

approximates in its salts to the water of the ancient geologic seas in which their ancestry arose, and still reveal in fact the composition of that ancient ocean. In that respect these living cells, with all their influx of change, have been more durable and constant even than ocean itself. The contrast brings home to us a deep distinction between dead matter and living—the latter a moving equilibrium, gaining stability from the very motion of itself.

The bond between Schwann and Pasteur has opened a new perspective, and chemistry and medicine were drawn still tighter by their discoveries concerning those subtle influences named "ferments." Pathology, the study of these processes of the body in disease, even more than physiology, as yet has drawn help from this part of modern chemistry. If the processes of health are in fact the resultant of the due cooperation of ten million little foci of healthy chemical action in the body, the processes of disease are similarly divisible, and have to be traced to the unhealthiness of certain of these minute centres of activity. How extreme is the importance of chemistry to modern medicine, no single statement can perhaps emphasize so well as this—that is, I believe, acknowledged on all hands—that in virtue of his chemistry, a chemist, Louis Pasteur, during the latter half of last century, was able to do more to alleviate the diseases of mankind and animals than any single physician of his time.

Also medicine has made appeal to the physicist, and from him she has got understanding of the body's heat, the basis of knowledge of fever; she has learned the intricacies of the mechanism of the eye and refined methods of examining that organ and of remedying many of its defects; the laws that govern the circulation of the blood and the subtlest means of detecting the forces liberated in the working of the nervous system. In some cases as sciences grow, their discoveries seem to sunder them the further one from another. In my belief, that merely shows they are at the outset of their career. To-day we find physics and chemistry converging and conjoining within a field of physical chemistry. It early became convenient to have a specific name for living material, wherever found. The name given was Protoplasm. It might have been better to call it  $x$  or  $y$ , so far was it in many respects an unknown quantity. Instead of looking forward to this material as a chemical entity, we incline now to regard it rather as a field for chemical action, satisfying certain particular conditions. Probably discoveries regarding these conditions will fall to the physical chemist, perhaps in a future very near at hand. Probably such discoveries will be among the most valuable that medicine has yet received from any source.

I have said enough to remind us how interlocked with science medicine has become. She is applying sciences to her own problems,