RESOURCE EQUIPMENT LIST

Period Covered 8/1/67 - 7/31/68

EQUIPMENT LOCATED IN MAIN RESOURCE AREA

Equipment					Cost		
Description / Identification	Manufacturer	Model No.	Date Installed	Date Accepted	Purchase Price	Annual Rental	Source of Funds
360/50 System	IBM						
CPU		2050-F				80,722.20	SRR (1)
Console Typewriter		1052-7				624.00	"
Control Unit		2821-1				10,732.80	"
Printer		1403-2				8,256.00	"
Card Reader Punch		2540-1				6,528.00	"
Magnetic Tape Model		2401-1				3,312.00	"
Magnetic Tape and Control		2403-1				9,715.20	"
Data Adapter Unit		2701-1				9,724.80	"
Transmission Control		2702-1				12,259.20	" (2)
16 Dist Packs		2316				3,072.00	
						144,946.20	" (1)
Bulk Core		2316-2				74,778.00	" (3)
Disk Drive and Control		2314				51,936.00	" (4)
Trans Control Unit		2701				5,337.60	SCC-CF
18 Communication Terminal		2741				17,884.80	SRR

(1) $115,956.96 cost to SRR; $28,989.24 cost to SCC CF all rentals above are also subject to 5% California use tax.
(2) $4,060.80 paid by Instrumentation Research Laboratory of Genetics Department.
(3) $35,349.60 cost to SRR; $39,428.40 cost to SCC-CF plus 5% use tax.
(4) $37,102.68 cost to SRR; $14,833.92 cost to SCC-CF.

RESOURCE EQUIPMENT LIST

Period Covered 8/1/67 - 7/31/68

EQUIPMENT LOCATED IN MAIN RESOURCE AREA

Description / Identification	Equipment: Manufacturer	Model No.	Date Installed	Date Accepted	Cost: Purchase Price	Annual Rental	Source of Funds
1800 System							
Process Controller	IBM	1801			76,694		Other Fed. Agency
Printer Keyboard	"	1816			2,438		" " "
Enclosure	"	1828			333		" " "
Analog Input Terminal	"	1851			2,908		" " "
Analog Output Terminal	"	1856			6,540		" " "
Data Adapter Unit	"	1826					
Card Read Punch	"	1442					
Card Punch	"	029					
5 Data Sets	Westinghouse Electric	103A2				2,322	SRR
Digital Display	ACME					(1)	"
Oscilloscope	Hewlett Packard				1,500		Macy Grant
Pulse Generator	E. H. Research Labs	139B				1,275	"
Data Transmission Device	IBM	270 X/Y	12/14/67	6/14/68(2)	72,800		50,600 SRR 22,200 Other Fed. Agency

(1) Fabricated and assembled by ACME staff.
(2) If it passes acceptance tests.

RESOURCE EQUIPMENT LIST

Period Covered 8/1/67 - 7/31/68

EQUIPMENT LOCATED IN MAIN RESOURCE AREA

Equipment						Cost		
Description/ Identification	Manufacturer	Type	Model No.	Date Installed	Date Accepted	Purchase Price	Annual Rental	Source of Funds

See communication terminals, IBM 2741, Note 5 in 1-C-1; included as a group as they are moved about from time to time.

Section I-D. Summary of Publication

The publication published during the report period is shown below. The publications originating wholly from members of the faculty in the medical school are not listed.

"An Advanced Computer for Medical Research," W. Sanders, et al, published in the proceedings of the Fall Joint Computer Conference of the American Federation of Information Processing Societies, 1967.

