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THE
SURGICAL WORKS

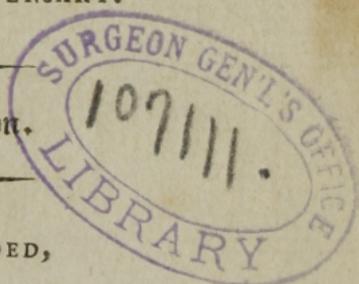
OF THE LATE

JOHN JONES, M. D.

FORMERLY PROFESSOR OF SURGERY IN THE COLLEGE
OF NEW-YORK:

FELLOW OF THE AMERICAN PHILOSOPHICAL SOCIETY:
PRESIDENT OF THE HUMANE SOCIETY, AND VICE-PRESIDENT
OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA:
PHYSICIAN TO THE PENNSYLVANIA HOSPITAL,
AND PHILADELPHIA DISPENSARY.

The Third Edition.



TO WHICH ARE ADDED,

A Short Account of the Life of the Author,

WITH

OCCASIONAL NOTES AND OBSERVATIONS.

BY JAMES MEASE, M. D.

RESIDENT PHYSICIAN OF THE PORT OF PHILADELPHIA.

PHILADELPHIA:

PRINTED BY WRIGLEY AND BERRIMAN,
N^o. 149, Chestnut Street.

1795.

T O

PHILEMON DICKINSON, EsQUIRE.

S I R,

THE two first editions of the following work, were dedicated by the author, to his worthy preceptor, and your near relation. There are two reasons, which induce me to inscribe the present one to you. You Sir, were held most dear to the author, my valued friend: and I with pleasure take this method to convey my acknowledgment of personal esteem for you.

Accept therefore, of this volume, as a mark of respect, from

Your obliged friend

And sincere well wisher,

JAMES MEASE.

Philadelphia, February 23, 1795.



C

P R E F A C E.

THE following work was originally published in the autumn of the year 1775 in New-York, and addressed to the surgeons of the army, and navy of the United States, to whom it was intended to afford a knowledge of the improved practice of treating some of the most common surgical complaints; and thereby to lessen the unavoidable misfortunes, attendant upon the struggle about to be made, for the liberties and independence of this country. A second, and much larger impression was struck off, the ensuing year at Philadelphia, which is again out of print; since that period, the world have been favoured by several more systematic treatises, as those of Mr. Pott, and Mr. Bell, which form very valuable additions to our stock of surgical knowledge; they have not however superceded the necessity of the present work: for the lengthy accounts which are in many instances given of complaints, that seldom or never fall under the notice of the practitioner in this country, added to their extreme bulk and high price;

render them more proper books for the proficient in surgery; whereas the familiar manner in which those operations that daily occur, are treated in the following small volume, point it out as the proper companion for the student in the art. I am of opinion therefore, that it will continue to be held in estimation, by those who do not neglect a good thing, tho' it be not the production of the day, and are content to derive information from that which commanded attention a few years since.

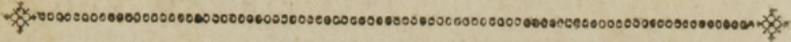
To the present edition, I have prefixed some account of the author's life, and added a number of notes and observations chiefly taken from the best surgical authors, serving to confirm, and establish the doctrines advanced; and also some cases that happened under my own inspection during the period of my surgical pursuits with Dr. Jones, all of which it has been an object to render as brief as was consistent with perspicuity: I have likewise subjoined a case of *anthrax*, and the history of a remarkable *hydrocele*, both successfully treated; the first extracted from the transactions of the college of physicians of Philadelphia; the latter from the surgical lectures of the author, in my possession.

I have much to regret, that it was not in my power to give a more full and satisfactory account of my deceased friend; as the various important occurrences of his interesting life, could they have been accurately ascertained, and properly displayed; would have formed an entertaining and instructive history. No pains were spared to obtain the fullest information, and some difficulty was experienced in procuring the few particulars I have noted. To Dr. Thomas Jones, and Mr. James Jones of New-York, my thanks are due for sundry facts; but it would be doing an act of injustice, did I not with gratitude notice, the kindness and attention of the late Mr. OWEN JONES of Philadelphia, to whom I am indebted for all the important information, respecting the family of Dr. Jones. For these, and for the zeal he evinced in forwarding my intention, of giving these memoirs of his illustrious friend and relation; the memory of this venerable citizen, is entitled to that warm and most fervent respect, which it will ever receive from me.

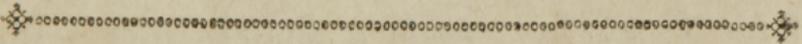
We love to perpetuate the memory of those deceased persons, who during their continuance among us, deserved and obtained our es-

teem, by possessing as near as possible their resemblance ; for this reason I much wished to obtain the loan of amost striking likenefs from one of his relations, in order to have a print taken therefrom to be prefixed to this work ; but not having been gratified with it though the publication was kept back in expectation thereof, I resolved not to delay it any further upon that account, and endeavoured to supply its place by a just delineation of the mind of the author.

J. M.



A
SHORT ACCOUNT
OF THE
L I F E
OF
DOCTOR JOHN JONES.



A

SHORT ACCOUNT

OF THE LATE

JOHN JONES, M. D. &c.

IT has generally been the custom among biographers, to premise the history of the predecessors of those, who have signalized themselves by their talents or services to their country; and of whose lives and actions they are about to give some account; and notwithstanding the little need of reverting to the honourable station of the ancestors of a man, to increase that respect for his memory, which, while living, his own worth procured; yet I am induced so far to comply with custom, as to give a short history of the family of my deceased friend, previously to delivering any memoirs of himself.

The family of Dr. Jones, was of Welsh extraction, and of the religious society of Friends. His grandfather, Edward Jones, who was a physician of eminence in his native country; married Mary, the eldest daughter of Thomas Wynne, who was likewise a physician, and one of the original settlers in Pennsylvania: where, shortly after his arrival, he was chosen a representative of the people, and elected speaker of the first provincial assembly held in Philadelphia, in the month of December, 1682.

Sometime after Dr. Wynne's removal from Wales; his son-in-law and family also embarked for this country, and arrived on the 13th June, 1682; they settled in Merion township, county of Philadelphia, on a tract of land, which is still in possession of the family, where they resided the remainder of their days, and both died at very advanced ages. After their arrival in this country, they had the following children; Edward, Evan, John, Thomas, Elizabeth, and Mary.

Evan, the father of the subject of these memoirs, studied medicine with his father, and practised it many years; but the thinly settled state of the country, and the great fatigue at-

tendant upon extensive country practice; induced him to remove to a more populous place, where that inconvenience would not exist, and where there would be a greater opportunity for the exertion of his talents. He accordingly removed to the city of New-York, and afterwards to Long-Island, and there married Mary, the daughter of Mr. — Stephenfon, by whom he had four sons: John, Thomas, Evan and James. He finally settled in the highlands of New-York, where he died many years since.* In these different places, he practised medicine with great success; and was among the first introducers of inoculation in the state of New-York; although from ignorance and prejudice, the practice was much opposed by the generality of people; and by none more than the physicians themselves.

JOHN JONES, of whom I am now to give some account; was born in the town of Jamaica, Long-Island, in the year 1729; and received his education partly from his excellent parents, but chiefly at a private school in

* Dr. Evan Jones was twice married; his second wife was the daughter of Colonel Mathews, many years commandant of the fort at Albany, and member of the legislature of New-York. By this lady, who was lately still living; he also had several children.

the city of New-York. He was early led, both by the advice of his father, and his own inclination to the study of medicine, and was placed under the care of the late Dr. Thomas Cadwalader, with whom he continued during the period of his studies in this country.

The bent of genius or disposition shewn by different persons, to a particular calling, is extremely diversified. Some have passed through a long life, without ever shewing a specific bias to any profession; and have acted with indifference and mediocrity, in whatever station they may happen to be placed; while there are others, who seemed designed by nature to act in a particular capacity; and who, from the period at which they were capable of judging for themselves, have evinced a steady and uniform attachment to certain employments, which they have afterwards prosecuted with advantage to themselves, and benefit to the public. Among the latter class was Dr. Jones; he early indicated an attachment for that profession which at a subsequent period he cultivated with so much ardour; by his fondness for anatomical researches; and though as it may be readily supposed, these could only be of the compa-

ritive kind ; yet it is a remarkable fact, that this love for pursuits of the same nature, has been noticed in the youth of some of the most distinguished anatomists that ever lived.

At the age of eighteen years, he began to study medicine under the above mentioned physician, and he always acknowledged with pleasure, and gratitude, the important instructions both in physic and morals, which he derived, during the prosecution of his studies with that amiable man. † This country then af-

* This eminent physician was born in Philadelphia, and was the son of JOHN CADWALADER ; and Martha, the aunt of Dr. Jones. After finishing his studies in this country, which were conducted under the father of Dr. Jones ; he completed his medical education in Europe, and settled in Philadelphia, where he practised medicine many years, with the most distinguished reputation. Upon the establishment of the Pennsylvania hospital in the year 1752 ; he was elected one of its physicians, and was honored by an annual re-election, until the time of his death, which was more than thirty years after the erection of that benevolent institution. As a physician, he was uncommonly attentive and humane ; and as a man, he was as remarkable for the tenderness, and benevolence of his disposition. Constantly blest with a serene mind, it was as rare to see him too much cast down by bad ; as unusually elated by good fortune. So distinguished a trait, was this cheerful disposition in his character ; that it was once the means of saving his life, on an occasion so extraordinary

forded scarce any opportunity by means of public institutions, for increasing the knowledge of the student; as none of those numerous establishments for the relief of the indigent sick

as deserves to be mentioned; for while it serves to point out the importance of good humour, more than the perusal of volumes on the subject; it also tends to shew, that an amiable behaviour, and politeness of manner, are not only pleasing, but useful in our intercourse with the world.

A Provincial officer before the independence of this country, soured by some disgust, became weary of life, and resolved to deprive himself of an existence which was no longer a pleasure, but a burthen to him; with this view he walked out early one morning, with a fustil in his hand, determining to shoot the first person he should meet. He had not gone far, before he met a very pretty girl, whose beauty disarmed him. The next that presented was Dr. Cadwalader; the doctor bowed politely to the officer, (who, though unknown to him had the appearance of a gentleman,) and accosted him with, "*Good morning Sir, what sport?*" The officer answered the doctor civilly, and as he afterwards declared; was so struck by his pleasing manner and address; that he had not resolution to execute his desperate intention. Impelled however, by the same gloomy disposition, that actuated him when he set out; he repaired to an adjoining tavern, and shot Mr. Scull, author of the map of Pennsylvania; and thereby obtained his wished for end; being afterwards hung in sight of the very house where he committed the premeditated act.

then existed, which now do honor to a young, but enlightened country. The private practice of physicians, was almost the only source from whence the student could derive any practical information; to this Dr. Jones paid the greatest attention, and I have heard, that his preceptor bore testimony of the assiduity, and marks of early genius in his pupil; and predicted from them, his future eminence in his profession.

After completing his studies in this country, Dr. Jones visited Europe, in order to improve himself still further in his profession. He first went to London, and there attended the lectures of the celebrated Hunter, M^rKenzie and others, who then shone eminent in the several branches which they taught; and the practice of the different hospitals, particularly that of St. Bartholemew, of which Mr. Pott was senior surgeon, and in the height of reputation. From London he went to France, where he arrived in May 1751; and obtained the degree of doctor in medicine, from the university of Rheims: he then proceeded to Paris, where he remained until the month of April in the following year; and attended the anatomical lectures of Mr. Petit and the practice of the Hotel de Dieu,

of which well known institution, Messrs. Le Cat, and Le Dran, were then surgeons. He afterwards spent some time at the university of Leyden; and finally visited Edinburgh, which completed his medical tour.

Under masters like these, and enjoying such opportunities; he could not fail, with the assiduity which he employed, of acquiring all the knowledge at that time to be obtained: in consequence of the zeal which he shewed in the acquisition of every species of useful knowledge; he attracted the notice of the above celebrated surgeons, which was of essential benefit to him, in the prosecution of his studies: to Mr. Pott in particular, he considered himself under peculiar obligations, for the marks of friendship he experienced from him; and which could not fail to inspire him with a love of his profession; for in this, as in every other instance; the politeness of the man, so far from lessening the dignity of science; served to increase that respect, which the contemplation of real abilities will always inspire.

During the prosecution of his studies in Europe; Dr. Jones was industrious in collecting all the useful information in his power, especially upon those branches of science

more immediately connected with his profession. To anatomy, as the hand-maid of surgery, and the basis of medical science; he paid the greatest attention, but he did not suffer this to engross the whole of his time: convinced of the intimate connexion between the different branches of the profession; he considered the separation of them, not only as contrary to nature; but as highly detrimental to the progress of the science; and therefore believed, that a knowledge of the one part, was indispensably requisite to a right understanding of the other. But industrious as he was, in acquiring all the useful information in his power, and such as might prove advantageous to him in his profession, or future intercourse with mankind; he with equal care avoided incumbering his mind with that which was speculative, and no way calculated to admit of practical application. Too well assured of the shortness of human life, he did not waste the time that should be devoted to rational improvement, in obtaining useless knowledge, or in neglecting that important part which the longest life is barely short enough to acquire. Thus it is however, that many students are frequently led away by stu-

dies that are attracting, but which are ultimately of little importance; they are not only attended by bad consequences in a negative manner, by consuming the time that might be more profitably employed; but frequently act positively, by giving a wrong direction to the active powers of the mind, and by exciting a relish for unprofitable acquirements in other branches of science. The general disposition of man, and his natural dependant condition; create a desire, and point out the necessity for society; his happiness therefore in this world, must be intimately connected with the good diffused around him, and that knowledge, which is not some way subservient to the welfare of mankind, may justly be stiled the rubbish of literature.

Upon the return of Dr. Jones to this country, he settled in New-York; where his abilities soon procured him extensive practice. To the profession of surgery in particular, he devoted much attention: he was the first who performed the operation of lithotomy in that city, and succeeded so well in several cases that offered shortly after his return; that his fame as an operator, became generally known, throughout the middle and eastern states of

America. The operation had likewise been frequently attempted in the other states; but the want of success attending it, was generally so great, as to prevent it from being performed in future: the fortunate manner however, in which those cases under his care succeeded, fully proved; that it was no longer the dangerous operation many had been made to apprehend, and which induced them rather to submit to a miserable life, than suffer the risque of falling a sacrifice to the means instituted for their relief.

About the year 1758, during the existence of a war, between France and the then colonies, as a part of the British dominions; a considerable alarm was occasioned by the report of an intended attack of the enemy upon the frontiers of the state; and Dr. Jones, among others, entered as a volunteer surgeon to the troops raised upon the occasion, in which capacity he served with distinguished reputation, until the close of the campaign. It appeared, that even the enemies of his country, were acquainted with his abilities; for in a severe repulse which they suffered, from the American and British troops under Sir William Johnson; General D'Escaux, commander of the French, was dan-

gerously wounded, and being taken prisoner; immediately placed himself under the care of Dr. Jones, who losing his principles as a soldier, in his humanity as man; carefully attended him for a considerable time in New-York. At the close of the campaign he again returned to private practice with increased reputation; and some years after, upon the establishment of the philosophical society of Philadelphia, was elected one of its first members; and he likewise had the honour to serve it, in capacity of *curator* in the year 1786, after his removal from the former to the latter city.

Upon the institution of medical schools, in the college of New-York, Dr. Jones was appointed professor of surgery, upon which branch he gave several courses of lectures, and thereby diffused a taste for it among the students, and made known the improved modes of practice, lately adopted in Europe, of which most of the practitioners in this country were entirely unacquainted. He likewise endeavoured to instill into the minds of his pupils, the same just principles, that guided his conduct, when prosecuting his own studies, and, (melancholy experience proving the

necessity of the caution) pointed out the necessity of conducting their conduct as individuals, so as not to detract from their merit as professional men. Viewing the science in an enlarged and honourable light, as comprehending the most extensive view of our nature, and as tending to the alleviation and abridgment of human misery; he taught his pupils to despise the servile conduct of those, who consider the profession as worthy of cultivation, only in proportion to the emoluments which it yields; and to rely upon the solidity of their own endowments, as the best security of general esteem, and for acquisition of business. He could with propriety, recommend the pursuit of this conduct to others, having in his own person furnished an instance of its success, and on an occasion also, which though trifling in itself, deserves to be recorded as a proof of the triumph of abilities over ignorance and pride.

At an early period of Dr. Jones's settlement in New-York, some of the physicians entered into a resolution, to distinguish themselves from the rest of their fellow citizens, by a particular mode of wearing their hair; and among the rest, it was proposed to Dr.

Jones ; but instead of receiving his assent, the general principles of it were strongly opposed by him. His prudence and reflection, led him to discover, that the proposed alteration must not only necessarily attract much personal notice, which, even as a modest man he wished to avoid ; but that like the full bottomed wig, the gold headed cane, and brilliant on the finger ; which the force of ridicule had banished from the appendages of physicians ; it would likewise subject him to the sarcastic observations of the witty and malevolent. Persuaded of the dignity of the medical character in itself, he saw no need to call in artificial aid to increase it, and therefore refused to consent to the plan, and insisted upon the great impropriety of establishing any external mark to distinguish them from the rest of mankind ; he declared at the same time, that he considered *that* and every *similar* means to impose upon the weakness or crudulity of others, as unworthy the members of a liberal profession ; and intended to enforce that attention, and respect, which their own conduct and abilities should always command. While the rest of the practitioners therefore, were seen strutting

about in their new fashioned bob ; Dr. Jones could not be distinguished from any well bred gentleman of another profession. It might be naturally supposed, that the persons who were weak enough to enter into the resolution, would likewise be capable of the low passion of envy, and seek for a proper occasion of revenge, upon those who would dissent. This was actually the case in the present instance ; for the consequence of Dr. Jones's refusal to adopt the plan, was an agreement among the rest, not to consult with him. This resolution however, was of but little avail ; for one of the associates on expressing this determination to a respectable citizen, in whose sick room they happened to meet ; was to his great mortification, unexpectedly dismissed, and Dr. Jones retained. Such a compliment, paid to the abilities of a young man, must have been flattering in the extreme ; and so effectually did the disclosure of the scene operate, with the general ridicule which followed ; that the object of the association was entirely defeated ; and the members were under the necessity of wearing their hair like the rest of their fellow citizens.

I should not have inserted the relation of the above affair, in the present account, did it not, in my opinion, afford a useful lesson of instruction. In the first place, it proves the truth of the old proverb, that "*honesty is the best policy.*" Those weak minds, who without possessing the requisite endowments to entitle them to respect, still aim at distinction among mankind, and endeavour by specious arts to insure that attention, which should originate from superior merit alone; generally fail in the object of their wishes; the thin disguise is soon seen through; and tho' for a short time, they may impose upon a few, who are unable to distinguish real characters, from those that are assumed; it for the most part happens, that their subsequent and final debasement, is proportioned to their previous and temporary elevation. Like those faint luminaries which cease to shine when their borrowed light is withdrawn: they loose their consequence the moment the mask is thrown off. While upon this subject, it may be proper to mention, that the same principle which actuated Dr. Jones in the trifling circumstance of refusing to distinguish himself from the rest of his fellow citizens, by any

peculiar self-created badge; actuated him, in matters upon a larger scale. Pure in his principles as a republican, he considered *titles* as the pageantry of cockcombs, and like the royal stamp set upon false coin; by covering much base metal, instead of creating respect, serve to detract from the little honor to which their possessors might otherwise be entitled.

For a considerable part of the previous life of Dr. Jones, he had been afflicted by the asthma, and for a long time, had struggled to overcome that painful disease; but the exertions of both his own skill, and of the rest of his medical brethren, in most parts of the continent, had hitherto proved ineffectual towards even his relief. He determined therefore to take a voyage to Europe, and accordingly sailed for London. Here, in a thick smoke, and an atmosphere impregnated with every species of animal putrefaction and effluvia, where so many asthmatics have found such remarkable benefit; he also experienced a considerable alleviation of his complaint; and it is not improbable, but that the permanent alteration in his health which he afterwards enjoyed; may in some measure be at-

tributed to the effects of his residence in London.* He also employed himself during his continuance in the metropolis, in collecting subscriptions for a hospital in New-York, which he had been chiefly instrumental in establishing and which for convenience of structure and accommodation of the patients, was inferior to none in this country; all his trouble however, was of little avail, for shortly after its erection, it was entirely consumed by fire.

In London he again had an opportunity of seeing his friend Mr. Pott, at the head of his profession, and of renewing that attachment

* Probably the amendment in his health may have arisen also in part, from the effects of the voyage, and sea air, which have been known to do good in some cases of this disease. But it is nevertheless a remarkable fact in the history of the asthma, that many persons, who have been unable to breathe in the air of the country, revived upon returning into one less pure; and that the thick atmosphere of a city should create no disturbance to an irritable lung, while the delightful odour of a flower, should create an immediate return of the disorder. A peculiarity was in this respect observable in Dr. Jones, who found his lungs expanded in the smoke of London, yet by merely coming into the room where a tube-rose had filled the air with its fragrance, he experienced the most disagreeable sensations; and sometimes even a spasmodic difficulty of breathing came on.

which had been previously commenced between them. He had now been for some years left to the guidance of his own judgment, but unlike many, who suppose all knowledge to become stationary, at the time of their leaving the college; he was still willing to be taught by those who had formely been his instructors; and who, from the greater opportunities they enjoyed, would be enabled to afford him much information. Eager for the acquisition of knowledge, whenever, and wherever it was to be obtained; he again attended the lectures of his old master Dr. Hunter, and those of his friend, Mr. Pott, who lost no opportunity of shewing the consistency between his professions and proofs of respect: during his short stay there, he paid Dr. Jones, the most particular attention, and presented him with a complete copy of his lectures, just before his departure from London. His kindness however did not end here; for in the frequent applications which he received for advice from all parts of this country, in difficult and important cases; he never failed to recommend his old pupil, as capable of affording any relief to be derived from surgical assistance. In consequence of this; his atten-

dance was frequently desired in the different states; and while he shewed by his skill and success, that the opinion which had been formed of him was just; his fame became thereby diffused throughout the continent of America.

The following year he returned to his native country, whose political situation at that time, called loudly for the exertions of all her citizens. He again resumed his lectures, and delivered several courses, and in the autumn of the next year (1775,) published his "*plain remarks upon wounds and fractures,*" which he inscribed to his old preceptor Dr. Cadwalader in so handsome a dedication, that I have preserved it with pleasure as an example of grateful remembrance from an affectionate pupil. A work of this kind which would give the young practitioner clear notions of the improved mode of treating diseases, without embarrassing him with refined speculations, or useless disquisitions, was much wanted. He attempted no systematic arrangement, but simply treated of those subjects, to which the attention of the surgeons of the army and navy would be most continually directed. No present could have been more acceptable to his country,

nor no gift more opportunely made; for, in the situation of American affairs, many persons were chosen to act as surgeons, who from their few opportunities, and their ignorance of the improvements, that had lately been made in practice, were but ill qualified for the office. His well meant endeavours were not lost; for the improvements which he made known, though new to most practitioners and surgeons, were readily adopted when recommended by such authority; and of whose success they were assured by the most convincing and daily proofs. This work, though written, and published as it was; amidst the hurry of extensive business and bad health, (circumstances unfavourable to literary composition) yet was not of so temporary a nature, as only to triumph in a transient usefulness, and be forgotten, when the spur of the occasion which called it forth had passed. Notwithstanding the publication of more systematic works, it will still instruct, and afford valuable information to the student of medicine. This was the only work ever published by Dr. Jones; it might have indeed been readily supposed, that more would have come from his pen, considering how

well qualified he was to make observations, and to impart to others, some portion of that knowledge of which he himself possessed so great a share. Such was actually his intention; and he had prepared another work for the press, but was prevented by the most base treachery from giving it to the world. This was a complete collection of meteorological observations, made for ten successive years, in New-York; with an account of the reigning diseases during that period; which as he has often informed me, was ready for the press at the time of his departure from New-York; when he placed it, together with all his valuable manuscripts, and the anatomical preparations, he had collected during his two voyages to Europe, in a place of apparent safety in a neighbouring state; and in safety they might have remained, had not a brother professor, who became acquainted with the circumstance, and knowing the value of the deposit; perfidiously seized on it, with a view of converting it to his own profit; by whom the whole were lost to the world and himself. Notwithstanding however, the little that came from his pen; yet, if every member of the profession was as willing as he may be able,

to communicate as much useful matter; medicine would no longer be considered as an uncertain art, but would arrive, by a gradual and progressive state of improvement to that happy period, when diseases shall no longer baffle the efforts of the physician, and when old age and casualties will become the only outlets of human life. He contributed his mite, and therefore deserves the thanks of posterity, let others follow his example and receive the like reward.

