

Doering, C. H.

Name: CHDOERIN

Project: DESMOLAS

Department: Psychiatry

Project Description: CONNECTIONS TO LABORATORY INSTRUMENTS, E.G., LIQUID SCINTILLATION COUNTER. We have studied the development of an enzyme system in the rat adrenal gland which is involved in the response to stress. In the newborn rat, there is a brief period of poor response to stress by the adrenal gland. As one parameter, we are measuring the capacity of the adrenal gland to synthesize steroid hormones.

We prepare an enzyme system that catalyzes the conversion of cholesterol to pregnenolone. The rate of this conversion is an indicator of the amount of enzyme present in the glands. We follow the rate of conversion by using cholesterol labeled with two different radioactive isotopes and calculating the change in isotope ratio. From each incubation more than ten samples are withdrawn, counted in duplicate for the two isotopes and recounted with a radioactive standard. Thus, about 100 different counts are generated with each incubation.

We use ACME to compute the ratio of the two isotopes for each sample (by averaging duplicate counts and correcting for overlapping counts) and to store these results along with other information about the incubation. Various other programs are used to work on the information stored in the data file and to produce the rate of enzymatic conversion by fitting the best line through the experimental points and by determining the slope and its confidence interval. All this derived information is stored in another data file. The data over 150 incubations ranging over the ages of 1 to 46 days have been carried out and treated in this manner. The project was started in October 1967.

All the information of a set of similar experiments has been retrieved, and a significant pattern of development of the enzyme system has been discerned. Another program analyzes the entire set of experiments and generates a mathematical function that describes the pattern of development. This development pattern of the enzyme system was found to correlate closely with the pattern of stress responsiveness described for the adrenal gland of the neonatal rat. Two reports of this work have been submitted for publication in Endocrinology.

Some aspects of the work on the rat adrenal capacity to produce hormones will continue. At the same time we will use the above method to study genetic differences of this capacity in different strains of mice. The use of ACME will be very similar to the past.

Grant No. EAD0711-07
Section III-B

Doherty, R. A.

Name: RADOHERT

Project: SEXCHROM

Department: Pediatrics

Project Description: I am currently using ACME for: 1) statistical evaluation of experimental data, and 2) calculation of random fields to obtain random sampling of cells dispersed on microscope slides. Sex chromatin body counts are being obtained on the random cell sample by visual search.

Dong, E.

Name: EDONG

Project: heart

Department: Surgery

Project Description: Study effects of heart transplantation. Collecting data on blood volume, heart rate, rhythm and blood pressures. Also: developing the relationship between white cell types. Correlations and negative correlations.

Doc. No. 1-

Name: EDONG

Project: MARG1

Department: Stanford Electronics Laboratory

Project Description: The purpose of our project is to develop a controller for an artificial heart. We are attempting to do this by using a transfer function between arterial pressure and heart rate. The project is a joint concern between the Department of Cardiovascular Surgery and Stanford Electronics Laboratory. It is funded by a grant from NIH and is to be completed September 1969.

At present time we are recording 3 channels of analog data from an auto transplanted dog. This data is processed using the 1800-360/50 ACME system. The data are converted to digital data using the 1800 and stored in the 360/50. It is then processed and 6 channels of data are calculated. The digital data is then converted to analog signals using the 1800 and printed out on an offner strip chart in the laboratory.

We also have a PDP-8-360/50 interface which we use to store PDP-8 data on the ACME system.

Duffield, A. M.

Name: ADUFFIE

Project: CHEM

Department: Chemistry

Project Description: This project can be summarized as follows: (A) The taking of high rate data transmission to write experimental analysis programs so as to develop programs for the routine analysis and finished output of mass spectra. The transmission is through the 270Y-270X channel. The project plans to develop this interface to service three mass spectrometers (ALTAS CH4, AEI MS9, and a FINIGAN 1015 quadropole). The taken spectra are then to be fed to the Artificial Intelligence group under the supervision of J. Lederberg and E. Feigenbaum to be used in their dendral investigations, (B) Another use of data transmission through the 270Y is to take spectropolorimeter measurements and then analyze these spectra for form, bandwidths and similarities between derivatives for theoretical projections, (C) This project also includes a battery of utility programs for metastable analysis, chemical rate analysis, C13 substitution ratios and other routine analysis that the Chemists wished programmed.

