

Name: Swanson, G.

Project: THESIS

Department: Medical Student

Project Description: Our long term goal is to interpret therapeutic drug action on respiratory control. The objective of my thesis is to develop a quantitative description (model) to characterize brain and CO_2 chemoreceptor dynamics. We have implemented a system in which voluntary effort, inspired CO_2 concentration and, indirectly, alveolar CO_2 concentration can easily be controlled. The data obtained (inspired CO_2 concentration, alveolar CO_2 concentration, alveolar ventilation, tidal volume, exhale time, inhale time, and breathing frequency) will be analyzed and used to develop a model. Modeling will be done on a hybrid system using ACME and the Department of Anesthesia's analog computer.

The experimental techniques are new because previous CO_2 response experiments have been done with step changes in inspired CO_2 and re-breathing. Since we can force CO_2 concentrations to follow a predetermined time function, we hope to answer questions relating to chemoreceptor rate sensitivity and the role of peripheral chemoreceptors. Modern control theory will be applied to determine optimum respiratory center dynamics with respect to regulation of cerebrospinal fluid pH.

Category 5

Name: Bellville, J.

Project: PROBABIL

Department: Anesthesia

Project Description: This study is of the pharmacology of anesthetics and related agents. Statistical programs are stored in the 360/50, so that with the 2741 terminal on cue, the data are entered. Various procedures are carried out. For instance, the relative potency of a biologic compound and its associated 95% confidence limits are computed. Lambda, a measure of efficiency of the assay, is also computed. Standard statistical procedures are stored under this project, and carried out by research fellows or the principal investigator.

Name: Bellville, J.

Project: GAS_MASK

Department: Anesthesia

Project Description: This project involves the use of a special purpose analog computer that preprocesses data, which is then entered into the 360/50 via the 1800. In addition, the 1800 interacts with the experiment to generate sinusoidally varying carbon dioxide which is administered to the subject. Thus, we are doing research not only on the basic physiologic mechanisms involved with the control of respiration, but on the use of digital computers on-line in the control of experiments in the acceptance of data from special purpose analog computers and the storage, analysis, retrieval, and display of these data. This represents an entirely new approach to the study of respiratory control mechanisms, and could not be carried out without the ACME Facility.

Name: Bunnenberg, E.

Project: CHEM

Department: Chemistry

Project Description: The purpose of 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 270X-270Y channel. The project plans to develop this interface to service two mass spectrometers (ALTAS CH4 and AEI MS9). The taken spectra are then to be fed to the Artificial Intelligence group under the supervision of Joshua Lederberg and Edward Feigenbaum to be used in their 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) The project mentioned also includes a battery of utility programs for metastable analysis, chemical rate analysis, C13 substitution ratios, and other routine analyses that the chemists wished programmed.

Name: Bunnenberg, E.

Project: JAY

Department: Chemistry

Project Description: Same project description as for project CHEM.

Name: Bunnenberg, E.

Project: MASSPEC

Department: Chemistry

Project Description: Same project description as for project CHEM.

Name: Bunnenberg, E.

Project: PEACE

Department: Chemistry

Project Description: Same project description as for project CHEM.

Name: Duffield, A.

Project: DRONGO

Department: Chemistry

Project Description: The ACME computer system will be utilized for rapid accumulation of high resolution mass spectra. The necessary peripheral equipment to accomplish this has been assembled and the complete system shown to yield data. These spectra will be obtained from organic compounds; many of them of biological significance. The fast acquisition of high resolution data will enable organic chemists to solve problems related to their research more quickly.

Name: Glick, D.

Project: LASER

Department: Pathology

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 also linear regressions, graphical interpolations and curve fitting. A second system has been 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 dependence on ACME.

Name: Roth, W.

Project: COMP

Department: Psychiatry

Project Description: This project involves computer analysis of habituation of the evoked response and EEG desynchronization. Also an attempt will be made to distinguish states of arousal produced by emotional stimuli. Analysis methods include spectral density calculations based on the "fast" Fourier transform, period analysis (Burch), and response averaging to improve the signal-to-noise ratio.