The business of teaching, as well as of private practice, was soon after interrupted by the commotions of his country; and by the actual existence of the storm, which had for sometime before, been collecting in its political horizon. War was already declared, and the blood of hundreds had been shed in the cause of freedom. The British army having taken possession of New-York, and the adjacent country becoming the seat of war, Dr. Jones with all the friends to the American cause, had previously left the city; and retired to some distance into the country. Many of his friends, who were attached to the British interest, protested against this measure, with all the warmth that a sincere esteem, and

disinterested friendship could inspire; and tho' he received the most positive assurances of not being disturbed on account of his political principles, if he remained in the city; but of having full liberty to follow the extensive and very lucrative business in which he was engaged; he refused to accept the offer of protection, that he might be under the painful necessity of witnessing, much less countenancing the devastations committed by the enemy. At the desire of his friends, the British commandant likewise made the most flattering offers of protection, in case he should think proper to return; but notwithstanding the losses he sustained in the destruction of his property, and from the interruption of his practice, he declined the offer, and rather chose to risque the whole; than accumulate wealth among the ravagers of his country. He considered negative virtues as entitled to but little praise, and that he should deserve but a small share of regard from his country, for resting satisfied with doing no evil: when he had it in his power to do much good. Fully convinced of the danger, with which the liberties of America were threatened; he conceived it criminal even to be a silent spectator of a con-

test carried on against a country that gave him birth, and to which he was attached by all the ties of veneration; and love and therefore accepted of a seat in the senate of New-York, for the southern district, to which he was appointed by the convention chosen for the organization of the state government, in conjunction with other fellow citizens. When he could no longer be useful in his legislative capacity, he exerted his professional abilities, by entering the medical department of the army, where he rendered important services to his suffering fellow soldiers, by healing those wounds which they had received in the cause of liberty; but this highly satisfactory employment was of a short duration; for the natural delicacy of his constitution, illy comporting with the hardships of a military life, and the manifest injury his health had already received; rendered it necessary for him to return again to private practice; accordingly on the evacuation of the city of Philadelphia by the British troops, he went thither in the summer of 1778; and found that during a short stay there, he enjoyed so much freedom from the asthma, with which distressing complaint he had been long afflicted; that he determined to

take up his future residence in that city. In the latter end therefore, of the following year, or beginning of 1780, he removed to Philadelphia. This separation from his former friends and acquaintances, was, as might be naturally expected, severe in the extreme. In few, or no instances are particular attachments more just, or of a more durable nature; than those which exist between a patient and a physician. They are founded on the tried skill and integrity of the one, and that unlimited confidence of the other, which greatly contribute to establish and continue esteem. Accustomed to enjoy the confidence and friendship of his fellow-citizens, many of whom he had observed gradually to rise, from being the companions of his youth, to eminence in life; he could not fail to look forward to the period of separation from them, without sincere regret. The great alteration however, in the state of his health, which he had observed since his change of situation, was sufficient to overbalance every other consideration, and determined him in his choice. The citizens of Philadelphia were not insensible of his merits; for the same success in practice as a professional man; and the same agreeable

manners as a gentleman, which placed him so high in the esteem of his fellow-citizens at New-York; could not fail of attracting those of his new place of residence.

On the resignation of Dr. John Redman, as one of the physicians of the Pennsylvania hospital, in the year 1780; Dr. Jones was unanimously elected by the managers to fill the vacancy, and was continued therein, until the time of his death. In his attendance upon this institution, he was as remarkable for his regularity, as for the success of his practice; and the plain tho' honourable mention made of him by the managers in their minutes; sufficiently testifies the sense they entertained of his services in the cause of suffering humanity. The same year, he was elected first president of the humane society.

In the year 1786 the attention of the citizens of Philadelphia was called to the poor of the place, who at that time were in a peculiar and distressing situation from the want of proper medical assistance when sick. The Pennsylvania hospital which previously to the late revolution, used to contain a great number of patients at a time, was prevented from extending its charity, in consequence of the loss it suf-

tained by the removal of many who were indebted to it, and by the depreciation of the paper bills of credit in which others paid the sums due by them to the institution. In consequence of this, the managers were under the necessity of confining within narrow limits, that charity which was formerly so liberally dispensed, and many poor people being thus precluded from proper medical attendance, often suffered very materially, both in health and property by the pretensions of ignorant imposters. A design was therefore formed of establishing a dispensary, by subscription, from which the poor might be furnished with medicines, at their own houses, and attended by eminent physicians. This humane plan met with all the encouragement which it deserved, and the institution was in a short time duly organized. A number of physicians and surgeons were appointed constantly to attend the patients, and others of longer standing in the profession, to consult occasionally with the former in extraordinary and difficult cases. Among the latter number Dr. Jones was elected, and annually re-chosen until the time of his death; and whenever called on, freely imparted that advice which he was so well qualified to give.

The success attending this institution, has greatly exceeded the expectations of its benevolent founders. It would be digressing too far, to enter into its particular history, but it is proper to observe, that since its establishment it has dispensed health, and removed disease from thousands. In short, so important are the advantages which have, and still are derived from it, that it has been happily said † “to exhibit something like the application of the mechanical powers to the purposes of benevolence, for in what other charitable institution do we perceive so great a quantity of distress relieved by so small an expence.”

In the succeeding year, the physicians of Philadelphia, influenced by the many advantages which have arisen in every country, from well conducted literary institutions; agreed to establish a college among themselves, for the advancement of the interests of medicine in general, but especially of this country; and elected Dr. Jones vice president; the chair of the college having been conferred upon Dr. Redman. But a part of the first volume of this society is published, and to this he has communicated one of the most interesting papers, up-

† By Dr. Rush.

on *Anthrax*, which is annexed to the present edition of his tracts. To the several offices above mentioned, Dr. Jones was honored by an annual re-election until the time of his death; a full proof of the sentiments entertained of the care, and zeal with which he attended to the advancement of their several objects.

Dr. Jones was not only the intimate friend, but also physician to Dr. Franklin, and attended him in the last illness, which deprived the world and his country of that philosopher. As it may not be unsatisfactory, to know something of the manner, in which so great a man conducted himself, when about to close his earthly scene, and enter upon another, of the existence of which, he was falsely reported to have disbelieved: I have preserved the following short account of his last illness, drawn up by Dr. Jones, and published at the time.

“ The stone with which he had been afflicted for several years, had for the last twelve months of his life, confined him chiefly to his bed: and during the extremely painful paroxysms, he was obliged to take large doses of laudanum to mitigate his tortures; still, in the intervals of pain, he not only amused himself

by reading and conversing cheerfully with his family, and a few friends who visited him: but was often employed in doing business of a public, as well as of a private nature, with various persons who waited upon him for that purpose; and in every instance, displayed not only the readiness and disposition to do good, which were the distinguishing characteristics of his life: but the fullest, and clearest possession of his uncommon abilities. He also not unfrequently indulged in those *jeux d'esprit*, and entertaining anecdotes, which were the delight of all who heard them.

About sixteen days before his death, he was seized with a feverish disposition, without any particular symptoms attending it, till the third or fourth day, when he complained of a pain in his left breast, which increased till it became extremely acute, attended by a cough and laborious breathing. During this state, when the severity of his pains, drew forth a groan of complaint; he would observe, that he was afraid he did not bear them as he ought; acknowledging his grateful sense of the many blessings he had received from the Supreme Being, who had raised him from small and low beginnings, to such high rank and considera-

tion among men: and made no doubt but that his present afflictions were kindly intended to wean him from a world in which he was no longer fit to act the part assigned him. In this frame of body and mind, he continued until five days before his death, when the pain and difficulty of breathing entirely left him; and his family were flattering themselves with the hopes of his recovery; but an imposthume which had formed in his lungs, suddenly burst, and discharged a quantity of matter, which he continued to throw up while he had power, but as that failed, the organs of respiration became gradually oppressed; a calm lethargic state succeeded; and on the 17th instant (*April 1790*) about eleven o'clock at night, he quietly expired, closing a long and useful life of eighty four years and three months.

It may not be amiss to add to the above account, that Dr. Franklin, in the year 1735, had a severe pleurisy, which terminated in an abscess of his lungs; and he was then almost suffocated, by the quantity and suddenness of the discharge. A second attack of a similar nature, happened some years after, from which he soon recovered; and did not appear to suffer any inconvenience in his respiration from these diseases."

In the summer of the year 1790; the President of the United States then at New-York; after having been for some days indisposed, became so ill, that other assistance in addition to that of his attending physician became necessary. An express arrived for Dr. Jones, and notwithstanding he was then much engaged in private practice at Philadelphia; he lost no time in flying at the call of a man, in whose welfare so many millions of FREEMEN were interested. Upon his arrival at New-York; he found that the disease from being of an inflammatory nature, had terminated in an alarming state of debility, and violent spasmodic difficulty of breathing, which threatened the greatest danger. An unacquaintance with the particular circumstances of the case prevents me from asserting positively, to whose fortunate advice the happy recovery is to be attributed; but the fact is, that in a few hours after the first visit, a manifest alteration for the better was perceived, and in a few days the President was out of danger. The importance of the service rendered, was not forgotten by a man, who has not only shewn himself capable of presiding with dignity at the head of our go-

vernment, which by his labours in the field he contributed so much to render independent; but has also uniformly evinced, that he is not inattentive to private worth. On the removal of the Federal Government to Philadelphia, the President chose him physician to his family; and he continued in that honorable station until the time of his death.

But true, as well as trite, is that observation; that short and unsteady are all sublunary enjoyments. At the very time, when he was reaping the benefits of a long and steady pursuit of his profession; and happy in the possession of the highest confidence of his fellow citizens; death put a stop to his earthly career. In the month of June, 1791, Dr. Jones rode out on horseback some miles from town to visit his friend Mr. Charles Thompson, Secretary to Congress during the late war; the day was warm, and he was so fatigued by his excursion; that he did not entirely recover himself for several days. On the evening of the 17th he paid a visit to the President of the United States; and previously to his return home, from being a very sultry day, the air became remarkably cool; he was dressed in a light manner

fuitable to the weather when he set out; but it was not sufficiently warm for the remarkable and sudden alteration in the temperature of the air that succeeded. Having some patients who required his attendance; he visited them before his return home, where he had no sooner arrived, than he felt himself much indisposed: the next morning he awoke with a smart fever, attended by a diarrhœa, and great prostration of strength. He continued for four days in this situation, with but little alteration, passing almost sleepless nights. Upon the fifth day, he became considerably better; was able to sit up, and the most flattering prospects were entertained of a quick recovery; exhausted however by the violence of the disease, the want of sleep and the conversation of his numerous friends, who had that day visited him; he retired early to bed in the evening, with a view by the help of an anodyne, to procure some rest. This however was denied him, and he continued in a very restless, and uneasy state the whole night, during which time he had a violent return of his asthma. Early in the morning of the 23d he felt some inclination

to sleep and desired to be left alone. His orders were perhaps too punctually obeyed; at eight o'clock his servant entered his room, and observed him in a calm slumber; he again visited him two hours after, when he found him in the same position with his hand under his head; to all appearance in a profound sleep, but on approaching the bed he perceived that he breathed no more. The quiet and easy manner of his death, and the apparent strength of body exhibited the preceding day; induced some of his brethren to hope that a suspension of animation only, had taken place; the usual means of recovery were accordingly tried for some time but all in vain: the scene was finally closed. He died in the sixty-third year of his age. His remains were deposited in the Friend's burial ground, Arch-street; and his funeral was conducted agreeably to a desire he often expressed; without the ridiculous pomp of a ceremonious interment, but in a plain manner, and strictly suitable to the excellent regulations of that religious society. It was attended by the members of the Philosophical society, his medical brethren of the col-

lege, and those numerous citizens who knew his worth, and will long regret his death.*

The person of Dr. Jones, was about the middle size; his chest was moderate, but perfectly well formed; his habit was thin, owing to his constant affliction with the asthma. His eye was quick and penetrating, his countenance cheerful but sedate, and his whole deportment was easy, tho' polite. Far from imitating those little minds, who attempt to acquire the confidence and respect of their fellow citizens, by a pompous conduct, and affected

* I cannot refrain inserting here the notice of the Pennsylvania hospital, above referred to; as conveying the sense they entertained of his upright conduct in the discharge of his professional duty to the institution.

“ *Pennsylvania hospital, 27th June, 1791.*”

“ AT A MEETING OF THE MANAGERS.

“ Report is now made of the death of our valuable
“ friend the late Dr. John Jones, who died the 23d. inst.
“ after a few days illness.

“ The managers sincerely regret, the loss which the
“ public sustains by the removal of this able, and emi-
“ nent physician; in a particular manner, they lament its
“ effects on the interests of this institution, wherein they
“ have had opportunities of observing, that during his
“ attendance for about eleven years; by a cheerful exer-
“ tion of his uncommon abilities, through the blessing
“ of Providence, he hath saved the lives of a number
“ of patients in the most difficult and intricate cases.”

distance, he was free and easy of access; for as he owed his fame and reputation neither to powerful friends or connexions; nor any of those lucky circumstances, which exclusively of abilities so frequently determine the fortune of physicians in satiaties; but rose into the esteem of his fellow citizens, solely by merit, so he depended upon this alone, for the continuance of that interest and support in the profession by which he lived. There was notwithstanding, such a gravity of appearance, and dignity of manners, (the outward image of his elevated mind,) which never failed to command respect and esteem. Few persons have died more sincerely regretted; for few persons possessed more of those engaging qualities, which render a man estimable, either in his professional character, or private capacity, than Dr. Jones. His conversation was of the most pleasing and interesting kind; while his language flowed in that easy spontaneous manner, which evinced at once how little it was studied; he at the same time enlivened it, by a sprightly vein of wit which delighted as well as commanded the attention of the hearer. He was however never known to make use of it, to the injury or even embarrassment of another, as is

frequently done by those who possess that power, and who would rather suffer the risque of hurting the feelings of their friend, than loose the mirth that was raised at his expence. He was fond of the *belles lettres*, and read much poetry of the best authors, whose happy expressions he had the utmost readiness in introducing, and applying to proper and seasonable parts of a conversation. He had seen much of life, and his memory suffered few things to escape, which his observation or judgment induced him to think worthy of retaining. These accomplishments rendered him a most agreeable, as well as entertaining and instructing companion; and being joined to professional merit, served to fix and secure the regard of his friends in a most powerful and remarkable manner.

As a surgeon, Dr. Jones stood at the head of the profession in this country; and he may be deservedly considered, as the chief instrument in effecting the remarkable revolution in that branch of the healing art, which is now so apparent; by lying aside the former complicated modes of practice, and substituting those which are plain and simple. The operation to which he principally confined himself for many of the last years of his life

was that of *lithotomy*; and his success in this difficult and important object of a surgeon's duty, was great indeed. In several cases, in which I had an opportunity of seeing him operate, and the honor of being one of his assistants, during the period of my surgical pursuits under his direction, I was struck with the calm, and firm manner, in which he proceeded in the most difficult cases; and the regularity, and ease with which he finished the operation, when the most untoward circumstances took place. Even in the month before his death, in a most capital and nice operation, there did not appear to be any diminution of that dexterity and steadiness of hand, for which he had always been so remarkable; and of which those not half his age might have boasted. From long practice also; and from that readiness which appeared to be constitutional; he had acquired a facility in operating, to which few surgeons have arrived; I have seldom known him longer than three minutes in lithotomy, and he has sometimes finished the whole in one minute and a half! Happy however, as he was, both as to the manner, and fortunate as to the event of the operation; he was not so anxious about the shortness of the time in

which it was performed as to the certainty of its success. Like his great master POTT, he reprobated the practice frequently pursued, of counting the motions of a surgeons hand by a stop watch, like a jockey does those of his horse's feet; from a conviction that surgeons, and particularly young ones, on their first outset, have sometimes injudiciously hastened an operation, with a view of shewing their dexterity to by-standers, who often judge of merit by the circumstance; and have thereby materially injured their patients. '*Respice finem,*' was the rule of *his* conduct, as it ought to be of *every* surgeon and physician; and as much as he attended to the shortness of the operation, as connected with the important consideration of alleviating pain; he nevertheless considered it of secondary consequence, and rather wished to accomplish that well, in a little longer time; than slight his work by a studied dispatch.

Connected with this part of his professional character; was his merit as an accoucheur; and in this difficult and important branch, his success was great. During the prosecution of his studies in Europe, he paid particular attention to this subject; and availed himself of

every opportunity, to become qualified to practise it; both by a strict attendance upon the various hospitals founded for this particular purpose; and upon the private practice of the different professors. In the lectures which he himself delivered in the college of New-York; he dwelt much upon this subject, and he may justly be considered as the first, who gave the medical students of that state, a proper and rational notion of the art. Convinced that nature, or more properly speaking, the EXERTIONS of the SYSTEM, were in the greatest number of instances sufficient for its own necessities; he seldom had recourse to those artificial aids, by the frequent use of which, the lives of the subjects were formerly often endangered; and whose general neglect, now marks such an æra in the history of the art. In cases however, of absolute necessity, which sometimes though fortunately seldom occur; he never failed to derive from them every possible aid; and while on the one hand, his becoming modesty, and delicacy of deportment not only marked the gentleman, but held him doubly dear to the female sex; his expertness in operating notwithstanding his aversion from

foreign assistance, sufficiently testified his knowledge of its use.

The merit of Dr. Jones as a physician, was likewise considerable. Though educated in the school of Boerhaave; he never professed an implicit faith on that, or any other systematic: he was guided by just general principles, and he varied his practice like every judicious physician, with the varying circumstances of the case. The works of the great Cullen did not make their appearance, until some years after he had been in practice; and though more free from error than those of the former; yet the modes of practice often necessary to follow in this country; differed so widely from those laid down by this eminent professor; convinced him of the impossibility of its universal establishment or even general application to a people; whose constitutions, state of society, and manners were as widely different, as their respective countries were distant. The success of his practice, was the best proof of the truth of his principles, and of the judgment which directed their application. He lamented the imperfection of the science, and never refused the adoption of any rational means of increasing its cer-

tainty, or the use of any remedy because it was new, which had been sanctioned by experience; and had reason and probability to recommend it; on the other hand, the caution with which he gave way to many much famed antidotes whose short lived reputation proved their merit; marked him the safe and prudent practitioner.

There was one particular trait in the character of Dr. Jones, which as affording a very useful lesson of instruction, deserves to be mentioned. This was the uncommon caution which he observed in giving advice in the concerns of others. It has been very properly observed, that advice to most persons, is disagreeable for two reasons; first, because it implies a superiority in the counsellor which few persons can brook, and secondly because it indicates a certain degree of wisdom, in which the person to whom the advice is given, is supposed to be deficient. Those likewise, who on all occasions are most ready to give advice, it is well known, are not always the most acceptable advisers: even in cases where it may be apparently asked in sincerity, it may frequently never be intended to be followed, and probably was only obtained with a view of

hearing diversity of opinions upon the same subject. Fully persuaded of this truth, Dr. Jones made it a rule, never to offer advice, and seldom to give it, except he had well grounded assurance that it was asked in sincerity; and in this case, when demanded upon a subject, concerning which he thought himself capable of informing; he seldom scrupled to give it, observing at the same time, never to make use of any persuasion to induce it to be followed, but left the party to decide for themselves. A conduct highly meritorious and worthy of imitation by all men in superior stations of life; to whom recourse is frequently had in cases of difficulty. But contrary to this, how frequently do we observe advice given, and the greatest persuasion made use of to enforce it, even where it never was required: the consequence of which is, that the plan originally formed is laid aside, and the new one proposed, adopted in its room; and as success does not always coincide with our expectation, however flattering the prospect, may at first appeared; the person, in case of failure who was so ready with his advice, justly obtains the reproach of those who were so unfortunate, as to be governed by his counsel.

Upon the extensive theatre of human events, this scene frequently takes place, and affords room for very important deductions to those who can grow wise by example, and profit by precept. For my own part, his conduct, to me, upon proposing to him a favorite plan, which at first promised much profit, but eventually verified his prediction, by turning out a ruinous project; will forever leave an indelible impression on my mind; and it was in obedience to his happy counsel, that I may in all probability ascribe the continuation of my existence, which enables me thus to record the history of my preservation.

The same prudential motives, which influenced Dr. Jones, in the above particular, likewise shewed themselves, in the caution with which he contracted friendships. The best knowledge, and that which is of the greatest advantage to mankind, is what we derive from experience. In the early part of his life, he had suffered as I was informed by the villainy of a man, in whose honor he had the greatest reason to confide; and dear as the price was, at which this specimen of human nature was afforded, it was not purchased in vain: it taught him a lesson by which he profited

during the remainder of his life; and pointed out the necessity of not placing such implicit confidence in men, who though they shew a specious outside garb of friendship, are actuated solely by self-interest in their apparently disinterested conduct. Thus cautious however in contracting friendships, yet when tried worth had induced him to form an attachment, he was sincere and firm. His friendship did not shew itself by those convulsive acts of generosity, which sometimes are performed; but in a constant and uniform disposition, which was ready to assist in the hour when most needed: not like the bursting of a scorching sun from behind a cloud, which brings on disease while it flatters with health; but like the moderate and gentle sunshine which imparts health to the body and serenity to the mind.

He is now gone to that "country from whose bourn no traveller returns;" and while we mourn his loss, let us if possible derive instruction from the record of his life. To my fellow members of the profession, and especially to those, who are about to commence their medical career, I would set him as a pattern every way worthy of imitation. He was their friend while living, and he contri-

buted much to their improvement by his labours. Like him, let them entertain a just sense of the dignity of the medical profession; let them rely upon actual merit, and real worth for their advancement, and despise every art that would tend to raise them in the esteem among mankind, upon any other, than this solid and substantial basis. May the bright pattern he exhibited stimulate them and EVERY member of the profession to the attainment of similar excellencies, and may the recollection of his virtues so operate, that while we lament the loss which the profession has suffered, we may endeavour, like him, to deserve equally well of society.

THE
SURGICAL WORKS

OF THE LATE

JOHN JONES, M. D.

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T O

DOCTOR THOMAS CADWALADER,

PHYSICIAN IN PHILADELPHIA,

S I R,

WHILE speculative philosophers are disputing about the origin of evil, and foundation of morals; and furious bigots, contending for different modes of faith, the practical good man, will endeavour to employ himself in alleviating those evils which he finds incident to human nature, without too vain and curious an inquiry into causes, the nature and operation of which, lie far beyond the narrow limits of human understanding.

The present calamitous situation of this once happy country, in a peculiar manner, demands the aid and assistance of every virtuous citizen: and though few men are possessed of those superior talents, which are requisite to heal such mighty evils, as now threaten

the whole body politic with ruin and desolation; yet, every man has it in his power to contribute something towards so desirable an end; and if he cannot cure the fatal diseases of his unfortunate country; it will, at least, afford him some consolation, to have poured a little balm into her bleeding wounds.

Influenced by these motives, I have endeavoured to select the sentiments of the best modern surgeons upon the treatment of those accidents, which are most likely to attend our present unnatural contest; and as many of the gentlemen engaged in that service are young men whose opportunities of instruction or practice, have been confined within narrow limits; I flatter myself, that such of them, at least, as are conscious of their own defects, will find in the piece, no unuseful guide. To you, whose whole life has been one continued scene of benevolence and humanity; the most feeble efforts to soften human misery, and smooth the bed of death; will, I know, be an acceptable present, however short the well meant zeal of the author, may fall of his purpose. Nor will you suspect me of the vanity of supposing, I shall convey any thing new or instructive to men of knowledge and experi-

ence in their profession, much less to yourself; to whose excellent precepts, both in physic and morals, I owe the best and earliest lessons of my life; and if I have attained to any degree of estimation with my fellow citizens, it is with the most sincere and heartfelt pleasure, that I publickly acknowledge the happy source.—That your virtuous life may be long continued as a blessing to yourself, your friends and your country, is the ardent wish, of your

Most obliged friend,

and affectionate kinsman,

JOHN JONES.

NEW-YORK, 12th OCTOBER, 1775.

INTRODUCTION.

TO THE

STUDENTS AND YOUNG PRACTITIONERS IN
SURGERY, THROUGHOUT AMERICA.

GENTLEMEN.

THE following remarks and observations, were thrown together, under the disadvantageous circumstances of ill health, and a variety of occupations, which allowed little leisure for composition; and I flatter myself the apparent necessity for some immediate production of this nature, will apologize for those defects which a discerning reader will readily discover. If any of you, by observing the following rules, should save the life, or even limb of but one citizen, who has bravely exposed himself in defence of his country, I shall think myself richly rewarded for my labour. In the mean time, instead of attempting an idle panegyric upon the most useful of all arts, per-

mit me to point out to you some of the most essential duties and qualifications of a good surgeon; the proper requisites of which respectable character, are only to be found in a liberal education; which furnishes every means of acquiring the knowledge, that must be ripened by experience, and graced by the constant practice of attention, tenderness, and humanity. A judicious surgeon will always find his powers and abilities of assisting the wretched proportionable to the time he has spent, and the pains he has bestowed, in acquiring the proper knowledge of his profession.

In most European countries, an invidious distinction has prevailed, between physic and surgery; but in this part of the world the two professions are generally united; indeed both these branches of medicine, are, in the very nature of things so intimately connected; as not to admit of absolute separation, without manifest injury to each. As a curious and interesting fact in the history of surgery, may serve to illustrate this opinion; I hope a short digression will not be deemed wholly uninteresting, or foreign to the present purpose.

At the revival of letters in Europe; when a cultivation of the languages had opened the treasures of the Greek and Latin writers, there

arose a number of great men, in all the different branches of science: but what was very peculiar to the state of surgery, particularly in Italy and Germany, is, that this science was cultivated and practised by the same men who studied and practised physic; so that the same persons were at once admirable surgeons, and excellent physicians; and it is precisely at this æra, that a crowd of celebrated men arose, whose works will forever do honour to themselves and their profession.

But it was not long before the operation of some of those passions, which have so much influence in the affairs of mankind; occasioned the decline, and almost total extinction of surgery. The exterior of this science, has nothing pleasing or attractive in it, but is rather disgusting to nice, timid, and delicate persons: its objects too; except in time of war, lying chiefly among the poor and lower class of mankind; do not excite the industry of the ambitious or avaricious, who find their best account among the rich and great; for this reason those illustrious men who were at once great physicians and surgeons, abandoned the most disagreeable and unprofitable part of their profession, to follow that branch alone,

which at once gratified their ease, their avarice, and their ambition. This regulation gave rise to the second state of surgery. The medical surgeons, in quitting the exercise of the art, retained the right of directing the barbers, to whom the operations and external applications of surgery were committed: from this separation, the surgeon was no longer one and the same individual, but a monstrous and unnatural composition of two persons; of a physician who arrogated to himself an exclusive knowledge of science, (and consequently the right of directing,) and a surgeon operator, to whom the mere manual part was committed.