Dear Page, T. C.

Name: TDURBRI

Project: ROOT

Department: Pathology

Project Description: (1) Statistics: Using ACME subroutines, programs, and minimal own coding will compute statistics for S.V.H. research projects, (A) only when requested, and (B) only if researcher will foot the bill. Hopefully, I will not be doing too much of this. (2) Pathologese Snop Translation: Working with Derek Enlander on the same problems. I am transferring the files to d-enland cases, and deleting this aspect of ROOT.

Edwards, D.

Name: D_EDWARD

Project: STRESS

Department: Medical Student

Project Description: Using ACME to conduct research on the effects of hormones on the alpha rhythm and temporal perception. Data relevant to these experiments are reduced statistically using ACME. In addition, specific programs are used to: (1) generate time intervals to minimize search time for the two-flash threshold, (2) to convert evoked potential amplitude measurements into micro volts, (3) to identify the two-flash threshold on the basis of a linearization assumption, (4) to prepare and justify manuscripts. In the near future, specific programs will be employed (with the 1800) to identify hormone-induced changes in the EEG on the basis of Fourier and spectral analysis of recorded EEG's.

Enlander, D.

Name: d_enland

Project: cases

Department: Pathology

Project Description: I am endeavoring to devise a system whereby medical diagnoses can be filed in disc storage in coded form. The coding is automatically derived from a thesaurus file by matching key words, which will conserve both file space and enable synonymous diagnoses to be retrieved efficiently.

The basic thesaurus and code is based on the common S.N.O.P. (Standard Nomenclature of Pathology) on account of its wide usage and comprehensive modern terminology.

Enlander, D.

Name: d_enland

Project: snop

Department: Pathology

Project Description: I am endeavoring to devise a system whereby medical diagnoses can be filed in disc storage in coded form. The coding is automatically derived from a thesaurus file by matching key words, which will conserve both file space and enable synonymous diagnoses to be retrieved efficiently.

The basic thesaurus and code is based on the common S.N.O.P. (Standard Nomenclature of Pathology) on account of its wide usage and comprehensive modern terminology.

Enlander, D.

Name: d_enland

Project: PIPIC

Department: Pathology

Project Description: I am endeavoring to devise a system whereby medical diagnoses can be ~~filed~~ in disc storage in coded form. The coding is automatically derived from a thesaurus file by matching key words, which will conserve both file space and enable synonymous diagnoses to be retrieved efficiently.

The basic thesaurus and code is based on the common S.N.O.P. (Standard Nomenclature of Pathology) on account of its wide usage and comprehensive modern terminology.

Forrest, W. R.

Name: BFOLK

Project: GRS

Department: Biochemistry

Project Description: My ACME use will primarily involve the calculation of rough data dealing with work I am doing on mutants of E. coli having altered activating enzymes (amino acyl TRNA synthetases). The calculations will primarily be of an arithmetical nature - taking data from sanhillahran counting and laboratory assays and computing various variables from this data.

We are presently writing two papers in which ACME facilities have been used.

Forrest, W. H.

Name: W_FORRES

Project: DATA

Department: Anesthesia

Project Description: We use the 360/50 time sharing real-time system to research the management and statistical application of methods to the Cooperative Study. Problems of pilot studies, data validity, quality, cost of clinical trials and useful reduction of data for active sane management are constantly evaluated and updated. The plan is to develop an inexpensive system of quality and quantity control of large masses of clinical data from several sources so that data diarrhea and "gigo" are diagnosed properly and treated prophylactically rather than symptomatically.

Forrest, W. H.

Name: W_FORRES

Project: ANALGESI

Department: Anesthesia

Project Description: We use the 360/50 time sharing real-time system to research the management and statistical application of methods to the Cooperative Study. Problems of pilot studies, data validity, quality, cost of clinical trials and useful reduction of data for active sane management are constantly evaluated and updated. The plan is to develop an inexpensive system of quality and quantity control of large masses of clinical data from several sources so that data diarrhea and "gigo" are diagnosed properly and treated prophylactically rather than symptomatically.

