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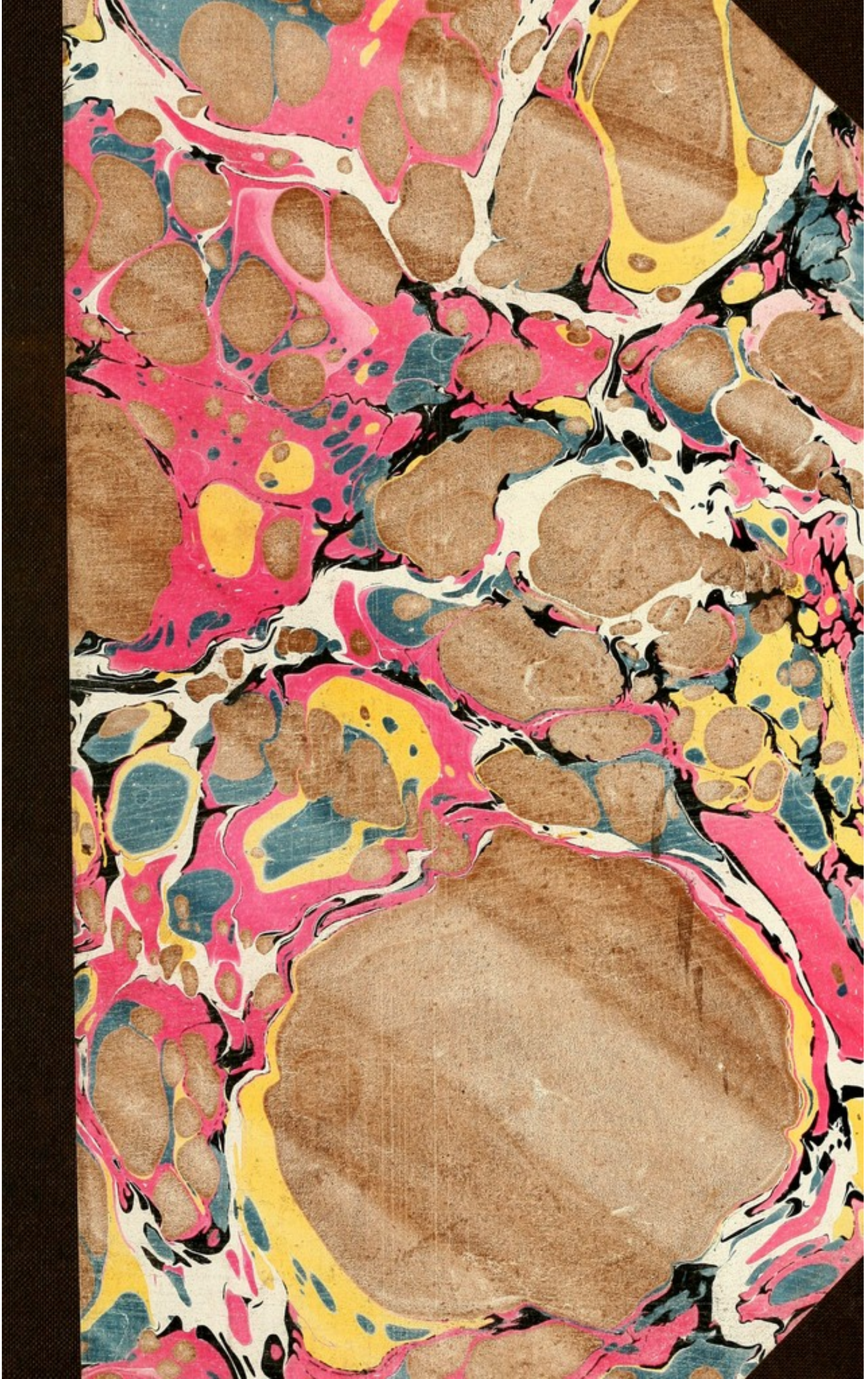

