The main challenge in biology was to understand gene replication and the way in which genes control protein synthesis. It was obvious that these problems could be logically attacked only when the structure of the gene became known. This meant solving the structure of DNA. Then this objective seemed out of reach to the interested geneticists. But in our cold, dark Cavendish lab, we thought the job could be done, quite possibly within a few months. Our optimism was partly based on Linus Pauling’s feat in deducing the alpha-helix. We also knew that Maurice Wilkins had crystalline X-ray diffraction photographs from DNA and so it must have a well-defined structure. There was thus an answer for somebody to get. During the next eighteen months, until the double-helical structure became elucidated, we frequently discussed the necessity that the correct structure have the capacity for self-replication. And in pessimistic moods, we often worked that the correct structure might be dull. That is, it would suggest absolutely nothing and excite us no more than something inert like collagen. The finding of the double helix thus brought us not only joy but great relief. It was unbelievably interesting and immediately allowed us to make a serious proposal for the mechanism of gene duplication.