The danger of this separation of the science of surgery from the art of operating was not at first perceived. The great masters who had exercised surgery as well as physic, were still alive; and the dexterity they had acquired, was sufficient to direct and assist the automaton, or mere operator; but as soon as this Hippocratic race of men, as Fallopius justly styles them, were no more, the progress of surgery was not only retarded, but the art itself was almost extinguished, little more than the bare name remaining: hence that animated and affecting picture, which Cæsar Magatus, the Ve-

nitian physician, drew, of the misery of those unfortunate citizens who languished without resource, under the most cruel and painful diseases, which were formerly cured with certainty; but the patients were then abandoned to their wretched fate, as the most favourable alternative; for they could but perish by the severity of the disease, and they were sure to die, by the ignorance of their operator.

The fatal consequences of a total separation of physic and surgery, are so strikingly exemplified in this remarkable epocha of the science; that I think it may serve as a sufficient proof, of the erroneous conclusions of a late celebrated professor of physic at Edinburgh: who in an excellent discourse upon the duties and offices of a physician, is of opinion, that the art of surgery would be more advanced, by confining the professors of it to mere manual operation, under the direction of an able physician, than it could be by those who practise promiscuously the different branches of medicine. It is with the utmost diffidence and reluctance, that I presume to differ with so truly liberal a character as that of Dr. Gregory, but as truth is the grand object of our mutual enquiries, and that

upon a subject the most useful and interesting to mankind, no names however great or respectable, should implicitly influence our researches.

For this reason, though I readily grant that a division of the practical part of medicine, into two different branches, may, by confining each to a more frequent attention to the same objects produce a degree of perfection which a more promiscuous practice could never arrive at; yet I must at the same time declare, that I can almost as readily conceive the possibility of seeing a good play performed by Punch's company of comedians, actuated by their director, as to see a number of surgeon machines, perform difficult and delicate operations, under the directions of their medical masters.

In short, the variety of difficult operations, performed with such superior success and safety, by the present race of surgeons, who are distinguished for their knowledge in every branch of medical learning, is an evident proof of the benefit resulting to operators from a more liberal mode of education; and I think it can no longer remain a doubt with any unprejudiced person, that an enlightened mind, united to the person of the operator, must and

will constitute the most accomplished and successful surgeon.

For these reasons, surgery may, with great propriety, be divided into medical and manual;—the first comprehends an infinite variety of diseases, which require the assistance of both internal and external applications; the last is confined to those cases which admit of relief from the hand alone, or assisted by instruments.

Hence it will appear very evident, how necessary it is for a student in surgery, to make himself thoroughly acquainted with most of the branches of medicine, which are requisite to form an accomplished physician.

Besides a competent acquaintance with the learned languages, which are to lay the foundation of every other acquisition; he must possess an accurate knowledge of the structure of the human body, acquired not only by attending anatomical lectures, but by frequent dissections of dead bodies with his own hands.

This practice cannot be too warmly recommended to the students in surgery: It is from this source that they must derive any adequate notions of the animal œconomy or physiology. Chemistry, and materia medica are, also very

necessary to a right understanding of pharmacy or composition.

To these should be added some progress in the mathematics and mechanics, which I will venture to assert may be applied with much more utility and safety to the science of surgery, than physics. But there must be a happiness, as well as art, to complete the character of the great surgeon. He ought to have firm steady hands, and be able to use both alike; a strong clear sight, and above all, a mind calm and intrepid, yet humane and compassionate, avoiding every appearance of terror and cruelty to his patients, amidst the most severe operations.

From this short view of the nature and extent of the art of surgery; it will evidently appear, how necessary an early and diligent pursuit of those branches of knowledge, which are to lay the foundation of future eminence, is to the young student, who will not find it so easily attainable as the generality of pupils are apt to imagine. To be proficient in an art which requires reiterated experiment; and whose subject is liable to so much variation, not only requires a good deal of time, but much sagacity and judgment. The great variety of habits and constitutions, and the fre-

quent complications of diseases with each other, constitutes an ample field for contemplation; and he who runs hastily through, will not be likely to reap much benefit from scamp-ering round the wards of an hospital, and reading a general system of surgery, which are too often the best foundation for practice, that many gentlemen can boast: But if a man duly reflects upon the importance of that art, in the exercise of which, health and life, the greatest of human blessings are concerned; he will deem himself accountable for all errors, into which ignorance or inattention must infallibly betray him.

In new settled countries however; where opportunities of improvement are not within the reach of every student; many gentlemen are obliged to set out in practice, with such a stock of knowledge as they are able to acquire under the tuition of a single master, who may, himself also often stand in need of instruction. To such gentlemen I would earnestly recommend a diligent, attentive, and repeated perusal of the best English practical writers, among whom Mr. Pott, in my humble opinion, claims the first and most distinguished rank. Mr. Bromfield's chirurgical remarks, contain a great deal of useful instruction upon

some of the interesting and difficult diseases in surgery.—The writings of Mr. Sharp, Mr. Gooch, and Mr. White of Manchester, also merit a very attentive perusal; and the Medical Observations of London and Edinburgh, abound with a great variety of useful and instructive cases, both in physic and surgery—Monsieur Le Dran, whose works are well translated into English, is the most celebrated writer amongst the French: his observations are the result of sound learning, and a prodigious experience of sixty years, both in the army, as well as capital of the kingdom; his last work entitled “*consultations*,” is peculiarly designed for the assistance, and instruction of young practitioners in surgery. As to those gentlemen, who will neither read nor reason, but practise at a venture, and sport with the lives and limbs of their fellow-creatures, I can only with Dr. Huxham, advise them seriously to peruse the sixth commandment, which is, “*Thou shalt not kill.*”

CHAPTER I.

OF WOUNDS IN GENERAL.

A WOUND is very accurately defined by the great Boerhaave, to be a “ recent and bloody solution of the union of a soft part, by a hard and sharp body in motion, pressed against it, or resisting it.” It is obvious from this definition, that the subject of a wound is a soft part, and we learn from modern anatomy, that the soft parts of a human body are a congeries of vessels of different kinds; and hence there can be no wound without a division of vessels of many different series: No sanguiferous artery can be divided, without the vessels of almost every different kind being wounded; for the coats of this artery being made up of other smaller vessels, and these again of a still finer texture, till we come to the smallest; it is evident by a simple wound of a sanguiferous artery, the ferous and lym-

phatic vessels are divided, with the membranes and muscular fibres which constitute the muscular coat of the artery ; hence it is obvious, that a very slight wound may injure all the congeries of vessels of which the soft parts are composed.

Those wounds therefore, are mortal, which are inflicted in those parts, whose cohætion is inseparable from life ; every wound therefore, which destroys the free influx of the blood into the heart, and its expulsion from it, must be inevitably mortal. For this reason, every wound of the aorta must be attended with certain death, as no assistance of art, can possibly be applied to stop the hæmorrhage ; other wounds may, if left to themselves become mortal ; but by the timely help of art, the danger of death may be removed, as in wounds of the arteries of the limbs, where the tourniquet may be applied till the bleeding vessel can be taken up by a ligature ; and in the reports given in by surgeons to judges of courts, these circumstances ought carefully to be adverted to, and distinguished. Many wounds also in themselves not mortal, may be rendered so by neglect or erroneous treatment ; this frequently happens to soldiers and seamen in

the day of battle, when the multiplicity of cases prevents the surgeons from paying a proper attention to all, hence many die of hæmorrhages which might have been stopped, and extravasations under the cranium, which the application of the trepan might have relieved. Errors in practice have the same fatal consequence ; persons falling into a deliquium, from a great loss of blood, who by proper nourishing broths, might have been recovered ; have lost their lives by an injudicious exhibition of spirituous liquors, which by their stimulus upon the vessels, produce fresh hæmorrhages. The effects too of wounds, are various, according to the variety of actions exercised while the wounded part was entire, nor is there a less variety of names, forms and effects in wounds, arising from the diversity of the wounding cause, and hence the incised, the contused, the lacerated, and the punctured wound.

If in a healthy and robust body, a wound be made in a visible place, not nourished by any large artery ; the following phænomena arise ; provided the orifice of the wound be defended from the cold, from air, and exsiccation.

First, the parts between which the wounding cause is forced, recede from each other more and more, though the cause be removed, unless in punctured wounds, which are very small. 2dly. The blood flows with more or less impetuosity according to the size of the wounded vessels; but by degrees stops spontaneously, the elasticity of the arteries contracting their bleeding orifices. 3dly. A sanguineous crust is formed in the cavity of the wound, the blood naturally coagulating when extravasated, and acquiring a degree of dryness from the contiguous air. 4thly. A diluted reddish thin liquor flows from it, resembling the washings of new killed flesh; this happens from the contraction of the larger vessels, while the serous and lymphatic discharge their contents. 5thly. The lips of the wound begin to look red, become præternaturally hot, painful, tumid, and retorted, while the bottom becomes more prominent, the fat rising into the aperture of the wound, and there degenerating. 6thly. A slight fever, accompanied with thirst is excited; these latter symptoms happen only in pretty large wounds, but the former occur in all, where there is a proper degree of vital force; and hence Hippocrates tells us, that

when severe wounds are inflicted, if a tumor does not succeed, it is a very bad sign, and the same admirable old surgeon as well as physician very justly lays it down as one of most important rules in surgery, "that on the third and fourth days, wounds are by no means to be disturbed; and that we are at this time to abstain from all searches with the probe, and every thing that may irritate them."

7thly. About the fourth day, sooner or later, according to the age of the patient and heat of the weather, a white, pinguious, equal matter, called pus, is generated in the wound; and this produces very happy effects, by separating the lacerated vessels and extravasated fluids from the sound parts which then grow up a-fresh. Hence laudable pus is esteemed by surgeons one of the best signs. 8thly. At this time the redness, heat, tumor, pain, retorsion of the lips, and fever, cease, or are greatly diminished; for all these symptoms arise in consequence of an obstruction in the circulation, from a contraction of the orifices of the wounded vessels, which a proper supuration removes; and this stage of the disease is called by surgeons, the time of digestion.

gthly. The cavity of the wound is generally filled up with new flesh; and the margins becoming white, bluish, soft and equal are united. Lastly, the wound becomes dry, and is covered with a cicatrix or scar."

From the preceding account* of the progress of nature, in the healing of wounds in healthy bodies; it may easily be perceived, how small a share art can justly boast in this very extensive branch of the diseases in surgery. And yet, how many infallible, healing balsams, and wonderful nostrums have been, and still are imposed upon the world, not only by quacks and empiricks; but by too many, whose education and knowledge of the animal œconomy, should render them incapable of low artifice, or ignorance of nature's admirable efforts for her own relief. It was this sensible and attentive observation of nature's operations, which rendered Hippocrates so judicious a surgeon, without those helps which we derive from the great modern discoveries in anatomy and physiology; and the same good sense and observation, renders the practice of the present English surgeons, particularly in

* Which is taken from Boerhaave.

wounds, so much more simple and plain, than that of the surgeons of other nations.

Mr. Sharp, in his excellent introduction to the operations of surgery, recommends nothing but dry, soft lint, to recent wounds, which is generally the best application through the whole course of the cure. At first, it restrains the hæmorrhage with less injury than any styptic medicines; and afterwards, by absorbing the matter, which is at first thin and acrimonious, it becomes, in effect, the best digestive: during incarnation, it is the softest medium that can be applied between the roller and tender granulations; and at the same time, an easy compress on the sprouting fungus.

For these reasons I shall not recommend any ointments for recent wounds, unless some mild, soft one, to spread on a pledget of tow, to cover the lint.

When a wound degenerates into so bad a state as to resist this simple method of treatment; and loses that healthy, florid appearance which characterizes a recent wound; it is then denominated an ulcer, which is distinguished by various names, according to the different appearances of the sore, the peculiar habit of body, or particular disease attending the

patient. But as this branch of surgery does not come within my present plan, I shall proceed to give a short account of the usual division of wounds. Previously to this however, I beg leave to offer a few remarks upon the doctrine of inflammation; a subject of which every person, who intends to practise surgery, should endeavour to acquire just and accurate ideas; for from this cause a great many diseases arise, which require the assistance of chyrurgical operations; and it is always more or less, the consequence of operations themselves, as well as of wounds, fractures, dislocations, and other accidents.

CHAPTER II.

OF INFLAMMATION.

WITHOUT entering into any minute physiological investigation of the theory of inflammation, which would be inconsistent with my present plan; I shall content myself with saying, that irritation, and pain, however they may be occasioned; are at all times its immediate or proximate causes; and that, in most cases, if we can prevent these, we shall proportionably prevent, or at least lessen the succeeding symptoms of inflammation. This is to be done only by the immediate exhibition of anodynes, proportioned to the age and strength of the patient, and the severity of the complaint. Bleeding, gentle laxatives, warm baths, and soft cataplasms to the parts af-

fectcd, will all contribute towards this most desirable purpose, and should never be omitted; yet without premising opium, they will seldom avail in preventing inflammation. Let it be carefully observed however, that I here suppose the surgeon to be present in the first state of the disease, where prevention may be happily substituted for a cure. In other cases, as frequently happens in the day of battle, when this timely application cannot be made; and when pain, continued for some hours, has already induced a degree of heat, tension, redness and swelling, a different mode of treatment becomes necessary; for although anodyne medicines may lessen the violence of the pain, they will not remove the symptoms already occasioned by it: in this case, more copious evacuations, cooling medicines, a most exact diluting diet, and perfect quiet of body must be insisted on.

A still different, and more difficult task presents itself to the surgeon, when any of the tendinous and membranous parts are injured; for though these substances have little or no feeling in a sound state, yet when they are diseased, they acquire a most exquisite degree of sensibility; and if to this third state

of the nature of inflammation, we add a fourth; attended by a fracture of the bones, it will comprife almost every circumstance relative to the subject in question. Here, all the skill and attention of the surgeon, will be necessary, to prevent, or alleviate the dangerous and too frequently fatal symptoms of convulsion, abscess, and gangrene; which a more violent inflammation induces in this species of wounds; where bleeding, joined to the general antiphlogistic method must be more rigidly insisted on:—all stimulating foreign bodies must also be removed; anodynes exhibited according to the violence of the pain and urgency of the symptoms. Abscesses should be opened, and the first appearance of gangrene obviated, by a more cordial nourishing diet, spirituous fomentations, and a liberal use of the bark. The application of all which remedies however, will be particularly pointed out, in treating of compound fractures distinctly. In the mean time, I shall proceed to take some notice of the usual division of wounds.

CHAPTER III.

OF THE DIVISION OF WOUNDS.

WOUNDS have been generally divided into four different species; the *incised*, the *punctured*, the *lacerated*, and the *contused*; each of which, although they are all attended with a greater or less degree of the same symptoms; and require the same general treatment; have some peculiarities, which render this distinction both useful and necessary.

The simple incised wound, when unattended with any considerable hæmorrhage, or great loss of substance: is always to be healed by what surgeons call the first intention; which consists in approaching the lips of the wound, until they come into the most exact

contact, and preserving them in that situation, by suture or bandage, until the union is accomplished.

Whenever a wound will admit of this contact, by means of a sticking plaster, assisted by the uniting bandage; the use of a suture is unnecessary, and this is generally the case in superficial wounds, and even pretty deep ones of the limbs, when made in a longitudinal direction, where the uniting bandage can be assisted with proper compresses. But many oblique wounds, of the body and face, particularly, will not admit of this mode of union; and the use of the suture becomes absolutely necessary. That species of it usually employed in the union of common incised wounds, is called the interrupted, and is to be performed in the following manner*.

* This is the common method of performing the interrupted suture, but Mr. Bell objects to it, and proposes the following. He directs that a thread be armed upon each end, with a needle, and each needle being inserted at the bottom of the wound, is to be pushed *outwards*, so as to pass at a proper distance from the edge of the wound, when the needles are to be taken off, and the threads allowed to remain, until all the legatures are passed, which the extent of the sore requires. If the pain attending the infliction of a wound be very violent, and does not abate by

After cleansing the wound from coagulated blood, and all foreign bodies; let an assistant approach the lips towards each other, and having measured the depth of the wound with the eye, pass the needle, previously dipt in oil, at such a distance from the edge of the lip, as will make it equal to the depth of the wound, and carry it out at the same distance on the opposite side; then draw the ligature close enough to bring both lips into immediate contact, without wrinkling or puckering the parts, and make a double knot: the number of stitches must be proportioned to the length of the wound. A good general rule will be, to use no more than are just necessary to bring the lips into exact contact, and this mode of passing the ligatures by describing a kind of semicircle, will answer that intention perfectly, by approaching the lips from the bottom of the wound to its external surface. A piece of adhesive plaster, embrac-

relaxing the muscles of the part affected; by the exhibition of an anodyne; or by the use of such internal or other remedies, as the *state* of the system may require, and where no extraneous body can be discovered as the cause of the pain; it may probably arise from a half divided nerve or tendon; the cure in this case, is to cut through them, and then to use the means above mentioned. M.

ing a large portion of the external integuments on each side, will contribute to preserve the parts in their proper situation. The ligatures should be removed as soon as the union is compleated, which generally happens either the second, or third day, often in twenty-four hours.

Punctured wounds, which do not penetrate into either cavity of the body, require no particular mode of treatment, unless they are deep and winding, in which case some dilatation of the external orifice becomes necessary, in order to discharge more freely any extravasated fluids, which might otherwise occasion troublesome and disagreeable abscesses*.

* When the punctures do not extend to any great depth; foreign substances which may be introduced, can easily be extracted; and where no great inflammation succeeds, the wound may for the most part be healed by compression properly applied. But in deep wounds which cannot be healed by the above treatment; the only certain means of obtaining a cure, is a free dilatation from one end to the other; as thereby all the extraneous bodies may be readily brought into view, and extracted, and those spasmodic symptoms, that follow the puncture of the tendon or nerve, may be removed; whenever therefore there is no danger from hæmorrhage, and no other cause exists, which in the judgement of the surgeon, may prevent the operation; it should always be performed. The *probe pointed bistoury*, or scalpel and disca-

Surgeons are not entirely agreed in the method of treating lacerated wounds; some advising a removal of the lips, particularly, when large, while others contend for their

tor have generally been used for this purpose; the former is certainly the preferable instrument, in all sinuous wounds and ulcers, which do not extend far; yet as they are frequently of considerable depth or length; I would recommend to surgeons, the use of the *litbotome caché* of FRERE COSME, as very convenient to open at once those deep sinusses, that are attended with such great sensibility as not to allow the patient to bear the protracted torture from repeated cuttings of the scalpel. I was witness to its use in a very deep sinus, (the consequence of a large abscess,) which extended from the *spine* of the *of ileum*, to the lower part of the belly; and the operator, Dr. Foulke, employed it with such advantage, as to quickness and saving of pain; that I determined to use it in the first similar occasion that I should meet with. A plate of the instrument, together with the manner of using it, may be seen in Bell's surgery, Vol. II.

The most alarming symptoms consequent on punctured wounds, are those of *tetanus*, or *lock jaw*; the cure of which dreadful disease, however important, cannot be inserted here; I would therefore refer the reader to Med. Inq. and Obs. by Dr. Benjamin Rush Vol. I; to the Memoirs of Med. Soc. of Lond; and to the 'Transactions of College of Phys. of Philad; where he will find several cases of the efficacy of the tonic mode of treatment, as recommended by the above physician. In the Obs. on the weather, and diseases of Philad; for June 1791, inserted in the Amer. Museum; I have also related two cases of the successful use of

preservation: but as the skin, or common integument, is a most useful, as well as ornamental part of the human body, I believe it may be laid down as a very just and general rule, to preserve as much of it as the nature of the case will admit; we all know how readily, raw tender parts will unite; and wherever moderate bandage can be applied, there is a good prospect of success from the attempt, which should always therefore be made. If the torn lips are very unequal, they may be reduced nearly to the state of a simple incised wound, by the assistance of the knife; and a future will then not only forward the cure, but prevent deformity; which every good surgeon will always endeavour to avoid.

Severe contused wounds have this peculiar circumstance attending them; that the vessels having intirely lost their tone, are no longer able to circulate the contained fluids, or take up what are extravasated, by absorption, for which reason, suppuration must inevitably fol-

the same excellent method, and in the number of the same work, for the succeeding August, I have published another case of the disease, which was cured by the late Dr. Hanbaum, of Charleston, South-Carolina, with the same remedy after the ineffectual administration of the old and opposite mode. M.

low; and when an opening has not been made by the accident, it is the surgeon's duty at the proper time, to do it in the most advantageous manner, by making a large depending orifice; and by the use of warm discutient fomentations, and spirituous embrocations, which are very useful, and in common contusions, will be sufficient to answer every intention, without any opening. It is very evident, that contused wounds, under the preceding circumstances, will not admit of the future with any degree of propriety, or prospect of success.

I scarcely need observe, that moderate evacuation, by bleeding, and gentle purging, together with a low diet, are, in these cases absolutely necessary.

Wounds of the tendons, with a cutting instrument, are now treated like other simple incised wounds; provided the extremities of the divided tendon can be brought into contact, and be preserved by means of a proper bandage in that situation; no future is ever made use of. The tendo Achillis when ruptured is often united in this way, by bending the knee, and relaxing the flexor muscles of the leg, while the foot is extended and pre-

served in this situation, by a proper bandage.—Monfieur Le Dran*, recommends for this purpose, a leather knee piece, to the posterior, and inferior part of which, a strap, of a foot in length, is fastened; then a piece of thin wood being fixed to the sole of an old slipper, and one end of it projecting near three inches beyond the heel, with a short strap and buckle, to which that from the knee reaches, and admits of being drawn up sufficiently to bring the extremities of the divided tendon into perfect contact. The external wound is to be defended with an adhesive plaister, and absolute rest enjoined, till the parts are united, which does not happen sometimes for several weeks, particularly, if any inflammation attends the wound.

* A plate of a similar machine, invented by the late Dr. Monro for himself, with the manner of applying it, may be seen in Bell's Surgery, Vol. V. plate 68. M.

CHAPTER IV.

OF WOUNDS PENETRATING THE THORAX
AND ABDOMEN.

WOUNDS which enter either cavity, may be divided into three general classes; such as are mortal: such as are necessarily hazardous: and those which are accidentally so. These distinctions are founded in the structure and office of the wounded parts, combined with the natural consequent symptoms, and the treatment of the surgeon.

All wounds of the heart, aorta, cerebellum, medulla oblongata, and receptaculum chyli, are justly deemed mortal, because those parts are immediately subservient to life; but those of the lungs, liver, intestines, kidneys, pancreas, gall bladder, large vessels, spleen, me-

sentery, bladder and stomach, are only hazardous in proportion to the nature of the offices they perform in the animal œconomy, and the degree of injury they have received; to which may be added, errors committed by the patient, or his physician, by which a greater degree of fever, inflammation, and discharge are excited.

A short view of the nature and situation of wounded viscera, will shew us how little we are to expect from any external applications, unless when some particular viscus is protruded, through a large wound of the abdomen, and of which proper notice will be taken hereafter. The great and principal attention of the surgeon should be directed to the prevention or diminution of inflammation; therefore after a proper dilatation of the external orifice, which in punctured penetrating wounds, is almost always necessary, the patient should immediately lose as much blood as his strength will bear, and this from a large orifice, by which means the hæmorrhage, if considerable, will be most effectually restrained. The bleedings should be repeated at short intervals, according to the nature and urgency of the symptoms; emollient glysters, cooling nitrous drinks, ano-

dynes to alluage pain, a most rigid exact diet, consisting solely of thin diluting drinks, perfect quiet, and a posture which at once contributes to the patient's ease, and the discharge of any extravasated matter, constitute the other most essential aids, which we can call in to assist nature to whose admirable resources we must chiefly trust the rest of the cure.

Should any portion of the intestines or omentum, the usual parts protruded, be forced out, they ought as early as possible to be reduced, by placing the patient on his back, with his hips a little elevated, and then with the fore finger of each hand, gently and alternately pressing the protruded part into its proper place, but if such a degree of strangulation should attend, as to prevent this easy reduction, a sufficient dilatation must immediately be made, by introducing a director, on which Mr. Pott's curved bistoury with a button point, may be conveyed, and the enlargement performed without any difficulty or danger, unless from wounding some blood vessels, which a tolerable knowledge of anatomy will teach us to avoid.

A mortification of the omentum is sometimes the consequence of a long strangulation,

in which case the mortified part may be removed with the knife, and the rest returned without making any ligature upon it; the external wound may be united by means of the interrupted suture, assisted by compress, bandage, and a suitable posture*.

Penetrating wounds of the thorax, are in general pretty easily distinguished from the peculiar symptoms which attend them. The most remarkable of these, are the passage of air through the wound in respiration, and the expectoration of frothy blood from the lungs when they are wounded. If the wound be made with a bayonet or small sword, the external orifice must be immediately enlarged, in order to give a free discharge of the blood lodged in the cavity. The bleedings must be proportioned to the degree of hæmorrhage, which, if

* Several of the viscera of the abdomen, from wounds in its cavity; have at various times protruded, and been cut off; particularly the *liver*, in suppurations of that viscus. In one of the notes which Dr. Jones added to the abridgment of Bell's Surgery, by Dr. Waters; he mentions the case of a man, who received a wound in his belly with a shoemakers paring knife, by which he had a portion of the *Pancreas* protruded at the orifice which was cut off close to the integuments; and the rest being returned into the cavity, the man recovered. M.

violent, can only be restrained by large, and repeated venesections, frequent doses of nitre in barley water, or flaxseed tea; and an extreme cool regimen and perfect rest; even speaking should be absolutely forbidden*.

