

January 25, 1971

Dr. N. Khazan
Mt. Sinai Hospital
New York, New York

Dear Dr. Khazan:

It was a pleasure to visit your laboratory, and to find so many problems of common interest. We believe we may be able to assist you in solving your EEG quantification problems, and support the development of an EEG quantification facility. We envision four steps:

(1) quantification of the data of your immediate projects, using a variety of techniques for analysis;

(2) analysis of the data of specific projects, to provide a basis for the development of your own data analysis unit;

(3) a review of the commercially available equipment configurations and computer programs for data analysis for your needs; and,

(4) an application for support, and the development of computer programs for an analytic system for your laboratory.

I. For quantification using our IBM 1800 system, you will need an FM tape recorder compatible with either our 7 channel (1/2 inch tape) Ampex SP-300 or 4-channel (1/4 inch tape) Hewlett Packard 3960A. Copies of specifications are attached: note the head configurations, tape speeds and IRIG FM center frequencies and band widths (at various speeds) if you elect a machine of another manufacturer. (We are not pleased with the SP 300 and suggest you investigate Sangamo or Hewlett Packard for a 7 channel recorder). You will also need an oscillator, similar to HO 202C.

As we reviewed your usual method of data collection, the samples would be subdural from 1-5 rats, continuous (or piecewise continuous) and the epoch sizes, arbitrary. For period analysis, we are able to provide epochs of any size, continuously analyzed, with a statistical output for the changes after an event (drug administration) from the "resting" samples. If the sample length is sufficiently long, we can analyze the experiment at twice the recording speed. The cost for A-D conversion, period analysis, statistics, paper and card output is \$60/hour of computing time.

If the recording and processing of the data are systematic, we are also able to apply the appropriate multivariate statistics. Our present model is based on linear regressions, and computer time using the 360/40 is calculated at \$100/hour with some pre-processing time at \$10/hour.

II. As a basis for future applications and for a defined project, you may wish to process the data in a variety of ways, to assure yourself of the optimal method. We are able to vary band widths and epoch sizes for period analysis; to use power spectral density analysis; or to vary the multivariate statistical approach. You should be aware that we now pre-filter our data, between the tape and the A-D converter. The frequencies of interest to you in the rat may differ from the frequencies which have customarily enjoyed our interest, and you may wish to replicate the analysis of some samples without filtering and at special filter settings.

Such experiments can be undertaken under the same conditions as (I).

III. Based on this experience, it should be possible to define your needs and to canvass the equipment/software markets for the best configuration. If done today, you should consider the IBM 1800 (and our software) and the DEC PDP-12 (software in Philadelphia, St. Louis). We once considered Control Data and Scientific (Xerox) Data Systems). There are additional manufacturers that may be considered. Each should be canvassed for 1971-72 bids. We could define your needs as we anticipate them or as they unfold in (I)(II), and obtain the bids for you. It is important to consider the need for software support and we can provide estimates for these costs, as well as deliver the programs.

IV. Based on the data of (I) (II) and (III), we are prepared to assist you in applying to funding sources for support; and, as "consultants", to participate in the defense of the application - and in the establishment of the program, including the training of the personnel.

For the program outlined in (I), (II), and (III) above, the direct consulting rates are \$300/day or \$50/hour. A program rate for (I) and (II) can be set at \$1500/quarter or a specific estimate for a project. For (IV), the program charge is \$4,000.

Rather than a piecemeal approach, you may prefer an annual consulting fee, and we estimate \$6,000 based on our view of your needs.

It will be a pleasure to have the opportunity to assist you. Our best regards.

Sincerely yours,

Max Fink, M.D.
Professor of Psychiatry

Donald M. Shapiro, D.Sc.
Professor of Biostatistics

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Brochure HP 3960
EEG Profile Analysis-Progress Report 1970
Computer/EEG 1967