Name: Stillman, R. A.

Project: DRAFT

Department: Chemistry

Project Description: The purpose of 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 two mass spectrometers (ALTAS CH4 and AEI MS9). The taken spectra are then to be fed to the Artificial Intelligence group under the supervision of Joshua Lederberg and Edward Feigenbaum to be used in their 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) The project mentioned also includes a battery of utility programs for metastable analysis, chemical rate analysis, C13 substitution ratios, and other routine analyses that the chemists wished programmed.

Name: Trudell, J.

Project: MASS SPE

Department: Chemistry

Project Description: I am working on computerized interpretation of mass spectroscopy. At present, information is visually taken from strip chart recordings and entered into the computer through a keyboard terminal. The computer then assimilates the data and presents the results in tabular form.

In the near future the data will be acquired on-line using the 270X-Y system.

Category 6

Name: Bernfield, M.

Project: TRNA

Department: Pediatrics

Project Description: The ACME system is used by our lab to handle two tasks that would ordinarily take many hours of routine effort. (1) The program we have written takes the radioactivity found as aminoacyl tRNA at several points in time and computes the least square best fit to the log of the radioactivity left, and also gives the rate constant for the decay and the half time. (2) Some column and paper separation techniques used in our lab involve over 100 fractions, each double labelled. The program for this task takes the data generated by the scintillation counter and subtracts background and interference (cross talk) between the two isotopes. This data is then presented in graphic and tabular form as percent of the respective isotope by fraction number.

Name: Cann, H.

Project: GUAT

Department: Pediatrics

Project Description: Same project description as for project DTS.

Name: Cann, H.

Project: DTS

Department: Pediatrics

Project Description: This research project is investigating factors which affect frequencies of genes controlling various human heritable characters. The extent to which selection, genetic drift, and migration affect frequencies of certain human genes is being assessed and specific selective factors are being sought. Environmental, cultural, and historical conditions favorable for this type of study have been found in settlements of Mayan Indian descendents in the Lake Atitlan Basin of southwest Guatemala. The local microgeography and mating patterns appear to enforce a high degree of genetic isolation for each of a number of Indian towns and villages ringing Lake Atitlan. These high mortality populations provide the opportunity to study selective effects of human genetic polymorphisms. Studies of gene frequencies, segregation analysis of polymorphisms and demographic characterization of these sub-populations are being undertaken.

This project will also contribute information on the genetic taxonomy of the American Indian. Families of large size, characteristic of the study population, will afford excellent opportunities for medical genetic investigation of inherited diseases encountered in our field activities and for studies of genetic linkage.

Two communities on the east shore of the lake are being studied, and we are about to initiate studies in another Indian lake shore community. A pilot project involving 300 inhabitants of two Indian communities on the south shore of the lake was completed prior to undertaking the present investigation.

Name: Champoux, J.

Project: BLOK

Department: Biochemistry

Project Description: Write programs to do multiple calculations with many sets of data from analytical ultracentrifuge experiments and double label counting experiments.

Name: Chase, R.

Project: CPGRAC

Department: Surgery

Project Description: Obtain statistical information from measurements of cephalometric film. This information is to be used to evaluate facial growth in cleft palate children and to assess velopharyngeal competence.

Name: Clayton, R.

Project: SEXBRAIN

Department: Psychiatry

Project Description: The purpose of our project is to determine the effects of steroids and hormones of RNA activity on the brain. We inject live rats with radioactive tritiated uridine. The rats are then killed and processed in the regular histological procedure. Radioactive element reduces silver grains and slides are made from which the grains in the brain cell are counted. From the number of grains, we determine the area of RNA incorporation in the brain, the brain cell, and other tissues. The level of RNA incorporation is also determined. Experimental and control groups are compared by ACME. Our data analysis time is greatly reduced by using ACME.

Name: Cooper, J.