SUMMARY OF RESOURCE EXPENDITURES

	Total Resource Expenditures			SRR Support		
	Actual Previous Budget Period	Current Budget Period	Estimate Next Budget Period	Actual Previous Budget Period	Current Budget Period	Estimate Next Budget Period
	11 Mos.			11 Mos.		
1. Personnel:						
a. Salaries & Wages	$123,221	$185,969	$205,171	$ 87,527	$170,648	$200,271
b. Fringe Benefits	12,938	20,828	23,714	9,190	18,846	23,151
SUBTOTAL	136,159	206,797	228,885	96,717	189,494	223,422
2. Consultant Services	---	---	1,000	---	---	1,000
3. Equipment						
a. Main Resource - Rented	137,888	223,908	246,647	137,888	223,908	246,647
b. Main Resource - Purchased	177,299	1,605	8,500	63,538	1,605	8,500
c. Supporting Equipment	9,016	4,227	7,029	7,131	4,227	7,029
SUBTOTAL	324,203	229,740	262,176	208,557	229,740	262,176
4. Supplies	43,034	26,428	31,000	38,770	25,951	31,000
5. Travel	3,537	4,943	4,000	2,126	3,967	4,000
6. Alterations & Renovations	65,818	---	---	30,818	---	---
7. Publication Costs	1,591	3,305	4,000	1,550	3,305	4,000
8. Other:						
a. Computer time	532	10,344	10,000	507	10,000	10,000
b. Other	18,521	12,116	11,005	16,131	10,616	11,005
SUBTOTAL	19,053	22,460	21,005	16,638	20,616	21,005
9. SUBTOTAL - Direct Costs	593,395	493,673	552,066	395,176	473,073	546,603
10. Indirect Costs	49,101	96,666	108,413	49,101	94,615	107,320
11. TOTAL COSTS	$642,496	$590,339	$660,479	$444,277	$567,688	$653,923

SUMMARY OF RESOURCE FUNDING

	BUDGET PERIODS		
	Actual Previous Budget Period	Current Budget Period	Estimate Next Budget Period
	11 Mos.		
Source of Funds			
SRR Grant (Amount of Award plus unobligated balance from prior period)	$444,278	$567,688	$653,924
Service Charges (when applicable):			
Consulting/Programming			
Peripheral Equipment			
Computer Equipment			
Other Service Charges			
SUBTOTAL			
PHS Funds (identity source)			
Other Outside Support (identity source)			
Josiah Macy Jr. Foundation Grant	85,715	11,572	
NASA Grant	112,502		
Institution Funds			
TOTAL FUNDS AVAILABLE	$642,495	$579,260	$653,924

EXPENDITURE DETAILS

Direct Costs Only

		Current Budget Period				Estimate for Next Budget Period			
		TOTAL		SRR		TOTAL		SRR	
		% of Time or Effort	Amount	% of Salary From SRR Grant	Amount	% of Time or Effort	Amount	% of Salary From SRR Grant	Amount
1. PERSONNEL:									
Position	Name								
SCC Assoc. Dir.	Wiederhold, Gio	100	$ 16,850	100	$ 16,850	100	$ 17,600	100	$ 17,600
Systems Programmer	Brietbard, Gary	100	12,475	73	9,088	100	14,000	100	14,000
Systems Programmer	Cummins, David	100	13,313	67	9,113	100	13,800	100	13,800
Systems Programmer	Miller, Gerald	---	---	---	---	70	8,679	100	8,679
Systems Programmer	Patel, Arunkant (term 2-1-68)	100	5,883	100	5,883				
Systems Programmer	Sanders, William	100	13,692	100	13,692	100	14,300	100	14,300
Real-Time Programmer	Crouse, Linda	100	10,392	100	10,392	100	12,000	100	12,000
File Programmer	Frey, Regina (start SCC-CF May 15, 1968)	100	2,670	---	---	100	12,825	100	12,825
Programmer	Feinberg, David	hourly	4,884	100	4,884*	hourly	5,040	100	5,040
Programmer	Nelson, Virginia	hourly	1,484	100	1,484*	hourly	2,400	100	2,400
Engineer	Holtz, Klaus	100	12,600	100	12,600	100	14,025	100	14,025
User Education	Wiederhold, Voy	hourly	3,850	100	3,850*	30	4,200	100	4,200
Statistician	Moore, Mabel (term 1-12-68)	100	3,348	100	3,348				