* In wounds of the lungs, repeated bleedings, in conjunction with the means above recommended, are the chief remedies to be relied on for a cure. It is astonishing what a quantity of blood a person who is wounded in his lungs, will bear to loose without injury. Of this, the following is a remarkable case. During the late war, a Scotch captain, by the name of M^rPherson, was wounded in his lungs at the battle of Princeton, and taken prisoner. Dr. RUSH who was then physician general to the American army, was called to him; and in the course of six weeks was obliged to take from him upwards of 1400z. of blood; and so highly irritable was his whole system, that it was necessary to confine him to a dark room, and the most abstemious diet. Even gruel, or panada, never failed to bring on a violent fever and cough. By this treatment he recovered, and was two years since alive and well. Dr. May, in his treatise on consumptions; mentions the case of an officer, who in a duel received a ball in his breast, which passed through the right lobe of his lungs, and yet recovered by a strict adherence to the anti-phlogistic plan of treatment; and an assiduous use of every means to abate inflammation. It is fortunate that the mortality attending wounds in the lungs is not near so great as it might be naturally supposed it would be, from the situation, and importance of the organ in the animal œconomy. Besides the above remarkable instance, we are also informed, that out of twenty-four cases of wounds in the lungs, which

An emphysematous tumour, arising from the insinuation of air into the cellular membrane, sometimes attends penetrating wounds of the thorax, and occasions very painful and troublesome symptoms, the proper treatment of which I shall refer to the chapter on gun shot wounds, in which a fracture of the ribs has induced this particular complaint.

But in case of a wound in the intestines, the divided lips must be united by means of the glover's stitch*, then brought in contact with

occured during the campaign of 1776, twenty-three recovered, Rush's Med. Inq. vol. 2. Another case equally extraordinary, I deliver on the same authority, to whom it was communicated by a Russian gentleman, a witness to the fact. A gentleman in London, some years since had a pleurisy, which terminated in an abscess in his lungs; and while on a journey in France to recover his health recieved a challenge, his antagonist in a violent pass, thrust the point of a small sword into his breast, and punctured the abscess, which discharged a quantity of pus, and he recovered. The great principle, that ought to be attended to, in wounds of the lungs, is to consider them, and the consequent symptoms, as a *pneumonia*, and to treat them accordingly, regarding the external wound, as only liable to let in air, and thereby causing inflammation. M.

* In making this suture, the common practice of perforating both sides of the gut at the same time ought to be avoided, according to Mr. Bell, who directs, in order to prevent the

the bottom of the wound, and kept there by means of the ligature, the two extremities of which are to be placed on the external integuments, and retained there by an adhesive plaister, until the union of the intestine be completed. The ligature may then be withdrawn, and the wound healed in the usual way.—The necessity of exact regimen, and extreme quiet, are too obvious to need a repeated injunction.*

Wounds of the containing parts about the breast and belly, which do not penetrate the cavities, are often attended with severe, and sometimes dangerous symptoms. Bleeding and the general antiphlogistic method, will gener-

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cavity of the intestine being lessened, that a small, fine and round needle, armed with silk, and a knot at each end, should be inserted from within, and the stitches made in a connected series, at the distance of two tenths of an inch from each other; and the needle entered in opposite places of the lips of the wound, by which it will go in a diagonal line from one side of the wound to the other. M.

* In the former edition of this work, this last paragraph was omitted to all appearance by mistake; as in the original manuscript now in my possession, no mark or erasure on it is to be seen, and as it is of importance, I deemed its insertion necessary in the present edition. M.

ally succeed in removing them. But the surgeon is often puzzled to know whether a wound in the abdomen has penetrated the cavity, or not; for if none of the contained parts are injured, the symptoms may be so equivocal, as to render it very uncertain; nor is it of any great consequence to ascertain this matter, as the method of treatment in either case, is pretty much the same. It is even very difficult in many cases, to determine precisely which of the viscera are wounded, unless in some of the principal organs, such as the liver, stomach, or intestines, whose injured functions pretty plainly indicate the part affected; but the spleen, pancreas, and mesentery, may be very considerably injured, without exciting any other than the general symptoms of pain and inflammation; and indeed it is of less consequence, with respect to the patient's treatment, than the surgeon's prognostic, to find the exact seat of a wounded viscus. But as the reputation of a surgeon depends greatly on a just prognostic, he cannot be too attentive in discovering the true seat of the injury, which alone can determine the degree of danger. For this purpose the patient during examination, should be placed as nearly as possible, in the

same situation he was in at receiving the wound; every evacuation must be carefully examined, and the utmost regard paid to the peculiar symptoms, which attend the injured functions of the different organs.

CHAPTER V.

ON SIMPLE FRACTURES OF THE LIMBS.

IT might reasonably be supposed, that a branch of surgery, which has been constantly practised by the ablest masters of the art, both ancient and modern; for above two thousand years, should be well understood, and long since brought to its utmost degree of perfection. This opinion, indeed has so universally prevailed, that the most ordinary country surgeon has thought himself as well qualified to reduce a simple fracture

as the first man in the profession; even the most illiterate mechanics, who make no other pretension to knowledge in surgery, than what they assume from their pretended skill in bone setting, put themselves on a footing with the most regular surgeons in the reduction of fractures, and often obtain a higher degree of reputation in the art, not only from the vulgar, but even among the more enlightened and sensible part of mankind.

This strange infatuation is not altogether to be accounted for in the present case, from that strong desire of health and ease, which like the love of money, reduces all understandings to a level; but may in some measure be owing to that general error, which the regular professors of the art, as well as the most ignorant practitioners, have hitherto laboured under, with respect to the most proper and successful method of treating fractures of the limbs in general, and the larger ones in particular.

An implicit adherence to the opinions of others without exercising our own reason, has been the source of that blind attachment, which men in all ages have paid to the authority of names and characters, and the best un-

derstandings have been so much fettered by these shackles, as to overlook the most obvious truths, and even when some enlightened and liberal minds, have dared to deviate from the beaten track, and boldly point out the absurdity of antiquated errors: it is with no little difficulty, that men who have been long bigotted to forms, can be induced to adopt more just and rational modes of practice. It is however to be hoped; that the late improvements in this essential branch of surgery, for which we are principally indebted to Mr. Pott, will soon become general; and that the most obstinate adherents to the old practice, will quit their error, the moment they are acquainted with a method, which is so demonstratively founded in the structure of the parts, the nature of the disease, and above all, in the incontestable evidence of the plainest facts.

The true curative indications in every simple fracture, are to reduce the broken extremities of the bones, as nearly as possible to their natural situation, and to retain them when there, by the most easy, simple and effectual means. How far the methods hitherto made use of, were calculated to answer

these desirable purposes, will best appear from a fair and candid examination of them.

In the first place; an extension and counter extension, as it is called was made by two assistants, with more or less violence, according to the nature of the case, until the extremities of the broken bone were brought opposite to each other, when the surgeon with his fingers finished the coaptation or setting, after which a long roller, making many turns both upon, as well as above and below the fractured part, was applied; upon this roller, splints of different kinds, armed with tow or linen compresses, to fill up the inequalities, were placed longitudinally, and secured with tapes or some kind of ligature, drawn pretty close, to preserve the fractured bones from slipping out of their place, and for greater security, the limb was fixed in a strait direction fully extended, and resting upon the calf and heel, in a fracture box, defended by a pillar or some soft substances.

This is, I think, the general method of reducing simple fractures, formerly followed by the surgeons of most countries; and which is pursued to this day, by a great majority of practitioners in Europe, as well as America;

and many a painful tedious hour, has it cost the unfortunate patient, as well as difficulty and sollicitude to the surgeon, to prevent all the mischiefs arising from this preposterous and irrational mode of reducing and treating simple fractures. I shall only mention some of the most usual difficulties attending it.

In the first place, the violent extension frequently made use of by the assistants, often occasioned so much pain, inflammation, and swelling; as obliged the surgeon to loosen or remove his bandage; which could only be done by cutting it at the extremities with a scissars, or taking it entirely off. This necessarily occasioned a removal and disturbance of the limb, which should always be avoided, as much as possible, in every fracture: but if these mischievous consequences did not follow the first reduction; others no less painful, though not so easy relieved, arose from the extended position of the limb. Besides the stiffness of the knee, and skinking of the calf of the leg; the most intolerable uneasiness was very soon created in the patient, from the constant and unavoidable pressure of the heel, upon whatever substance it rests. A long decumbiture will frequently produce a mortification of the

integument; and I have more than once or twice, seen the bone laid bare, by this absurd and painful posture.

To point out a more just, easy, and natural method of cure, shall be the remaining business of the present chapter.

To obtain any adequate ideas of the nature of diseases, it is absolutely necessary to have a competent knowledge of the structure and offices of the parts affected; it is from this source alone, that we can lay any reasonable foundation for a just method of cure; and even this necessary knowledge will be insufficient, unless we are capable of thinking, examining, and acting for ourselves. The general structure and uses of the bones and muscles have been well understood for many centuries; yet nobody, until of late, has had sagacity enough to apply this general knowledge, to the particular purposes of the disease in question.

It is obvious to the most common understanding, that the bones considered abstractedly in themselves, are mere passive inactive bodies, without any locomotive faculties, but are moved by powers firmly attached to them; which powers are called by anatomists the muscles, and these bodies have the singular pro-

perty of contracting, or lengthning themselves, according as they are influenced by the mind, or the operation of external bodies stimulating them to action.

When a bone therefore is broken and separated; it has no power of restoring itself to its natural situation; whatever change of place it receives, must be entirely owing to the action of the muscles, which alone possess this astonishing power of contraction, and which is increased or diminished more or less, according as they are placed, in a state of tension or relaxation. Upon these self-evident principles, the absurdity of the old and general practice of reducing fractures, will appear in the most striking light; every man who has had the least experience in surgery, will easily recollect and acknowledge the appearances which are generally exhibited in fractures of the lower extremities, where the ends of the broken bone occasion more or less deformity, according to the nature of the fracture, and the force of the surrounding muscles. In oblique fractures of the thigh, this effect is very remarkable, the ends of the bones lap over each other to a considerable distance; and

produce a very apparent inequality in the appearance of the limb, often attended with much pain, from the sharp points or edges of the broken extremities.

The position which the patient always endeavours to place himself in, under these circumstances; will clearly point out the true state of his case, as well as the most rational mode of relief. Far from stretching out his injured limb, or lying on his back, (the situation in which surgeons place him for his relief;) he naturally and instinctively seeks it, by gently turning himself upon the injured side, drawing up the thigh towards the body, and bending the knee, by which means the muscles, or moving powers, are immediately put into a state of the utmost relaxation, and their action upon the bones entirely removed, which restores the patient to a state of ease and quiet.

What is the reason, says Mr. Pott, that a fracture of the *os humeri* is so easily reduced and maintained in its situation, with so little pain and difficulty? It is because both the patient and operator, are obliged as it were, contrary to the mode of treatment in the lower limbs, to place the muscles of the arm in a

state of relaxation, by bending the elbow, supporting it in a sling or scarf, and approaching it to the side of the body, where it rests in a state of ease and security.

Why is a fracture of the tibia, when the fibula remains unbroken attended by so little pain or deformity, and retained in its place with so much facility? The reason is most obvious, the contraction of the muscles is prevented by the fibula, which keeps them in their natural state.

From what has been said, the true position of a fractured leg or thigh for reduction, appears to be the reverse of that hitherto made use of. Instead of extending the leg in a right line, and attempting to replace the broken bones, while the muscles are in a state of tension and contraction; the patient is to be placed on his side, with his knee half bent, one assistant taking hold of the lower extremity of the leg, just above the ankle, while the other embraces the superior end just below the knee; both making at the same time such gentle extension, and no more, as is necessary to bring the bones opposite to

each other ; when the furgeon, with his own hands reduces them to the most exact apposition in his power.

The relaxation of the muscles of the thigh, must be made by drawing it gently towards the body, and whoever examines with the least attention, the structure of this bone, and its articulation with the hip, will readily discern how admirably this side position of the limb and body, is calculated to promote the patient's ease, as well as happy union of the bone.

Extension and apposition of the fractured limb, having been made under the foregoing circumstances ; the next consideration will be the application of proper medicaments to the part affected ; a variety of compositions, consisting of adhesive plaisters, cerecloths, the white of an egg with vinegar, or thin compresses dipped in Spirit ; Vin. Camphor have been used for this purpose ; many of them are well enough adapted to answer the intention, while others, particularly the adhesive plaister ; by irritating and inflaming the skin, and exciting a tetterous eruption, becomes exceedingly troublesome and injurious. The only rational view in any external application ; is to keep

the skin lax, moist and perspirable, and by such means to repress or abate inflammation, and disperse extravasation; while very gentle compression serves to restrain the bones in some measure to their proper places; and these desirable purposes are most effectually answered by a cerate with a solution of litharge in vinegar, to which such a proportion of soap, oil, and wax is added, as will give a consistence, that admits of being spread without warming.

But whatever be the form of the composition, it is of great consequence to have it applied in such a manner, as will admit the fractured part to be viewed occasionally without disturbing or removing the limb, and this is absolutely impracticable where the roller is employed; for which reason the eighteen tailed bandage, which has been long used for compound fractures, is now with great propriety applied to simple ones, and the improvement made in the form of this bandage by Mr. Pott, renders it much more neat and commodious; for by given the flaps or tails an oblique direction, they lap over each other with the utmost exactness, and lie perfectly smooth and even. We can also give them as much tightness, as is ever necessary for any of the useful pur-

poses of bandage in simple fractures; for the old notions of restraining a flux of humors, or preventing the luxuriant growth of callus have no foundation in reason, experience, or common sense; the callus is a fluid, separated by nature from the extremities of the broken bones, and its quantity is always in proportion to the nature of the fracture: if the bones can be brought into exact and even contact, a small quantity of callus is sufficient to unite them; but when they lap over each other, a large portion becomes necessary to constitute a firm and solid union.

The deformity which is frequently the consequence of broken bones, is not owing to the exuberance of the uniting medium, but the ignorance or neglect of the surgeon, who is ever ready to conceal his want of knowledge or attention, under the cloak of luxuriant callus. I do not mean to insinuate, that this is always the case. A surgeon may be called to a patient where the time elapsed since the fracture, as well as other circumstances may render a perfect reduction utterly impracticable, in these cases we must satisfy ourselves with doing the best in our power.

The next part of the apparatus for a fractured limb are the splints, which are generally made of wood, or pasteboard, but so short that they can only act as a compress, and that a very hard and uneasy one, upon the ends of the fractured bones. But as the true use of splints is to preserve the whole limb in a steady, firm position, without compressing the fracture at all, they ought to extend below the ankle and above the knee; and with this rational view, the ingenious Mr. Sharp, one of the surgeons of St. Bartholomew's hospital, has invented a set of splints both for the leg and thigh, which are admirably adapted to answer the foregoing intentions; those for the leg are only two in number, they are made of strong pasteboard, covered with thin leather, and fitted to the shape of the leg: the external or fibular splint, on which the leg is to rest on its side, has a hole at its inferior extremity, to receive the prominent ankle, and thereby prevent the pain and other ill consequences of hard pressure; the tibial one has only a cavity adapted to the shape of the internal malleolus; they are secured by three leather straps fixed to the outside of the fibular splint, which

passing round the leg are fastened by small holes to little brass studs stuck on the back of the tibial, or what, according to the posture in which the limb is placed in this method of treatment becomes the superior splint.

But as the best description I can give will fall short of reality, and these splints are not always to be had here, I have endeavoured to supply their place by wooden ones of the same shape, which when lined with compresses of linen or flannel, extending beyond their edges, and adapted to the inequalities of the parts, answer the purposes of Mr. Sharp's without the disadvantages to which pasteboard is subject whenever you apply either cataplasms or embrocations, which are often necessary on account of swelling and inflammation.

After the splints are applied, the leg is to be placed on a pillow with the knee half bent, the posture in which the reduction was made, and as the position of the body as well as limb is on its side, the patient may be removed from one part of the bed to another with great ease and safety, or even removed if necessary, to a distance from the place of accident, which are advantages not to be received in the old way, without difficulty or danger.

The principles and practice here recommended, for the treatment of simple fractures of the leg, are equally or more applicable to those of the thigh, where the superior strength of the surrounding muscles are more disposed to produce an irregularity of the bones, when kept in a strait extended direction with the patient on his back. The splints for the thigh are three in number, of a strait hollow form, the external or longest one extending from the hip to the knee on the outside, is attached by a leather strap to one passing round the body; the other two splints are placed at proper distances on the anterior and inside of the limb; and the whole secured like those of the leg, by leather straps fastened to brass studs on the back of the short splints.

Before I quit this subject, it may not be improper to take notice of a cant phrase made use of by many surgeons called *the rising end of a bone*. This expression, like many other abuses of words, only serves to veil our ignorance, for it either conveys no idea at all, or a false one, as will plainly appear from a just examination of the fact which gave rise to it. In every fracture of the limbs, surrounded by strong muscles, their contractile power forces

the inferior extremity of the fractured bone under the superior one, which is incapable of motion, immediately exhibits that appearance of inequality, which has occasioned the false idea of a *rising bone*, and has put both surgeons and patient, to much usefess trouble and pain in dressing. The only way to remedy the evil, is, by relaxing the muscles of the limb, and raising the depressed end of the bone to an equality with the other. This observation is equally applicable to the clavicle as to the hip and thigh.

But here it will be asked, probably by some persons who have been long in practice, and acquired no inconsiderable degree of reputation; have not many good cures of simple fractures been performed by the old method, which in the preceeding pages is so much exploded? I answer undoubtedly yes. I have performed many myself, but it is equally true and certain, that many of them were obtained with prodigious trouble and difficulty to myself, as well as pain to the suffering patient; to say nothing of the deformities which too often arose in consequence of the old method of reducing fractures when practised by the ablest operators.

Fractures of the cubit or fore arm, particularly of the radius, are reduced upon the same general principles already recommended. The disposition of the limb must favour the relaxation of the muscles, and this is a kind of middle state between pronation and supination. The palm of the hand should be applied to the breast, the thumb superior, with the fingers moderately bent; the whole secured by a couple of splints, of which the internal one should be extended, and fitted to receive the hand and fingers in the position already described. Mr. Gooch, in his surgery, has given the draught of a very neat and ingenious contrivance for this purpose*.

There are two kinds of fractures, however, which do not admit of the bent posture of the joint; these are the fractured patella, and *processus olecranon* at the elbow. Here a straight position of the limb becomes necessary for the same reason that a bent one is so, in other fractures, viz. the relaxation of the muscles and tendons attached to the fractured bone.

Whenever the patella is fractured transversely, the superior fragment is drawn up-

* A machine for this purpose is represented in Bell's surgery, Vol. 6, plate 81. M.

wards, by the strong action of the extensor muscles of the leg, while the lower part remains fixed by its ligament. Extending the leg puts these muscles in a state of relaxation, and enables the surgeon to approach the uppermost fragment pretty nearly to the lowest, where it is easily retained by a moderate compress and bandage; and as soon as the swelling and inflammation are subsided, the knee should be gently moved every day in order to prevent stiffness, and preserve the motion of the joint*.

* The first object to be attended to in the treatment of a fractured patella, is the junction of the two pieces of the bone by relaxing the muscles concerned in moving it. In order to effect this, the common practice is to extend the leg, and place it and the trunk of the body, in the same right line;—but Mr. Sheldon in his treatise upon this subject observes, that by this practice, the attainment of the very end wished for is prevented: “for if the leg be extended so much as to form a right line with the thigh, all those *flexor* muscles which arise from the tuberosity of the *ischium*, and which are inserted into the lateral surfaces of the superior extremities of the *tibia*, and *fibula*, will be considerably stretched, and render the posture very inconvenient and painful to the patient;” and the two portions of the patella are thereby removed to a considerable distance from each other. The only way according to Mr. Sheldon, to relax the exterior muscles of the thigh; is to bend the hip joint: by this means

As the leg in this species of fracture, is necessarily kept in an extended posture; it should be a little raised, and, at the same equally and exactly supported in its whole length, with pillows, to prevent too great pressure upon the heel, which would otherwise unavoidably happen.

If much swelling and tension should have come on before the surgeon is called; he ought

the two pieces of the fractured patella will be easily brought into contact, and may be so retained by a bandage.—He likewise directs the patient to be placed in bed, and to lay on either side. The degree of flexion in the hip joint, is to be equal to bringing down the superior portion of the fractured patella, to unite with the inferior portion, and to be retained by the usual bandage, for which see Bell's surgery, Vol. 6 plate 75. Mr. Sheldon thinks that the two broken pieces ought to be brought into exact contact, as the patient will be less liable to a stiff knee, and hence the reason why longitudinal fractures succeed better than those that are transverse. Mr. Bell however says, this is not an affair of great consequence, as he has known persons who had equally the use of the joint, after, as before the fracture, even although the separated portions of the bone could not be brought within an inch of each other.—Great attention ought to be paid to the inflammation, which is so apt to ensue in a fracture of the patella, by general and local bloodletting; by sedative applications to the part, and by the strictest attention to the antiphlogistic regimen. M.

to wait some days, until these symptoms are removed by proper means, before he applies his bandage.

This practice has been recommended and not without reason, under the same circumstances of simple fractures of the leg and thigh, when treated in the old way; but few cases will now occur, where the surgeon will not be able to make the reduction immediately, or in a very short time, by placing the limb in a state of flexion and relaxation, and preserving it in that situation during the cure. However, after all general directions; the patient's feelings will constitute one of the best rules, with respect to the fitness of time for the reduction of fractures, attended with swelling and inflammation; for, whenever it can be done with tolerable ease to the patient, it will certainly be proper.

CHAPTER VI.

OF COMPOUND FRACTURES.

WHEN the bones are not only broken, but their extremities are forced through the muscles, and external integuments; the accident is called a compound fracture, in opposition to a simple one; and these two general distinctions are all that are made use of by modern surgeons, and will comprize every essential difference in the nature of fractured bones.

The first object of consideration in every compound fracture, is, whether the nature of the accident is such as to admit of the preservation of the limb, with probable safety to the patient's life; and this interesting question has given rise to very opposite opinions, between several surgeons of the most distinguished re-

putation; some of them, particularly Mr. Pott, advising immediate amputation in almost every bad compound fracture attended with comminution or splintering of the bones; while others, contend as strenuously for its absolute inutility, or at least impropriety, in nineteen cases out of twenty. As both sides appeal to experience in support of their assertions, it is no easy matter to reconcile such opposite extremes. Truth perhaps may lie somewhere between both; and to hit this happy golden mean, constitutes the perfection of human judgment. A candid and impartial examination of the different sentiments adopted by the opposite writers upon the present subject; will, in a great measure, account for the contrariety of their opinions, which seem to have arisen more from the difference of situation and circumstances in their patients; than any real disparity in their ideas of the disease.

Mr. Pott, who is the principal advocate for amputation, has very probably formed his opinions upon the fatal consequences which generally attend compound fractures in hospitals; while Dr. Kirkland, Mr. Gooch, and

some other gentlemen who live in the country, have drawn their conclusions from the great success attending private practice; both parties may be right, and their difference of opinion very reconcileable to truth and experience.

If we reflect upon the state of air in the crowded wards of large hospitals, in great cities, we shall easily account for the different success which attends operations performed in such situations; from that of private practice, particularly in the country.

In the first situation; the air is not only rendered less healthy to breath in, from great numbers of sick persons confined within a small compass; but the putrid effluvia arising from wounds and ulcers, renders it highly pernicious. Every man who has attended hospital practice in London, must be sensible of the ill success that attends the operation of trepanning, even in common cases, and yet the same operation in the private practice of small towns, and the country, generally succeeds very well.

For the same reason, compound fractures of the limbs will be attended with much more danger in a large hospital, than in private prac-

tice, and a surgeon might with equal propriety attempt to save a limb in the latter situation, or amputate it in the former.

In general, all fractures about the joints, where the capsular ligaments are torn, and the heads of the bones are injured, require amputation, and that should be performed as soon as possible, before any symptoms of inflammation come on; the least delay in such cases, often proves fatal; for having missed the first opportunity, a second is often denied us, and when it is not, the chances of recovery are much less, than in the first instance.

When a limb is thought capable of preservation, the next consideration is the mode of reduction; and this must be determined by the particular nature and circumstances of the fracture. If the bones have been broken in nearly a transverse direction, and the protruded extremity, (which is always the upper bone,) can be nearly restored again to its proper place, both the reduction and cure will be very easy. But in case of an oblique fracture, a long sharp point of bone is sometimes thrust out through a small wound, which compressing, and as it were girding the bone, pre-

vents it return; and the more you extend the limb the stronger this compression becomes. In this situation, many surgeons advise an immediate removal of such a portion of the protruding bone, as will render the return of it easily practicable; however, before we proceed to this step, it will be advisable to attempt the reduction, by relaxing the muscles, and making a free dilatation, by which method there are few cases, I believe, that will not admit of relief.

The advantages of making large dilatations are very obvious; they facilitate the reduction of the fractured bones, without any loss in their length; and give the surgeon a fair opportunity of examining and extracting any detached splinters, and what is of great consequence in the course of the cure; they afford a free passage to the discharge of any extravasations or collections of matter; and as these dilatations are only through the integument, there is neither difficulty nor danger in making them*.