Fries, J. F.

Name: JFRIES

Project: DXARTH

Department: Medicine

Project Description: Present projects involving computer diagnosis of rheumatic disease are, in addition, partly designed to increase our familiarity with the system. (Experience Counting in Sequential Computer Diagnosis, J. F. Fries, 1969, (submitted for publication).

Beginning in late Spring 1969 we will begin work on a large-scale data file entry, storage, retrieval system for clinical information about Rheumatic Diseases. This system has exciting possibilities for improving quality of clinical research, quality of medical care, accuracy of diagnosis, extension of the medical school influence into the community and so forth. Methods of supporting clerical, software, and hardware needs are currently being explored in several areas. During early development, we will request 100% support for hardware costs through the ACME System.

Fung, D.

Name: D_FUNG_

Project: RESPUNIT

Department: Anesthesia

Project Description: Objective: To determine the response of the pulmonary circulation to changes in inspired gas composition and intra-treacheal pressure. Progress to Date: Apparatus has been set up for measuring pulmonary blood flow from exhaled gas composition and a program is already available to compute the results. Current Work: (1) Refinements are being made to improve the accuracy of the pulmonary blood flow measurement, and (2) A pilot study is being started to observe the effect of a change in inspired gas composition on pulmonary artery pressure. Intended Computer Use: Computation results from data (a) Calibration curves are computed, (b) Data is converted, (c) Results are computed, (d) Statistical parameters are calculated.

No data files will be used.

Grant: W.

Name: WGERSCH

Project: SYNTHESIS

Department: Neurology

Project Description: The project is a research investigation to examine the extent to which the interrelationship between a variety of electrophysiological data records can be modified by a linear relationship.

Examples of previous and ongoing computations include:

1. Computation of the coherence between macropotentials and intracellular slow waves (human data provided by Dr. F. Morrell and animal data now being gathered in collaboration with Dr. Morrell - preliminary research results reported at a Neurosciences Research Program Work Session on "Neural Coding" February 1968 to be described in a forthcoming N.R.P. bulletin.
2. Determination of transfer function and a study of the causality relationship between averaged evoked potential and post stimulus time histograms on experimental data provided by Dr. K. L. Chow taken in cat lateral geniculate with light stimulation and by Dr. A. Starr in cat cochlear nucleus with sound stimulation.
3. Determination of the evolution of a transfer function between macropotentials during the evolution (over a period of weeks) of epilepsy in cats. Computations performed on data supplied by Dr. G. Goddard.

Glatke, T. J.

Name: T_GLATTK

Project: ENG

Department: ENT (Surgery)

Project Description: Use of the ACME facility through July 31, 1969, is anticipated in two research areas: Auditory physiology: We are collecting data on an almost-daily basis from a group of preparations with electrodes implanted in the auditory nervous system. Generally, the recorded activity is processed and stored briefly with a small general-purpose computer. Use of ACME in this work would seem desirable for numerical analysis incorporating ACME, but since the sample sizes are modest, use of ACME for analyses requiring many replications of an operation (e.g., in auto-correlation) is advantageous. Clinical research: Over the next few months, we anticipate attempting a feasibility study to determine if ACME would be useful for patient categorization. Our general thinking is that files containing coded history and test findings would be updated on a daily basis, so that these might be available for a trend analysis. (For example, the audiological examination on a given patient may incorporate as many as a half-dozen tests. Patient selection for a given course of treatment or additional special testing would seem to be enhanced by the availability of such trend analyses.)

Gleason, C. A.

Name: CGLEASO

Project: CORTMEAS

Department: Medical Student - Graduate

Project Description: This user project is being used in connection with my predoctoral research fellowship. To date the various researchers in the Neurology department have been sharing the costs for the ACME terminals but there has been no provision in their budgets for computer time. Their projected budgets do not provide for computer time and my predoctoral fellowship does not provide funds either. While my use of ACME has not been extensive I have been using it primarily in an educational way to learn how computers can be used in electro-physiological research.

