ment by means of a partial illumination. Yellow fever affords an example of revolution in protective measures based upon our knowledge of a living poison which has never been seen, although we know a great deal about it. We know the particular mosquito in which it only can develop. We know something of its cycle of development. When man has been exposed to infected mosquitoes we know if he has been infected just when he will show symptoms. After he becomes sick with yellow fever we know just the days of the disease when if bitten by the particular variety of mosquito he may transmit to it the infection and we know just how many days will elapse before the mosquito will be able to transmit the disease by biting another human being. We know just how to kill these mosquitoes at the various stages of their lives and we know just how they propagate.

We have not seen, as in malaria, the living cause of the disease, nor studied the various stages in its life cycle in man and in the mosquito. Nevertheless, prolonged and strenuous work and the self-sacrifice and heroism which withheld not even life itself enabled Walter Reed and his colleagues Lazear and Carroll to give us information which has already saved many thousands of lives and robbed the American tropics of their chief terror.

General Leonard Wood, himself a physician and largely to be credited with Cuba's transformation, on the occasion of Dr. Reed's funeral, felt impelled to point out that Reed's work saves more lives annually than were lost in the entire Cuban War, and that a greater financial saving than the entire cost of the war results each year through the work of Reed and his colleagues.

In the case of Joseph Lister, the people of Great Britain and of the world were able to show fitting appreciation of the quiet, persistent, courageous work of that titan brain which revolutionized surgery and has already contributed thousands, perhaps millions, of years in the aggregate to human life. We cannot compute and can scarcely imagine what modern aseptic surgery which grew out of Lister's scientific laboratory and hospital study, has meant through the gift of those years of active life which have been conserved for the better accomplishment of the world's work.

We might continue to multiply examples of the difficulties still to be solved and of the encouragement which may be had from the success which has already come to us, but it seems wise rather to attempt to classify loosely the complications which arise in man's endeavor to cope with his environment in order that we may know when, where and how to plan attack. Some of the following considerations are of importance as affecting logical procedure and determining the points of least resistance on the one hand, and of greatest danger on the other.

1. A knowledge of the nature of the microbe, virus or other exciting cause of a disease or unsanitary condition is essential. We must know how it reproduces, where and how it completes its life cycle, the influences which are harmful to it such as relate to heat or cold, dryness or moisture, sunlight or darkness and the chemical and other means for altering its characteristics or destroying its life. A knowledge too of its other living foes may help man to escape.

We must know whether it is capable of living and reproducing itself *only* in the human body, *only* in the body of some other animal, or *both,* in man and animals or in nature *outside* of both. We must know whether it requires two or more hosts in which to complete its life cycle as in tapeworm and allied conditions.

Man does not seem to share with the other living animals the venereal diseases, diphtheria, typhoid, leprosy, scarlet fever, measles and many other infections.

In the case of plague, anthrax, glanders, hydrophobia and certain other diseases which are common to man and the other animals the complications are increased by the difficulty of knowing the exact extent of the danger and where and how to apply protective measures.

Certain bacteria operate through their poisons which are liberated into the tissues and combine with cells and produce changes in fluids to their detriment. Other bacteria contain the poisons in their own bodies and only liberate them when they are broken up and destroyed. Some poisons cause proliferation of cells, some cause clotting in and plugging of blood vessels, others have selective degeneration effects on particular