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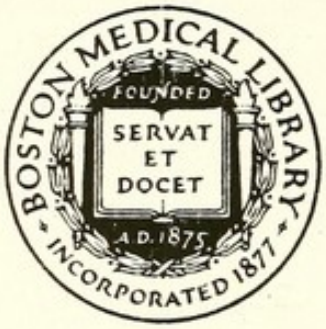

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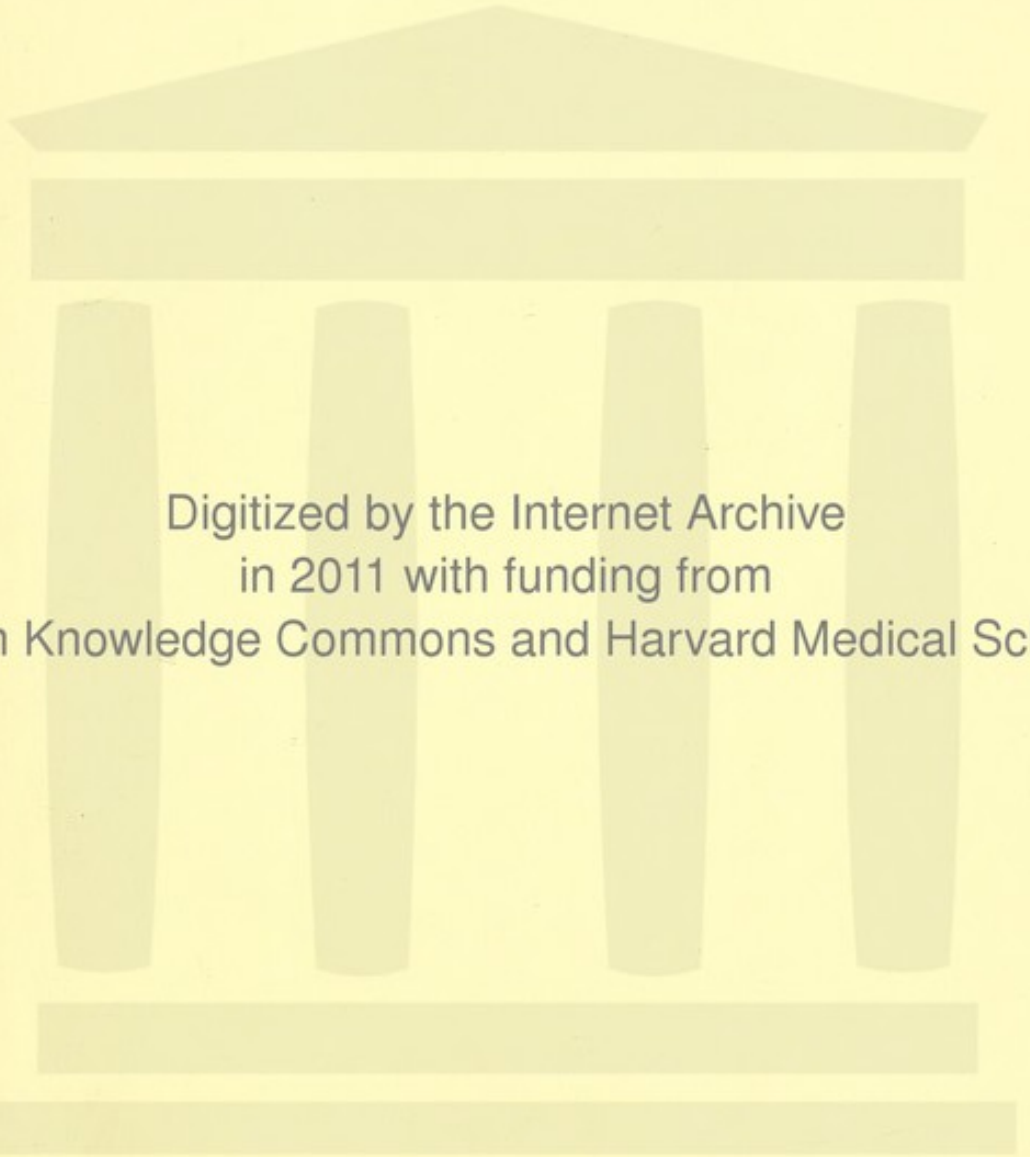