Project: SEXDIFF

Department: Psychiatry

Project Description: At present I am using ACME for two purposes: 1) comparison of 2 sets of data by means of the t-test and 2) calculation of sample radioactivity together with standard deviation thereof. I do not envisage expansion of this work.

My project lies essentially in investigation of biochemical correlates of neonatal sercual differentiation in rats: such as androgen metabolism.

Name: Doering, C.

Project: DESMOLAS

Department: Psychiatry

Project Description: In a mammalian system, one of the responses to a stress is the secretion of certain steroid hormones by the adrenal gland. Another response very often is a distinct pattern of behavior. We are investigating the causal connections, on a biochemical level, between hormones and behavior in stress. We use inbred strains of mice that differ in their response to stress in terms of behavior, adrenal hormones, and in other biochemical parameters. By genetic analysis, correlations among these parameters can be tested.

ACME is used for a variety of computations in this study. Data from the extensive use of radioactive chemicals have to be converted from the raw output of a liquid-scintillation-counter to their final form. The output of a gas-liquid-chromatograph has to be compared to a plot derived from standards and recalculated to another form. And perhaps most important, all results have to be analyzed statistically. At this time, the computer saves us a great deal of time.

Some programs are adapted from earlier work under this project name; some are new. The statistical programs are adapted from ACME's program library.

Name: Doherty, R.

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.

Name: Efron, B.

Project: BIOBRAD

Department: Community & Preventive Medicine

Project Description: Theoretical and applied research in biostatistics.

Name: Folk, W.

Project: GRS

Department: Biochemistry

Project Description: My ACME use will primarily involve the calculation of rough data dealing with work I am doing on mitants of Ecali 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.

Name: Fries, J.

Project: DXARTH

Department: Medicine - Immunology

Project Description: Presenting projects involving computer diagnosis of rheumatic disease are partly designed to increase our familiarity with the ACME system. Beginning in late Spring 1969 we will start work on a large-scale data file entry, storage, and 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, etc.

Name: Hahn, G.

Project: RADIATE

Department: Radiology

Project Description: Simulation of time and dose fractionation studies of radiochemotherapy of mammalian cell cultures.

Name: Herzenberg, L.

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 collation 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 collate 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.

Name: Herzenberg, L.

Project: PIGGY

Department: Genetics

Project Description: Same project description as for project LAB.

Name: Herzenberg, L.

Project: STORE

Department: Genetics

Project Description: Same project description as for project LAB.

Name: Laipis, P.

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.

Name: Pearson, M.

Project: CTCOR

Department: Biochemistry

Project Description: The program is used to compute normalized chromatographic elution profiles of viral SRNA. We have found that induction of lysogenic bacteria results in the formation of a set of small molecular weight ordered RNA's coded by phage λ DNA. These RNA's have physical characteristics similar to transfer RNA and may be intimately involved in genetic control. The set of viral RNA's can be fractionated on benzoylated deae columns. The computer normalizes the elution profiles of viral RNA's to a constant total output RNA, allowing comparison of the relative amount of each viral RNA from one column run to the next.

It is anticipated that future programs will be used to calculate quench-corrected values of radioisotope activity in double-label experiments, using data from a liquid scintillation counter.

Name: Robertson, W.

Project: UGAG

Department: Pediatrics

Project Description: (1) Data on urinary analyses of glycosaminoglycans both on patients and normal individuals will be entered. The curve relating concentrations to age in normal children will be developed. The values of groups of children with different diseases will then be compared with normals to discover which diseases lead to abnormal excretion.

(2) Analytical data on immunoglobulin concentrations in sera from patients with a variety of immunologic diseases will be entered and correlations developed with the clinical state of the patient and therapy.

(3) Data on the binding of ligands to macromolecules, e.g., cortisol to hyaluronic acid will be used to determine association constants.

Name: Saunders, A.

