

**THE BEST METHODS
OF TREATING
OPERATIVE WOUNDS**

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The Best methods of treating operative wounds by Henry O. Marcy

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HENRY O. MARCY

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OF TREATING
OPERATIVE WOUNDS**

The Best Methods
of
Treating
OPERATIVE WOUNDS

BY

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Read before the American Academy of Medicine.
Philadelphia, Oct. 26, 1882,

We take pleasure in handing this
reprint to the Medical Profession
with our compliments since it has
appeared to us to be a most just
& comprehensive presentation of the
principles underlying Antisepticism,
and meriting the widest possible
circulation.

The interests of Physician & Chemist
are reciprocal and the cordial, universal
recognition of our efforts as manufacturers
in the same direction is gratifying.

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THE BEST METHODS
OF
TREATING OPERATIVE WOUNDS.*

BY

HENRY O. MARCY, A. M., M. D., BOSTON.

The problems of our Art are of difficult solution. The limited number of well-known factors, out of which we would fain build a science, are ever so intimately and variously blended with the unknown, that each clinical history is of an interest intensely dramatic, the central and all absorbing thought no less than human life itself.

Like the weavers of the wonderful old tapestries we follow with anxious gaze the outlines of the dimly traced pattern, selecting shades with doubtful short-sighted vision, and alas, like them, too often working upon the wrong side of our canvas.

Yet, with historic certainty, we sketch the progress of our art from the standpoint of the centuries, and record with proud content, the marvellous discoveries of our age. With prophetic sense, like a traveller in an unknown land, from some lofty point of vision, filled with inspiration at the view, we scan the outlying territories of the future, and, at least, in a general way, map out the vast stretches which loom up before us.

A distinguished trans-Atlantic correspondent writing in this spirit, closes with this sentiment: "The mediæus of the twentieth century, Sanitary Science and Surgery!"

*Read before the American Academy of Medicine, Philadelphia, Oct. 26, 1882.

In the enthusiasm of our younger discipleship, we had thought our subject, "The Best Methods of Treating Operative Wounds," settled at least in principle and outline. Invested with the new interest which the discussions of the last year have given, there is, perhaps, no topic of equal importance to which we could invite the attention of a professional assemblage. Indeed, no one subject has commanded a deeper interest since the days of Hippocrates to our own time. One of the first objective lessons in surgery is, that both in danger and suffering, a sub-cutaneous differs from an open wound. The *how* and the *why* have occupied the attention of the profession these two thousand years, and have never been satisfactorily settled until the present.

The question of operative wound treatment can be categorically answered by the statement that the best method is that which gives results in recovery nearest like those following sub-cutaneous injury, in other expression, best adapted to secure primary union.

Thanks to the revelations of the microscope and the remarkable series of investigations of Pasteur and others, this generation of the profession was early taught that fermentation and decomposition were due to the development of myriads of minute organisms; that these organisms everywhere pervaded in greater or less extent the atmosphere, and that they multiplied rapidly under the conditions of heat and moisture, especially in albuminous or nitrogenous compounds. Pasteur also showed that these fluids underwent no change when such germs were excluded therefrom, and that they could be excluded by filtering the air to which they were exposed through layers of loose cotton fibres.

Based upon these observations, simple and important as they may appear to the superficial observer, there has developed the entire system of modern wound treatment. In retrospect it seems very natural that the acute mind of Mr. Lister should have defined the problem that herein lay the difference between subcutaneous and open wounds, and that the exclusion from the latter of the all-pervading germs would render them as amenable to nature's easy cure as the former. Convinced of the truthfulness of this belief and dominated by it, as

the central thought of a life, this surgeon has devoted his great genius to its solution with untiring zeal. It was our good fortune to meet him in the hey-day of his youthful enthusiasm, and to record day by day his splendid triumphs won in the absence of all good hygiene in the wards of the old Infirmary of Edinburgh twelve years ago.

Governed by the conservatism of older and often dogmatic teaching, our profession has ever been slow in adopting new methods and wisely demanded of their advocates, with rigorous severity, the reasons for their faith.