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REFLECTIONS

UPON THE

HISTORY AND PROGRESS

OF THE

SURGICAL TREATMENT

OF

WOUNDS & INFLAMMATIONS.

A REPORT ON THE PROGRESS OF SURGERY,

BY

EDWARD BORCK, M. D.,

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READ BEFORE THE MISSOURI STATE MEDICAL ASSOCIATION, AT COLUMBIA, MO., JUNE, 1879.

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1880.

A REPORT

ON THE

PROGRESS OF SURGERY.

MR. PRESIDENT:

The paper I have to offer, as a member of your Committee, I entitled

"*Reflections Upon the History and Progress of the Surgical Treatment of Wounds and Inflammations,*"

and will say, that it is difficult to select a subject from the treasury of Surgical Science that will interest and be of practical value to all practitioners. I might have chosen Plastic or Congenital Surgery, or some capital operations, but they are not of daily occurrence, nor is it the good fortune of every doctor to have the opportunity of performing them. Furthermore, they are nearly all in a high state of perfection, and we cannot, in the short space of one year, expect great progress.

Take Lithotomy for instance. It is almost perfect, and Lithotrity is gaining ground.

See Dr. MacLead's (of Glasgow) excellent paper advocating the rectangular staff.

Dr. David Prince upon the same subject—median operation.

Dr. Wm. Hudson Ford, Province of Lithotrity, *St. Louis Medical and Surgical Journal*, May, 1878.

Dr. H. F. Bigelow, *Amer. Jour. Medical Science*, Jan., 1878.

Dr. Geo. C. Duncan, Litholysis, *Edinburgh Med. Journal*, May, 1877.

Ovariotomy is also at its height. The operation has been performed in the past year, in several instances, during acute peritonitis, successfully. Also on a child twelve years old, by Dr. T. Barlow, May 25th, 1878—*London Times*. Also on a child seven years old, and upon an infant two years old, the latter for a dermoid cyst.

A case of Cholecystomy, by Dr. W. W. Keen, of Philadelphia, is reported: *Amer. Jour. Med. Sciences*, Jan., 1879.

Splenotomy, by Billroth and H. L. Broome, of *West Brownswish Dist. Hosp'l*, (fatal).

Osteotomy is growing in favor.

Herniotomy is at a stand-still. I have found no new invention for the cure of hernia.

Extirpation of the Larnyx has been successfully performed by Dr. David Foulis, of Glasgow, and by Billroth—the patients being subsequently provided with a vocal apparatus.

Excision of the rectum, by Koeberle, of Strassburgh, and all functions regained. Also a successful case, each by Dr. Briddon, of New York, and Dr. Lewis, of Philadelphia.

Excision of the tongue, by Paquelin's Thermo-cautery.

Upon fractures and dislocations, so much has been written and apparatuses are so manifold, that the subject is almost exhausted; but I will call your attention to malleable glass, which may be available for splints in the future, and other dressings. The only thing new and original, to which I can call your special attention, is a paper by Dr. Luecke, of Strassburgh, "On Percussion of Bones," read before the congress of surgeons at Berlin. (*Amer. Jour. Med. Sc.*, April, 1878. The rubber bandage also deserves special mention, A fine field, yet open to the surgeon for investigation and experimentation, are the nerves and dislocations of muscles and tendons. I have made slight allusions to a few of these operations.

