

cause of sleeping sickness. Here are two great achievements of the last five years which are of vast importance, not only to medicine, but also to humanity, for in the one case we may now be in a position to control a scourge that has afflicted the human race since the close of the Palæolithic Period, and in the other we are at the beginning of a struggle, defeat in which may render the Tropics uninhabitable to man, white, black or yellow.

These simple methods will always be used in the practice of medicine, but so far as extending the bounds of knowledge is concerned they have already been exploited for nearly all they are capable of yielding, and now is beginning the period of diminishing returns. Progress of a substantial kind will have to depend on the discovery of new methods, on the exploitation of other lines of work, as well as on the breaking of hitherto unprojected paths into the unknown.

What are those lines, in what direction does their trend appear to be now?

This is a question which I think is of transcendent importance to those interested in medical education, and it behoves us who are concerned to scan closely the distant prospect and take the bearings of our course.

It is almost trite to say that there has been in the last twenty years an extraordinary expansion in the sciences ancillary to medicine, but it is difficult to realize adequately how extensive that widening of knowledge has been and we can only approximate it by the adventitious aid of figures. In the last three years the number of original papers published in pathology, hygiene, physiology, pharmacology and bio-chemistry was about 17,000. In 1904-5-6 the number of bio-chemistry alone was over 9,000,—in 1906 it was nearly 4,000. The numbers of bio-chemical papers published in the eighties were only a few hundred annually. One gathers from this what energy is now being expended in the investigation of the chemistry of living matter, not alone of the normal, but of the pathological as well. The number of the papers published is an indication of the army of workers that is engaged. If we credit every worker with two publications annually we would infer that in bio-chemistry alone there must be approximately 2,000 researchers. Twenty-five years ago the number of investigators in all the departments of Science did not exceed three thousand.

In pathology the output has also been enormous, and especially on its chemical side. Formerly pathology concerned itself chiefly with the morphological side of disease. Now there lies before it all the chemical problems which are of a far weightier interest in that they concern the ultimate causation of disease.