Project: MASTCELL

Department: Pathology

Project Description: Multiple numerical parameters are determined for single cells under varying conditions of staining and animal pre-treatment. Analysis of results lead to conclusions on the type and quantity of polyanion in the mast cells under study (once thought to be just hepanin).

Hence the project involves the chemistry of Heparin type substances at the single cell level, the maturation and biology of the mast cell in rats and people, and development of methodology, mostly centering on fluorescence microscopy.

Name: Saunders, A.

Project: SPHERES

Department: Pathology

Project Description: Cells measured by a rapid sensor system. Data collected on tape and records will be transformed from a LINK to ACME for storage and analysis.

Grant No. RR00311-04
Section IV

Name: Savageau, M.

Project: KINET

Department: Cardiology

Project Description: I am concerned with the kinetic behavior of systems of enzyme catalyzed reactions. During the coming year I expect to use the ACME computer in three ways. First, I will use it to store and process experimental data from enzyme systems. Second, a nonlinear curve fitting procedure will be implemented to estimate the kinetic parameters for the mechanisms yielding the experimental data. Third, the solution of the system of differential equations will be simulated to obtain the temporal behavior of these enzyme systems.

Category 10

Name: Butler, E.

Project: UROLOGY

Department: Urology

Project Description: ACME is used to study the dynamics of the urinary tract. The following real-time measurements are made: 1) electromyographs of the ureteral smooth muscle, 2) urine flow rate, and 3) blood pressure/fluid load/bladder pressure. Macroscopic analysis of these is made at the end of every 30 minute experiment with a graphical output typed out on the 2741 terminal. This provides feedback for the next 30 minute run. 10-15 such runs are made per complete experiment.

Microscopic analysis is made of item (1) off-line on the effect of drugs on the waveform which necessitates use of the TV display console. Digital filtering, histogram plotting, averaging, and autocorrelation is performed. Data files are kept of the reduced data points. Several of the standard statistical subroutines are used, e.g., Fourier analysis, spectral analysis, and frequency plots.

Name: Constantinou, C.

Project: METHODS

Department: Urology

Project Description: Study the ureteral electrophysiology action potentials as recorded from microelectrodes from the smooth muscle of ureters in anesthetized dogs. The ACME system will be used for analogue to digital conversion and digital to analogue output for an on-line XY plotter, digital filtering, Fourier analysis, and waveform averaging.

Name: DeGrazia, J.

Project: RADIOGAS

Department: Nuclear Medicine

Project Description: The project is a pilot study of the clinical or investigative potential of a relatively new tool for assessing in vivo human biochemistry. It is based upon the simple assumption that the measurement of $^{14}\text{CO}_2$ release into a patient's breath following the administration of appropriately labeled compounds (radiorespirometry) can be of considerable value in assessing the in vivo rate of oxidation of those compounds. Pilot studies of the feasibility of this approach indicate it is possible to study the specific alteration of metabolism associated with a disease state. Such studies have shown that this information is useful both as a means for diagnosis as well as for the evaluation of therapy. The relative simplicity of this technique makes the survey of large patient populations possible. This leads to the accumulation of a large volume of data. We have now begun a pilot project for the computer handling of this data and hope to thus speed our calculations as well as to further our understanding of the clinical significance of the kinetic aspect of this data. Although a relatively simple program is adequate for the moment, it is anticipated that with further development and modification of this technique the complexity of this data handling will increase considerably. It is hoped that a practical clinical demonstration of the coordinated use of the computer for the direct in vivo evaluation of human biochemistry will result from this work and that it will become a routine tool for the determination of the diagnosis or adequacy of the therapy of the patient.

Name: MacPherson, L.

Project: META

Department: Psychiatry

Project Description: In this laboratory, studies are in progress on the comparison of EEG responses evoked by visual stimuli incorporating a direction component in dyslexic and normal children. The subjects observe a series of arrows that point either upwards, left, or right. These stimuli last 100 msec and occur every few seconds in random sequence. In each experiment the subject is asked to respond to one of the groups of arrows by pushing a button; measurement of the stimulus-response interval is also under investigation.

