

PREFACE

The workings of the brain have fascinated me since childhood. I had observed with interest that whenever a question was asked in the classroom many different answers were given. Every classmate was thinking and perceiving the same question from an entirely different viewpoint and thus an answer was given according to their own particular perspective. This diversity in perspective is so profound. It adds even more dimension to world around us. We (humans) have a depth of visualization so powerful that we can close our eyes and . . . imagine. Imagination is timeless, boundless, unlimited and it happens right there in a few cubic centimeters of soft matter, the brain. Close your eyes and you can “see” faces you have not seen for years or “smell” summer fragrances in the middle of the winter; or “travel” through space, crossing distant galaxies with an incomprehensible speed that defies all laws of physics. Close your eyes and you can create ideas that never before existed. Someone “saw” a wheel for the first time and made a cart; another heard the first music before music was sung. Someone for the first time “saw” the benefit of the volcanic fire and used it to warm houses, to cook, to extract metals from rocks, and to make tools and weapons. And this inventiveness continues to this day. We “saw” the invisible forces of matter, controlled them, and produced electricity, we made radios and computers and we escaped into space. So, is it surprising that for many years this mind-boggling power of the brain has been the subject of research?

I have been compiling information about the biology of the brain and sifting through articles and studies on neural research for quite a few years now. As a physicist and an engineer, I wanted to understand the mechanics and innerworkings of the brain. As soon as I had an organized set of notes that I thought had pedagogical value, I decided to give a tutorial in neural