I would like to continue using ACME and storing programs on a 100% rebate basis through the summer at which time my predoctoral program is to be completed.

Glick, D.

Name: D_GLICK

Project: LASER

Department: Pathology, Histochemistry

Project Description: The ACME facility is needed to provide the computational requirements of the laser microprobe analytical system which we have designed, and are continuing to develop, for elemental analysis of microscopic biological samples down to the single cell and very small volumes of fluids. The applications of the system to biological and medical research and clinical medicine obviously have impressive potential. ACME is involved in data calculation for definition of sample size as well as content and concentration of elements. Statistical evaluations include calculation of F-ratio, T-test, U-test, population means and variance, and also linear regressions, graphical interpolations and curve fitting. A second system is now being built so that one can be devoted to applications and the other to continued technological development. This will, of course, at least double our need for use of ACME. Eventually we expect to automate the system, which would further increase our ACME-dependence. Papers completed this year of work in which ACME was involved are:

Pepper, N. A., Scribner, E. J., Alterton, L. E., Honey, R. C., Beatrice, E. S., Harding-Barlow, I., Rosan, R. C. and Glick, D. Q-switched ruby laser for emission microspectroscopic elemental analysis. Anal. Chem. 40:1178-1182 (1968).

Beatrice, E. S., Harding-Barlow, I and Glick, D. Electric spark cross-excitation in laser microprobe-emission spectroscopy for samples of 10-25 micron diameter. In preparation.

Beatrice, E. S. and Glick, D. A direct reading polychromator for emission spectroscopy. In preparation.

Neuman, T. S.

Name: DGODWIN

Project: ADRENAL

Department: Surgery

Project Description: Clinical cancer research record protocols and data for storage and analysis. Next step will be display routines.

Grant No. PRO0311-03
Section III-B

Hackney, J. F.

Name: JHACKNE

Project: PHAL

Department: Pharmacology

Project Description: User works with Goldstein who is on leave until September 1, 1969. Project is not being used now, but want to keep in abeyance for now.

Hahn, G. M.

Name: G_HAGN

Project: RADIATE

Department: Radiology

Project Description: There are various programs used in graphics of experimental data, e.g., survival curves of x-irradiated mammalian cells; output of planchet counter, etc.

Harrison, D. C.

Name: DCHARRIS

Project: CATH_LAB

Department: Cardiology

Project Description: An extensive cardiac catheterization data analysis program has been developed (1, 2, 3). Statistical analysis of the results obtained by a computer justify routinely using such a program on a day by day basis for calculation of the results of cardiac catheterization. This would greatly decrease the amount of time a physician need spend after the catheterization in analysis of the data. Because of the time required to complete a catheterization, the large size of the program and the fact that it is resident in core while data is being collected, serious consideration is now being given to the use of digitally coded magnetic tapes which may be played back after the completion of the catheterization. This would result in decreased computational cost. In addition, other catheterization laboratories in the area may then be in a position to utilize such a program.

Given the necessary computer reliability to routinely analyze catheterization data, a program is available to automatically transfer the results of computation to a patient record in a data file. Forms are available which will be used to obtain clinical, X-ray, EKG and surgical followup data permitting statistical correlations on a large group of patients.

The computer facility is also being used to develop a program for recognition of abnormal EKG complexes. In the near future we hope to be able to use such a program in a computer devoted to monitoring of Coronary Care Unit patients.

References

1. Stenson, R. E., Crouse, L., Henry, W. L., Harrison, D. C. A time shared Digital Computer System for On-Line Analysis of Cardiac Catheterization Data. Computers and Biomedical Research, Vol. 1, Number 6 P. 605 June 1968.
2. Henry, W. L., Crouse, L., Stenson, R., Harrison, D. C. Computer Analysis of Cardiac Catheterization Data. Am. J. of Cardiology, Vol. 22, Number 5, p. 696, Nov. 1968.
3. Stenson, R. E., Henry, W. L., Crouse, L., Harrison, D. C. Cardiac Catheterization Data Analysis. J.A.M.A. - Submitted for publication.