Project META is now mainly concerned with the provision of programs and operational methods in this laboratory as required by the dyslexia experiments. Many of these methods and programs are also applicable to the AROGUESS project in the same laboratory.

Name: Ridges, J.

Project: VOLUMES

Department: Cardiology

Project Description: Analysis of cardiac catheterization data by the computer. One of the projects involves development of a program for analysis of atrial pressure contours. Simultaneous atrial pressure and electrocardiogram will be digitized from the cardiac catheterization lab and stored. This data will then be analyzed for wave pressure values and descent rates using the electrocardiogram as a marker for definition of search areas in the pattern recognition. The analysis will be documented using values obtained by routine hand measurements of the data.

A second project involves the analysis of ventricular function during angiographic procedures in the catheterization laboratory. Simultaneous pressure, syringe excursion, cine-shutter marker and electrocardiogram analog signals will be digitized from the laboratory during dye injection. The digitized volumes, obtained through the Ames Research Center at NASA will be merged with the pressure and ECG data. The merged data will then be analyzed for pressure volume relationships in order to evaluate ventricular function.

Name: Sanchez, J.

Project: RADIOREN

Department: Radiology

Project Description: Develop radioisotope techniques for the evaluation of differential kidney function. In this project we plan to use a four-probe detector system with analog tape recorder. With this equipment we will compare the excretion and possibly the metabolism of an intravenously administered isotope by each kidney with the appearance of the isotope in the bladder and with its removal rate from the blood. In phase one of this project a program will be written to calculate the data from the four probes and to record the data upon an X-Y plotter. We will next conduct double isotope studies initially using I-131 hippuran and I-131 albumin. From the data obtained in serial studies with the same patient using these two isotopes a correction for hippuran distribution and retention in renal blood pools will be made. If successful, this clinically applicable "corrected" radioisotope renogram will be made a standard test for renal function. It is expected that these studies will lead to an improved means for the clinical evaluation of renal function, and it is hoped that they will also serve as a model for other studies with new isotopes, particularly those with a very short half-life in the near future.

Name: Sherwood, S.

Project: BRAINWAV

Department: Neurology

Project Description: This project is designed to advance the understanding of electroencephalographic phenomena. It is proposed to obtain records, suitably amplified, on magnetic tape from patients and normal subjects through different electrode arrays and placements and analyze the ratio of amplitude to wave-length of different waveforms. This is intended to be a first step; further mathematical methods are hoped to shed more light on the nature of the EEG in later stages, without interfering with the brain itself.

Name: Sussman, H.

Project: LABSYS

Department: Pathology

Project Description: The purpose of this project is to establish a modern system of handling the data flow in the clinical laboratory. This will be the initial step in a larger program to set up an automated, systems oriented, clinical laboratory center at Stanford University Medical Center. There is an immediate need for improvement in this area at Stanford for the present facilities to be capable of meeting the expected, progressive demands for laboratory services. The specific aims of the project are to establish a means for ordering tests and reporting test results in semi-automated, machine-retrievable way. This will aid in (1) the ability to provide prompt and reliable reporting of data to physicians, (2) will reduce the billing costs which will be of benefit to the Hospital and to the patient, and (3) should increase the effectiveness of using this laboratory's findings in the care of patients with disease and in monitoring the progress of disease in response to therapy.

Category 11

Name: Alway, R.

Project: FIB

Department: Pediatrics

Project Description: We have data on various aspects of illness behavior in families collected from 60 families over the past year. Our main aim is to compare various types of information we have on family structure, attitudes, and previous illness histories with symptom data collected monthly from family members over 2-3 month spans of time. We are particularly interested in predicting from both the family as a whole and individual members of the family to general illness symptomatology, frequency, duration of symptoms, and family responses to symptoms. Our computational needs involve some correlational analysis where we have ratio scale data and some analysis of means where we are simply describing categories of persons or families against symptom frequency data.

