Bacteriology and preventive medicine / by Stephen Smith Burt.

Contributors

Burt, Stephen Smith, 1850-1932.
Royal College of Surgeons of England

Publication/Creation

New York : Press of Pusey & Troxell, 1891.

Persistent URL

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BACTERIOLOGY 2.

AND

PREVENTIVE MEDICINE.

BY

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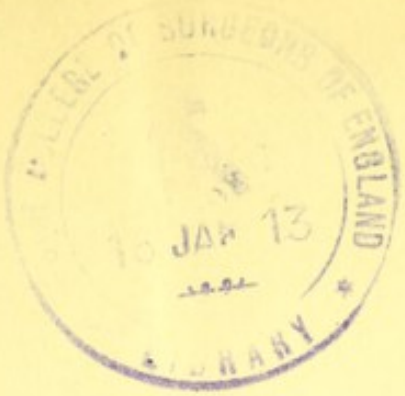

Bacteriology and Preventive Medicine.

Without doubt, a great fermentation is taking place in the medical world, and the yeast plant with its congeners is literally the cause of this fermentation. At times like these, the maintenance of a little judicious conservatism can but exercise a salutary effect upon a somewhat general tendency to effervescence. Although fully aware of a natural inclination in some minds to look upon every innovation with disfavor, often for no better reason than because it is an innovation, nevertheless the too speedy acceptance of what, in its transition stage, of necessity is largely a matter of speculation may lead to serious consequences, and therefore cannot commend itself to the thoughtful members of our profession. Moreover, the investigation of certain phenomena regarding micro-organisms is, peradventure, a very different thing from the interpretation of the significance of these phenomena. The sequence between cause and effect of minute germs and many infectious maladies appears conclusively to be established, and it is not unreasonable to suppose that all diseases of this nature finally will be proved to have a similar pathogenesis; but that these bacteria, or their resulting products, can be eliminated by artificial means from the

lungs of a living human being without irreparable injury to the organism, is quite another matter and an inference that as yet seems unwarranted.

Since the publication by Koch of his discovery regarding the treatment of tuberculosis, the whole world has been anxiously awaiting the verification of his announcement. Meantime, the respectful attention accorded to this biologist is the just reward for honesty of purpose and for renown as a scientific investigator. But we cannot refrain from the remark, in passing, that the German mind is inclined rather to an abundance of ideas than to much facility in their practical application. Furthermore, the recent researches of Virchow in the region where speculation has ceased, and nothing but cold facts confront the observer – the dead house—are, in the nature of things, likely to bring about a chilliness among the ardent advocates of a potent, but thus far imperfectly understood, product of the laboratory. Some of the more prudent biologists, to be sure, are discreetly cautious in their predictions respecting the ultimate result of these experiments; but many of the lesser lights, shining mostly by reflection, are rashly clamorous about a discovery that, however highly to be desired, is still far removed from confirmation. One is fain to regret that more observers do not emulate the great Darwin in his methods of investigation, and in the spirit of utter self-abnegation with which they were characterized. The plucking of the unripe fruit of scientific inquiry frequently puts a dangerous power within the reach of the inexperienced multitude, and gives rise to

a perturbation among the lickerish and eager votaries of novelty that would be more amusing were it fraught with less direful consequences. To rush headlong into print with some new and half-digested scheme for the restoration of health—the bane of medical journalism—is prone to accomplish more harm than good, and liable to lay an author under the imputation that his vanity has got the better of his philanthropy.

A disturbing element in calculating the effect of all remedies, to say nothing of the fallability of diagnosticians, is the frequently unknown quantity termed self-limitation. And, too, we are apt to forget that it is not the eye but rather the mind which sees, and consequently the wishes are strongly inclined to dominate the vision. If we will only pause a moment in our restless desire to discover some wonder-working panacea, some thaumaturgic remedy for the ills of mankind, we shall not fail to see that the chief remedial agent must ever be prevention. What is more, so long as this grand fact is lost sight of by the profession, it will be ignored by the people, and a premium will be placed upon sanitary negligence.

While we may not be justified in an attempt to define limits to the possibilities arising from biological research, still all judgments of the future must be founded in great measure upon past experiences. Now, the pathway of medical history is literally strewn with the wrecks of therapeutical theories. but, at the same time, there has been an undoubted amelioration in the lot of man, both as to health and longevity. And this improve-

ment in the conditions of life has followed steadily in the wake of sanitary advancement. The accumulated wealth of the world, made possible by its industrial progress, has raised mankind up out of a mire of ignorance and superstition, and has given us the leisure to look about and learn how to live, so that the more we know the less need there is for the employment of medication to atone for a lack of intelligent forethought. It is to education, and to the wide diffusion of knowledge by the modern means of intercommunication, that we owe our immunity from the devastating epidemics of old, rather than to any of the more circumscribed and not infrequently fanciful appeals to therapeutical measures. The broader and more enlightened members of the medical profession have come universally, sooner or later, to this conclusion, and, while making intelligent use of the few really serviceable drugs, have ever insisted upon the paramount importance of nature's part in the elimination of disease, upon the danger of meddlesome interference with her efforts in this direction, and have given their best endeavor toward a solution of the problem of unnecessary illness and its prevention.

