

Preface

With enthusiasm, I accepted the invitation of editors Wu and Nyborg to prepare this short Preface. These editors are extraordinarily prescient in preparing this volume. Recent scientific and engineering developments are reaching the point where it is possible to foresee the educational preparation necessary for the next generation to participate in the future developments a decade henceforth.

It is not accidental that Wu and Nyborg, both physicists, have contributed significantly to the biomedical ultrasound field which has been endowed with abundant participation of physical scientists, since its very beginnings. For example, one can point to the officership of the American Institute of Ultrasound in Medicine, of which five of its twenty-five presidents have been physicists or engineers. Beyond that, there are the beginnings of the ultrasound field in the 1920s by Wood and Loomis involving biological specimens (Wood and Loomis, 1927) and the prodigious work led by W.J. Fry in the 1950s and 1960s, University of Illinois, which studied in great detail, the effects of high intensity ultrasound in laboratory studies and initiated the field of neurosonicsurgery (Fry *et al.*, 1958; Meyers *et al.*, 1959; Hickey *et al.*, 1961; Fry and Meyers, 1962).

This monograph provides both enlightenment in the newer areas as well as textual details for becoming well informed on their practice. Thus, it is far more than simply a glimpse into the future. Wu and Nyborg are to be

commended for their acumen regarding the future of biomedical ultrasound and their effort in producing this, expected to be, long lasting treatise.

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References

- Fry WJ, Meyers R, Fry FJ, Schultz DF, Dreyer LL, Noyes RF. Topical differentia of pathogenetic mechanisms underlying Parkinsonian tremor and rigidity as indicated by ultrasonic irradiation of the human brain. *Trans Am Neurol Assoc* (1958) **16**.
- Fry WJ, Meyers R. Ultrasonic method of modifying brain structures. *Confin Neurol* (1962) **22**: 315–327.
- Hickey RC, Fry WJ, Meyers R, Fry FJ, Bradbury JT. Human pituitary irradiation with focused ultrasound. *AMA Arch Surg* (1961) **83**: 620–633.
- Meyers R, Fry WJ, Fry FJ, Dreyer LL, Schultz DF, Noyes RF. Early experiences with ultrasound irradiation of the pallidofugal and nigral complexes in hyperkinetic and hypertonic disorder. *J Neurosurg* (1959) **16**: 32–54.
- Wood RW, Loomis AL. The physical and biological effects of high-frequency sound-waves of great intensity. *Phil Mag* (1927) **6**: 417–436.