EXPENDITURE DETAILS (continued)

Direct Costs Only

		Current Budget Period				Estimate for Next Budget Period			
		TOTAL		SRR		TOTAL		SRR	
Position	Name	% of Time or Effort	Amount	% of Salary From SRR Grant	Amount	% of Time or Effort	Amount	% of Salary From SRR Grant	Amount
1. PERSONNEL:									
Statistician	Schach, Elisabeth (started 9-18-67)	100	$ 6,550	100	$ 6,550	100	$ 11,100	100	$ 11,100
Operations Manager	Class, Charles	100	9,730	100	9,730	100	10,400	100	10,400
Computer Operators	(80% x 3)	300	23,349	80	18,679	300	24,500	80	19,600
Computer Operators		hourly	6,515	100	6,515*	hourly	6,071	100	6,071
Computer Technician	Curtis, Gayle (started 10-5-67)	100	4,145	100	4,145	100	6,040	100	6,040
Computer Technician	Osborne, DeWayne	100	6,050	100	6,050	100	6,850	100	6,850
Comp. Tech. Trainee	Hoffman, Stephen	hourly	1,132	100	1,132*	hourly	2,300	100	2,300
Operations Asst.	Bundy, Maurice	hourly	1,172	100	1,172*	hourly	1,200	100	1,200
Operations Asst.	Larned, Stephen	hourly	1,074	100	1,074*				
Student Res. Asst.	Sprague, M. L.					50/9 mos.	2,475	100	2,475
Student Res. Asst.	Lierre, Raymond					50/9 mos.	2,475	100	2,475
Secretary	Plasch, Gyneth	100	5,976	100	5,976	100	6,250	100	6,250
Secretarial Assistance		hourly	855	100	855*	15	941	100	941

EXPENDITURE DETAILS (continued)

Direct Costs Only

	Current Budget Period				Estimate for Next Budget Period			
	TOTAL		SRR		TOTAL		SRR	
1. PERSONNEL:	% of Time or Effort	Amount	% of Salary From SRR Grant	Amount	% of Time of Effort	Amount	% of Salary From SRR Grant	Amount
Position / Name								
Administrative Assistance by SCC		$ 4,816	100	$ 4,816		$ 5,700	100	$ 5,700
Miscellaneous hourly		13,164	97	12,770*	---	---	---	---
SUBTOTAL - Direct Salaries		185,969		170,648		205,171		200,271
Fringe Benefits		20,828		18,846		23,714		23,151
SUBTOTAL - Personnel		206,797		189,494		228,885		223,422

EXPENDITURE DETAILS (continued)

	Current Budget Period		Estimate for Next Budget Period	
	TOTAL	SRR	TOTAL	SRR
2. CONSULTANT SERVICES	---	---	1,000	1,000
3. PERMANENT EQUIPMENT				
Main Resource - Rented				
IBM 360/50 and 2741 terminals	$212,041	$212,041	$208,262	$208,262
IBM 029, 1442, 1826	11,262	11,262	11,118	11,118
IBM 1316 disk packs	605	605	---	---
IBM 2314 direct access storage device (2nd unit)	---	---	27,267	27,267
SUBTOTAL	223,908	223,908	246,647	246,647
Main Resource - Purchased	1,605	1,605	8,500	8,500
Supporting Equipment				
Data set rentals	1,347	1,347	5,229	5,229
Transfer from FR 00311-01	2,880	2,880	1,800	1,800
SUBTOTAL	4,227	4,227	7,029	7,029
SUBTOTAL EQUIPMENT	229,740	229,740	262,176	262,176
4. CONSUMABLE SUPPLIES				
(Grouped by major category)				
Office supplies	3,794	3,317*	4,000	4,000
Engineering Materials & Supplies	22,362	22,362*	27,000	27,000
Miscellaneous Equipment under $100	272	272		
SUBTOTAL CONSUMABLE SUPPLIES	26,428	25,951	31,000	31,000

