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the relative action potentials for increasing values of the relative frequency for various values of excitability are shown in figure 4 for the basic parallel circuit. the relative action potentials are plotted on the y-axis as a function of increasing values of the relative frequency. as discussed above, an increase in the relative frequency always causes a decrease in the relative action potential. as the excitability increases the relative action potential decreases and at a certain point, the relative action potentials are the same for all the relative frequencies. at this point the neuron is said to be critically resonant. the graphs also shows that the relative frequency at which the relative action potential is half its maximum value decreases as excitability increases, but that is not shown in the figure. according to our examinations of this graph, there is a general rule in biology that the higher the excitability, the greater the relative action potentials at a given frequency. as a result the action potentials will be more easily amplified which would generate large numbers of action potentials, even at frequencies which are not resonant. at resonant frequencies, since these amplifications are minimal, the action potentials will be at their minimum. thus the average relative action potential will be the

highest at resonant frequencies. this happens in eeg recordings where the resonant frequencies of the brain are 15 cycles per second. hence for a better understanding of epilepsy and eeg, we must characterize how the brain responds to stimuli. in a normal brain, the average relative action potentials are very small and in the 15 cycles to 30 cycles range. only a fraction of the brain is resonant at these frequencies. the eeg is recorded at many frequencies to obtain the desired information. in practice, the brain is stimulated with a loud burst of sound and the resultant response is recorded. the burst is repeated multiple times and the number of times the brain responds is usually about 20 times. the result is 20 so called trials which when processed, gives information on how the brain responds to stimuli. a method of characterizing the response is to determine what is the average relative action potentials. a diagnosis of epilepsy is possible, if the average relative action potentials are more than 100. a very good check on the validity of an eeg diagnosis is to ask patients or their family members what the background activity is like. these could be used for comparisons to various brain wave responses.

dr. corcoran was born to a marine family on october 14, 1883, at garden city, new york. he graduated from st. john's university, new york city, in 1907 with a b.s. degree in electrical engineering. he taught physics and chemistry at st. john's for a year before being commissioned as an engineer in the u. s. navy. he was a navy engineer and later became a member of the society of american military engineers in 1919. he married his first wife, marie, on april 2, 1925. henry reed was born on september 12, 1892, at elmira, new york, to joel reed and julia e. reed. he attended cornell university for his b.s. degree in 1913 and then went to washington, d. c., where he became an engineering draftsman with the u. s. war department. as a draftsman, he worked on submarine detection devices used by the u. navy and the army. mr. reed's engineering experience was centered on electrical engineering and signal and communication systems. in 1926, he married kathleen e. wier with whom he had two children, bernard j. wier and john wier. for six years george corcoran worked as an engineer in the signal laboratory of the general electric company,

schenectady, new york. there he designed a 5,000 volt per half-wave traveling wave tube amplifier. during world war ii, he worked on a device that radar could track. during the war, he worked on the development of a radar tracking device for use in bays and on fast battleships. dr. corcoran was of irish descent, his father being from county cork, ireland. in 1945 he went to ucla where he taught elementary and junior college physics courses for the next twenty years. he also was chairman of a number of academic departments. among these were: engineering department, university of california (1951); college of letters and science, university of california (1952); department of education, university of california (1960). in 1961, he became dean of the college of arts and sciences, university of california. dr. corcoran was also an instructor in electronics at the university of california and los angeles for many years. he taught in the electrical engineering department of the university of california at los angeles from 1947 until his retirement in 1965. among the courses he taught are the following: theory of apparatus design, introduction to transmission of communication signals, electronic amplifiers, transmission lines, signal propagation, and transmission

experimentation. he taught his last class on march 1, 1965. 5ec8ef588b