at times, nearly half an hour before he is placed in bed; why should red-tape individuals so long delay? The patient's life may depend upon the celerity with which he is cared for. Many little minutiae of this nature must be carefully taken into consideration if we would succeed. The world is made of atoms. In delaying to care for a patient immediately, we imitate the priests of the ancient temples of Æsculapius. In speaking of these temples and their priests, Dr. Watson, in his "Medical Profession in Ancient Times," at page 27, remarks, "They were sacred from intrusion, and accessible to the sick only after suitable preparation. The invalid, on his arrival, submitted to purification, by fasting, ablution, and inunction. He afterwards passed the night within the Hicetas or common-hall of the temple. During this ceremony of incubation, the presiding deity is supposed to appear before him in the silence of the night, and, by voice or otherwise, announce to him the means of cure; which, on the following day, the priest in attendance also ascertained, and afterwards undertook the supervision of the treatment." But this must not be carried too far: methinks that even the sweetest passages and softest cadence of the "Cnidian Sentences," the first production of the sort which

emanated from the Asclepiadæ, and which is claimed for the school of Cnidos, and is said to have been written by the contemporary of Hippocrates, Euryphon, would hardly pacify the public should such a system be restored; and the restorators would probably meet with a treatment as severe as that lavished so freely by the savages on the missionaries of the Cannibal Islands.

In administering anesthetics, patients should always be put under their influence in private, and all the preparations for a surgical operation should be screened from the patient's sight. The habit of carrying into the amphitheatre a patient; letting him behold numerous rows of instruments, and be subjected to the gaze of hundreds of eyes, the majority indifferent, many cold and callous, and perhaps a few moistened with that dew of the human soul, a tear, is injurious, and always calculated to frighten, startle, and agitate the patient. In the third edition of the "London Lancet," vol. ii., page 422, there is to be found an article "On the Impropriety of Detaining a Patient in the Surgical Theatre of an Hospital longer than is absolutely necessary for Operation." Several cases of the bad effects are mentioned, the last one of which I quote. The writer says: "I shall just mention another case, among many which I have witnessed, where a surgeon, having exposed the intestine of an incarcerated

hernia, and having divided the stricture, addressed the pupils upon some little singularities of the case, during two or three minutes, (indeed, it seemed to me a much longer time,) with the exposed intestine smoking in his face, instead of returning it instantly into the abdomen. This patient died, though no part of the protruded contents of the hernia were sphacelated at the time of their exposure." Surgeons commit this error far more frequently than they are aware of themselves. All operations should be performed with as much expedition as is compatible with the proper performance of them. The celebrated surgeon, Percival Pott, is said to have stated in his lectures, that "he performed an operation quickest who performed it well."

Although clinical instruction is the one of all others which gives a proper education to the student of medicine, still it is carried at times too far. A professor might, with great propriety, walk the wards of his hospital with his students, and undoubtedly should do so. The patients are aware that the only aid and compensation they can make to the charity and its founders, and medical attendants, is to allow them to exhibit them to the students and instruct them at their bedsides. But this is overdone. For example, in a ward containing twenty patients, sometimes as many as fifty

students are admitted, and the noise and confusion occasioned by their admittance must be detrimental to the sick occupants. Besides, not more than ten or twelve can really hear or see what is going on, as more than that number cannot conveniently surround the bed. Ten pupils taken at a time would receive infinitely more information than double the number could in the same period. In addition to this, loud talking and laughing should be prevented, and slippers provided for those who are about to be instructed in the wards. How often have we been disturbed and agitated when ill at home, by the entrance of a single person; then let us think how hurtful the presence of fifty strange individuals would prove to our exhausted frames. In all the wards, spittoons should be provided, and those who neglect to use them be reprimanded.

Some institutions allow curtains around the beds; they prevent a free circulation of air, and should never be used. A movable screen ought to be in every ward, as it is desirable in diseases, such as tetanus, etc., to keep the patient in perfect repose, and separated from the others. A distinct room, however, would answer the purpose much better. If a patient were too ill to leave his bed and desired to hold converse with his spiritual adviser, a movable screen could be placed around him for the time being, and would be of great use,

as it would shield him from the often insulting looks of those who pretend to despise the humble followers of the Lord and Master, and at the same time allow him a superior opportunity to concentrate all the energies of his mind upon the solemnity of the hour.