Harris, R. F.

Name: RHARRIS

Project: PNP

Department: Medical Student

Project Description: Our project is an attempt to demonstrate correlations between the emotions experienced by subjects and their own appraisals of certain aspects of their environments. Our concept is that emotions arise when events in the individual's situation come into certain specified relations with his goals. For example, if an individual perceives such events as facilitating rather than hindering his potential achievement of the goal, then he will experience a positive emotion rather than a negative one. Similarly, other dimensions, such as the extent to which the individual feels in control of the situation, the extent to which he is explicitly pursuing a goal within the situation, and the degree of certainty with which events in the situation affect his potential achievement of the goal, are also hypothesized to be important in determining which of a number of different emotions the individual will experience in any situation. The emotional state consequent to such appraisals is thought to have physical and cognitive effects specific to it. Cognitive effects include changes in the perception of time. For example, different emotional states may be associated with different focus of attention with respect to past, present, or future events in the life of the individual. By physical effects we mean the individual's sensations of changes occurring within his body as part of the emotional state. We are developing standard inventories for obtaining objective measures of these subjective variables.

The study will have two parts. The first involves the collection of normative data from normal subjects with respect to six emotions, namely, anger, anxiety, depression, joy, love, and calm. Subjects will be instructed to recall experiences that typify their conception of these states and to describe them on our inventories. We will use this data to construct normative profiles of each emotional state, and to calculate correlations between different categories of items on our inventories. The second part of the study will employ a number of expectant fathers, who will be tested in the waiting room prior to delivery and again after the birth. This data will be used to determine whether our previous normative data is useful in the identification of actual emotional states and to confirm the correlations found in the earlier part of the study. We plan to collect the data for the first part of the project by the end of February and to process this data at that time. Data from the second part of the study will be collected by the end of April and processed then.

Harris, R. F. (cont.)

Name: RHARRIS

Project: PNP

Department: Medical Student

Project Description: If successful, the study could have important theoretical and methodological implications. Theoretically, we hope to demonstrate that an individual's subjective appraisal of events in relation to his goals are important determinants of his emotional state. Methodologically, we hope to show that certain forms of inventories yield replicable descriptions of subjective events. Normative profiles such as I have mentioned could thus be constructed and employed as operational definitions of emotional states in a number of experimental contexts. Studies in the physiological correlates of emotions are but one class of examples.

Helikson, M. A.

Name: MHELIKS

Project: LBF

Department: Medical Student

Project Description: EVALUATION OF LIVER BLOOD FLOW WITH RADIOACTIVE ISOTOPES. Use of ACME facility: storage of data, statistical analysis, evaluation of curves into exponential components. We are using radioactive Xenon-133 to evaluate the hepatic-arterial and portal-venous contributions to hepatic blood flow in dogs. It is our objective to develop a relatively quick and technically easy method for determining blood flow in humans on a screening basis and in pathologic states.

Herzenberg, L. A.

Name: LHERZEN

Project: LAB

Department: Genetics

Project Description: Our studies in immunology, genetics and maternal fetal immunologic relationship's in the mouse require the colation of many experimental observations on a given serum sample or individual. Since such data is accumulated over long periods of time, frequent interim reviews must be made to determine new directions, etc. Currently, most data colation in our laboratory is done by hand incompletely, inadequately and infrequently, thus hampering the process of the research. To overcome these difficulties we have begun the process of changing our data storage procedures to utilize the ACME capabilities. For example, all breeding records for the inbred nucleus of our mouse colony are stored in ACME. Approximately once a month ACME is called upon to draw updated pedigree charges, so that breeding decisions may be made.

Presently we are working on programs to colate multiple immunoglobulin level determinations done on individual serum samples, returning histories of immunoglobulin level changes with time in treated animals. Eventually we hope also to be able to use ACME to store data and direct antiserum production in the laboratory.

