If the study of Physics is also to give real training in powers of thought and action, it is necessary moreover that the work in hand should appeal to the student as being worth while,—it must define in his mind problems that are significant to him; so that the motive that impels him to work is a desire to solve the problems for the sake of knowing the solutions. The solution of scientific problems is always beset with difficulties, and it is in overcoming the difficulties that are inherent in a problem whose solution is significant to the pupil, that real training in power of thought and action is secured. Therefore, the method of treatment that develops the subject as a series of problems that are significant to the pupils is not only the one method that leads to the real mastery of subject matter; it is also the one method that gives him real training in scientific thinking.

In our first book the effort was definitely made to apply this problem method of treatment to the subject matter that was then generally accepted as the necessary content of a first course in Physics. During the five years that have elapsed, teachers have come to recognize more and more clearly the value of this problem method of teaching. The recognition of the fact that the problem must be significant to the pupil has of necessity raised the question whether the subject matter of the old course is the best that can be chosen to impress the student with the significance to him of the laws and principles of Physics. Are such topics as the laws of accelerated motion, the absolute units, and coefficients of expansion, capable of being presented in such a way that they define significant problems in the mind of the average high-school boy or girl just beginning the study of Physics?

Both experience with high school pupils and common sense seem to the authors to answer this question unequivocally in the negative. So a rewriting of the book became a necessity,—an edition in which the attempt should be made to apply the same principles of teaching to subject matter more likely to be significant to the pupils, and so to make more serviceable the new method. The authors believe that the