* Cases sometimes occur, where the end of a fractured and small bone is protracted with great violence, and will not allow of a dilatation of the wound; which is also so small as to render a reduction impossible. In this case, the only alter-

In the treatment of fractures, attended with much comminution : or many splintered fragments, and great laceration of the surrounding muscles ; the utmost skill and judgement is requisite. As many of the loose fragments as can be removed, without occasioning much pain, or risking a dangerous hæmorrhage, should immediately be taken away, but no more. For as pain, irritation, and inflammation, are the grand objects of apprehension ; it is of little consequence to the

patient is to saw of the protruded part, by the common metacarpal saw ; care being taken to defend the subjacent parts by the insertion of a piece of thin shingle between the bone and the skin. A case of this kind occurred to my notice while a pupil of Dr. Jones, in a boy who fell from an apple tree seven miles from Philadelphia, and fractured the radius at the wrist in a transverse direction ; the bone protruded above an inch and various attempts were made in the usual violent manner to reduce it, without success, after several days had elapsed, the boy was brought to town, and placed under the care of Dr. Jones, who perceived that all endeavours at reduction would be fruitless, from the small size of the wound and the large end of the bone, and therefore sawed off the protruded part, when, by a gentle extension, he easily brought the other part of the bone within the wound, which in a few days was entirely healed. A slight degree of stiffness remained in the joint at the wrist for some weeks, but this gradually disappeared, and the boy had nearly the same use of the arm that was broken, as from the other sound one. M.

tient, whether they are induced by the nature of the accident, or the surgeon's rough and absurd treatment.

The necessary dilatations having been made, and all loose bones, or the irritating points of fixed ones removed, the next consideration is the reduction or setting; and here the same principles and rules recommended in the chapter upon simple fractures, are more than equally applicable; for if violent extension, and strait position were improper, where the bones were only broken, without any external wound, and very little injury to the internal parts; they must be infinitely more so, where the muscles and integuments are much lacerated. For these reasons, after the most gentle and careful extension, and exact apposition of the bones, the surgeon is next to consider of the proper dressings, which are of two kinds; such as are requisite for the wound, and such as are applicable to the limb. The former are intended to promote a free, easy discharge of any matter or extraneous bodies; the latter respects the prevention or removal of inflammation and its usual consequences, suppuration, gangrene and mortification.

Dry soft lint applied so lightly, and in such small quantities as not to obstruct the free discharge of matter from the wound, will very well answer the first intention; while the cerate recommended in the chapter upon simple fractures, with discutient embrocations, or Goulard's aq. saturn. joined to moderate bleeding, and the general antiphlogistic regimen, perform the second; and a happy cure is frequently obtained by what surgeons call the first intention, or at least with very little inflammation or suppuration. But here it must be observed, that I suppose the muscles have not been much torn or wounded, and no considerable degree of tension, pain or swelling have arisen; for under such circumstances, the the wound should be dressed directly with some mild digestive, and the whole limb enveloped with a soft relaxing cataplasm, which joined to fomentations, are the most effectual means of promoting a kind speedy suppuration, the next salutary intention of cure.

With respect to evacuations; bleeding must be always used, with discretion, for profuse or repeated bloodletting, though it may take off inflammation sooner, yet must inevitably weaken the patient too much. What purges are used, should be of the gentle cooling kind,

with anodynes interposed to calm irritation and pain; and during the tense swollen state of the wound, no heating tinctures of myrrh and aloes, or terebinthinate balsams should be applied to it; but in the latter end of the cure, when the parts are become very lax and flabby, they may be used with some propriety. Scarifications, during the preceding state, even when a gangrene is threatened, are very improper, as they stimulate the parts without procuring any discharge, for which alone they can be intended, by those who have any rational views of relief in the cure of diseases*.

* Although compound fractures are rarely healed without a large discharge of pus, yet it sometimes happens, that by proper care, and by keeping the external air out, the wound unites by the first intention, and with very little trouble. Indeed I am convinced, that from whatever principle the air acts, it is from this cause chiefly, that compound fractures are attended with such dangerous symptoms. Of the truth of this I was made fully sensible, by a case which fell under my notice in the month of May, 1790. The son of R. H. Esqr. received an oblique compound fracture in his leg, by the passage of a fire engine over it, and was attended with a considerable loss of blood. The accident happened about one o'clock in the day, and the leg was set by Drs. Jones and Foulk, as soon as the patient could be carried home, and medical assistance procured, which was in about two hours. In the night an alarming hæmorrhage took place, which fortunately stopped

Compound fractures require dressing at least once a day, and in hot weather with large discharges, twice. For this reason, the eighteen tailed bandage becomes absolutely necessary to prevent a frequent removal of the limb, which is extremely injurious, and ought to be avoided as much as possible; indeed without perfect rest, and an easy posture, no applications will succeed. The splints to be made use of here, are the same as directed in simple fractures.

As the large discharge of matter in bad compound fractures, renders a change of the without assistance. By the following morning, the bandage had become so hard and firm, that it was thought adviseable to suffer both to remain undisturbed, until suppuration came on; this however did not appear at the usual period, and for several days after; when it was still thought proper not to remove the dressings unless some new symptom occurred that should induce the necessity of an examination. At the end of ten days, the splinters were taken off, for the first time, and the leg placed every day in the most relaxed position, from which he frequently altered it during his sleep: the part was moistened with a mixture of brandy, vinegar, and oil, and in four weeks Dr. Jones slit open the bandage, when to his great satisfaction, the external wound was compleatly healed, and not the least roughness was to be perceived on the bone; the bandage was again put on, and the splints replaced, and in a short time the perfect use of the leg was obtained. M.

bandage too often necessary and thereby disturbs the quiet of the limb; I generally apply a piece of fine oil cloth between Mr. Pott's bandage and the skin; this sets smooth and easy on the part, and prevents the matter from soaking through to the bandage, which, by this means may be kept clean, during the greatest part of the cure, particularly if we are careful to absorb the discharge with small bits of soft sponge at every dressing; and when the swelling and inflammation are subsided, to moisten the bandage with a little Spt. Vin. camphor, or plain spirit. During this stage of the disease, abscesses and lodgments of matter are frequently formed in various parts of the limb, either from the deep depending situation of the wound, or sharp splinters of the bone, irritating the nervous and muscular parts; and these accidents require the utmost skill and attention of the surgeon.

If the mischief be occasioned by a splinter, it ought, if practicable, to be extracted, as it will continue to excite new inflammations, attended with violent pricking pains; which generally distinguish these collections of matter, from those arising in consequence of unfavourable situation.

In the last case, counter-openings, in the most depending part, are the only effectual remedies, and I have sometimes made them with great advantage on the inferior part of the leg, leaving the orifice without any other application to it than the oil cloth, rather than attempt to favour the discharge, by a more painful posture of the limb.

Young surgeons from a principal of timidity are too apt to omit these openings, and attempt to press out the matter, and unite the sinus by sticking plaisters, compress, and bandage; which besides their inefficacy, are very injurious during a state of tension and swelling. They have their uses as preventatives, to resist the distension of the vessels, or to brace them up, when too much relaxed and weakened; but should never be employed under the circumstances above mentioned.

The relaxing cataplasms and fomentations, should be continued during the whole state of inflammation and swelling, but no longer; for they afterwards tend to increase the discharge, and weaken the patient, whose strength, at this time, requires to be supported by a more nourishing diet, and the use of the bark.

From what has been said, it appears; that a compound fracture is healed as it were by the hand of nature, with little or no suppuration; or it may be attended with high inflammation, repeated abscesses, and a great discharge; demanding the utmost skill and attention of the surgeon, whose best efforts are sometimes baffled, and the patient is obliged to compound for life with the loss of his limb, in consequence of the excessive drain and constant absorption of matter;* which causes a

* No maxim in medicine has been more universally admitted by physicians, than the production of *hectic* from the absorption of *pus*. Yet however respectable this opinion is for its antiquity, and for the names of those who have adopted it; no theory which has ever been started of that disease, appears to me, more erroneous. The hectic that attends the consumption of the lungs, as far as I know, was never attempted to be otherwise explained, than on the principle of absorbed pus, from ulcers in the lungs, until Dr. Reid in his treatise on that disease, proved the falsity of this notion. His own explanation of the cause of hectic, is no less unsatisfactory. Dr. Ryan in his essay on the same subject, has indeed attempted to support the old opinion; but his answers to the arguments of Dr. Reid are so trivial, that they serve as in every similar instance, strongly to confirm the opinion they oppose. The hectic that ensues from ulcers on the external parts of the body; is likewise still asserted by many of the latest writers, to arise from the same cause, viz. absorption of pus; but if a hectic

continual fever, and daily waste of the patient's strength. Under these circumstances, there is no remedy left, but amputation; the propriety of which must be determined by the judgment of the attending surgeon, who ought always on these occasions, to call in the best advice and assistance he can procure, both on ac-

arose from this cause, why does not this fever come on as soon as the pus is formed? This however is not the case; for very extensive abscesses, or purulent collections, have occurred in various parts of the body; and a simple continued fever has only attended, of which the formation of *pus* was the consequence. Abscesses and buboes that were ready to burst, have frequently been discussed by emetics, and other remedies, and yet no hectic has followed, tho' the pus could not be otherwise than absorbed into the system. In the fever of the small pox, which arises from the absorption of the variolous infection; we do not observe any thing like a hectic; and in short if we consider the phænomena occurring in any disease, we cannot find a single fact to support the opinion, which it is astonishing should have existed so long, under so many proofs to the contrary. The true cause of the hectic appears to be, the irritation produced on the system by the fore or ulcer, in consequence of the admission of air to it. This is shewn by the hectic coming on only, when the abscess or tubercle is opened or burst, and when the general health is bad. In several cases of the *psoas* abscess that have fallen under my notice; the patient refused to have them opened, until the system became much weakened, after which on the bursting of the abscesses and the consequent admission of air, a hectic quickly followed. M.

count of his own reputation and his patient's satisfaction. But here it may be right to observe; that amputation is rarely, if ever necessary, in consequence of the drain, and where the bones are united; for wherever it is necessary, the fracture will be found in a loose unconnected state.

But it sometimes happens, that all our endeavours to preserve both life and limb, prove fruitless, from the beginning; a gangrene and mortification coming on immediately in consequence of high inflammation, bad habit of body, or ignorance and inattention of the surgeon. In the first case the disease may be regarded as merely local, being occasioned by such a degree of injury done to the parts, as prevents the circulation through them, which must inevitably produce an early mortification, and render immediate amputation the most adviseable remedy. Writers, however, are pretty much divided in their opinions upon this subject; nor is it an easy matter to define the precise degree of injury which renders immediate amputation absolutely necessary; for after the best general directions, (and they are the most that can be given) the particular nature of the accident, and cir-

cumstances of the patient must determine the surgeon's judgment. Mr. Pott is a warm advocate for early amputation; and thinks that even a very few hours, make all the difference between probable safety, and certain destruction. But here again it is very possible, that the ill effects of hospital air may have influenced his opinion; for it is certain that in private practice a mortification in consequence of a local injury, is much less dangerous, than one produced by a corrupted disposition of the fluids; and the symptoms attending the former, are by no means so frightful and alarming as those which accompany the latter. For these reasons, I would advise the young practitioner, to be governed in such difficult cases by the particular situation of his patient; if placed in a large or crowded hospital, speedy amputation should take place, but in private practice, and in a pure and healthy air, every effort should be exerted to save the limb. The mortification too, under these circumstances rarely extends beyond the limits of the injury; the patient preserves his countenance serene, is attended with no more fever than is usual in violent contusions; there is little or no previous gangrene of the subcutaneous parts,

or emphysema from confined putrid air; but the mortification takes possession of the skin and flesh at once, and if you make an incision through the skin, there is no feeling in it, and nothing but extravasated blood is discharged.

On the contrary, when a mortification takes place in consequence of a corrupted disposition of the fluids; whether the injury be more or less severe, the muscular and membranous parts are corroded by an acrid lymph; the *membrana adiposa* is filled with air bubbles, producing an extensive emphysematous tumor in the skin, which is not yet apparently diseased, though it plainly points out the tragedy which is acting underneath. At this period a fever, often accompanied with a delirium, great dejection of spirits, and particular wildness in the looks comes on; the pulse is generally quick, low, fluttering, and unequal; according to the age and strength of of the patient.

Incisions now made through the skin, give pain, and its vessels discharge a florid blood, which proves that the circulation is carried on during the gangrenous state of the muscles and adipose membrane, which are of a yellowish brown colour, and soon change for the worse:

the skin becomes greatly inflated, and when pierced, discharges from beneath, a quantity of frothy matter with air: at last the skin itself turns livid, and general mortification closes the scene.

To oppose this frightful train of symptoms, and promote if possible, a separation of the sound from the mortified parts; will require all the aid of the chirurgic art*. Immediate recourse must be had to the bark, which ought to be given in substance, and

* No symptom attending compound fractures, is more to be guarded against, than a mortification. When perceived early, timely applications should be made, before the whole system is too far reduced. Besides the exhibition of the common remedies of bark and wine internally, a very important and no less successful rule, is the application of these medicines to the wound itself. Of the efficacy of these remedies, thus used, I have seen several remarkable cases, but one in particular under the care of Dr. Foulke of this city, which made an indelible impression on my memory, I have related in a note to the chapter on gun shot wounds.—Mr. White of Manchester, recommends the *volatile alkali* and musk, in very high terms, as a cure for mortifications arising from local injury; and relates several cases of the efficacy of this medicine. He says, he has found it stop a gangrene, when the Peruvian bark has failed. He began with ten grains of each, and repeated it every three hours; until he sometimes consumed two ounces of musk, and as much *salt of hartshorn*. Obs. on gangrene and mortification Lond. 1790. M.

in as large quantities, as the patient's stomach can bear. Incisions should be made down to the membrana adiposa, in order to discharge the confined air and acrid matter, as well as to make room for the application of warm, spiritous fomentations, and proper digestive ointments; over which should be applied double compresses, wrung out of common spirits, and renewed two or three times a day*. The diet should be cordial and nourishing, and the patient's spirits supported by every attention and encouragement in the surgeon's power. By these means the progress of the mortification is sometimes happily restrained, and a separation of the sound, from the mortified parts taking place, admits of a composition for life, with the loss of the limb by amputation, the method of performing which operation, will be described in the following chapter.

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* This application will answer the double and very important purposes, of giving vigour and tone to the parts; and correct the factor, which in this country, during the warm weather is very great. M.

CHAPTER VII.

OF AMPUTATION.

AS every operation is necessarily attended with a certain degree of bodily pain, as well as terrible apprehension to the patient's mind; a good surgeon will in the first place be well assured of the necessity of an operation, before he proceeds to perform it; and secondly, he ought to consider, whether the patient will in all probability be the better for it, or whether he may not be the worse.

It will also be of singular advantage to young surgeons particularly, before they begin an operation, to go through every part of it attentively in their own minds; to consider every possible accident which may happen; and to have the proper remedies at hand

in case they should occur; and in all operations of delicacy and difficulty, to act with deliberation; and never affect great expedition, by which, very capital and even fatal errors have been committed. The maxim of "festina lente," is in no case more applicable than in these. It is also of no small importance to support the patient's spirits with a chearful assurance of success, and the appearance of such a degree of modest confidence as may serve to inspire him with it, and by all means to avoid terrifying him with the appearance of the apparatus, or a vain and ridiculous parade of any kind.

The surgeon should choose his own assistants, acquaint them with his intended mode of operating, and avoid a useless crowd of spectators.

With these prerequisites, joined to those qualifications, already mentioned in the introductory discourse, as necessary to constitute a good operator; a surgeon will undertake most operations, with at least a strong probability of relieving his patient, which is performing one of the most essential offices of humanity.

When the amputation of a limb is determined on, the following apparatus should be prepared in a different room. A large dish, with a compress to be placed over the vessels, made in the form of a roller, flattened and sewed to the middle of a slip of linen, between two and three inches wide, and of sufficient length, to pass two or three times round the limb. The tourniquet or leather with a fillet and stick, a yard of tape rolled up, the amputating knife, catlen, saw, tenaculum, crooked needles armed, and ligatures of waxed thread loose, a pair of straight scissars, and sponges.

In another dish should be placed a sufficient quantity of lint, some long pledgets of the same, spread with simple cerate or soft digestive. One or two large pledgets of tow, spread with the same cerate, and a few soft compresses of simple tow. Slips of linen about three inches wide, to cross the stump, and retain the pledgets, &c. two rollers of different lengths, and a loose knit woolen cap, to draw over the whole.

If the leg is to be removed, the most convenient posture for the patient, is lying on a firm table of convenient height, covered with

blankets sufficiently doubled, and pillows to support the head. The operator, standing on the inside of the leg, held in a steady horizontal line by the assistants, first fixes his compress longitudinally, over the course of the artery in the ham; then bringing the two ends of the bandage to which it is fixed, towards each other, and passing one of them through a slit made in the opposite extremity, as in the uniting bandage; he makes two or three turns round the limb, with the longest end, and drawing it pretty tight, fastens it with a pin; over this is fixed the tourniquet, or leather, with the fillet and stick,* which ever of them are used, and having given it the necessary degree of tightness, he delivers it into the

* This is by many surgeons, in private practice, preferred to the screw tourniquet; and consists of a piece of strong worsted binding, an inch broad, and five quarters long; which surrounding the circular band, its extremities are passed through two slits, cut transversely, one inch from each end of a piece of firm sole leather, about three inches long, and two and a half wide. The ends of the fillet are then tied in a strong slip-knot, and a round stick, four or five inches long, and three quarters thick, being passed between the leather and fillet, the assistant, by turning the stick, makes what degree of compression he pleases upon the artery.

hands of his assistant; then fixing upon that part where the first incision is to be made, which is about four fingers breadth below the patella, he passes the tape about half an inch below this part, and making a turn or two pretty close, fastens it with a pin. An assistant having drawn up the skin, as far as possible, the operator beginning the first incision on the outside of the leg, as high as he can carry the knife without constraint, divides the skin and *membrana adiposa* down to the muscles; and bringing his knife forwards, terminates his first stroke far enough on the inside, to make one half of the circumference of the circle, which is finished by another stroke carried from the place of the beginning, to meet the opposite point. It is to be observed that this incision is to be made above the tape, which then falls below the wound, without embarrassing the operator.

The first incision being completed, so as even to mark the muscles, rather than suffer any adhesion of the adipose membrane, the assistants are still to draw up the integuments as high as possible, when the muscles are to be

divided by two semi-circular incisions, quite down to the bones*.

The interosseous ligament must then be separated by the catline, or point of the amputating knife, pushed between the bones, which are next to be carefully sawed through†.

* An important improvement in this part of the operation, is, the dissection of the cellular membrane connecting the integuments to the muscles all around the bone; and folding the integuments back on the upper part of the thigh. A sufficient quantity is thereby preserved for covering the stump, which will not be otherwise obtained, as the cellular membrane is more condensed on the fore part of the leg than on the thigh, in which a forcible retraction of the integuments is generally sufficient. 'This part of the operation it is true, takes up a little time, but no additional pain is created; and the advantage derived sufficiently compensates for the protraction of the operation. The "*tuto,*" is no less important than the "*ci-to,* or *jucunde.*"

In sawing the bones, the knee and foot should be turned inwards, so as to raise the fibula, by which means, both bones will be sawed through at the same time. M.

† Mr. Bromfield recommends a piece of soft leather about eighteen inches long, and of proportionable breadth, which being slit half way down the middle, is easily received between the divided flesh, and one flap being lapped over the other, the assistants take hold of the two ends, and drawing them up; not only keep the muscles out of the way of the saw, but by forcing them higher up, enable the operator to remove more of the bone, and by that means prevent a pointed stump.

The assistants should hold the limb in the most exact horizontal line, lest by raising the leg in the beginning, or middle of the operation the saw should be compressed by the extremities of the bones; or towards the latter end of it, by letting the limb fall from the direct line, the tibia should break off and form a sharp point or splinter.

When the leg is removed, the principal arteries are to be secured either with the common crooked needles and thread, or the * tenaculum. It is seldom necessary to take

* The tenaculum is an instrument made in the shape of a large crooked needle, with a round point fixed in a small wooden handle, and serves to pierce the end of the artery, and draw it out sufficiently for the assistant to make a ligature upon it; by which method less pain is excited, and the ligature drops off much sooner than in the common way. This mode however, though warmly recommended by Mr. Bromfield and Mr. White, is not generally adopted; and requires the sanction of further experience, to give it the entire preference over the usual method.

It is proper to add to this note, that though the use of the needles be directed above, in the taking up arteries, and the tenaculum slightly spoken of; yet Dr. JONES for many years laid aside the former, and preferred the latter, on account of the little pain attending its use, and the prevention of those spasmodic symptoms that commonly follow the inclusion of the

up more than three or four vessels, the mouths of which from their size are in general, readily enough distinguished without loosening the tourniquet, which however ought to be quite slack, as soon as the principal vessels are tied, that the circulation may be carried on more speedily in the minute collateral branches of the stump, and discover such as need to be secured. In taking up an artery, the needle must be passed on each side of the vessel, but no deeper, nor more flesh, inclosed, than will serve to prevent the * ligature from falling off. This last part of the operation being finished; the tourniquet removed, and skin drawn down on the muscles; the dressings are next to be applied in the following manner. First, two round pledgets of lint upon the extremities of the bones, over which † a piece of fine old linen, exactly fitted to

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nerve by the needle; which he never used, unless obliged by retraction of the artery within the muscles; or by reason of its morbid state, which would not suffer a ligature to be held. M.

* The ligatures should be made of shoemakers thread, which compresses without cutting; and the size of the ligature must always be in proportion to that of the vessel.

† The circular piece of linen applied immediately to the muscular part of the stump, is preferred by Mr. Brom-

the muscular part of the stump is to be laid; then dossils of lint sprinkled with flour, are to fill up the cavities, made by the circular edge of the skin and membrana adiposa; upon which the armed pledgets of lint are to be applied, and over these, the large ones of tow; the long compresses or slips of linen are then to cross each other at right angles, and pass far enough on the sides of the stump, to be retained by the first roller, a few turns of which, but not tightly drawn, are sufficient for the purpose; the second roller is employed in making several spiral turns from above the joint, down to the edge of the stump, where it is fastened with a pin. Lastly, the woolen cap is drawn over the whole leg, stretching it from top to bottom, with both hands, and slipping it gently on. The patient is then to be laid in his bed, his thigh a little elevated, and his knee gently bent and supported by a soft pillow; a sudorificanodyne, to quiet pain, and dispose him to a gentle dia-

field, to dry lint, as it comes off much sooner and easier than lint, which adheres a long time, and very closely to the surface of large wounds. The application of sponge is attended with the same or greater inconveniencies, from the granulations of flesh insinuating themselves into the porous substance of the sponge.

phoresis, should be immediately given, and perfect quiet enjoined, as an essential requisite to his recovery.

The mode of operation in amputating the thigh, differs but in few particulars from that for taking off the leg. The compress and tourniquet are to be fixed higher upon the course of the artery, and the operator stands on the outside of the limb, the patient being seated in a chair as more commodious for both. Before the bone is sawed through, Mr Bromfield advises the operator to separate the muscles which adhere closely to the bone, with the catlin. This may be done about half an inch or something more in length, and will allow a larger portion of the bone to be removed without tearing the muscles, and consequently a better stump to be made. The roller first applied should be attached to a broad bandage surrounding the body, and descend by spiral turns around the thigh, until the edges of the last turn are exactly even with the edges of the stump. This mode of applying it, will prevent the lodgment of matter, which happens when the roller is carried beyond the edges of the wound; or that retortion of the lips occasioned by the rollers falling short

of them. As the principal uses of bandage after an operation, are to restrain hæmorrhage, and retain the dressings, it should never be tighter than to answer these purposes; for any thing beyond these, will, by obstructing the freedom of the circulation, increase the swelling, pain and inflammation of the parts.

Surgeons are generally too solicitous about drawing down the skin, and retaining it by close bandage immediately after the operation, in order to make a good stump; but this is done to much better advantage, when the tension and swelling are carried off by digestion, and the parts have acquired their natural tone.*

* On the 31st October, 1792, I amputated the thigh of Wm. Rankin, farmer in Montgomery county, for a white swelling in the knee, with which he had been afflicted for many years; and which threatened a speedy dissolution, from the carious state of the bones, the hectic fever, and the great discharge of pus, from two large ulcers, on each side of his knee. The mode I employed, was nearly the same, as that recommended above, except that I did not use the tape as a guide to my knife, from a conviction that it would embarrass me, and I am now convinced, that it will defeat in most cases, the very end it was intended to answer; viz. to prevent an uneven incision, the consequence of an unsteady hand. In making both my incisions, first through the skin, and afterwards through the muscles, down to the bone; I directed the edge of my knife, ob-

Should the surgeon, however, be threatened with a pointed stump, notwithstanding the mode of operation and bandage already recommended; the following method of treatment, will contribute greatly towards preventing this troublesome consequence of amputation.

Having spread a large piece of skin with the adhesive plaister, let a sufficient number of slips two inches wide and long enough to surround the thigh, be cut from it. The first slip is to be applied close to the edge of the skin on the stump; the next about a quarter of an inch lapped over the first, and so continued till the last slip is applied near the top of the thigh; over these a roller sprinkled with powdered rosin, is to be passed from above, downwards, in the manner already likely upwards, and carried it round the limb in that direction in the manner advised by Mr. Minors of Birmingham. My assistant likewise dissected the cellular membrane connecting the integuments to the muscles, and folded them back, upon the upper part of the thigh, in order to serve as a covering for the stump, which was healed and the man able to walk, in a few weeks, a period much shorter than I expected; considering the patients previous ill health, and his distance from the city; which prevented me from seeing him as often as I could have wished. M.

mentioned, and then wetted with spirit of wine, which soon grows dry; the assistants are then to draw down the skin and muscles over the end of the bone, and the surgeon having applied his dressings, secures them on, by a number of slips of sticking plaister, which are to cross each other, and pass high enough on the sides of the stump, to retain the integuments and flesh in their desired situation. These slips and roller form a case, which scarcely requires to be renewed during the greatest part of the cure.

