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BY

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Reprinted from the
UNIVERSITY MEDICAL MAGAZINE,
March, 1893.

SOME WHO HAVE SUFFERED FOR PATHOLOGY'S SAKE.[1]

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It is not my intention to-night to dwell long upon those persons who, in the performance of their pathological duties, have lost either life or limb, but to briefly refer to some who while performing experimental inoculations upon themselves or the lower animals have been willing to risk their lives, their health and their happiness in order that science might be advanced.

While I, personally, have never had occasion to inoculate a single animal, or to perform vivisection in any manner, I cannot help but feel that the array of cases where human inoculation has been practiced, a few of which I shall present, is a complete refutal of all arguments brought forward by those who are opposed to experimentation upon the lower animals. At a meeting of the Convention of the American Humane Society, held October 26, 27, 1892, Mrs. Caroline Earle White delivered an address against vivisection. While she admitted the right to kill animals for food, provided it be done quickly and humanely, she emphatically denied that any important discovery has ever been made by the practice of vivisection. I would reply, how is it possible that men of learning and of mature judgment are willing to perform experiments which may endanger their lives or health unless they think that our store of knowledge may thus be increased?

I shall cite you in this connection the example of Robert Cory[2] who, knowing the fact that the lower animals are not subject to syphilis, was willing to contract that most dreaded disease in order that he might show to the countless ages to come the danger of taking even the clear lymph of vaccine for purposes of future vaccination from a syphilitic child. The experiment which he performed upon himself has called the attention of the medical profession to this important subject, and has caused the establishment of hundreds of

[1] An address delivered before the Stillé Medical Society of the University of Pennsylvania on November 3, 1892.

[2] Keating, Vol. I, p. 747.

cow vaccine farms throughout the world. How much better it would have been if he could have performed these experiments upon one of the lower animals, instead of perhaps sacrificing his future usefulness to the dreaded ravages of tertiary syphilis.

The subject of immunity from disease, which is now receiving the attention of the ablest scholars and writers of this country and abroad, is based upon human and animal inoculation, in order that it may be put on as firm a foundation as is the science of antiseptic surgery at the present time. Deprive mankind of the right to inoculate in one state or country and the doors of another land, though distant, will be thrown open, and will become the goal which the true seeker after knowledge in all its forms will strive to reach. The benefits thus derived from experiments upon the lower animals will be freely given to the relief of mankind, whether they be vivisectionists in theory or practice or anti-vivisectionists in deed or spirit.

I have had in the course of my life three friends whose deaths can be directly or indirectly traced to their great interest in pathology. Dr. H. B. Taylor had finished a post-mortem, and, entrusting the sewing up of the body to a medical student, received a stab in the wrist which gave rise to a serious wound, from which he died some months later on. Another case was one in which a physician had started upon a career with everything in the future looking exceedingly bright. He had been chosen resident physician at Blockley, and while there, both with Dr. William Osler and myself, had been very regular in his attendance at the post-mortem room. Having been chosen to the Insane Department, he had more leisure to carry out his pathological studies, and we had taken up a course of reading in German. We had come to the interesting subject of pneumonia. It was at the time when the pneumococcus of Fränkel was receiving much attention, and my friend Dr. Charles Walter—a very thorough student—did not deem it sufficient to merely study the subject from the book standpoint, but decided to make cultures of the diplococcus himself. One evening we waited for him at my office in vain, and wondered, as he was such a punctual man, that he did not at least send us word of his being unable to keep his engagement. The next day I learned that he had been, after exposure to cold, attacked with the disease germs he was cultivating. His death took place a few days later. The lamented death of Dr. Henry F. Formad was no doubt hastened by the post-mortem wound which he received last December, though his kidneys were in a poor condition to withstand any extra strain which might be made upon them. Of the great number of persons whom I have known and who have suffered from wounds or diseases gotten in the post-mortem rooms in this city three examples will suffice. Our

own honored Provost of the University, who has always shown such marked zeal in the performance of his duty, and such an intense desire to master the minutest detail, relates that he dates an attack of typhus fever from the time at which he assisted at a post-mortem of a patient dead from that disease. A resident physician at Blockley who received a post-mortem wound suffered from innumerable abscesses for several years, his life often seeming to hang by a thread, but is now, I am happy to state, hale and hearty. Another resident physician in the same hospital lost the little finger from a post-mortem wound; he was a fine violinist and this interfered seriously with his playing.