Name: Butler, E.

Project: UROSTATS

Department: Urology

Project Description: The Residency Review Committee of the American Medical Association has imposed increasingly detailed statistical records of residency training programs as a requirement for continuing accreditation. The Division of Urology maintains residency training affiliations at five major hospitals. The statistical burden has become so great during the past year that we have undertaken the development of a computer based system of information collection, storage, and retrieval. If we can demonstrate a real usefulness of computers in the sphere of medical education, then the potential for development of such programs on a wider scale appears unlimited.

Name: Doering, C.

Project: INDEXV15

Department: Psychiatry

Project Description: A comprehensive author and subject index is to be prepared for a 700-page (approximately) volume, Methods of Enzymology, Sterols and Steroids, Volume XV, edited by Dr. R. B. Clayton and to be published by Academic Press. ACME is to be used to store all entries with page numbers. ACME can then produce a listing of all entries in alphabetical order.

Name: Enlander, D.

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.

Name: Enlander, D.

Project: snop

Department: Pathology

Project Description: Same project description as for project cases.

Name: Enlander, D.

Project: PIPIC

Department: Pathology

Project Description: Same project description as for project cases.

Name: Friedland, G.

Project: SLING_FI

Department: Radiology

Project Description: Determine the function of the gastric sling fibers. The gastric sling fibers are a muscle band lying internal to the other muscle layers, which hook around the notch between distal esophagus and gastric fundus and then traverse the stomach anteriorly and posteriorly parallel to the lesser curvature. Feline sling fibers have been marked by inserting tantalum wire strips into them through a needle. Simultaneous bi-plane radiographs have been exposed at 1 frame/second for 1 minute before, during and following deglutition. The purpose of this approach is to investigate the possibility of extracting quantitative information by measuring the marker's position on the films. The measurement of the relative position of the markers in each plane is added vectorially utilizing the computer. A spatial representation of these points is projected on the digital television screen, frame by frame, in the same sequence as the roentgenograms. Measurements are then abstracted from the digital television and stored into data files. This information is to be utilized to determine the applicability of this method to conduct meaningful experiments employing our present roentgenographic framing rate.

Name: Henry, P.

Project: SLEEP

Department: Psychiatry

Project Description: Develop routines for processing hand staged sleep and wakefulness EEG data printing out summary statistics and graphics. Also, develop and test programs for the automatic staging of sleep EEG data and develop pattern recognition subroutines to identify and count monophasic sharp waves recorded from the lateral geniculate during sleep.

Name: Hillman, R.

Project: THERAPY

Department: Psychiatry

Project Description: Study to construct computerized psychiatric "patient." Ultimately aim at a teaching and research device capable of appropriately responding to therapist's comments. Computer will respond to limited types of responses (modifying statements, interpretations, etc.) with random comments (resistance, denial, insight, etc.). Built into the system will be: 1) teaching comments, 2) statistical analysis of "routes" taken, 3) ability to retreat to a prior stage in the interview and take a different course, and 4) positive and negative correlation between the therapist's comment and the computer's response. Advantages of the program are: 1) reproducible data, 2) availability of specific diagnostic entity, and 3) learning to do interviews without traumatizing real patients.

Name: Korn, D.

Project: SNOP

Department: Pathology

Project Description: The endeavor is to devise a system whereby diagnoses can be filed in disc storage in coded form. The coding is automatically derived from an internal thesaurus file by matching key words. This will both conserve file space and enable synonymous diagnoses to be retrieved efficiently. The basic thesaurus and code are based on S.N.O.P. (Systemized Nomenclature of Pathology) because of its wide usage and comprehensive modern terminology.

Name: Lamb, E.

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 (≤ 1 assay per month) for calculations involved in service work--even these assays may be used in a research project.

Name: Lederberg, J.

Project: GENBWT

Department: Genetics

Project Description: Study of characteristics of unusually high birthweight relative to IQ, diseases, parent income, educational background, parity, and sex of child.