As a preservation of the joint of the knee, to be used with the remaining part of the leg after amputation, is attended with great advantage to the patient, several ingenious surgeons have lately revived a method long since recommended, but never practiced with success, until within a very few years. Instead of taking off the leg at the usual place below the knee, the first incision is made about four inches above the ankle joint, and the remaining part of the operation finished in the common way; the tendons which are here necessarily divided, are apt to protrude beyond the flesh after the operation, but may, without any pain, be taken off with

the knife or scissars, to a level with the rest of the stump. One or two gentlemen of the profession, particularly Mr. O'Halloran and Mr. White, advise a flap to be formed of the posterior part of the flesh and integument, which, as soon as the digestion comes on, and the ligatures can be removed, is to be turned over the end of the stump, and retained there either by future or compress and bandage, until the parts unite by the first* intention; but as Mr. Bromfield, and Mr. Wright very ingenious surgeons of Sheffield, have both performed the operation with the most desirable success, without the flap, it is certainly the most easy and simple mode of doing it.

It is to be observed that when the operation is to be performed in this way, the patient must have an artificial foot and leg, the hollow of which last should be formed so as to support the person's weight on its side, as much as on the the extremity of the stump,† which is thereby greatly relieved.

* The advantage proposed by this flap, is to form a cushion for the bone of the stump to rest upon, without danger of uneasiness or protrusion.

† Almost all surgical authors appear to believe, that the pressure in the walking of those persons whose thighs

The superior advantages attending this mode of amputating the leg, both in point of beauty, as well as utility; will, I imagine recommend it to general practice, as soon as its merits are sufficiently known.

It is an established maxim in surgery to take off the fore-arm as near the wrist as possible, and no objections are made to the performance of it there, notwithstanding its tendinous and ligamentous structure. When the fingers and toes become carious, they are best taken off at the joint; and in order to save as much skin as possible, the circular incision should be made on the extremity of the bone which is to be removed, but not so low as to embarrass the operator in coming

have been amputated, is upon the stump, except Mr. Minors; who is the first that has controverted and proved the falsity of the notion. He also once entertained the common opinion, until he found by inquiring of several people who had lost their thighs, that the weight of the body in walking, bears principally against the tuberosity of the os ischium, upon the outside of the great trochanter, and upon the posterior part of the glutæi muscles. He therefore thinks, provided a sufficient quantity of integuments be preserved to cover the bone, that there is no such occasion as many suppose, to save so much muscle as is commonly done, to act as a cushion, and which for obvious reasons may be injurious. M.

at the articulation; the capsular ligament of which will be readily discovered, by bending the finger towards the palm of the hand, after the incision is made through the skin and tendons.

Mr. Bromfield advises a removal of the cartilaginous extremity of the bone with the knife, in order to promote a more speedy growth of the granulations, which however, I have generally found covered before the cicatrization took place. If the fingers are to be taken of at the first joint, next to the metacarpal bones; it is necessary to divide the skin and flesh between them, quite up to the joint, before you make the circular incision.

Dry lint with moderate compress and bandage, are generally sufficient to restrain the bleeding; yet if an artery should be troublesome, it would be best to secure it with a ligature.

We are frequently in this country, obliged to remove large portions of the metatarsal bones in consequence of mortifications from frost; and here it is to be observed, that as much as possible of the bone as well as skin is to be saved, in order to afford the patient a better support; though instances are not

wanting of men who have walked tolerably well upon the astragalus and os calcis alone. After dividing the fleshy, and tendinous parts between the bones with the knife; and drawing up the skin as much as possible, before the circular incision is made; the bones are to be sawed through with a small spring saw; a bit of thin sheet lead being placed between the bones, to defend the tendons and flesh of the opposite side, from being injured by the saw.

When anodyne, or antiphlogistic medicines become necessary, after any of the preceding operations; they are to be exhibited according to the nature and urgency of the symptoms, which are seldom exactly alike in any two cases: for this reason, the young surgeon will easily perceive the necessity of acquiring some general principles in his profession, the application of which, to particular cases, must ever be left to his own judgment.

The principle of a relaxed and non-resistant state of the muscles, as arising from the bended position of the limb so frequently recommended in the chapters upon simple and compound fractures; is equally applicable to

the reduction of dislocations, which have hitherto been as little understood, if not less than those of fractures: but unless the surgeon is very competently acquainted, not only with the structure of the bones, but their connecting ligaments in a recent state; together with the force, direction, and attachments of the different muscles and tendons; he can derive little more than a negative kind of instruction, from the writings of the ablest men upon the subject of dislocations. All I shall venture to recommend to the young surgeon unacquainted with anatomy; is, cautiously to avoid those mischiefs which always arise from a violent exertion of ill directed force. Whatever extension is made, should be done very gradually; by which means the muscles and ligaments will not receive half the injury from a great degree of distention, which they would sustain from even a moderate one very hastily exerted. The hold which the assistants take, should always be applied to the dislocated bone; for instance, if the os humeri is dislocated, the lower extremity of that bone, and not the fore-arm, is to be held by the person who assists in the reduction. The position of the limb below the luxated joint,

should be such, as to give the least degree of resistance to the muscles above it; for this reason, in the reduction of a luxation of the os humeri, the fore-arm should be bent; and whenever a sufficient degree of extension is judged to be made; the surgeon ought to make use of the dislocated bone as a lever to direct the head of it into the socket. Indeed when the head of a luxated bone is brought by proper extension, to a level with the edge of its socket; little or no external force is required, to replace it; as the surrounding muscles of the joint perform that part of the operation, better than the surgeon himself*.

* Extreme difficulty is sometimes experienced in the reduction of dislocations, owing to rigidity of the parts, and inflammation of the muscles; in this case bleeding, emetics, fomentations, &c. are generally directed to relax the parts, previously to attempting the reduction. But in a case, that lately occurred in the Pennsylvania hospital, as commonly employed; until Dr. PHYSICK thought upon the new, and successful expedient of bleeding the patient, who was uncommonly robust, until he fainted, when the extension being still continued, the head of the humerus at once slipped into place. M.

C H A P T E R VIII.

OF BLOWS ON THE HEAD.

TO give the young unexperienced surgeon, some general and clear ideas of the nature and treatment, of this difficult and dangerous branch of chirurgical diseases; I shall consider the subject under three separate heads. The first will comprehend the injuries to which the scalp and investing membranes of the skull are liable. The second, will treat of the symptoms arising from a commotion, or concussion of the brain: and the third, shall comprize those complaints which are occasioned by a fracture of the bones of the skull, and its effects on the parts beneath.

If the structure of the scalp, did not differ from that of the common integument of the body; and wounds inflicted on it, were attended with no other consequences, than those of the common parts: a particular investigation of its injuries, might be deemed a useless labour: but when we consider, that this covering of the head, consists not only of the skin and adipose membrane, but also of the expanded tendons of the frontal, occipital and temporal muscles, besides the pericranium: that it has a constant communication, by means of the blood vessels, between the parts within and without the skull; the necessity of a particular attention will pretty evidently appear.

Although common incised wounds of the scalp, which penetrate no deeper than the cellular membrane, are not generally attended with any particular circumstances: yet in certain constitutions of a peculiar habit and disposition, they sometimes produce very troublesome, and even alarming symptoms. Persons of a nervous and irritable system, are subject to violent spasmodic affections, accompanied with a low quick pulse, frequent faintings, want of sleep, and slight de-

lirium; and I have known intemperate persons of this irritable class, who have suffered even a locked jaw, in consequence of the removal of a small incysted tumor from the head, where nothing more than the cellular membrane was divided.

Anodynes, joined to some of the fœtid antispasmodics, generally remove those complaints in a few days; though to the young and unexperienced practitioner, they will appear very dangerous and alarming. Some have a slight fever, a general tumefaction of the scalp, extending to the eye-lids and ears; the swelling is of the œdematous kind, of a yellowish hue, and is frequently beset with small blisters, filled with a serum of the same colour. In short, the inflammation in this case appears evidently to be of the erysipelatous class; though it is seldom attended with danger, and generally relieved by moderate bleeding, a few lenient purgatives, and febrifuge medicines of the neutral kind; the wound requiring no other than the usual dressings, with a warm discutient fomentation. Sometimes the inflammation is so high, as to render the disease very

painful; in which circumstances, the sudorific anodynes may be given with advantage.*

Punctured wounds of the scalp, are generally more troublesome than those made with a cutting instrument; probably owing to a confinement of the extravasated fluids; for which reason some dilatation will now and then be necessary; otherwise they require no other method of treatment, than what has been recommended for incised wounds.

When a large portion of the scalp has been separated and detached from the pericranium, either by a lacerated or incised wound; the

* In those cases where no great tendency to inflammation appears, this method will generally be sufficient; but when the wound extends to the aponeurosis, and pericranium, the symptoms are more violent, and require a different mode of treatment. "The scalp," says Mr. Pott, "is so tense, the pain so great, and the symptomatic fever so high, that by waiting for the slow effect of such means, the patient runs a risque from the continuance of the fever; or else the injured aponeurosis and pericranium becoming sloughy, produce an abscess, and renders the case both tedious and troublesome. A division of the wounded part, by a simple incision, down to the bone, about half an inch, or an inch; will most commonly remove all the bad symptoms; and if it be done in time, will render every thing else unnecessary." M.

parts so separated, after being cleaned from dirt and coagulated blood; ought to be brought as nearly as possible into contact; and then secured by the interrupted suture, with proper compress and bandage. In case the lips of the wound are so ragged and uneven, as not to admit of an exact apposition, they may be brought to approach so near each other with a ligature and slip knot, as to lessen the deformity, and shorten the cure, advantages which a good surgeon should ever have in view. Should the parts not universally unite, but form little abscesses in different places; these may easily be opened by the point of a lancet, and the matter discharged: and this mode of practice, may take place with propriety, where the pericranium itself is removed, and a slight exfoliation succeeds, without retarding or obstructing the cure; even where the pericranium and aponeurotic expansion are become sloughy and inflamed. If the surgeon be not in too great haste to cut, and will have patience to wait until a separation and good digestion are come on, he will frequently succeed in preserving the scalp, and avoiding

that deformity, which a large scar and the loss of hair, must inevitably produce.* Here, how-

* This advice, to preserve, if possible, the separated portions of the scalp, in cases where no injury is done to the brain or skull; cannot be too strongly inculcated. The advantages derived from the practice, are, a speedy cure, and the prevention of deformity. The scalp will not only adhere to the bone when merely separated therefrom; but even when the pericranium is detached. In proof of this, Mr. POTT gives several striking cases, as also Mr. EARLE, the editor of the last edition of his works. The following case which came under my own observation is directly in point.

In the summer of 1790, I was sent for to visit a man, who had received a wound by a brick-bat in the scalp, covering the middle of the right parietal bone. A considerable discharge of blood followed the blow, so that when I was called, twelve hours after; the hair had become so matted, that I was obliged to shave off a considerable portion of it, before I could obtain a full view of the wound, which was three inches in length. Upon probing it, I found the pericranium detached all around, and the bone bare: fearing a future abscess, and exfoliation, I hesitated about the propriety of uniting the scalp with the denuded bone, and prepared for the excision of the separated scalp; but the great fear which the man expressed, about my using the knife, induced me to attempt a re-union. Accordingly, after I had perfectly cleared the wound, and brought the edges of it close together; I covered it with lint, spread with some simple cerate, and made use of an adhesive plaister to prevent a retraction of

ever, it must carefully be remembered, that the scalp is not absolutely spoiled by contusion, and that the injury extends no deeper than the external coverings of the cranium: when it does, a very different mode of treatment will be requisite. For if, besides the symptoms already enumerated, as attending incised and lacerated wounds of the scalp, and which generally come on within three or four days after the accident; the patient should be seized, some time after this period, with a smart fever, severe pain in the head, great anxiety and restlessness, frequent shiverings, a nausea, delirium and convulsions, and the wound at the same time put on a spongy, glassy, unhealthy aspect, with the pericranium loosened, and detached from the skull; there will be great reason to suspect that the parts within the skull are affected, either by some extravasated fluid, pressing upon the brain, or from an inflammation and suppuration of the dura and pia mater. As none of these

the parts. I then applied a piece of sheet lead over these, and secured the whole by compress, and the double-head roller. This mode was followed for about two weeks, when the wound was perfectly healed. Very little pus was formed, no abscess or troublesome symptoms occurred; and the man now follows a laborious employment. M.

symptoms appear at first, or immediately after the accident, so they come on in a kind of successive order; the first set arising from an extravasation of blood or lymph, pressing upon the brain, so as to impair or abolish voluntary motion, and the senses, shew themselves earlier; whereas the other, being caused by an inflamed and putrid state of the membranes of the brain, seldom affects the organs of sense, until late in the disease; when such a quantity of matter is generated, as to occasion the same symptoms of pressure, with any other fluid.

Both these causes, with their effects, may happen to be combined in the same patient, and render the case a little more perplexed, and difficult; yet there are generally some characteristic marks, which serve at least to distinguish the inflammatory effects of contusion, from those occasioned by commotion and extravasation.

In such cases, that is, where an inflammation of the membranes of the brain is the consequence of contusion, and where little or no mark of external injury appears; the mischief is seldom discovered until several days, often seven or eight, after the acci-

dent*. A pain in the spot which received the blow, is generally the first symptom; this pain is soon extended over all the head, and is attended with a languor and dejection of spirits, followed by a vertigo, inclination to vomit, restlessness and fever. A day or two after this, if no evacuations have been used, a puffy tumor of the scalp, not rising very high, or exciting much pain generally appears: if this tumor is laid open, the pericranium will be found of a darkish hue, and either detached or easily separable from the skull; between which, and the membrane, a small quantity of a brownish ichor is generally lodged; the cranium itself being altered in its colour. From this period, the symptoms are all hastily exasperated; the head-ach and thirst becomes more intense, the strength decreases, the rigors are more frequent, and at last convulsive motions, attended either with delirium, paralysis or comatose stupidity, close the scene.

* Mr Pott relates the case of a woman, in whom no symptom of an oppressed brain was perceived, until the *thirteenth* day after the injury had been received. Vol. 1st, p. 261. Edit. 1790. M.

If, under these circumstances, the bone be perforated, matter will be found between it and the dura mater; and that, more or less in quantity, according to the violence of the injury, and the length of time since it was received. Sometimes, the matter lies between the dura, and pia mater, and even upon the surface of the brain.

If the scalp be wounded at the time of the accident, or any portion of it removed to examine the state of the skull, the wound will look perfectly well for some time; but after a few days it begins to lose its florid complexion, turns pale and glassy, discharges a thin discoloured ichor, the lint sticks close to all parts of the fore, and the pericranium, instead of adhering firmly to the bone, easily separates all round, to some distance from its edges: the bone itself changing from its natural whiteness, to a kind of purulent hue, or yellowish cast. All these changes in the appearance of the wound, indicate the diseased state of the parts beneath the cranium; which can only be relieved by perforating the bone,* and this

* Two cases are related by Mr. Pott, of an oppressed brain, cured by a perforation made through the skull: in one, at the distance of four, the other at that of five days from the

operation should never be delayed when the symptoms of an oppressed brain, or inflamed dura mater, are not speedily removed by proper evacuations; which have frequently prevented the dangerous consequences of violent blows on the head.

time the blow was received. The place for operating, was pointed out by the rising of a puffy, indolent tumour, over the injured part; which symptom, joined to the spontaneous separation of the pericranium, from the bone underneath: hardly ever failed with him, in pointing out the formation of matter between it and the skull. Vol. 3d. p. 43. M.

CHAPTER IX.

OF INJURIES ARISING FROM CONCUSSION
OR COMMOTION.

ALTHOUGH the terms of commotion, or concussion of the brain, have been used by many writers in so loose and vague a manner, as to convey very inadequate ideas of the nature of the diseases; yet it is very certain, that the medullary part of the brain, receives such a degree of injury or derangement from violent shocks, as sensibly to impair its ordinary functions; and this injury is produced, without any fracture or fissure of the bone, or even the head receiving any particular blow upon it; as frequently happens in falls from considerable heights where

the shoulders, breech, and sometimes the feet, first strike the ground; and that such shocks are capable of producing, not only a disorder in the substance of the brain, but an inflammation, and suppuration of its membranes, is evident from the history of some well attested facts.*

The symptoms, however, which attend injuries arising from mere concussion, and those occasioned by extravasation, or inflammation of the dura mater; admit of a pretty clear distinction. In the first case, or that of commotion simply; there is generally an immediate suspension of the common functions of the brain, to a certain degree; the patient has a vertigo or giddiness, an inclination to vomit, upon swallowing any liquid; has a wildness in

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* The late Mr. Hewson used to mention in his lectures, the history of a lady who was seized with all the symptoms of an oppressed brain, some days after receiving a violent jolt in a post-chaise; but which was not suspected as the cause of her complaints until after her death, when, on opening the head, he discovered an inflammation of the dura mater, with large suppuration.

A case likewise happened in Philadelphia, some years since in a soldier, who died in consequence of an inflammation of his brain, from slipping down to the ground upon his feet; from the roof of a house. M.

his looks, talks incoherently, is restless and sleepless, with little or no fever; or any of the other symptoms, already described as usually attending an extravasation or inflammation.

Gentle evacuations by bleeding, lenient purgatives and sudorific anodynes, frequently remove most of the complaints occasioned by concussion, in twenty-four hours, or two or three days at farthest: but if after this period, and the patient having been considerably relieved, the symptoms should be again renewed, and neither accidental cold, or irregularity in diet have been productive of their return; the surgeon ought, immediately to be upon his guard, as further mischief, than a mere shock or derangement of the brain is to be suspected. Under these circumstances, the evacuations already mentioned, and particularly bleeding,* are to be repeated with more freedom, the head is to

* Bleeding largely is of great consequence in injuries of the brain, especially when proceeding from falls. The late duke Cumberland, when in Scotland, happened to fall from his horse, and was cured by a country surgeon, by copious bloodletting, at the risque of his reputation; but was afterwards rewarded, by being appointed surgeon general of the British troops in America, previous to the late revolution. M.

be shaved and carefully examined, in order to see, whether no marks of contusion point out the seat of the complaint; for if they do not, we must trust to evacuations and the general antiphlogistic regimen, for the relief of the patient, as the trephine cannot be applied with any tolerable propriety, unless we are guided by some external appearances, to the seat of the injury. Mr. Bromfield has lately recommended a liberal use of sudorific anodynes, without bleeding; not only under the preceding circumstances of concussion, but in fractures of the cranium, without applying the trephine: however, as he adduces no more than three or four cases, and those not very precise, in support of a practice so opposite to that of the most eminent modern surgeons, I would advise the young practitioner, to be very cautious how far he adopts the opinions, even of so respectable a name as that of Mr. Bromfield, upon a subject which requires the united judgments of the ablest men of the profession, to ascertain with precision.

As anodyne medicines are the most effectual preventatives of inflammation, after severe operations in general, I think they may,

with great propriety, be employed in fractures of the skull, as well as concussions of the brain; but as evacuations in general, and bleeding in particular, are universally allowed to promote the power of absorption, as well as lessen inflammation, they should never be omitted in complaints arising from concussion of the brain, extravasation of any kind of fluid, or inflammation of the dura mater; those injuries, in particular, which arise from the pressure of a lymphatic extravasation, occasioned by a rupture of the finest vessels of the brain, can alone be relieved by absorption alone, as there are no symptoms, in such cases, which clearly indicate the precise seat of the collection; and if there were, it would not be in our power to relieve them, by an operation.

I shall conclude this chapter, upon concussions of the brain, with the history of a case, which fell under my care many years ago, and which may serve to shew the perplexing obscurity, sometimes attending certain cases of this nature, both with respect to the causes and cure of the disease.

A woman, about twenty years of age, in running hastily out of a cellar, struck the

crown of her head with great violence against a beam.

She was stunned by the blow, but after a few minutes, was able to go about her business, and continued apparently well for three or four days, when she complained of a giddiness and pain in her head, attended with a slight fever. Under these circumstances, I was applied to for assistance; and, after enquiring into the history of her case, and examining her head, where no appearance of contusion was observable, I took sixteen ounces of blood from her arm, gave her a gentle purge, and ordered a low diluting diet, which soon removed all her complaints, and she continued perfectly easy for ten or twelve days, when her former symptoms again returned, and were as speedily relieved by the same remedies. In short, she continued to suffer periodical attacks of pain in her head with a fever, every twelve or fourteen days for near three months, and was as often relieved by gentle evacuations, until the eightieth day from the accident, when she suddenly became perfectly frantic and delirious, and had a hard quick pulse, and most of the symptoms usually attendant on an inflammation of the dura ma-

ter. A copious bleeding, and several glysters afforded very little relief, and as her situation was then to the last degree threatening, I was induced to examine the scalp with great attention, and thought I was sensible of some small degree of thickening on the part, where she first struck her head, and which she always pointed out, while sensible, as particularly painful. Upon this I made two semi-circular incisions, and removed a sufficient portion of the scalp, with the pericranium, which adhered pretty firmly; then perforating the bone, and taking out the circular piece, I was surprized to find only a slight degree of inflammation upon the dura mater, which I immediately divided with the point of a lancet, but without any discharge of blood or matter; all her dangerous symptoms disappeared the next day, returned no more, and she was cured in the usual time, without any other remarkable circumstance*.

* Mr. POTT relates the case of a woman, who was affected by nearly similar symptoms to the above. The complaint proceeded from striking the head against an iron hook, fixed to the top of a coach on the inside. The blow gave exquisite pain for the instant, but soon ceased, and nothing further appeared, until *two months* after the accident, when a pain in the head came on, but disappeared in a week. A tumor

CHAPTER X.

OF INJURIES ARISING FROM A FRACTURE
OF THE SKULL.

WHOEVER has read with attention, the two preceding chapters upon blows of the head and concussions of the brain will readily perceive; that a simple undepressed fracture of the skull, considered merely as solution of continuity of the bones, can never occasion those dangerous symptoms, which of-

then arose over the sagittal suture. On opening the tumor, a quantity of offensive, and discoloured matter was discharged; and the dura mater, was bare in consequence of a hole in the track of the suture wide enough to admit a finger. The bones on each side were carious to a considerable extent. Vol. I. p. 115. Mr. Warner also relates the case of a boy

ten arise in consequence of such blows and concussions. It is the injury, which the brain and its investing membranes sustain from extravasation and inflammation, that constitute the whole danger of such accidents, as is evident in many undepressed fractures of the skull, where no bad symptoms at all appear, and where the application of the trephine is sometimes unnecessary. Whereas the most dangerous and fatal cases, are generally those, in which there is not the least fracture or fissure to be found.

who fell upon his head, and lacerated and contused the scalp, but did not injure the bone; in whom the symptoms having disappeared by bleeding and purging, returned after an interval of *ten* days, with a pain in the part of his head, directly opposite to that, which received the injury. The trephine was applied to this part, without discovering any extravasation, but on an examination after death, of the part originally hurt; there was found some matter between the *cranium* and *dura mater*, and a great quantity of that and extravasated blood between the *dura* and *pia mater*. Mr. Warner therefore suggests the propriety of applying the trephine on the part originally injured, without paying any attention to the place where any subsequent pain may apparently seem, as in the above case, to call for an operation. M.

For these reasons the operation of trepanning in undepressed fractures of the cranium, may be performed with three different intentions. Either to relieve the complaints arising from the pressure of an extravasated fluid: to give a discharge to matter formed in consequence of an inflammation of the dura mater: or it may be used as a preventative of future mischief. In the first case, the relief from perforation, is not only sometimes immediate, but frequently is not attainable by any other means.—In the second, it is the only chance for life; as there is no natural outlet for the discharge of matter formed in consequence of inflammation.—In the third, or preventative intention, it is a matter of choice, more than immediate necessity.

Few persons, I believe, will hesitate to perform the operation under the two first circumstances, of extravasation and inflammation; and with respect to the third or preventative means, some doubts may arise with the young practitioner, about the propriety of performing the operation, while no bad symptoms ap-

pear; particularly as some writers advise us to wait until its necessity is indicated by such complaints as may both acquire and vindicate it.

To ascertain as nearly as possible, the true line of conduct, in so interesting a matter, it will not be amiss to compare the dangers resulting from the operation, considered in itself, with those consequences, which we may reasonably expect from an omission of the performance of it.

As to the operation itself, and particularly that part of it, which consists in perforating the bone, there is neither pain, difficulty, nor danger in it: the loss of substance in the bone does not long retard the cure, and as to the admission of air upon the dura mater; it will in a great measure produce its effects through the fracture, where the perforation is not made.

The danger of omitting the operation, arises in consequence of the pressure upon the brain, and the inflammation of its membranes, so often repeated in the preceding pages; and as the most dangerous symptoms occasioned by these causes, do not come on immediately;

frequently not until many days after the injury: it is impossible for the surgeon to ascertain the mischiefs which may be occasioned by it; and when those mischiefs are indicated by the symptoms, the operation is the principal remedy we have in our power, and that is too frequently, under such circumstances, unsuccessful.

In short, if we compare the numbers of persons who die from collections of matter formed within the cranium, where the perforation has been neglected; with those who survive, under an early application of the trephine: the proportional success of the latter will be found so much greater, as to render the operation adviseable, in almost every case of a simple undepressed fracture of the cranium.

When a fracture of the skull is attended with a depression of the bone, the necessity of elevating the depressed part, in order to take off the pressure upon the brain is universally acknowledged; and when the injury, which the brain receives, is no more than what arises from that compression, the mere elevation of the bone, will procure effectual relief. But as pressure, from this cause, may be, and most frequently is, combined with that arising from

extravasation; the surgeon is by no means to confide in the favourable appearances, with which we are often flattered after raising a depressed bone; but should pursue such methods as are most likely to prevent the more remote consequences of injury done to the brain and its membranes; and these means have been already pointed out sufficiently, in the two preceding chapters.

