

and although the laws of gravitation and of planetary motion are now quite generally admitted, we have in Virginia a colored clergyman who still proclaims his belief in the sun's motion. As regards the antiseptic theory, we can usually afford to turn a deaf ear to this class of opponents, many of whom have about as much claim to speak with authority on surgical or scientific topics as the Reverend Mr. Jasper on astronomical subjects.

When, however, a noted surgeon, a successful operator and a vigorous controversialist, undertakes to traverse the whole line of thought and argument upon which my confident acceptance of the theory was founded, denies its basal facts, ridicules its logic, jeers at its methods, challenges its records and abusively attacks its author and his supporters; and when I find such views, so expressed, published and republished in the most reputable medical journals of the day, with little or no editorial censure, it seems to me proper that those of us who are teachers should once more review the evidence, consider the situation, and, according to our conclusions, publicly reaffirm or renounce our faith in the theory and practice of antiseptis.

On the 4th of last August, I had the pleasure of hearing Sir Joseph Lister deliver before the International Medical Congress at Berlin an address upon "The Present Position of Antiseptic Surgery." He evidently did not think it necessary in the presence of that vast audience, containing many of the most distinguished men in Europe and America, to defend or even to restate his position as to antiseptis, but devoted his time to noting the new light which had been thrown on the behavior of wounds by the results, on the one hand, of Koch's discovery of the method of cultivating microbes upon solid media, and, on the other, of Metchnikoff's researches into the phagocytic action of the migratory or amoeboid cells of the human body. According to Lister, Koch's work has rendered it possible to study with greater precision than ever before the habits and behavior of micro-organisms, and he instanced the discovery of the cholera microbe as a notable example of the results of this method. Detailing some of Metchnikoff's experiments to prove the antibacteric action of normal leucocytes, he called

attention to the explanation it offered of much that was hitherto mysterious in the relation of micro-organisms to wounds; the healing, for instance, of wounds like that made in the operation for hare-lip, the posterior edge of which is perpetually bathed in saliva containing septic bacteria. The destruction of these microbes by the leucocytes which people the lymph at the edge of the wound satisfactorily explains the rapid healing which we uniformly obtain after this operation. So, too, he thought, that in cases where fine silk ligatures are used unpurified and left in closed wounds, the phagocytic action of the normal tissues may destroy the microbes that have gained access to the interstices of the thread, and prevent their fermentative or putrefactive action on the discharges.

He then considered the question of drainage and of irrigation, pointing out the possibility of dispensing with both in many wounds, and suggesting that in the new light thrown upon the ability of normal tissues to protect themselves, contamination from atmospheric organisms may perhaps also be disregarded, provided no septic matter be otherwise introduced into wounds. In support of this, he noted the fact that it had been found that the free entrance of air containing microbes into the pleural cavity in cases of empyema had produced no harmful results in the days when the spray was irrationally depended upon to sterilize such air, and instanced the transformation of the purulent contents of the pleural cavity into a rapidly diminishing serous effusion, the closure of the external opening, the resumption of the normal functions of the pleura, the expansion of the contracted lung through atmospheric pressure,\*

\*This statement Mr. Tait criticises (if it can be called criticism) most violently, calling on the "shades of Newton and Torricelli" in mock dismay at the disregard of physical laws which he thinks it manifests. He misquotes Lister, who spoke of the closure of "the external opening." This Tait transforms into "closure of the affected cavity," and then says that "given a membrane to which the atmosphere has free access on both sides, on both of these sides the pressure of the atmosphere will be exactly the same"—a self-evident proposition, but one which has nothing to do with the condition of the lung and pleura after the chest wall has become imperious. He says, also, that when the closure of the pleural cavity is completed "the natural dimensions of the affected lung are *always* remarkably diminished." In contradiction of his whole position in this matter, I would refer to the following authorities: West, on Pneumothorax (*The Lancet*, 1887, vol. 2, p. 353); Williams, on the use of a Valvular Tube in Empyema (*British Medical Journal*, May 18, 1889); Reynolds, on Pneumothorax Consecutive to Emphysema (*Manchester Medical Chronicle*, October, 1889); Douglass Powell, on Variations in Intra-thoracic Pressure (*Transactions of International Medical Congress*, 1881, vol. 2); Donaldson, on Diseases of the Pleura (*American System of Medicine*, vol. 3, pp. 522, 559). The latter author says: "The dilatation of the lung is produced by the disappearance of the intra-pleural pressure and the pressure in the opposite direction from the bron-