In the new and commodious charity already mentioned—I refer to St. Luke's Hospital—there is a resident chaplain. The gentleman occupying this important position is the Rev. W. A. Muhlenberg, a man alike distinguished for his learning and his piety; and we may truthfully add, happy indeed is the institution in its pastor, who may be said to be the founder of it. It is a fact not to be forgotten, that ladies of great piety and disinterestedness have attached themselves to the hospital as nurses for the sick, and do so from motives of love alone, accepting no compensation whatever for their valuable services. The public asylums of this nature which are under legislative control do not always, in this country, have regularly appointed chaplains, as our laws recognize no particular form of religion whatever; but all private institutions should have a regularly appointed resident chaplain. The public charities of this character should always (and as far as I know they do) send for whatever clergyman the patient may wish to see. It seems to me that if all institutions of this nature should have resident chaplains, many

by seeing for themselves the devotion of pious ministers of God's Holy Word, to their fellow sufferers, would be led to listen to their exhortations. I have had poor patients say to me, "Oh, how I wish a good clergyman lived in the hospital!" The clergymen who visit these buildings generally have their own parishes to attend to, and cannot, no matter how willing they are, go as often as they would like. Medical men, as a general rule, have done for their profession what they would not have done for their religion, they have worked for it, fought for it, died for it, and lastly, they have lived for it; all these they have done for religion except the last, in the future let us hope that the most important of all, namely, living for it, may prove to be the rule and not the exception. How many might have been led to hearken to the Word of Life had their medical attendant cared for their souls! But I must remember what Rochefoucault says: "On ne donne rien si libéralement que ses conseils."

On the 224th page of a book written by Dr. James F. Duncan, "Physician to Sir P. Dun's Hospital, Dublin," and with this title, "God in Disease; or, the Manifestation of Design in Morbid Phenomena," we find these words: "In the first place, we have seen that sickness is fitted to exercise a beneficial influence on society at large, by uniting the scattered members of the family of man into one

common brotherhood." This is a truth which should never be forgotten; and those who receive it will daily experience more strongly its solemn import and obligations. A little lower on the same page, the Doctor writes: "The charities of life, like delicate flowers, require a congenial soil and a favorable climate to germinate in, otherwise they will never grow, or blossom, or bear fruit." The heart of man is the only soil that will be able to bear such fruit; but to bring it forth in its pristine purity, his heart must dwell in the benignant clime of that charity of which the Apostle Paul so wonderfully speaks.

If we would be blessed in our endeavors to improve the means which we have at our command to accomplish the restoration of health, or any other desirable object in life, we must pray. If we never ask the "Ruler of the Universe" to bless our efforts, they will prove futile. A most eminently pious man, the Rev. B. C. Cutler, rector of St. Ann's Church, Brooklyn, in a Sermon on Prayer, published with many others in a volume of "Parochial Discourses," speaks thus of one who performs with indifference this sacred duty: "His family worship is performed with despatch, and his back turned upon his closet, his place of retirement, upon all sacred and spiritual associations; and the antipodes are not more distant from each other than the work and thoughts of the day from the prayer and medita-

tions of the morning." Can such a man expect to be blessed in his endeavors? Of him who trusts to himself we can say truly, he will fail. I refer him to the language of a most holy man, and who has spent a long and useful life in the service of his Master: "Of our three great enemies, the world, the flesh, and the Devil—the greatest of these is the flesh—ourselves: for, as we conquer self, the World will abandon us in disgust, and the Devil will give us up as hopeless. It is a long lesson—a hard work, to learn to be afraid of ourselves. Self is the last thing we fear. It should be the first. Let not the Master, as He looks upon us in this holy season, find us trampled down by self; but fighting manfully against it. Then, though wounded, weary, and worthless, we shall not fear to look up and greet Him at His final Advent. 'The smile of the Lord, which is the feast of the soul,' will cheer us as He says to us—WELL DONE." *

* The above lines are quoted from the "St. Stephen's Chapel Report of the Mission to the Poor," for 1859, and are addressed "To the Subscribers to the Episcopal City Mission, and the Contributors to the Relief of the Poor," by the Rev. E. M. P. Wells, D.D., of Boston, Massachusetts. The mission may truthfully be said to be the hospital of the soul. None demanding admission, if found worthy, is ever refused; and the wants of the body as well as those of a spiritual nature are bestowed with a freedom and judiciousness, as bountiful as the love in the heart of the beloved Rector. The amount of good performed by this mission is unequalled in extent by any institution of its means

Here I must bring to a close my remarks on the hygiene of hospitals. I might have written much more. The volume could have been enlarged not only with ease but with perfect propriety, the subject is so unspeakably important, so eminently worthy of study, of deep thought. In the limited space I have allotted myself, I could not do justice to it. To treat it thoroughly, would require a space seven times as large as the one which has been given, and even that would be but a small area in which to allow the question full scope. I might have discussed the benefits of free hospitals, descanted upon the most trivial minutiae, and doubtless commented, with practical results, upon the hypocaust, which invention the Romans used to heat their rooms and baths with; or dwelt with propriety upon the expediency of that primitive sort of quarantine exercised upon the lepers of old, namely, isolation; and lingered with antiquarian feelings over the olden European oak-groves dedicated to rites and ceremonies of the medical art; touched with a gentle hand the mystical rules of the ancient Druids; and talked with pleasure of the fact that Herodotus gives us, that the sick were placed in the

in the land. The late honored father of the author, was wont to call its reverend pastor "The Saint Paul of America," and looked upon him as one of the most faithful disciples of the church. Their friendship was as disinterested as their lives.