In addition to the data storage aspects of ACME, the computer is used in this laboratory for a number of routine calculations on data sets, e.g., per cent antigen precipitated, geometric means of plaque events, etc.

Herzenberg, L. A.

Name: LHERZEN

Project: STORE

Department: Genetics

Project Description: Same project description as for project LAB.

Herzenberg, L. A.

Name: LHERZEN

Project: PIGGY

Department: Genetics

Project Description: Same project description as for project LAB.

Hilf, F. D.

Name: FHILF

Project: BLACKBOX

Department: Psychiatry

Project Description: This project, which is virtually complete, involves pathological tests using a new technique of "non-contingent reinforcement" of paranoid and non-paranoid patients. The raw data obtained by an electronic apparatus was analyzed by ACME as were the clinical behavioral ratings of patients.

Other statistical techniques were used involving analysis of variance to obtain level of significance of results.

This project is virtually complete and I anticipate placing my files on tape or deleting this altogether.

Hilf, F. D.

Name: FHILF

Project: TESTA

Department: Psychiatry

Project Description: This project involves psychological testing of psychiatric patients using on-line interactive techniques in which the patient sits at the terminal and is asked questions and he gives the answers and is reinforced by the computer. A bravery procedure is also incorporated in this program. The main purpose is to determine if paranoid psychiatric patients respond to feedback differently than a control group of other VA psychiatric patients.

Hodges, D.

Name: DHODGES

Project: SWALLOW

Department: Radiology

Project Description: The ACME computer is being used to assist in the study of both normal and abnormal motions of the human esophagus during normal and induced swallowing. A series of simultaneous pressure readings in various locations in the esophagus are taken by the use of water filled manometers connected to electrical pressure transducers. The electrical voltages representing the pressure data are sampled and converted to digital values 5 times a second, for each of the pressure measurement sources, using in the IBM 1800 computer attached to the ACME computer system. It is planned to have the ACME computer analyze the data from a swallow as it is obtained and provide immediate information back to the experimenter, via the terminal, of the properties of the last swallow. Various summary tables are kept during an experimental run regarding the properties of all the swallows obtained so far, and are available for a final summary of the experimental data. Initially all the data obtained during an experimental run will be saved on the ACME data files to allow different methods of analysis of the data to be explored.

Huberman, J. A.

Name: JHUBERM

Project: TEMPLATE

Department: Biochemistry

Project Description: I am using ACME to perform the lengthy and tedious calculations required to reduce the raw data obtained in equilibrium dialysis experiments to a meaningful form. I am performing equilibrium dialysis experiments with the enzyme, DNA polymerase, and various nucleotide substrates, in order to get a better understanding of the active site of the enzyme. Using equilibrium dialysis, it is possible to answer such questions as--What kinds of molecules bind to DNA polymerase? How strongly do they bind? How many binding sites does each enzyme molecule have? The answers to these questions help in understanding the structure of the active site of DNA polymerase and its mechanism of action.

So far we have produced one publication based on experiments aided by ACME's calculations:

Englund, P. T., Huberman, J. A., Jovin, T. M., and Kornberg, A., Enzymatic Synthesis of Deoxyribonucleic Acid, XXX. Binding of Triphosphates to DNA Polymerase., J. Biol. Chem. Submitted for publication.

Hwang, J.

Name: JHWANG

Project: GENLIB1

Department: Genetics

Project Description: This project contains the statistical and miscellaneous programs used by the Genetics Department.

Statistical programs: General statistical analysis for the calculations of sum, mean, standard deviation, the analysis of variance, chisquare and probability of chisquare distribution, correlation and regression analysis, the normal distribution with the same mean and standard deviation for fitting a curve.

Plotting programs: Plot bar graph in 100 positions, plot of percentage distribution, plot by function scaled to the range of 0 to 100, plot of multivalued function allows the choice and supersition of several characters. Flag is inserted on the chart when underflow or overflow occurred.

Sorting programs: Sorting a vector in ascending order, sort array and alphabetical informations.

Hwang, J.

Name: JHWANG

Project: BWTSTUDY

Department: Genetics

Project Description: Study of birth weight and IQ in relation to sex, parents, education, race, income.