The generations had witnessed the sickening horrors of hospitalism, the dangers therefrom multiplying in almost geometric ratio to the aggregate numbers of the sick and wounded. In our own late war we learned that the wounded became endangered almost in ratio to the ability with which we adjudged ourselves able to surround them with the so-called comforts of life, while the supposed more unfortunate, upon the tented field, separated only by a canvas covering alike from the smiles and blasts of heaven, made by far the best recovery. In vain was the solution sought; the general opinion, however, was correct, a better sanitary and protective condition had been thus maintained, depending upon ventilation and cleanliness.

The history of the last ten years shows, the world over, better results following wounds, owing to improved general care and sanitary hygiene, independent of the precise mode of local treatment. The opponents of antiseptic methods claim, that to this, rather than any local care, the result should be attributed. It is, however, generally conceded that the great danger to be overcome in wound treatment lies in poisonous conditions which cause the failure of primary union, and that these conditions are in a large measure owing to changes of a putrefactive character taking place in the wound, produced by the presence of vital organisms.

All are familiar with the rapidity and safety of repair which is secured in a properly adjusted simple fracture, and are alike conversant with the dangers arising both to limb and life in compound fractures. The difference consists not in the severity of the lesion, but in the something

introduced from without, which something is none other than minute living particles which cause the changes of putrescence and disseminate as a vital poison to infect the entire organism.

A better knowledge of the widely distributed forms of micro-organisms is much needed; indeed their life histories are required in order to be at all certain of many conditions which now seem most important. There can be no doubt that morphological peculiarities pertain to the same organisms at different stages of their development, that much depends upon their surroundings, as temperature, character, of material with which they are mingled, etc. It is equally certain upon the other hand, that organisms undistinguishable from each other vary greatly in their active properties. The demonstration is generally accepted, that quite a number of acute diseases depend upon the development of certain species of germs, either as a variety peculiar to the disease or modified by certain conditions which so influence their development as to produce a given series of results.

The recent studies of a very considerable number of independent investigators show a much more widely disseminated *causa causans* in the role which germs play in the development of disease than has been suspected hitherto even by the most ardent supporters of the germ theory.

The dissemination of pathogenic bacteria now gives an easy and satisfactory explanation to the widespreading of contagious and infective diseases;—that subtle something long recognized as an important clinical factor, but hitherto too intangible for demonstration. Pasteur's culture experiments show that certain forms of very deadly bacteria may be so modified as to lose in very large share their virulence, although they are reproduced in a similar manner, and this alteration is effected only by a change of the temperature to which they are subjected. It is equally probable that the converse is true, and that the bacteria with which we are ordinarily harmlessly surrounded, under certain modifying circumstances become most destructive agents.

The study of climatology has for a long time occupied the best minds

of the medical profession, and this generation has seen the Goddess of Hygiea properly enshrined within our temples, but do we not find, behind climatology, hygiene, sanitary surroundings of hospital and home, in the myriads of invisible vital agencies, a new and significant meaning!

Dr. Sternberg, Surgeon U. S. Army, in a paper upon bacteria in healthy individuals, read before the American Association for the Advancement of Science, Cincinnati, 1881, says, "The question is frequently asked, 'If bacteria are such terrible things, how is it possible that we can exist upon the earth surrounded and infested as we are by them?'" Certainly there would be an end to all animal life, or rather there never would have been a beginning, if living animals had no greater resisting power than dead animal matter to the attacks of these parasites, which by numbers and rapid development make up for their minute size. On the other hand, but for the power of these little giants to pull to pieces dead animal matter, we should have dead bodies piled up on all sides of us in as perfect a state of preservation as canned lobster or pickled tongue, and there being no return to the soil of the materials composing these bodies, finally all vegetation would disappear and the surface of the earth would be a barren and desolate wilderness, covered only with the inanimate forms of successive generations of plants and animals.'

In the ever-widening knowledge of our art, the relationship to and interblending of medicine and surgery become more intimate. The role which germs play in disease and injury ceases to be a theory, and has become a fact as assuredly demonstrated as any in our science. Putrefactive processes so evidently depend upon their development that it is generally admitted to be true even by the opponents of anti-septic surgery. The relation which germs sustain to wounds is the question of primary importance. It has been claimed that the inflammatory exudates do not depend upon the presence or influence of germs, but that they are met with in subcutaneous injuries: others as strongly maintain that septic organisms are primarily the sources of all the inflammatory and other troubles to which wounds are liable.