EXPENDITURE DETAILS (continued)

	Current Budget Period		Estimate for Next Budget Period	
	TOTAL	SRR	TOTAL	SRR
5. TRAVEL	$ 4,943	$ 3,967*	$ 4,000	$ 4,000
6. ALTERATIONS AND RENOVATIONS	---	---	---	---
7. PUBLICATION COSTS	3,305	3,305*	4,000	4,000
8. COMPUTER TIME				
SCC-CF IBM 360/67	10,344	10,000	10,000	10,000
9. OTHER EXPENDITURES				
(Items not included in previous categories)				
Books and Publications	382	290*	350	350
Postage and Freight	51	51*	100	100
Equipment Maintenance	1,678	1,678	2,055	2,055
Subsistence	53	53	---	---
Telephone and Telegraph	5,793	4,384*	4,500	4,500
Physical Plant	720	720	500	500
Technical Services (weekend operators, secretarial assistance)	3,439	3,439*	3,500	3,500
SUBTOTAL OTHER EXPENDITURES	12,116	10,616	11,005	11,005
GRAND TOTAL - DIRECT COSTS	$493,673	$473,073	$552,066	$546,603

BUDGET JUSTIFICATION

There is no significant deviation in the budget for the current year or contemplated in the next year from the three year plan originally proposed for ACME. The resource had substantial funding from the Josiah Macy Jr. Foundation during the first year; but the funds remaining at the end of the 01 year were used during the current period; and we do not expect additional funding from this source during the next year. As the Macy funds were consumed, the NIH funding became a larger percentage of the total support of the resource.

To improve reliability of the system the IBM 2321, data cell drive, and IBM 2841, storage control unit, and two IBM 2311, disk drives were replaced with an IBM 2314, direct access storage device. Reference Dr. Lederberg's letter to Dr. Waxman of February 29, 1968. The 2321 had 400K Bytes of memory and each of the 2311s had 7K Bytes; and the replacement 2314 has only 212K Bytes. This change has resulted in substantially improved performance from the hardware configuration at the expense of data storage capability.

A second IBM 2314, Direct Access Storage Device, has been budgeted for addition to the configuration in February, 1969. It would be desirable to install this device as early as possible but delivery will be delayed to keep within the budget ceiling established for the third year.

Travel expenses have been somewhat higher than budgeted in the award for the 02 year and $4,000 is requested again for 03 year. It is frequently more economical to search out information and advice from institutions and individuals who have experienced problems than to duplicate efforts. In the field of computing the months that separate problem solutions and publication (if any) cannot be afforded.

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT:	INSTITUTION:
Breitbard, Gary	ACME	Stanford Computation Center Stanford Medical School

FIELD OF INVESTIGATION	PROJECT TITLE:
Computer Science	Testing in ACME

AMOUNT OF RESOURCE USAGE:

20,603

PROJECT DESCRIPTION

(Approximately 300 words)

My computer time has been used to bring the ACME software system from a desk-calculator level of operation to a full-scale time-sharing system with generalized file handling, real-time input/output capabilities, and a fairly large statistical library. Extensions to the compiler have included full PL/I character handling facilities, internal procedures, ON conditions for interrupt handling, and complete editing facilities for terminal input/output.

File handling capabilities have been implemented entirely within the past year; they include the ability to store and retrieve PROGRAM files by line number, store and retrieve sequential DATA files, and retrieve DATA files by record KEY.

Real-time input/output capabilities were added to the ACME system this year. Basic to these is an ACME-written IBM 1800 software system that allows the 1800 to act as an input/output multiplexor. The 360 software, which can be called from PL/ACME programs, was written to communicate and provide an interface with the 1800 software. This has permitted input (and limited output) of analog and digital data from research laboratories under control of a terminal-written PL/ACME program. Also, PL/ACME-written programs can call for input/output through the 2701 or 270X data control devices to communicate with auxilliary small computers located in the research laboratories or with an ACME-built vector display.