But, gentlemen, little things ought not to be neglected on account of great ones. If one knows how to remove a nævus (mother mole) without leaving a more ugly or ghastly cicatrix than the natural disfiguration, treats an ingrown nail, or bone felon well, or knows how to remove a splinter from under the finger nail skillfully, he will earn as much honor. It is the attention that one bestows upon minor injuries, and the success he attains in their treatment, that first brings him reputation, and afterwards capital operations. He who neglects minor points will never be a surgeon of repute.

Therefore, I have selected the old but always new story—wounds and inflammations; and permit me to go back a little further than twelve months and call your attention to John Astruecs, a French writer, in 1761. He tell us, that swelling and ulceration are inflammations, and often accompanied with fever, and that they are the principles of Medical Sciences which we should learn to understand fully before studying any other diseases, and further says, I don't

talk much about theory, but care more for the cure, the practical part, and will take good care to give the very best of remedies known.

He then tells us that swellings are elevations or protrusions beyond the natural line; classifies them into natural, unnatural and preternatural; the latter again into phlegmon erysipelas, œdema, etc., according to the old writers, but thinks it would be better to classify them by following the different causes that produce these swellings, viz:

Swellings from blood, from lymph, from air, from fat, etc., etc., and tells us that inflammation is known by pain, heat, redness and swelling, and, after dividing the same into external and internal, describes the state of invasion, augmentation and resolution. He then gives the internal and external indications for the cure. He never uses the word "treatment," and devotes twenty-eight pages to the indications.

The first, he says, is to lessen the quantity of blood by bleeding, and contends that if we lessen the whole mass of blood, we will also lessen it in the blood vessels that run to the inflamed parts; therefore bleed freely in the beginning, for if the inflammation is at its height, venesection will do no good. The thick blood must be thinned by ptissanes of liquoris or doggrass-root (*Rad. graminus*); the heat of the blood must be allayed with chicken tea or lemonade, to which nitrate of potash may be added. He advises low diet, and also cathartics as manna, and emetics of ipecac, chickory-root or marshmallow if there is much fever, and tonics to strengthen the heart, as the powder of dried viper or volatile salts.

Externally, warm milk, decoction of althæ or mallow-flowers, wall pellitory, or deathshead-moss cataplasm of milk and bread, rice or oatmeal with honey; should try to produce resolution, and, if necessary, to add wine, alcohol or camphor to this; rest, compression by a nicely applied bandage, and prudence may secure resolution, but if abscesses form, they must be cured by mush of flour, to make matter (pus); when ripe, to be opened with the knife or caustic, and then dress with basilicon ointment to keep out the air; for bad smell to use tinct. of myrrh or aloes, or camphor spirit; to make cicatrix, dry dressing or burnt alum. To cure carbuncle, same as already mentioned, and in addition, blue vitriol and lard externally, or cure it at once with escharotics, like *lapis infernalis*, or actual cautery, and to finish with balsams. In ecchymosis, bleeding and scarifications, externally, piece of bacon or fine chewed bread, paper or nuts, or white bryony root with chamomile and laurel berries as poultices. For frost-bites he recommends turnips, turpentine, and to smoke the part with myrrh or storax, or, still better, old leather or horn, and aromatic bath of lavendulæ. Thyme, sage, or sow-bread (*Rad. Cyclamins*) with wine or warm urine, and to pencil with ol. lubricorium.

In erysipelas, the same remedies, except no fatty applications, nor astringent remedies, but cooling medicines, like rose vinegar. If pain is great, cow's milk, elder flowers, white of an egg, as cataplasm. After inflammation is subdued, lime water and alcohol.

Simple wounds he dresses with plaster or salve, to keep out the air. Such are the writings, a century or more ago,—quite different from the present time. Then remedies were sought after; now we have more physiology, pathology, histology, theorizing and speculations, and less treatment.

