

Preface

It was the 1960s in America—a time of cultural, social and sexual revolution. It was a time of contentious politics, tragic assassinations and inter-generational conflict, but also of creative thinking, exploration, hope, and setting of lofty goals. While the latter most famously involved exploration of *outer* space and the moon landing, there also was much exploration of *inner* space, consciousness, via meditation and chemicals such as LSD, mushrooms, and marijuana. And then, as the decade was coming to a close a psychologist named Joe Kamiya discovered that biofeedback of brain *electrical* activity also can impact inner space—in retrospect, not so surprising given the electro-chemical nature of brain function. This discovery added EEG biofeedback to the already existing more general field of clinical biofeedback established by pioneers such as Barbara Brown, and Elmer and Alyce Geen. With its exciting promise not only for expanded mindfulness, but also for control of abnormal brain electrical activity in epilepsy and other clinical conditions, EEG biofeedback became a dominant and often independent procedure within the more general field, and was assigned the new term neurofeedback. During the 1970s and 1980s a relatively small number of early pioneers including Barry Sterman, Margaret Ayers, Siegfried and Sue Othmer and Joel Lubar continued to demonstrate the clinical value of neurofeedback, often struggling to keep the field alive and growing despite resistance from various sources. This book contains their neurofeedback stories as well as those of most other

early pioneers, and a large number of others who have followed and made important contributions to the field.

Undoubtedly, there will be readers who will question the editors' choices of chapter authors, especially of those other than the early pioneers. Briefly, the process was as follows: after the proposal for the book was accepted by Elsevier and a contract signed, the editors presented to each other lists of names of persons he or she considered to have made especially valuable, unique, and/or well known contributions to the field. Following some discussion, each of about ninety nominees was contacted via e-mail, and provided a short description of the proposed book and an invitation to submit a chapter. In cases where a nominee no longer was living, former close associates were contacted and invited to submit a chapter describing that person's neurofeedback "journey". Invitees were requested to include in the chapter some details of how they initially became interested in the field, briefly list a few of their candidates for most important developments during the fifty year evolution of the field, mention what they believe were their own most important contributions, and discuss their hopes and expectations for the future of the field. Given a "popular science" rather than "scientific" writing style desired for the book, potential chapter authors were asked not to include figures, or tables unless absolutely necessary, and to keep references to a minimum. Invitees were asked to refrain from making strongly negative or inflammatory comments

about any person or his or her work. Page count was to be limited to no more than ten to accommodate publisher's total page limit. (However, the latter proved difficult due to variation in font sizes used. Actual page counts of submitted manuscripts ranged from three to sixteen.) Sixty-two persons submitted first drafts which were edited and returned to authors, who then made acceptable modifications prior to final submission to the publisher. Nearly all authors adhered, more or less, to the original request regarding content.

In the following pages readers will learn that there were multiple recurring themes among the chapters. Examples include: (1) authors' interests in the field very often originated from a search for help for a medically-related condition of a child, a client or themselves which had not responded to traditional treatment; (2) strong agreement regarding the landmark nature of developments such as Barry Sterman's cat research, Eugene Peniston's success with substance abuse, Joel and Judith Lubar's theta/beta ratio correlation with ADHD, alpha-theta training for trauma, Bob Thatcher's scientific research involving a normative data base, LORETA analysis, production of efficient and affordable equipment by Lexicor Corp., and establishment of professional associations such as AAPB and ISNR; (3) while operant conditioning was accepted by the majority as the mechanism accounting for positive neurofeedback training results, some authors disagreed. For example, some argued for a sort of "body wisdom" explanation whereby the brain, if provided appropriately detailed feedback, naturally reorganizes itself; (4) the question of how and why a large number of often very different neurofeedback approaches lead to positive training results. Authors unanimously rejected placebo as the main mechanism of neurofeedback efficacy; but the question was addressed directly by only one

author who postulated that all approaches facilitate organization of rhythms of the brain; (5) most, but not all, authors appeared to accept that neurofeedback training is a very safe procedure with few, or no, enduring negative side effects; (6) general agreement that the field is expanding rapidly, but disagreement over why it remains out of the mainstream of medicine. Authors suggested such causal factors as lack of consistent scientific research support for its efficacy, extravagant claims for cures of multiple ills, lack of enforceable training standards for practitioners, and competition from a myriad of alternative medicine practitioners; (7) considerable controversy over the clinical and practical value of normative database and qeeg-guided, 19 channel versus simpler and less expensive one or two channel, symptom-based neurofeedback; (8) frequent mention that the history of the field is replete with disagreements, often quite contentious, regarding ownership of patents and ideas, and relative usefulness/uselessness of specific neurofeedback procedures and equipment; (9) disagreement over the question of need for research support for efficacy of neurofeedback. Some advocated randomized, double blind, placebo controlled studies, others were in favor of use of more appropriate, yet rigorous designs, while others implied the field already is clinically proven, and minimized or rejected need of research; and (10) high on author wish lists for the future of the field were enforceable standards for practice of clinical neurofeedback, and greater coverage of neurofeedback treatment by medical insurance providers.

Throughout development of this book the editors attempted to remain neutral and apolitical. With one exception, all chapters are in alphabetical order. That exception was Chapter 1 by Joe Kamiya in recognition of the fact that he often is considered the "father of clinical neurofeedback" (and, incidentally,

was the lead editor's first biofeedback mentor at the University of California, SF). We, the editors, naturally had opinions regarding favorite personalities, and most valuable and likely-to-be enduring developments in the field. However, we believed that only time will reveal the true facts of such matters. So, for purposes of this book, we took the stance that "all authors and neurofeedback methods are created equal until history proves otherwise". Some present readers should be around in 2069 to read a "100 year history"

sequel to this book. Perhaps they then will learn truths concerning relative validity and value of first 50 year developments. In the meantime, we hope present readers enjoy the neurofeedback stories in this book, and will use the information to help speed the field's evolution toward becoming a major part of the mainstreams of medicine and education, as well as an effective, and safe, tool for exploration and self-mastery of inner space.

The Editors