Most of the computer time for the central ACME project has been devoted to compiling, link-editing, and debugging of the software described above. Remaining time has been divided among:

(1) Aiding users in early stages of real-time data gathering when stand-alone use of the computer was indicated.
(2) Dumping data cell (or disk) files onto tape for back-up storage.
(3) Running an analysis program to find errors in the stored files, and the consequent repairing of files that contain errors.

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT:	INSTITUTION:
Class, Charles H.	ACME	Stanford Computation Center Stanford Medical School

FIELD OF INVESTIGATION:	PROJECT TITLE:
Operations	Equipment Inventory Control

AMOUNT OF RESOURCE USAGE:

13,088 page minutes

PROJECT DESCRIPTION

(Approximately 300 words)

I maintain two equipment inventory control reports using the ACME system, a few demonstration programs to show visitors, and a test program to check status of various system functions.

One equipment inventory file lists ACME's IBM 2741 terminals, by machine number, location, department, installation date, device features, and drilling account number.

A second report lists type of equipment interfaced into ACME, by user, department, cable numbers and distances.

Grant No. FR 00311-02

Section III-A

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT	INSTITUTION:
Crouse, Linda P.	ACME	Stanford Computation Center; Stanford Medical School

FIELD OF INVESTIGATION	PROJECT TITLE:
Systems Programmer	Cardiac Catherization Programs

AMOUNT OF RESOURCE USAGE:

59,652

PROJECT DESCRIPTION

(Approximately 300 words)

Several programs listed under my project were test programs developed for the Cardiac Catherization Lab by ACME and the Dept. of Cardiology personnel. These programs were subsequently transferred to the Department of Cardiology files. They include:

1. A ventricular pressure analysis program to analyze ventricular pressure curves transmitted either on-line or during playback of an FM tape recorder in the catherization lab. The program determines end-diastolic and peak-systolic pressures and the times at which they occur, and maximum slopes on the curve [1].

2. A peripheral pressure analysis program.

3. An analyzer program that analyzes ventricular, wedge, brachial-artery, and atrial pressures. It also calculates some gradients and valve areas.

4. Several EKG programs are being developed for use by the Dept. of Cardiology and Anesthesia. The main program digitally filters the data, picks out QRS complexes, and identifies the onset of the Q wave. Another program simply determines heart rate.

Several smaller programs were written to test various aspects of the 1800/360 system. PB, for example, tests the digital control box used by the catherization lab [2]. A program was written to store preliminary artery and EKG data in data files to smooth the data and to display the results on a 360-controlled TV. A TV program was written to display data transmitted from the catherization lab and other projects. This program displays the original ventricular pressure curve, and indicates the points at which the program picks out the end-diastolic pressure points. The accuracy with which these points are determineddetermine the accuracy of subsequent results. The TV program provides indispensable and quick feedback to the user about whether the visual program is working correctly. The TV program also allows the user to magnify a gradient of data to any power.

Grant No. FR00311-02

Section III-A

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT:	INSTITUTION:
Moore, Mabel	ACME	Stanford Computation Center; Stanford Medical School

FIELD OF INVESTIGATION	PROJECT TITLE:
Statistical Programming	Statistical Consulting

AMOUNT OF RESOURCE USAGE:

34,399

PROJECT DESCRIPTION
(Approximately 300 words)

ACME provides statistical consulting service and is building a library of statistical programs, so the system was used for:

a. Consulting and some data analysis.

b Writing and debugging of statistical programs for the library (multiple and polynominal regression analysis programs, plotting program, scheduling program for residents on call.)

Grant No. FR 09511-02

Section III- A

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT:	INSTITUTION:
Nelson, Virginia S.	ACME	Stanford Computation Center; Stanford Medical School

FIELD OF INVESTIGATION	PROJECT TITLE:
Programmer	Clinical Research Support

AMOUNT OF RESOURCE USAGE:

43,010

PROJECT DESCRIPTION

(Approximately 300 words)

Mostly used for program development for clinical research in Psychiatry for Dr. Kopell. Also used for various test programs.