Nevertheless, men like John Astruecs, were most acute observers, students, and experimenters; for he tells us in one place, that absorption must take place through the lymphatic system, and proves it by taking a dog, whipping him unmercifully, until the whole skin was ecchymosed; after a few days he opened him and found the lymphatics full of red blood, which showed, he said, that they had partly taken up the blood that was extravasated. So much for our French writer, for curiosity sake.

If we now glance over John Bernstein, a German writer, in 1790, twenty-nine years later, we shall find more attention paid to the process of inflammation, and less to the cure. He also tells us that inflammation (*phlegmon*) is known by redness, swelling, heat and pain; divides it into *vera* and *spuria*—he speaks of a double fever, a fever preceding the inflammation, and a fever accompanying inflammation or a consequence of it, gives the symptoms, and mentions the complications of nervousness and biliousness, describes shock, and speaks of a fever produced by bad air in hospitals, etc., etc.

The treatment, he says, is antiphlogistic, but no mention is made of calomel and tartar emetic. He, however, speaks of cinchona bark as a tonic and absorbent of bad fluids in the system. Externally he thinks bread poultice the best external application, as did the French writer.

To wounds, he devotes 228 pages; and, after the usual classification, describes the healing process. Speaks of direct union, and union by pus; describes a putrid fever accompanying wounds, and attributed the cause to matter running into the system.

Wounds he wishes to be dressed simply, and lays great stress upon rest upon splints, and bandages, and upon keeping the air and dust off. The mind of the German writer, we see, ran in another and better direction.

Their remedies are all from the vegetable kingdom, though there was a time when the minerals, lead, zinc, copper, mercury, bismuth, etc., etc., were in the ascendant.

Some may think all this superfluous, but if you read and study old books, you will find it pays well. You will often observe that things appearing as new, are but resurrections, and many have been transmitted to us to the present time. Some read as well as

novels. If you go beyond the time of the two authors I mentioned, you must read Percy, for he tells the most charming tales of the mysterious vulnerary waters of the middle ages.

But, gentlemen, it was John Hunter's researches that gave the foundation to our present views. The history of the rational treatment of wounds begins with him. (Hunter's Treatise on the Blood, Inflammation and Gun-shot Wounds, 1793). He was the first that described the process of healing, by first intention, formation of granulations and pus, suppuration and cicatrisation and divided them into the different stages. He studied all the processes with a marvellous acuteness of observation. His work was, at the time, not understood by his own countrymen, who looked upon it as the product of a fanciful mind, but it is a remarkable example of the many great conceptions which were evolved a century previous to the time of their general acknowledgment. Even the discovery of the animal cell did not upset Hunter's principles; it only explained what elements are at work, during the different processes; the process itself is still comprehended and taught us, as by Hunter. He also studied the process of the healing of subcutaneous wounds (1767), and his piercing eyes also recognized the peculiar process of healing under a scab; he comprehended the surgical, or, as he called it, the symptomatic fever, as the effect or result of suppurative inflammation upon the constitution; he recognized phlebitis and the mixing of pus with the blood, as possible. It is not necessary to quote more than this. We see that the experiments and ideas of Hunter spread themselves over generations, and concatenate closely with all our own modern investigations. If the process of healing, as Hunter taught it to be distinguished, was understood before his time, the surgical fevers would also have been studied before him.

But just as bad as the constitutional treatment, was the local, the stuffing of wounds with charpie, the use of all kinds of plasters, herbs and roots, cataplasms and ointments, was a blind mania, and the few surgeons who had the courage to comdemn such misuse, appear to us as benefactors of mankind. (Edw. Albert's Surgery).

I do not need to speak here of the badly ventilated hospitals in Europe, and especially of Berlin and Paris. Refer to G. Fischer's Surgery, a century ago.

Pringle's desire for fresh and pure air for the wounded. Gregory, in Edinburgh, Fordy, in London, urged humane arrangements for that purpose. Panteau's and Pelletau's cautions against the abuse of charpie, Smucker's recommendation of cold water in injuries and inflammations, were the first signs of reform, in an ignorant and horrid treatment.

