

preparation and employment of the very compounds that the living cells of the body produce for their own defence against disease, or when the nutrition alone is disorganized, as in the case of pancreatic diabetes, the replacement of those processes which the normal cells undergo. In other words medicine will become less empiric and more rational the more we know of the chemical changes that occur in the normal as well as in the diseased cell.

The physician of twenty years from now, if he wishes to profit from all these advances and to keep step with progress, must have an amount of knowledge of physiological and pathological chemistry far in excess of what he is ordinarily required to have to-day. If he does not have that knowledge he is not merely behind his time, he is intellectually marooned.

We are now at the stage of transition between the old and new phases of medicine. From now on, while the old methods which have been of service will be retained, new ones of an intricate order will be employed and a deeper, more accurate knowledge of the functions and processes of living matter will be the result.

Such a development is only in accord with our age and with the development in the other sciences. The alchemist had his furnaces, his crucibles, his retorts, his simple salts and reagents. With these he established the beginnings of chemistry, but it was only when the balance was introduced that exactness began to play its part. To-day the old methods are still used in certain simple chemical operations, but the vast body of organized knowledge called chemistry is the result of the employment of methods which were not even dreamt of by the chemists of the eighteenth century, not to speak of the alchemists.

The same may be said of physics and electricity. When Helmholtz visited Faraday in his laboratory in 1853 he found that the latter's apparatus consisted of a few wires and some bits of old wood and iron. What a far cry from such an equipment, with its simple methods, to the outfit of an electrical laboratory, such as you have to-day in your university grounds, with its problems, the solutions of which are or may be as important fundamentally as any result that Faraday obtained!

What is the warrant for this prediction of progress in medicine? It is the Scientific Spirit which alone has promoted all the advances medicine has made in the past. It is not material that only a few are possessed of that Scientific Spirit, for only an infinitesimal portion of mankind has ever manifested it, and nevertheless all progress is due to it. The number of researchers in these lines, as has already been pointed out, is greater than it has ever been before, and to those of