



IN MEMORIAM

William Ross Adey, M.D.
Professor of Anatomy and Physiology
Los Angeles
1922–2004

Ross Adey's career in medical science spanned 50 years and brought him international repute; his specific knowledge of the effects of electromagnetic fields on biological tissues earned world renown.

Though he succumbed, after typical Adey valiant combat, to a relentless pseudomonas lung infection on May 20, 2004, his striking persona survives mortality, and his visionary concepts of brain function transcend mere chronology.

This familiar, rangy, nervy, at times acerbic Australian with a slightly lopsided grin exuded a natural rambunctiousness channeled by a commanding intelligence, evidence of which appeared in boyhood. Born in Adelaide on January 31, 1922, into the family of a school headmaster, he was a high school graduate by age 14 and had earned bachelor's degrees in medicine and surgery by 21 – the equivalent of earning a medical degree in the United States – conferred by the University of Adelaide. Entranced by the phenomenon of radio – the beginning of a lifelong consuming interest – he constructed his own vacuum tube sets, obtained an amateur radio license at 17, and eventually designed and built the first EEG machine in Australia, complete with stimulators and cathode-ray cameras. He recorded and displayed brainwaves long before he had the opportunity to confer with a trained M.D. electroencephalographer. Indeed, this early, virtually celestial conjunction of his leisure fascination utilized as a cerebral probe prophesized much of his investigative career.

These exercises of intellect did not stunt other capacities. There was a growing appreciation of language and its poetic expression. He was a fast bowler cricketer ("enough speed but control erratic," he confided); and he captained the school rifle team. There are also casualties who ruefully acknowledge that he had other sharpshooting skills not dependent on musketry.

After medical school, he was occupied by clinical duties at the Royal Adelaide Hospital and aboard his Royal Australian naval ship. Though this seems an interlude submerged by later laboratory pursuits, Adey was always quick to recognize implications and applications for patient care. Indeed, when the challenge arose, he passed the California Boards for medical licensure 30 years after the navy experience, a feat bordering on thaumaturgy and a tribute to a prodigious memory. He maintained the license to practice for the rest of his life.

On discharge from the navy, he resumed his formal studies culminating in his M.D., also conferred by the University of Adelaide, and contributed to investigations in chronic myopathy and motor mechanisms in anuran amphibians. These and other endeavors, chiefly limbic system researches, led to coveted Nuffield and Royal Society Fellowships at Oxford wherein reigned the great comparative anatomist and primate brain expert, Wilfrid Le Gros Clark; surely another auspicious conjunction of stars. Adey continued his researches in limbic structure and function with extension to diencephalic pathways. It has been suggested that this early work presaged future international status as an anatomist, but this omnivorous mind could not be contained by a single discipline. Nevertheless, the inherent classicism remained undiminished; and his expositions, learned

and lucid, formal and extemporaneous, excited the admiration of cognescenti, resuscitated moribund medical students already stricken by the advertised lethality of neuroanatomy, and remain firmly anchored in the memory of fortunate auditors.

Armored thus with an encyclopedic traditional knowledge of structure, a mastery of electronics, and visionary conceptions of brain function that have reached at least into the 21st century, Adey arrived at UCLA in 1957 equipped to mount a comprehensive assault on brain mysteries extending from membrane biophysics to complex behavior in man. He founded and directed laboratories here and at the Jerry L. Pettis Veterans Administration Hospital (which he moved to in 1977) that attracted intramural and international collaborators. A veritable cascade of articles issued forth which contained his personal oeuvre of more than 400 publications. Themes that focused international interest include:

- Original measurements of brain tissue impedance and other electrical correlates of attention, learning, and memory with limbic system emphasis.
- Cell membrane organization and intercellular communication.
- Electromagnetic field interactions with biological tissues.

Especially provocative and revolutionary were his concepts suggestive of subthermal consequences, and the brain tissues' sensitivity to weak intrinsic and environmental fields with biochemical, physiological, and behavioral effects induced by gradients orders of magnitude below those associated with classic synaptic excitation.

With contributions to all phases of electroencephalography from the design of surface and invasive electrodes to signal analysis, he was the first to use general purpose digital computers in the analysis of the EEG with the production of brain maps of electrical activity and the first normative library of such maps. Brain mapping now complements visual analysis in community and university EEG laboratories.

Radiotelemetry permits the monitoring of freely moving subjects and patients in various environs. Acquisition of seizure EEG data paramount in selection of patients for neurosurgical correction is a nonpareil technique widely employed in epilepsy centers.

Pioneering investigations in aerospace medicine demonstrated fragmentation of sleep states, altered circadian rhythms, and shifting fluid balance in earth- orbital flight.

Demands on his time and expertise from national and global appellants exceeded reincarnation allotments. He served on White House Advisory Committees, addressed Congress, delivered keynote addresses (including for the Royal Society of Medicine), and chaired the National Council on Radiation Committee on Extremely Low Frequency Electromagnetic Fields. His many honors include Distinguished Professor, Royal Society of Medicine, and he was a recipient of the D'Arsonval Medal and Hans Selye Award.

His was not a remote intellect barricaded by ivy. In the public arena, he was a fearless proponent of his own perspectives who did not flinch from controversy. Those who tested his convictions provoked an articulate polemist whose verbal skills, vocal and written, complemented his other artillery. Devastated survivors had reason to reflect that the initials of William Ross Adey formed the first three letters of WRATH. A forthright pursuer of truth in society as much as in science, he scorned hypocrisy disguised as policy or politics.

These flashes of incandescence, though awesome to behold, were totally eclipsed by his capacity for friendship, crew members of which are to be found in every port of call. This engaging and courtly man inspired our respect, shared his talents and funds, encouraged our endeavors, endeared himself to our families, and offered penetrating clinical acumen when illness struck. Though his professional activities seemed a ceaseless blur, he extended his amateur radio to the moon and stars, skied, backpacked, photographed the mountainous terrain, climbed Mt. Whitney, and ran the Los Angeles marathon. The word is genuine; we miss it now. Dr. Adey is survived by his neurosurgeon son, Geoff, who was with him to the end and his daughter Susie.

His brain devoured disciplines; his mind roamed the universe; his friendship was fierce, loyal and enduring.

John Hanley