Grant No. RR 00711-02

Section III- A

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT	INSTITUTION:
Sanders, Gary	ACME	Stanford Computation Center, Stanford Medical School.

FIELD OF INVESTIGATION:	PROJECT TITLE:
Consulting	User Consulting

AMOUNT OF RESOURCE USAGE:

13,702

PROJECT DESCRIPTION
(Approximately 300 words)

The purpose is to offer consultation and assistance to users of the ACME system. This aid has proved very worthwhile because most of the users are not computer-oriented. The program help allows the users to get information about any of the keywords in the PL/ACME language, while they are working at their terminals.

Other programs have been written to maintain and update the HELP program.

Grant No. FR 00311-02

Section III- A

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT	INSTITUTION:
Sanders, William J.	ACME	Stanford Computation Center Stanford Medical School

FIELD OF INVESTIGATION:	PROJECT TITLE:
Systems Programming	Hardware & Software Development

AMOUNT OF RESOURCE USAGE:

42,137

PROJECT DESCRIPTION
(Approximately 300 words)

The work was done as a member of the ACME staff. Hence, all of the resource usage was devoted to furthering ACME's goals. Specifically, major amounts of computer usage were devoted to:

1. Hardware testing for a TV display, a small computer interface, a 270X, and a Sanders display interface.

2. Develop system software for the hardware.

3. Developing application programs dealing with the above, along with programs for other applications such as interactive text processing.

Grant No. FR 00311-02

Section III- A

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT	INSTITUTION:
Schach, Elizabeth	ACME	Stanford Computation Center; Stanford Medical School

FIELD OF INVESTIGATION	PROJECT TITLE:
Statistical Programming	Statistical Consulting

AMOUNT OF RESOURCE USAGE:

55,768

PROJECT DESCRIPTION

(Approximately 300 words)

The ACME system was used to support the ACME-provided statistical consulting service and for writing statistical programs for our library. More specifically ACME was used for:

a. Consulting (data analysis, demonstrations of program usage and data the handling, debugging and testing of user's statistical programs.)

b. Enlarging ACME's statistical library (Linear regression program, programs for frequently-applied statistical tests, periodogram analysis.)

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT:	INSTITUTION:
Wiederhold, Gio	ACME	Stanford Medical School Stanford Computation Center

FIELD OF INVESTIGATION:	PROJECT TITLE:
Computer Science	Testing in ACME

AMOUNT OF RESOURCE USAGE:

26,777

PROJECT DESCRIPTION

(Approximately 300 words)

Work undertaken under this project title falls into two classifications. The major portion of the usage was the testing of new features, developments of the ACME system, and the writing and execution of special test programs to track down programming difficulties reported by users. Much of this usage took place outside of regularly scheduled hours to avoid interference with user programs.

A number of special debugging and monitoring statements have been made available in the ACME system to allow testing, monitoring, and error checking while other users are receiving regular or slightly delayed service. The effect of this type of computer use has not been felt directly, but has enabled ACME to fix, modify, and adjust the system within a few days to a week--rather than the few weeks to hardly ever experienced in other systems.

The other usage under this project is the collection of usage statistics, both for use as a tool in system development and for monthly summaries used for accounting of non-medical use and reporting to NIH.

Grant No. FR 00511-02

Section III-B

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT:	INSTITUTION:
Robert Bassett	Genetics	Stanford Computation Center Stanford Medical School

FIELD OF INVESTIGATION:	PROJECT TITLE:
Large file handling and processing	Census

AMOUNT OF RESOURCE USAGE:

30196

PROJECT DESCRIPTION

(Approximately 300 words)

This project was established to prove the practicability of using a direct access system to process investigations on a huge demographic file such as a dicennial census subset, and at the same time, protect the file against any violation of the confidentiality of its content. However, the primitive state of file handling routines in the system at the time, prevented any solutions or conclusions. An estimate of four-fifths of the time utilized in this effort was directed to re-entry of data or programs or restart of programs due to system outage or other failure.