In 1809, Vincenz Kern, in opposition to the French, who still persisted in the old treatment, introduced the simple treatment of rest, easy position and luke-warm water dressings. From this

arose the permanent water baths of Wagner, Loninzer, Langenbeck, Stromeyer and Gosselin, which, on account of the difficulty of their employment, did not become general.

This simple treatment, with water, found the best reception in England, Scotland and Ireland, where Liston practiced and advocated it until his death. This method is still adhered to in some hospitals in Germany. In France, this method has only occasionally been practiced, and never was in general favor, because the arrangements of the French hospitals produce, too often, putrid diseases; and simple water dressing gave to the French surgeon no protection against such an occurrence.

So, we see, that about this period, the treatment of wounds was divorced from the dreadful quackery that had bewildered the surgeon, and that has corrupted the laity to the present day. A return was made to the natural process of healing wounds,—that is, to keep off that which was injurious, and to assist nature.

But what is this natural process? First, the quick healing of wounds by first intention. Second, by pus, and formation of granulations. The laity had recognized this first process, and does so at the present day. If a cabinet maker cuts himself with his chisel, he sucks out the blood and smears the wound over with glue, to keep out the air; and he informes you that his wound is healed up in a short time. The painter uses varnish and white lead for the same purpose. The book-binder glues a piece of paper over a cut. The railroad man employs petroleum; the shoemaker a pitch plaster; the baker chews some bread and applies it; the butcher ties a piece of raw meat upon his wound;—the three latter generally not healing so quickly. So we see that to keep out the cold or bad air from wounds, is recognized, by people in general, as necessary.

However, if we simply apply water dressing, we are passive, and leave the work to nature, either to heal by first or second intention. This passiveness seemed to disappear at the end of the last century and the beginning of the present, and an activity appeared, in some form or other, to produce re-union by first intention; and, although it is true that some French surgeons—Valentine, Percy, and others—had tried, and were convinced that union by first intention, could be produced, nevertheless it was not until the researches of Hunter, and the publications of John Bell, on the treatment of wounds, that the general attention was directed to the re-union direct.

To-day, then, there are two methods of treating wounds.

The securing of union by first intention, and water dressings for the second intention, or, healing by suppuration—the open treatment.

I shall not occupy your time with the whole history of infectious surgical diseases, accompanying or produced by suppurative wounds; suffice it to say, that infection from such sources is self-

evident. We have to take into consideration infection from external sources.

These questions, and how these infections take place, occupied the minds of surgeons.—Refer to Darcet, 1842, Decomposition of Pus.

Sedelot, 1843, teaching of absorption of gangrenous debritus in blood, and cause of purulent infection.

Monteggin, Velpeau, Dance on pyemia.

Virchow, 1846, on the same subject.

A. Guerin, 1847, purulent infection, upon which he looked as a surgical typhus, and compared it to malaria.

O. Weber and Billroth, by experiments, followed the same ideas, and we find that the theory of surgical fever produced by some infectious matter or substance in a wound, was accepted from all sides.

But of what nature is this poison? Whether it is a chemical poison, bacteria or a micro-organism which produces putrid infection, I shall not discuss at present.

But long before this theoretical question sprung up, there had been an endeavor to find remedies that would prevent putrid infection of wounds.

Maisouneauve, 1862, advanced the following theory, and says, we may prevent infection:

1st, By preventing the production of poison.

2nd, By destroying the already present poison.

3rd, By blockading, and thereby preventing the poison from entering, and Rochard in his history of French Surgery, very ingenuously adds: This is truly a logical train of thought, but it is astonishing that surgeons began with the last, and not with the first proposition.

Accustomed to expect everything from operative surgery, methods were invented—first to blockade the road against the poison; second, it was tried to neutralize the poison by dressings, and last came the happy thought that seemed to solve the problem, viz., to better the arrangements of hospitals, adopt a method of hygiene, and thereby prevent the production of any infectious putrid poison.