A single perforation may suffice in small fractures with little depression, but when the force producing them was great, the depression considerable, and the fracture extensive, winding into a circular form; with the depressed part, cracked and splintered; the best and safest way is to remove the whole, or at least the greater portion of the bone so depressed and injured; for whatever ill consequences may arise from denuding so large a space of the dura mater, much greater mischief is to be apprehended, from the confinement of that matter, which may of course be generated throughout the whole extent of the fracture and depression.

As the rules laid down by the ablest writers, upon such a subject, can only be general, the peculiar circumstances of each individual,

must furnish directions to the surgeon, for his particular conduct. All depressed parts must be elevated; loose, splintered, and irritating ones removed; and at all events, a free discharge afforded to whatever extravasated fluids may be formed, sooner or later, in consequence of the injury. The earliest and most careful attention should be paid to every symptom and appearance, in order to obviate them in due season, for the proper opportunity once lost, is seldom to be regained by any future management.

There are certain parts of the cranium, where on account of the structure; the application of the trephine has been usually forbidden, by most writers; these are the sutures, the inferior part of the occipital bone, that part of the frontal bone where the sinus is situated; and the temporal bones. The strong adhesion of the dura mater, and the course of the sinuses under the sutures, have been deemed sufficient objections to the operation on those parts; but experience has taught us, that the dura mater may be separated without laceration; and that in case the sinuses are wounded, the hæmorrhage does not prove dangerous. The occipital bone is rarely fractured

without immediate death being the consequence; yet the superior part of it has been fractured, and the trephine applied with success. In case of a fracture in the frontal sinus, particularly from a musket ball shattering the posterior part of the sinus, Mr. Le Dran advises the application of the trephine, to relieve the injury of the dura mater. As to the temporal bones, they may be perforated any where above the ears; as the hæmorrhage from the artery is easily restrained by ligature, where pressure does not succeed; and and that convulsion called the jaw-lock, as frequently attends wounds made in other parts of the body, as those of the temporal muscles; the tendinous expansion of which, covers a large portion of the parietal bones, where the trephine is daily applied without any apprehension. In short the danger incurred from an application of the trephine to any of the afore-mentioned parts, is by no means equal to the mischief arising from its neglect; for though many of these operations do not succeed, the failure is to be attributed much more to the nature of the injury, than the violence occasioned by the application of the instrument.

When the operation is determined on, it is generally performed in the following manner. The patient being conveniently seated on a low chair, or lying on a bed, with his head firmly fixed and supported by the assistants; the operator, with a strong scalpel, is to divide the scalp with the pericranium, quite down to the bone; and having discovered the fracture, is to trace it to its utmost extent, in order to fix upon the most advantageous spot, for making the perforation, and these being done, such a portion of the scalp and pericranium is to be removed, as will admit of sufficient room for the application of the trephine. If any vessels should be divided, the bleeding of which cannot easily be restrained with dry lint and moderate pressure, they must be taken up with the needle and ligature: the crown of the trephine is then to be applied, so as to embrace an equal portion of the bone on each side of the fracture; if it be small and undepressed, the operator works his saw, until he has made a furrow in the bone sufficiently deep to prevent it from slipping; then removing the pin, he continues the operation pretty briskly, taking up the crown every now and then to clear

the teeth with a small brush, and wipe the dust with a pointed probe and lint from the circular furrow, as well as to examine whether the saw works equally, or the bone begins to be loose.* The appearance of the diploe is not to be depended on, as a guide to ascertain the thickness of the skull, as in very thin ones, there is often none at all; and in old persons,

* In using the common trephine, a very considerable interruption of the operation takes place from the surgeon being obliged to stop and clean the instrument from dust that collects between the teeth; and also in taking out the pin in the center of the trephine. In order to remove these inconveniences, Mr. Cruickshank of London, has improved on the former instrument, by having a *slit* made in the perpendicular supporter of the handle, in which there is a nut of a screw fixed to the upper part of the moveable pin which is in the center of the trephine, and which projects beyond the teeth of the saw. As soon therefore as the saw has so far penetrated the bone as to be firmly fixed; the operator has only to slide the nut to the upper part of the slit, and there to fix it by turning the screw. In the course of the saw, there are three vacancies each about as wide as the space occupied by two teeth, in order to let out the dust of the bone as fast as it collects. The trephine instead of being *conical*, is perfectly cylindrical, which is of considerable advantage; as the common one is so small at the bottom, that it is frequently necessary to make two perforations, where one would have sufficed; if the diameter of the instrument were a little greater. M.

it is generally obliterated; for which reason, if a surgeon was implicitly to rely on the appearance of the diploe as a criterion of the skull's thickness; he might fatally plunge the crown of the trephine into the patient's brain; an accident which has happened to some incautious operators. When the bone is so nearly divided in the circumference of the circle as only to adhere, in one small part, it may easily be taken out with the forceps; and if any little sharp points should remain at the broken part, they must be removed with the lenticular.

Should any extravasated blood now appear between the dura mater and the cranium, and the patient in a few hours be relieved of his complaints, there will be no necessity for puncturing the dura mater: but if on the other hand, the symptoms of an oppressed brain should continue after the bone is perforated, and no extravasation appears on the dura mater, it ought to be divided with the point of a lancet, in order to discharge whatever collection may be formed beneath. The part where the perforation of the bone was made, must be lightly filled with dry lint, and the whole wound dressed in the usual way, with no other

bandage than a handkerchief, folded in a triangular form and passed round the head, so as simply to retain the dressing.

In fractures with depression; the crown of the trephine must be applied on the sound part of the bone, but so near the fracture, that one side of the crown may make part of the circumference of the circle, and by that means form the most convenient introduction to the elevator. With respect to the number of perforations, they must depend entirely on the nature of the injury, and consequently the the surgeon's judgment can alone direct his particular conduct. Whoever has acquired JUST and GENERAL IDEAS of the nature of a disease, will seldom be at a loss how to apply them, on particular occasions; and to him, WHO WANTS THOSE IDEAS, no rules or directions will be of much consequence.

In the course of the cure, a troublesome fungus sometimes rises up from the dura mater through the perforations, or from those spaces where large portions of the bone have been removed. A variety of remedies have been recommended to repress this fungus, which, if not kept down in the beginning, grows very fast, and resists every attempt to check it. The

most useful application I have ever tried, is the prepared sponge, cut into slices, and laid immediately on the fungus; or with very thin pledgets of lint between the sponge and fungus; which last is very apt to insinuate itself into the porous substance of the sponge, and render its removal troublesome and difficult; a moderate pressure may be made on the dressings, by drawing the handkerchief something tighter than usual. In these cases, the discharge is generally very considerable, for which reason, as well as to prevent the adhesion of the sponge; the dressings ought to be renewed twice a-day, and the patient kept to a strict regimen, with a free use of the bark. Indeed there are no cases in surgery which require an exact diet and pure air in order to obtain a cure, more than those of fractures of the cranium.

As the following case was attended with some singular circumstances, I shall close this subject with a short account of it.

A boy, about fourteen years of age, by a fall from a window, fractured the left parietal bone, and was trepanned two days after the accident: the trephine was applied twice, and some extravasated blood discharged from

between the dura mater and skull; no unusual symptoms appeared for several days after the operation, when a fungus suddenly sprouted up through the perforations, which no applications could restrain; the trephine was applied a third a time between the two first apertures, in order to relieve the stricture formed by the edges of the bone, and to view the state of the dura mater at the base of the fungus, where we found an opening, from which some matter was discharged from the brain. The same dressings were continued, with moderate compression, but without any effect; for the fungus in a few days increased to the size of a large orange, and as the weather was hot, became so extremely offensive and troublesome, we had no other way to get rid of it, but by making a ligature around the base; and in two or three days it dropped off. A new one however soon arose, and in a short time soon exceeded the first in size, discharging vast quantities of a fœtid matter. The boy was now feverish, and often had a slight delirium; wasting fast in his flesh and strength, but preserving his senses perfectly well in general: we were now reduced to the necessity of removing the fungus by another ligature, which

soon produced the same effect, but in three days after it dropped off, the patient died. Upon opening the head, which was done by Doctor Middleton* and myself, we found the left lobe of the cerebrum entirely destroyed, and more than half of the right lobe converted into pus: yet the patient retained his understanding and senses very accurately, to the last hour of his life.

* Late professor of medicine, in New-York college. M.

CHAPTER XI.

OF GUN-SHOT WOUNDS.

THE first intention, with regard to wounds made by a musket or pistol ball, is, if possible, to extract the ball; or any other extraneous bodies lodged in the wounded part. The next object of attention, is the hæmorrhage, which must be restrained, if practicable, by tying up the vessel with a proper ligature; as no styptic is to be relied on, exclusive of the mischief they otherwise occasion.*

* However different gun-shot wounds were formerly considered, both as to their nature and method of cure, on account of the poison, which was supposed to accompany the ball, it is now ascertained, that they only differ from other wounds, as their symptoms are more violent, from the

In order to extract the ball, or foreign body, Mr. Ranby, and Mr. Le Dran, whose judgment and experience in these cases are certainly superior to most men's, advise as little great contusion that attends them. As in other contused wounds therefore, the principal symptoms to be guarded against, are *inflammation* and *gangrene*. In order to prevent these occurrences, as the one most commonly succeeds the other, blood should be taken from the arm of the patient, who ought to be kept cool and quiet, and gentle evacuations of the bowels produced every day. In case a mortification comes on, recourse should be had to wine, opium, and the bark; which Mr. Ranby extols so highly, and with so much propriety. The same medicine should be applied externally to the mortified part, so as to cover it intirely, where it will act with greater force, by reason of its immediate application to the seat of the disease. Of the efficacy of the bark, when used in the manner here directed; I was an eye witness in two cases of mortification, one, from a bad ulcer on the leg, in the Pennsylvania hospital; the other, in a citizen of Philadelphia, from a compound fracture. The particulars of the latter case are as follow. The accident happened at Elkton, in Maryland, in the beginning of November, 1790, by the passage of a waggon wheel over the leg, which was set and dressed by a country physician, and the person conveyed to the city by water, where he remained one week before Dr. Foulke was called to him, which was on the morning of the 11th of the same month. The leg at this time was violently inflamed from the foot to the knee, and many parts of its surface were covered with yellow and livid vesicles; attended

tle search with the probe or forceps as possible; as all irritation on these occasions increases the consequent pain and inflammation. Mr. Ranby is of opinion, that we ought not to attempt the extraction of any thing which lies beyond the reach of the finger; though if the ball can be felt under the skin in an opposite direction to the wound, it ought immediately to be cut upon and taken out. As the external wound made by a musket ball is very narrow, the orifice should

with a discharge of ichorous sanies from the wound. His pulse was quick, small and irregular; his skin dry, and he had occasional delirium, with spasmodic twitchings of the extremities. A pound of Peruv. bark in fine powder was applied to the leg, which was placed in a state of moderate flexion, so as to favour the draining of the pus, and be most easy to the patient. The liberal use of the bark, and Madeira wine was also directed. In the evening the leg was dressed, and a crooked red line was discernable between the parts situated a little distant from the lacerations of the leg, and those contiguous to the lacerated lips, which were of a bright yellow. The next day, the leg exhibited by a further discolouration of certain parts, evident marks of sphacelation, and as the surrounding edges put on a natural appearance, some hopes were entertained of a stoppage of the mortification. The sloughs soon separated, the surrounding edges granulated, and the man in a few weeks perfectly recovered. M.

be considerably dilated, and that on both sides, when it has penetrated through any part of the body or limbs, particularly the most depending orifice; yet in wounds near the joint or in very membranous or tendinous parts, the knife as well as forceps should be under some restraint, and no more dilatation made, than what is absolutely necessary for the free discharge of the matter lodged within; for we know from experience, that wounds about the joints, are always attended with great pain and inflammation; and disposed to shoot out fungus flesh, and form new abscesses round all the adjacent parts. The air too seems to produce worse effects upon membranous and nervous parts, than those which are more fleshy; for all which reasons the young surgeon should be very cautious in wounding them. The first dressing to a gun-shot wound, should be light, easy, and superficial, with a barely retentive bandage, which ought to be made of soft flannel and linen. If the lint be dipped in oil, it will not only fit much easier on the wound, but allow a freer discharge to the extravasated fluids, which nature always endeavours to expel as early as possible. At the second dressing, some mild digestive

may be used, and where the wound is large, the bread and milk poultice, or one composed of the powder of flaxseed, over all; and if much tension and inflammation attend, an emollient fomentation will be very necessary. These symptoms will be much lessened, if when we are first called in, a proper quantity of blood be taken from the patient; his body kept open by clysters and gentle purgatives; an easy perspiration promoted, and in general a cool moderate regimen prescribed, avoiding every thing hot and spirituous, either internally or externally, which during the state of inflammation is extremely injurious to wounds. Nor should the surgeon, if not called in until the inflammation is come on, attempt to remove any extraneous bodies before it is almost entirely abated, and a good digestion appears; unless the foreign body lies so near as to render its extraction certain, without much pain or difficulty.

If a wound be of such a desperate nature as to require amputation, which is frequently the case where it happens in a large joint; it is of the utmost importance to perform the operation immediately; as the consequent pain and

inflammation, renders it improper during these symptoms; and, when they are past, the patient is often reduced to so low and weak a state as to make amputation a very dangerous and doubtful operation. Wounds, that border on any considerable artery, are very apt to bleed afresh upon motion, or the return of a free circulation of the blood into the parts; and this is frequently the case when the crust and slough begins to separate; for which reason one should never attempt to remove it by force, but wait with patience until there is a perfect separation of the slough. The surgeon in the mean time should be on his guard against this accident of a second hæmorrhage, which is frequently indicated by the patient's complaining of a greater weight and fulness in the limb; attended with more or less pulsation in the wounded part. This latter is an almost infallible sign of the approaching danger, and to obviate it, recourse must be had to bleeding. Mr. Ranby says he has known many instances of persons losing their lives from the bursting of an artery after amputation; and affirms, that in some cases, which proved mortal, not above twelve ounces of blood were lost; this appears very extraordinary, and almost unaccountable, unless from the previous

hæmorrhage, and broken texture of the blood, a sudden gush, may give such a check to the circulation, as to cause immediate death. This observation ought to be a lesson of instruction to the young surgeon, to be particularly attentive in securing every vessel with a proper ligature. For this reason too, repeated bleedings in the beginning of an inflammation, or rather before it, are attended with such beneficial consequences; they generally prevent, and always lessen the fever and inflammation, and consequently those abscesses, which generally attend them. Mild laxative medicines contribute greatly to answer the same purposes; and to remove the rack of pain, recourse must be had to the sovereign and almost divine power of opium; next to which, the bark may be added, as a medicine, which Mr. Ranby says, no human eloquence can deck with panegyric, proportionable to its virtues. He declares, he has known it to procure rest, if given in large doses, when opium had been taken without any effect.

In all large wounds, particularly those made by a cannon ball, there is constantly a laceration of the membranes and exquisitely sensible parts, which are ever attended with excrutia-

ting pain, and a great discharge of gleety matter, which if not restrained, proves of the most dangerous consequence. Under these unhappy circumstances, the bark given in the quantity of a drachm every three hours, or oftner if the stomach will bear it, has a most surprising efficacy in removing these terrible symptoms. The elixir of vitriol taken three or four times a day in a glass of water, is in these cases of singular benefit, and proves a very good assistant to the virtues of the bark. If the body be costive, a few grains of rhubarb may be added to each dose of the bark, till that inconveniency is removed; but on the contrary, if the bark should run off, in more than three or four successive stools, its operation that way must be checked by a few drops of the liquid laudanum. or a spoonful of the *Diascordium* mixture, given in each dose.

From what has been said, it is evident, that the bark is one of the best remedies hitherto discovered, for contracting the vessels, and restoring their due action upon the blood, when too great a quantity of that necessary fluid is lost by a profuse hæmorrhage, provided the larger wounded vessels are secured by a proper ligature from future bleeding. But

where there is too great a fulness, or too much strength and contractile force in the solids, and an inflammatory state of the system, it may occasion obstructions, pains, inflammations, and their consequences, unless it be timely laid aside, upon the appearance of such effects.

Fractures of the bones of the limbs by a musket ball, are attended with the same general symptoms of other compound fractures, the proper treatment of which, has already been pretty fully explained in the chapter upon that subject; for which reason, I need not here repeat what has been there said.

It sometimes happens that two balls pass into a limb, making only one orifice where they entered; and afterwards diverging in their course, form two openings on the opposite side. In such cases, if the two orifices are pretty near each other, they ought to be laid into one, in order to facilitate the discharge of extraneous bodies, or matter, that may be lodged in the wound.

Where there is reason to suspect, from the course of the ball, that so large an artery is wounded as to occasion a dangerous hæmorrhage; upon the approach of the symptomatic fever, and removal of the eschar, the tourni-

quet ought to be left loose about the limb, with directions to the patient or some person near him, to tighten it in case of bleeding, until the surgeon comes to his assistance.

When the *os humeri* is fractured, after making the necessary dilatations, and extracting such loose splinters as can safely be disengaged from the muscles; the wound being dressed in the usual way, the bones must be preserved in the most apposite situation by means of the hollow splints recommended in the chapter upon simple fractures, only with this difference; that openings must be made in them opposite to the wound, to admit of the application of the dressings, and afford a free discharge to the matter, without removing the splints, which would unavoidably excite pain and inflammation, by disturbing the position of the bones.

Mr. Le Dran, lays it down as a general rule, never to attempt saving the leg, when the bones of the tarsus are fractured by a musket ball; for as the tendinous and ligamentous structure of the part, does not admit of the necessary dilatations, the consequent fever and inflammation proves fatal in

almost every case; immediate amputation is therefore the most advisable practice.

A leg or an arm is frequently carried off by a cannon ball, which accident generally leaves the extremities of the bones as well as tendons in so shattered a state, as to render amputation necessary. When this happens to be the case, so much of the limb ought to be preserved, as is consistent with the nature of the injury; but the operation should always be performed high enough to leave no loose fractured bones above the amputated part.

A complaint of a very singular nature, known by the name of an *Emphysema*, is sometimes the consequence of a fractured rib, either from blows, falls, or a musket ball passing in an oblique direction, so as to fracture the rib without entering into the cavity of the thorax; and this complaint is occasioned by small sharp points of the fractured rib, wounding the vesicular part of the substance of the lungs, so as to permit the air to pass into the cavity of the thorax, where being retained, it induces such a degree of difficulty in respiration, by compressing the lobes of the lungs, as sometimes to terminate

in an absolute suffocation. The only remedy, capable of affording effectual relief in so distressing a situation, is, to perform the operation of the *paracentesis thoracis* or opening into the cavity of the chest, through which the confined air may be discharged. This opening may be made without much difficulty or danger, by dividing the integument something better than half an inch in length, and then cautiously pursuing the dissection through the intercostal muscles and pleura, with the point of the scalpel. There is no danger of wounding the lungs under such circumstances, as they are sufficiently compressed by the air in the chest to keep them out of the way of the knife.

But when the wound made in the pleura by the points of the fractured ribs, is large enough to permit the air to rush freely out of the cavity of the thorax; it passes into the cellular membrane, and sometimes distends it to a monstrous size, extending over great part of the body, face and limbs. The proper remedies in this species of disease, are small scarifications, made with the knife or lancet, into the cellular membrane, and then compressing the integument so as to force out the

confined air. Repeated bleeding in both species of emphysema, and particularly the last, is necessary to relieve the urgency of the symptoms, which are sometimes very severe and oppressive; the emphysematous tumor of the cellular membrane, often lasting several days, before it entirely subsides.

There is so much affinity between wounds made by fire-arms, and burns, that I shall conclude the present subject with a few observations on the latter. Burns have generally been considered as a distinct species of sores; and the idea of fire remaining in the burnt part, has given rise to a great many whimsical applications, which the more rational theory of the present surgery has very rightly rejected. Superficial burns or scalds, which penetrate no deeper than the cuticle, are most effectually and speedily relieved by the immediate application of the spirit of wine. But when they produce blisters some soft, mild application, such as linseed oil or a cerate of oil, wax, and spermaceti, are necessary to heal the excoriated parts. When they penetrate still deeper, and the true skin and *membrana adiposa* down to the muscles are affected, and slough away, a different me-

thod of treatment is to be made use of. In these last circumstances, where the burn or scald has extended itself over an entire limb, or a large surface of the body, a violent inflammation immediately ensues, attended with most exquisite pain, and sometimes even convulsions. Bleeding in such cases, according to the age and strength of the patient, must precede every other remedy; the body must be kept open by clysters and gentle purgative medicines; and the parts affected covered with an emollient poultice, and fomented twice a day or oftner, with anodyne fomentations, till the mortified parts begin to slough away, when they may be dressed with some mild digestive, though such an exquisite tenderness affects large burns, that very few ointments are applied, which do not irritate them. One of the most successful I have ever tried, is the *unguentum e stramonio*, prepared by boiling the leaves of the *stramonium*, or thorn apple in fresh hog's-lard, till the lard will take up no more of the juice; and then adding as much wax as will give a sufficient degree of consistence to withstand the summer's heat. This ointment is possessed of an anodyne quality, which renders it the easiest application

during the whole state of inflammation, which, with the extreme slowness of the cicatrization, generally lasts long enough to tire both the patient and surgeon, for, where the burn or scald is very extensive, the elongation of the sound skin is produced with great difficulty, and is extremely apt to break open upon the slightest occasion. The ulcer too, by remaining so long open, is very much disposed to shoot out into fungous excrescences, which are with great difficulty kept down by mild escharotics, such as the Roman viriol, *aq. calcis* or even lunar caustic and the *pulvis angelicus*, for dry lint adheres so closely, that you cannot remove it at every dressing, and the fungus shoots up amazingly, if not corrected daily by some or other of the escharotics just mentioned, even though you should apply a well adapted roller, which is highly necessary and useful, to prevent this luxuriant growth of flesh, and preserve the parts from disagreeable scars.

A strict regimen is very necessary in these severe cases, which are sometimes so obstinately slow, that a twelve-month will elapse before you can entirely heal some of them.*

* The practice of dilating gun-shot wounds, formerly so much practised, unless for the more easy extraction of

A P P E N D I X,

CONTAINING, SOME SHORT HINTS ON THE
 STRUCTURE AND OECONOMY OF HOSPI-
 TALS; PARTICULARLY APPLIED TO MI-
 LITARY ONES: WITH THE GENERAL
 MEANS OF PRESERVING HEALTH IN AN
 ARMY.

AMONG the variety of public errors and abuses, to be met with in human affairs, there is not one perhaps which more loudly calls for a speedy and effectual reformation, than the misapplied benevolence of

a ball, lead, or other extraneous substance, is here very properly reprobated. In warm climates, the *locked jaw*, or tetanus, is common after gun-shot wounds, owing to the laceration of the parts, and the debility of the system at the time they are commonly received. For this reason, bark internally, and stimulating applications to the part, as laudanum, or spirits of turpentine, &c. are highly proper, to prevent by their local irritation, the general affection.

hospitals for the sick and wounded. We daily see persons of every rank and sex, contributing to these charities, with a spirit of liberality, which does honour to humanity; while many of them, with the most becoming zeal, are devoting their time, and sacrificing their private interest to the care of superintending the structure and management of the house; and yet, an absurd mistaken œconomy, has hitherto not only rendered all this pious labour and expence, in a great measure useless, but even fatal and destructive to the very end and aim of the intended purpose; that of healing the diseases of the sick poor.

To those who are unacquainted with the subject in question, it will doubtless appear a very extraordinary assertion that there is not at present in the capital of the kingdom, a

Dr. Jackson relates, (Lond. Med. Journal;) that after a battle in North-Carolina, during the late American war; many wounded soldiers, who were carried a considerable distance in waggons, recovered much sooner, during their journey, than when they were put into hospitals; the exercise restoring their usual vigour which they had lost during the fatigue of battle. This practice for obvious reasons will not apply to wounds received in high health, which as much require rest, and debilitating remedies, as the former did exercise, and other invigorating means. M.

single hospital constructed upon proper medical principles; yet it is a fact very generally acknowledged by the most eminent men in the profession of physic and surgery in England.

If we enquire into the causes of such glaring absurdities, we shall easily trace them to those sources of darkness and ignorance, from which most of our civil and religious abuses have originated; but how they should be continued to disgrace the improvements of more enlightened times, can only be resolved, by reflecting on the pride, obstinacy and self-interest, which are too generally annexed to ancient errors.

