April 15, 1966

Dr. Aristide H. Esser
Chief Investigator
Medical Director, Research Ward
Rockland State Hospital
Orangeburg, New York

Dear Dr. Esser:

The question you raised regarding the feasibility of the quantification of an activation state is an interesting one.

The measurement of the EEG changes which are associated with changes in "vigilance" and "alertness," which sometimes are identified as states of "activation" can be measured provided a satisfactory definition is established.

There is a great deal of evidence that the electroencephalogram changes rapidly and that the relationships are very high during such simple changes in behavior as mental arithmetic both simple and complex, perception of simple and complex figures, reaction to visual or auditory stimuli, etc.

These studies have been carried out for many years and are very consistent. I would suggest you see reviews by Knott (about 1942) and Lindsley in 1961 (Sheer's book on stimulation of the brain).

We have been interested in this problem from the point of view of providing more exact quantification of the EEG changes. Our pattern recognition program has recently been used to demonstrate the changes between eye opening and eye closure, both with and without arithmetic problems. I believe that we have demonstrated that our programs provide differential patterns for these conditions.

Others have shown that evoked potentials may be modified by attention (Satterfield). I am confident that many aspects of scalp recorded electrical activity are related to the factors "attention" and "vigilance."

I trust this is helpful.

Sincerely yours,

Max Fink, M.D.
Professor of Psychiatry

MF:kp

cc: Dr. Nathan S. Kline