

and simple, apart from its applications to medicine. So long as any science is studied only with the object of furnishing results of *immediate* practical utility, just so long will it fail in accomplishing the highest ends even in this direction. The history of all science proves this. Physiologists have been almost, without exception, recruited from the ranks of medical men connected, in most instances, with medical schools; the schools and the medical profession have asked for a "practical physiology," and asked for it so loudly that the broader conception which ought to have taken deeper root, at least since Darwin's time, has had little chance. But now we begin to see a better state of things arising; a few men are pursuing investigations on physiology purely for their own sake, free from the worry incident to the endless repetition of the question, *Quid boni?* and this spirit is spreading to the more advanced and independent teachers of physiology in the larger universities of the world.

The present writer has for some time felt keenly what he has very briefly stated in this introduction. About three years ago Heidenhain in Germany and Gaskell in England began investigations on the innervation of the hearts of the cold-blooded animals, as in the natural order of things this should precede the study of the mammalian heart; while Ransom, of the same English school (Cambridge), worked out admirably the physiology of the heart of the *octopus*, a large cephalopod mollusk. Already in the light of the discoveries of workers in this field the mammalian heart is being investigated afresh, and it is safe to predict that before the lapse of another three years our notion of the innervation of the heart of man and other mammals will have been largely revolutionized, and with the result of replacing old views by others more satisfactory both to the physiologist and the physician. The explanations we have hitherto given for certain forms of heart disease seem to me too mechanical; we must introduce the nervous element more, and this conviction is founded upon my own investigations in this line of work.

For more than a year I have been engaged upon the investigation of the rhythm and innervation of the hearts of cold-blooded animals. Heidenhain's work was confined to the frog's