Ingels, N. B.

Name: NINGELS

Project: ASMSJOB

Department: Bioengineering and Physiology

Project Description: This project is a study of the dynamics of the myocardium, utilizing stereo stop motion photogrammetric methods on an open-chest canine preparation. This study is being done with full N.I.H. support, on grant number HE 11739-01.

Data from two stereo cameras (in the form of a stereo pair of negatives) is reduced by the computer to present the investigator with various length-velocity-load-time relationships. Since this work is of a "pioneering" nature, it is necessary to be able to interact quickly with the computer in order to change the program, certain data, etc.

The size of the data reduction problem in these studies can be gleaned from the fact that the programs necessary could only be run at S.C.C. at night due to the core size limitations.

The grant includes some funds for computer time, but at the rate which it was being used at the Stanford Computation Center, the study could not have been completed. The availability of ACME services at little or no cost is of paramount importance to the studies being presently done under this grant, and to those suggested by our present studies. The TV display at ACME is also of great importance, since the graphics routines therein are exceedingly fast in comparison to the Calcomp Hard-copy plotting routines used at the S.C.C. It is estimated that the availability of ACME has cut computation costs (assuming the 85% rebate rate) by about a factor of ten.

The funds originally committed to computer time are being used to defray the cost of terminal rental.

Jan, W. H.

Name: W_JAN__

Project: WOMAN

Department: Medical Student

Project Description: Run various statistical tests on data from laboratory experiments.

Do Text editing.

Grant No. FRO0311-02
Section III-B

Jones, R. E.

Name: DJONES

Project: FLU

Department: Biochemistry

Project Description: Work with ACME centers around a nanosecond fluormeter designed by Stryer, et. al. which measures kinetics of fluorescence as a function of time directly. Data acquisition is accomplished through the 1800, and subsequent data reduction is carried out in the 360 proper. The instrument as a whole has been used to determine 1) excited state lifetimes of various organic fluorescent compounds; 2) rotational relaxation times of various proteins, using fluorescent labels to determine rotational behavior of the protein in both natural and denatural states; 3) excited state proton-transfer reactions.

Kakihana, R. Y.

Name: RKAKIHA

Project: ETHANOL

Department: Psychiatry

Project Description: We have been studying the effects of alcohol on the central nervous system of rodents. This study is supported by MH 14599 from the NIMH. A study of alcohol's effect on the pituitary adrenal system is being studied in various inbred mouse strains. We are also studying the effects of central nervous system lesions on alcohol preference phenomenon in mice. Finally, the mechanism of central nervous system adaptation to alcohol and other stressors is being considered.

It is our plan to continue the use of ACME facilities for the period to July 31, 1969. This service has been extremely valuable and has resulted in three publications based on its use.

1. Kakihana, R., Butte, J. C. and Noble, E. P., 1968. Effects of goldthioglucose on alcohol consumption in C57BL mice. Life Sciences 7: 825.
2. Kakihana, R., Noble, E. P. and Butte, J. C., 1968. Corticosterone response to ethanol in inbred strains of mice. Nature, 218: 360.
3. Noble, E. P., Silbergeld, S., Kopell, B., McKinney, W., Wittner, W. K., and Butte, J. C., 1968. The effects of physiologic doses of corticosteroid on catecholamine metabolism in man. J. Psychiat. Res., 6: 159.

Kaplan, B. E.

Name: BKAPLAN

Project: PSYCHOPH

Department: Psychiatry

Project Description: The general nature of the project is the investigation of the relation of automatic nervous system (ANS) responses to attentional sets (thinking and environmental observation). In a recently completed study, which examined ANS changes as a function of verbalization and environmental attention and rejection, the computer was used to obtain heart rate and skin conductance values from raw data. This physiological data was then analyzed, using analysis of variance and other parametric statistical procedures. In addition, ACME was used for obtaining correlations between the physiological responses and personality variables.

Future work will look at ANS responses in lactating and non-lactating human females and will investigate ANS correlates of attention and information processing. ACME will be used for transformation of the raw physiological data into meaningful units and the statistical analysis of this data.