The history of medicine tells us of the achievements of Jenner in vaccination, of Pasteur in rabies, swine plague and fowl cholera, of Koch in cholera and tuberculosis, of the writings of Kröner, Magnant, Bonahard, Tizzoni, Buchner, Fligge, Brieger, Waasarman, Nissen, Gelderblom, Thompson, Crivelli, Salmon, Robertson, Neudörfer, Janson, Schmit, Peyraud, Bonehard, Behrens, Foà, di Mattei, Roux, de Blusi, Maguire, Klein, Hamer and Körösi on preventive inoculation, of the work of Fränkel and the Klemperer brothers in pneumonia, of the labors of Sternberg with vaccine in cows, of the experiments of Fréire in Brazil and Carmona in Mexico in yellow fever; of the inoculation trials of Ferran in Spain in cholera; of the mass of material brought forward by Cantani, Nicolarer and Kitassato on tetanus; of the laboratory researches of Pollander and Greenfeld, of England, and Toussant, of France, on anthrax; of the discovery of a pathogenic microörganism in leprosy by Hanson; by Neisser in gonorrhea; by Shütz and Löffler in glanders; and by Pfeiffer in influenza; of the contributions of Klebs, Löffler and Welch on diphtheria; of the especial workers in England on the soluble products obtained from pure cultures of microorganisms — J. Burdon Sanderson, Sidney Martin, Brunton and McFadyean, R. W. Philip, Hankin, Ruffer, Crookshank and Herroun, William Hunter, Cartwright Wood, William Aitken, G. Sims Woodhead; of a host of earnest workers in our own country, such as Prudden, Skakespeare, Billings, Simon, Jacobi, Abbott, Dixon, Gibbes, Vaughan, Councilman, Osler and Guitéras, and of which hundreds of others might be added to the list if we had time to tell about them and their writings.

Three laborers in the domain of scarlet fever and cholera will illustrate the work that is going on in this field, which is now by far the most active one in the domain of medicine. The Japanese as a race are supposed by many to be immune against scarlet fever. Knowing this fact, A. S. Ashmead inoculated several Japanese in order that he might obtain an anti-vaccine from their lymph which, by inoculation, would prevent scarlatina in Caucasians. His researches are still being

carried on in this country, and we hope that they will be crowned with success.[1]

Haffkine[2] inoculated first himself and then seven others with Pfeiffer's Nos. 1 and 2 anti-cholera vaccine. It is his hope that by these inoculations a person can be rendered immune from cholera in the course of six days. E. H. Hankin,[3] one of those recently inoculated by Haffkine, graphically describes his experience. His temperature in the first inoculation never reached more than 100 degrees Fahrenheit, though he suffered from headache, malaise, loss of appetite and general lassitude. The edematous swelling at the point of injection developed with startling rapidity, but as the vibrio of cholera does not produce pus, but little attention was paid to this fact. A nodule at the point of injection remained at the time of writing. After the first inoculation there appears to be a temporary diminution in the power of resisting the entry of the cholera microbes; therefore, in epidemics of cholera great care should be exercised in making the inoculations.

Time has permitted me but to name the work that has been carried on by a few in the warfare against diseases of bacteriological origin by means of inoculation. Here it is literally fighting a man, or rather a microbe, with its own weapons, for the very bacillus which is causing the harm may have called into existence a substance which, if properly used, may contribute to the microörganism's own destruction.

George H. Sternberg[4] truly says in a late address: "Recent experimental evidence has been obtained which gives us reason to believe that in a number of infectious diseases, at least, the toxic bacterial products which give rise to the morbid phenomena characterizing these diseases may be neutralized in the infected individuals by the administration of anti-toxines obtained from the blood of immune animals.

[1] Medical Record, 1891, Vol. XL, p. 270.
[2] Munch. Med. Woch., Aug. 9, 1892.
[3] Medical and Surgical Reporter, Oct. 8, 1892, copied from British Medical Journal.
[4] Boston Medical and Surgical Journal, June 16, 1892.