

their early control, and inasmuch as the knowledge of bacteriology and biology is essential in many instances for this early diagnosis, the necessity for this scientific knowledge is obvious. The wonderful advances in the newer science of preventive medicine during the past decade is due, for the most part, to advances in the science of bacteriology and biology.

Previous to the discovery of the germ origin of disease, administrators of public health were, for the most part, groping in the dark. It was evident to them that certain diseases were transmitted from one person to another, but no one knew how. However, as the science of bacteriology advances our knowledge of the cause of the various diseases becomes fuller—as did our knowledge of the source and modes by which these diseases were transmitted from one person to another.

One need cite but a few instances of this to prove the correctness of the statement.

Our knowledge of the fact that typhoid fever is due to a specific germ, and that, in many instances, it is transmitted from one person to another either through our drinking water, our milk, or other foods—ofttimes through the medium of the house-fly—prompted us to obtain at once control of our water supply, complete control of our milk supply, and to enlighten the public in regard to the dangers of the house-fly, in consequence of which we have been able to reduce the mortality due to typhoid fever from 46.5 per 100,000 of population for the first ten months of 1910, to 1.4 for the first ten months of 1915. Again, the practical application of the scientific knowledge we possess as regards the course of diphtheria and scarlet fever and the manner in which they are transmitted has enabled us to reduce the mortality in the case of diphtheria from 41.8 per 100,000 in 1910, to 10.3 in 1915; and the scarlet fever from 24.7 per 100,000 in 1910, to 2.6 in 1915.

It was the knowledge obtained by scientific investigations in connection with tropical diseases by Sir Ronald Ross and Sir Patrick Manson, of England, and Laverand, of France, and Reed and his colleagues on this continent, that malarial fever and yellow fever were transmitted by two distinct species of mosquitoes, that enabled General Gorgas not only to make possible the construction of the Panama Canal, but also to enable Panama to vie with Palm Beach and other health resorts on this continent.

The mortality in the Panama district previous to this undertaking by General Gorgas was approximately 400 per 100,000.