Kessler, S.

Name: SKESSLE

Project: MATSPEED

Department: Psychiatry

Project Description: Will be analyzing mating speed experiments as previously, including use of linear regression and analysis of variance programs.

Publications: Kessler, S. 1968. Nature, 220: 1044-1045.
Kessler, S. 1968. An. Behav., 16: ? .

Koran, L. M.

Name: L_KORAN

Project: SEX

Department: Psychiatry

Project Description: We plan to use ACME to complete one, two and three way analyses of variance on test scores made by one thousand students. We wish to explore the relation of these scores to a number of variables including sex, class of college, size of home, major field, religion and other demographic information. After completing the analysis of the data we plan to write two articles on the relation of the students identifying characteristics to their knowledge as measured by the exam.

Kountz, S. L.

Name: SKOUNTZ

Project: TRANSPLA

Department: Medical Student

Project Description: The ACME computer is used by the Transplant Service at the University of California in two areas. The first area is the selection of recipients for renal homotransplantation, and the storage and analysis of data of the follow-up on the degree of renal function in an effort to predict the onset of rejection crisis. The computer has been programmed to include sixty or more patients in the Bay Area who are on chronic hemodialysis awaiting a cadaver transplant. Their ABO blood groups and their HL-A antigens are stored in the computer. When a cadaver kidney becomes available, similar tests are performed on the donor; the kidneys are preserved and the information on the donor is fed into the computer and the matched recipients are then selected and brought into the hospital for transplantation. The second area is to measure and calculate hemodynamic changes in transplant patients as a means to detect early incipient rejection. Renal function is measured by the single injection of radioisotopes and the disappearance curves are analyzed by the computer and compared with previous determinations. This has provided a very accurate method of following patients and detecting early incipient rejection. In the future we hope to feed all this information into the computer and analyze it in terms of survival in an effort to pick out which HL-A antigens or other factors might be playing a significant role in rejection as well as survival. Although we have a limited amount of funds on an N.I.H. grant to study the pathophysiology of renal transplantation in man, our grant does not include funds for computer analysis.

Kraemer, H. C.

Name: HKRAEME

Project: PSYSTAT

Department: Psychiatry

Project Description: The work done in PSYSTAT is that of developing statistical programs and evaluating sets of data coming from research where output is not extensive enough to justify opening a separate file.

Kriss, J. P.

Name: J_KRISS

Project: BLDVOLL

Department: Radiology

Project Description: The program is being used to calculate plasma volume, blood volume and red cell mass in patients who receive radioactive tracer material. The determination is useful in the evaluation of patients with anemia and polycythemia.

Kriss, J. P.

Name: J_KRISS

Project: ASSAY

Department: Radiology

Project Description: This program is used to calculate the results of a bioassay for the long-acting thyroid stimulator, to calculate the statistical significance of these results, and to calculate the results of a radioactive iodine assay for TSH. These data are being acquired as part of a study on the pathogenesis of Graves' disease and on the effects of X-ray therapy upon thyroid function.

Laipis, P. J.

Name: PLAIPIS

Project: LIGASE

Department: Genetics

Project Description: The computer is being used for statistical and mathematical reduction of data from experiments connected with my graduate research, principally those experiments involving sucrose and cesium chloride gradients in the ultracentrifuge. The computer is also used for other simple operations too complex for a desk calculator, i.e., least-squares line fitting. Use will be sporadic and of short duration. The computer was used in the analysis of sucrose gradients presented in Laipis, Olivera, and Ganesan, P.N.A.S. (in press).

Lamb, E. J.

Name: EJLAMB

Project: EMPIRE

Department: Gynecology - Obstetrics

Project Description: Calculation of relative potency and confidence limits for total gonadotropin bioassay. Used primarily for research but will also be used (\leq 1 assay per month) for calculations involved in service work--even these assays may be used in a research project.

Lederberg, J.

Name: JLEDERB

Project: DENDRAL

Department: Genetics

Project Description: This project is used to do a limited generating chemical structures and display on Sanders 720 by interfacing.