In 1698, an English surgeon in London, recommended sulph. acid. as an antiseptic; there was also a secret nostrum, a powder, which was sprinkled upon wounds to prevent suppuration; but a systematic method of antiseptic dressing was first begun in the last fifteen years.

1st, Came the glycerine dressings by Demarquay.

2nd, The powder of Corne and Demeaux, 100 parts of plaster of Paris and 1-3 parts of coal tar, which he tried upon wounded Austrian soldiers, 1859, and which occupied the French Academy greatly, but did not satisfy them.

3rd, Fluid de Condy (*pot. permang.*) which was employed in

England and during our war, also bromine and many other remedies, but they all acted only as disinfecting agents; they would not prevent surgical infections, neither did alcohol dressing.

Chemicals, then, disappointed the surgeon, and other methods to prevent infection were sought after.

Original was the idea of Jules Grierin of pneumatic occlusion. He tried to keep off the air by putting the amputated limb in an India rubber bag and exhausting the air. Lonnelongue, Maisouneauve and others, tried to improve upon the method, but it remained only a trial. Then comes A. Guerin, who instead of keeping off the air, tried to filter it through cotton dressing. After bleeding ceased, the wound was washed with camphor spirit and water, and dressed with layers of cotton, which remained undisturbed for three weeks. With success, he introduced this method during the war (1871), in Hospital St. Louis, and it was gladly adopted in others, but it excluded the healing by first intention. All his trials and experiments had not the wished for success. It disappointed the hopes of the surgeon and left us in despair, that the infection of wounds ever should be prevented by dressing.

But lo! just at that time, when despondency was at its height, came a man of talent and perseverance, and showed us that we ought not to doubt. Lister, with his antiseptic dressing, created a new era in surgery, and by it we hope to completely control surgical infections.

Lister is a firm believer in Pasteaurs' teaching, and with his method you are all acquainted.

Gentlemen, the three greatest achievements of surgery have been obtained in the present century. The discovery of Anæsthesia, the blood-saving method of Esmarch and J. Lister's antiseptic dressing. If those great men, who have labored so faithfully and so greatly promoted the art of surgery, *i. e.*, a Cooper, a Dupuytren, a Scarpa, and others, could arise from their graves and could witness to-day, a simple amputation, or a resection of the knee, under a deep narcosis, with Esmarch's bandage and Lister's antiseptic spray and dressing, they would surely think they had slept more than a century; they would greet with enthusiasm what once they had thought in revery. I admit that Lester's method is not convenient for daily practice, but we can use it in some form or other. The different modified methods that may be employed for dressing wounds, as well as the present modern treatment of inflammation, I leave for discussion to the members present, but will call your special attention here, to thymol, as an antiseptic, vaseline, benzoic acid and boracic acid ointment, as a dressing for wounds.

In conclusion, let me ask the question: How much credit for the late advancement of surgical science, and for the invention of mechanical appliances belongs legitimately to the American pro-

fession? If the time were granted me, it would give me pleasure to point it out to you, and I am sure many would be astonished to find that, not alone have we kept apace with the old world, but that, in many respects, we have surpassed it. Gross' "A Century of American Surgery," will give you a slight idea. That we take the lead in Mechanical Surgery is beyond any question, and proven by granting to America the first premium for Orthopædic and Surgical instruments at the Paris exposition.

As late as thirty years ago, you could hear but little or nothing of American surgeons in Germany; to-day they are bound to acknowledge American skill, and give due credit where it rightfully belongs, as shown by the translation of American works into German and other languages, and by the mentioning of our surgeons in their lectures, and by the adoption of some of our apparatuses, viz: the suspension splint, etc., during their war and in their hospitals. True it is, that almost every country had its renowned surgeons, but comparatively, they have been few, and though we cannot boast of a single one that has overshadowed all the rest, yet our knowledge and skill is more diffused over the whole country, and if we carefully collect every thing and bring it in one compass, we certainly can compare favorably with the rest of the world. If, with the ingenuity that is congenital to the Americans, we keep on progressing in the future as we have done in the past, certainly something extraordinary must be accomplished. When specialists have obtained better recognition in the profession, then, and not until then, we shall have our great surgeons to adore.