market-place by the Babylonians, they having no medical men, so that any who had been affected with a disorder of the same kind, might inform them what wrought their own cure; or dilated upon the universal genius of sunny Italy, the home of science, art, poetry, and the birthplace of the genius who first invented chimneys and expounded their usefulness, and upon other kindred topics, without transgressing the limits of the theme. But as well might I hope to condense the voluminous and important writings of that well-known and accomplished medical savaan, Dr. Gross, of Philadelphia, into a duodecimo of a hundred pages, as to suppose that hospital hygiene could receive its full share of inquiry in my humble and brief treatise.

The distinguished surgeon, Professor Frank Hastings Hamilton, in a discourse on Hygiene, "being the substance of a 'Charge,' given February, 1859, to the Graduating Class in the Medical Department of the University of Buffalo," at page 5, observes: "But the physician has very few helps in his labor of diffusing medical knowledge of any kind. The people do not go up to Siloam; and the physician must not only draw from the pool, but he must himself carry the buckets upon his own shoulders, and cry out at every man's door—up and down—in the narrow gangways and in the cellars of the poor, and in the houses of the rich." His remark is too

true; and we often find that even in the most common matters of every-day life, those who ought to know better, neglect the most important rules of health. It has been written that "PREVENTIVE MEDICINE will effect infinitely more for mankind than all the CURATIVE skill which has ever been exerted for the alleviation of disease." Let this be as it may, preventive medicine should be taught to the public free of charge daily, as it would prove a means of sure good, that can hardly be overvalued. The study of hygiene should be pursued "*Tota sua vita durante.*"

In a work published in London, in 1832, entitled "Thackrah on Arts, Trades, and Professions as Affecting Health and Longevity," and written by C. Turner Thackrah, Esq., at page 7 we find the following language: "After all, I am aware that health is to most persons a disagreeable subject of inquiry, whether it relates to the individuals themselves or the community. It implies a distrust of our sanity. We dislike especially such gloomy inferences as the returns of population and burials afford. We do not wish to see that there is a greater mortality in our own neighborhood than in other parts of the country; and hence we try to avoid the annoyance, and preclude investigation by supposing either the inferences erroneous, or the causes which produce this excess of mortality irremediable. Is

this wise?—is this manly? Is it the part of reason to shrink from inquiry?" It is in part this reason which has prevented many who would have been eminently competent, from prosecuting investigations which would have been of the greatest value to coming generations.

I should be more than fortunate if I were to succeed in finding that all agree with me in many of my remarks, and am not conceited enough to entertain for even a single moment, such an idea. Of all the points on which I have written, the one regarding my preference for small hospitals I have feared would be the most disapproved of. If the reader will refer to page 17 of a volume named "German Asylums," by Dr. Pliny Earle, of this city, he will find a quotation from a letter of Dr. Julius, of Berlin, to a friend in England, in 1845, a few words of which I now cite: "But, in case of the success of such an institution a far greater danger is lying in the natural temptation to increase and enlarge it to such a size as will not allow *one master mind* to direct its course and administration. The institution, though perhaps less expensive in a financial view, and keeping the same thriving, outward appearance, will become, by and by, unmanageable, unwieldy, and gradually flag and deteriorate in its interior working and usefulness." On page 18, Dr. Earle cites the following

lines from the work, "On the Construction and Management of Hospitals," by Dr. Jacobi: "Many writers have believed that four or six hundred patients, or even a greater number, are not too many to be received in the same establishment. For my part I entirely dissent from this opinion, since my own experience convinces me that the maximum number of patients to be admitted into one and the same establishment, ought never to exceed two hundred." Other authorities could be cited were it necessary; but I will forbear quoting them, lest it should prove tedious.

In regard to burials, I can only say that it seems very wrong to me to throw human beings into the ground without the slightest ceremony. The love of scientific acquirement has caused a very great change in the feelings of the community of late years, and legislative enactment has amply provided subjects for dissection by students of anatomy. But common decency it would seem, should insist upon those who have given evidence of Christian feelings, being buried by a minister of their respective creeds, with all due respect, before being placed in the public Potters-field, or given up to the sharp edge of the relentless scalpel. If they are friendless and poor, it is no reason for treating them without any consideration. Those who begin by

paying no respect to the dead, will end by giving no reverence to the living.