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT:	INSTITUTION:
E. S. Beatrice	Pathology, Division of Histochemistry	Stanford Computation Center Stanford Medical Center

FIELD OF INVESTIGATION:	PROJECT TITLE:
Cytochemistry	Biochemical Analysis of Elements by Laser Microprobe Emission Spectroscopy

AMOUNT OF RESOURCE USAGE:

13875

PROJECT DESCRIPTION

(Approximately 300 words)

A focused laser beam is utilized in the vaporization of cellular targets. Light from the incandescent vapor is separated into characteristic wavelengths by a spectrograph and the spectral line intensities are measured photographically or directly photoelectrically. A correlation is made between recorded photoelectric voltage and quantity of element in target. Computer is used for statistical analyses of data for each analysis and to provide a graphical display of results.

Each analysis consists of recording laser output as well as the integrated photoelectric voltage. Diameter of crater formed by beam is also noted. Correlations are made of mean standard deviation and coefficient of variation for all three recorded values.

It is hoped that in the near future a direct system will store the data without necessity for considerable time spent on the 2741 terminal. Data for a series of 400 analyses will average 1200 numbers and take 1 1/2 hours computer time. Maximum output of the laser system over 6 hours use would yield 1600 analyses to generate 5000 answers.

Recent work included analysis of 10 nanoliter samples of human serum for calcium and magnesium, and determination of iron in single red blood cells.

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT:	INSTITUTION:
Walter F. Bodmer	Genetics	Stanford Computation Center Stanford Medical School

FIELD OF INVESTIGATION:	PROJECT TITLE:
Human White Blood Cell Genetics	POPGEN

AMOUNT OF RESOURCE USAGE:

31,552

PROJECT DESCRIPTION

(Approximately 300 words)

At the present time our major use of ACME is for the storage and analysis of data relating to white blood cell antigens in humans. We are storing data on up to several hundred people, the basic information being reactions to a variety of sera also up to one or two hundred in number. This data is then processed to analyze the relationships between the actions of different sera on various sub-groups of our population, the identification of people with various combinations of reactions to the sera required for absorption studies and the investigation of the distribution of serum reactions within families in order to elucidate the genetic control of the identified antigens. Other separate projects involve the use of ACME for following through the consequences of simple population genetic models and for the analysis of data from density gradient centrifugations.

INDIVIDUAL USER PROJECT DESCRIPTION

INVESTIGATOR:	DEPARTMENT:	INSTITUTION:
Neil Brast	Psychiatry	Stanford Computation Center Stanford Medical School

FIELD OF INVESTIGATION:	PROJECT TITLE:
Biochemical and Physiological Psychology	Rodents

AMOUNT OF RESOURCE USAGE:

66614

PROJECT DESCRIPTION

(Approximately 300 words)

The programs under this project title service the laboratory of E. P. Noble, Ph.D., M.D., Assistant Professor. The projects in this laboratory include:

✓ 1. Studies of the steroid stress response to ethanol in inbred strains of mice (Ryoko Kakihana, Ph.D.).

2. A study on the effects of menstrual cycle phase and an anovulatory agent (in women) on biochemical (free fatty acids, plasma cortisol, and urinary catecholamines), biopsychological and psychological variables (Sam Silbergeld, Ph.D., M.D.).

3. Development of accurate assay methods for corticosteroids (John Butte, Ph.D.).

4. A study on the effects of prenatal glucocorticoid injection on offspring behavior and steroid stress response (N. Brast, B.S.).

The programs under this project title fall into three categories:

1. Programs to calculate descriptive and inferential statistics for experimental data;
2. Programs to store and analyze data from fluorometric assays;
3. Programs to store and search bibliographic data.