Gentlemen, if we could arise after having slept a century in our graves, and assemble here again, and could behold the progress then with all our new inventions, *the mecrophone*, *the telephone*, *sphygmograph*, *the dental engine*, *etc.*, I feel sure we should be astonished and struck with admiration.

LITERATURE.

Treatment of Chronic Ulcers and Suppurating Wounds by Borated Cotton.—*Hospital Gazette*, Sep. '78, No. 12.

Report on Surgery. Prof. L. C. Lane.—*Pacific Med. and Surg. Jour.*, Sep. '78.

A new method of hastening the Suppuration of Acute and Strumous Abcesses. By A. C. Rockwell, M. D.—*New York Med. Record*, Sep. 21, '78.

Treatment of Rodent Ulcers with Caustic Potassa and Ung. Hydr. Nit.—*Philadelphia Med. and Surg. Rep.*, Sep. 21, '78.

Lime-water and Linseed Oil in Anal Fissure.—*Annales de la Med. de Grand.*

Alkaline treatment of Burns and Scalds.—*Louisville Med. News*, June 1, '78.

Lister's Method. (1).—*New York Med. Record*, March, '78.

(2) Antiseptic treatment of emphyzema.—*Monthly Abst. Med. Science*, Sep. '78.

(3) Value of Antiseptic treatment of Penetrating Wounds of the Knee. Dr. C. R. Reycher, of Dorpat.—*St. Petersburger Medicinische Wochenschript.*

Report on Lister's System of Wound treatment. By Asst. Surgeon Alfred C. Girard. U. S. Army Circular, Order No. 3, War Department, Surg. Gen'l office.

Antiseptic Surgery.—*New York Med. Record*, March 1, '79.

Self-generating Disinfectant. Thymol Dressing.—*St. Louis Clinical Record*, Oct. '78.

Prof. Gosselin Alcohol dressing.—*Med. News and Library*, April, '78.

Atmospheric Germs and their Deleterious Presence in the Natural repairation of wounds, and on the influence of atmospheric germs on the healing of open wounds.—*Ohio Med. and Surg. Jour.* April, '78.

Tar Bandage. Dr. C. B. Leitner. Transaction of the Med. Ass. Georgia.—*Maryland Med. Jour.* Sept. '78.

Balsam of Peru for Wounds.—*Med. News and Library*, Jan. '78.

Catgut Ligature Steeped in Solution of Chromic acid. Dr. J.C. Ogilvie.—*London Lancet*, July 20, '78.

The action of glycerine upon Caco Bacteria and Septic Infections.—*Cincinnati Lancet and Clinic*, Oct. 19, '78.

Progress of Surgery. H. H. Mudd.—*St. Louis Med. and Surg. Jour.*, Jan. 1, '79.

Treatment of Ulcers with Saturated Solution of Chlorate Potass.—*South. Med. Record*, Dec., '78.

Immersion in the treatment of Wounds. G. Wiley Broome, M. D.—*St. Louis Clinical Record*, Dec., '78.

Hot Water Dressing. F. H. Hamilton, M. D.—*St. Louis Clinical Record*, July, '78.

Treatment of Wounds of Hand. Prof. Verneil.—*Med. News and Lib.*, June, '78.

Treatment of Ulcers with Iodoform. Prof. Berkly Hill, of London.—*Med. News and Library*, May, '78, also *Southern Med. Record*, April and March, '78.

Dr. Henry A. Martin, of Boston, and Dr. L. Duncan Bulkly, New York, on Rubber Bandage.

See also Index Medicus.

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