According to Dr. W. W. Sanger's work on the "History of Prostitution," published in 1858, there were at that time six thousand public prostitutes in New York; and he tells us that four millions of dollars are invested in this horrid business, and no less than seven millions of dollars annually expended upon it. Awful as this practice is, it is undoubtedly true. The amount of disease created by this means, occasions a great demand upon the public institutions of the city; and it would seem that in the hour of sickness, if in no other, they might be induced to lend a willing ear to the doctrines of everlasting life. Why not take means to procure that result? I have travelled in my own land throughout many of its States, and have visited, England, Ireland, Scotland, and Wales, and I find that in this country far less attention is paid to the religious influences than in the before-mentioned countries. While visiting a prison in this country in 1857, I inquired who was the chaplain, the jailer smiling, told me that almost every Sunday they had a variety—one day one creed, and another day another, but that there was no regular clerical attendant. Surely if one-seventh of the money expended annually in vice in this particular city, were devoted to the furtherance of religious instruction, we would

have enough chaplains to attend all the gaols, poor houses and hospitals in the United States.

The physician of present times can and must acquaint himself with the various literary and scientific works of the day. He may revel in Dante, admire Dickens, and eulogize Irving, he may plunge into "Zimmerman on Solitude," study Burton's Anatomy of Melancholy, and investigate the phenomena of electricity, or the various wonders of the times, but he must not at the same time neglect the duty he owes to his fellow-creatures, and deprive them of and withhold from them the teachings that the great Physician of the Soul has prescribed for them. In the last public address of a medical nature ever delivered by the author's father, at Bellevue Hospital, October 24th, 1860, he uses this language in regard to the importance of the name of Physician: "And, gentlemen, let me add, that the great responsibilities you assume in the title of Physician, as earthly guardians over the lives of your fellow-creatures, are of too grave and sacred a character to be undertaken in a spirit of indifference. You are to be ever impressed with the great truth, that you are accountable to your Divine Master for the proper use of the time and the opportunities which in His infinite wisdom he has vouchsafed to you."

The labors of men like Sutton, Hales, Edward

L. Youmans, Dr. John H. Griscom, and others, have been the means of opening a path through the dark woods of ignorance, which have heretofore concealed from the public gaze the beauties of hygienic law. Let us follow their example and contribute our share to the accomplishment of the work commenced for the good of our brethren, no matter of how great insignificance in the eyes of the world. The Scripture tells us: "Inasmuch as ye have done *it* unto one of the least of these my brethren, ye have done it unto me;" and now that we know how to do good we must remember that we learn from the same source this fact: "Therefore to him that knoweth to do good, and doeth *it* not, to him it is sin."

In a book, written by Sir John Forbes, M.D., D.C.L., entitled "Nature and Art in the Cure of Disease," at pages 184-5, he says, when speaking of hygiene: "Of the admirable power and efficacy of this department of the Medical Art, in all its branches, no doubt can exist in the mind of any one who knows any thing of medical history, or who has paid attention to the common sanitary operations, public and private, passing under his own eyes. Of the potency of the medical art, in its hygienic form, to strike at the root of most of our febrile and many of our inflammatory diseases, and thereby to save life in the best manner, that is, without the penalty of pre-

vious suffering, there can be no doubt; and if the attention of society were but once fully given to the subject, and the exertions of the professors of the art, thereby diverted from many absurdities and impossibilities that now engage them, were fully turned into this rational and legitimate course, the saving of life would be such as would not only modify our tables of mortality, but affect the fortunes of nations."

The statistics of all hospitals should be carefully kept, and, if it were possible, a convention every few years should be called together, consisting of the medical gentleman who have recorded them. This plan would prove a valuable auxiliary in aiding us to acquire the very knowledge which we seek, and go far in assisting us in reaching the coveted acme of our ambition, the very pinnacle of the temple of hygienic law.

There are many conditions happening, from time to time, to institutions intended for the sick, of which it is not necessary to speak on this occasion; but the observations made in this book are applicable in enlarged or modified forms to all asylums of this description. The same hygienic regulations laid down for a city hospital, can be applied to those of an army in active service, or to the infirmary of a man-of-war. The edifice may be of wood, brick, stone, or of iron, but the great principles are the

same, as unchangeable and as faithful a guide as the compass of the storm-tossed mariner, pointing as consistently to the haven of health as the other does to the desired port.

In concluding my remarks, I have not forgotten the old Latin proverb, "Dii laboribus omnia vendunt," and desire that it will stimulate all who bear it in mind. Hoping that I am not to prove in these pages an exception to the general rule, I dip my pen in the ink for the last time to write, that it has been my desire to produce a truthful and useful dissertation on the subject which I have chosen for a theme, anxious to add my mite to the treasury of medical knowledge. Should I have succeeded in my desire, my dearest wish will have been gratified, and my labor repaid; and thus I bring to a close my reflections concerning the important question of Hospital Hygiene.

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