Although it may not be an unreasonable belief, cherished by many medical men, that an antidote shall be discovered for each of the various infectious maladies, and granting that preventive inoculation be a rational aim for experimental observation, nevertheless calm reflection must impress the philosophical mind with the futility of means so slender, if attainable, compared with the perhaps less brilliant but certainly more far-

reaching and effective measures, already known, for the liberation of humanity from its morbific thrawldom. In view of this, it would appear that by far the greater portion of the benefits growing out of this expedition into the newly explored territory of bacteriology must be found in our increased differentiation in the ætiology of disease, and a more definite knowledge of how intelligently to provide against its incursions. The information that almost daily is conveyed from the laboratories of patient and careful investigators to the world at large of what is going on in the teeming population that infests the food, the water, and the air upon which our existence depends, is slowly but surely robbing disease of its mystery and freeing man from many harmful superstitions. Since a full understanding of the more obvious dangers that surround us is the painful price paid by the race for its perpetuation, it follows that a more intelligent appreciation of the less evident evils is our only hope for life in greater perfection. Long before proof was educible, many acute observers were impressed with the idea that certain maladies might be caused by minute organisms that were taken through the natural channels into the system, and were there multiplied by reproduction. And thus, like many another discovery, it was in the atmosphere, so to speak, for some time ere it became the property of any individual. But, notwithstanding this, all honor to Davaine, Pasteur, Klebs, Villemin, Koch, and their fellow-workers, for eventually bringing this thought to crystallization. Scientific advancement largely depends

upon mechanical invention, as with the greater perfection of apparatus comes increased facility for investigation. Upon getting rid of the doctrine of spontaneous generation, the way became clear for a development of the bacterial hypothesis, whereof the theory is that extremely small vegetable forms of various species, some harmful and others innocuous, are continually making their way into the system through sundry paths, and the ability of the former to multiply, or to secrete a chemical poison, to an injurious extent, depends upon an inherited or acquired degeneration of the cells and fluids of the body with which the germs come in contact. And though future research, aided by the further invention of instruments of precision and by improved methods of experimentation, may shift the grounds for this belief, whose utility if not truth is apparent, yet the nature of the change probably will be an amplification of the present generalization rather than any very startling revolution. The successful working of this hypothesis in the domain of surgery seems to demonstrate not only the practical advantage of a germ theory of disease, but also the bearing it must have upon medical problems—namely, the furtherance of prevention.

With all due allowance for the part taken by vaccination in the eradication of smallpox from civilized communities, it would still be difficult to set bounds to the share that organized, efficient sanitation has had in our deliverance from the eruptions of this malignant malady. Moreover, even if the experimental trials of mo-

dern biological research culminate in further protective inoculation, nevertheless of necessity it must be restricted in its usefulness and always subordinate to general hygienic regulations. At a period when plague and pestilence were the scourge of the greater part of Europe, history shows that the Jews enjoyed a remarkble freedom from these epidemics, owing to the strict attention to the laws of health enforced by the tenets of their religion. It is possible to imagine a community, governed by sanitary rules and isolated from all contamination, wherein there will be neither infectious nor contagious disease, because it is contrary to the established principles of life that something can come out of nothing. So the decreased rate of mortality throughout the civilized world is undoubtedly due more to the improved surroundings of the people than to inoculation, vaccination, or any special form of medication.

From time immemorial there has been fostered a hope, not alone by the ignorant, that somewhere in the universe a curative medicine finally would be discovered for each of the diseases that afflict the human race, but this hope, like many another, is the outcome of primitive beliefs which, as we know, were mostly erroneous; whereas, in these days of scientific enlightenment, the dictates of reason, authorized by experience, ought clearly to show that the only effective and far-reaching remedy for suffering humanity must be in the teaching of mankind the laws of health, and, at the same time, the absolute necessity of obeying them. Nowhere is disease so prevalent as among the lower classes, and in

no place is there such rank superstition. In New York City there are nearly nine hundred thousand persons living in tenement houses, and thousands of families are eating, sleeping, and what is more, working in apartments that consist of one or two rooms, and which are filthy beyond description. The smouldering embers of infection are always to be found in the haunts of the ignorant poor; and as ignorance is the legitimate offspring of poverty, improving the material condition of the poorer classes, is a more rational method than vainly pursuing a pharmaceutical will-o'-the-wisp, to prevent the periodical outbreak of needless disease, which spreads contagion from these mephitic centres into the homes of the more favored members of the community. Voluntary attention to sanitary rules, as well as spontaneity in the observance of a moral code, never reasonably can be expected from man while yet in the depths of ignorance and the degradation of pauperism.

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