If great and populous cities, have been justly stiled the graves, of the human species; the large and crowded hospitals, generally built in them, may with equal truth and propriety be deemed the lazarettoes or pest-houses of the most unfortunate persons, who from ill directed motives of compassion, are carried into these charities. In the two great hospitals of St. Thomas, and St. Bartholomew, in London; about six hundred patients die annually which is about one in thirteen

of those who are admitted as in-patients*. In Paris it is supposed that one third of all who die there, die in hospitals. The hotel Dieu, a vast building situated in the middle of that great city, receives about twenty-two thousand persons annually, one fifth of which

* Hospitals, and especially military ones, frequently defeat the very intention of their establishment; and instead of proving the means of restoring the health of those confined within them; become the most certain sources of disease. Men, shut up in the same room, all differing in customs, manners and diseases; and deprived of the free circulation of that pabulum of life, *pure air*; have no chance of recovery from the diseases, under which they labour; and acquire new ones from their situation. We are informed in the "Result of the Observations made in the Military Hospitals by Dr. Rush;" that the principal diseases, that prevailed, were the *typhus gravior* and *mitior*, and "such was the prevalence of their contagion, that men who came into the hospitals with other diseases, soon lost the type of their complaints, and became affected with the above mentioned fevers." Hence hospitals have been styled by the same author, the SINKS OF HUMAN LIFE, in an army; and he also asserts that they "robbed the United States of more citizens than the sword." In order therefore, to render hospitals of that importance, which they were intended to be of; the great object should be, to prevent the progress of contagious diseases, by the greatest attention to cleanliness, free ventilation, and frequent white washing. Of the efficacy of the latter means, there are some remarkable

number die every year. It is impossible for a man of any humanity to walk through the long wards of this crowded hospital, without a mixture of horror and commiseration, at the sad spectacle of misery which presents itself. The beds are placed in triple rows, with four and six patients on each bed; and I

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facts in the works of Mr. Howard, and it was experienced in several instances in the military hospital of the late war. The contagion of the *typhus* fever, especially when it prevails with that degree of malignity, observable in hospitals and prison ships, will adhere to the bed cloaths, and even walls and beams of the house, and can only be destroyed by the above means. That the contagion remained on the walls, and thus exerted its influence upon all those who were confined within them; was proved by people having been observed to die in great numbers, while their beds were nigh the wall, while others who lay in the middle of the room recovered. See *Trans. Med. Soc. of New-Haven*. So permanent was the nature of the contagion, that it remained in one hospital, for six months, and affected healthy troops, who at that distance of time were quartered in it. As a means of counteracting the effects of contagion, or noxious air of any kind; Dr. Priestly recommends the *muriatic acid gas*, obtained by the decomposition of that acid, by means of the vitriolic acid poured on common salt. Dr. William Fordyce also speaks highly of the efficacy of the muriatic acid diluted with water, as an *internal* remedy in all diseases commonly called putrid. M.

have more than once in the morning rounds, found the dead lying with the living; for notwithstanding the great assiduity and tenderness of the nurses, some of whom are women of family, who take veil and piously devote themselves to that office; yet it is almost impossible from the vast number of patients, to bestow timely assistance upon every individual.

If we compare the numbers of patients who die in the county infirmaries of England, with those of the London and Paris hospitals, the proportional difference will be greatly in favor of the former; * and although the putrid air of great cities is more unfavorable to health in general, than that of country towns; yet the greatest difference in mortality, will be found, upon a close and fair examination, to arise from the structure and crowded wards of the hospitals, in over-grown capitals†. For, if to

* In the Northampton infirmary, one in nineteen die annually, and in that of Manchester, placed in a more airy situation, one in twenty-two.

† It is to be hoped that the Hospital lately built in the city of New-York, will have fewer objections to its plan, than any hospital hitherto constructed. The principal wards, which are to contain no more than eight beds, are thirty-six feet in length, twenty four wide, and eighteen high; they are all well ventilated, not only from the opposite disposition of the windows, but proper openings in the side walls, and

the comparison between the mortality in large city hospitals, and those of country towns, we further add, the proportional difference between the last and that of private practice, it will be found to be in favor of the latter, from all which facts, it evidently appears, how essentially necessary pure fresh air is, to the cure of diseases in general, and particularly those, which arise from putrescent causes either internal or external.* It is computed that a

the doors open into a long passage or gallery, thoroughly ventilated from north to south.

* So essential an article is pure fresh air, in the recovery of all those who labour under low contagious fevers, which so commonly prevail in military hospitals; that all medicine will prove ineffectual without it. Those therefore, who attempt to cure these fevers, and neglect this important remedy, act as unwisely as the enervated and luxurious who seek to obtain that strength from medicine, which ought to be acquired by the more rational mode of temperance and exercise. So re-animating is fresh air to persons ill with low fevers; who breath the noxious air of an hospital, or confined room; that they will frequently recover by its influence alone. During the late war, the *jail*, or *hospital* fever prevailed to an alarming degree, and the houses appropriated for the reception of the sick, were either so dirty, or infectious, as to render them very improper receptacles for sick people. By the judicious advice of Dr. Rush, (who informed me of the fact,) the patients were carried out every day, and placed under apple trees,

gallon of air is consumed every minute by a man in health; and much more must be necessary to one who is sick, as the morbid effluvia, which are continually exhaling from all parts of the body and lungs; must contaminate a larger portion of the surrounding atmosphere, and render it less healthful to breathe in; for animals are observed to die much sooner in foul air, than in *vacuo*.

But the preceding facts, not having been sufficiently understood or attended to, a false œconomy has universally prevailed, in the structure of hospitals for the sick; for those that have hitherto had a principal direction, both in the architecture and management of them, have confined their views entirely to where they recovered with astonishing rapidity; for the miserable sufferers, notwithstanding the use of the most suitable medicines, could not be expected to recover, while breathing an air, which from its impurity would induce sickness in those who were in health, and that would act with double force upon those whose vital powers had been nearly exhausted by previous disease. But when removed from this situation, and by breathing the fresh air, rendered doubly refreshing, by its mixture with the pure air and odours discharged from growing trees and fruits; they gained strength, and recovered as fast, as they would have been rendered worse, by continuing in their former unhealthy situation. M.

objects of conveniency, cheapness, or ornament; and in one of the last hospitals built in London, for lying-in women, there is more expence bestowed upon an elegant chapel in it, than would have finished four wards. In short the physician and architect, have generally two very opposite and incompatible views: the latter laying out his plan so as to contain the greatest number of persons in the least possible space; whereas the former, always aims at having the utmost room which is consistent with use and conveniency.

The same false maxims of œconomy, which have prevailed in the construction of hospitals in large cities, are too much adopted in the military hospitals of camps and garrisons, as evidently appears from the complaints made of them, by sir John Pringle, to whose excellent observations, on the diseases of the army, I am principally indebted for the few following remarks on the means of preventing diseases in camp or garrison.

As changes in the sensible qualities of the air; excesses in diet, and irregularities in exercise, are the principal sources of diseases; so the means made use of to prevent or remove these distempers; must be chiefly directed to the three general causes just mentioned.

As the extremes of heat and cold, are pretty severely felt in these northern states, and the transitions from one to the other, remarkably sudden, they occasion so large a portion of American disorders; as to claim the first consideration.

To obviate the effects of intemperate heat during the summer season, the clothing of the troops ought to be lighter than what is generally worn by soldiers. The tanned rifle shirt, *over a short linen coat or waistcoat, with sleeves, would be a much cooler and healthier dress to march in during the heat of the summer, than a thick woollen coat, which, by its weight and warmth, promoting excessive sweat must necessarily exhaust the soldiers strength; the linen dress too is cheaper, and bears washing, no trifling considerations in the cloathing of an army.

* This advice to establish the rifle shirt for the heavy woollen cloaths of soldiers in summer, is apparently so just that every one would be on first view struck by the propriety of the change. The great disadvantage however attending the use of these shirts, is, that they are very apt to accumulate dirt, which is seldom attended to by the soldiers; and thereby cause diseases. If however, the cloathing of the soldiers were made for summer, of lighter materials than they commonly are; it would prove very advantageous in preserving their health. M.

The marches should always be so ordered, if possible; that the men may come to their ground before the heat of the day; and strict orders should be given, that none of the men should sleep out of their tents, which in fixed encampments may be covered with boughs of trees to shade them from the sun. The usual military exercises too, should be performed before the cool of the morning is over, by which means the fibres will be braced, so as to enable the men to bear excessive heat the better, when it becomes absolutely necessary; and in very hot weather the sentinel duty ought to be shortened.

The preservatives against cold, consists in cloaths, bedding and fire: winter clothing is one of the most expensive articles in a cold country: for which reason, too much attention can hardly be paid to the subject. Sir John Pringle recommends short flannel waistcoats, which are worn by most of the northern European soldiers, with warm watch-coats for those who are upon centinel duty. It is well known from experience, particularly in many parts of New-England, that a flannel waistcoat or shirt, worn next to the skin, will keep a man much warmer than nearly double the quantity

of covering over a linen shirt, and consequently a very great saving might be made in this part of a soldier's dress*. The watch-coats for sentinel duty, may be made of coarse furs,

* This observation is founded in both reason and experience. It is now fully ascertained by those who had the best opportunity of judging; that no article in a soldier's cloathing, is of more importance for the preservation of his health, than *flannel*, when worn next the skin. It is the grand preservative against diseases, whether arising from sudden vicissitudes in the sensible qualities of the air, or from exposure of the body to the excess of either the opposite extremes of hot and cold weather. Unlike the many expensive articles, which have at various times been furnished by government for preventing diseases in armies; and which are rendered intirely useles by the intemperate nature of different climates; a flannel shirt is equally servicable in hot or cold countries. We are told by Dr. RUSH, that during the late war, " those officers who wore flannel shirts
 " or waistcoats next to their skins, in general escaped fevers
 " and diseases of all kinds. (Med. Inq. p. 181.) Dr. MOSELY also in his Treatise on Tropical and West-India diseases, speaks in the highest terms of the utility of flannel in preventing the sudden suppression of perspiration in soldiers, when exposed to rains or dews, (p. 182.) The great advantage of flannel is; that it never chills if it should chance to be wet with sweat or rain; whereas linnen, can never be worn with safety, unless it be perfectly dry. The expense of these flannel shirts would be nothing, in comparison with the profit which would arise from their use in preserving the soldiers lives. M.

which in dry frosty weather, are preferable to cloth, and Indian shoes or mockasins, under the same circumstances, are much warmer than common leather ones; they however, ought to be provided with firm thick soles, to keep the feet dry when the ground is wet.

The next means of preservation mentioned, was bedding. By this, according to Sir John Pringle, is understood, a blanket to every tent of the infantry; but in this climate, if a blanket was allowed to every soldier, particularly at the beginning and end of a campaign, the advantages accruing to the service, by preserving the health of the men, would infinitely more than counter-balance the expence.

As to fuel; a soldier ought to be allowed as much as would serve to dress his victuals, keep his barrack dry, to moderate rigorous frost; but in general, warm clothing and exercise are the best preservatives against cold.

To prevent the ill effects of moisture in camps; trenches should be made around the tents to carry off the water, and it is of great importance to allow the soldiers plenty of straw, and to have it frequently changed. But in fixed camps; where a large quantity can-

not easily be procured; matrasles made of straw or corn husks, might possibly be substituted for it, without much expence; and this kind of bedding would admit of being constantly aired, and even washed and dried again, in good weather. If a soldier's bedding could be raised to a small height from the ground, particularly in damp situations, it would certainly contribute much to the preservation of his health, and the tents should be opened and aired every day when the weather will permit.

The wearing of wet cloaths is a common source of a great many complaints; for this reason, as marches and out-duty necessarily expose the men to rain, they ought to be allowed fires in the rear of the camp, to dry their clothing; an indulgence which has been found to be of great benefit.

To obviate the effects of putrid air, arising from marshes and stagnating waters, the encampments should be frequently changed; but if this is incompatible with the nature of the service; other means must be substituted, to preserve as much purity of air as is possible under such circumstances, particularly during the dysenteric season, when the putrid ef-

fluvia arising from the discharges of the sick, combined with those already mentioned; render the air of a camp almost pestilential.

For this reason no soldier should be permitted to ease himself any where about the camp, except in the privies, under the forfeiture of some slight but strictly inflicted penalty; and upon the first appearance of a spreading flux, the privies should be made deeper than usual, and once a day a thick layer of earth thrown into them, till the pits are near full, when they should be well covered and supplied by others: It will also be a proper caution, to order the privies to be made either in the front or rear of camp, according to the stationary winds, which will carry off the effluvia, without proving offensive or noxious. The straw too, and bedding, ought to be more frequently changed and aired, at such times, than is usual*.

* In order to prevent the great inconveniencies arising from the above causes; Sir John Pringle judiciously advises troops to encamp nigh flowing rivers; but attention ought to be paid to the nature of the soil upon the banks; and of the bottom nigh the shore. The former should be high and dry; and the latter gravel. If the banks are marshy, the river broad and shallow; and the

When the dysentery begins to be frequent in camp, the sick should never be sent to one general hospital; the consequences of which after the battle of Dettingen, were so fatal, that the whole village of Feckenheim, where the hospital was fixed received the distemper; and the air became at last so vitiated and contagious, from the numbers of sick and wounded crowded together; as to generate the jail or hospital fever, which combined with the dysentery, become a perfect plague, and swept off the apothecaries, nurses, and attendants, equally with the patients who were brought in; at the same time, those who re-

low water mark extending a considerable way in, exposing a muddy bottom filled with dead weeds, leaves and other vegetables; exhalations will no doubt arise, and cause intermittent fevers; this actually happened to the British troops, during the late war, when encamped nigh rivers in Georgia and South-Carolina, of which Dr. Jackson was surgeon; who not adverting to the circumstance, has generally disapproved of Pringle's advice.—See *Treat. on Fevers*.

If necessity should oblige an army to encamp nigh a marsh, much advantage would accrue from a grove or wood intervening, to defend against the exhalation arising therefrom. The utility of this, is proved by Dr. Rush, *Med. Inq.* Vol. II. p. 266, and by Dr. Jackson, *Treat. on Fevers*, p. 86, 88. M.

mained sick in the camp though they wanted many of the conveniences and necessaries found in the hospitals, suffered only the original diseases, and generally recovered.

For this reason, when the dysentery prevails, Sir John Pringle advises the slighter cases to be treated by the regimental surgeons in camp, while the rest, or as many as can be attended by the same surgeons, should be put into regimental hospitals, the situation of which, ought to be as dry and as airy as possible. The buildings too, appropriated to such purposes should be the most spacious that can be found; for which reason, churches, barns, and every kind of large out-houses, are preferable to close private dwellings; for as the greatest danger arises from foul air, it can never be compensated by diet or medicine.

As these regimental hospitals are of the greatest consequence, they ought to be supplied with blankets and medicines from the public stores, with an allowance to nurses, and other necessaries; and to enable the regimental surgeons to pay more attention to the sick; an additional mate should be added to each regiment; for in sickly seasons, one or

both mates may fall ill at once; and it is then impossible for the surgeon to do his duty.

As to the dispositions of hospitals, with regard to preserving the purity of air; the best rule is, to admit so few patients into each ward, that a person unacquainted with the danger of bad air, might imagine there was room to take in triple the number. When the ceilings are low, it will be a good expedient, to remove some part of them, and to open the garret story to the roof; for Sir John Pringle says, it is incredible in how few days the air will be corrupted in thronged and close wards; and what renders it difficult to remedy the evil, is; the impossibility of convincing the nurses, or even the sick themselves, of the necessity of opening the doors, or windows, at any time, for the admission of air.

The sick or wounded should by no means be put into common rooms, without fire-places; as by that means, the foul air is confined, and increased to a ten-fold degree; nor will the usual ventilators, answer the purpose of correcting or expelling the putrid effluvia. Lastly, the utmost possible cleanliness is to be observed, both in the persons and bedding of the sick, whose discharges and dressings, should be re-

moved immediately out of the wards; and the floors, after being properly cleaned, may be sprinkled with vinegar, of which a large quantity should be allowed to every hospital.

With respect to those diseases which arise from improper diet, Sir John Pringle observes, that no orders will restrain soldiers from eating and drinking what they like, while they have money to purchase it; and the only way to prevent excesses, will be to oblige the men to eat in messes; by which means, the best part of their pay will be bestowed on wholesome food, the choice of which may be left to their taste, as most men commit more errors in the quantity than quality of their food.

Pork has been sometimes forbidden in camps from being regarded as unwholesome. Sanctorius says, it retards perspiration, and as it corrupts sooner than beef or mutton, it may be presumed to afford less proper nourishment, where there is any tendency to putrefaction, however, it certainly constitutes more than one half of the animal food consumed by the American country people, and when mixed with vegetables, is found to be a very nourishing and wholesome diet. It may not be amiss to observe; that fat meats are so much more

nutritive than lean ones, that two ounces of fuet, will afford more nourishment, than eight or ten of lean meat; and consequently in long marches, through uninhabited countries, a soldier's provision, might be rendered much lighter, by taking only fuet or fat pork with his biscuit.*

As to spiritous liquors; though the excess of

* It would appear to be a fact, that in order to support a person under great bodily labour, as frequently happens in a military life; such substances as afford much stimulus to the stomach, though not nutritious, are more proper to subsist on, than such as contain much nourishment, without that stimulus. Labouring people, we observe, make great and often excessive use of pickles, onions, garlic, and similar articles; and thereby support themselves under great fatigue. The two last vegetables, "composed a part of the diet which enabled the Israelites to endure the heavy tasks imposed upon them by their Egyptian task-masters." An Highlander will work all day, at the most laborious employment, and subsist upon nothing but the same vegetables and oaten bread. The Germans in the United States, are also in the habit of using great quantities of those articles with their aliment, and prefer them to animal food; for from their indigestible nature, they remain a long time in the stomach, to which they afford much stimulus, and by means of that organ to the whole system; which enables those industrious, hard working people to undergo the fatigues of their labour, with spirit. M.

them is undoubtedly pernicious; yet something stronger than water or small beer is necessary, for men who are exposed to all the extremes of heat and cold, to long marches and wet cloths; for which reason, a moderate quantity of spirits may be allowed with great propriety: and if, during the heats of summer, the allowance of rum was mixed with vinegar, it would make a good antiseptic drink, and serve to correct in some measure, the natural tendency of the humours to corruption, at that season.

With respect to the means of preventing diseases, arising from errors in exercise; they may be confined to the two opposite extremes, of indolence and fatigue. When the service requires it, every fatigue must be endured; yet, in general, there is less danger from excesses in the latter than the former, particularly if good provisions and dry straw are to be procured.

In fixed camps the exercise of a soldier may be considered under three heads; the first relates to his duty; the second, to his living more commodiously; and the third, to his diversions.

The first, consisting chiefly in the exercise of his arms, will be no less the means of his preserving health, than of making him expert in his duty; and frequent returns of this, early and before the sun grows hot, will be more advantageous, than repeating it seldom, and staying out too long at a time; for a camp affording little convenience for refreshment, all unnecessary fatigue is to be avoided.

As to the second article, cutting boughs for shading the tents, making trenches round them for carrying off the water; airing the straw, cleaning their cloths and accoutrements, and assisting in the business of the messes; are all things, which, as they must be strictly executed by orders; ought to be no disagreeable exercise to the men, for some part of the day.

Lastly, as to diversions; since nothing of that sort can be enforced by orders, the men must be encouraged to them by the example of their officers, or by small premiums to those who shall excell in any kind of sports, which shall be judged most proper for answering this purposes: but, herein some caution is necessary, with regard to excess; because the common people observe no medium between

their love of ease, and pursuing the most violent exercise; and however necessary, motion may be to troops, in fixed camps; we are to beware of given them too much fatigue, especially in hot weather, and in times of sickness; and above all in exposing them to wet cloths, which as it has been already observed, are the most common causes of camp diseases.

THE following case of anthrax, or more commonly termed carbuncle; is taken from the first part of the first volume of the Trans. Philad. Coll. Phys. and exhibits a remarkable proof of the success attending the treatment of a disease, which has hitherto especially in this country, proved superior to the efforts of physicians. I have seen a similar, and if possible, a more terrible case of the same disease, in an old gentleman, terminate happily, under the care of Dr. Jones. The muscles half way down the back, were as completely laid bare, as if dissected by a scalpel, but though the weather warm, a cure was finally effected, by a due continuance of the means pursued in the following case.

EDITOR.

CASE OF ANTHRAX.

IN the month of January, 1789, I was de-
fired to visit a lady approaching her 60th
year, but of a good constitution, active and
healthy : she was then confined to her bed,
but as the symptoms, which previously at-
tended her, appear very characteristic of the
disease, shall relate them in her own words
as communicated to in a letter.

“ Early in the month of January, I found
myself extremely indisposed, attended with an
unusual depression of spirits, and a want of ap-
petite, which I could by no means account for ;
I felt a feverish heat and constant thirst ; had

frequent chills, and soon perceived a disagreeable sensation upon the back of my neck, which I compared to the crawling of caterpillars; and very often it appeared to me as my handkerchief was rising from my neck. A few days after this sensation began, a small pimple made its appearance just below the neck bone, attended with excruciating pain, my sleep was disturbed by frightful dreams. One night particularly, I fancied I was thrown upon a great of red hot coals, and that my neck burst into burning flakes; I awaked in the utmost terror, and related this dream to the family, I complained more and more of the inflammation, which gave me still greater torture, and had then assumed the appearance of a small angry blind bile; the night before I took to my chamber, which was near a fortnight from my first indisposition, as I went up stairs, I felt a shock through my whole frame, as sudden and general as a severe shock of electricity. A poultice of bread and milk was then applied, and continued for three or four days till you was called in."

At this period, when I first saw her, the inflammation had extended itself from the first vertebra of the neck to the inferior spines of the

scapula, and from shoulder to shoulder: the tumor was extremely hard, of a deep red colour in the circumference, but approaching to livid in the central part with very little elevation of the skin; her pulse was quick but not full; her thirst great, with a constant sensation of heat, like burning coals upon the part affected, which was now evidently tending to a mortification. Under these circumstances, the principal curative indications appeared to be a proper support of the patient's strength, a regulation of the natural secretions and excretions, and at the same time as much alleviation of the extreme burning pain as could be prudently procured by anodynes. With these views, a poultice of the farina lini was applied over the inflamed parts, and renewed every six or eight hours; a diet consisting of gruel, panada, and wine whey, was ordered in such quantities as her stomach would bear; the body was kept gently open by emolient glysters, she took a tea-spoonful of bark in powder every four or five hours, and, at night, such a quantity of laudanum, as served to compose her for a few hours. Under this management she continued till the 19th day from the first application of the poultice; when the

whole extent of the inflammation appeared of a deep black, and completely mortified. Pressure with the fingers upon the mortified parts; though very hard and tense, evidently indicated, from a crashing undulating noise and feel, the existence of some fluid beneath, and induced me to make a longitudinal incision through the true skin the whole length of the tumour, by which means a large quantity of tolerably well digested matter was not only discharged from the cavity, but large portions of it poured from the cells of the true skin, become perfectly spongy and enlarged to the thickness of an inch and a half. This operation gave not the least pain; but, on making another cross incision, seemed to afford a sensible relief, by taking off a most uneasy stricture which she had before complained of. The wound was dressed with soft lint, covered with simple cerate, and a thick compress, dipped in brandy, laid over the whole. As the discharge was very great and offensive, it was dressed twice a-day, and the compress frequently moistened with brandy. The use of the bark was continued, her diet rendered more cordial by a liberal use of wine, and different portions of the mortified membrana

adiposa daily removed, till a complete separation, between the sound and mortified parts took place; but as this separation, which was the work of nature, left the edges of the fore with large flabby irregular lips, under which the matter lodged, and prevented a re-union, I was under the disagreeable necessity of removing them from the whole circumference of the fore. This was a very painful operation, but as it was absolutely necessary, she bore it with great fortitude. From this period, the cure went on very happily, though slowly, and in the beginning of June, the fore was completely healed, leaving a cicatrix, of a radiated form, eight inches long and five broad. Her health has been since very good, and she finds no other inconvenience than a degree of tightness and restraint in the motions of her arms about the shoulders.

Z

ON perusing the manuscript lectures of my deceased friend; I found the following uncommon case of *hydrocele*, which I insert in this place; from a conviction of its singularity, and on account of the success attending the operation instituted for its cure.

EDITOR.

UNCOMMON CASE OF
HYDROCELE.

A MAN about forty years of age and of a good constitution, had for many years been troubled with a tumor in his scrotum; which he was told by his physician was a rupture; and was recommended to wear a truss. The tumor however continuing to increase; and had at last acquired so monstrous a size, that it was with great pain, and difficulty he walked. As his health manifestly declined, with a constant slow fever that attended him, and being alarmed with some appearances of a mortification, he applied to me for relief.

Upon examination, I found a monstrous tumour, which extended almost to his knees, and whose size was so great as to cover the anterior parts of of both his thighs. The veins

of the scrotum, were greatly distended and varicose; and on the inferior extremity of the tumour, there were some vesications, which discharged a thin ichor of a brownish colour; the surrounding parts were very livid, and were beginning to form a real mortification.

Under these unpromising appearances, there were very little hopes of success; and I made my prognostic accordingly; yet being assured from the history of the case, and from an attentive examination of the tumour, that there must be a very considerable quantity of some fluid contained in it, and probably complicated with a rupture; I ventured to make an incision through the integuments with a scalpel; and immediately a dark brownish fluid gushed out; but this was soon interrupted by a discharge of purulent matter. I then introduced my fore finger as a director into the orifice, which I enlarged six or eight inches, and discharged about two gallons of the same kind of fluid curd like matter; a great part of which I was obliged to scoop out with a spoon. I dressed the wound with a warm digestive, and ordered the use of the bark, and suitable generous diet. In about three months, by the continuance of this method; the man was restored to health. The testicle was found,

and notwithstanding such a lengthy and prodigious distension; the scrotum contracted itself in so surprising a manner, that the part was very little larger than before the formation of the tumour.*

* A case very similar to the above, happened while I was a pupil of Dr. Jones, the particulars of which are as follow.

The man had been afflicted with the complaint for several months, but the tumor was not so large as that above described, though the veins of the scrotum were distended to a most monstrous degree. He had refused to submit to any operation proposed for his relief until the summer came on, when the weather became very warm. The pain was at this time, excessive, and the part putting on a livid appearance, he was induced to submit to the operation, which was performed by Dr. Jones in the manner described in the preceding case: upwards of a quart of fluid matter mixed with blood, was discharged. The wound was dressed lightly and the most proper means were immediately pursued to support the strength, and guard against a mortification, which it was highly probable would occur; from the great debility of the man's system, and the excessive heat of the season. He accordingly took bark, and wine, and the part was wrapped up in linen wet with spirits, and frequently renewed. Appearances were promising for the first two days, but they then changed, and a cholera came on that baffled all remedies and finally carried him off. M.

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Geo H. Hamilton

